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LG

LG

Universal System

Air Conditioner

SERVICE MANUAL

CAUTION

- BEFORE SERVICING THE UNIT, READ THE SAFETY PRECAUTIONS IN THIS MANUAL.
- ONLY FOR AUTHORIZED SERVICE PERSONNEL.

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Safety Precautions

To prevent injury to the user or other people and property damage, the following instructions must be followed.

- Incorrect operation due to ignoring instruction will cause harm or damage. The seriousness is classified by the following indications.

⚠ WARNING This symbol indicates the possibility of death or serious injury.

⚠ CAUTION This symbol indicates the possibility of injury or damage to properties only.

- Meanings of symbols used in this manual are as shown below.

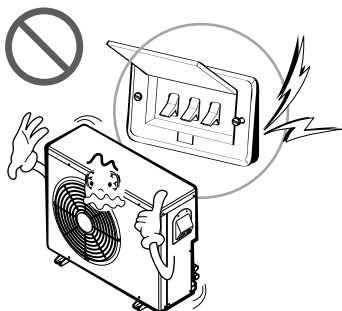
	Be sure not to do.
	Be sure to follow the instruction.

⚠ WARNING

■ Installation

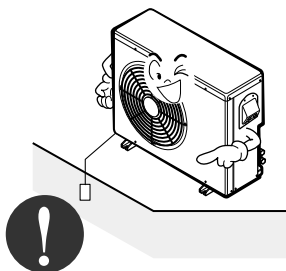
Do not use a defective or under-rated circuit breaker. Use this appliance on a dedicated circuit.

- There is risk of fire or electric shock.



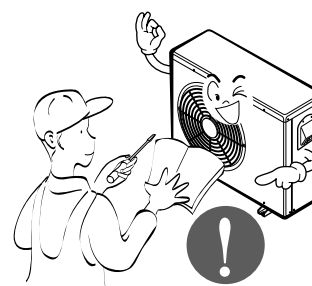
Always ground the product.

- There is risk of fire or electric shock.



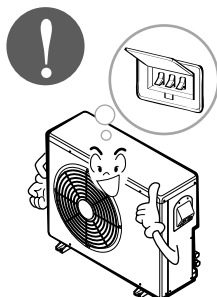
Install the panel and the cover of control box securely.

- There is risk of fire or electric shock.



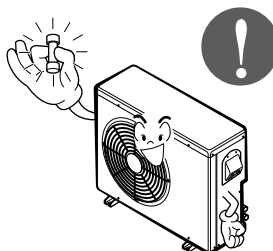
Always install a dedicated circuit and breaker.

- Improper wiring or installation may cause fire or electric shock



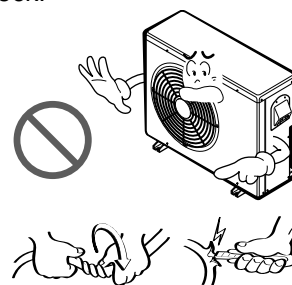
Use the correctly rated breaker or fuse.

- There is risk of fire or electric shock.



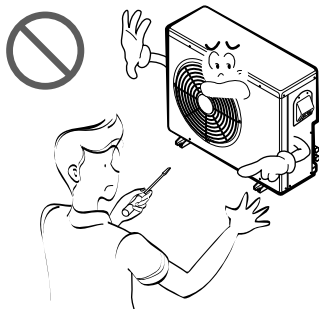
Do not modify or extend the power cable.

- There is risk of fire or electric shock.



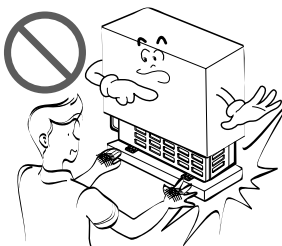
Do not install, remove, or re-install the unit by yourself (customer).

- There is risk of fire, electric shock, explosion, or injury.



Be cautious when unpacking and installing the product.

- Sharp edges could cause injury. Be especially careful of the case edges and the fins on the condenser and evaporator.



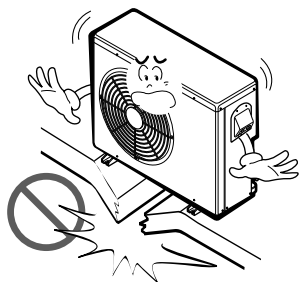
For installation, always contact the dealer or an Authorized Service Center.

- There is risk of fire, electric shock, explosion, or injury.



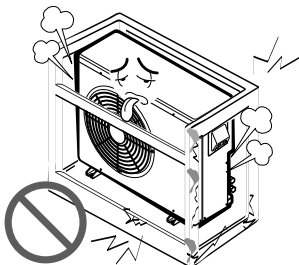
Do not install the product on a defective installation stand.

- It may cause injury, accident, or damage to the product.



Be sure the installation area does not deteriorate with age.

- If the base collapses, the air conditioner could fall with it, causing property damage, product failure, and personal injury.



Do not let the air conditioner run for a long time when the humidity is very high and a door or a window is left open.

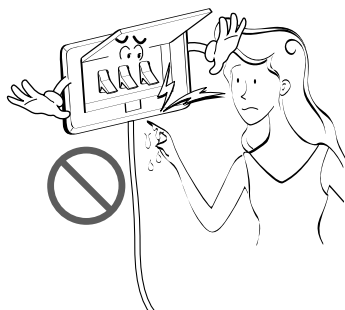
- Moisture may condense and wet or damage furniture.



■ Operational

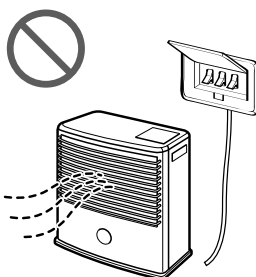
Do not touch(operate) the product with wet hands.

- There is risk of fire or electrical shock.



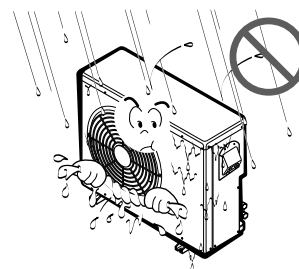
Do not place a heater or other appliances near the power cable.

- There is risk of fire or electric shock.



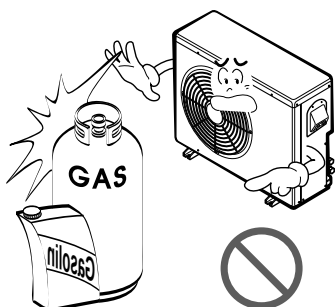
Do not let electric parts of the product get wet.

- There is risk of fire, failure of the product, or electric shock.



Do not store or use flammable gas or combustibles near the product.

- There is risk of fire or failure of product.



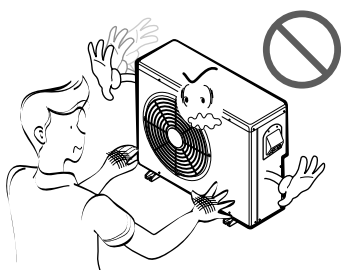
If strange sounds, or small or smoke comes from product. Turn the breaker off or disconnect the power supply cable.

- There is risk of electric shock or fire.



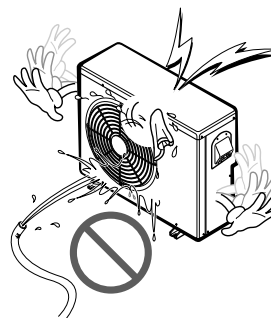
Do not open the inlet grill of the product during operation. (Do not touch the electrostatic filter, if the unit is so equipped.)

- There is risk of physical injury, electric shock, or product failure.



Be cautious that water could not enter the product.

- There is risk of fire, electric shock, or product damage.

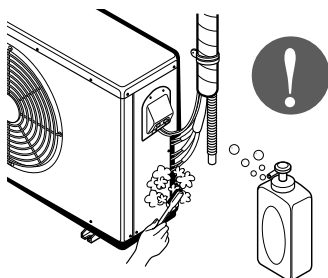


⚠ CAUTION

■ Installation

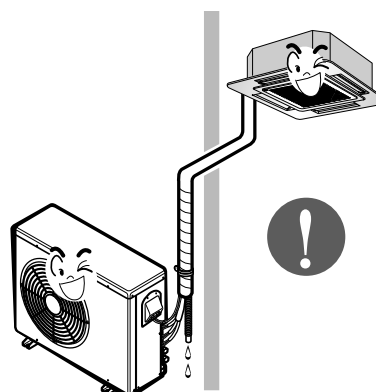
Always check for gas (refrigerant) leakage after installation or repair of product.

- Low refrigerant levels may cause failure of product.



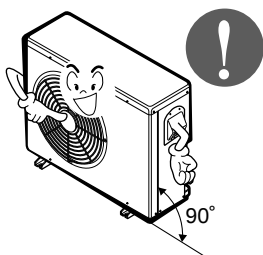
Install the drain hose to ensure that water is drained away properly.

- A bad connection may cause water leakage.



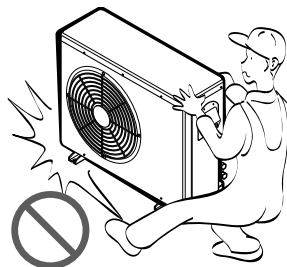
Keep level even when installing the product.

- To avoid vibration or water leakage.



Use two or more people to lift and transport the product.

- Avoid personal injury.



Operational

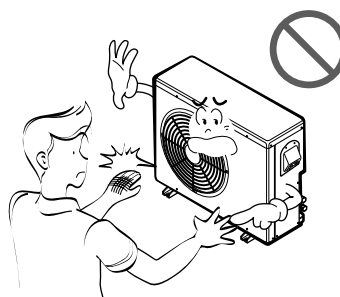
Use a soft cloth to clean. Do not use harsh detergents, solvents, etc.

- There is risk of fire, electric shock, or damage to the plastic parts of the product.



Do not touch the metal parts of the product when removing the air filter. They are very sharp!

- There is risk of personal injury.



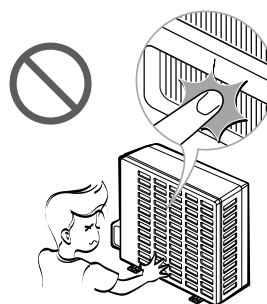
Do not step on or put anything on the product. (outdoor units)

- There is risk of personal injury and failure of product.



Do not insert hands or other objects through the air inlet or outlet while the product is operated.

- There are sharp and moving parts that could cause personal injury.



I. Indoor Units

Introduction8

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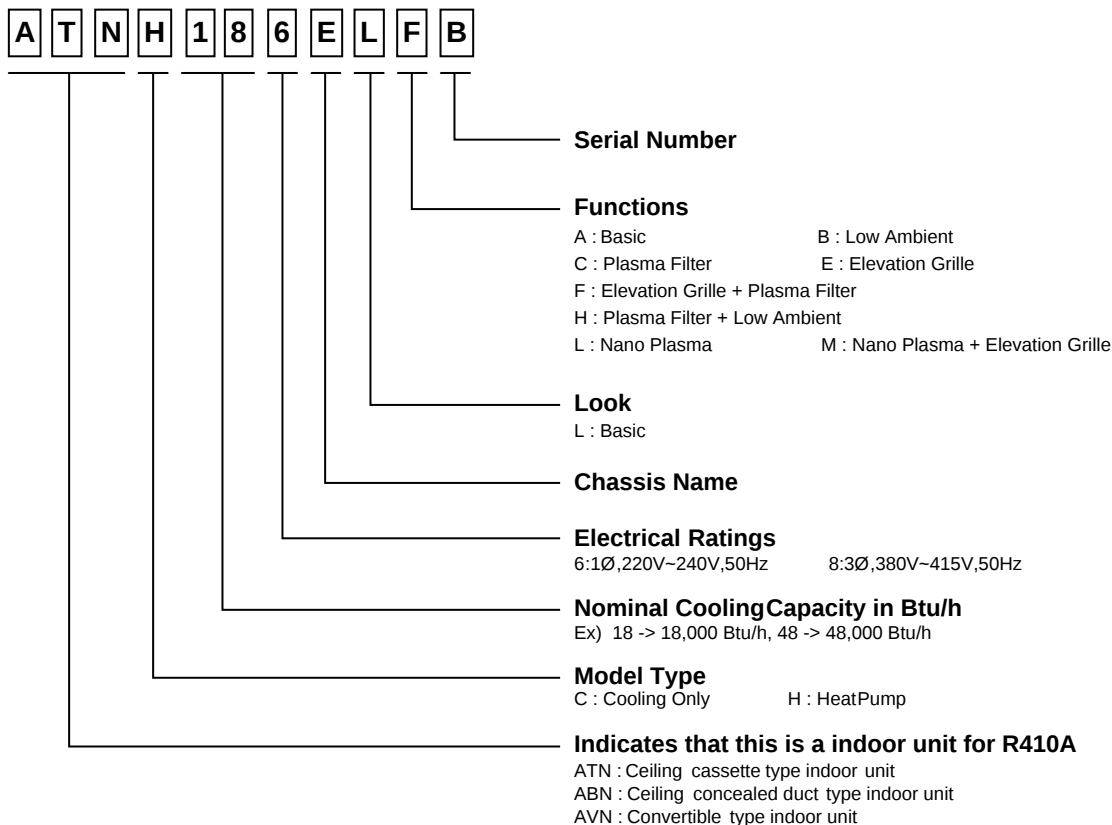
Introduction

• Models List

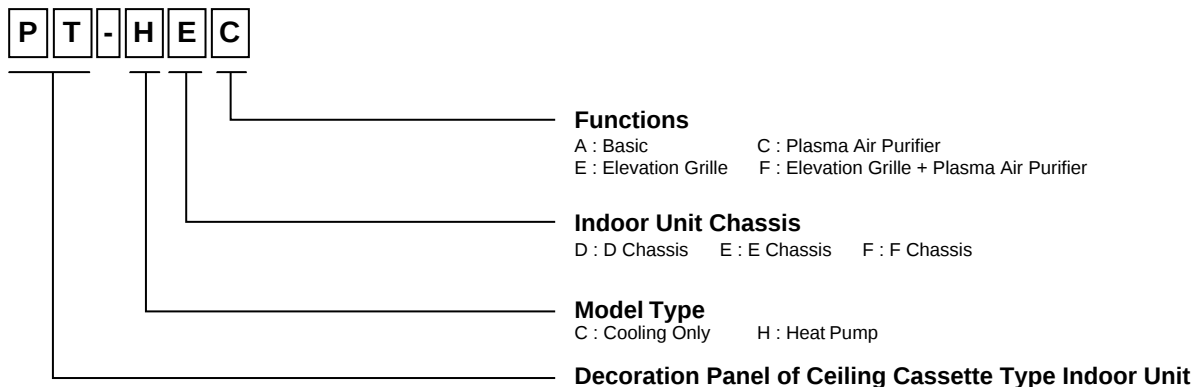
Indoor unit			Model name							Power Supply
			Nominal capacity [Btu/h(kW)]							
Type	Refrigerant	Chassis name	12,000 (3.5)	18,000 (5.3)	24,000 (7.0)	30,000 (8.8)	36,000 (10.6)	48,000 (14.1)	60,000 (17.6)	
Ceiling Cassette 4-Way	R410A	TE	ATNH126ELFB [UT12 NEB]	ATNH186ELFB [UT18 NEB]	-	-	-	-	-	1Ø, 220-240V, 50Hz
		TF	-	-	ATNH246FLFB [UT24 NFB]	ATNH306FLFB [UT30 NFB]	-	-	-	
		TD	-	-	-	-	ATNH366DLFB [UT36 NDB]	ATNH486DLFB [UT48 NDB]	ATNH606DLFB [UT60 NDB]	
Ceiling & Floor	R410A	VE	AVNH126ELAB [UV12 NEB]	-	-	-	-	-	-	
		VB	-	AVNH186BLAB [UV18 NBB]	AVNH246BLAB [UV24 NBB]	AVNH306BLAB [UV30 NBB]	-	-	-	
Ceiling Concealed Duct	R410A	BH	-	ABNH186HLAB [UB18 NHB]	ABNH246HLAB [UB24 NHB]	-	-	-	-	
		BG	-	-	-	ABNH306GLAB [UB30 NGB]	ABNH366GLAB [UB36 NGB]	-	-	
		BR	-	-	-	-	-	ABNH486RLAB [UB48 NRB]	ABNH606RLAB [UB60 NRB]	

• Model Number Nomenclature

Indoor unit



Decoration panel(For Ceiling Cassette Models)



Ceiling Cassette 4-way



Ceiling Cassette 4-way (R410A·Indoor Units) ATNH-EL/FL/DL

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1. Features & Benefits



■ Easy Installation

- Compact design & easy installation
- High ceiling corresponding operation
- High head drain pump(700mm)

■ Comfort & Reliability

- Low noise with 3-dimensional turbo fan
- 2-Thermistor control(Main body & Remote control)
- Zero standby power consumption
- Jet cool
- Swirl swing
- Space control

Compact Design and Easy Installation

Only about 269mm height in the ceiling is sufficient for installation space.

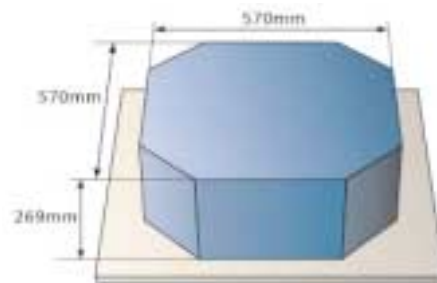
A smaller size than a Textile(600X600) is very convenient for installation.

■ Convenience

- Auto elevation grille(Accessory)
- Tele control(Optional)
- LCD wired remote control
- Group control
- Central control(Accessory)
- Weekly program

■ Cleanness

- Plasma air purifying system
- Hygienic and easy to clean filter

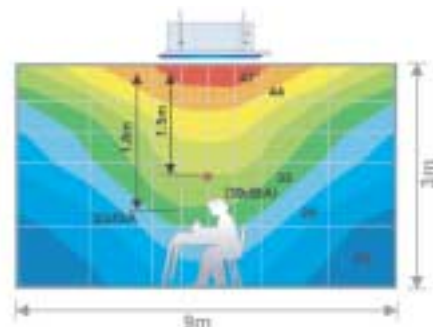


(18k Btu/h model)

Low Noise with 3-dimensional turbo fan

The most advanced low-noise design.

The adoption of turbo-fan and round type heat exchanger provides the quietest operation.



Hygienic and Easy-to-Clean Filter

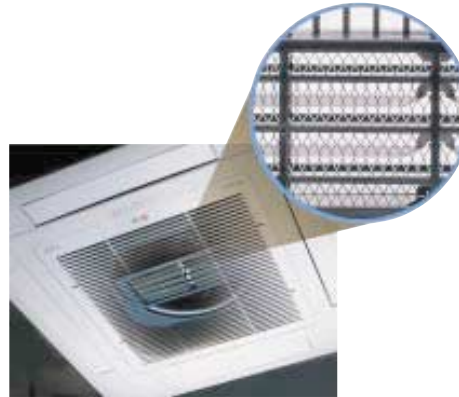
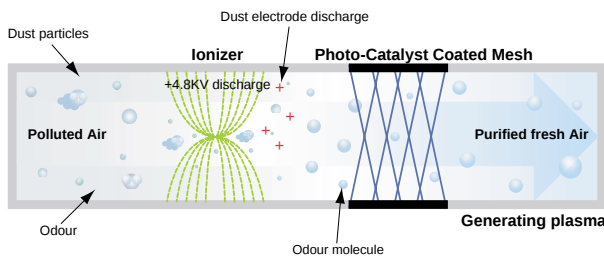
Washable and anti bacteria filter is adopted.

It is easy to open grille and replace clean filter.



Plasma Air Purifying System

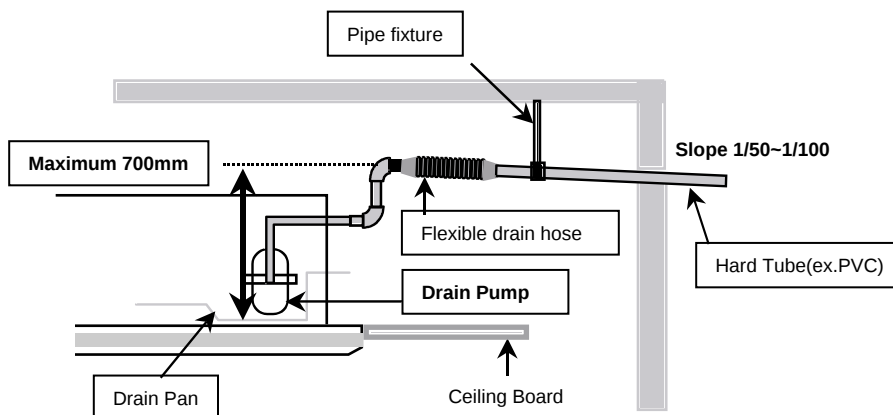
The PLASMA Air Purifying Function not only removes microscopic contaminants and dust, but also removes house mites, pollen, and pet fur helps to prevent allergic diseases like asthma.



High Head Drain Pump(700mm)

Built-in Drain Pump drains out water automatically.

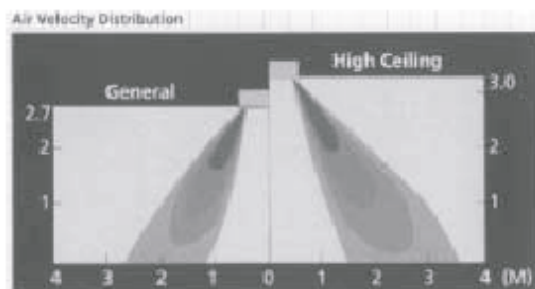
A standard drain-head height of up to 700 mm is possible, creating the ideal solution for perfect water drainage.



High-Ceiling Corresponding Operation

According to the height of the installation, it provides variability of indoor fan motor rpm. If the height of installation is low then you can adjust low rpm of indoor fan motor. On the other hand if the height of the installation is high you can adjust high rpm of indoor fan motor. Selection of speed can be done by slide switch at the back of the LCD wired remote.

Switch selection	Ceiling Height
Low Ceiling	Less than 2.7m
Standard	2.7~3.3m
High Ceiling	Over than 3.3m



Tele Control (Accessory)

- It provides you ease of control. Air conditioner can be switched on/off by the telephone. It saves time & energy.

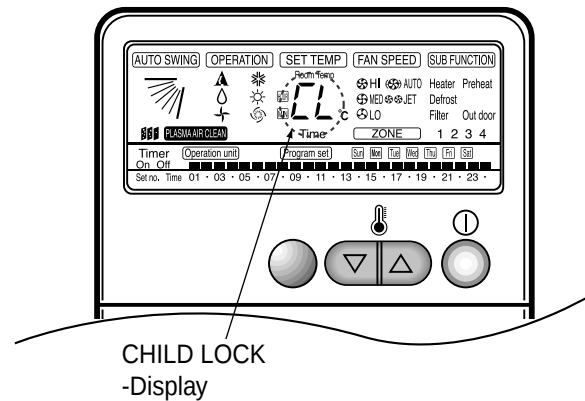


In Advance by Telephone
Before Coming Home...

In case of Going out
Without Turning off the
Air Conditioner...

Child Lock Function

-It prevents the children or others from tampering with the control buttons. Unit can be controlled by the wireless remote controller. This can be easily set by pressing timer key & Min key simultaneously. After child lock is set, pressing any key will display CL on the LCD for 3 seconds and all the keys will be ineffective.



Auto Elevation Grille(Accessory)

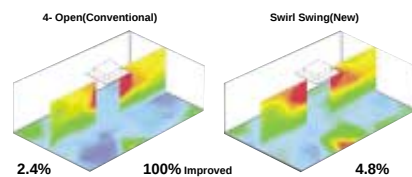
-Auto Elevation Grille is automatically down to height of max. 3.1 m. So it enables to install the Indoor unit at high ceiling space. And Auto Elevation Grille makes you cleaning the filter easily.



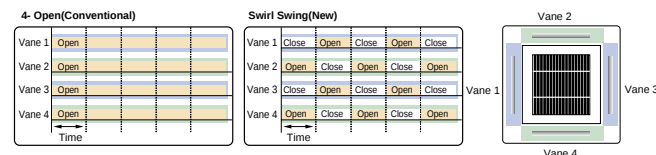
Swirl Swing

- It is the function for comfort cooling/heating operation.
- The diagonal two louvers are opened the more larger than the other louvers. After one minute, it is opposite.

Comparison of Floor Temp. Distribution(20°C)



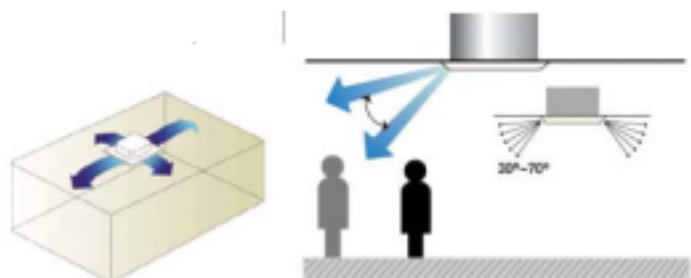
Comparison of Air Flow Types



Space Control

Vaness angle can be controlled by pair, considering its installation environment.

- For example direct drafts can be annoying, leading to discomfort and reduced productivity vane control helps to eliminate this problem.
- Easily controlled by wired remote control.
- Air Flow can be controlled easily regarding any space environment.



Weekly Program

- On/Off schedule of operation for a period of ONE week.
- No need to turn the unit On/OFF manually during working days. On/Off time is scheduled in micom of the wired remote control.

Operation Time Table (Example)

Setting	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Temp.	25°C	25°C	25°C	25°C	25°C	OFF	
On	09:00	08:00	09:00	08:00	09:00		
Off	12:00	17:00	12:00	12:00	12:00		



Auto Restart Operation

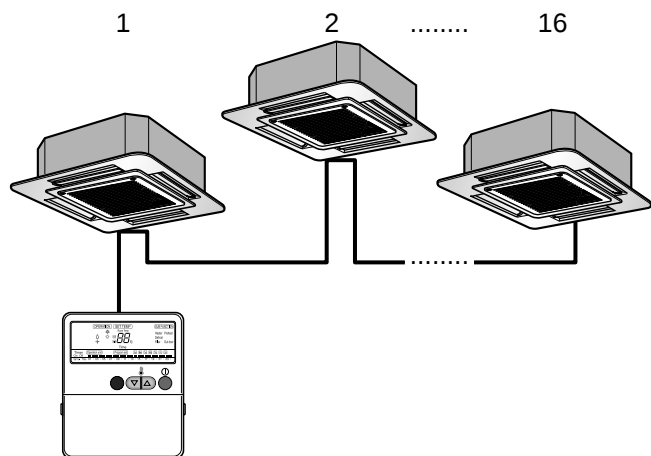
- Whenever there is electricity failure to the unit, and after resumption of the power, unit will start in the same mode prior to the power failure. Memorized condition are on / off condition, operating mode (cooling/heating), set temperature and fan speed. The unit will memorize the above conditions and start with same memorized condition.

Two Thermistor Control

- There may be a significant difference between the temperature taken at the installed product and indoor temperature. Two thermistor control provides option to control temperature by referring any of the two temperatures. With the help of the slide switch at the back of the LCD wired remote controller, selection of the desired thermistor for controlling the unit can be done. One thermistor is in the Indoor unit & the other one is in the LCD wired remote.

Group Control

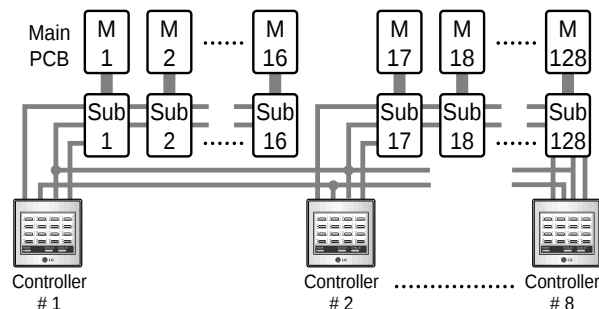
- It enables to control as much as 16 units with the help of one wired remote controller. All the units will follow same setting of temperature & other sub functions.



Central Control(Accessory)

- It enables to control 16 x 8 = 128 units with the help of 8 controllers. All units can be put on and off from one Central Room. For Setting Temperature, Fan Speed and other sub functions, access the respective LCD wired remote controller of each unit.

✳ Sub PI485(with wire assembly) should be purchased as optional.



2. List of Functions

Category	Function	ATNH-EL	ATNH-FL	ATNH-DL
Air flow	Air supply outlet	4	4	4
	Airflow direction control (left & right)	-	-	-
	Airflow direction control (up & down)	Auto	Auto	Auto
	Auto swing (left & right)	X	X	X
	Auto swing (up & down)	O	O	O
	Airflow steps(Fan / Cool / Heat)	3/4/3	3/4/3	3/4/3
	CHAOS swing	X	X	X
	CHAOS wind (Auto wind)	-	-	-
	Jet cool (Power wind)	O	O	O
	Swirl wind	O	O	O
Air purifying	Deodorizing filter	-	-	-
	Plasma air purifier	O	O	O
	Prefilter(Washable / Anti-fungus)	O	O	O
Installation	Drain pump	O	O	O
	E.S.P. control	-	-	-
	Electric heater (Operation)	-	-	-
	High ceiling operation	O	O	O
Reliability	Hot start	O	O	O
	Self diagnosis	O	O	O
	Soft dry operation	O	O	O
Convenience	Auto changeover	X	O	X
	Auto cleaning	X	X	X
	Auto operation(Artificial intelligence)	O	X	O
	Auto restart operation	O	O	O
	Child lock	O	O	O
	Forced operation	O	O	O
	Group control	O	O	O
	Sleep mode	X	X	X
	Timer (On/Off)	O	O	O
	Timer (weekly)	O	O	O
	Two thermistor control	O	O	O
Individual control	Standard wired remote controller	O	O	O
	Deluxe wired remote controller	X	X	X
	Simple wired remote controller	X	X	X
	Wired remote controller(for hotel use)	X	X	X
	Wireless remote controller(simple)	X	X	X
	Wireless LCD remote controller	O	O	O
CAC network function	General central control(Non LGAP)	X	X	X
	Dry contact	PQDSB	PQDSB	PQDSB
	Simple central control(LGAP)	O	O	O
	PDI(Power Distribution Indicator)	PQNUD1S00	PQNUD1S00	PQNUD1S00
	PI485	PMNFP14A0	PMNFP14A0	PMNFP14A0
Special function kit	CTIE	X	X	X
	Zone control	X	X	X
Others	Thermistor	AQTTA	AQTTA	AQTTA

Note: Group control & CAC network function is not available which is connected with synchro.

Sleep mode is available only in case of using wireless remote controller.

- O: Applied, • X: Not applied, • - : No relation,
- Option: Model name & price are different according to options, and assembled in factory with main unit.
- Accessory: Installed at field, ordered and purchased separately by the corresponding model name, supplied with separate package.

3. Specifications

Indoor unit type			Ceiling Cassette - 4way			
Model			ATNH126ELFB [UT12 NEB]	ATNH186ELFB [UT18 NEB]	ATNH246FLFB [UT24 NFB]	ATNH306FLFB [UT30 NEB]
Power Supply		Ø/V/Hz	1 / 220 ~240 / 50	1 / 220 ~240 / 50	1 / 220 ~240 / 50	1 / 220 ~240 / 50
Cooling Capacity	kW		3.52	5.28	7.03	8.21
	Btu/h		12,000	18,000	24,000	28,000
Heating Capacity	kW		4.04	5.95	8.09	9.44
	Btu/h		13,800	20,300	27,600	32,200
Current	Nominal running current	A	0.35	0.43	0.53	0.67
Fan	Motor Type		Induction	Induction	Induction	Induction
	Fan Type		Turbo Fan	Turbo Fan	Turbo Fan	Turbo Fan
	Motor Output x Number of Unit		18.4*1	22.4*1	40.3*1	48.6*1
	Air Flow Rate (H/M/L)	cmm	9.5 / 8 / 7	13 / 12 / 11	15 / 14 / 13	19 / 17 / 15
		cfm	336 / 283 / 247	459 / 422 / 388	530 / 494 / 459	671 / 600 / 530
	Capacitor	µF/Vac	2.5/440	2.5/440	4/440	4/440
	Drive		Direct Drive	Direct Drive	Direct Drive	Direct Drive
Coil	Row x Column x FPI	mm	2R x 11C x 19	2R x 11C x 19	2R x 11C x 19	2R x 12C x 21
Dimensions (WxHxD)	Body	mm(inch)	570*269*570(22.4*10.5*22.4)	570*269*570(22.4*10.5*22.4)	744*292*744(29.3*11.5*29.3)	744*292*744(29.3*11.5*29.4)
	Decorative Panel	mm	670*30*670(26.4*1.2*26.4)	670*30*670(26.4*1.2*26.4)	850*30*850(33.5*1.2*33.5)	850*30*850(33.5*1.2*33.5)
Weight	Body	kg(lbs)	19(41.9)	19(41.9)	24(52.9)	24(52.9)
	Decorative Panel	kg(lbs)	3(6.6)	3(6.6)	3(6.6)	3(6.6)
Air Filter			Long life filter	Long life filter	Long life filter	Long life filter
Sound Level (H/M/L)		dB(A)+3	38 / 35 / 32	41 / 39 / 37	43 / 41 / 39	45 / 42 / 39
Piping	Liquid	mm(inch)	6.35 (1/4)	6.35 (1/4)	6.35 (1/4)	6.35 (1/4)
Connections	Gas	mm(inch)	9.52 (3/8)	12.7 (1/2)	12.7(1/2)	15.88 (5/8)
	Drain(OD/ID)	mm	32 / 25	32 / 25	32 / 25	32 / 25
Dehumidification Rate		l/h	1.2	2.4	3	3.3
Safety devices			Fuse, Thermal protector for fan motor	Fuse, Thermal protector for fan motor	Fuse, Thermal protector for fan motor	Fuse, Thermal protector for fan motor
Temperature Sensor			Thermistor	Thermistor	Thermistor	Thermistor
Refrigerant			R-410A	R-410A	R-410A	R-410A
Refrigerant Control			Capillary	LEV	LEV	LEV
Connectable outdoor unit			Single A	Single A	Single A	Single A
Power and transmission interunit cable		No.x mm ²	4*0.75	4*0.75	4*0.75	4*0.75

Note :

1. Capacities are based on the following conditions:

Cooling: - Indoor Temperature 27°C(80.6°F) DB /19°C(66.2°F) WB

- Outdoor Temperature 35°C(95°F) DB /24°C(75.2°F) WB

Heating: - Indoor Temperature 20°C(68°F) DB / 15°C(59°F) WB

- Outdoor Temperature 7°C(44.6°F) DB / 6°C(42.8°F) WB

Piping Length - Interconnecting Piping Length 7.5m

- Level Difference of Zero.

2. Cooling/heating capacity of indoor unit can be lower when it is connected to MPS variable outdoor.

3. Wiring cable size must comply with the applicable local and national code.

Conversion Formula

kW = Btu/h × 0.0002931

kcal/h = Btu/h × 0.252

CFM = CMM × 35.3

Indoor unit type			Ceiling Cassette - 4way		
Model			ATNH366DLFC [UT36 NDC]	ATNH486DLFB [UT48 NDB]	ATNH606DLFB [UT60 NDB]
Power Supply	Ø/V/Hz		1 / 220 ~240 / 50	1 / 220 ~240 / 50	1 / 220 ~240 / 50
Cooling Capacity	kW		10.6	14.1	16.4
	Btu/h		36,000	48,000	56,000
Heating Capacity	kW		12.1	15.5	18.1
	Btu/h		41,400	52,800	61,600
Current	Nominal running current	A	0.76	1.5	1.8
Fan	Motor Type		Induction	Induction	Induction
	Fan Type		Turbo Fan	Turbo Fan	Turbo Fan
	Motor Output x Number of Unit		52.5*1	58.5*1	107*1
	Air Flow Rate (H/M/L)	cmm	25 / 23 / 21	32 / 30 / 28	34 / 32 / 30
		cfm	883 / 812 / 742	1059 / 988 / 918	1200 / 1130 / 1059
	Capacitor	µF/Vac	2.5/440	6/400	6/400
	Drive		Direct Drive	Direct Drive	Direct Drive
Coil	Row x Column x FPI	mm	2R x 12C x 21	2R x 12C x 21	2R x 12C x 21
Dimensions (WxHxD)	Body	mm(inch)	840*288*840(33.1*11.3*33.1)	840*288*840(33.1*11.3*33.1)	840*288*840(33.1*11.3*33.1)
	Decorative Panel	mm	950*30*950(37.4*1.2*37.4)	950*30*950(37.4*1.2*37.4)	950*30*950(37.4*1.2*37.4)
Weight	Body	kg(lbs)	32(70.4)	32(70.4)	32(70.4)
	Decorative Panel	kg(lbs)	5(11)	5(11)	5(11)
Air Filter			Long life filter	Long life filter	Long life filter
Sound Level (H/M/L)		dB(A)+3	40 / 38 / 36	43 / 41 / 39	50 / 47 / 43
Piping	Liquid	mm(inch)	6.35 (1/4)	9.52 (3/8)	9.52 (3/8)
Connections	Gas	mm(inch)	15.88(5/8)	19.05(3/4)	19.05(3/4)
	Drain(OD/ID)	mm	32 / 25	32 / 25	32 / 25
Dehumidification Rate		l/h	4.0	5.5	6.5
Safety devices			Fuse, Thermal protector for fan motor	Fuse, Thermal protector for fan motor	Fuse, Thermal protector for fan motor
Temperature Sensor			Thermistor	Thermistor	Thermistor
Refrigerant			R-410A	R-410A	R-410A
Refrigerant Control			LEV	LEV	LEV
Connectable outdoor unit			Single A	Single A	Single A
Power and transmission interunit cable		No.x mm ²	4*0.75	4*0.75	4*0.75

Note :

1. Capacities are based on the following conditions:

Cooling: - Indoor Temperature 27°C(80.6°F) DB /19°C(66.2°F) WB
 - Outdoor Temperature 35°C(95°F) DB /24°C(75.2°F) WB

Heating: - Indoor Temperature 20°C(68°F) DB / 15°C(59°F) WB
 - Outdoor Temperature 7°C(44.6°F) DB / 6°C(42.8°F) WB

Piping Length - Interconnecting Piping Length 7.5m
 - Level Difference of Zero.

2. Cooling/heating capacity of indoor unit can be lower when it is connected to MPS variable outdoor.

3. Wiring cable size must comply with the applicable local and national code.

Conversion Formula

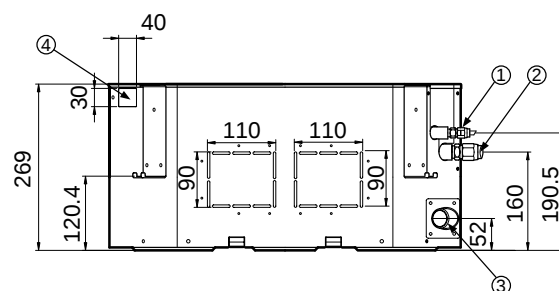
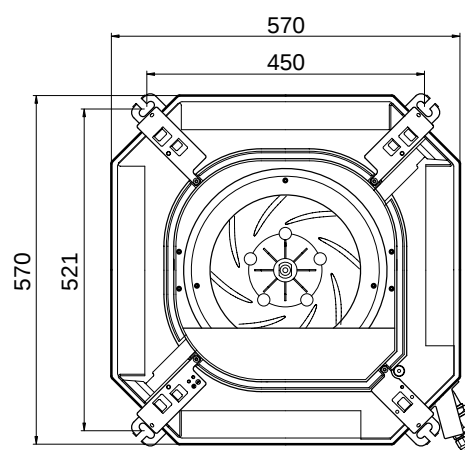
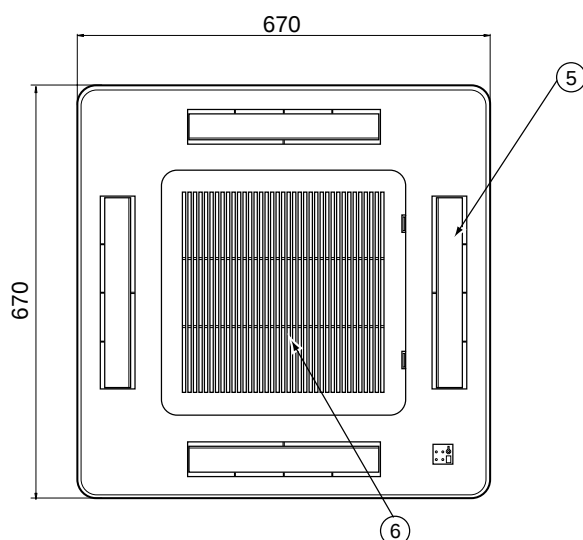
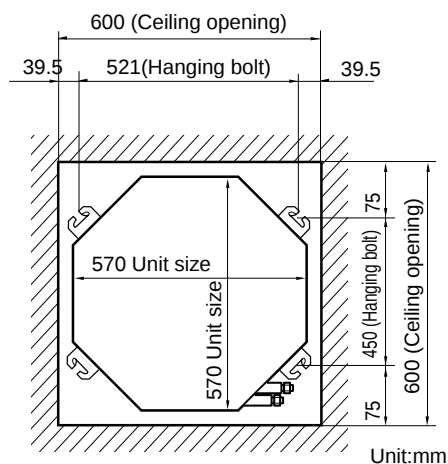
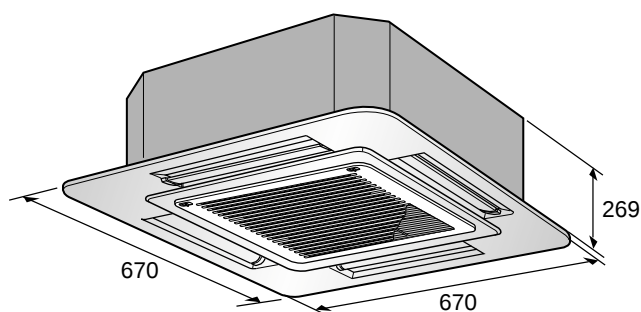
kW = Btu/h × 0.0002931

kcal/h = Btu/h × 0.252

CFM = CMM × 35.3

4. Dimensional Drawings

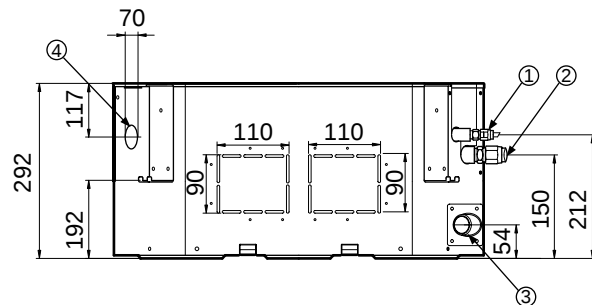
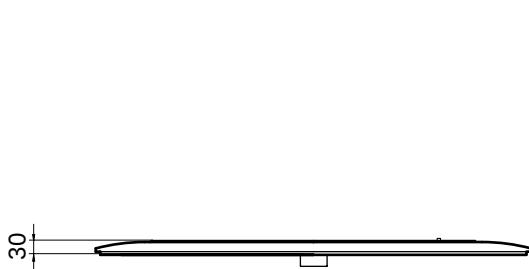
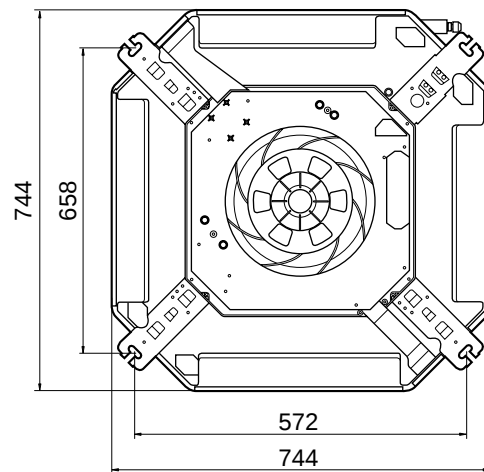
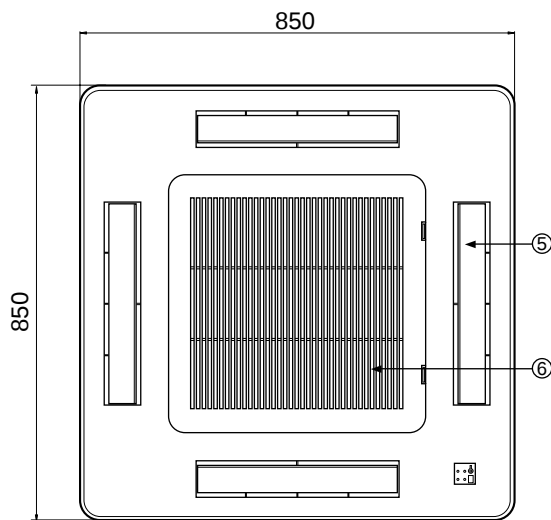
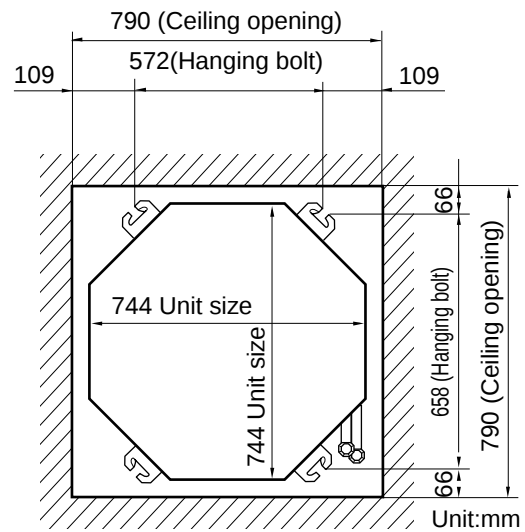
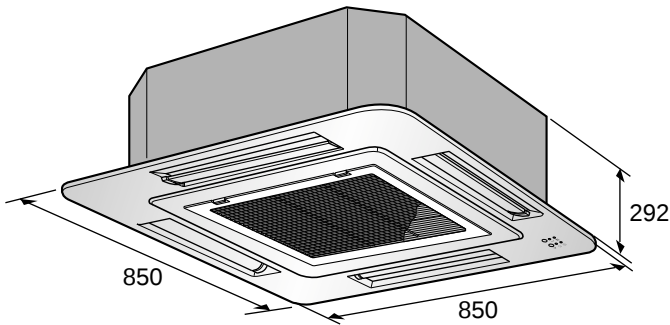
ATNH-EL(Decoration Panel : PT-HEA, PT-HEC)



(unit : mm)

Number	Name	Description
1	Liquid pipe connection	ø6.35 flare
2	Gas pipe connection	12k: ø9.52, 18k: ø12.7 flare
3	Drain pipe connection	
4	Power supply connection	
5	Air discharge grille	
6	Air suction grille	

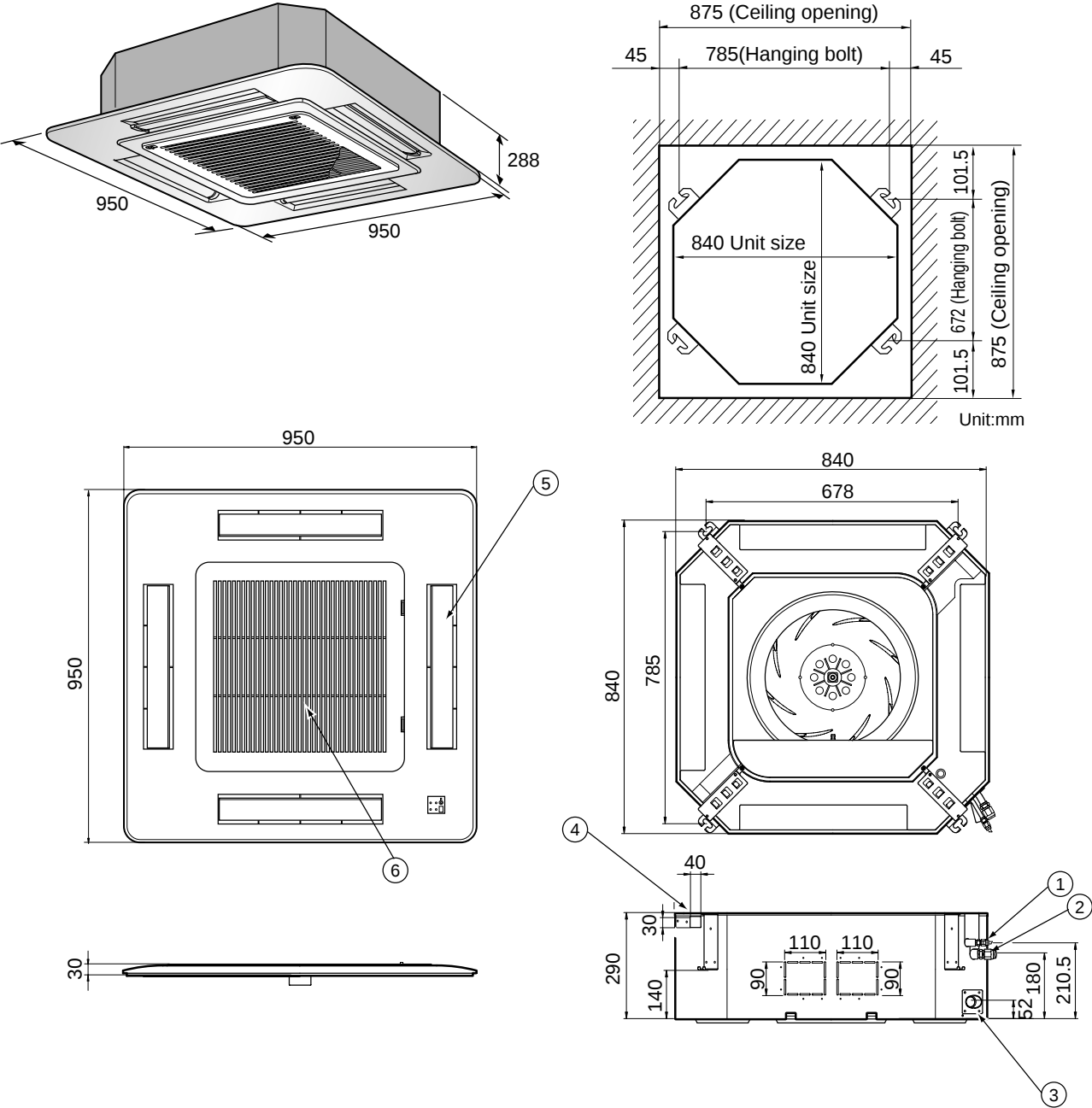
ATNH-FL(Decoration Panel : PT-HFA, PT-HFC)



(unit : mm)

Number	Name	Description
1	Liquid pipe connection	ø6.35 flare
2	Gas pipe connection	24K: ø12.7, 30K: ø15.88 flare
3	Drain pipe connection	
4	Power supply connection	
5	Air discharge grille	
6	Air suction grille	

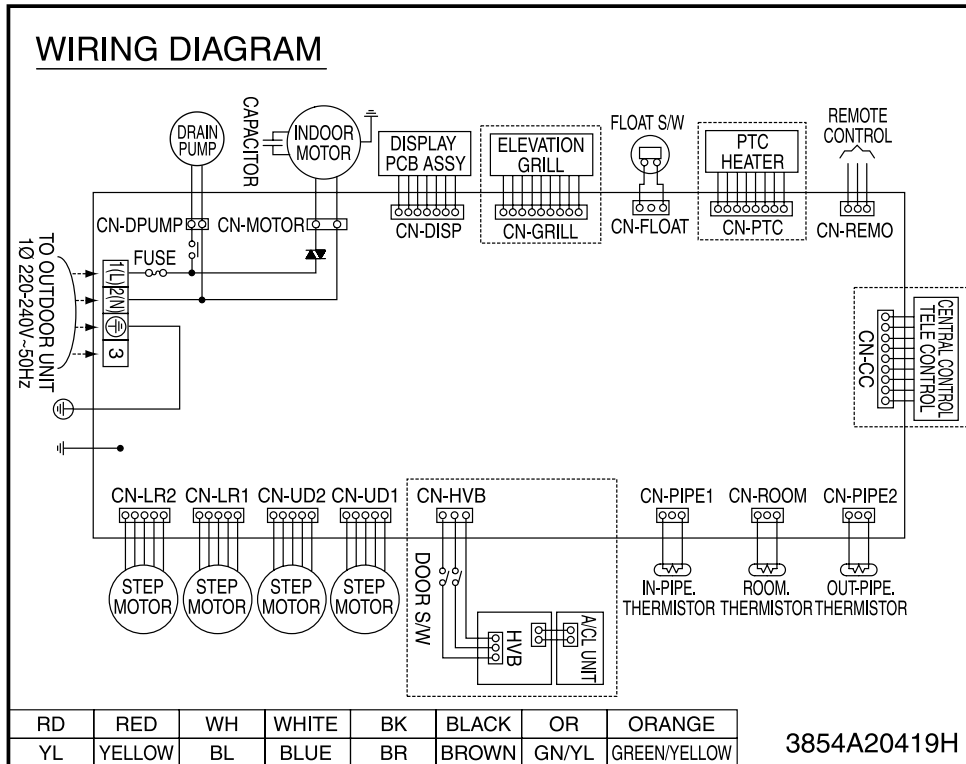
ATNH-DL(Decoration Panel : PT-HDA, PT-HDC)



(unit : mm)

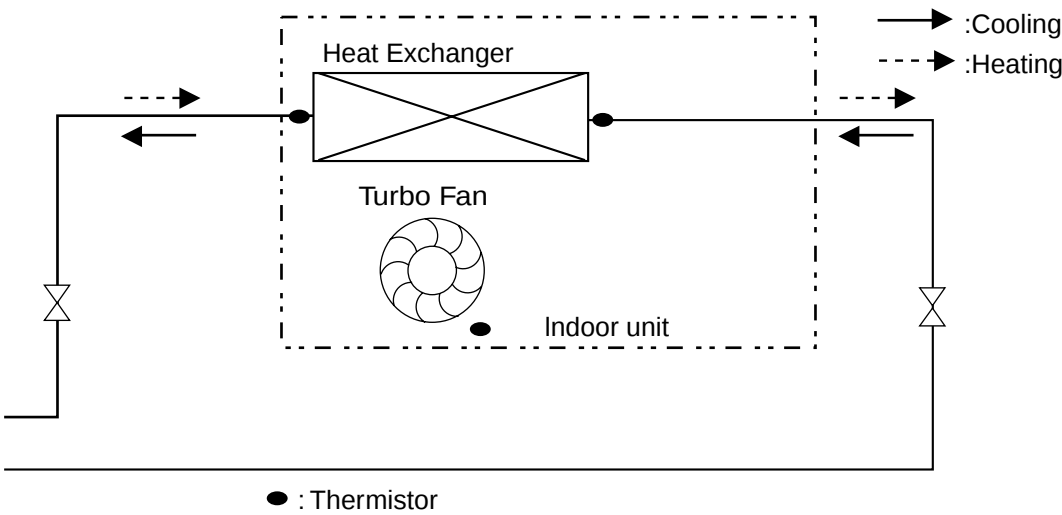
Number	Name	Description
1	Liquid pipe connection	36k:ø6.35, 48/60k: ø9.52 flare
2	Gas pipe connection	36k:ø15.88, 48/60k: ø19.05flare
3	Drain pipe connection	
4	Power supply connection	
5	Air discharge grille	
6	Air suction grille	

5. Wiring Diagrams



CONNECTOR NUMBER	LOCATION
CN-POWER	AC POWER SUPPLY
CN-MOTOR	BLDC FAN MOTOR OUTPUT
CN-D/PUMP	DRAIN PUMP OUTPUT
CN-DISP	DISPLAY
CN-FLOAT	FLOAT SWITCH INPUT
CN-PTC	PTC HEATER INUT
CN-REMO	REMOTE CONTROL
CN-GRILL	GRILL CONTROL
CN-CC	CENTRAL CONTROL
CN-PIPE2	DISCHARGE PIPE SENSOR
CN-ROOM	ROOM SENSOR
CN-PIPE1	PIPE SENSOR
CN-HVB	AIR CLEANER
CN-UD1	STEP MOTOR
CN-UD2	STEP MOTOR
CN-LR1	STEP MOTOR
CN-LR2	STEP MOTOR

6. Piping Diagrams



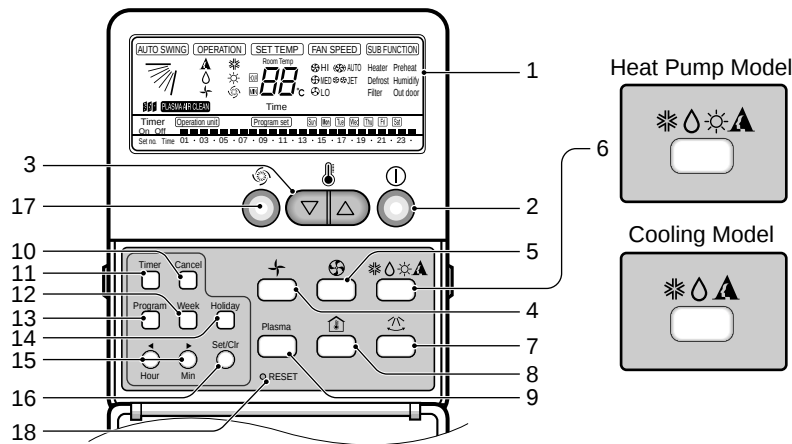
Refrigerant pipe connection port diameter

[unit: mm(inch)]

Model	Gas	Liquid
ATNH126ELFB [UT12 NEB]	9.52(3/8)	6.35(1/4)
ATNH186ELFB [UT18 NEB]	12.7(1/2)	
ATNH246FLFB [UT24 NFB]		
ATNH306FLFB [UT30 NFB]	15.88(5/8)	
ATNH366DLFB [UT36 NDB]		
ATNH486DLFB [UT48 NDB]	19.05(3/4)	9.52(3/8)
ATNH606DLFB [UT60 NDB]		

7. Operating Instructions

■ Name and Function of Remote Controller



1. Operation display

Displays the operation conditions.

2. On/Off Button

Operation starts when this button is pressed, and stops when the button is pressed again.

3. Set Temperature Button

Used to set the temperature when the desired temperature is obtained.

4. FAN Operation Button

Used to circulate room air without cooling or heating.

5. Fan Speed (Jet Cool Button: 4 way)

Used to set the desired fan speed or select Jet cool mode.

6. Operation Mode Selection Button

Used to select the operation mode.

- Auto Operation Mode
- Cooling Operation Mode
- Soft Dry Operation Mode
- Heating Operation Mode(except cooling model)

7. Auto Swing Button

Used to swing up and down.

8. Room Temperature Checking Button

Used to check the room temperature.

9. Plasma Air Clean Button (optional)

10. Timer Cancel Button

Used to cancel the timer.

11. Timer Set Button

Used to set the timer when the desired time is obtained.

12. Week Button

Used to set a day of the week.

13. Program Button

Used to set the weekly timer.

14. Holiday Button

Used to set a holiday of the week.

15. Time Set Button

Used to set the time of the day and change the time in the weekly timer Function.

16. Set and Clear Button

Used to set and clear the weekly timer.

17. Swirl Button (4 way)

Used to select swirl mode.

Jet Cool Button (1 way)

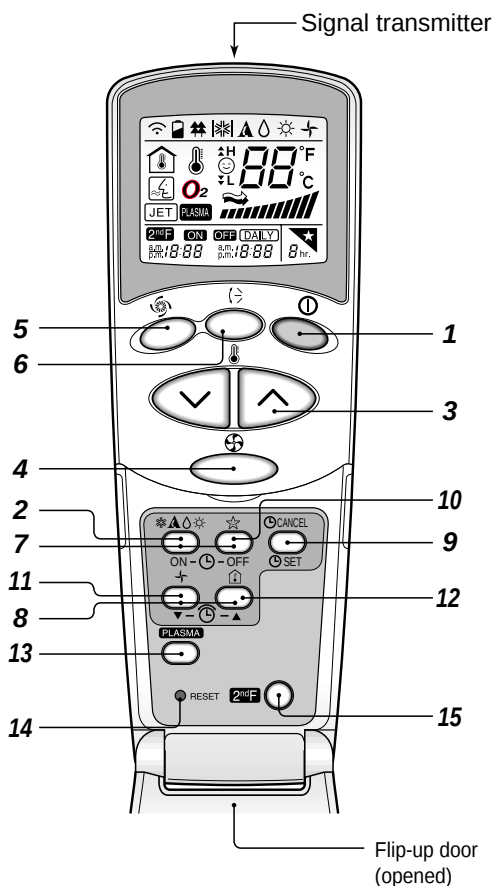
18. Reset Button

Used to set the current time and clear the setting time.

※ Display temperature can be different from actual room temperature if the remote controller is installed at the place where sun-rays are falling directly or the place nearby heat source.

■ Wireless Remote Controller (optional)

This air-conditioner is equipped with wired remote controller basically. But if you want to be available with wireless remote controller, you pay for it.



1. START/STOP BUTTON

Operation starts when this button is pressed and stops when the button is pressed again.

2. OPERATION MODE SELECTION BUTTON

Used to select the operation mode.

3. ROOM TEMPERATURE SETTING BUTTONS

Used to select the room temperature.

4. INDOOR FAN SPEED SELECTOR

Used to select fan speed in four steps low, medium, high and CHAOS.

5. JET COOL

Used to start or stop the speed cooling/heating. (Speed cooling/heating operates super high fan speed.)

6. CHAOS SWING BUTTON

Used to stop or start louver movement and set the desired up/down airflow direction.

7. ON/OFF TIMER BUTTONS

Used to set the time of starting and stopping operation.

8. TIME SETTING BUTTONS

Used to adjust the time.

9. TIMER SET/CANCEL BUTTON

Used to set the timer when the desired time is obtained and to cancel the Timer operation.

10. SLEEP MODE AUTO BUTTON

Used to set Sleep Mode Auto operation.

11. AIR CIRCULATION BUTTON

Used to circulate the room air without cooling or heating.

12. ROOM TEMPERATURE CHECKING BUTTON

Used to check the room temperature.

13. PLASMA(OPTIONAL)

Used to start or stop the plasma-purification function.

14. RESET BUTTON

Initialize remote controller.

15. 2nd F Button

Used prior to using modes printed in blue at the bottom of buttons.

✱ The wireless remote controller do not operate the swirl mode.

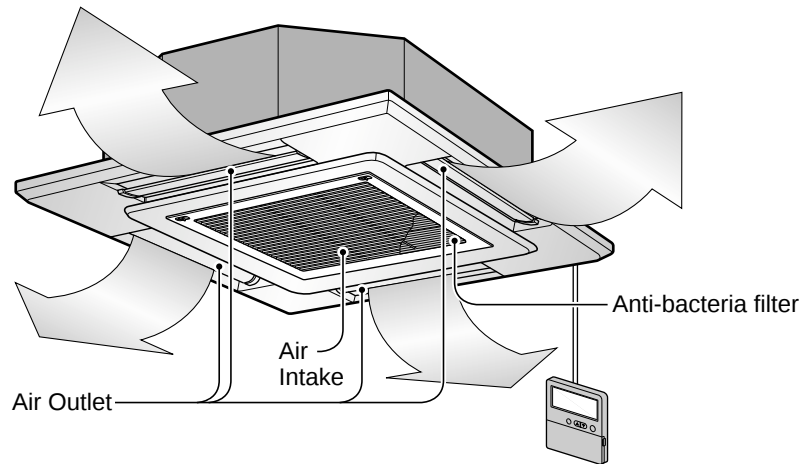


CAUTION: of handling the Remote Controller

- Aim at the signal receiver on the wired remote controller so as to operate.
- The remote control signal can be received at a distance of up to about 7m.
- Be sure that there are no obstructions between the remote controller and the signal receptor.
- Do not drop or throw the remote controller.
- Do not place the remote controller in a location exposed to direct sunlight, or near the heating unit, or any other heat source.
- Block a strong light over the signal receptor with a curtain or etc. so as to prevent the abnormal operation. (ex: electronic quick start, ELBA, inverter type fluorescent lamp)

8. Installation

- Please read this instruction sheet completely before installing the product.
- When the power cord is damaged, replacement work shall be performed by authorized personnel only.
- Installation work must be performed in accordance with the national wiring standards by authorized personnel only.



Required Parts

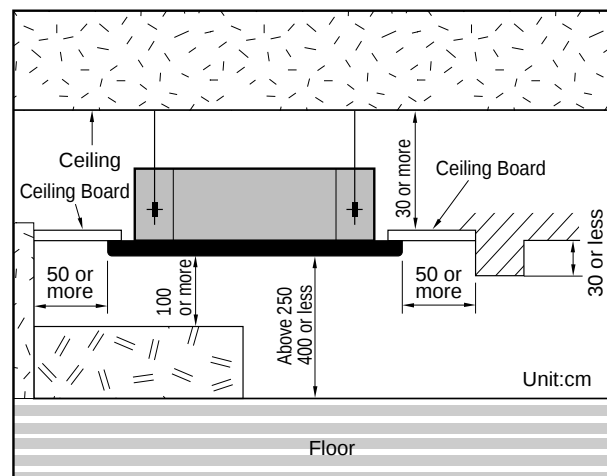
- Connecting cable
- Pipes: Gas side
Liquid side
- Hanging Bolt
(W 3/8 or M10 length 650mm)
- Insulated drain hose
- Additional Drain hose
(Inner Diameter32mm)

Required Tools

- Level
- Screw driver
- Electric drill
- Hole core drill ($\varnothing 70\text{mm}$)
- Flaring Tools set
- Torque Wrenches
- Hexagonal Wrench (4mm, 5mm)
- Gas-leak detector
- Owner's Manual
- Thermometer

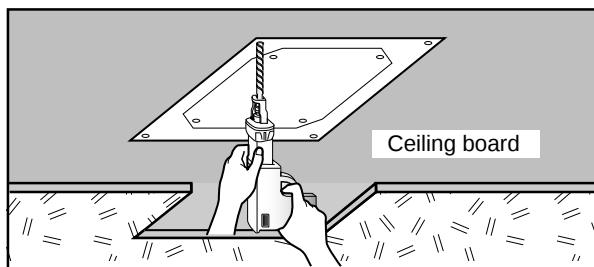
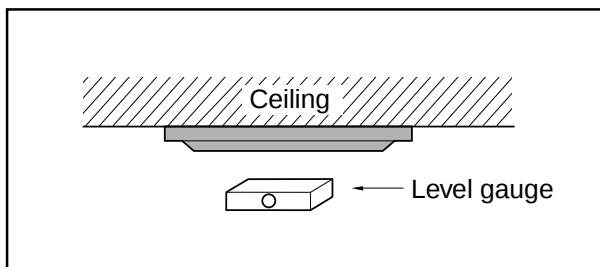
8.1 Selection of the best location

- There should not be any heat source or steam near the unit.
- There should not be any obstacles to the air circulation.
- There should be provision of easy condensate drain.
- Taking into accounting the noise prevention criteria, spot the installation location.
- Do not install the unit near the door way.
- Keep proper distances, of the unit, from ceiling, fence, floor, walls and other obstacles as shown in figure.
- The indoor unit must have the maintenance space.



8.2 Ceiling opening dimensions and hanging bolt location

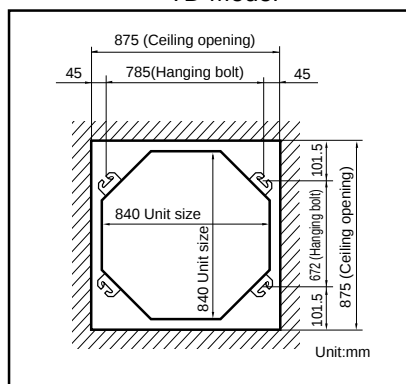
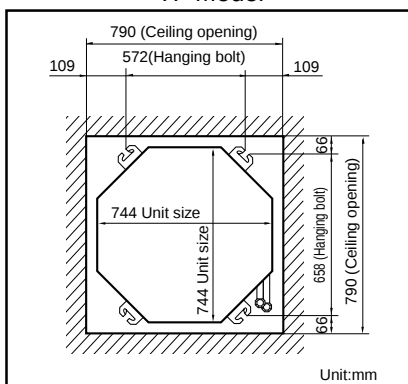
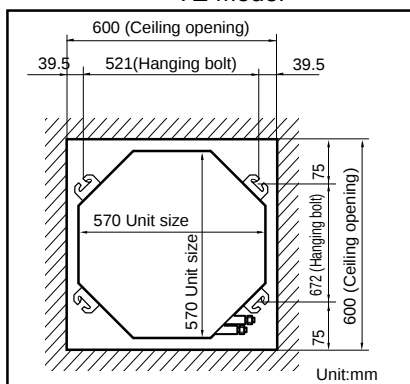
- The dimensions of the paper pattern for installation are the same as those of the ceiling opening dimensions.



TE Model

TF Model

TD Model



CAUTION

- This air-conditioner uses a drain pump.
- Install the unit horizontally using a level gauge.
- During the installation, care should be taken not to damage electric wires.

- Select and mark the position for fixing bolts and piping hole.
- Decide the position for fixing bolts slightly tilted to the drain direction after considering the direction of drain hose.
- Drill the hole for anchor bolt on the wall.

NOTE:

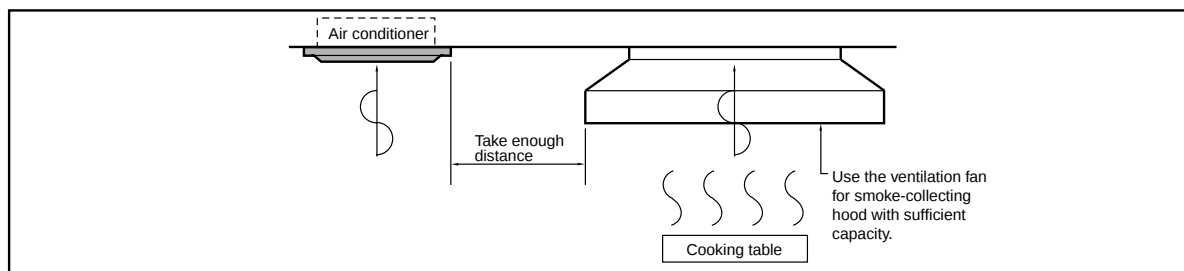
- Avoid the following installation location.

- Such places as restaurants and kitchen where considerable amount of oil steam and flour is generated.

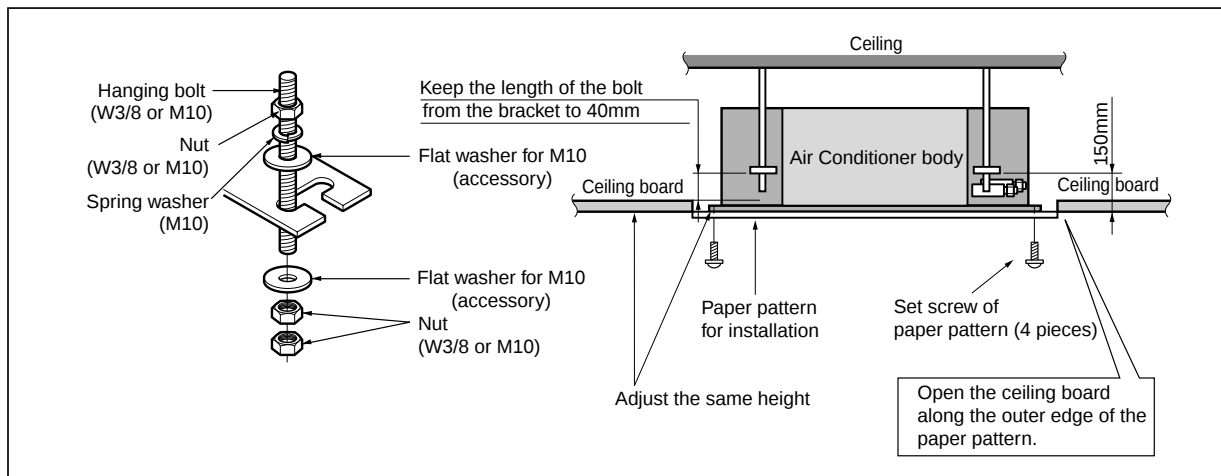
These may cause heat exchange efficiency reduction, or water drops, drain pump mal-function.

In these cases, take the following actions;

- Make sure that ventilation fan is enough to cover all noxious gases from this place.
- Ensure enough distance from the cooking room to install the air conditioner in such a place where it may not suck oily steam.



- Avoid installing air conditioner in such places where cooking oil or iron powder is generated.
- Avoid places where inflammable gas is generated.
- Avoid place where noxious gas is generated.
- Avoid places near high frequency generators.



• The following parts are local purchasing.

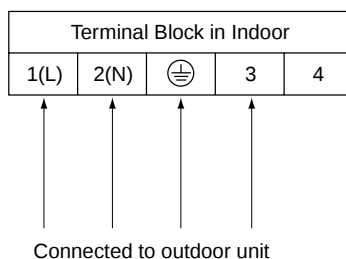
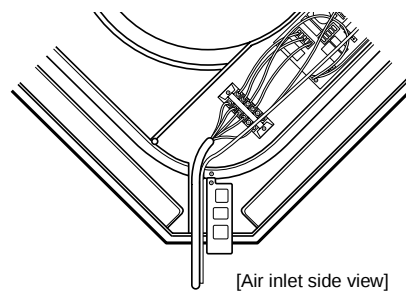
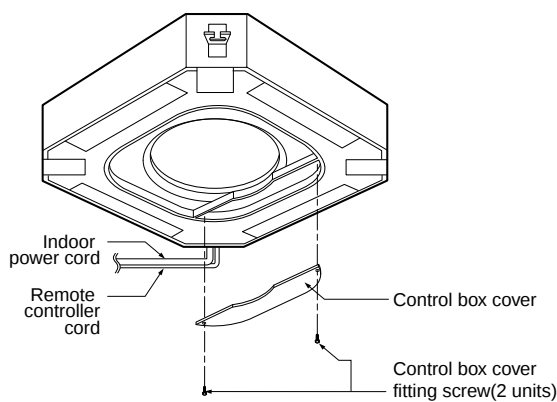
- ① Hanging Bolt - W 3/8 or M10
- ② Nut - W 3/8 or M10
- ③ Spring Washer - M10
- ④ Plate Washer - M10

CAUTION

- Tighten the nut and bolt to prevent unit from falling off.

8.3 Wiring Connection

- Open the control box cover and connect the remote control cord and Indoor power wires.



WARNING

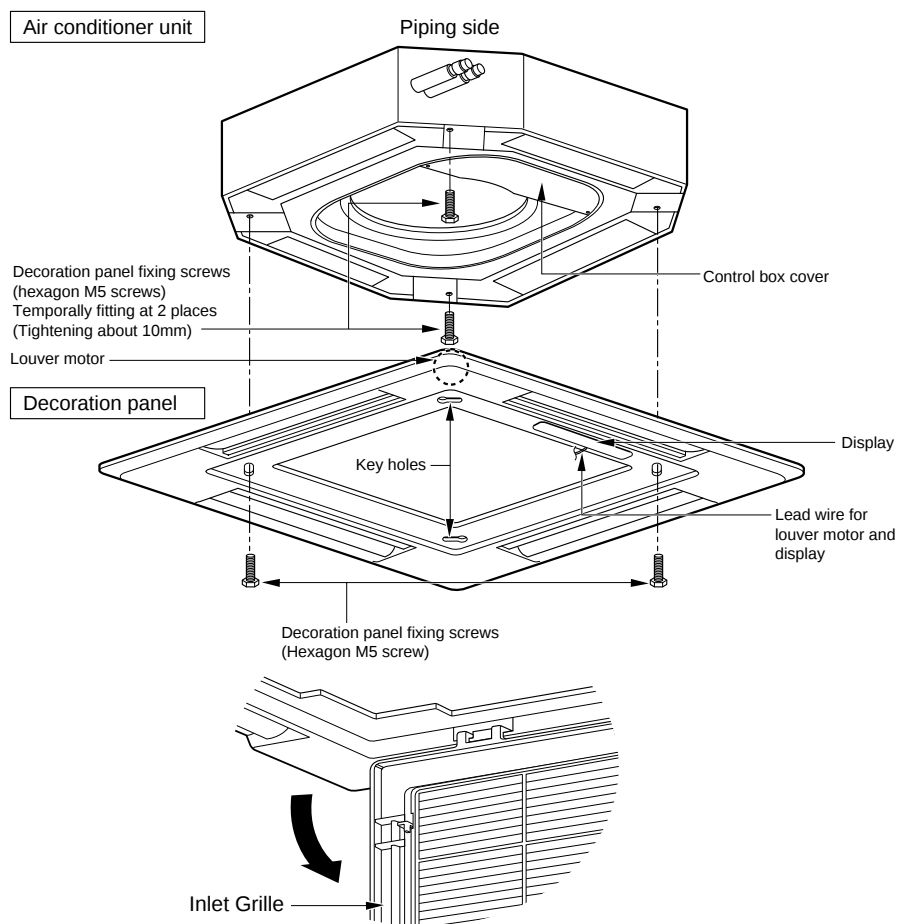
Make sure that the screws of the terminal are free from looseness.

8.4 Installation of Decoration Panel

The decoration panel has its installation direction.

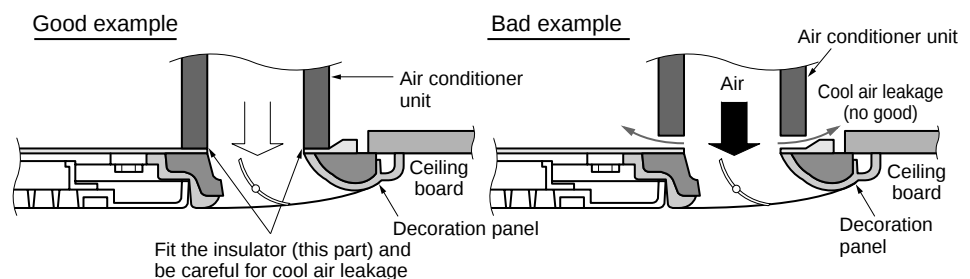
Before installing the decoration panel, always remove the paper template.

1. Temporarily fix two decoration panel fixing screws (hexagon M5 screw) on the unit body. (Tighten by amount 10mm in length.)
The fixing screws (hexagon M5 screw) are included the indoor unit box.
2. Remove the air inlet grille from the decoration panel. (Remove the hook for the air inlet grille cord.)
3. Hook the decoration panel key hole () on the screws fixed in step above, and slide the panel so that the screws reach the key hole edge.
4. Retighten completely two temporarily fixed screws and other two screws. (Total 4 screws)
5. Connect the louver motor connector and display connector.
6. After tightening these screws, install the air inlet grille (including the air filter).



CAUTION

Install certainly the decoration panel.
Cool air leakage causes sweating.
⇒ Water drops fall.



8.5 Indoor Unit Drain Piping

- Drain piping must have down-slope (1/50 to 1/100): be sure not to provide up-and-down slope to prevent reversal flow.
- During drain piping connection, be careful not to exert extra force on the drain port on the indoor unit.
- The outside diameter of the drain connection on the indoor unit is 32mm.

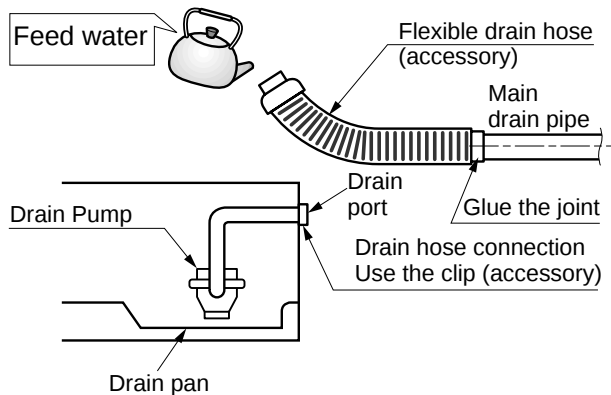
Piping material: Polyvinyl chloride pipe VP-25 and pipe fittings

- Be sure to install heat insulation on the drain piping.

Heat insulation material: Polyethylene foam with thickness more than 8 mm.

Drain test

The air conditioner uses a drain pump to drain water. Use the following procedure to test the drain pump operation:



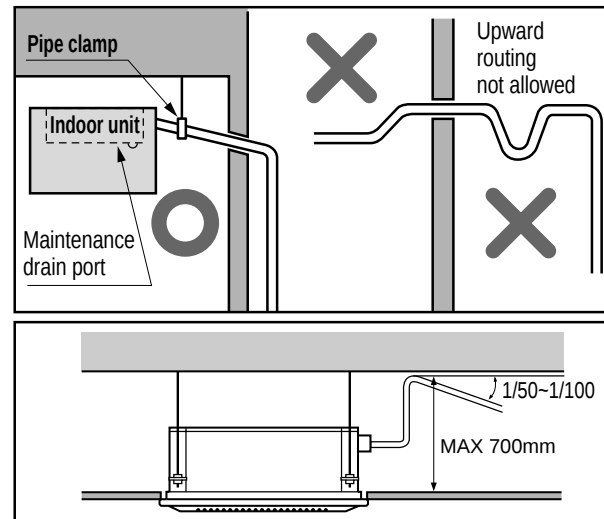
CAUTION

The supplied flexible drain hose should not be curved, neither screwed. The curved or screwed hose may cause a leakage of water.

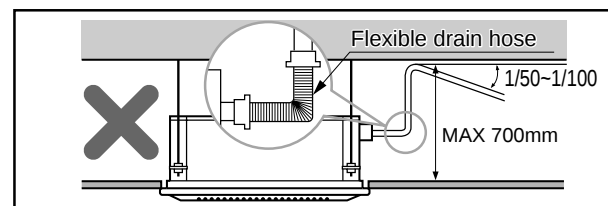
CAUTION

After the confirmation of the above conditions, prepare the wiring as follows:

- 1) Never fail to have an individual power specialized for the air conditioner. As for the method of wiring, be guided by the circuit diagram pasted on the inside of control box cover.
- 2) Provide a circuit breaker switch between power source and the unit.
- 3) The screw which fasten the wiring in the casing of electrical fittings are liable to come loose from vibrations to which the unit is subjected during the course of transportation. Check them and make sure that they are all tightly fastened. (If they are loose, it could give rise to burn-out of the wires.)
- 4) Specification of power source
- 5) Confirm that electrical capacity is sufficient.
- 6) Be sure that the starting voltage is maintained at more than 90 percent of the rated voltage marked on the name plate.
- 7) Confirm that the cable thickness is as specified in the power sources specification. (Particularly note the relation between cable length and thickness.)
- 8) Never fail to equip a leakage breaker where it is wet or moist.
- 9) The following troubles would be caused by voltage drop-down.
 - Vibration of a magnetic switch, damage on the contact point there of, fuse breaking, disturbance to the normal function of a overload protection device.
 - Proper starting power is not given to the compressor.

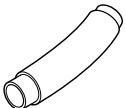
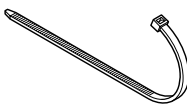
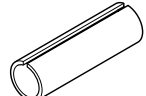
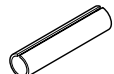


- Connect the main drain pipe to the exterior and leave it provisionally until the test comes to an end.
- Feed water to the flexible drain hose and check the piping for leakage.
- Be sure to check the drain pump for normal operating and noise when electrical wiring is complete.
- When the test is complete, connect the flexible drain hose to the drain port on the indoor unit.



9. Accessories

Standard Accessories

Name	Drain hose	Clamp metal	Washer for hanging bracket	Clamp	Insulation for fitting	(Other)
Quantity	1 EA	1 EA	8 EA	8 EA	1 SET	
Shape					 for gas pipe  for liquid pipe	• Paper pattern for installation • Owner's manual • Installation manual

Optional Accessories(For Unit)

No.	Item	Type	Model No.	Component Parts
1	Wireless remote control	With air purifying function	AHWRHD	• Wireless remote control : 1EA • Holder : 1EA • Battery : 2EA • Screw : 2EA
2	Central control	Simple	PQCSA101S0	• Central control • Installation manual
3	PI485 Gateway	For central control	PHNFP14A0	• PCB: 1EA • Installation manual • Wire assembly

Ceiling & Floor



Ceiling & Floor (R410A-Indoor Units)

AVNH-EL/BL

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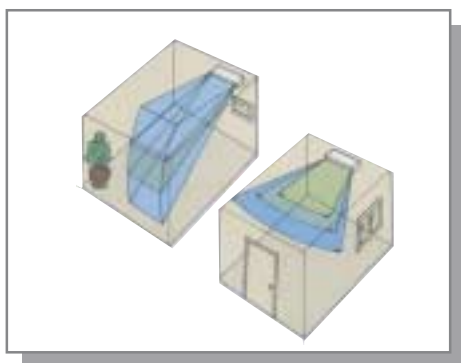
1. Features & Benefits



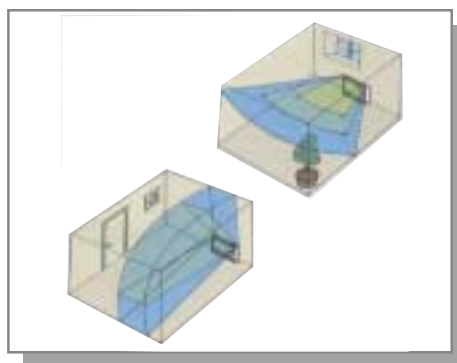
- Flexible Installation
- Low noise
- 4-Way Airflow Direction Control
(Automatic Vertical airflow & Manual Horizontal airflow)
- LCD Wireless Remote Control

Flexible Installation

It can be installed on the floor or ceiling according to your need.



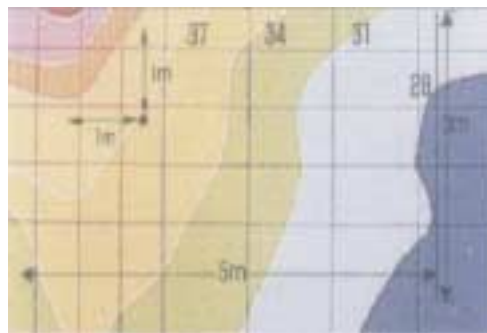
<Ceiling Installation>



<Floor Installation>

Low Noise

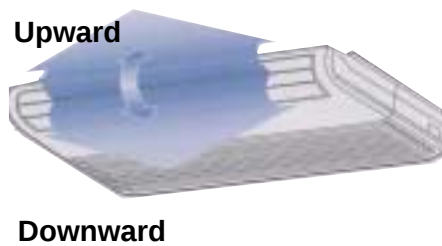
Advanced airflow system and cross flow fan give quiet and more comfortable environment.



Noise Distribution(dBA)

Vertical Airflow & Balanced Temperature Distribution

The heat distribution graph shows an example of even temperature distribution achieved by the auto-swing airflow.



2. List of Functions

Category	Function	AVNH-EL	AVNH-BL
Air flow	Air supply outlet	1	1
	Airflow direction control (left & right)	Manual	Manual
	Airflow direction control (up & down)	X	Auto
	Auto swing (left & right)	X	X
	Auto swing (up & down)	O	O
	Airflow steps(Fan / Cool / Heat)	3 / 4 / 3	3 / 4 / 3
	CHAOS swing(Wall mounted / Artcool)	X	X
	CHAOS wind (Auto wind)	O	O
	Jet cool (Power wind)	O	O
	Swirl wind	-	X
Air purifying	Deodorizing filter	X	X
	Plasma air purifier	X	X
	Prefilter(Washable / Anti-fungus)	O	O
Installation	Drain pump	-	X
	E.S.P. control	-	X
	Electric heater (Operation)	-	X
	High ceiling operation	-	X
Reliability	Hot start	O	O
	Self diagnosis	O	O
	Soft dry operation	O	O
Convenience	Auto changeover	X	X
	Auto cleaning	X	X
	Auto operation(Artificial intelligence)	O	O
	Auto restart operation	O	O
	Child lock	X	X
	Forced operation	O	O
	Group control	X	X
	Sleep mode	O	O
	Timer (On/Off)	O	O
	Timer (weekly)	X	X
	Two thermistor control	X	X
Individual control	Standard wired remote controller	X	PCRCUSZ0
	Deluxe wired remote controller	X	X
	Simple wired remote controller	X	X
	Wired remote controller(for hotel use)	X	X
	Wireless remote controller(simple)	O	O
	Wireless LCD remote controller	X	X
CAC network function	General central control(Non LGAP)	X	X
	Dry contact	PQDSB	PQDSB
	Simple central control(LGAP)	O	O
	PDI(Power Distribution Indicator)	PQNUD1S00	PQNUD1S00
	PI485	PMNFP14A0	PMNFP14A0
Special function kit	CTIE	X	X
	Zone control	X	X
Others	Thermistor	AQTTA	AQTTA

Note: In VB chassis, high ceiling operation, child lock, group control, timer (weekly) and two thermistor control can operate only with standard wired remote controller.

Group control & CAC network function is not available which is connected with synchro.

• O: Applied, • X: Not applied, • - : No relation,

• Option: Model name & price are different according to options, and assembled in factory with main unit.

• Accessory: Installed at field, ordered and purchased separately by the corresponding model name, supplied with separate package.

3. Specifications

Indoor unit type			Ceiling & Floor			
Model			AVNH126ELAB [UV12 NEB]	AVNH186BLAB [UV18 NBB]	AVNH246BLAB [UV24 NBB]	AVNH306BLAB [UV30 NBB]
Power Supply	Ø/V/Hz		1 / 220 ~240 / 50	1 / 220 ~240 / 50	1 / 220 ~240 / 50	1 / 220 ~240 / 50
Cooling Capacity	kW		3.52	5.27	7.03	7.74
	Btu/h		12,000	18,000	24,000	26,400
Heating Capacity	kW		4.04	5.95	8.09	8.88
	Btu/h		13,800	20,300	27,600	30,300
Current	Nominal running current	A	0.56	0.56	0.56	0.56
Fan	Motor Type		Induction	Induction	Induction	Induction
	Fan Type		Cross Flow Fan	Cross Flow Fan	Cross Flow Fan	Cross Flow Fan
	Motor Output x Number of Unit		17.5*1	30.0*1	35*1	42.5*1
	Air Flow Rate (H/M/L)	cmm	10 / 8.3 / 6.5	13.5 / 12 / 11	15 / 13.5 / 12	18 / 16 / 14
		cfm	353 / 293 / 230	437 / 424 / 388	530 / 477 / 424	636/564/494
	Capacitor	µF/Vac	1.5/370	1.5/370	1.5/370	1.5/370
	Drive		Direct Drive	Direct Drive	Direct Drive	Direct Drive
Coil	Row x Column x FPI	mm	2R x 12C x 20	2R x 12C x 18	2R x 12C x 20	2R x 12C x 20
Dimensions (WxHxD)	Body	mm(inch)	900*200*490(35.4*7.9*19.3)	1,200*205*615(47.2*8.1*24.2)	1,200*205*615(47.2*8.1*24.2)	1,200*205*615(47.2*8.1*24.2)
Weight	Body	kg(lbs)	12 / (26.5)	30(66.1)	30(66.1)	30(66.1)
Air Filter			Long life filter	Long life filter	Long life filter	Long life filter
Sound Level (H/M/L)		dB(A)+3	40 / 36 / 31	43 / 40 / 37	45 / 42 / 39	45 / 42 / 39
Piping	Liquid	mm(inch)	6.35 (1/4)	6.35 (1/4)	6.35 (1/4)	6.35 (1/4)
Connections	Gas	mm(inch)	9.52(3/8)	12.7(1/2)	12.7(1/2)	15.88(5/8)
	Drain(OD/ID)	mm	20/16	20/16	20/16	20/16
Dehumidification Rate		l/h	1.2	2.3	3.2	3.5
Safety devices			Fuse, Thermal protector for fan motor	Fuse, Thermal protector for fan motor	Fuse, Thermal protector for fan motor	Fuse, Thermal protector for fan motor
Temperature Sensor			Thermistor	Thermistor	Thermistor	Thermistor
Refrigerant			R-410A	R-410A	R-410A	R-410A
Refrigerant Control			Capillary	LEV	LEV	LEV
Connectable outdoor unit			Single A	Single A	Single A	Single A
Power and transmission interunit cable		No.x mm ²	4*0.75	4*0.75	4*0.75	4*0.75

Note :

1. Capacities are based on the following conditions:

Cooling: - Indoor Temperature 27°C(80.6°F) DB /19°C(66.2°F) WB

- Outdoor Temperature 35°C(95°F) DB /24°C(75.2°F) WB

Heating: - Indoor Temperature 20°C(68°F) DB / 15°C(59°F) WB

- Outdoor Temperature 7°C(44.6°F) DB / 6°C(42.8°F) WB

Piping Length - Interconnecting Piping Length 7.5m

- Level Difference of Zero.

2. Cooling/heating capacity of indoor unit can be lower when it is connected to MPS variable outdoor.

3. Wiring cable size must comply with the applicable local and national code.

Conversion Formula

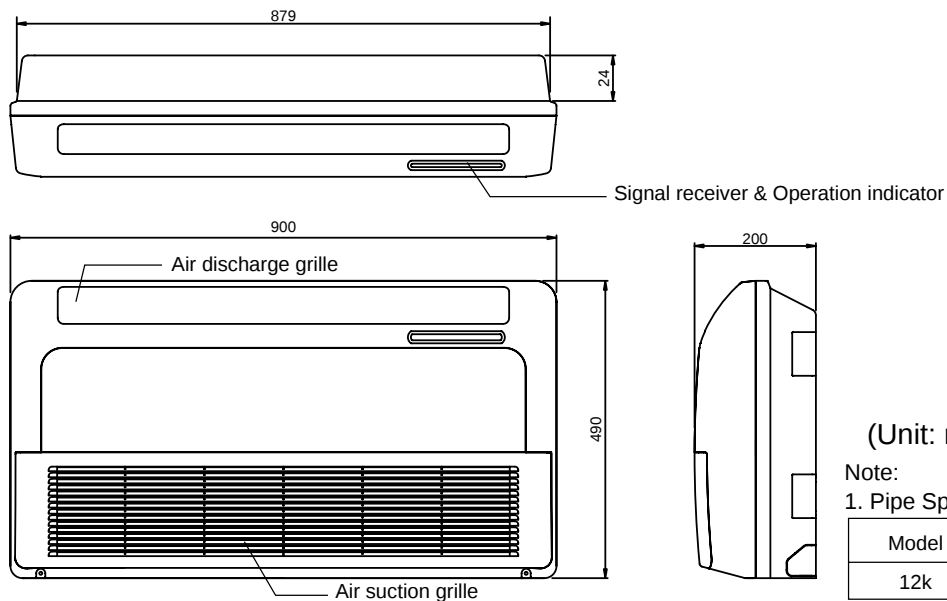
kW = Btu/h × 0.0002931

kcal/h = Btu/h × 0.252

CFM = CMM × 35.3

4. Dimensional Drawings

AVNH-EL



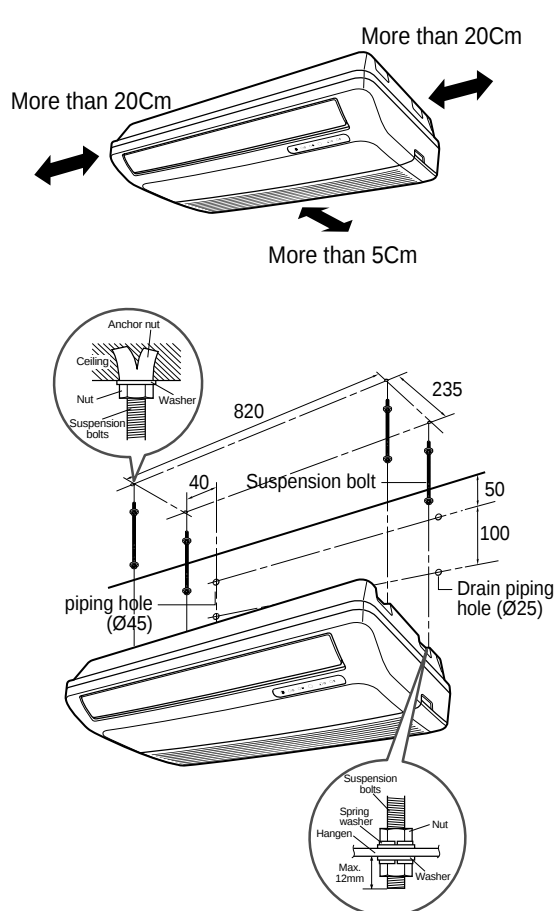
(Unit: mm)

Note:

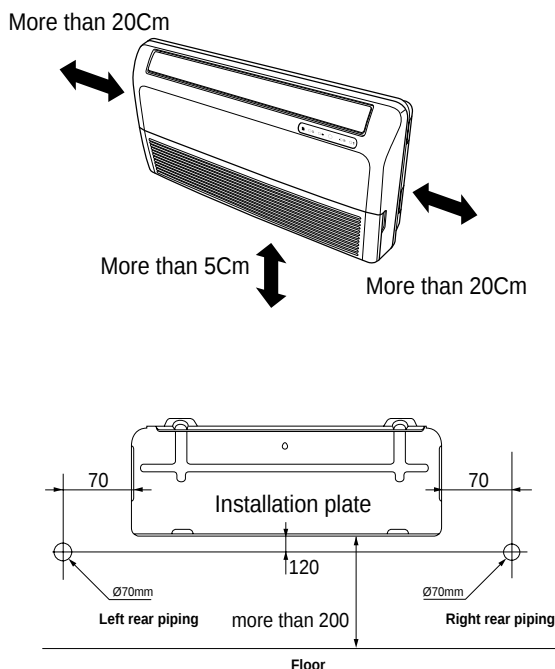
1. Pipe Specification(mm)

Model	Liquid	Gas
12k	Ø 6.35	Ø 9.52

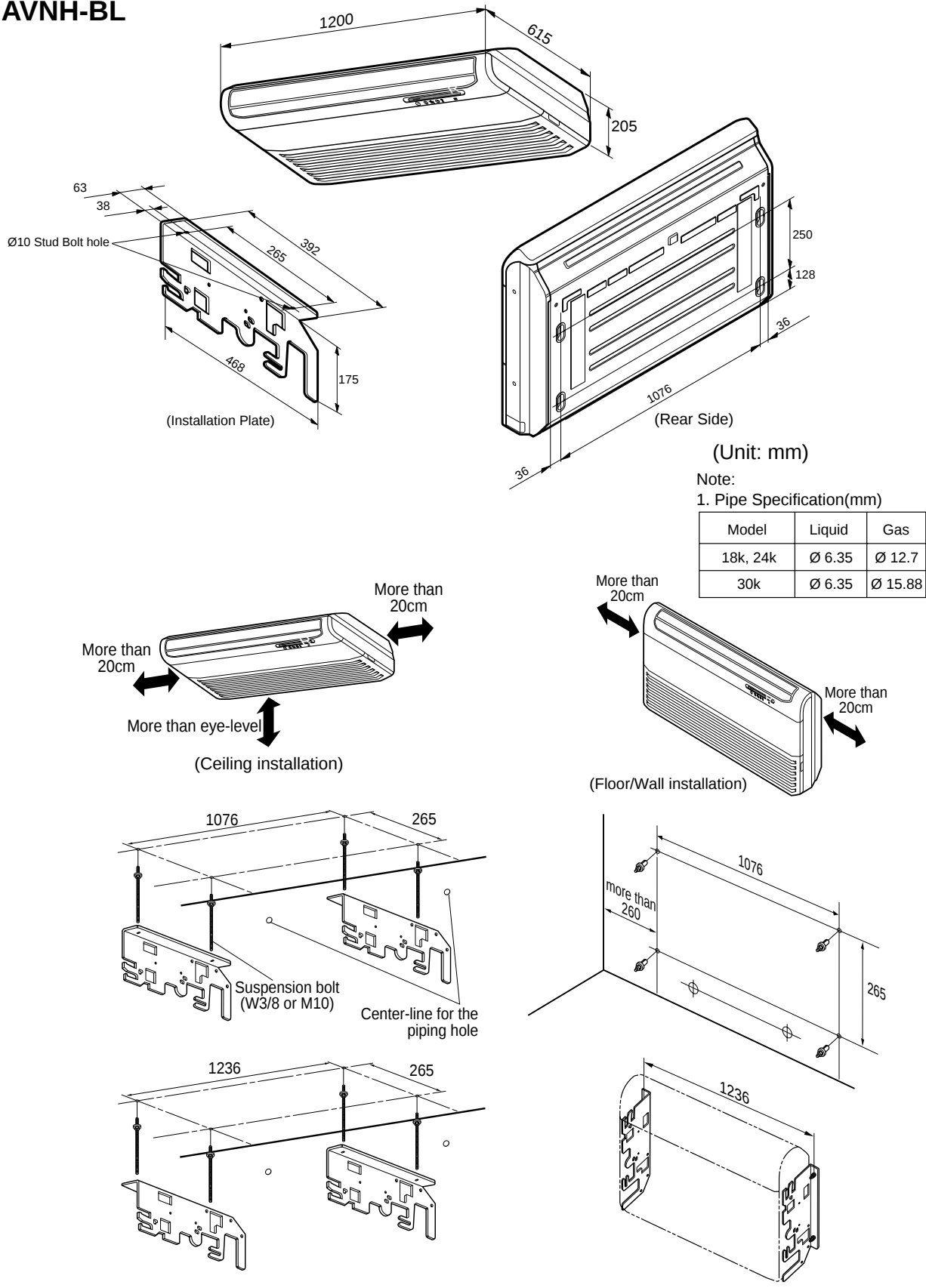
<Ceiling Installation>



<Floor Installation>

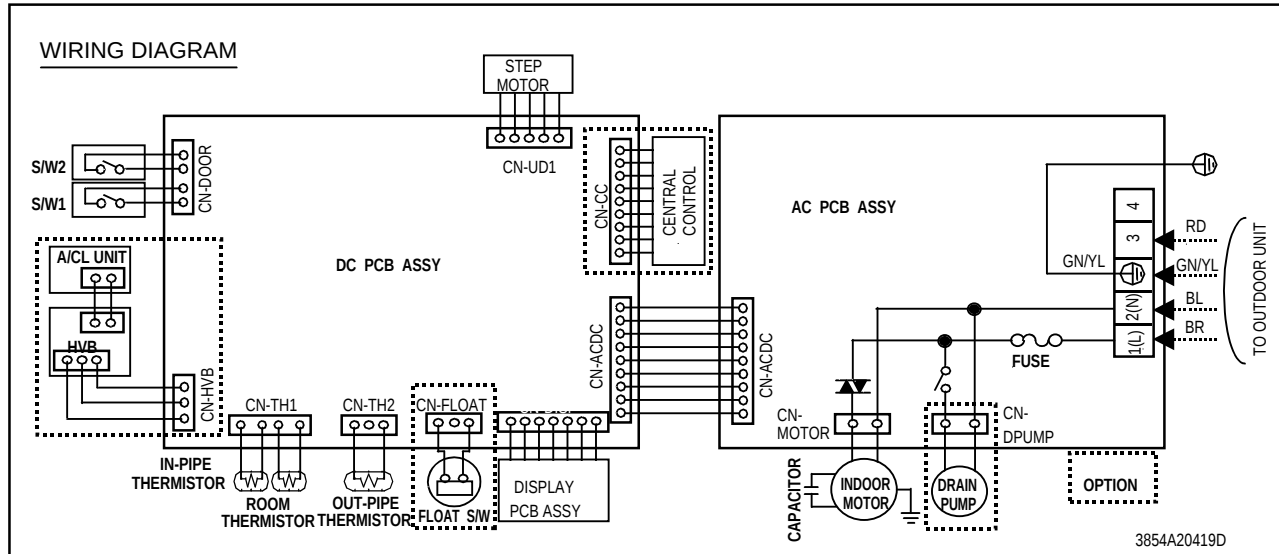


AVNH-BL

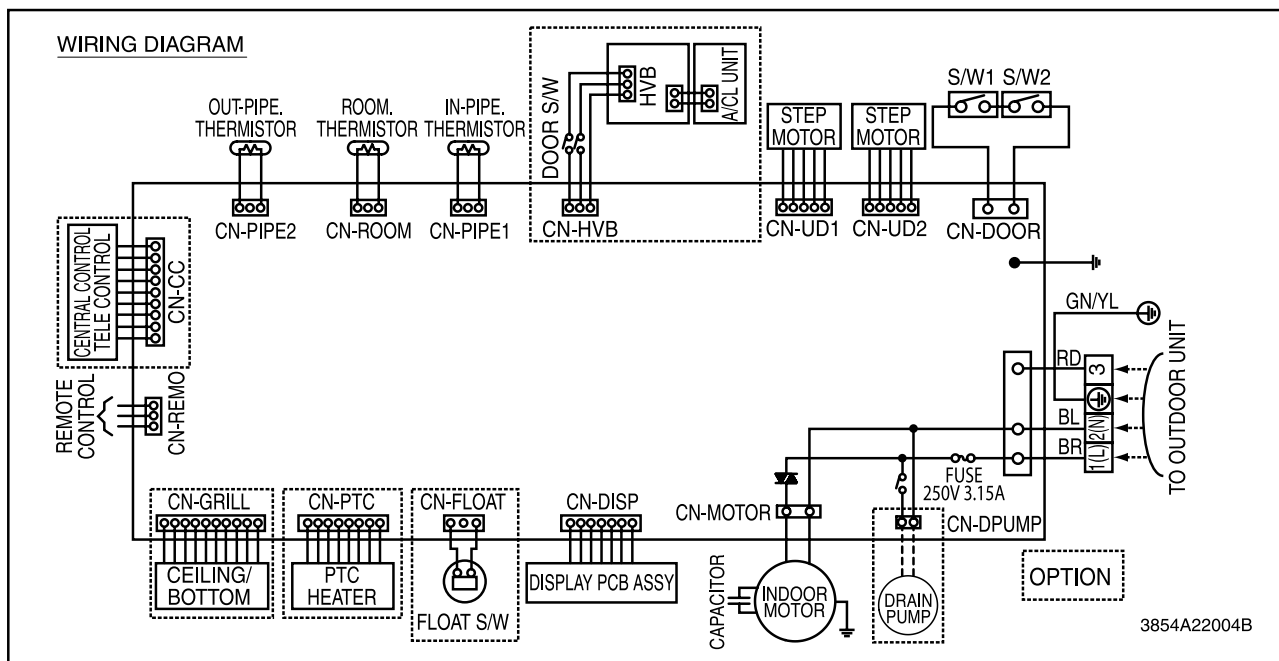


5. Wiring Diagrams

AVNH-EL

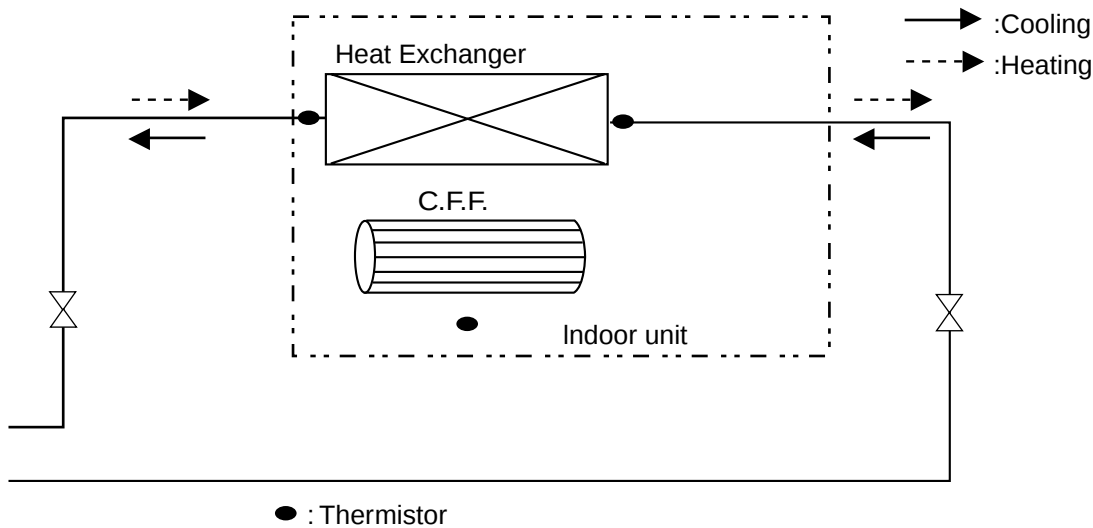


AVNH-BL



CONNECTOR NUMBER	LOCATION	CONNECTOR NUMBER	LOCATION
CN-POWER	AC POWER SUPPLY	CN-TH2	DISCHARGE PIPE SENSOR
CN-MOTOR	BLDC FAN MOTOR OUTPUT	CN-TH1	PIPE AND ROOM SENSOR
CN-D/PUMP	DRAIN PUMP OUTPUT	CN-HVB	AIR CLEANER
CN-AC/DC	AC/DC CONNECTION	CN-DOOR	STEP MOTOR
CN-DISPLAY	DISPLAY	CN-U/D1	STEP MOTOR
CN-FLOAT	FLOAT SWITCH INUT	CN-CC	CENTRAL CONTROL

6. Piping Diagrams



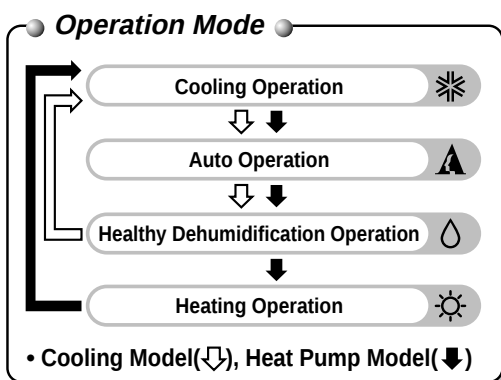
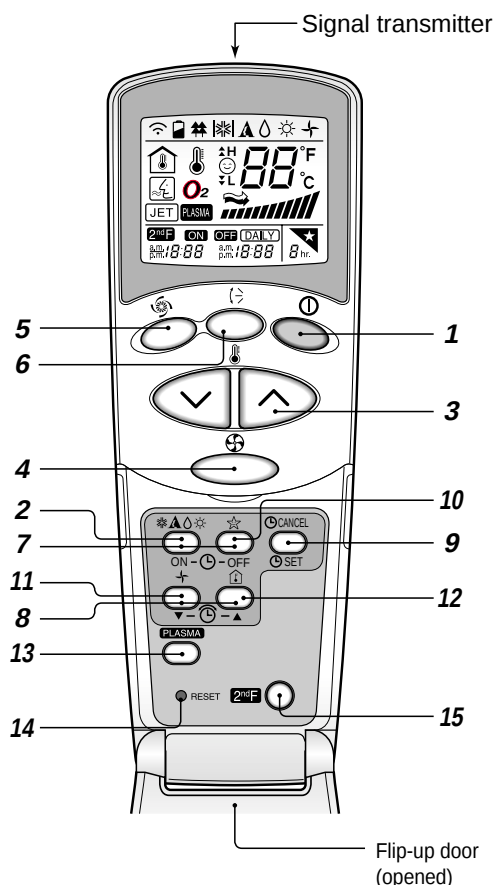
Refrigerant pipe connection port diameter

Model	Gas	[unit: mm(inch)]	
		Liquid	
AVNH126ELAB [UV12 NEB]	9.52(3/8)	6.35(1/4)	
AVNH186BLAB [UV18 NBB]	12.7(1/2)		
AVNH246BLAB [UV24 NBB]			
AVNH306BLAB [UV30 NBB]	15.88(5/8)		

7. Operating Instructions

■ Remote Control Operation

The Remote Controller transmits the signals to the system.



1. START/STOP BUTTON

Operation starts when this button is pressed and stops when the button is pressed again.



2. OPERATION MODE SELECTION BUTTON

Used to select the operation mode.



3. ROOM TEMPERATURE SETTING BUTTONS

Used to select the room temperature.



4. INDOOR FAN SPEED SELECTOR

Used to select fan speed in four steps low, medium, high and CHAOS.



5. JET COOL

Used to start or stop the speed cooling/heating. (Speed cooling/heating operates super high fan speed.)



6. CHAOS SWING BUTTON

Used to stop or start louver movement and set the desired up/down airflow direction.



7. ON/OFF TIMER BUTTONS

Used to set the time of starting and stopping operation.

8. TIME SETTING BUTTONS

Used to adjust the time.

9. TIMER SET/CANCEL BUTTON

Used to set the timer when the desired time is obtained and to cancel the Timer operation.

10. SLEEP MODE AUTO BUTTON

Used to set Sleep Mode Auto operation.

11. AIR CIRCULATION BUTTON

Used to circulate the room air without cooling or heating.

12. ROOM TEMPERATURE CHECKING BUTTON

Used to check the room temperature.

13. PLASMA(OPTIONAL)

Used to start or stop the plasma-purification function.

14. RESET BUTTON

Initialize remote controller.

15. 2nd F Button

Used prior to using modes printed in blue at the bottom of buttons.

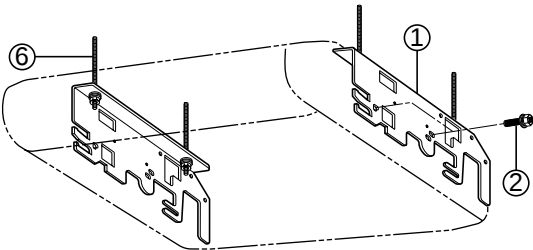
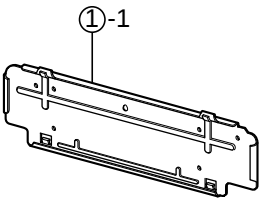
✱ For the convertible type of air conditional, jet cool mode does not operate.

8. Installation

- Please read this instruction sheet completely before installing the product.
- When the power cord is damaged, replacement work shall be performed by authorized personnel only.
- Installation work must be performed in accordance with the national wiring standards by authorized personnel only.

Installation Parts Provided

- ① Installation Plate (VB, 2pcs)
- ① -1 Installation Plate (VE, 1pc)
- ② Washer Bolt (M8 × L25, 4pcs, type "A")
- ③ Floor Mount Bracket (1pcs)
- ④ Drain Hose, Insulated
- ⑤ Drain Hose Hanger and screw

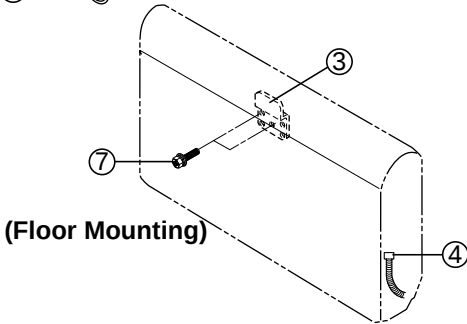


The other Installation Parts Needed

- ⑥ Suspension Bolt
- ⑦ Bolts for Mount Bracket
- ⑧ Connecting Tube(mm)
 - Gas side : Ø12.7, Ø15.88
 - Liquid side : Ø6.35
- ⑨ Connecting Cable
- ⑩ Drain Hose Extended



(Ceiling/Wall Mounting)



(Floor Mounting)

Required Parts

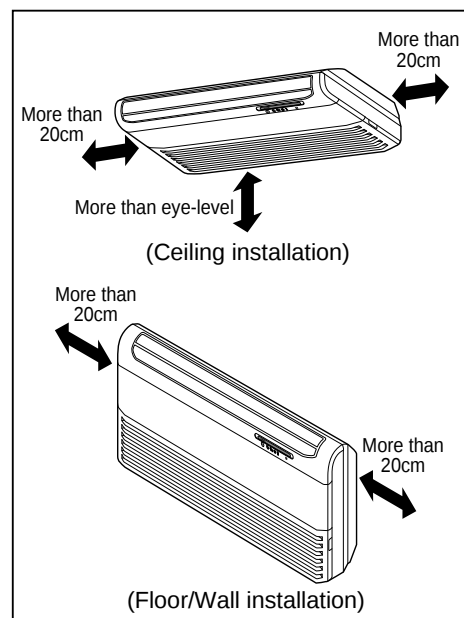
- Installation Plate
- Four Type "A" screws
- Connecting cable
- Pipes: Gas sideØ9.52, Ø12.7, Ø15.88mm
- Liquid side.....Ø6.35mm
- Insulated drain hose
- Insulation materials
- Two type "B" screws

Required Tools

- Level
- Screw driver
- Electric drill
- Hole core drill (ø70mm)
- Flaring Tools set
- Specified Torque Wrenches
 - 1.8kg·m.....Liquid side piping
 - 5.5kg·mGas side piping
 - SpannerHalf union
- Specified Torque Wrenches
 - 1.8kg·m.....Liquid side piping
 - 5.5kg·m.....Gas side piping
- Hexagonal Wrench (4mm)
- Gas-leak Detector
- Owner's Manual
- Thermometer

8.1 Selection of the best location

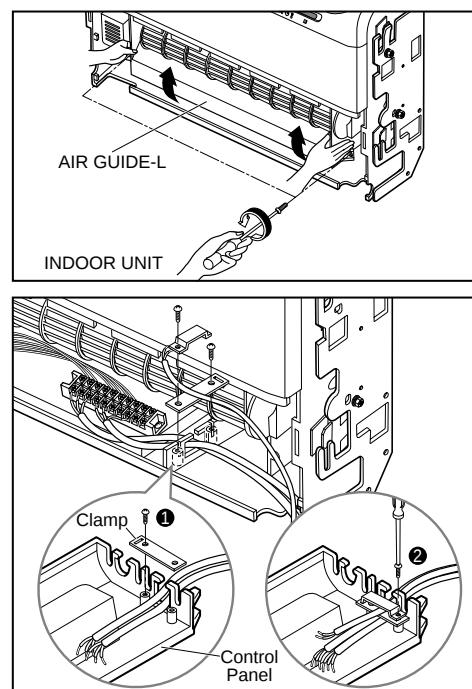
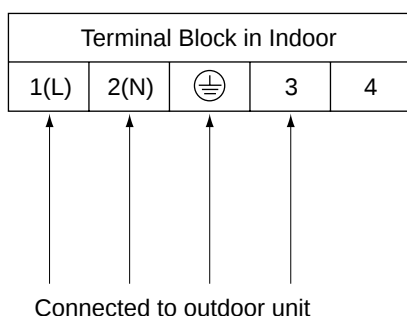
- There should not be any heat source or steam near the unit.
- There should not be any obstacles to the air circulation.
- There should be provision of easy condensate drain.
- Taking into accounting the noise prevention criteria, spot the installation location.
- Do not install the unit near the door way.
- Keep proper distances, of the unit, from ceiling, fence, floor, walls and other obstacles as shown in figure.
- The indoor unit must have the maintenance space.



8.2 Wiring connection

1) Connecting cables to the Indoor Unit

1. Remove the Air guide - L by loosening 2 screws after removing the Inlet grille from the Indoor unit.
2. Connect the wires to the terminals on the control board individually according to the outdoor unit connection.
 - Ensure that the color of the wires of outdoor unit and the terminal No. are the same as those of indoor unit respectively



2) Clamping of cables

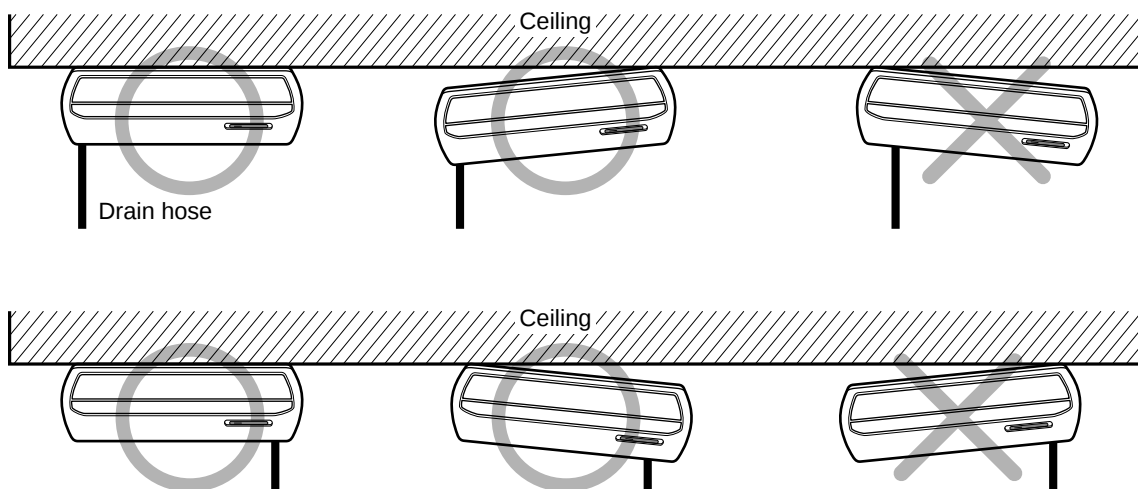
- 1) Arrange 2 power cables on the control panel.
- 2) First, fasten the steel clamp with a screw to the inner boss of control panel.
- 3) For the cooling model, fix the other side of the clamp with a screw strongly.
For the heat pump model, put the 0.75mm² cable(thinner cable) on the clamp and tighten it with a plastic clamp to the other boss of the control panel.
- 4) In Australia, the length of power supply cord measured from the entry of the power supply cord to the middle of live pin on the power plug should be over 1.8m.

CAUTION

1. **Install declination** of the indoor unit is very **important for the drain** of the convertible type air conditioner.
2. Minimum thickness of the insulation for the connecting pipe shall be 7mm.
3. If the Installation Plates are fixed to horizontal line, the indoor unit after installing will be declined to the bottomside.

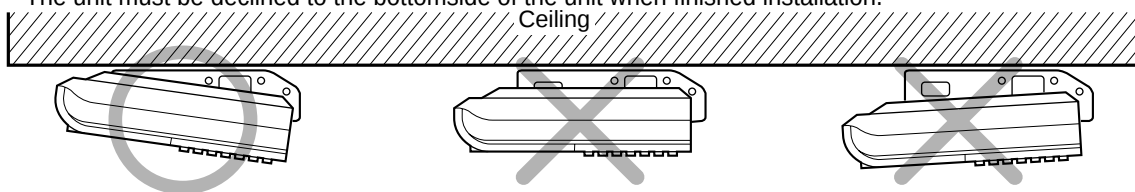
Front of view

- The unit must be horizontal or declined to the drain hose connected when finished installation.



Side of view

- The unit must be declined to the bottomside of the unit when finished installation.



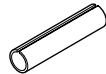
 CAUTION

After the confirmation of the above conditions, prepare the wiring as follows:

- 1) **Never fail to have an individual power specially for the air conditioner. As for the method of wiring, be guided by the circuit diagram pasted on the inside of control box cover.**
- 2) **Provide a circuit breaker switch between power source and the unit.**
- 3) **The screw which fasten the wiring in the casing of electrical fittings are liable to loose due to vibrations to which the unit is subjected during the course of transportation. Check them and make sure that they are all tightly fastened. (If they are loose, it could give rise to burn-out of the wires.)**
- 4) **Specification of power source**
- 5) **Confirm that electrical capacity is sufficient.**
- 6) **Be sure that the starting voltage is maintained at more than 90 percent of the rated voltage marked on the name plate.**
- 7) **Confirm that the cable thickness is as specified in the power sources specification. (Particularly note the relation between cable length and thickness.)**
- 8) **Never fail to equip a leakage breaker where it is wet or moist.**
- 9) **The following troubles would be caused by voltage drop-down.**
 - Vibration of a magnetic switch, damage on the contact point there of, fuse breaking, disturbance to the normal function of a overload protection device.
 - Proper starting power is not given to the compressor.
- 10) **The means for disconnection from a power supply shall be incorporated in the fixed wiring and have an air gap contact separation of at least 3mm in each active(phase) conductors.**

9. Accessories

Standard Accessories

Name	Drain hose	Clamp metal	Washer for hanging bracket	Clamp	Insulation for fitting	(Other)
Quantity	1 EA	1 EA	8 EA	6 EA	1 set	
Shape					 for gas pipe  for liquid pipe	

Optional Accessories(For Unit)

No.	Item	Type	Model No.	Component Parts
1	Central control	Simple	PQCSA101S0	• Central control • Installation manual
2	PI485 Gateway	For central control	PHNFP14A0	• PCB: 1EA • Installation manual • Wire assembly

Ceiling Concealed Duct



Ceiling Concealed Duct (R410A-Indoor Units)

ABNH-HL/GL/RL

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1. Features & Benefits



■ Easy Installation

- Compact & light design
- tuning (Linear E.S.P Control)
- High head drain pump(700mm, Accessory)

■ Comfort & Reliability

- Low noise design
- 2-Thermistor control(Main body & Remote control)
- Zero stanby power consumption

■ Convenience

- Tele control(Accessory)
- LCD wired remote control
- Group control
- Zone control(Accessory)
- Central control(Accessory)
- Weekly program

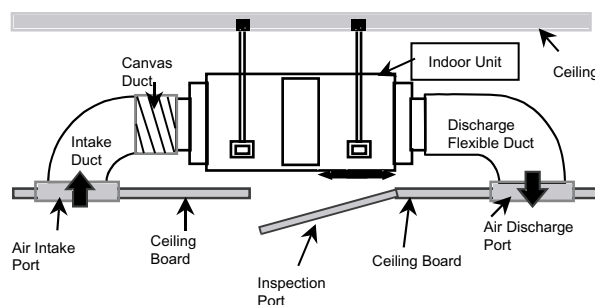
■ Cleanness

- Plasma air purifying system(Accessory)
- Hygienic and easy to clean filter

Easy Installation

Flexible Duct is easy to install, regardless of room size or heater position.

It can be installed even in a limited space and saves construction cost with slim thickness



Innovative Design of Fan and Housing System

Low Noise ! Easy Serviceability!

Plastic Fan and Housing Assembly

- Designed for low noise
- Designed to reduce weight
- Designed for easy service



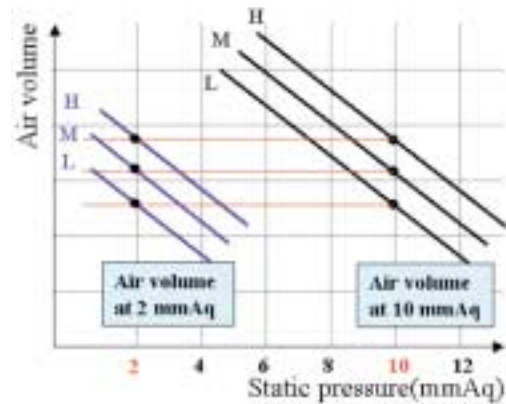
This product guarantees lower sound level and gives lesser service expenses.





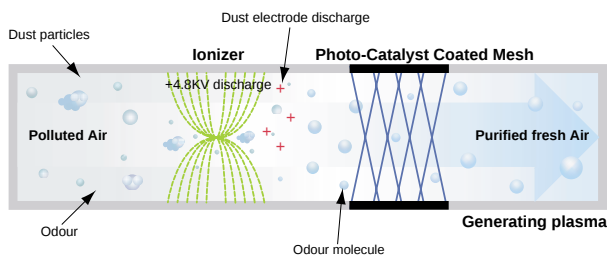
LG's High Technology provide Easy and Low cost Design of Duct work

Generally, when External Static Pressure increases air volume decreases. But by controlling the phase of motor while installing the product E.S.P. is controlled from 8~10 mmAq linearly. E.S.P. control provides required constant air volume irrespective of ESP change. Desired ESP can also be set through LCD wired remote control. Setting of the desired ESP gives required combination of ESP and airflow.



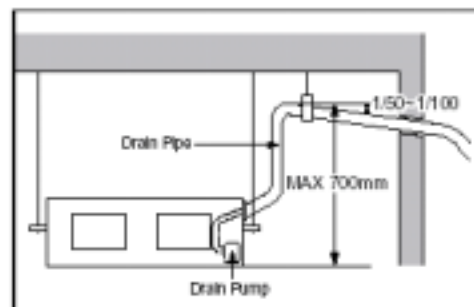
Plasma Air Purifying Kit (Accessory)

The PLASMA Air Purifying Function not only removes microscopic contaminants and dust, but also removes house mites, pollen, and pet fur helps to prevent allergic diseases like asthma.



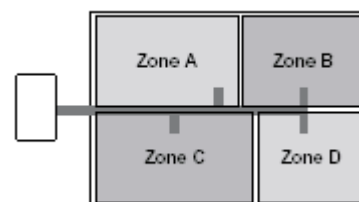
High Head Drain Pump(Accessory:700mm)

In some of the places natural drainage is not possible. For such places drain pump is very useful. It removes condensed water from the unit.



Zone Control(Accessory)

It controls the temperature of each zone. Opening or closing of the damper is controlled by sensing the temperature of each zone. In the cooling mode, if the temperature of a particular zone is lower than set temperature then the damper is closed. On the other hand if the temperature of a particular zone is higher than the set temperature, damper is opened to provide cooling to the zone and vice versa in the heating mode.



2. List of Functions

Category	Function	ABNH-HL	ABNH-GL	ABNH-RL
Air flow	Air supply outlet	2	2	2
	Airflow direction control (left & right)	-	-	-
	Airflow direction control (up & down)	-	-	-
	Auto swing (left & right)	-	-	-
	Auto swing (up & down)	-	-	-
	Airflow steps(Fan / Cool / Heat)	3 / 3 / 3	3 / 3 / 3	3 / 3 / 3
	CHAOS swing(Wall mounted / Artcool)	-	-	-
	CHAOS wind (Auto wind)	-	-	-
	Jet cool (Power wind)	-	-	-
	Swirl wind	-	-	-
Air purifying	Deodorizing filter	-	-	-
	Plasma air purifier	ABPAHH	ABPAHH	ABPAHH
	Prefilter(Washable / Anti-fungus)	O	O	O
Installation	Drain pump	ABDPG	ABDPG	ABDPG
	E.S.P. control	O	O	O
	Electric heater (Operation)	-	-	-
	High ceiling operation	-	-	-
Reliability	Hot start	O	O	O
	Self diagnosis	O	O	O
	Soft dry operation	O	O	O
Convenience	Auto changeover	X	O	X
	Auto cleaning	X	X	X
	Auto operation(Artificial intelligence)	O	X	O
	Auto restart operation	O	O	O
	Child lock	O	O	O
	Forced operation	O	O	O
	Group control	O	O	O
	Sleep mode	X	X	X
	Timer (On/Off)	O	O	O
	Timer (weekly)	O	O	O
	Two thermistor control	O	O	O
	Standard wired remote controller	O	O	O
Individual control	Deluxe wired remote controller	X	X	X
	Simple wired remote controller	X	X	X
	Wired remote controller(for hotel use)	X	X	X
	Wireless remote controller(simple)	X	X	X
	Wireless LCD remote controller	X	X	X
	General central control(Non LGAP)	X	X	X
CAC network function	Dry contact	PQDSB**	PQDSB**	PQDSB**
	Simple central control(LGAP)	O	O	O
	PDI(Power Distribution Indicator)	PQNUD1S00	PQNUD1S00	PQNUD1S00
	PI485	PMNFP14A0	PMNFP14A0	PMNFP14A0
Special function kit	CTIE	X	X	X
	Zone control	ABZCA	ABZCA	ABZCA
Others	Thermistor	AQTTA	AQTTA	AQTTA

- O: Applied, • X: Not applied, • - : No relation,
- Group control & CAC network function & Zone control is not available which is connected with synchro.
- Option: Model name & price are different according to options, and assembled in factory with main unit.
- Accessory: Installed at field, ordered and purchased separately by the corresponding model name, supplied with separate package.
- **: For ceiling concealed duct model, auto-run function of dry contact is not applicable. If RF remote control use, auto-run function of dry contact is applicable. (Refer to accessory PDB)

3. Specifications

Indoor unit type			Ceiling Concealed Duct - High Static		
Model			ABNH186HLAB [UB18 NHB]	ABNH246HLAB [UB24 NHB]	ABNH306GLAB [UB30 NGB]
Power Supply		Ø/V/Hz	1 / 220 ~240 / 50	1 / 220 ~240 / 50	1 / 220 ~240 / 50
Cooling Capacity		kW	5.28	7.03	8.79
		Btu/h	18,000	24,000	30,000
Heating Capacity		kW	5.95	8.09	10.1
		Btu/h	20,300	27,600	34,500
Current	Nominal running current	A	0.92	0.92	1.34
Fan	Motor Type		Induction	Induction	Induction
	Fan Type		Sirocco Fan	Sirocco Fan	Sirocco Fan
	Motor Output x Number of Unit		118*2	118*2	211*2
	Air Flow Rate(H/M/L)	cmm	16.5/14.5/13	18/16.5/14	26.5/23/20
		cfm	583/512/459	636/583/494	936/812/706
	External Static Pressure	mmAq	8	8	10
	Capacitor	µF/Vac	6/370	6/370	6/370
	Drive		Direct Drive	Direct Drive	Direct Drive
Coil	Row x Columns x FPI	mm	3R x 10C x 21	3R x 10C x 21	3R x 12C x 21
Dimensions(WxHxD)	Body	mm(inch)	880*260*450(34.6*10.2*17.7)	880*260*450(34.6*10.2*17.7)	1180*298*450(46.5*11.7*17.7)
Weight	Body	kg(lbs)	35(77.2)	35(77.2)	38(84)
Air Filter			Long life filter	Long life filter	Long life filter
Sound Level (H/M/L)		dB(A)+3	36/34/32	38/36/34	34/38/35
Piping	Liquid	mm(inch)	6.35 (1/4)	6.35 (1/4)	6.35 (1/4)
Connections	Gas	mm(inch)	12.7(1/2)	12.7(1/2)	15.88(5/8)
	Drain(OD/ID)	mm	32/25	32/25	32/25
Dehumidification Rate		l/h	2.0	2.5	3.3
Safety devices			Fuse, Thermal protector for fan motor	Fuse, Thermal protector for fan motor	Fuse, Thermal protector for fan motor
Temperature Sensor			Thermistor	Thermistor	Thermistor
Refrigerant			R-410A	R-410A	R-410A
Refrigerant Control			LEV	LEV	LEV
Connectable outdoor unit			Single A	Single A	Single A
Power and transmission interunit cable		No.x mm ²	4*0.75	4*0.75	4*0.75

Note :

1. Capacities are based on the following conditions:

- Cooling: - Indoor Temperature 27°C(80.6°F) DB /19°C(66.2°F) WB
 - Outdoor Temperature 35°C(95°F) DB /24°C(75.2°F) WB
- Heating: - Indoor Temperature 20°C(68°F) DB / 15°C(59°F) WB
 - Outdoor Temperature 7°C(44.6°F) DB / 6°C(42.8°F) WB
- Piping Length - Interconnecting Piping Length 7.5m
 - Level Difference of Zero.

2. Cooling/heating capacity of indoor unit can be lower when it is connected to MPS variable outdoor.

3. Wiring cable size must comply with the applicable local and national code.

Conversion Formula	
kW	= Btu/h × 0.0002931
kcal/h	= Btu/h × 0.252
CFM	= CMM × 35.3

Indoor unit type			Ceiling Concealed Duct - High Static		
Model			ABNH366GLAB [UB36 NGB]	ABNH486RLAB [UB48 NRB]	ABNH606RLAB [UB60 NRB]
Power Supply	ØV/Hz		1 / 220 ~240 / 50	1 / 220 ~240 / 50	1 / 220 ~240 / 50
Cooling Capacity	kW		10.6	14.1	16.4
	Btu/h		36,000	48,000	56,000
Heating Capacity	kW		12.1	15.5	18.1
	Btu/h		41,400	52,800	61,600
Current	Nominal running current	A	1.42	3.65	3.65
Fan	Motor Type		Induction	Induction	Induction
	Fan Type		Sirocco Fan	Sirocco Fan	Sirocco Fan
	Motor Output x Number of Unit		272*2	431*2	431*2
	Air Flow Rate(H/M/L)	cmm	32/29/26	40/35/30	50/45/40
		cfm	1130/1024/918	1413/1236/1059	1766/1413/1236
	External Static Pressure	mmAq	10	15	15
	Capacitor	µF/Vac	6/370	15/450	15/450
	Drive		Direct Drive	Direct Drive	Direct Drive
Coil	Row x Columns x FPI	mm	3R x 10C x 21	3R x 13C x 19	4R x 13C x 19
Dimensions(WxHxD)	Body	mm(inch)	1180*298*450(46.5*11.7*17.7)	1230*380*590(48.4*15.0*23.2)	1230*380*590(48.4*15.0*23.2)
Weight	Body	kg(lbs)	38(84)	60(132)	60(132)
Air Filter			Long life filter	Long life filter	Long life filter
Sound Level (H/M/L)		dB(A)+3	42/39/36	44/42/40	46/44/42
Piping	Liquid	mm(inch)	6.35 (1/4)	9.52(3/8)	9.52(3/8)
Connections	Gas	mm(inch)	15.88(5/8)	19.05(3/4)	19.05(3/4)
	Drain(OD/ID)	mm	32/25	32/25	32/25
Dehumidification Rate		l/h	4.0	6.0	6.5
Safety devices			Fuse, Thermal protector for fan motor	Fuse, Thermal protector for fan motor	Fuse, Thermal protector for fan motor
Temperature Sensor			Thermistor	Thermistor	Thermistor
Refrigerant			R-410A	R-410A	R-410A
Refrigerant Control			LEV	LEV	LEV
Connectable outdoor unit			Single A	Single A	Single A
Power and transmission interunit cable		No.x mm ²	4*0.75	4*0.75	4*0.75

Note :

1. Capacities are based on the following conditions:

Cooling: - Indoor Temperature 27°C(80.6°F) DB /19°C(66.2°F) WB

- Outdoor Temperature 35°C(95°F) DB /24°C(75.2°F) WB

Heating: - Indoor Temperature 20°C(68°F) DB / 15°C(59°F) WB

- Outdoor Temperature 7°C(44.6°F) DB / 6°C(42.8°F) WB

Piping Length - Interconnecting Piping Length 7.5m

- Level Difference of Zero.

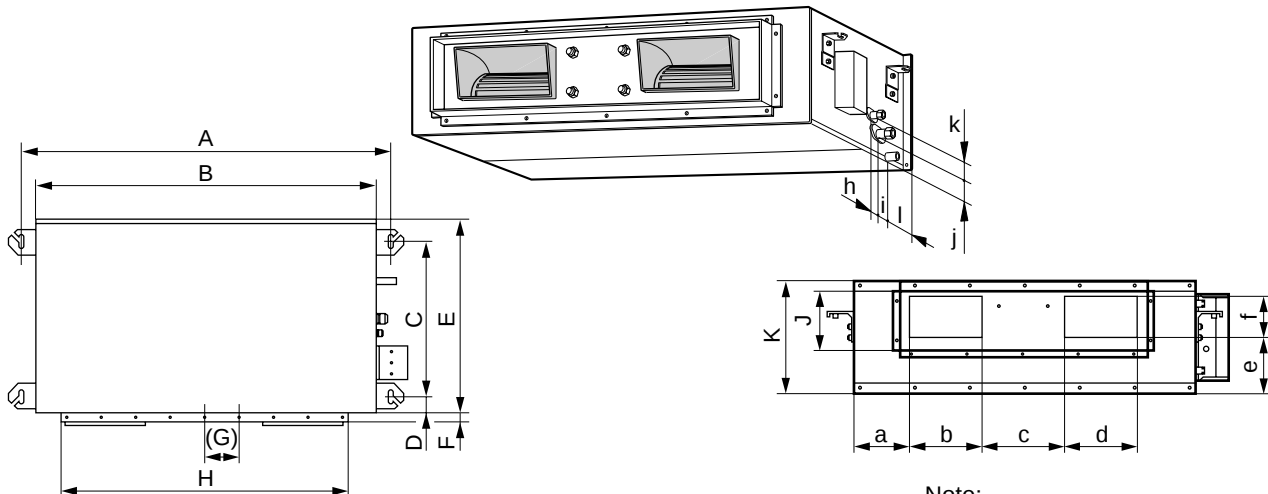
2. Cooling/heating capacity of indoor unit can be lower when it is connected to MPS variable outdoor.

3. Wiring cable size must comply with the applicable local and national code.

Conversion Formula	
kW	= Btu/h × 0.0002931
kcal/h	= Btu/h × 0.252
CFM	= CMM × 35.3

4. Dimensional Drawings

ABNH-HL, GL, RL



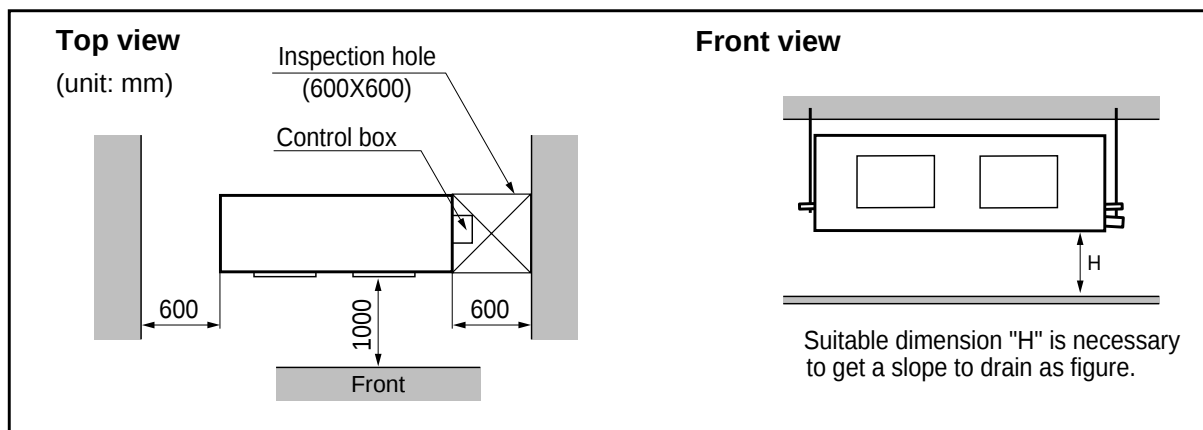
Note:

1. Pipe Specification(mm)

Model	Liquid	Gas
18, 24k	Ø 6.35	Ø 12.7
30, 36k		Ø 15.88
48, 60k	Ø 9.52	Ø 19.05

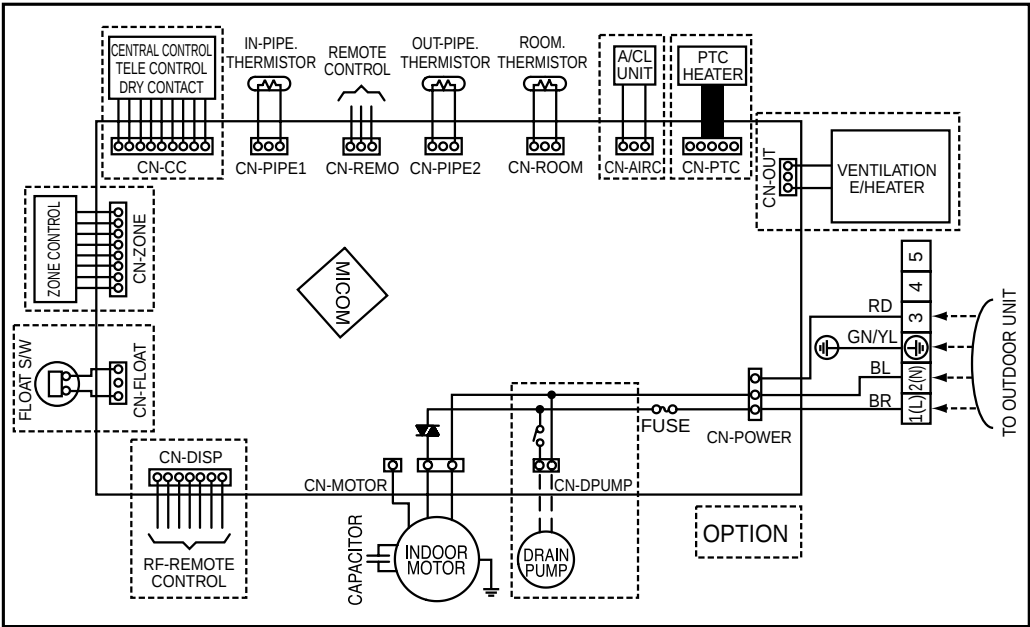
(Unit: mm)

Capacity	A	B	C	D	E	F	(G)	H	J	K	a	b	c	d	e	f	h	i	j	k	l
ABNH186HLAB ABNH246HLAB	932	882	355	45.5	450	30	87	750	163	260	61.5	243	212.3	243	110	130	52	66	81	30	158.5
ABNH306GLAB ABNH366GLAB	1232	1182	355	45.5	450	30	87	830	186	298	229.5	243	232	243	116	160	53	59	81	19	158.5
ABNH486RLAB ABNH606RLAB	1282	1230	477	56	590	30	120	1006	294	380	215	279	241	279	185	168	51	98	83	17	172

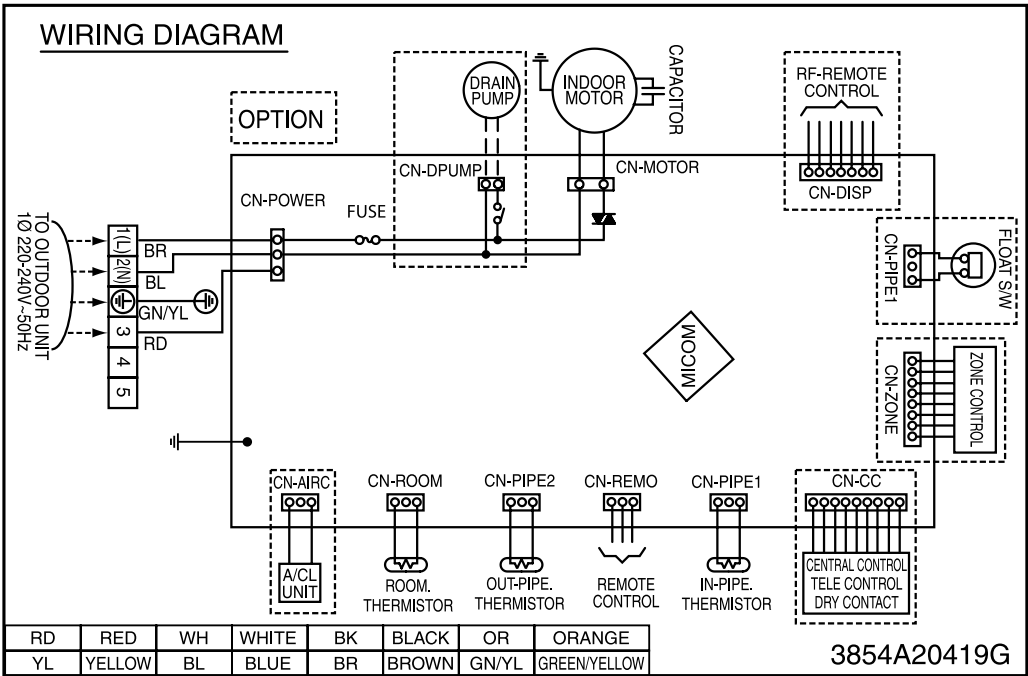


5. Wiring Diagrams

ABNH-HL, ABNH-GL

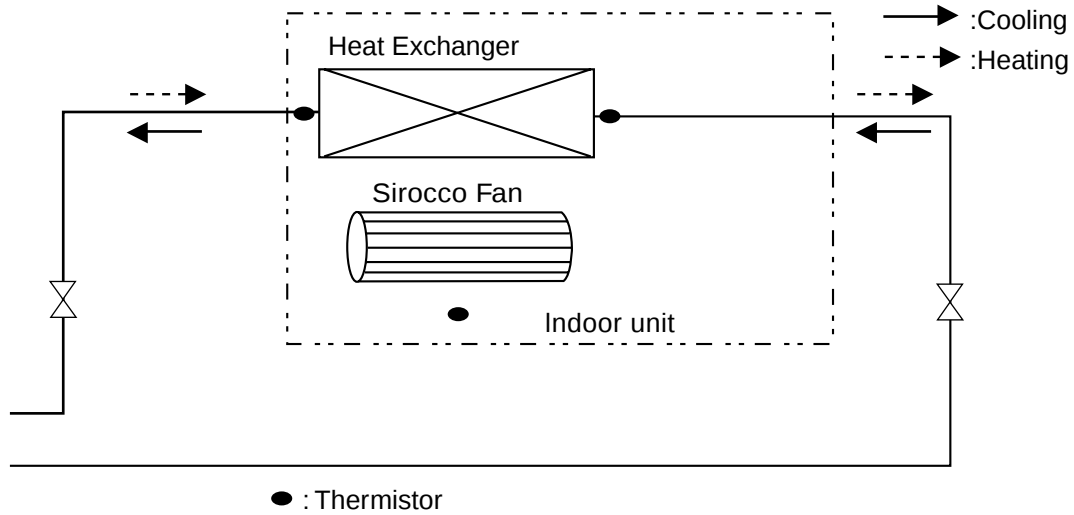


ABNH-RL



CONNECTOR NUMBER	LOCATION	CONNECTOR NUMBER	LOCATION
CN-POWER	AC POWER SUPPLY	CN-PIPE1	PIPE SENSOR
CN-MOTOR	BLDC FAN MOTOR OUTPUT	CN-PIPE2	DISCHARGE PIPE SENSOR
CN-D/PUMP	DRAIN PUMP OUTPUT	CN-REMO	REMOTE CONTROL
CN-DISP	RF-REMOTE CONTROL	CN-ROOM	ROOM SENSOR
CN-FLOAT	FLOAT SWITCH INUT	CN-AIRC	AIR CLEAN
CN-ZONE	ZONE CONTROL OUTPUT	CN-PTC	PTC HEATER
CN-CC	CENTRAL CONTROL OUTPUT	CN-OUT	VENTILATION /ELECTRIC HEATER

6. Piping Diagrams



Refrigerant pipe connection port diameter

[unit: mm(inch)]

Model	Gas	Liquid
ABNH186HLAB [UB18 NHB]	12.7 (1/2)	6.35 (1/4)
ABNH246HLAB [UB24 NHB]		
ABNH306GLAB [UB30 NGB]	15.88(5/8)	
ABNH366GLAB [UB36 NGB]		
ABNH486RLAB [UB48 NRB]	19.05(3/4)	9.52(3/8)
ABNH606RLAB [UB60 NRB]		

7. E.S.P. Setting for

 (E.S.P. Control) provide required constant air volume irrespective of E.S.P. charge.

(1) Open the rear cover of the wired remote-controller to set the mode.

(2) Select one of three selectable modes as follows.

■ Without Zone System

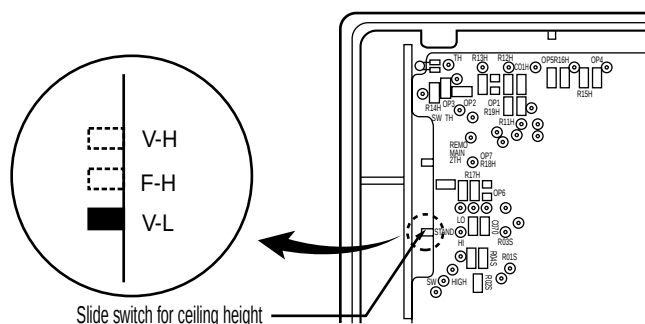
1. Position V-H, F-H:
 - This position sets the maximum E.S.P as a default set.
2. Position V-L:
 - This position sets the minimum E.S.P as a default set.

■ With Zone System

1. Position V-H:
 - Maximum E.S.P setting & Fan speed is varied according to the state of dampers by micom.
2. Position F-H:
 - Maximum E.S.P setting & Fan speed doesn't vary according to the opening & Closing of dampers.
3. Position V-L:
 - Minimum E.S.P setting & Fan speed is varied according to the state of dampers by micom.

*Maximum: 18/24k - 8mmAq
 30/36k - 10mmAq
 48/60k - 15mmAq
 Minimum: All-0mmAq

(3) Move the slide switch to set position.



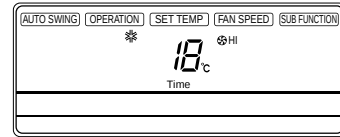
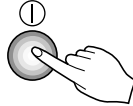
How to Set E.S.P?

Procedure of RPM change:

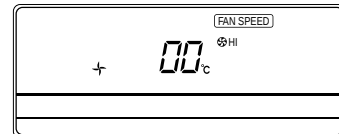
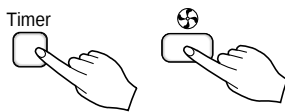
Ex) External Static pressure is 4mmAq for Model Name "ABNH246HLAB".

- To protect the unit, compressor is designed to be off during E.S.P. setting.

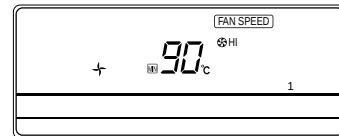
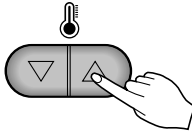
- 1** Push the "On/Off" button.
The unit will start.



- 2** Push the "Timer" and "Wind" button simultaneously for more than 3 seconds.



- 3** Push the "Up" of "Down" button for E.S.P adjustment.
And, adjust the number which you want. (In this example, the number is "190".
Refer to the table 7-1 on the next page.)



Note: The range of selection is from 1~254. Since, the display is two Digit only.
If the range selection is above 100 then the third digit will appear in the screen as shown.

- 4** Shift the fan speed mode by pressing the fan speed button.
And then, Adjust numbers of next steps by repeating the stage 3.
(In this example, the numbers are "220" and "235" respectively.)



- 5** Push the "Timer" and "Wind" button simultaneously for more than 3 seconds.
Then, Wind Data is memorized by the EEPROM of the main PCB.

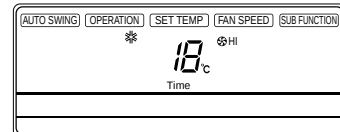
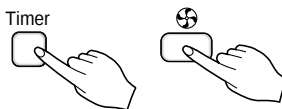


Table 7-1

Static Pressure(mmAq)			0	2	4	6	8	10	12	14	15
Model Name	Step	CMM(CFM)	Setting Value								
ABNH186HLAB [UB18 NHB]	High	16.5(583)	235	230	225	215	180				
	Med	14.5(512)	245	238	235	230	215				
	Low	13(459)	254	252	248	245	240				
ABNH246HLAB [UB24 NHB]	High	18(636)	220	205	190	50	1				
	Med	16.5(583)	235	230	220	200	100				
	Low	14(494)	250	240	235	230	210				
ABNH306GLAB [UB30 NGB]	High	26.5(936)	153	150	150	148	130	1			
	Med	23(812)	173	173	175	175	170	155			
	Low	20(706)	190	190	190	190	190	190			
ABNH366GLAB [UB36 NGB]	High	32(1130)	230	230	225	220	150	1			
	Med	29(1024)	240	238	237	235	230	220			
	Low	26.5(936)	245	245	243	243	240	240			
ABNH486RLAB [UB48 NRB]	High	40(1412)	230	225	220	215	205	200	190	180	160
	Med	35(1235)	250	245	240	235	230	220	215	210	200
	Low	30(1059)	255	255	255	250	245	240	235	230	225
ABNH606RLAB [UB60 NRB]	High	50(1766)	185	180	174	162	154	140	90	5	1
	Med	45(1589)	210	205	199	191	189	180	155	138	110
	Low	40(1423)	230	225	219	215	210	205	193	180	171

Note: 1. To get the desired Airflow & E.S.P combination from the table set the matching value from the table. Value other than that in table will not give the combinations of airflow & ESP which are mentioned in the table.

2. Table 7-1 is based at 230V. According to the fluctuation of voltage, air flow rate varies.

Table 7-2

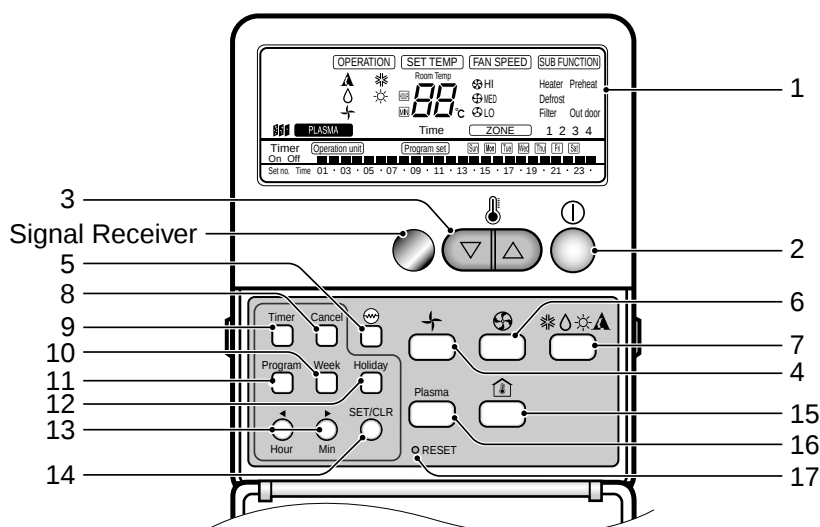
Model Name	Step	Setting Value	Static Pressure(mmAq)								
			0	2	4	6	8	10	12	14	15
			CMM(CFM)								
ABNH186HLAB [UB18 NHB]	High	180	22(777)	21(742)	19.8(669)	18.3(646)	16.5(583)				
	Med	215	18.5(653)	17.8(629)	17.1(604)	16.2(572)	14.5(512)				
	Low	240	16.1(569)	15.6(551)	15.1(533)	14.2(501)	13(459)				
ABNH246HLAB [UB24 NHB]	High	1	24(848)	22.5(795)	20.8(735)	19(671)	18(636)				
	Med	100	21.3(752)	19.9(703)	18.7(660)	17.2(607)	16.5(583)				
	Low	210	17(600)	16.1(569)	15.4(551)	14.7(519)	14(494)				
ABNH306GLAB [UB30 NGB]	High	1	34.2(1208)	33.1(1169)	31.7(1119)	29.9(1056)	27.7(978)	26.5(936)			
	Med	155	27(954)	26.3(929)	26.1(922)	25.8(911)	24.8(876)	23(812)			
	Low	190	21(742)	20.8(735)	20.6(727)	20.4(720)	20.4(720)	20(706)			
ABNH366GLAB [UB36 NGB]	High	1	42(1483)	40(1413)	38(1342)	35.5(1254)	33.5(1183)	32(1130)			
	Med	220	39(1377)	37(1307)	35(1236)	33(1165)	31(1095)	29(1024)			
	Low	240	34(1201)	32.5(1148)	31(1095)	29.5(1042)	27(954)	26.5(936)			
ABNH486RLAB [UB48 NRB]	High	200	49(1730)	47.4(1675)	44.9(1584)	43.3(1529)	41.7(1472)	40(1412)	38.6(1361)	37(1305)	35.4(1249)
	Med	220	44(1554)	42.4(1498)	40.2(1420)	39.2(1384)	36.7(1296)	35(1236)	34.6(1220)	33(1164)	32.2(1137)
	Low	240	38(1342)	37.2(1314)	35(1234)	32.4(1145)	31.6(1114)	30(1059)	28.6(1008)	27(953)	26.2(925)
ABNH606RLAB [UB60 NRB]	High	140	59(2083)	57.4(2028)	55.8(1969)	53.4(1886)	51.7(1826)	50(1766)	46.6(1644)	42.9(1516)	40.6(1432)
	Med	180	53(1871)	51.4(1816)	49.8(1758)	47.4(1674)	45.9(1621)	45(1589)	42.6(1502)	39.6(1397)	38.3(1352)
	Low	205	47(1660)	45.8(1618)	43.8(1547)	42.1(1488)	40.7(1435)	40(1412)	37.8(1335)	35(1234)	33.4(1179)

Notes:

- 1) The above table shows the correlation of External Static Pressure & Air Flow.
- 2) When installing, the value of motor step needs to be set according to E.S.P. of the table 7-2.

8. Operating Instructions

■ Name and Function of Remote Controller



1. Operation display

Displays the operation conditions.

2. On/Off Button

Operation starts when this button is pressed, and stops when the button is pressed again.

3. Set Temperature Button

Used to set the temperature when the desired temperature is obtained.

4. FAN Operation Button

Used to circulate room air without cooling or heating.

5. Electric Heater Button(optional)

Used to set the Electric Heater.

6. Fan Speed Button

Used to set desired fan speed.

7. Operation Mode Selection Button

Used to select the operation mode.

- Auto Operation Mode.
- Cooling Operation Mode.
- Soft Dry Operation Mode.
- Heating Operation Mode.(except cooling model)

8. Timer Cancel Button

Used to cancel the timer.

9. Timer Set Button

Used to set the timer when the desired time is obtained.

10. Week Button

Used to set a day of the week.

11. Program Button

Used to set the weekly timer.

12. Holiday Button

Used to set a holiday of the week.

13. Time Set Button

Used to set the time of the day and change the time in the weekly timer Function.

14. Set and Clear Button

Used to set and clear the weekly timer.

15. Room Temperature Checking Button

Used to check the room temperature.

16. Plasma Air Clean Button(optional)

17. Reset Button

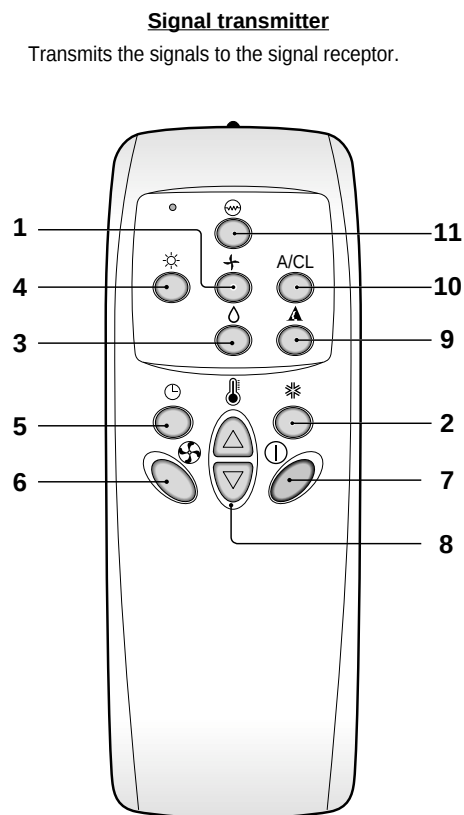
Used to set the current time and clear the setting time.

※ Display temperature can be different from actual room temperature if the remote controller is installed at the place where sun-rays are falling directly or the place nearby heat source.

■ Optional Function

• Wireless Remote Controller

This air-conditioner is equipped with wired remote controller basically. But if you want to have the wireless remote controller, you pay for it.



1. FAN Operation Button

Used to circulate room air without cooling or heating.

2. Cooling Operation Button

3. Soft Dry Operation Button

Used to dehumidify without overcooling.

4. Heating Operation Button

(Heat pump model only)

5. Timer Set Button

Used to set the timer when the desired time is obtained.

Then the wired remote controller is set up to 24 hours by an hour but the wireless remote controller is set up to 7 hours by an hour. Therefore, if you want to set over 7 hours, use the wired remote controller.

6. Fan Speed Button

Used to set the desired fan speed.

7. On/Off Button

Operation starts when this button is pressed, and stops when the button is pressed again.

8. Set Temperature Button

Used to set the temperature when the desired temperature is obtained

9. Auto Operation Button

10. Plasma Air Clean Button(Optional)

11. Electric Heater Button(Optional) Used to set the Electric Heater.

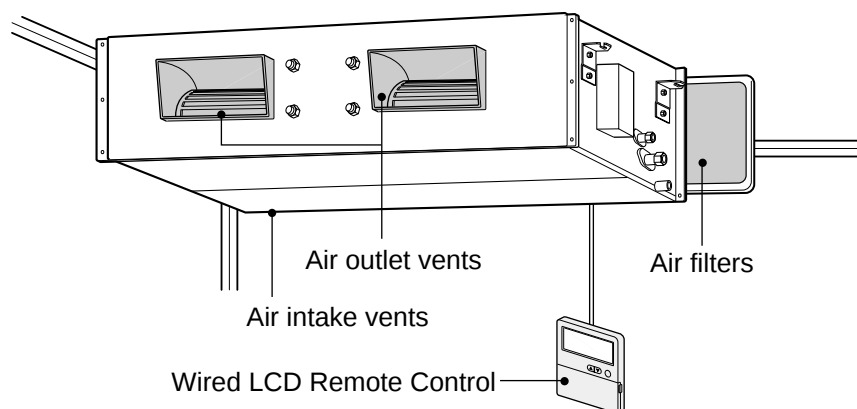


CAUTION : for handling the Remote Controller

- Aim at the signal receptor on the wired remote controller so as to operate.
- The remote control signal can be received at a distance of up to about 7m.
- Be sure that there are no obstructions between the remote controller and the signal receptor.
- Do not drop or throw the remote controller.
- Do not place the remote controller in a location exposed to direct sunlight, or near the heating unit, or any other heat source.
- Block a strong light over the signal receptor with a curtain or etc. so as to prevent the abnormal operation. (ex: electronic quick start, ELBA, inverter type fluorescent lamp)

9. Installation

- Please read this instruction sheet completely before installing the product.
- When the power cord is damaged, replacement work shall be performed by authorized personnel only.
- Installation work must be performed in accordance with the national wiring standards by authorized personnel only.



Required Parts

- Connecting cable
- Pipes: Gas side
Liquid side
- Hanging Bolt
(W 3/8 or M10 length 650mm)
- Insulated drain hose
- Additional Drain hose
(Outer Dia25.4mm)

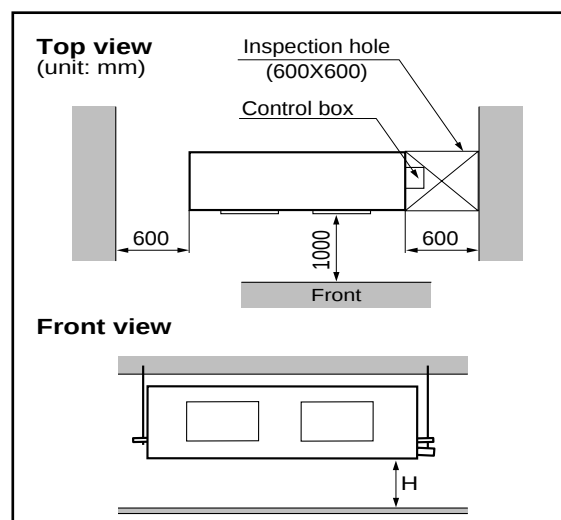
Required Tools

- Level
- Screw driver
- Electric drill
- Hole core drill ($\phi 70\text{mm}$)
- Flaring Tools set
- Torque Wrenches
- Hexagonal Wrench (4mm, 5mm)
- Gas-leak detector
- Owner's Manual
- Thermometer

9.1 Selection of the best location

Install the air conditioner in the location that satisfies the following conditions.

- The place shall easily bear a load exceeding four times the indoor unit's weight.
- The place should have enough area for inspection as shown in figure.
- The place where the unit shall be leveled.
- The place shall allow easy water drainage.(Suitable dimension "H" is necessary to get a slope to drain as figure.)
- The place shall easily connect with the outdoor unit.
- The place where the unit is not affected by an electrical noise.
- The place where air circulation in the room will be good .
- There should not be any heat source or steam near the unit.



9.2 Ceiling dimension and hanging bolt location

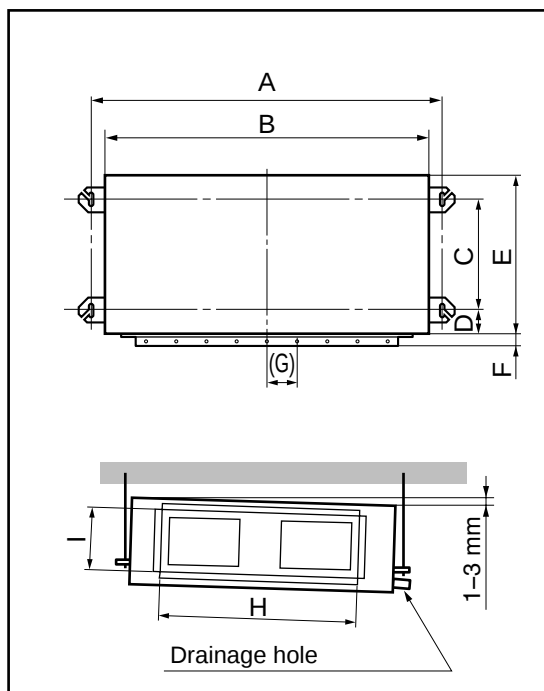
■ Installation of Unit

Install the unit above the ceiling correctly.

CASE 1

POSITION OF SUSPENSION BOLT

- Apply a joint-canvas between the unit and duct to absorb unnecessary vibration.
- Apply a filter Accessory at air return hole.
- Refer to Dimensional Drawings.

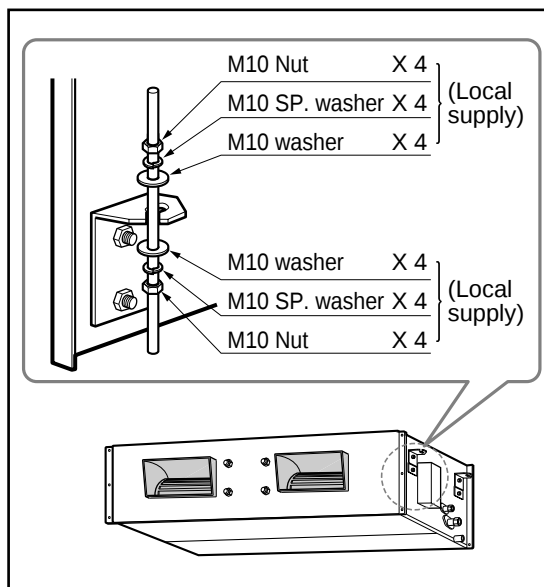


- Install the unit leaning to a drainage hole side as a figure for easy water drainage.

CASE 2

POSITION OF CONSOLE BOLT

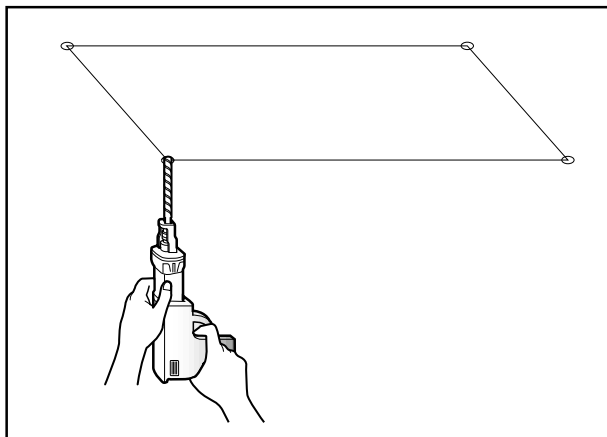
- A place where the unit will be leveled and that can support the weight of the unit.
- A place where the unit can withstand its vibration.
- A place where service can be easily performed.



NOTE:

- Thoroughly study the following installation locations:
 1. In such places as restaurants and kitchens, considerable amount of oil steam and flour adhere to the fan, the fin of the heat exchanger, resulting in heat exchange reduction, spraying, dispersing of water drops, etc.
In these cases, take the following actions:
 - Make sure that the ventilation fan for smoke-collecting hood on a cooking table has sufficient capacity so that it draws oily steam which should not flow into the suction of the air conditioner.
 - Make enough distance from a cooking room to install the air conditioner in such a place where it may not suck in oil steam.
 2. Avoid installing air conditioner in such circumstances where cutting oil mist or iron powder is in suspension in factories, etc.
 3. Avoid places where inflammable gas is generated, flows in, is stored or vented.
 4. Avoid places where sulfurous acid gas or corrosive gas is generated.
 5. Avoid places near high frequency generators.

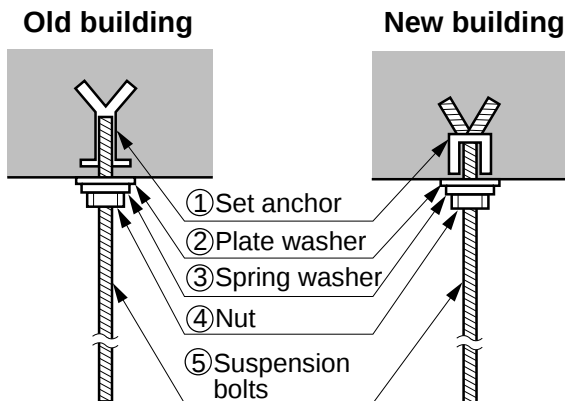
- Select and mark the position for fixing bolts.
- Drill the hole for set anchor on the face of ceiling.



CAUTION

Tighten the nut and bolt to prevent unit falling.

- Insert the set anchor and washer onto the suspension bolts for locking the suspension bolts on the ceiling.
- Mount the suspension bolts to the set anchor firmly.
- Secure the installation plates onto the suspension bolts (adjust level roughly) using nuts, washers and spring washers.



9.3 Connecting Cables

Connect the wires to the terminals on the control board individually according to the outdoor unit connection.

- Ensure that the color of the wires of outdoor unit and the terminal No. are the same as those of indoor unit respectively

Terminal Block in Indoor				
1(L)	2(N)		3	4

Connected to outdoor unit

WARNING

Make sure that the screws of the terminal are free from looseness.

Clamping of cables

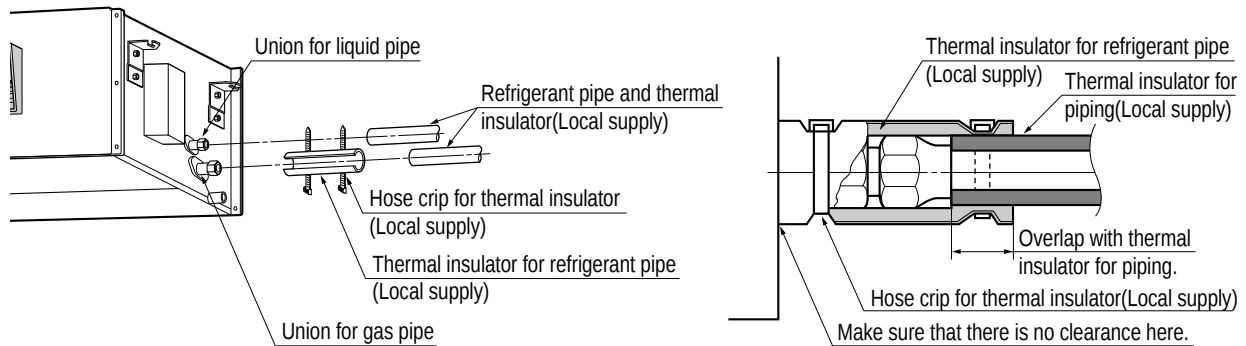
- 1) Arrange 2 power cables on the control panel.
- 2) First, fasten the steel clamp with a screw to the inner boss of control panel.
- 3) For the cooling model, fix the other side of the clamp with a screw strongly. For the heat pump model, put the 0.75mm² cable(thinner cable) on the clamp and tighten it with a plastic clamp to the other boss of the control panel.
- 4) In Australia, the length of power supply cord measured from the entry of the power supply cord to the middle of live pin on the power plug should be over 1.8m.

9.4 Insulation

THERMAL INSULATION

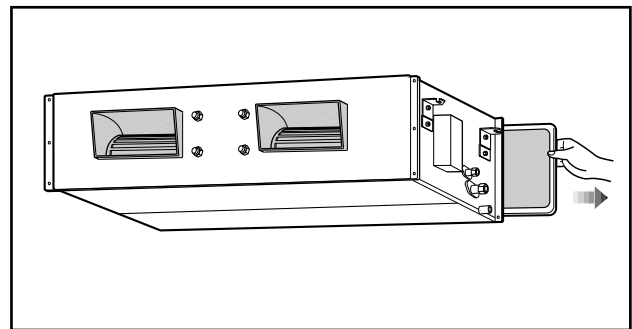
All thermal insulation must comply with local requirement.

INDOOR UNIT



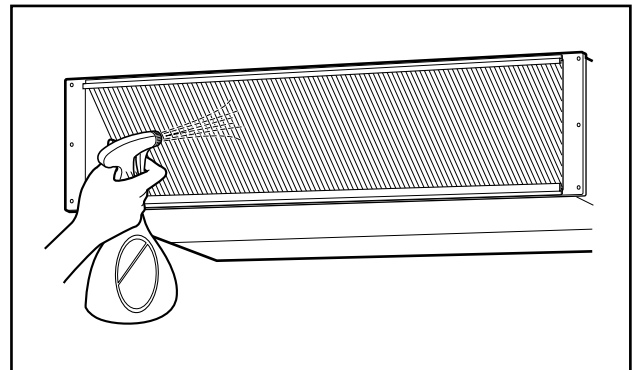
9.5 Checking the Drainage

1. Remove the Air Filter.



2. Check the drainage.

- Spray one or two glasses of water on the evaporator.
- Ensure that water flows to drain hose from indoor unit without any leakage.

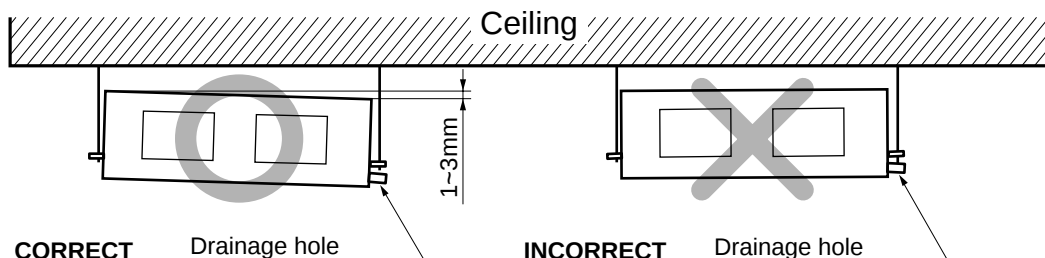


CAUTION

1. **Decline Installation** of indoor unit is very **important for the drain** of the duct type air conditioner.
2. Minimum thickness of the insulation for the connecting pipe should be 5mm.

Front of view

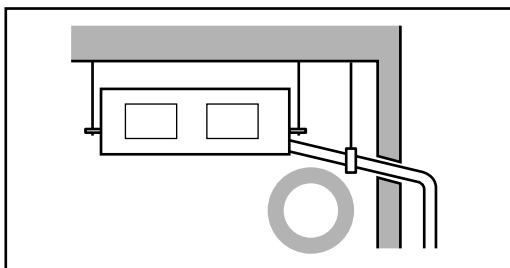
- The unit must be or declined to wards drain hose while installation.



CAUTION FOR GRADIENT OF UNIT AND DRAIN PIPING

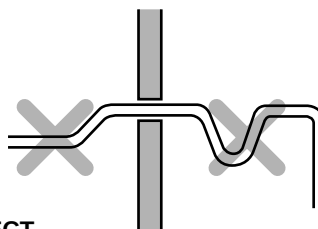
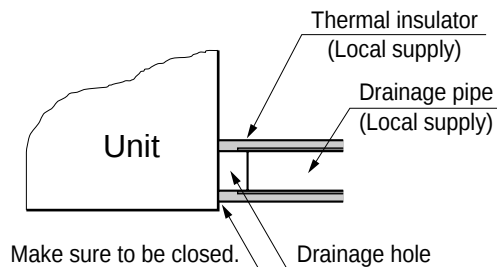
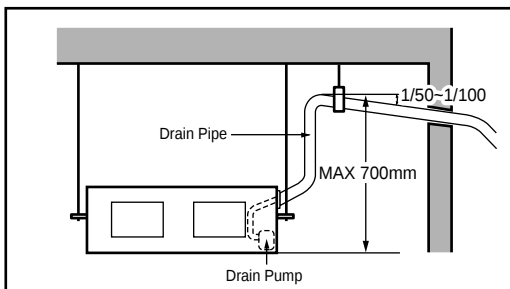
Lay the drain hose with a downware inclination so water will drain out.

- Always lay the drain with downward inclination (1/50 to 1/100). Prevent any upward flow or reverse flow in any part.
- 5mm or thicker formed thermal insulator shall always be provided for the drain pipe.



CORRECT

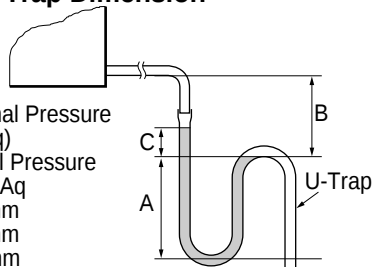
- Install the P-Trap (or U-Trap) to prevent a water leakage caused by the blocking of intake air filter.



INCORRECT

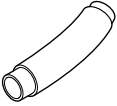
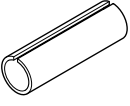
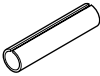
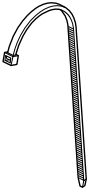
Applied U-Trap Dimension

- $A \geq 70\text{mm}$
- $B \geq 2C$
- $C \geq 2 \times \text{SP}$
- SP = External Pressure (mmAq)
- Ex) External Pressure = 10mmAq
- $A \geq 70\text{mm}$
- $B \geq 40\text{mm}$
- $C \geq 20\text{mm}$



10. Accessories

Standard Accessories

Name	Clamp metal	Drain hose	Insulation for fitting	Clamp	Screws for duct flanges	(Other)
Quantity	1 EA	1 EA	1 set	6 EA	1 set	
Shape			 for gas pipe  for liquid pipe			

- Owner's manual
- Installation manual
- Washers(8 pcs.)

Optional Accessories(For Unit)

No.	Item	Type	Model No.	Component Parts
1	Wireless remote control	With air purifying function	AHWRHS AHWRHD(LCD)	• Wireless remote control : 1EA • Holder : 1EA • Battery : 2EA • Screw : 2EA
2	Plasma air purifying filter	-	ABPAHH	• Plasm Air Purifier Kit: 1EA • Wired Remote Control: 1EA
3	Zone Control	-	ABZCA	• Factory supplied-Zone control PCB • Purchased Locally-Damper, Damper Moter, thermostat
4	Drain Pump	-	ABDPG	• Drain Pump Assembly: 1EA
5	Central control	Simple	PQCSA101S0	• Central control • Installation manual
6	PI485 Gateway	For central control	PHNFP14A0	• PCB: 1EA • Installation manual • Wire assembly

II. Outdoor Units

Introduction67



SINGLE

A

(AUUW-B, AUUW-0 / R410A)69

Introduction


SINGLE A

Outdoor Units - R410A (AUUW-B, AUUW-0)

• Models List

Series		Model name	Power supply
MPS Inverter	Heat Pump	AUUW126B [UU12 WUEB]	1Ø, 220-240V, 50Hz
		AUUW186B [UU18 WUEB]	
		AUUW246B [UU24 WUEB]	
		AUUW306B [UU30 WUEB]	
		AUUW366B [UU36 WUHB]	
		AUUW4860 [UU48 WUYB]	
		AUUW6060 [UU60 WUYB]	

• Indoor Unit Matching

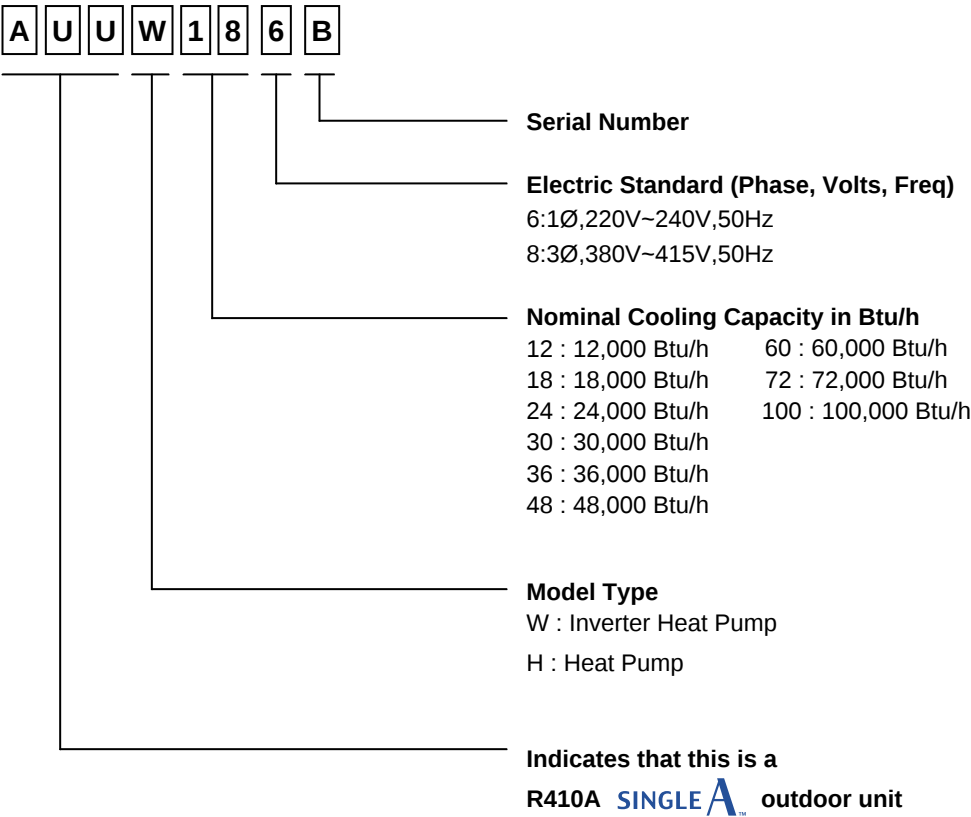
LG's **SINGLE A** system consist of one outdoor unit which can match with three different indoor units as individual system.

The indoor units are ceiling cassette, ceiling concealed duct and ceiling & floor types.

Outdoor unit	Indoor unit	
	Type	Model name
AUUW126B [UU12 WUEB]	Ceiling Cassette	ATNH126ELFB [UT12 NEB]
	Ceiling & Floor	AVNH126ELAB [UV12 NEB]
AUUW186B [UU18 WUEB]	Ceiling Cassette	ATNH186ELFB [UT18 NEB]
	Ceiling & Floor	AVNH186BLAB [UV18NBB]
	Ceiling Concealed Duct	ABNH186HLAB [UB18 NHB]
AUUW246B [UU24 WUEB]	Ceiling Cassette	ATNH246FLFB [UT24 NFB]
	Ceiling & Floor	AVNH246BLAB [UV24 NBB]
	Ceiling Concealed Duct	ABNH246HLAB [UB24 NHB]
AUUW306B [UU30 WUEB]	Ceiling Cassette	ATNH306FLFB [UT30 NFB]
	Ceiling & Floor	AVNH306BLAB [UV30 NBB]
	Ceiling Concealed Duct	ABNH306GLAB [UB30 NGB]
AUUW366B [UU36 WUHB]	Ceiling Cassette	ATNH366DLFB [UT36 NDB]
	Ceiling Concealed Duct	ABNH366GLAB [UB36 NGB]
AUUW4860 [UU48 WUYB]	Ceiling Cassette	ATNH486DLFB [UT48 NDB]
	Ceiling Concealed Duct	ABNH486RLAB [UB48 NRB]
AUUW6060 [UU60 WUYB]	Ceiling Cassette	ATNH606DLFB [UT60 NDB]
	Ceiling Concealed Duct	ABNH606RLAB [UB60 NRB]

2. Avoid installing air conditioner in such places where cooking oil or iron powder is generated.
3. Avoid places where inflammable gas is generated.
4. Avoid place where noxious gas is generated.
5. Avoid places near high frequency generators.

• Model Number Nomenclature



MPS Inverter SINGLE A



SINGLE A

(R410A-Outdoor Units)

AUUW-B, AUUW-0

Contents

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4. Wiring Diagrams	80
5. Piping Diagrams.....	86
6. Electric Characteristics	89
7. Operation Range.....	90
8. Installation.....	91

1. Features & Benefits

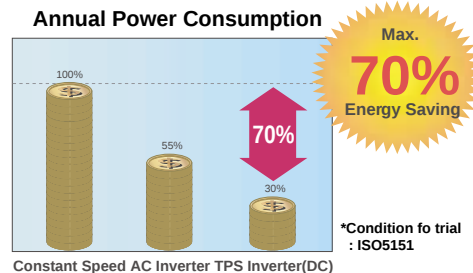
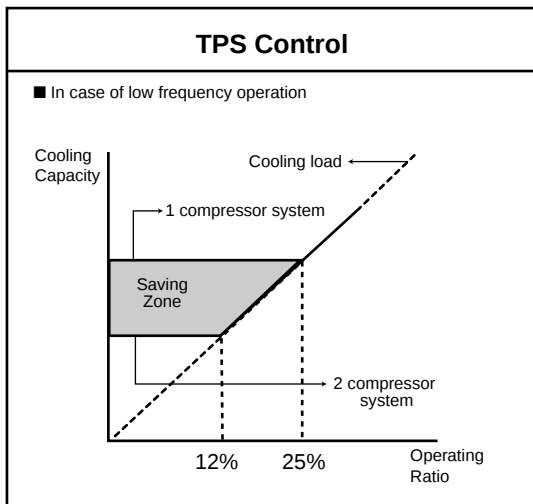
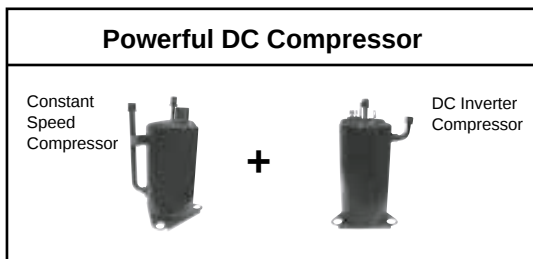
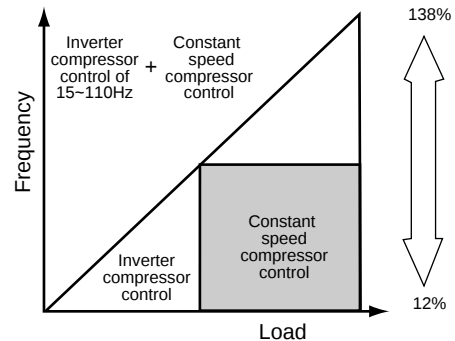
MPS(Multi Power System) Inverter Control

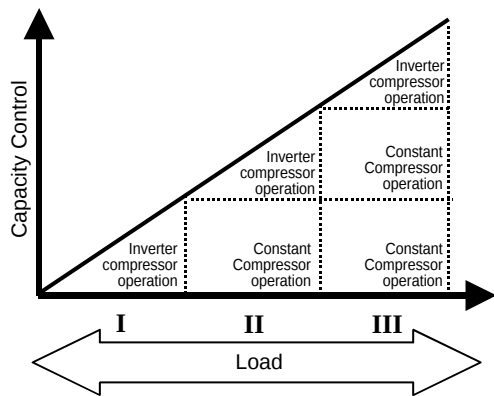


Max. 70% energy saving with MPS inverter control

The MPS inverter Multi is a big energy saving air-conditioning system which uses one high efficiency constant speed compressor and the DC inverter compressor.

- According to air-conditioning load, the operation is controlled precisely
- Precise inverter frequency control for inverter compressor enables to reduce capacity of individual control units.
- MPS Control
 - Load is low : Only Inverter Comp.
 - Load is high : Inverter Comp + Constant Comp
- Big Energy saving Max. 70% with using MPS DC inverter
- High E.E.R.





Operating Range	MPS Inverter SINGLE A	Compressor Application
I	18k grade	Inverter only
I + II	24k/30k/36k Grade	+ Inverter + Constant
I + II + III	48k/60k Grade	+ + Inverter + Constant + Constant

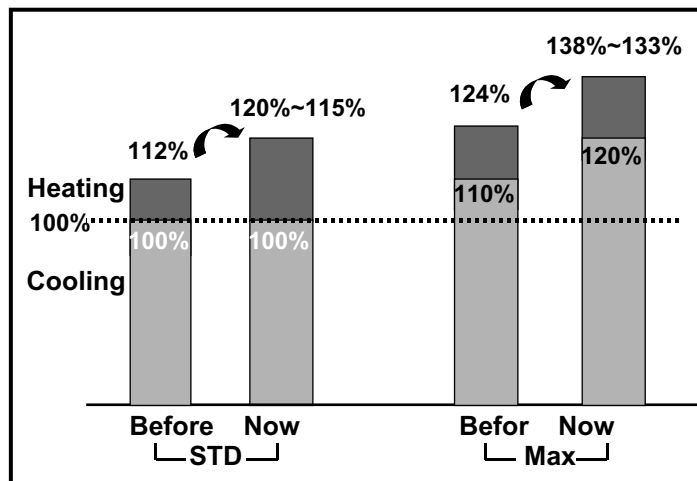
(※ 18k means 18,000 Btu/h)

• **MPS Inverter systems use high COP DC Compressor that take charge of about 50% of total capacity and high COP constant speed compressors.**

- Minimum operation (About 12~50% load operation)
: High COP DC Compressor covers 12~50% load, COP of system is higher than DC Inverter only system.
 - Standard operation (About 50~90% load operation)
: High COP DC Compressor covers about 10~40% load and constant speed compressor covers 50% load, COP of system less inferior or equivalent to DC Inverter only system.
 - Maximum operation (About 90~130% load operation)
: COP of DC Inverter compressor goes down according to frequency . In case of MPS system, DC Inverter compressor rotates between high COP frequency and constant speed compressor covers rest load. COP of system is higher than DC Inverter Single system.
- Seasonal EER of DC Inv MPS is the best.

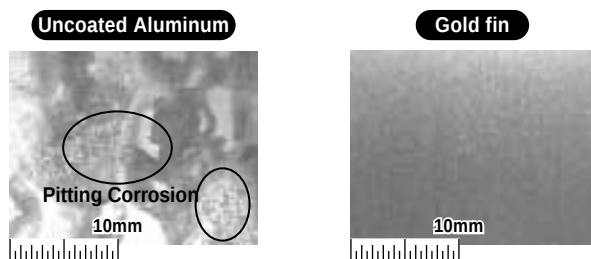
Heating Capacity Improved

- Using TPS technology, LG multi system achieved world's best wide range of operation which is from 12%~120% in cooling mode and from 12%~138% in heating mode to give quicker cooling and heating.
- Compared cooling capacity
 - Standard heating capacity 120%
 - Max heating capacity 138%



Energy Saving Gold Fin

- Outdoor Heat Exchanger fins are coated with anti-corrosive & hydrophilic layers. It prevents the corrosion of heat exchanger. Fins remain as new even after long time of operation and maintain efficiency of heat exchanger constant. It also saves power & maintenance Cost



Salt Spray Test Result : After 360 hours
[Test Standard: ASTM B-117, KS D 9502]

2. Specifications

Nominal Capacity and Nominal Input						
Indoor Units			ATNH126ELFB(C) [UT12 NEB(C)]	ATNH186ELFB(C) [UT18 NEB(C)]	ATNH246FLFB(C) [UT24 NFB(C)]	ATNH306FLFB(C) [UT30 NFB(C)]
Outdoor Units			AUUW126B [UU12W UEB]	AUUW186B [UU18W UEB]	AUUW246B [UU24W UEB]	AUUW306B [UU30W UEB]
Nominal Capacity (Min~Rated~Max)	Cooling	kw	1.35 ~ 3.52 ~ 4.69	1.35 ~ 5.28 ~ 6.33	1.35 ~ 7.03 ~ 8.44	1.35 ~ 8.21 ~ 9.85
		Btu/h	4,600 ~ 12,000 ~ 16,000	4,600 ~ 18,000 ~ 21,600	4,600 ~ 24,000 ~ 28,800	4,600 ~ 28,000 ~ 33,600
	Heating	kw	1.41 ~ 4.04 ~ 5.28	1.41 ~ 5.95 ~ 7.28	1.41 ~ 8.09 ~ 9.38	1.41 ~ 9.44 ~ 11.3
		Btu/h	4,800 ~ 13,800 ~ 18,000	4,800 ~ 20,300 ~ 24,840	4,800 ~ 27,600 ~ 32,000	4,800 ~ 32,200 ~ 38,640
Nominal Input (Min~Rated~Max)	Cooling	kw	0.38 ~ 1.07 ~ 1.45	0.48 ~ 1.64 ~ 2.37	0.49 ~ 2.19 ~ 2.97	0.49 ~ 2.55 ~ 2.98
	Heating	kw	0.45 ~ 1.10 ~ 1.35	0.59 ~ 1.65 ~ 2.37	0.63 ~ 2.21 ~ 3.07	0.70 ~ 2.60 ~ 4.50

Nominal Capacity and Nominal Input						
Indoor Units			ATNH366DLFB(C) [UT368 NDB(C)]	ABNH186HLAB(C) [UB18 NHB(C)]	ABNH246HLAB(C) [UB24 NHB(C)]	ABNH306GLAB(C) [UB30 NGB(C)]
Outdoor Units			AUUW366B [UU36W UHB]	AUUW186B [UU18W UEB]	AUUW246B [UU24W UEB]	AUUW306B [UU30W UEB]
Nominal Capacity (Min~Rated~Max)	Cooling	kw	1.47 ~ 10.6 ~ 14.1	1.35 ~ 5.28 ~ 6.33	1.35 ~ 7.03 ~ 8.44	1.35 ~ 8.79 ~ 10.6
		Btu/h	5,000 ~ 36,000 ~ 48,000	4,600 ~ 18,000 ~ 21,600	4,600 ~ 24,000 ~ 28,800	4,600 ~ 30,000 ~ 36,000
	Heating	kw	1.61 ~ 12.1 ~ 15.5	1.41 ~ 5.95 ~ 7.28	1.41 ~ 8.09 ~ 9.38	1.41 ~ 10.1 ~ 12.1
		Btu/h	5,500 ~ 41,400 ~ 53,000	4,800 ~ 20,300 ~ 24,840	4,800 ~ 27,600 ~ 32,000	4,800 ~ 34,500 ~ 41,400
Nominal Input (Min~Rated~Max)	Cooling	kw	0.6 ~ 3.28 ~ 4.80	0.48 ~ 1.64 ~ 2.37	0.49 ~ 2.19 ~ 2.97	0.49 ~ 2.73 ~ 2.98
	Heating	kw	0.95 ~ 3.34 ~ 5.10	0.59 ~ 1.65 ~ 2.37	0.63 ~ 2.21 ~ 3.07	0.70 ~ 2.80 ~ 4.50

Nominal Capacity and Nominal Input						
Indoor Units			AVNH126ELAB(C) [UV12 NEB(C)]	AVNH186BLAB(C) [UV18 NBB(C)]	AVNH246BLAB(C) [UV24 NBB(C)]	AVNH306BLAB(C) [UV30 NBB(C)]
Outdoor Units			AUUW126B [UU12W UEB]	AUUW186B [UU18W UEB]	AUUW246B [UU24W UEB]	AUUW306B [UU30W UEB]
Nominal Capacity (Min~Rated~Max)	Cooling	kw	1.35 ~ 3.52 ~ 4.69	1.35 ~ 5.28 ~ 6.33	1.35 ~ 7.03 ~ 8.44	1.35 ~ 7.74 ~ 9.28
		Btu/h	4600 ~ 12,000 ~ 16,000	4,600 ~ 18,000 ~ 21,600	4,600 ~ 24,000 ~ 28,800	4,600 ~ 26,400 ~ 31,680
	Heating	kw	1.41 ~ 4.04 ~ 5.28	1.41 ~ 5.95 ~ 7.28	1.41 ~ 8.09 ~ 9.38	1.41 ~ 8.88 ~ 10.7
		Btu/h	4800 ~ 13,800 ~ 18,000	4,800 ~ 20,300 ~ 24,840	4,800 ~ 27,600 ~ 32,000	4,800 ~ 30,300 ~ 36,360
Nominal Input (Min~Rated~Max)	Cooling	kw	0.38 ~ 1.07 ~ 1.45	0.48 ~ 1.64 ~ 2.37	0.49 ~ 2.19 ~ 2.97	0.49 ~ 2.41 ~ 2.98
	Heating	kw	0.45 ~ 1.10 ~ 1.35	0.59 ~ 1.65 ~ 2.37	0.63 ~ 2.21 ~ 3.07	0.70 ~ 2.44 ~ 4.50

Nominal Capacity and Nominal Input						
Outdoor Units			AUUW126B [UU12W UEB]	AUUW186B [UU18W UEB]	AUUW246B [UU24W UEB]	AUUW306B [UU30W UEB]
Running Current	Cooling/Heating	A	1.6 ~6.5/2.0 ~ 5.8	2.3~7.5/2.6~10.6	2.3~13.2/3.3~13.7	2.3~13.0/3.3~19.7
Starting Current	Cooling/Heating	A	17	17	31	35
Power supply		Ø, v, Hz	1, 220~240, 50	1, 220~240, 50	1, 220~240, 50	1, 220~240, 50
Power Supply Cable (Includes earth)		No.* mm ²	3*2.5	3*2.5	3*2.5	3*2.5
Interunit Cable(Includes earth)		No.* mm ²	4*0.75	4*0.75	4*0.75	4*0.75
Dimensions	W*H*D	mm(inch)	870*655*320 (34.3*25.8*12.6)	870*655*320 (34.3*25.8*12.6)	870*808*320(34.3*31.8*12.6)	870*1060*320 (34.3*41.7*12.6)
Net Weight	Outdoor	kg(lbs)	46(101)	52(115)	69(152)	80(176)
Compressor (Inverter)	Type		e-Scroll	e-Scroll	e-Scroll	e-Scroll
	Quantity		1	1	1	1
	Model		5CS130XCC03	5CS130XCC03	5CS130XCC03	5CS130XCC03
	Motor Input	kW	1.41	1.41	1.41	1.41
	Oil Charge	cc	480	480	480	480
	Oil Type		RB68A (POE)	RB68A (POE)	RB68A (POE)	RB68A (POE)
Compressor (Constant)	Type		-	-	Rotary	Rotary
	Model		-	-	5KS150EAB01	5KS205DAX
	Quantity		-	-	1	1
	Motor Input	kW	-	-	1.29	1.76
	Oil Charge	cc	-	-	660	670
	Oil Type		-	-	RB68A (POE)	RB68A (POE)
Refrigerant	Charge(at 7.5m)	g(oz)	1100(40) at 7.5m	1500(52.91)	1750(61.72)	2100(74.07)
	Type		R410A	R410A	R410A	R410A
	Control		L.E.V	L.E.V	L.E.V	L.E.V
Heat exchanger	Fins per inch		18	18	18	18
	No. of Rows & Column/No.		1R,28C	2R,28C	2R,36C	2R,48C
	Tube Size (OD)	mm(inch)	7.0(0.276)	7.0(0.276)	7.0(0.276)	7.0(0.276)
	Defrosting Method		Reversing cycle	Reversing cycle	Reversing cycle	Reversing cycle
Fan motor	Model		IC28640LG28S	IC28640LG28S	IC28640LG28Y	IC9625LGSY x 2
	Output	kW	0.12	0.12	0.14	0.065 x 2
	Capacitor	µF/Vac	6/370	6/370	6/370	2.0/370
	Type		Propeller	Propeller	Propeller	Propeller
Fan	No. Used / Diameter	EA/mm(inch)	460(1/18.1)	460(1/18.1)	460(1/18.1)	420(2/16.5)
	Discharge	Side / Top	Side Discharge	Side Discharge	Side Discharge	Side Discharge
Air Circulation		CMM(CFM)	50(1766)	50(1766)	51(1801)	32(1130)*2
Noise Level (H/L)	Sound Press,1m	dB(A)+3	51/45	51/45	52/46	50/46
Piping connections	Liquid	mm(inch)	6.35 (1/4)	6.35 (1/4)	6.35 (1/4)	6.35 (1/4)
	Gas	mm(inch)	9.52 (3/8)	12.7 (1/2)	12.7 (1/2)	15.88 (5/8)
Max. Piping Length/Elevation		m	15/10	40/30	50/30	50/30
Additional Refrigerant Charge (Over 7.5m)		g/m	20	25	30	35

Note :

1. Capacities are based on the following conditions:

Cooling: - Indoor Temperature 27°C(80.6°F) DB /19°C(66.2°F) WB
- Outdoor Temperature 35°C(95°F) DB /24°C(75.2°F) WBHeating: - Indoor Temperature 20°C(68°F) DB / 15°C(59°F) WB
- Outdoor Temperature 7°C(44.6°F) DB / 6°C(42.8°F) WBPiping Length - Interconnecting Piping Length 7.5m
- Level Difference of Zero.

2. Due to our policy of innovation some specifications may be changed without notification.

3. At least two indoor units should be connected.

4. Wiring cable size must comply with the applicable local and national code.

Conversion FormulakW = Btu/h × 0.0002931
kcal/h = Btu/h × 0.252
CFM = CMM × 35.3

Nominal Capacity and Nominal Input					
Indoor Units			ATNH366DLFB(C) [UT36 NDB(C)]	ATNH486DLFB(C) [UT48 NDB(C)]	ATNH606DLFB(C) [UT60 NDB(C)]
Outdoor Units			AUUW366B [UU36W UHB]	AUUW4860 [UU48W UYB]	AUUW6060 [UU60W UYB]
Nominal Capacity (Min~Rated~Max)	Cooling	kw	1.47 ~ 10.6 ~ 14.1	5.47 ~ 14.1 ~ 16.2	6.38 ~ 16.4 ~ 18.9
		Btu/h	5,000 ~ 36,000 ~ 48,000	18,660 ~ 48,000 ~ 55,200	21,770 ~ 56,000 ~ 64,400
	Heating	kw	1.61 ~ 12.1 ~ 15.5	6.29 ~ 16.2 ~ 18.6	7.34 ~ 18.9 ~ 20.8
		Btu/h	5,500 ~ 41,400 ~ 53,000	21,460 ~ 55,200 ~ 63,480	25,030 ~ 64,400 ~ 70,840
Nominal Input (Min~Rated~Max)	Cooling	kw	0.6 ~ 3.28 ~ 4.80	2.16 ~ 4.90 ~ 5.50	2.57 ~ 5.83 ~ 6.50
	Heating	kw	0.95 ~ 3.34 ~ 5.10	2.22 ~ 5.04 ~ 5.70	2.91 ~ 6.61 ~ 7.45

Nominal Capacity and Nominal Input					
Indoor Units			ABNH366GLAB(C) [UB36 NGB(C)]	ABNH486RLAB(C) [UB48 NRB(C)]	ABNH606RLAB(C) [UB60 NRB(C)]
Outdoor Units			AUUW366B [UU36W UHB]	AUUW4860 [UU48W UYB]	AUUW6060 [UU60W UYB]
Nominal Capacity (Min~Rated~Max)	Cooling	kw	1.47 ~ 10.6 ~ 14.1	5.47 ~ 14.1 ~ 16.2	6.38 ~ 16.4 ~ 18.9
		Btu/h	5000 ~ 36,000 ~ 48,000	18,660 ~ 48,000 ~ 55,200	21,770 ~ 56,000 ~ 64,400
	Heating	kw	1.61 ~ 12.1 ~ 15.5	6.29 ~ 16.2 ~ 18.6	7.34 ~ 18.9 ~ 20.8
		Btu/h	5500 ~ 41,400 ~ 53,000	21,460 ~ 55,200 ~ 63,480	25,030 ~ 64,400 ~ 70,840
Nominal Input (Min~Rated~Max)	Cooling	kw	0.6 ~ 3.28 ~ 4.80	2.16 ~ 4.90 ~ 5.50	2.57 ~ 5.83 ~ 6.50
	Heating	kw	0.95 ~ 3.34 ~ 5.10	2.22 ~ 5.04 ~ 5.70	2.91 ~ 6.61 ~ 7.45

Nominal Capacity and Nominal Input

Outdoor Units			AUW366B [UU36W UHB]	AUW4860 [UU48W UYB]	AUW6060 [UU60W UYB]
Running Current	Cooling/Heating	A	2.9~20.9/4.6~23.1	8.5~26.6/8.6~27.3	9.3~31.3/10.1~35.5
Starting Current	Cooling/Heating	A	67	43	74
Power supply		Ø, v, Hz	1, 220~240, 50	1, 220~240, 50	1, 220~240, 50
Power Supply Cable (Includes earth)		No.* mm ²	3*5.0	3*5.0	3*5.0
Interunit Cable(Includes earth)		No.* mm ²	4*0.75	4*1.25 (Includes earth)	4*1.25 (Includes earth)
Dimensions	W*H*D	mm(inch)	900*1165*370 (35.4*45.8*14.5)	806*1,507*690 (31.7*59.3*27.1)	806*1,507*690 (31.7*59.3*27.1)
Net Weight	Outdoor	kg(lbs)	105(231)	142(312)	148(326)
Compressor (Inverter)	Type		e-Scroll	e-Scroll	e-Scroll
	Quantity		1	1	1
	Model		5CS130XCC03	5CS130XCC03	5CS130XCC03
	Motor Input	kW	1.41	1.41	1.41
	Oil Charge	cc	480	480	480
	Oil Type		RB68A (POE)	RB68A (POE)	RB68A (POE)
Compressor (Constant)	Type		Rotary	Rotary	Rotary
	Model		5JS315D	5JS315D	5JS315D
	Quantity		1	2	2
	Motor Input	kW	2.99	2.99 x 2	2.99 x 2
	Oil Charge	cc	1130	1130 x 2	1130 x 2
	Oil Type		RB68A (POE)	RB68A (POE)	RB68A (POE)
Refrigerant	Charge(at 7.5m)	g(oz)	3500(123.45)	7100(250.4)	7100(250.4)
	Type		R410A	R410A	R410A
	Control		L.E.V	L.E.V	L.E.V
Heat exchanger	Fins per inch		18	18	18
	No. of Rows & Column/No.		2R,52C	2R,53C x 2	2R,53C x 2
	Tube Size (OD)	mm(inch)	7.0(0.276)	7.0(0.276)	7.0(0.276)
	Defrosting Method		Reversing cycle	Reversing cycle	Reversing cycle
Fan motor	Model		IC28640LG28J x 2	ARE676E01	ARE676E01
	Output	kW	0.12 x 2	0.27	0.27
	Capacitor	µF/Vac	6/370	10/370	10/370
	Type		Propeller	Propeller	Propeller
Fan	No. Used / Diameter	EA/mm(inch)	460(2/18.1)	526(1/20.7)	526(1/20.7)
	Discharge	Side / Top	Side Discharge	Top Discharge	Top Discharge
Air Circulation		CMM(CFM)	53(1872) *2	90(3179)	90(3179)
Noise Level (H/L)	Sound Press,1m	dB(A)+3	58/54	59/56	59/56
Piping connections	Liquid	mm(inch)	6.35 (1/4)	9.52 (3/8)	9.52 (3/8)
	Gas	mm(inch)	15.88 (5/8)	19.05 (3/4)	19.05 (3/4)
Max. Piping Length/Elevation		m	50/30	70/30	70/30
Additional Refrigerant Charge		g/m	35 (Over 7.5m)	50 (Over 30m)	50 (Over 30m)

Note :

1. Capacities are based on the following conditions:

Cooling: - Indoor Temperature 27°C(80.6°F) DB /19°C(66.2°F) WB

- Outdoor Temperature 35°C(95°F) DB /24°C(75.2°F) WB

Heating: - Indoor Temperature 20°C(68°F) DB / 15°C(59°F) WB

- Outdoor Temperature 7°C(44.6°F) DB / 6°C(42.8°F) WB

Piping Length - Interconnecting Piping Length 7.5m

- Level Difference of Zero.

2. Due to our policy of innovation some specifications may be changed without notification.

3. At least two indoor units should be connected.

4. Wiring cable size must comply with the applicable local and national code.

Conversion Formula

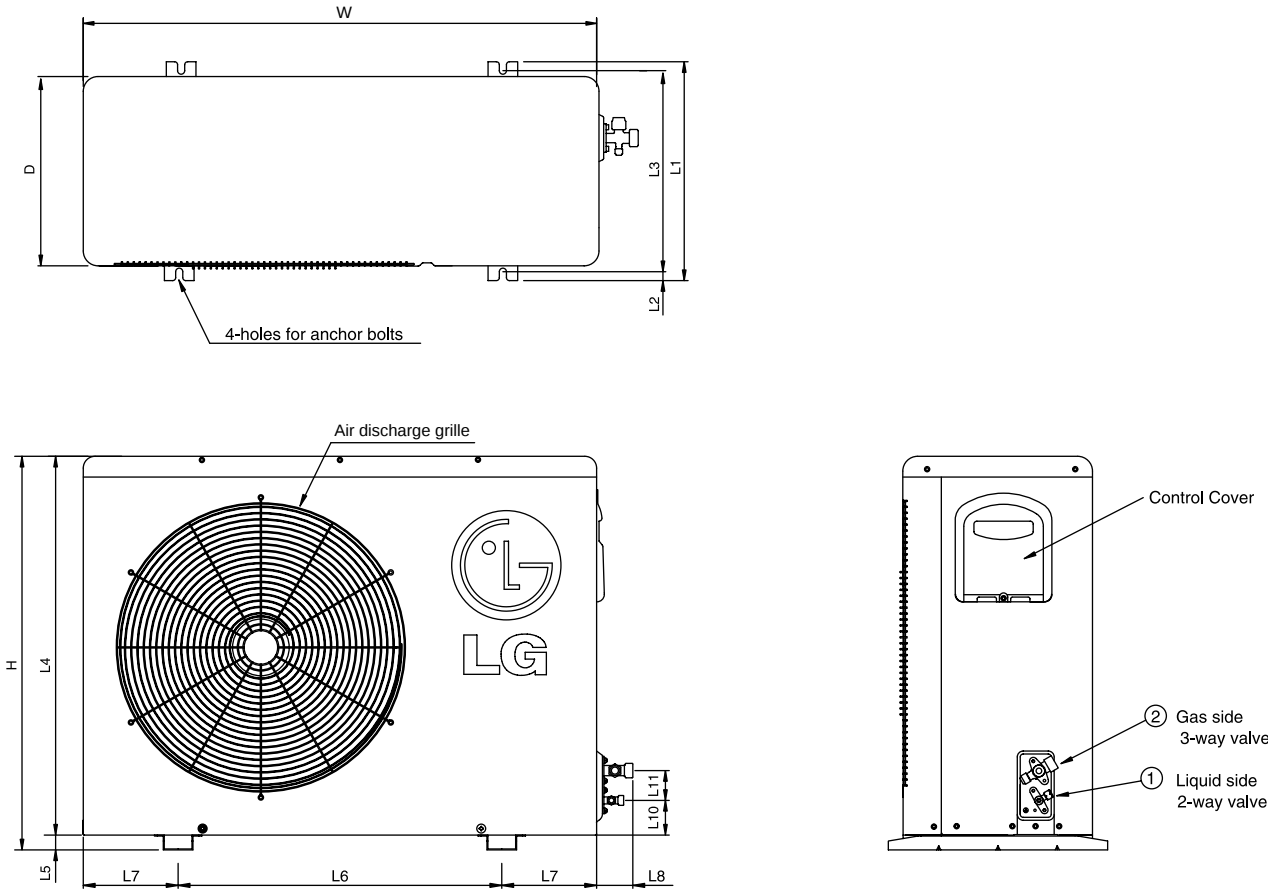
kW = Btu/h × 0.0002931

kcal/h = Btu/h × 0.252

CFM = CMM × 35.3

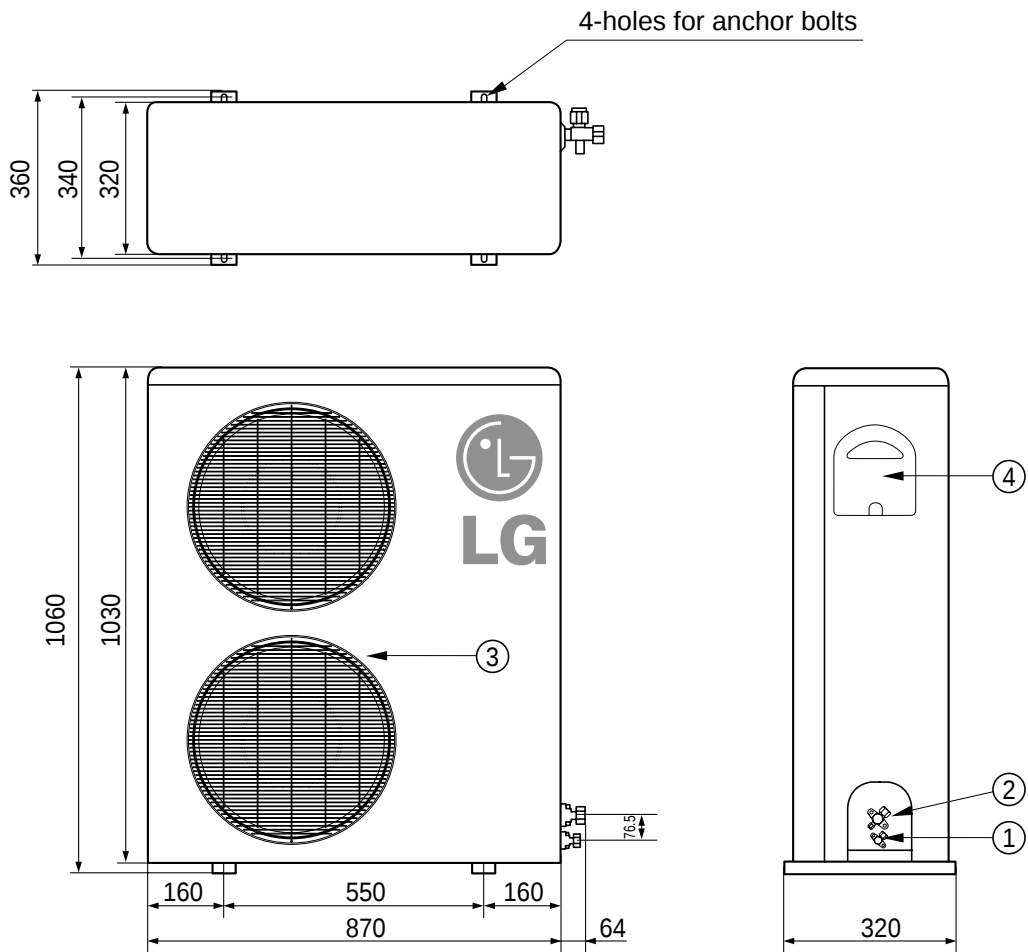
3. Dimensional Drawings

AUUW126B [UU12 WUEB]/AUUW186B [UU18 WUEB]/AUUW246B [UU24 WUEB]



Model		AUUW126B [UU12 WUEB] AUUW186B [UU18 WUEB]	AUUW246B [UU24 WUEB]
Dimensions			
W	mm	870	870
H	mm	655	800
D	mm	320	320
L1	mm	370	370
L2	mm	25	25
L3	mm	340	340
L4	mm	775	775
L5	mm	25	25
L6	mm	546	546
L7	mm	162	162
L8	mm	162	162
L9	mm	54	54
L10	mm	74.5	74.5
L11	mm	79	79
①	mm	Ø6.35	Ø6.35
②	mm	Ø12.7	Ø12.7

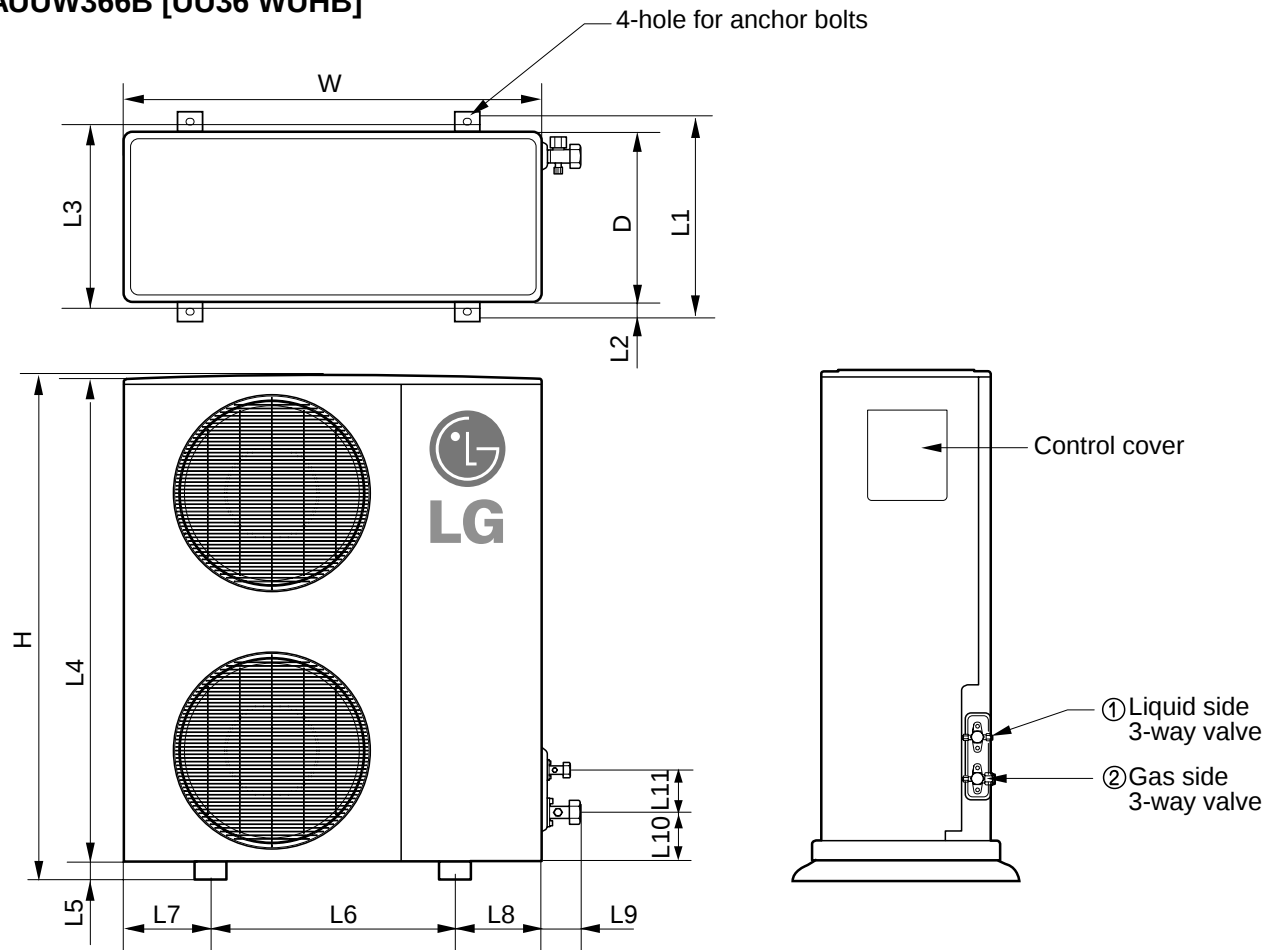
AUUW306B [UU30 WUEB]



(Unit: mm)

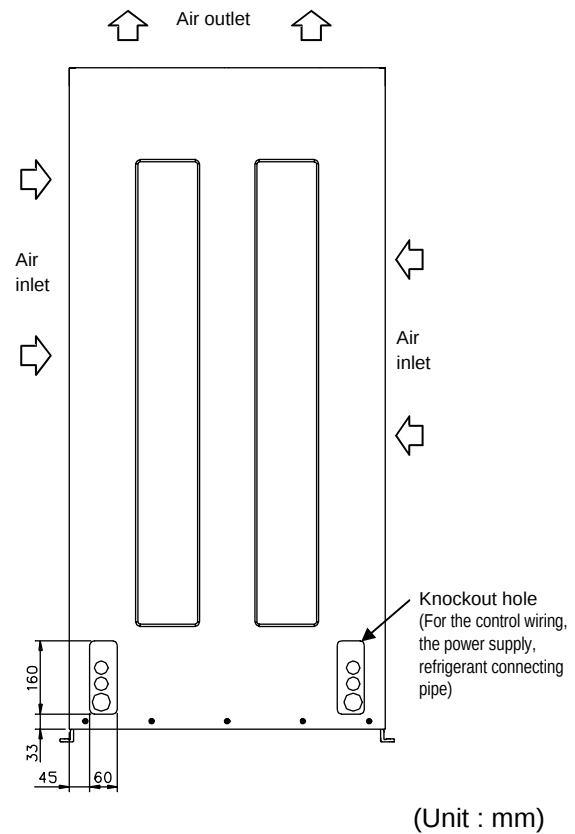
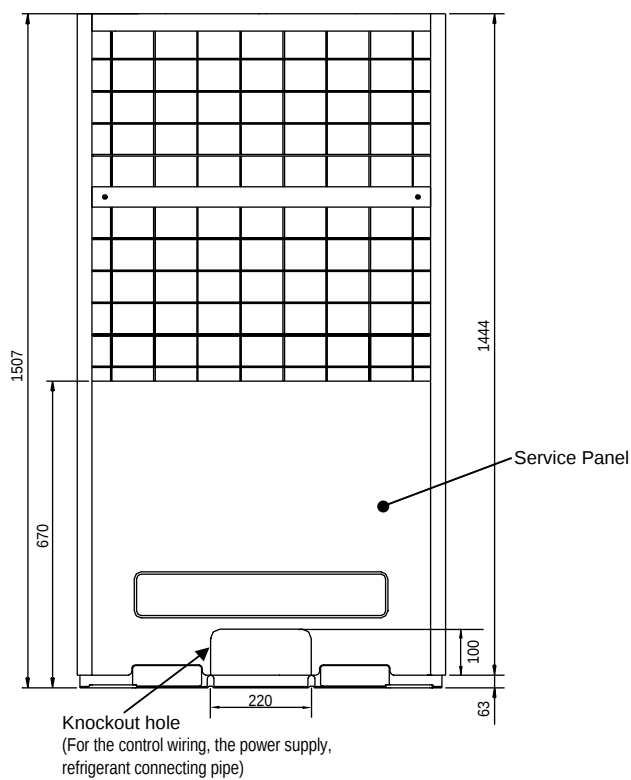
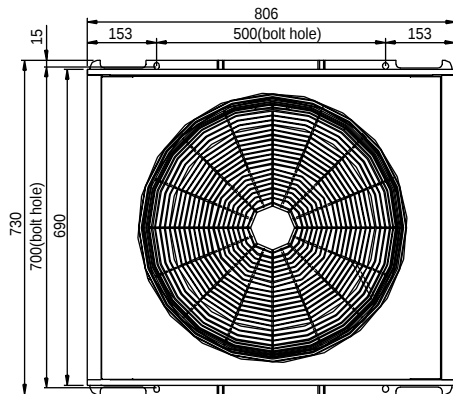
Number	Name	Description
1	Liquid side service valve(mm)	Ø6.35
2	Gas side service valve(mm)	Ø15.88
3	Air discharge grill	
4	Control Cover	

AUUW366B [UU36 WUHB]



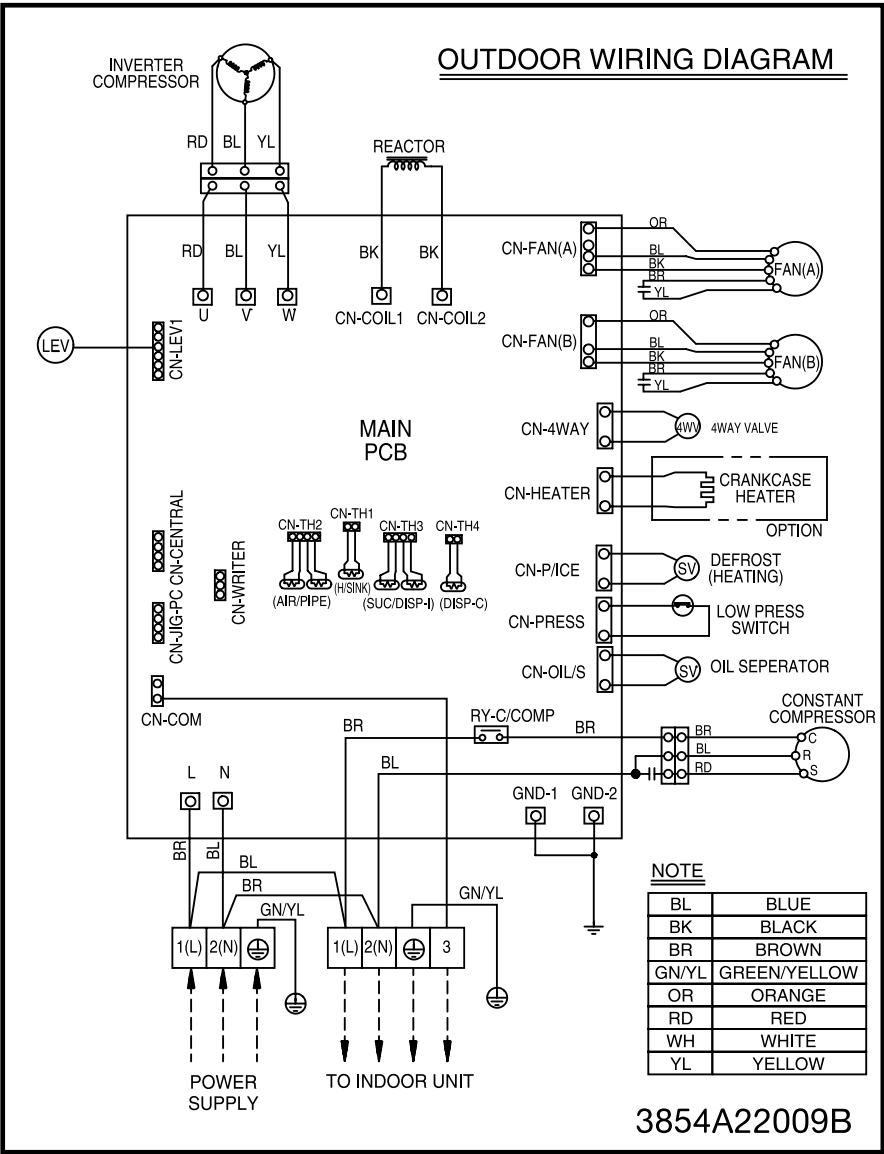
Model		AUUW366B [UU36 WUHB]
Dimensions		
W	mm	900
H	mm	1,165
D	mm	370
L1	mm	460
L2	mm	45
L3	mm	410
L4	mm	1,135
L5	mm	30
L6	mm	550
L7	mm	175
L8	mm	175
L9	mm	112
L10	mm	120
L11	mm	83
①	mm	Ø6.35
②	mm	Ø15.88

AUUW4860 [UU48 WUYB]
AUUW6060 [UU60 WUYB]

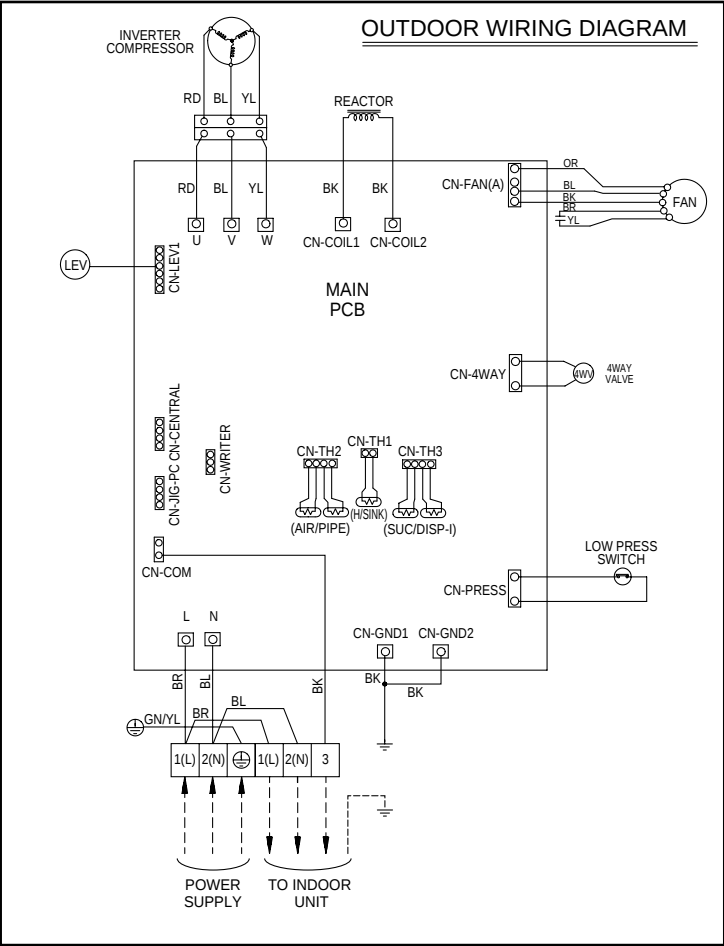


4. Wiring Diagrams

AUUW126B [UU12 WUEB]



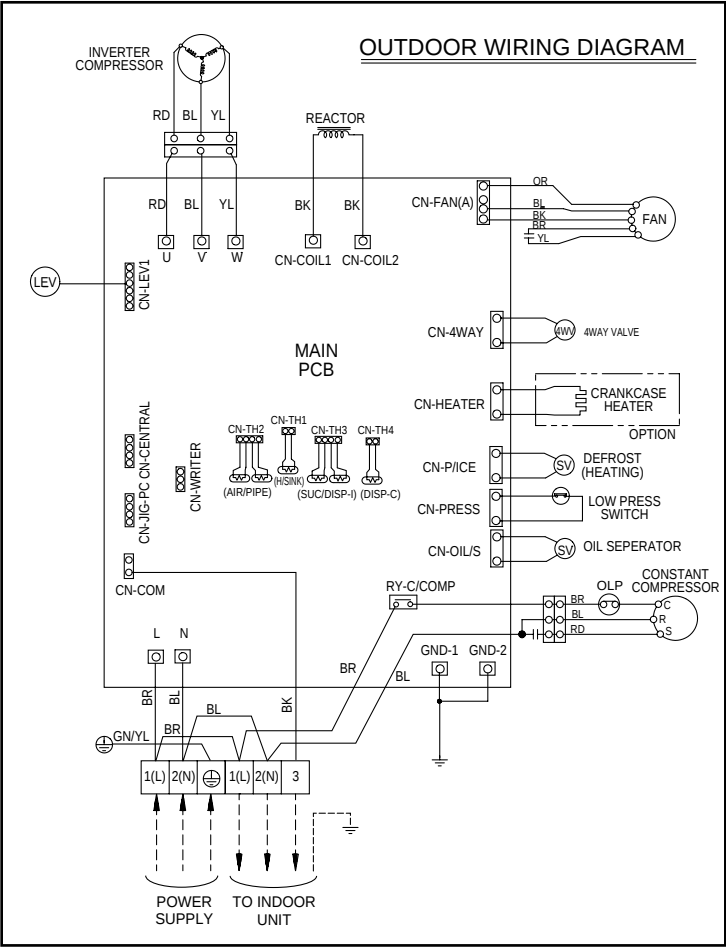
AUUW186B [UU18 WUEB]



Notes:

BL	BLUE	BK	BLACK	BR	BROWN
RD	RED	OR	ORANGE	WH	WHITE
YL	YELLOW	GN/YL	GREEN/YELLOW	-----	FIELD WIRING

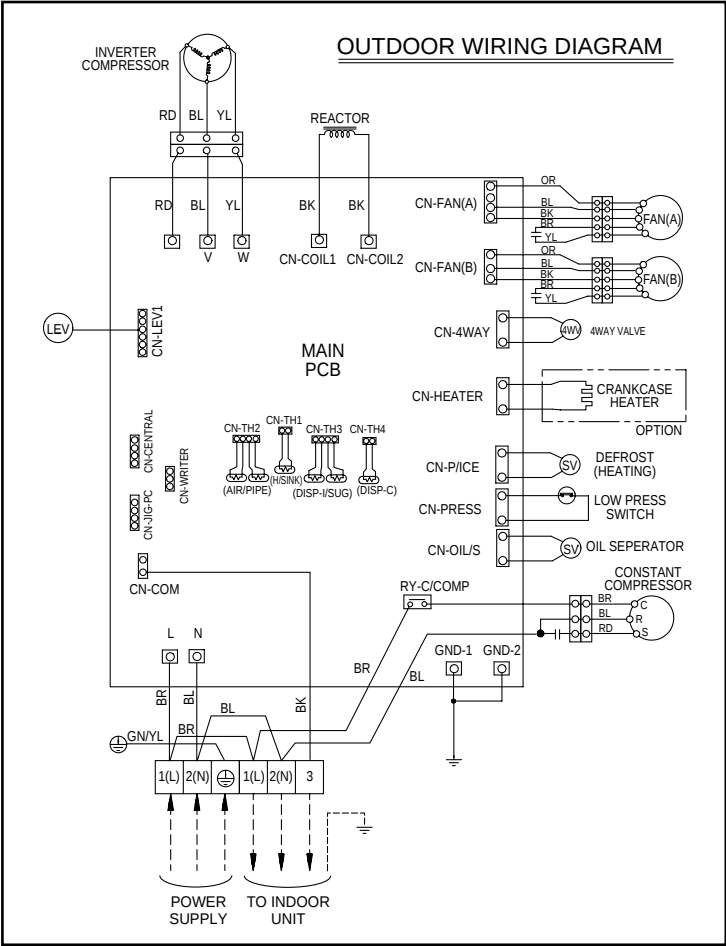
AUUW246B [UU24 WUEB]



Notes:

BL	BLUE	BK	BLACK	BR	BROWN
RD	RED	OR	ORANGE	WH	WHITE
YL	YELLOW	GN/YL	GREEN/YELLOW	-----	FIELD WIRING

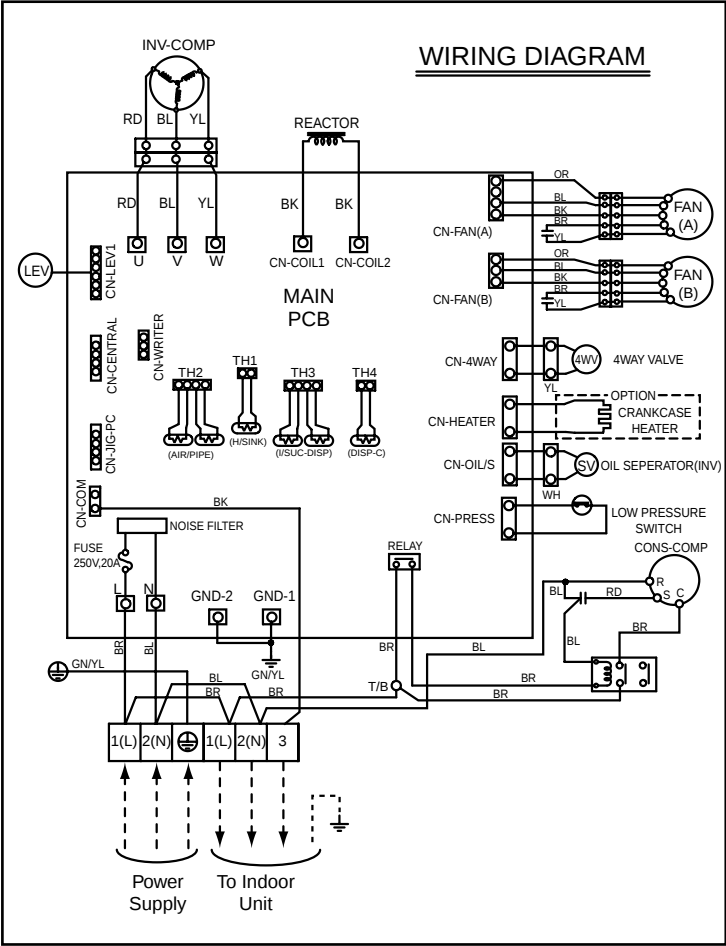
AUUW306B [UU30 WUEB]



Notes:

BL	BLUE	BK	BLACK	BR	BROWN
RD	RED	OR	ORANGE	WH	WHITE
YL	YELLOW	GN/YL	GREEN/YELLOW	-----	FIELD WIRING

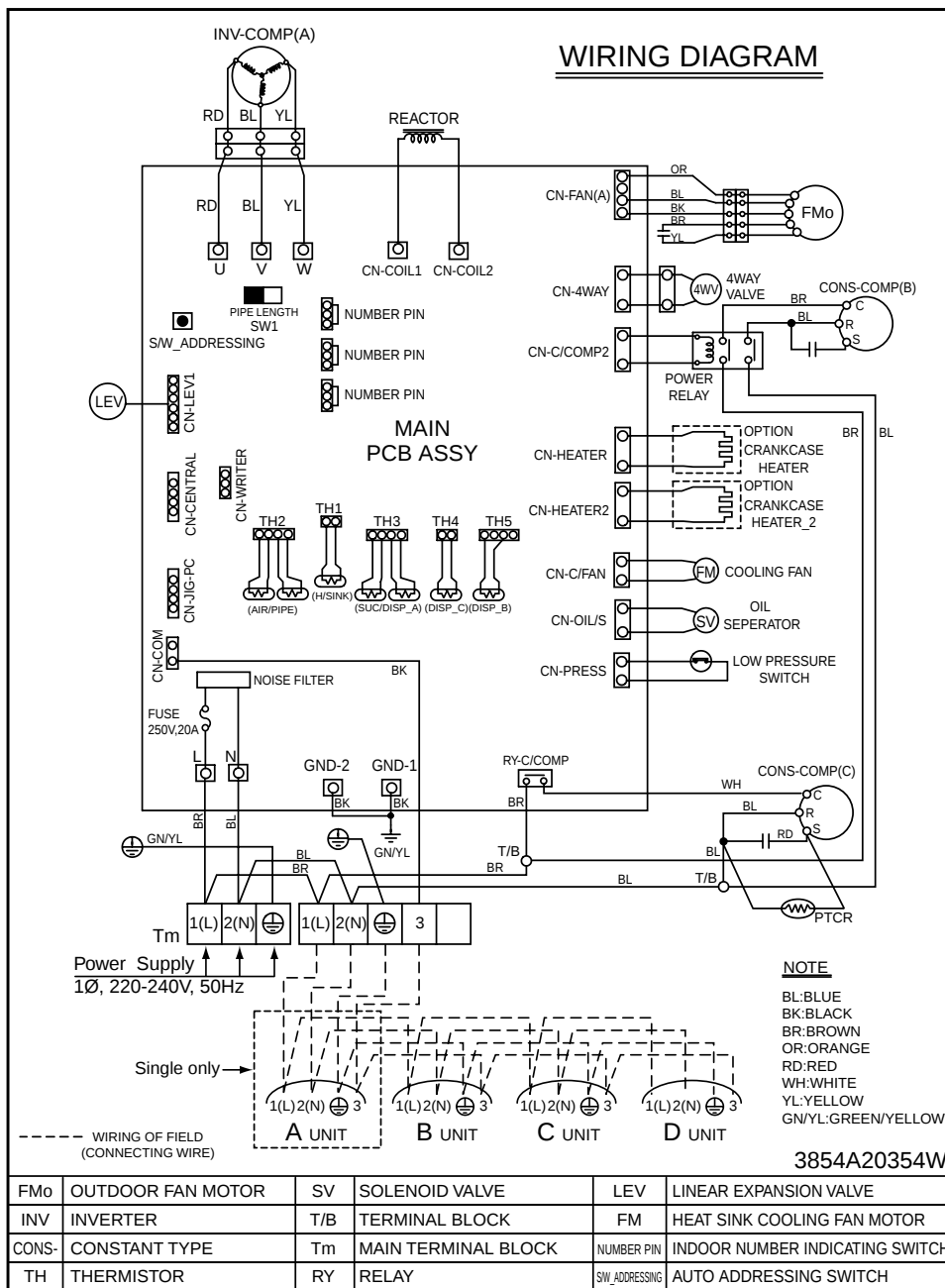
AUUW366B [UU36 WUHB]



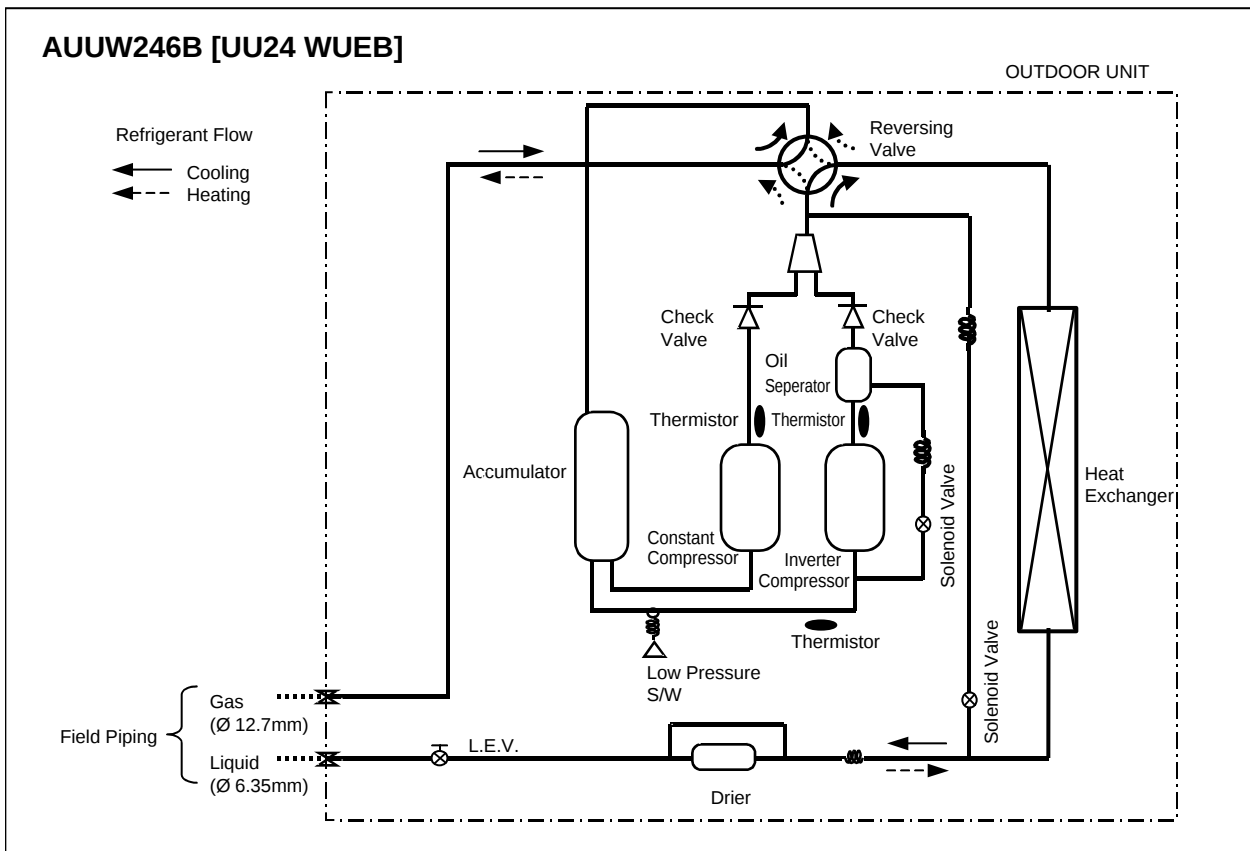
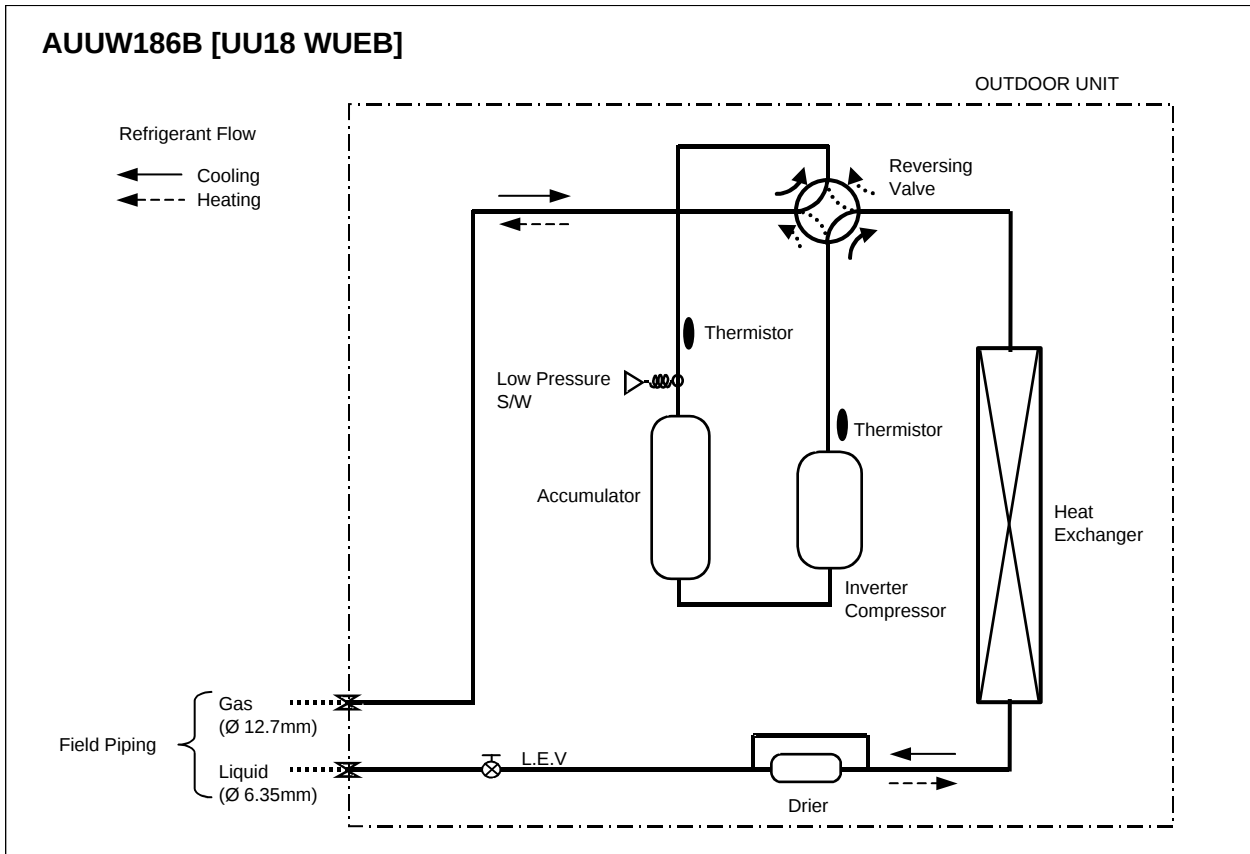
Notes:

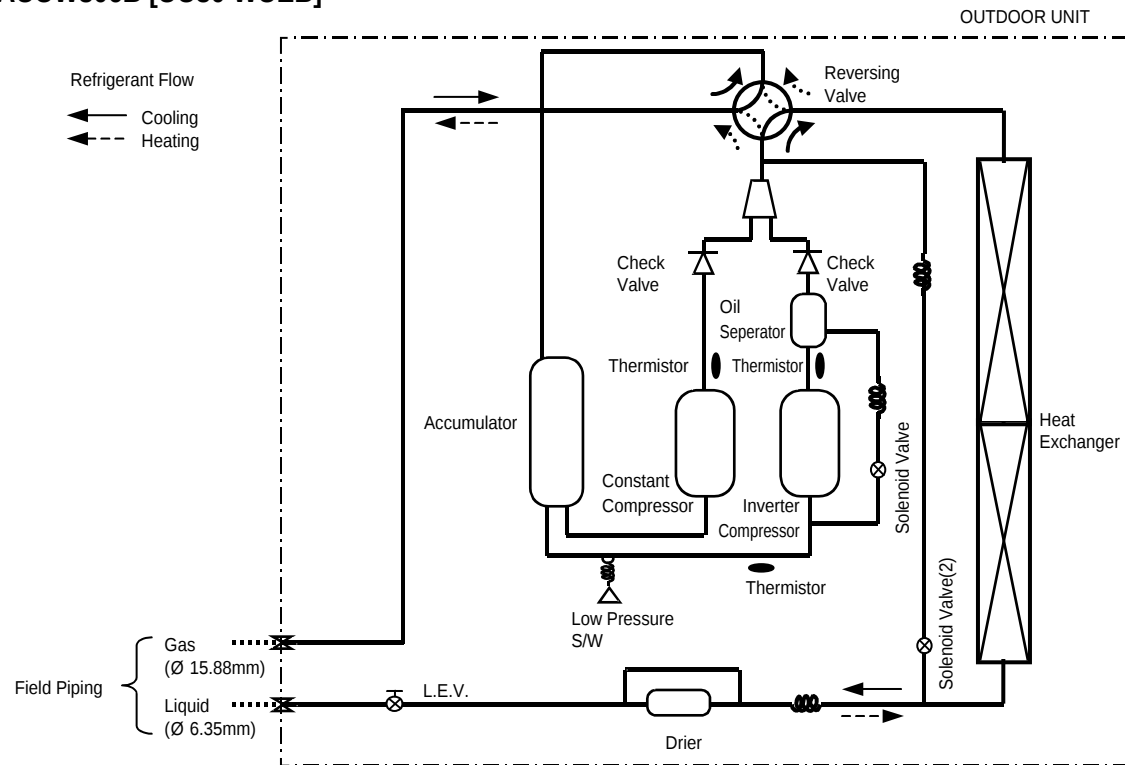
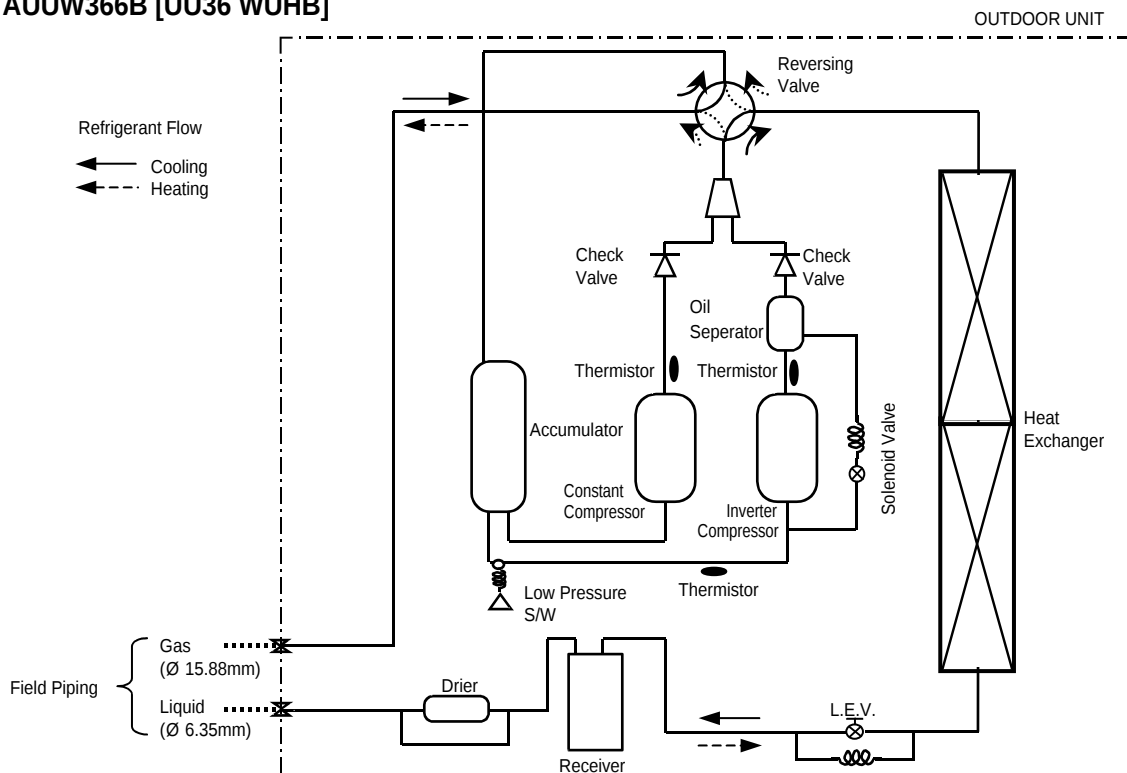
BL	BLUE	BK	BLACK	BR	BROWN
RD	RED	OR	ORANGE	WH	WHITE
YL	YELLOW	GN/YL	GREEN/YELLOW	-----	FIELD WIRING

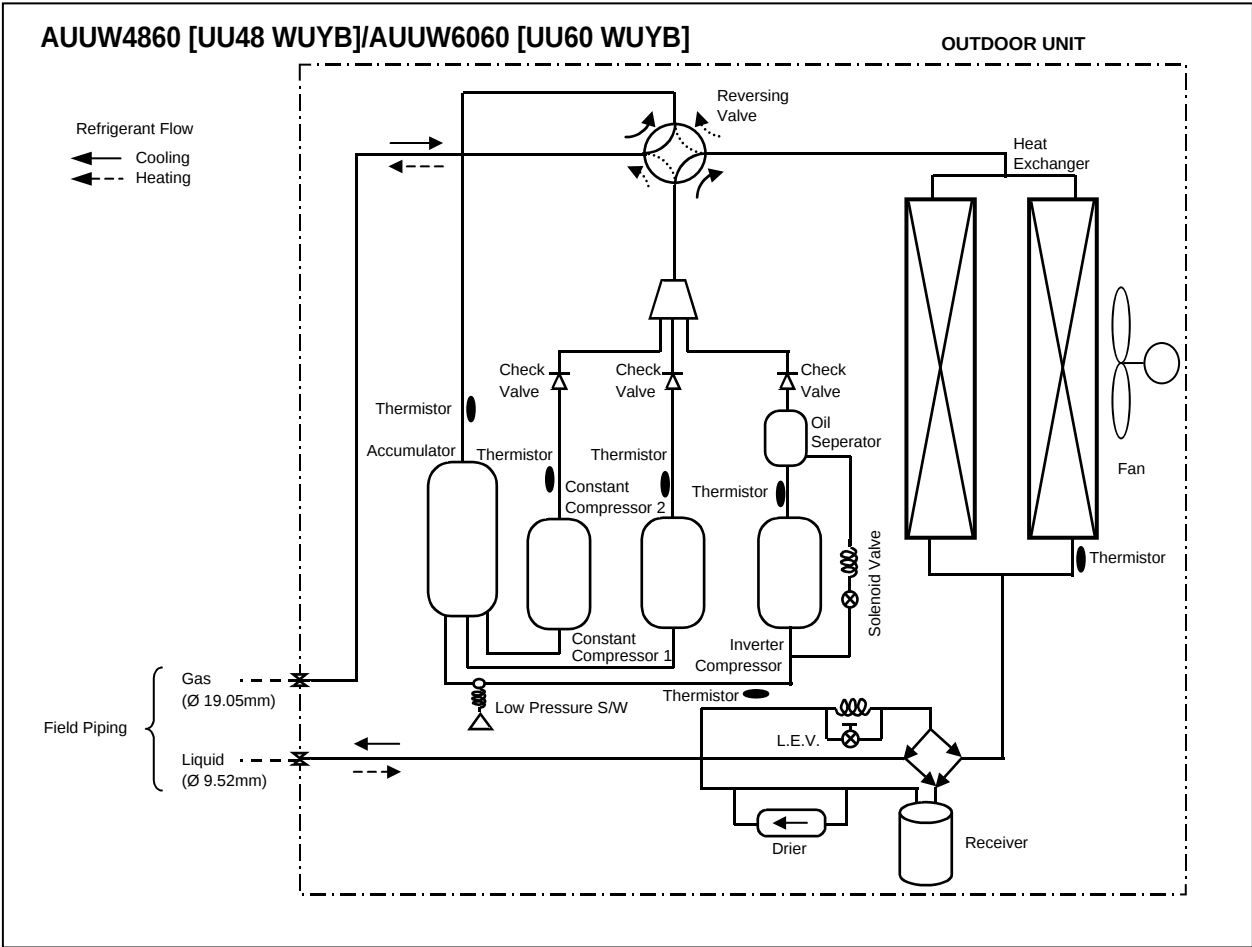
AUUW4860 [UU48 WUYB]/AUUW6060 [UU60 WUYB]



5. Piping Diagram



AUUW306B [UU30 WUEB]**AUUW366B [UU36 WUHB]**



6. Electric Characteristics

Unit					Power		Compressor		OFM	
Model	Type	Hz	Voltage	Voltage range	MCA	MOP	MSC	RLA	kW	FLA
AUUW126B (UU12W UEB)	inverter	50	220~240	Min. : 198 Max. : 264	8.13	14.6	10	7.0	0.12	0.68
AUUW186B (UU18W UEB)					13.2	23.9	10	7.0	0.12	0.68
AUUW246B (UU24W UEB)					17.1	30.8	10/25	7.0/6.0	0.14	0.73
AUUW306B (UU30W UEB)					24.6	44.3	10/28	7.0/8.2	0.16	0.92
AUUW366B (UU36W UEB)					30.3	53.4	10/63	7.0/14.0	0.24	1.46
AUUW4860 (UU48W UYB)					36.0	63.3	10/28/28	7.0/8.2/8.2	0.4	1.87
AUUW6060 (UU60W UYB)					46.2	81.7	10/28/63	7.0/8.2/14.0	0.4	1.87

Notes :

- Voltage range
Voltage supplied to the unit terminals should be within the minimum and maximum range
- Maximum allowable voltage unbalance between phase is 2 %
- MCA / MOP
 $MCA = (1.25 \times \text{Load1}) + \text{Load2} + \text{Load3}$
 $MOP = (2.25 \times \text{Load1}) + \text{Load2} + \text{Load3}$
 - Load1 : Rated running current of largest motor (compressor or other motor)
 - Load2 : sum of current for all other motors
 - Load3 : any other load rated 1.0A or more
- Select wire spec. based on the MCA
- Recommended circuit breaker is ELCB (Earth Leakage circuit breaker)
- MSC & RLA are measured as the compressor only test condition.
- MSC values
10/28 : MSC of (inv. comp.) / (const. comp.)

- RLA is measured during each individual compressor test condition.

Ex) 7.0/8.2 : RLA of (inv. comp.) / (const. comp.)

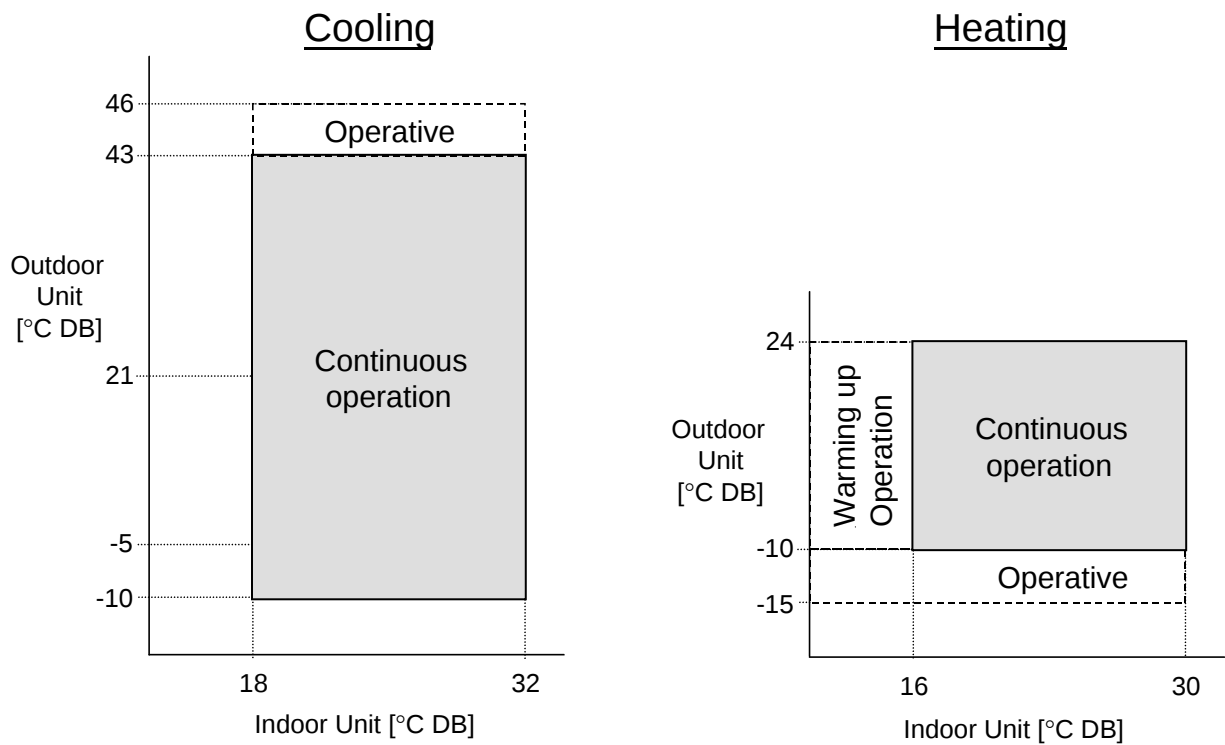
- OFM is measured as the outdoor unit test condition

(Example) Selection of proper circuit breaker

- Model : AUUW126B
- Rated running current : 6.5 A (refer to spec. sheet)
- $MCA = (1.25 \times \text{Load1}) + \text{Load2} + \text{Load3}$
 $= (1.25 \times 6.5) + 0 + 0 = 8.13 \text{ A}$
- $MOP = (2.25 \times \text{Load1}) + \text{Load2} + \text{Load3}$
 $= (2.25 \times 6.5) + 0 + 0 = 14.6 \text{ A}$
 → Finally select circuit breaker 15A (Min. circuit breaker is 15A)

MCA : Minimum Circuit Amperes (A)
 MOP : Maximum rating over current protective device
 MSC : Maximum Starting Current
 RLA : Rated Load Amperes (A)
 OFM : Outdoor Fan Motor
 kW : Fan Motor rated output (kW)
 FLA : Full Load Amperes (A)

7. Operation Range



Operative: Intermittent operation due to the operational conditions (indoor/outdoor temperature, humidity, load etc.) can cause the heating capacity to decrease

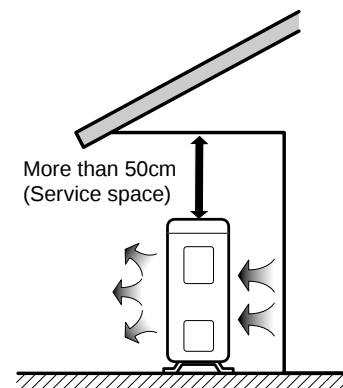
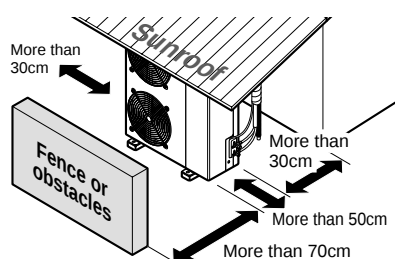
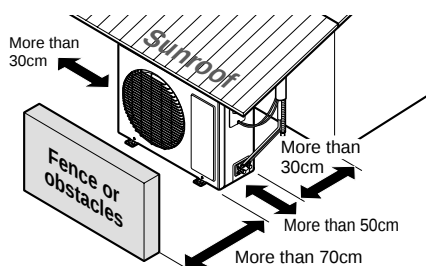
8. Installation

8.1 Select the best location

- If a roof is built over the unit to prevent direct sunlight or rain exposure, make sure that heat radiation from the condenser is not restricted.
- Do not place animals and plants in the path of the warm air.
- Take the air conditioner weight into account and select a place where noise and vibration are minimum.
- Select a place so that the warm air and noise from the air conditioner do not disturb neighbors.
- Rooftop Installations : If the outdoor unit is installed on a roof structure, be sure to level the unit. Ensure the roof structure and anchoring method are adequate for the unit location. Consult local codes regarding rooftop mounting.

Model : AUUW126B [UU12 WUEB], AUUW186B [UU18 WUEB], AUUW246B [UU24 WUEB], AUUW306B [UU30 WUEB], AUUW366B [UU36 WUHB]

- Ensure that the space around the back is more than 30cm and sides is more than 30cm. The front of the unit should have more than 70cm of space.

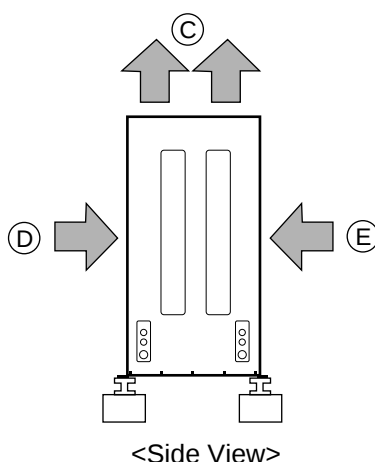
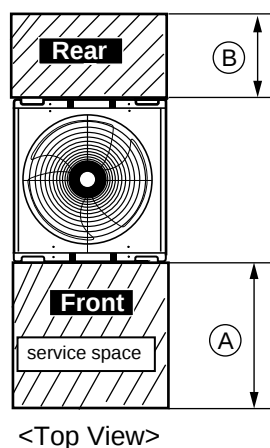


Model : AUUW4860 [UU48 WUYB]/AUUW6060 [UU60 WUYB]

(1) Individual installation

Basic Space required

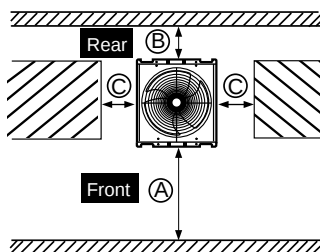
- A space of at least 250 mm is necessary at the back for inlet air. Tacking servicing, a space of about 750 mm should be provided at the front.



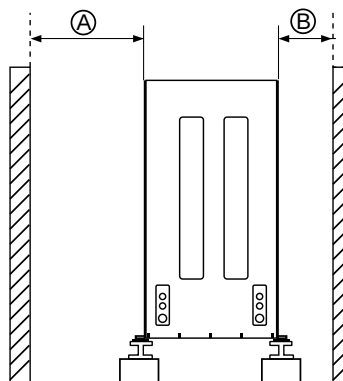
- Ⓐ : 750 mm or more
- Ⓑ : 250 mm or more
- Ⓒ : Top discharge(open in principle)
- Ⓓ : Front inlet(open in principle)
- Ⓔ : Rear inlet(open in principle)

When inlet air enters from right and left sides of unit

- Ⓐ : 750 mm or more
- Ⓑ : 250 mm or more
- Ⓒ : 150 mm or more



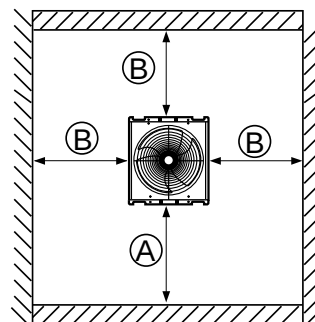
<Top View>



<Side View>

When unit is surrounded by walls

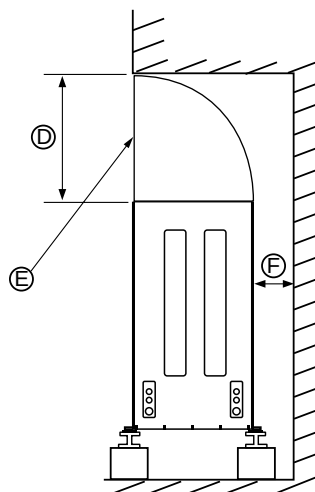
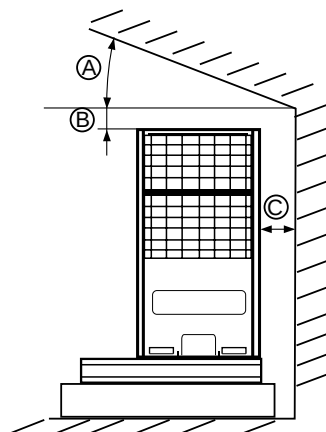
- Ⓐ : 750 mm or more
- Ⓑ : 250 mm or more



When there is an obstructure above the unit

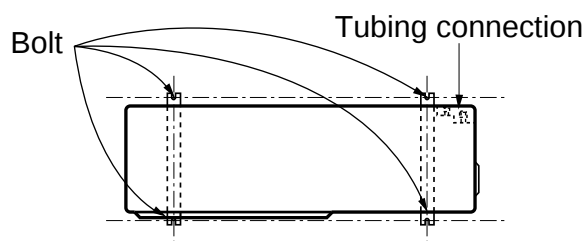
- Ⓐ : 45° or more
- Ⓑ : 200 mm or more
- Ⓒ : 250 mm or more

- Ⓓ : 1000 mm or more
- Ⓔ : Air outlet guide (procured at the site)
- Ⓕ : 250 mm or more

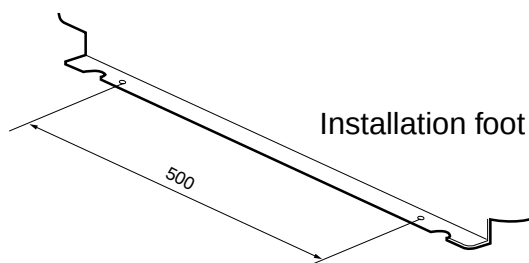


8.2 Settlement of outdoor unit

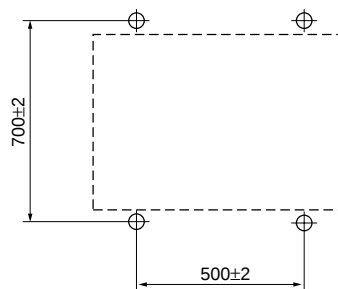
- Anchor the outdoor unit with a bolt and nut(ø10mm) tightly and horizontally on a concrete or rigid mount.
- When installing on the wall, roof or rooftop, anchor the mounting base securely with a nail or wire assuming the influence of wind and earthquake.
- In the case when the vibration of the unit is conveyed to the hose, secure the unit with an anti-vibration rubber.



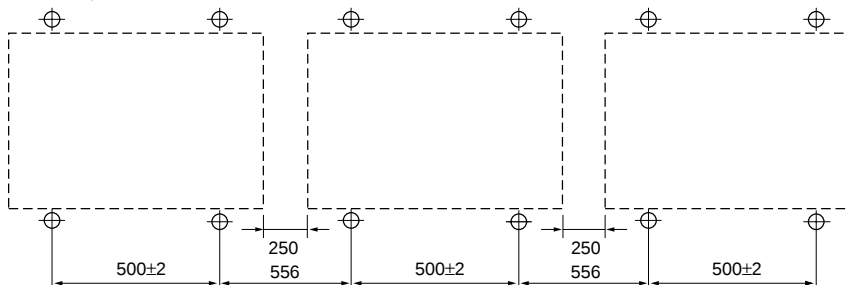
AUUW4860 [UU48 WUYB]/AUUW6060 [UU60 WUYB]



- Individual installation



- Example of collective installation



8.3 Lifting Method

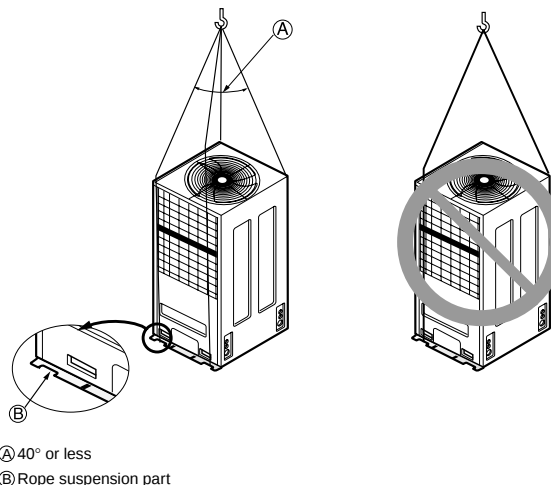
- When carrying the unit suspended, pass the ropes under the unit and use the two suspension points each at the front and rear.
- Always lift the unit with ropes attached at four points so that impact is not applied to the unit.
- Attach the ropes to the unit at an angle of 40° or less.
- Use two ropes at least 7 m long.



Caution:

Be very careful to carry product.

- Do not have only one person carry product if it is more than 20 kg.
- PP bands are used to pack some products. Do not use them as a mean for transportation because they are dangerous.
- Do not touch heat exchanger fins with your bare hands. Otherwise you may get a cut in your hands.
- Tear plastic packaging bag and scrap it so that children cannot play with it. Otherwise plastic packaging bag may suffocate children to death.
- When carrying in outdoor unit, be sure to support it at four points. Carrying in and lifting with 3-point support may make outdoor unit unstable, resulting in a fall of it.



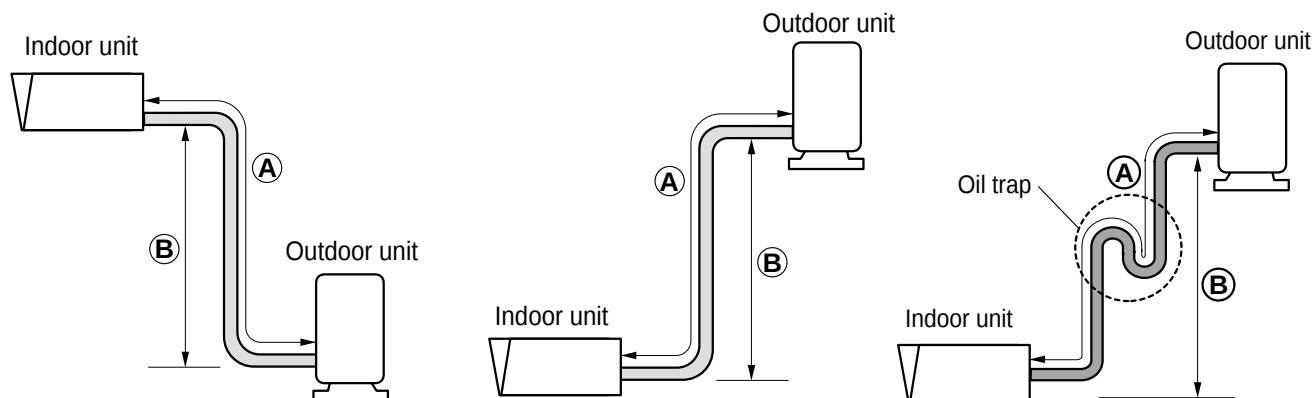
Ⓐ 40° or less

Ⓑ Rope suspension part

8.4 Piping length and the elevation

Capacity	Pipe Size (Diameter:Ø)		Length ㉠(m)		Elevation ㉢(m)		*Additional refrigerant(g/m)
	Gas	Liquid	Standard	Max.	Standard	Max.	
12k Btu/h	1/2" (12.7mm)	1/4" (6.35mm)	7.5	40	5	30	20
18k Btu/h	1/2" (12.7mm)	1/4" (6.35mm)	7.5	40	5	30	25
24k Btu/h	1/2" (12.7mm)	1/4" (6.35mm)	7.5	50	5	30	30
30k Btu/h	5/8" (15.88mm)	1/4" (6.35mm)	7.5	50	5	30	35
36k Btu/h	5/8" (15.88mm)	1/4" (6.35mm)	7.5	50	5	30	35
48k Btu/h	3/4" (19.05mm)	3/8" (9.52mm)	7.5	70	5	30	50 (Chargeless 30m)
60k Btu/h	3/4" (19.05mm)	3/8" (9.52mm)	7.5	70	5	30	50 (Chargeless 30m)

✱ Extra refrigerant = (Extended length - Rated length) x Additional refrigerant.



⚠ CAUTION

- Capacity is based on standard length and maximum allowance length is on the basis of reliability.
- Improper refrigerant charge may result in abnormal cycle.
- Oil trap should be installed every 10 meters.

III. Troubleshooting Guide

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Self-diagnosis Function

■ Error Indicator

- The function is to self-diagnosis airconditioner and express the troubles identifiably if there is any trouble.
- Error mark is ON/OFF for the operation LED of evaporator body in the same manner as the following table.
- If more than two troubles occur simultaneously, primarily the highest trouble fo error code is expressed.
- After error occurrence, if error is released, error LED is also released simultaneously.
- To operate again on the occurrence of error code, be sure to turn off the power and then turn on.
- Having or not of error code is different from Model.

Indoor Error

Error code	Description	INV TPS	LED 1 (Red)	LED 2 (Green)	Indoor Status
00	No Error	●			ON
01	Indoor Room themistor error	●		1time ●	OFF
02	Indoor in-piping sensor error	●		2times ●	OFF
03	Remote controller error	●		3times ●	OFF
04	Drain Pump error	●		4times ●	OFF
05	Communcation error between in and out	●		5times ●	OFF
06	Indoor Out-Piping sensor error	●		6times ●	OFF
07	Differnt mode operation	●		7times ●	OFF

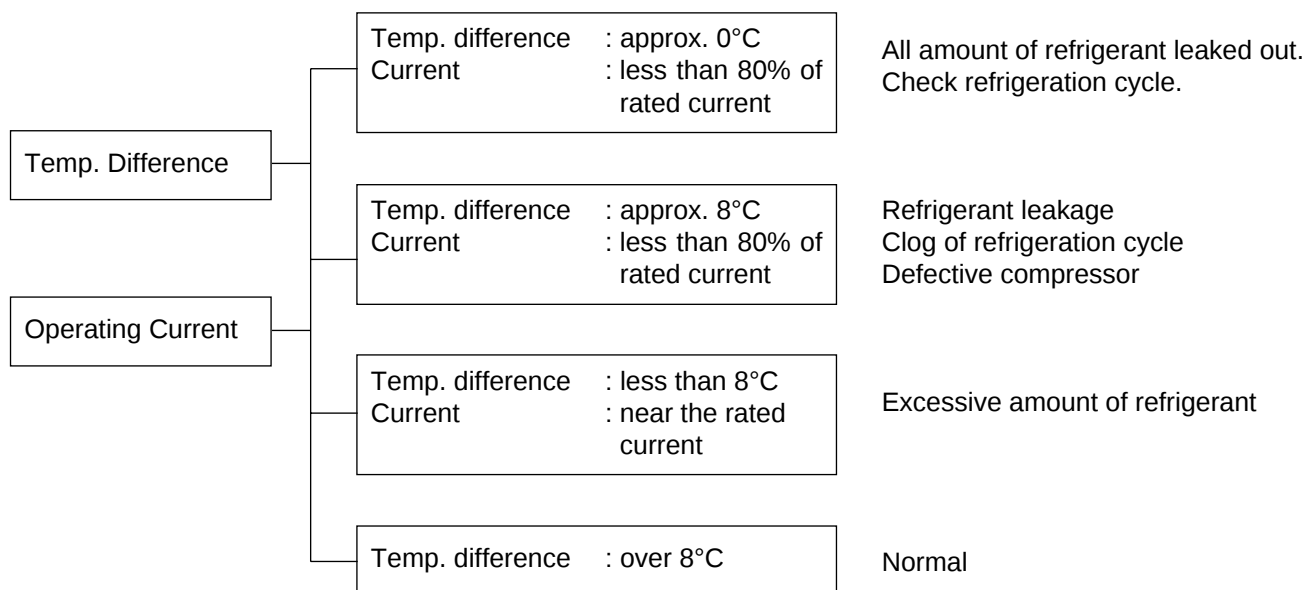
Outdoor Error

Error Code	Description	INV TPS	LED 1 (Red)	LED 2 (Green)	Indoor Status
21	DC Peak (IPM Fault)	●	2times ●	1time ●	OFF
22	CT 2(Max CT)	●	2times ●	2times ●	OFF
23	DC Link Low Volt.	●	2times ●	3times ●	OFF
24	L_P/Heater Sink	●	2times ●	4times ●	OFF
25	Low voltage / Over voltage	●	2times ●	5times ●	OFF
26	DC Comp Position Error	●	2times ●	6times ●	OFF
27	PSC Fault Error	●	2times ●	7times ●	OFF
28	DC Link High Volt	●	2times ●	8times ●	OFF
32	D-Pipe High (INV)	●	3times ●	2times ●	OFF
33	D-Pipe High (Normal)	●	3times ●	3times ●	OFF
40	CT Sensor (Open/Short)	●	4times ●	O	OFF
41	INV. D-PipeTh Error(Open/Short)	●	4times ●	1time ●	OFF
44	Outdoor air Th Error(Open/Short)	●	4times ●	4times ●	OFF
45	Cond. Pipe Th Error(Open/Short)	●	4times ●	5times ●	OFF
46	Suction Pipe Error(Open/Short)	●	4times ●	6times ●	OFF
47	Const D-pipe Th Error(Open/Short)	●	4times ●	7times ●	OFF
51	Capacity over	●	5times ●	1time ●	OFF
53	Signal error (Indoor ↔ Outdoor)	●	5times ●	3times ●	OFF
60	EEPROM Check Sum Error	●	6times ●	O	OFF
61	Cond. Pipe High	●	6times ●	1time ●	OFF
62	Heatsink High	●	6times ●	2times ●	OFF
63	Cond. Pipe Low	●	6times ●	3times ●	OFF
65	Heatsoml Th error (Open/Short)	●	6times ●	5times ●	OFF

Cycle Troubleshooting Guide

■ Trouble analysis

1. Check temperature difference between intake and discharge air, and operating current.



Notice:

Temperature difference between intake and discharge air depends on room air humidity. When the room air humidity is relatively higher, temperature difference is smaller. When the room air humidity is relatively lower temperature difference is larger.

2. Check temperature and pressure of refrigeration cycle.

Suction pressure (Compared with the normal value)	Temperature (Compared with the normal value)	Cause of Trouble	Description
Higher	High	Defective compressor	Current is low.
	Normal	Excessive amount of refrigerant	High pressure does not quickly rise at the beginning of operation.
Lower	Higher	Insufficient amount of refrigerant(Leakage) Clogging	Current is low.

Notice:

1. The suction pressure is usually 7~10.5 kg/cm²G at normal condition.
2. The temperature can be measured by attaching the thermometer to the low pressure tubing and wrap it with putty.

Electronic Parts Troubleshooting Guide

■ AUUW126B, AUUW186B

✳ Refer to electronic control device drawing & schematic diagram.

Trouble 1 The Product doesn't operate at all.

Turn off the main power and wait until LED on outdoor PCB is off.



Turn on the main power again.



Does "Beeping" sound is made from the indoor unit?



Check the voltage of power(AC220V/AC240V, 50Hz).

- The voltage of main power.
- The voltage applied to the unit.
- The connecting method of Indoor/Outdoor connecting cable (each color)
- The P.W.B. Ass'y
(Fuse, Noise Filter, Power Transformer, IC01D, IC02D, etc.)



- Primarily, the operating condition of Micom is O.K.

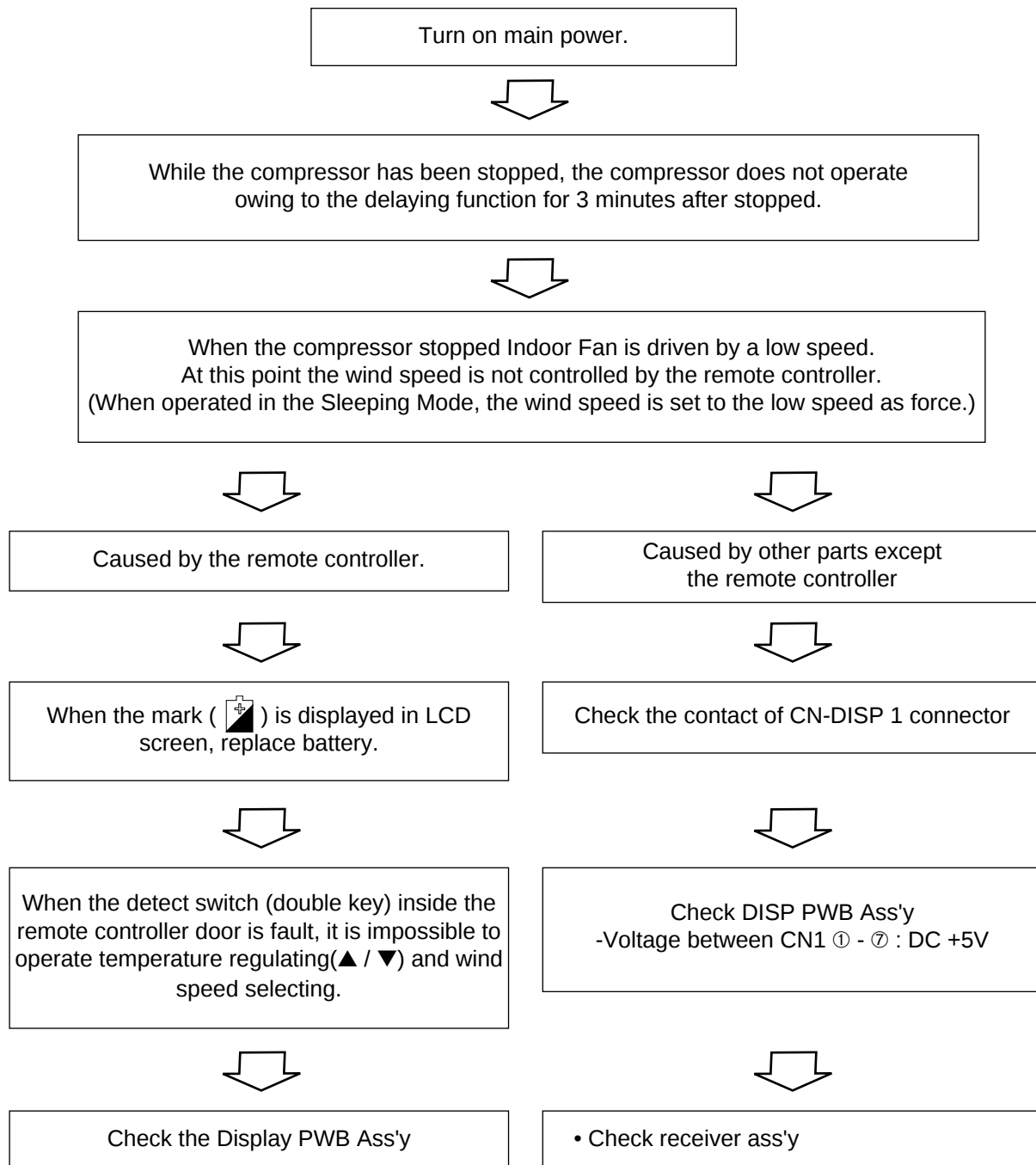


- Check CN-DISP1

The operation check of the P.C.B. Ass'y

Procedure	Specification	Remedy
1) The input voltage of power transformer.	1) AC230V $\pm$ 30V : Check the rated voltage	1) Replace power transformer.
2) The output voltage of power transformer.	2) 14V $\pm$ 3V	2) Replace power transformer.
3) IC01D(7812)	3) DC12V	3) Replace IC01D.
4) IC02D(7805)	4) DC5V	4) Replace IC02D.
5) IC01A(KIA7036)	5) The voltage of micom pin 29 : DC4.5V $\uparrow$	5) Replace IC01A.

Trouble 2 Product doesn't operate with the remote controller.



Trouble 3 The Compressor/Outdoor Fan don't operate

Turn on the main power.



Operate Cooling Mode by setting the disired temperature of the remote controller is less than one of the Indoor temperature by 1°C at least.



When in air circulation mode, compressor/outdoor fan is stopped.



Check the sensor for Indoor temperature is attatched as close as to be effected by the themperature of Heat Exchange (EVA.)



When the sensor circuit for Indoor temperature and connector are in bad connection or are not engaged, Compressor/Outdoor fan is stopped.

- Check the related circuit of R02H(12.1K), R01H(1K), R04H(6.2K), R03H(1K), C01H(102), C02H(102), Micom(pin No. ⑪, ⑫).
- Check the Indoor temperature sensor is disconnected or not (about 10K at 25°C).



Check the Relay(RY-PWR, RY-START) for driving Compressor.

- Check the voltage between brown and blue cable of terminal to connect the Outdoor (About AC220V / 240V).
- Check the related circuit of relay in Outdoor PCB Ass'y.

Check Point	Comp. ON	Comp. OFF
Between Micom(No. 19) and GND	DC 5V	DC 0V
Between IC01M(No. 10) and GND	DC 1V↓	DC 12V

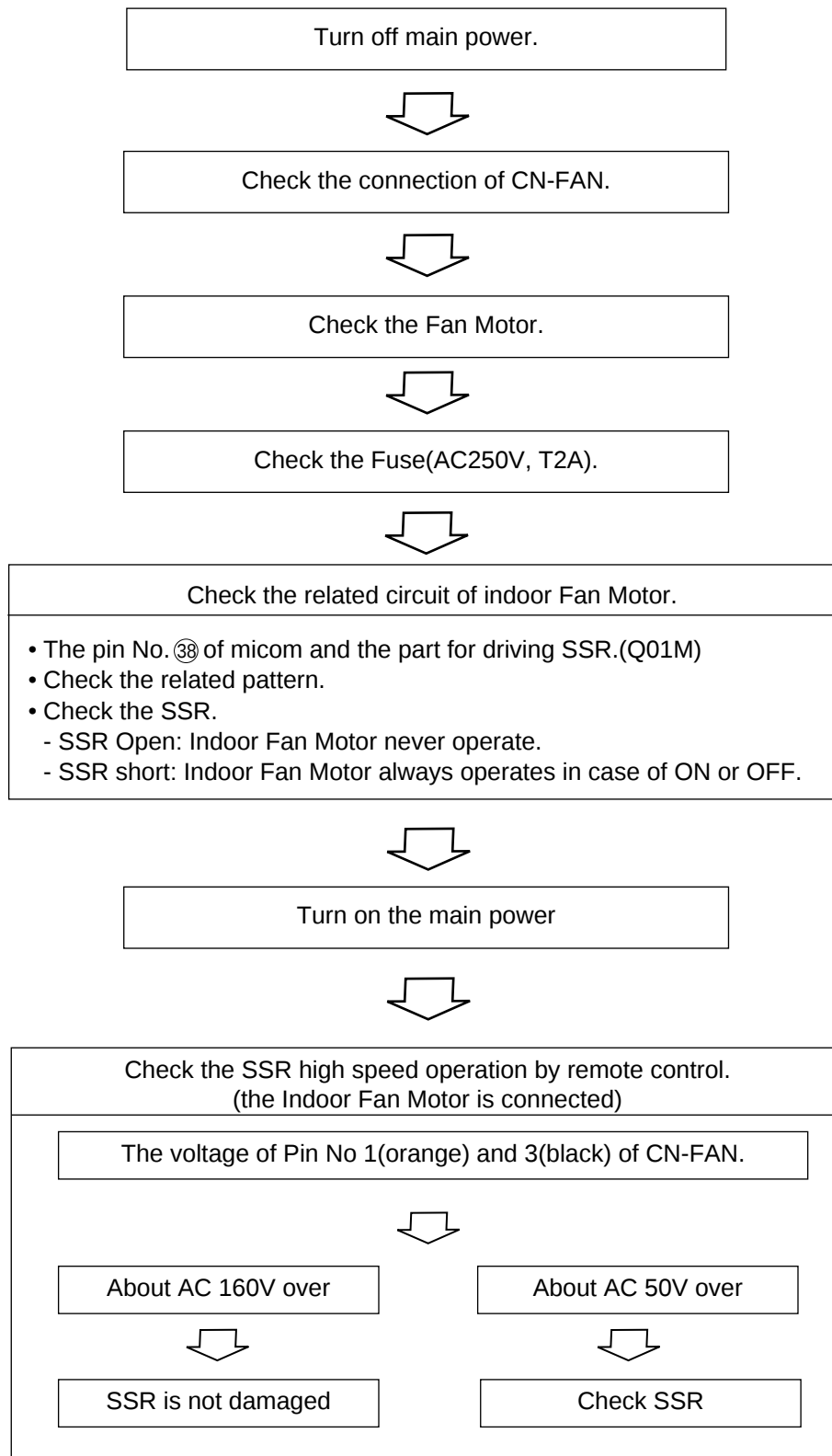


Turn off main power.



Check the electrical wiring diagram of Outdoor side.
Check the open or short of connecting wires between Indoor and Outdoor.

Trouble 4 When indoor Fan does not operate.



Trouble 5 When the louver does not operate.

- Confirm that the vertical louver is normally geared with the shaft of Stepping Motor.
- If the regular torque is detected when rotating the vertical louver with hands ⇒ Normal



- Check the connecting condition of CN-U/D or CN0L/R Connector
- Check the soldering condition(on PCB) of CN-U/D or CN0L/R Connector



Check the operating circuit of the vertical louver

- Confirm that there is DC +12V between pin ① of CN-U/D, CN0L/R and GND.
- Confirm that there is a soldering short at following terminals.
 - Between ①, ②, ③ and ④ of MICOM - Between ⑰, ⑱, ⑲ and ⑳ of MICOM
 - Between ④, ⑤, ⑥ and ⑦ of IC01M - Between ⑤, ⑥, ⑦ and ⑧ of IC01M



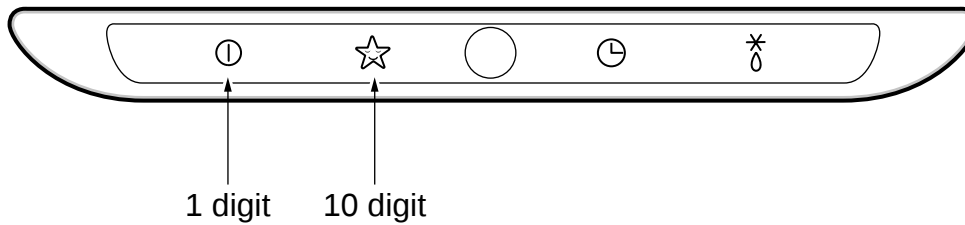
If there are no problems after above checks.

- Confirm the assembly condition that are catching and interfering parts in the link of the vertical louver

General Information

■ Error Indicator (Indoor)

- The function is to self-diagnosis air conditioner and express the troubles if there is any trouble.
- Error mark is displayed on display window of indoor units and wired-remote controller, and LED of outdoor unit control board.
- If more than two troubles occur simultaneously, lower number of error code is first displayed.
- After error occurs, if error is released, error LED is also released simultaneously.



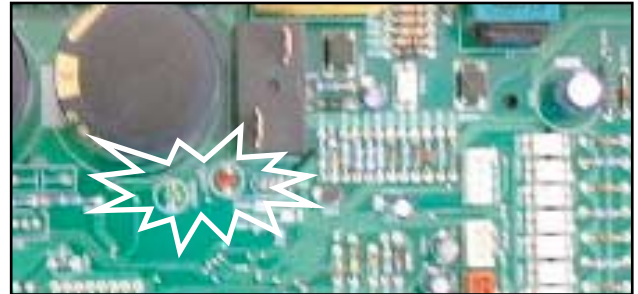
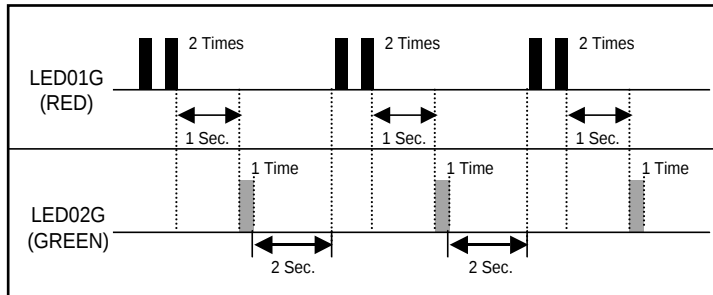
■ Indoor Error

Error code	Contents	Case of error	Indoor Status
01	Air sensor (open/short)	Open / Short	Off
02	Inlet pipe sensor	Open / Short	Off
03	Communication(Indoor ↔ Wired R/Control)	Communication Poorly	Off
04	Drain pump/ Float switch	Float switch Open	Off
05	Communication(Indoor ↔ Outdoor)	Communication Poorly	Off
06	Outlet pipe sensor	Open / Short	Off
07	Different operation mode	Different operation mode	Off

■ Error Indicator (Outdoor)

Outdoor Error

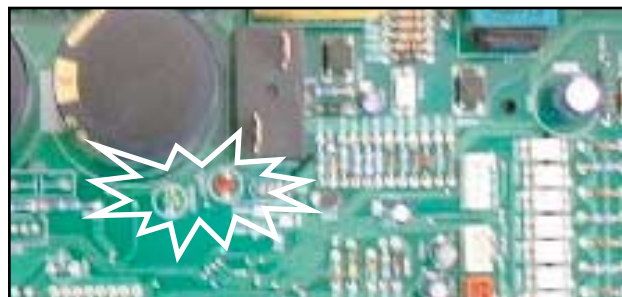
Ex) Error 21 (DC Peak)



Error code	Contents	LED01G (Red)	LED02G (Green)	Case of error	Outdoor Status
21	IPM Fault (Compressor Over current)	2 times ●	1 time ●	Compressor malfunction, IPM Fault	Off
22	CT 2(Max. Current)	2 times ●	2 times ●	Current is 14A ↑	Off
23	DC Link Low Volt.	2 times ●	3 times ●	DC Link volt. Is 140V ↓	Off
24	Low / High press	2 times ●	4 times ●	Low / High press switch OPEN	Off
25	AC Low / AC High Volt.	2 times ●	5 times ●	Abnormal AC volt. Input.	Off
26	DC Compressor Position	2 times ●	6 times ●		Off
27	PSC Fault	2 times ●	7 times ●		Off
28	DC Link High Volt	2 times ●	8 times ●	Off	Off
32	Discharge Pipe Temp. High (INV)	3 times ●	2 times ●	Off	Off
33	Discharge Pipe Temp. High (Cons.)	3 times ●	3 times ●	Off	Off

■ Error Indicator (Outdoor)

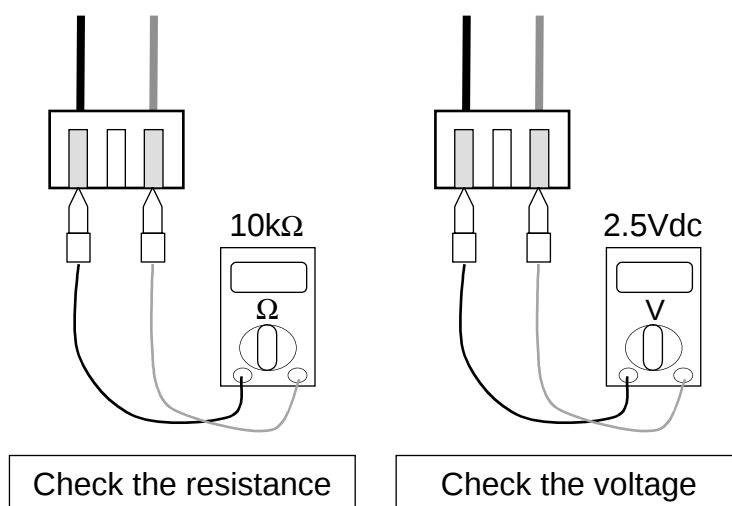
Outdoor Error



Error code	Contents	LED01G (Red)	LED02G (Green)	Case of error	Outdoor Status
40	CT Circuit	4 times ●	○	CT Circuit malfunction	Off
41	D-pipe sensor INV. (open/ short)	4 times ●	1 time ●	Open / Short	Off
44	Air sensor (open/ short)	4 times ●	4 times ●	Open / Short	Off
45	Cond. Pipe sensor (open/ short)	4 times ●	5 times ●	Open / Short	Off
46	Suction pipe sensor (open/ short)	4 times ●	6 times ●	Open / Short	Off
47	D-pipe sensor Cons. (open/ short)	4 times ●	7 times ●	Open / Short	Off
51	Over capacity	5 times ●	1 time ●	Over load combination	Off
53	Communication (Indoor ↔ Outdoor)	5 times ●	3 times ●	Communication Poorly	Off
60	EEPROM check sum	6 times ●	○	Check sum mismatching	Off
61	Cond. Pipe sensor temp. high	6 times ●	1 time ●	Cond. Temp. high	Off
62	Heat sink sensor temp. high	6 times ●	2 times ●	Heat sink temp. high	Off
65	Heat sink sensor (open/ short)	6 times ●	5 times ●	Open / Short	Off

1) Troubleshooting CH01, CH02, CH06

Display code	Title	Cause of error	Check point & Normal condition
01	Indoor air sensor	• Open / Short • Soldered poorly • Internal circuit error	Normal resistor : 10K Ω / at 25°C (Unplugged) Normal voltage : 2.5Vdc / at 25°C (plugged)
02	Indoor inlet pipe sensor	• Open / Short • Soldered poorly • Internal circuit error	Normal resistor : 5K Ω / at 25°C (Unplugged) Normal voltage : 2.5Vdc / at 25°C (plugged)
06	Indoor outlet pipe sensor	• Open / Short • Soldered poorly • Internal circuit error	Normal resistor : 5K Ω / at 25°C (Unplugged) Normal voltage : 2.5Vdc / at 25°C (plugged)

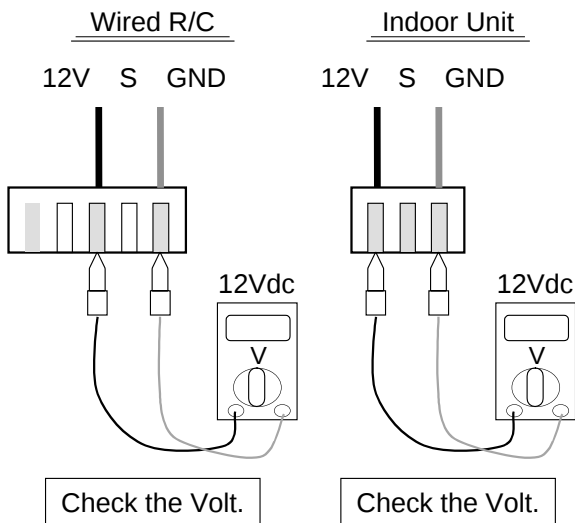


Check Point

1. Unplug the sensor on Indoor unit PCB.
2. Estimate the resistance of each sensor.
3. If the resistance of the sensor is 10K Ω / 5K Ω at 25°C, then sensor is normal.
4. If the resistance of the sensor is 0 K Ω or ∞ , then sensor is abnormal. → Change the sensor.
5. Plug the sensor on Indoor unit PCB and Power ON.
6. Estimate the voltage of each sensor.
7. If the voltage of the sensor is 2.5Vdc at 25°C, then sensor is normal.
8. If the resistance of the sensor is 0 or 5Vdc, then sensor is abnormal. → Repair or Change the PCB.

2) Troubleshooting CH03

Display code	Title	Cause of error	Check point & Normal condition
03	Communication Wired R/C	• Open / Short • Wrong connection	• Connection of wire • Main PCB Volt. DC12V • Noise interference



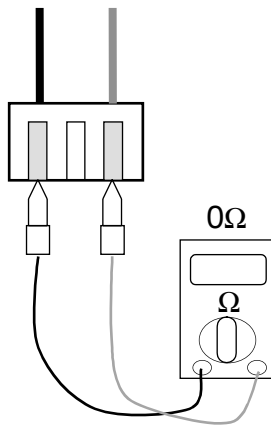
Check Point

1. Check the wire connection. (Open / Short) → Repair the connection
2. Check the soldering state of connector. (Soldered poorly) → Repair or Change the PCB.
3. Check the volt. Of main PCB power source. (DC 12V, DC 5V) → Repair or Change the main PCB.
4. Check the installation of wired remote controller. (Noise interference) → Adjust the state of installation

3) Troubleshooting CH04

Display code	Title	Cause of error	Check point & Normal condition
04	Drain pump / Float switch	• Float switch Open. (Normal : short)	• The connection of wire(Drain pump/ Float switch) • Drain pump power input. (220V) • Drain tube installation. • Indoor unit installation. (Inclination)

CN Float



Check the resistance

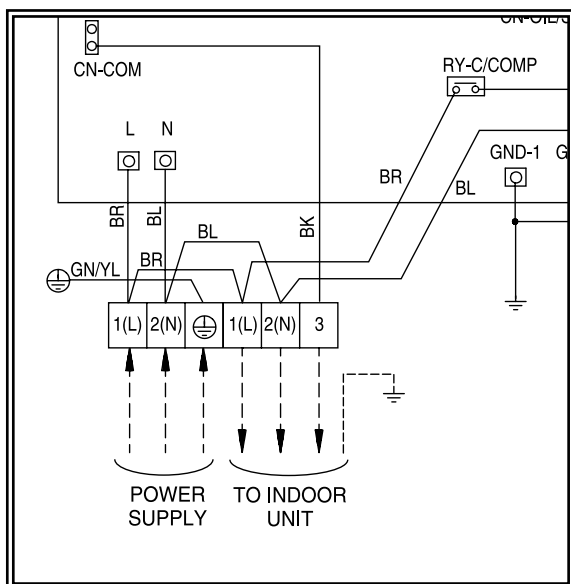


Check Point

1. Check the wire connection. (Open, Soldered poorly) → Repair the connection or change the PCB.
2. Check the resistance of float switch (Abnormal : Open, Normal : short) → Check the float switch.
3. Check the level of water
4. Check the volt. Of Drain pump power supply. (AC 230V) → Repair or Change the main PCB.

4) Troubleshooting CH05, CH53

Display code	Title	Cause of error	Check point & Normal condition
05 / 53	Communication (Indoor → Outdoor)	Communication poorly	- Power input AC 220V. (Outdoor, Indoor) - The connector for transmission is disconnected. - The connecting wires are misconnected. - The GND1,2 is not connected at main GND. - The communication line is shorted at GND. - Transmission circuit of outdoor PCB is abnormal. - Transmission circuit of indoor PCB is abnormal.



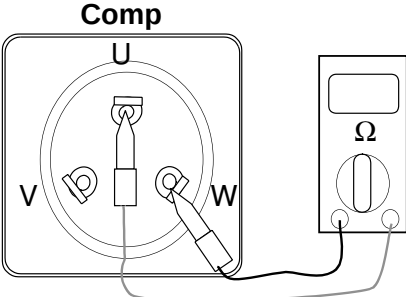
Check Point

1. Check the input power AC230V. (Outdoor, Indoor unit)
2. Check the communication wires are correctly connected.
 - Adjust the connection of wire
 - Confirm the wire of "Live", "Neutral"
3. Check the resistance between communication line and GND. (Normal : Over 2MΩ)
4. Check the connector for communication is correctly connected.
5. Check the connection of GND1, GND2, and main GND.
6. If one indoor unit is operated normally, outdoor PCB is no problem.
 - Check the another indoor unit.

* CH05 is displayed at indoor unit, CH53 is displayed at outdoor unit.

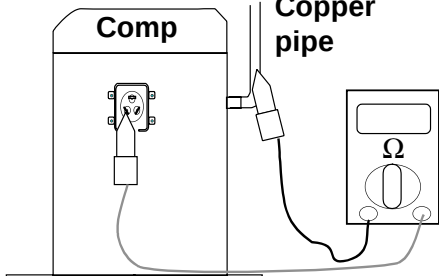
5) Troubleshooting CH21

Display code	Title	Cause of error	Check point & Normal condition
21	DC Peak	- Instant over current - Over Rated current - Poor insulation of IPM	- An instant over current in the U,V,W phase - Comp lock - The abnormal connection of U,V,W - Over load condition - Overcharging of refrigerant - Pipe length. - Poor insulation of compressor



Comp

Resistance(Ω) at 20°C		
Terminal	Inverter comp.	Constant comp.
U-V	0.64	0.8
V-W	0.64	0.8
W-U	0.64	0.8



Comp
Copper pipe

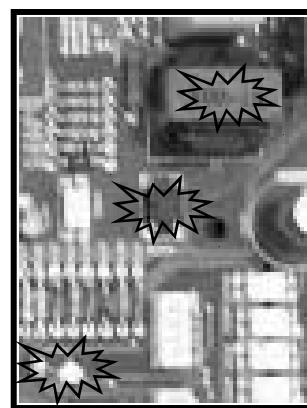
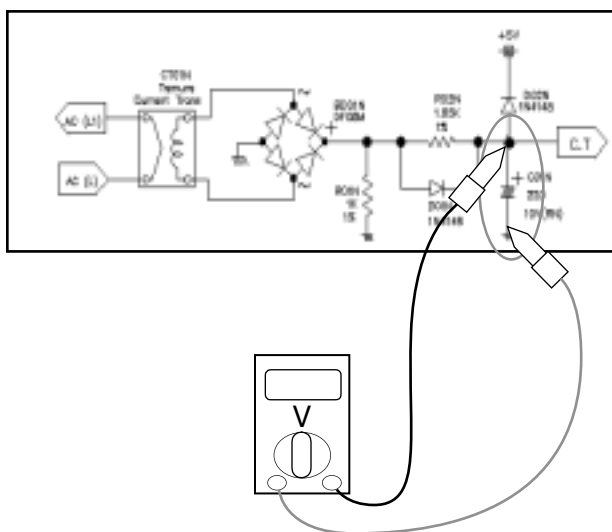
Resistance(Ω) at 20°C		
Terminal	Inverter comp.	Constant comp.
U-GND	2M Ω	2M Ω
V-GND	2M Ω	2M Ω
W-GND	2M Ω	2M Ω

Check Point

1. Check the wire connection. (U,V,W)
2. Check the load condition. (Refrigerant, Pipe length, ...) → Adjust the load condition
3. Check the electricity leakage of the compressor. → Normal : Over 2M Ω .
4. Check the resistance of compressor. → Normal : 0.65 Ω (INV), 0.8 Ω (Cons.) → No difference at each terminal.
5. Check the insulation from water at IPM part. → Check the trace of water.
6. Check the IPM circuit.

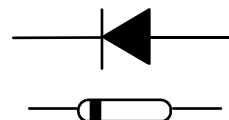
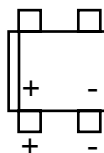
6) Troubleshooting CH21, CH22

Display code	Title	Cause of error	Check point & Normal condition
21	Max. C/T	Over current (14A ↑)	Malfunction of compressor Blocking of pipe Low voltage input Refrigerant, pipe length, blocked, ...
22	C/T Internal circuit	Initial current error	Malfunction of current detection circuit. (Open / Short) The voltage of "C01N" Is 4.0Vdc(25A) ↑ .



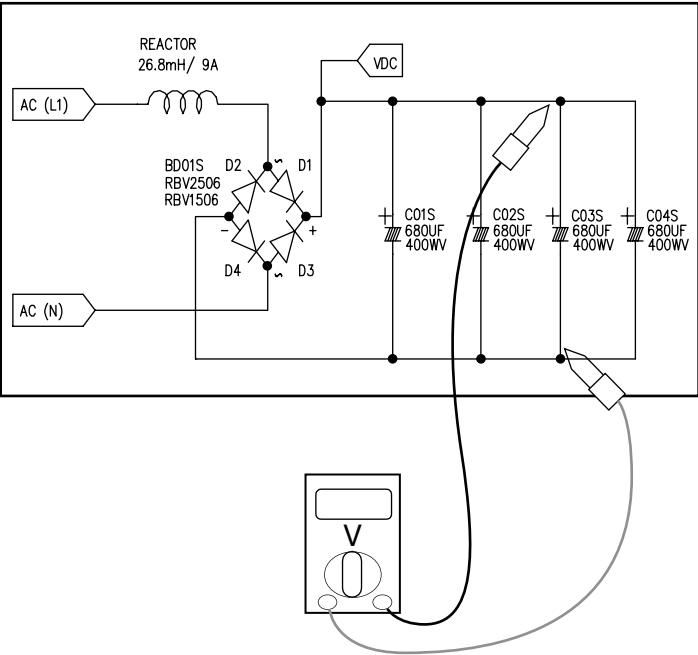
Check Point

1. Check the power source.
2. Check the fan operation is right.
3. Check the current.
4. Check the install condition.
5. Check the internal circuit. (C/T, Diode, Resistor)



7) Troubleshooting CH23, CH28

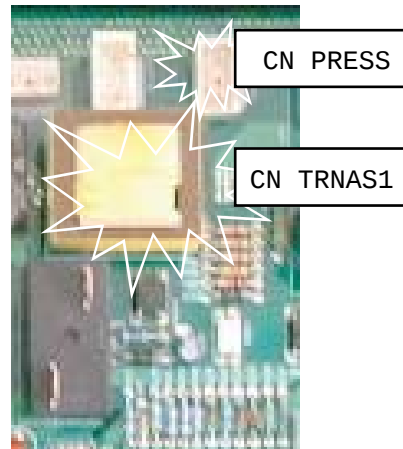
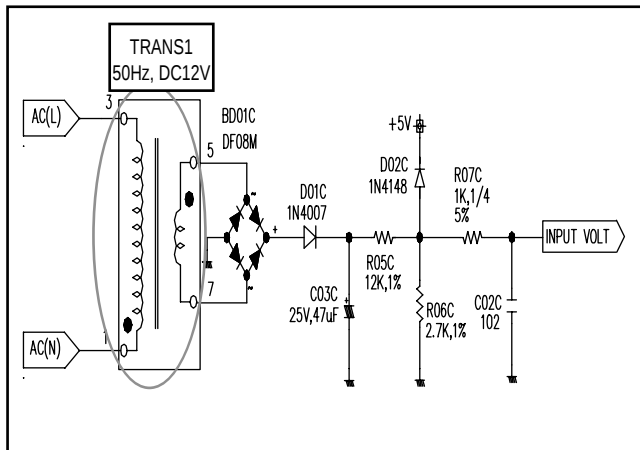
Display code	Title	Cause of error	Check point & Normal condition
23	DC Link Low voltage.	• DC link volt. is 140Vdc ↓ .	• Check the power source. • Check the components.
28	DC Link High voltage	• DC link volt. is 420Vdc ↑ .	• Check the power source. • Check the components.



- Check Point**
- 1. Check the power source.
 - 2. Check the components (B/Diode, Reactor, PSC Parts)

8) Troubleshooting CH24, CH25

Display code	Title	Cause of error	Check point & Normal condition
24	Press S/W Open	Low / High press S/W open.	- Check the connection of "CN_Press". - Check the components.
25	Input voltage	Abnormal Input voltage (140Vac ↓ , 300Vac ↑).	- Check the power source. - Check the components.



Check Point

• CH 24

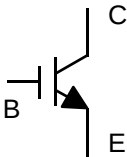
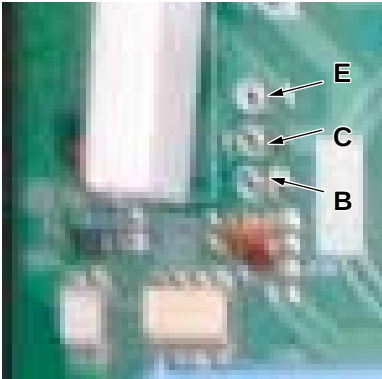
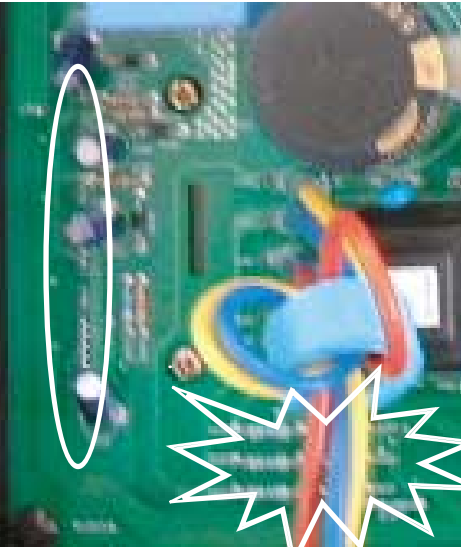
1. Check the connection of "CN_PRESS"
2. Check the install condition for over load.
3. Check the SVC V/V open.
4. Check the leakage of refrigerant.

• CH 25

1. Check the power source.
2. Check the components (Trans1, B/Diode, Diode, Resistance)

9) Troubleshooting CH26, CH27

Display code	Title	Cause of error	Check point & Normal condition
26	DC Compressor Position	Compressor position detect error	- Check the connection of comp wire “U,V,W” - Malfunction of compressor - Check the component of “IPM”, detection parts.
27	PSC Fault	Over current at “IGBT”	- Check the component of “IGBT” . - Check the components.



Check Point

• CH 26

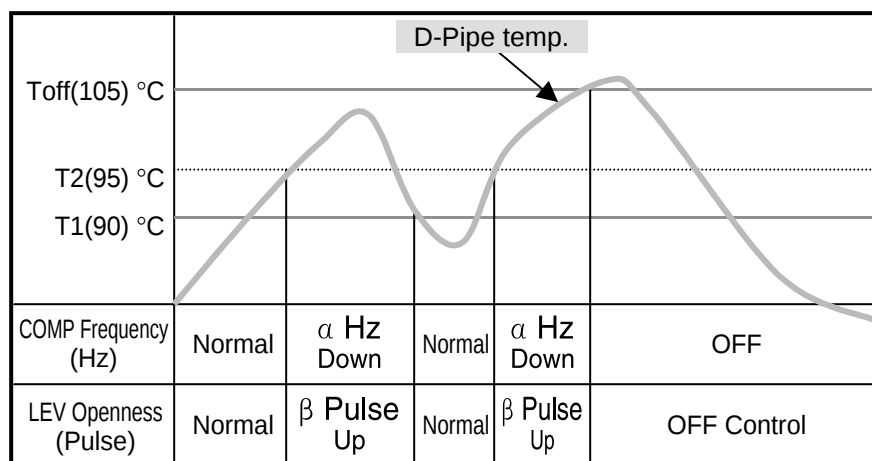
1. Check the connection of “U,V,W”
2. Check the insulation of IPM part.
3. Check the compressor. (same with CH21)

• CH 27

1. Check the component of “IGBT”
2. Check the components (IGBT, R04S, NF1, BD02S)

10) Troubleshooting CH32, CH33

Display code	Title	Cause of error	Check point & Normal condition
32	D-pipe (Inverter) temp. high (105°C ↑)	• Discharge sensor (Inverter) temp. high	• Check the discharge pipe sensor for INV. • Check the install condition for over load. • Check the leakage of refrigerant. • Check the SVC V/V open.
33	D-pipe (Constant) temp. high (105°C ↑)	• Discharge sensor (Cons.) temp. high	• Check the discharge pipe sensor for Cons. • Check the install condition for over load. • Check the leakage of refrigerant. • Check the SVC V/V open.



Check Point

• CH 32

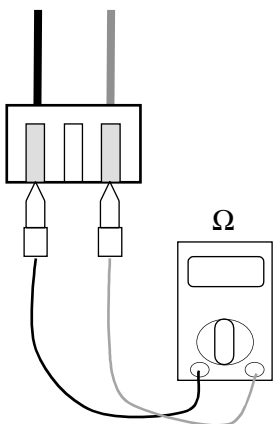
1. Check the install condition for over load.
2. Check the SVC V/V open.
3. Check the leakage of refrigerant.

• CH 33

1. Check the install condition for over load.
2. Check the SVC V/V open.
3. Check the leakage of refrigerant.
4. Check the constant compressor. (same with CH21)

11) Troubleshooting CH41, CH44, CH45, CH46, CH47, CH65

Display code	Title	Cause of error	Check point & Normal condition
41	D-pipe sensor (Inverter)	• Open / Short • Soldered poorly • Internal circuit error	• Normal resistor : 200KΩ / at 25°C (Unplugged) • Normal voltage : 4.5Vdc / at 25°C (plugged)
44	Air sensor	• Open / Short • Soldered poorly • Internal circuit error	• Normal resistor : 10KΩ / at 25°C (Unplugged) • Normal voltage : 2.5Vdc / at 25°C (plugged)
45	Condenser Pipe sensor	• Open / Short • Soldered poorly • Internal circuit error	• Normal resistor : 5KΩ / at 25°C (Unplugged) • Normal voltage : 2.5Vdc / at 25°C (plugged)
46	Suction Pipe sensor	• Open / Short • Soldered poorly • Internal circuit error	• Normal resistor : 5KΩ / at 25°C (Unplugged) • Normal voltage : 2.5Vdc / at 25°C (plugged)
47	D-pipe sensor (Constant)	• Open / Short • Soldered poorly • Internal circuit error	• Normal resistor : 200KΩ / at 25°C (Unplugged) • Normal voltage : 4.5Vdc / at 25°C (plugged)
65	Heat sink sensor	• Open / Short • Soldered poorly • Internal circuit error	• Normal resistor : 10KΩ / at 25°C (Unplugged) • Normal voltage : 2.5Vdc / at 25°C (plugged)



Check Point

1. Estimate the resistance of each sensor.(Unplugged)
2. Estimate the voltage of each sensor.(Plugged)
3. If the resistance of the sensor is 0 k Ω or ∞ , then sensor is abnormal.
If the voltage of the sensor is 0 V or 5Vdc, then sensor is abnormal.

12) Troubleshooting CH51, CH60

Display code	Title	Cause of error	Check point & Normal condition
51	Over capacity	Over capacity Combination	- Check the indoor unit capacity. - Check the combination table.
60	EEPROM Check sum	Check sum error	- Check the PCB ASM P/No. - Check the poor soldering.

Model	Gross max. capacity	Max. single indoor unit capacity
AUUW126B	21k	12k
AUUW186B AUUW246B	24k	12K
AUUW306B AUUW366B	33k	18K
AUUW4860	39k	18K
AUUW6060	52k	24K

Check Point

• CH 51

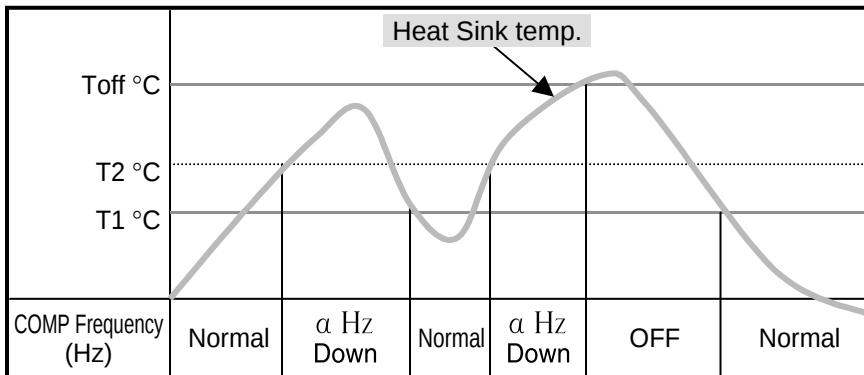
1. Check the indoor unit capacity.

• CH 60

1. Check the insertion condition of EEPROM.
2. Check the poor soldering

13) Troubleshooting CH61, CH62

Display code	Title	Cause of error	Check point & Normal condition
61	Condenser pipe sensor temp. high	Condenser pipe sensor detected high temp.(65°C)	- Check the load condition. - Check the sensor of Condenser pipe sensor.
62	Heat sink sensor temp. high	Heat sink sensor detected high temp.(85°C)	- Check the fan is locked. - Check the sensor of heat sink.



Check Point

• CH 61

1. Check the install condition for over load.
(Refrigerant, Pipe length, Blocked, ...)

• CH 62

1. Check the fan is locked.
2. Check the Outdoor temp. is very high.

IV. Electronic Control Device

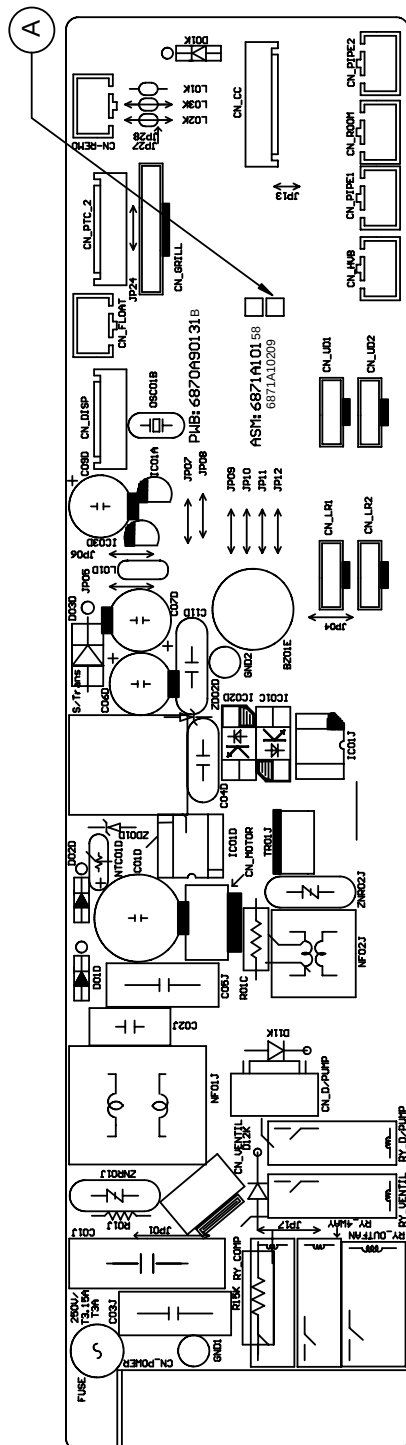
Ceiling Cacsette Type.....120

Ceiling Duct Type.....121

Celing & Floor123

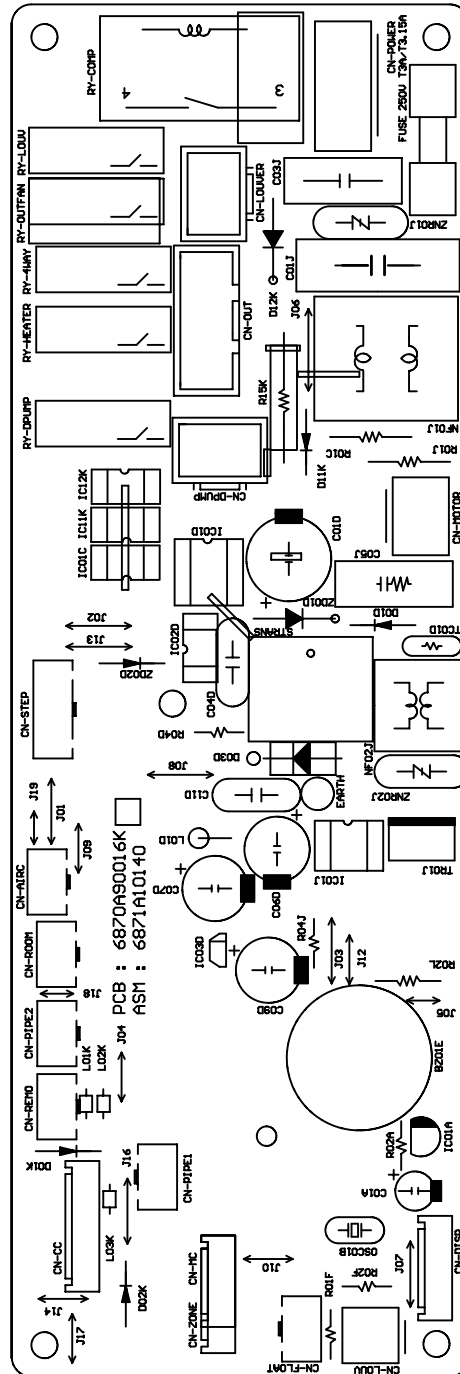
Ceiling Cacsette Type

Main P.C.B ASM

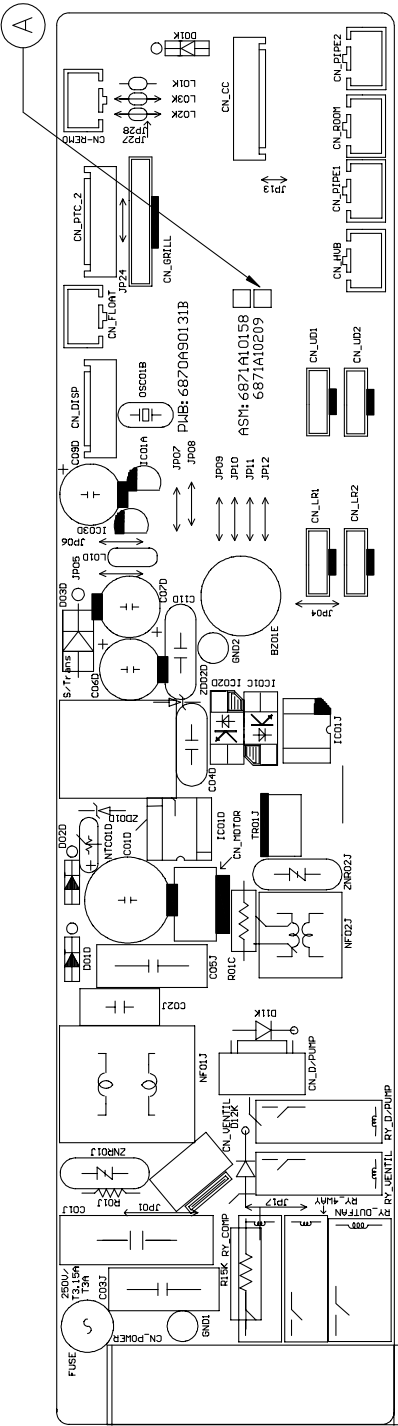


Ceiling Duct Type

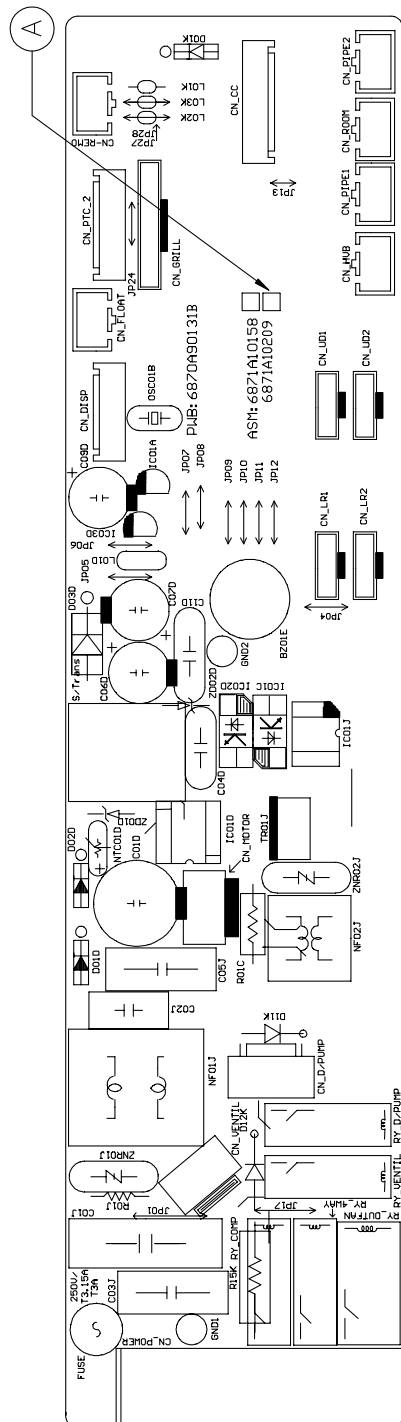
(BH Series)



(BG/BR Series)



(VB Series)



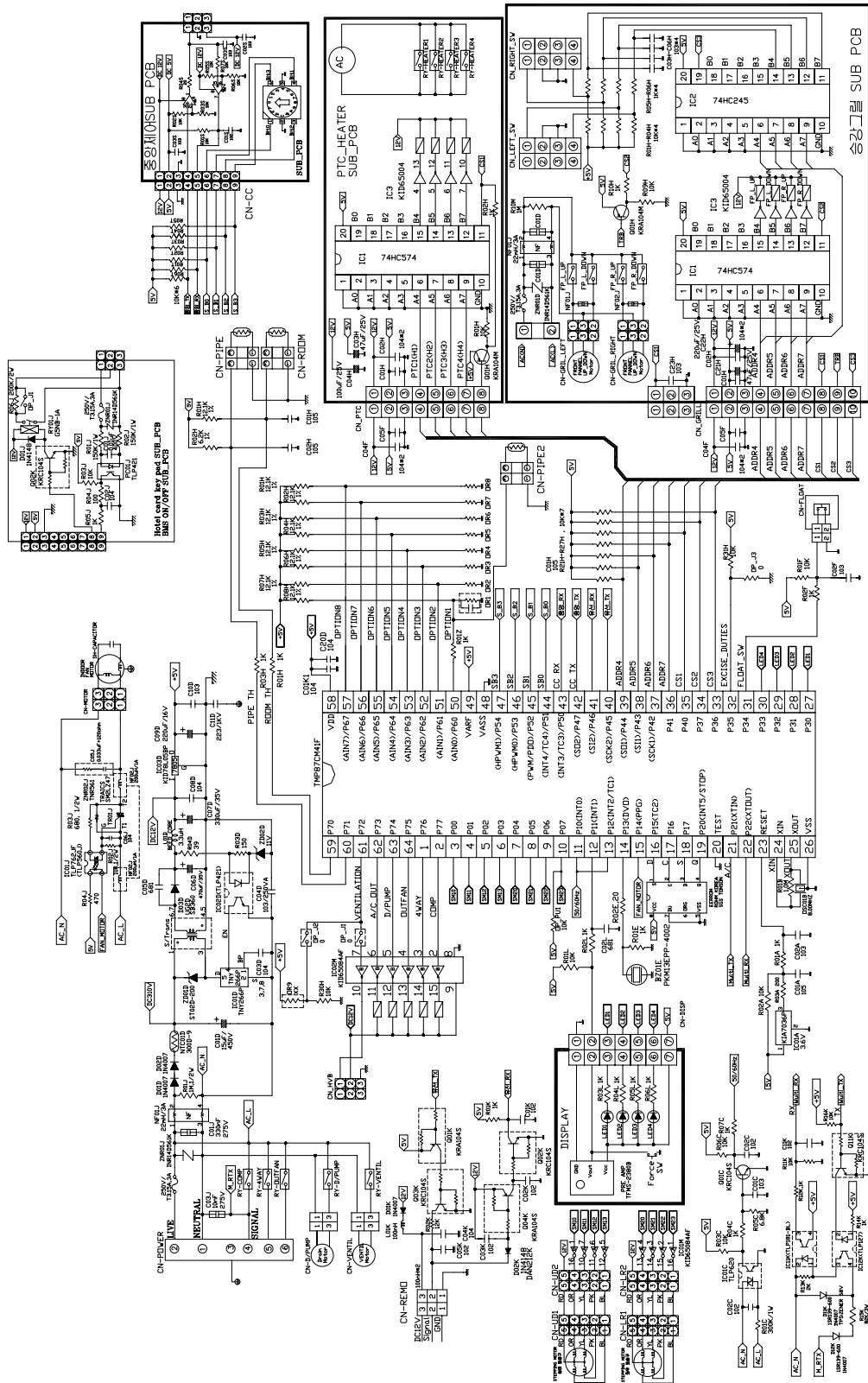
V. Schematic Diagram

Ceiling Cacsette Type.....126

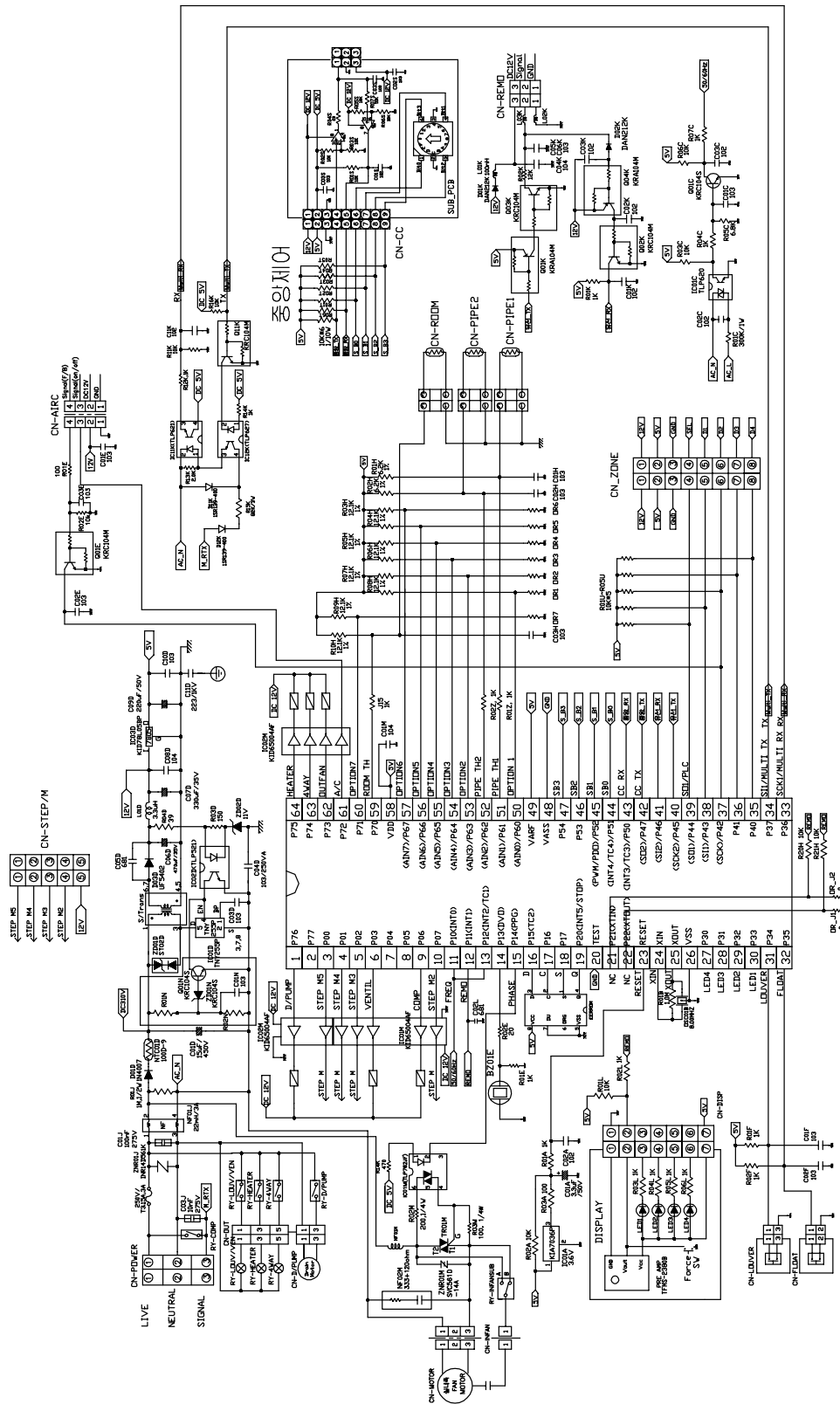
Ceiling Duct Type.....127

Celing & Floor128

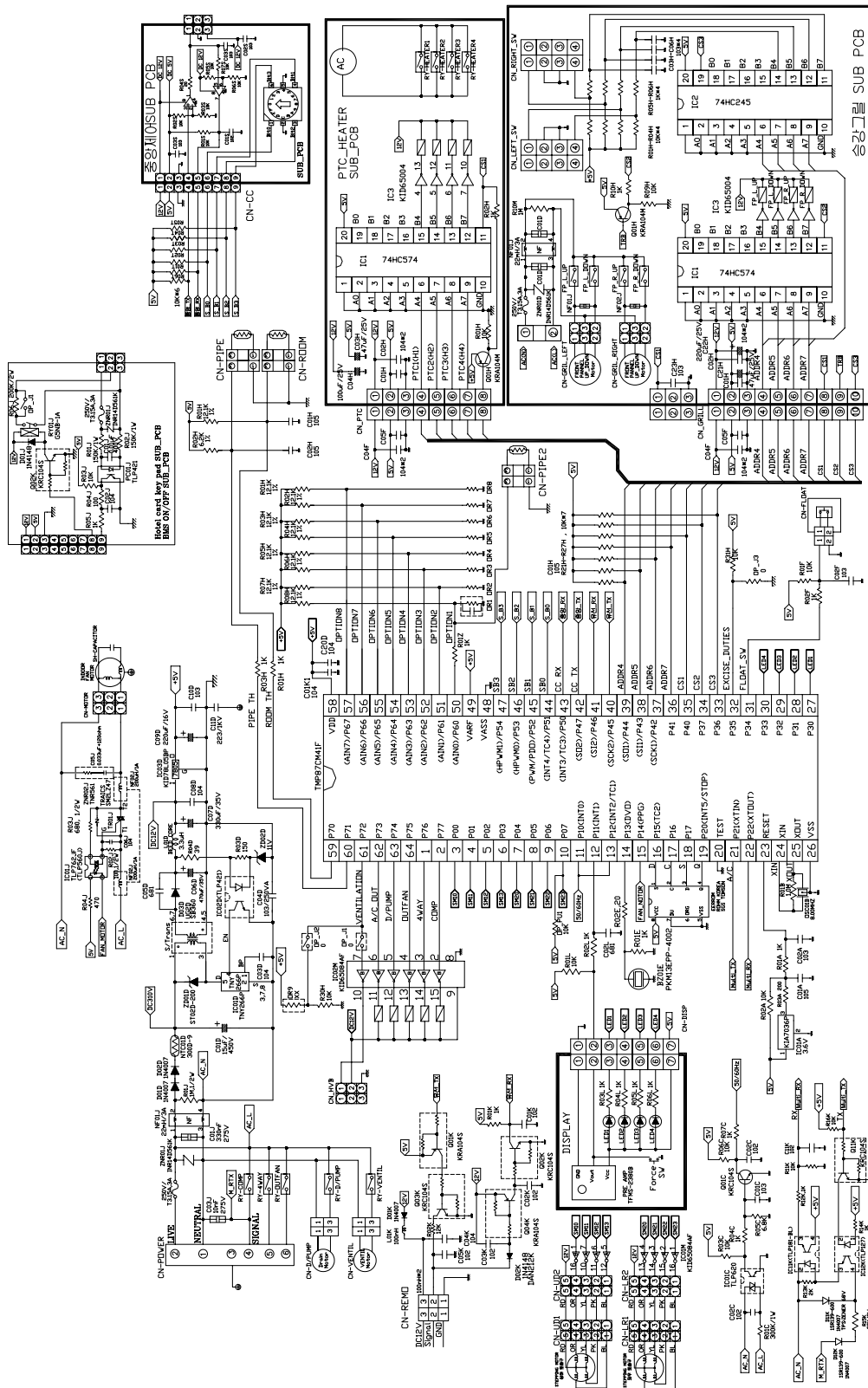
Ceiling Cassette Type



Ceiling Duct Type



Ceiling & Floor



VI. Functional Description

Ceiling Cacsette Type.....	130
Ceiling Duct Type.....	132
Celing & Floor	135
Outdoor Units.....	138

Ceiling Cassette Type

The function of main control

■ Auto Swing Control

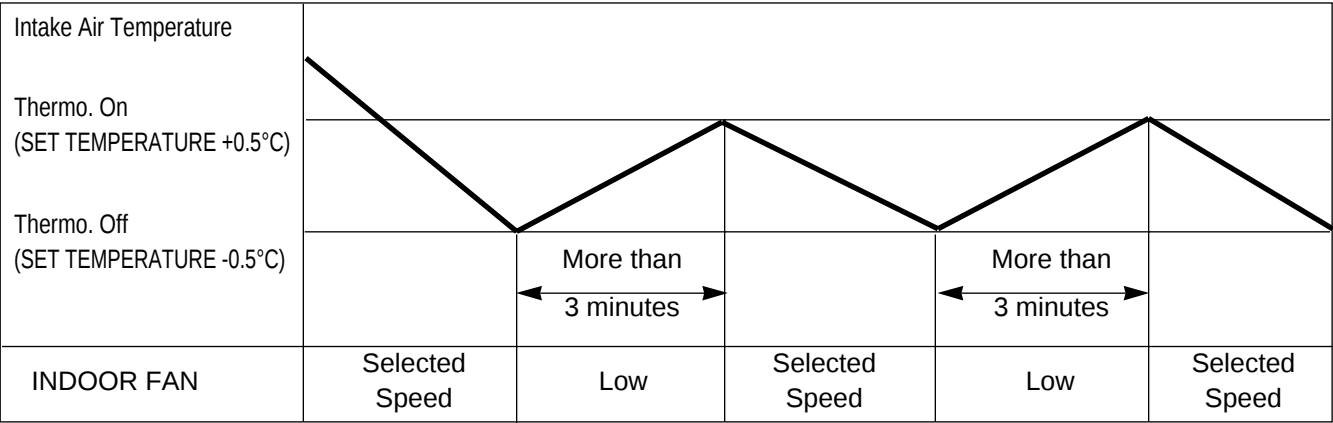
- This function is to swing the louver up and down automatically.

■ Soft-Dry Operation

- The indoor fan speed is automatically set to the low, so the shift of the indoor fan speed is impossible because of already being set to the best speed for Dry Operation by microcontroller control.

■ Cooling Mode Operation

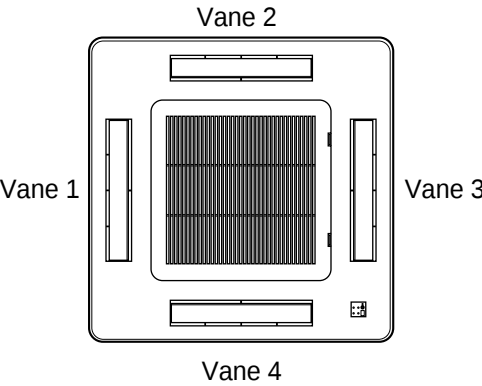
- When selecting the Cooling(❸) Mode Operation, the unit will operate according to the setting by the remote controller and the operation diagram is as following



■ Swirl Swing Control

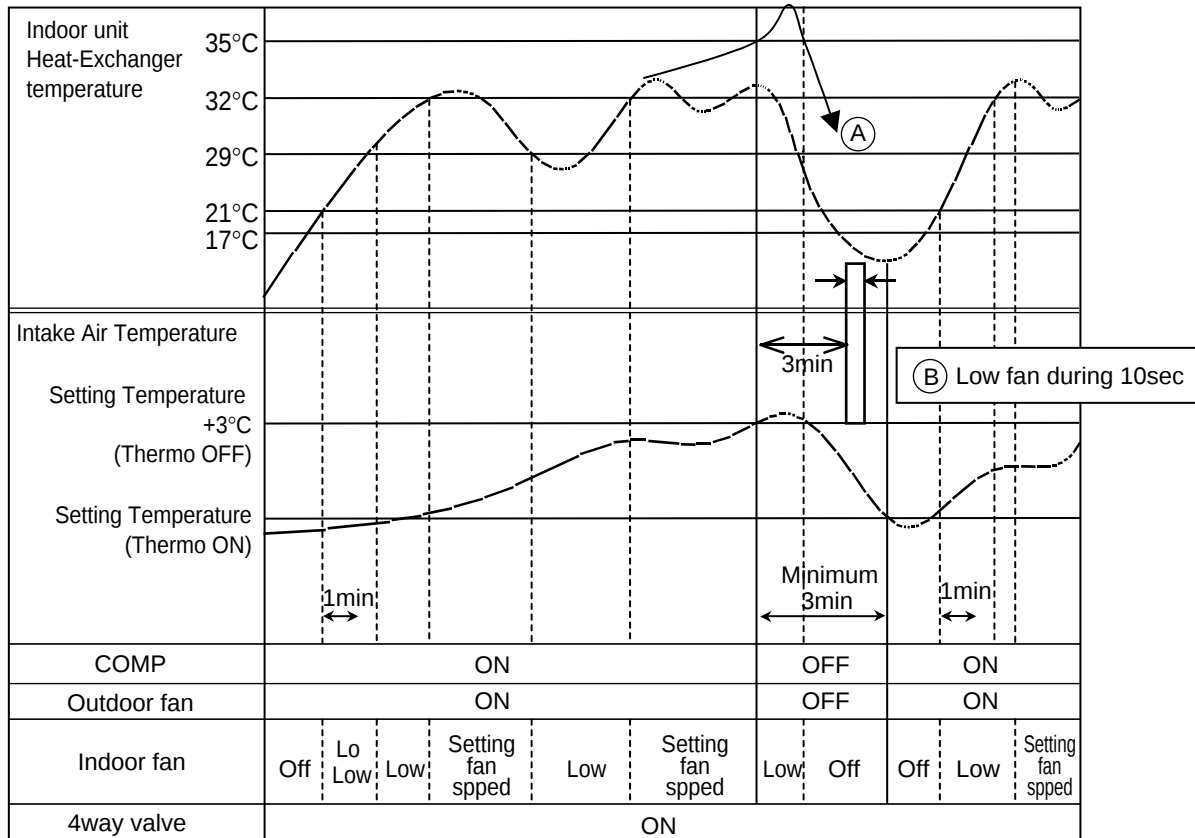
Vane 2, 4 is almost vane closed while vane1, 3 is opened.

Vane 1, 3 and vane 2,4 turn over minutely



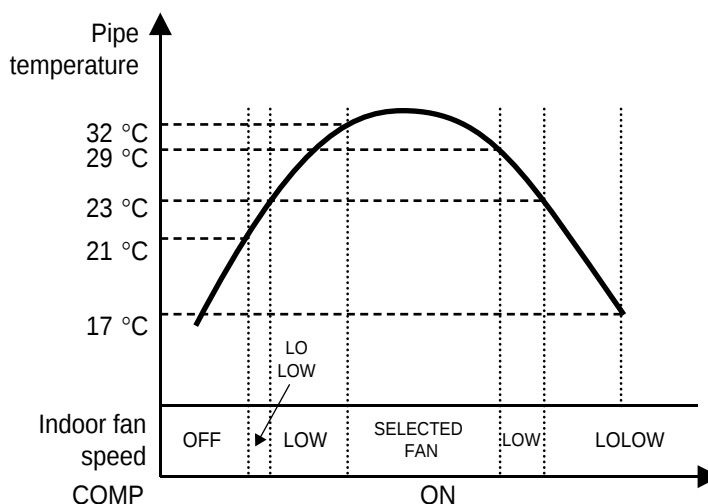
■ Heating Mode Operation

The unit will operate according to the setting by the remote controller and the operation diagram is shown as following.



■ Hot-start Control

- The indoor fan does not rotate until the evaporator piping temperature will be reached to 21°C.
- The operation diagram is as following.



Ceiling Duct Type

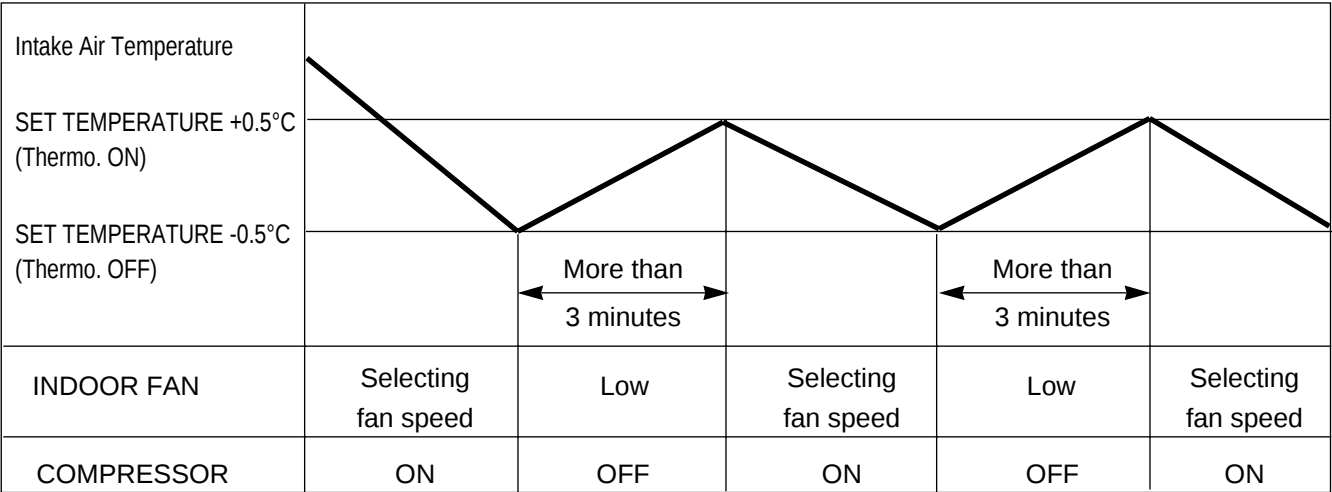
The function of main control

■ Soft-Dry Operation

- The indoor fan speed is automatically set to the low, so the shift of the indoor fan speed is impossible because of already being set to the best speed for Dry Operation by microcontroller control.

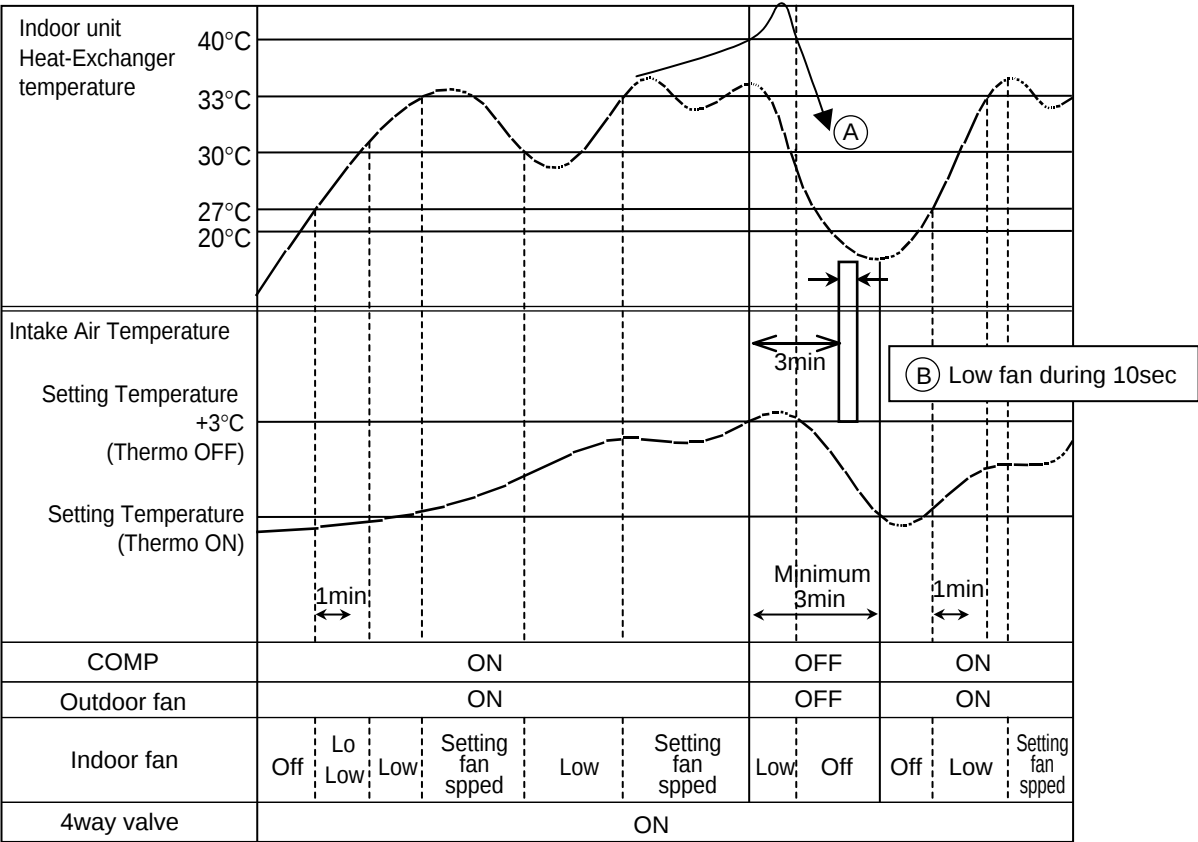
■ Cooling Mode Operation

- When selecting the Cooling(✳) Mode Operation, the unit will operate according to the setting by the remote controller and the operation diagram is as following.



■ Heating Mode Operation

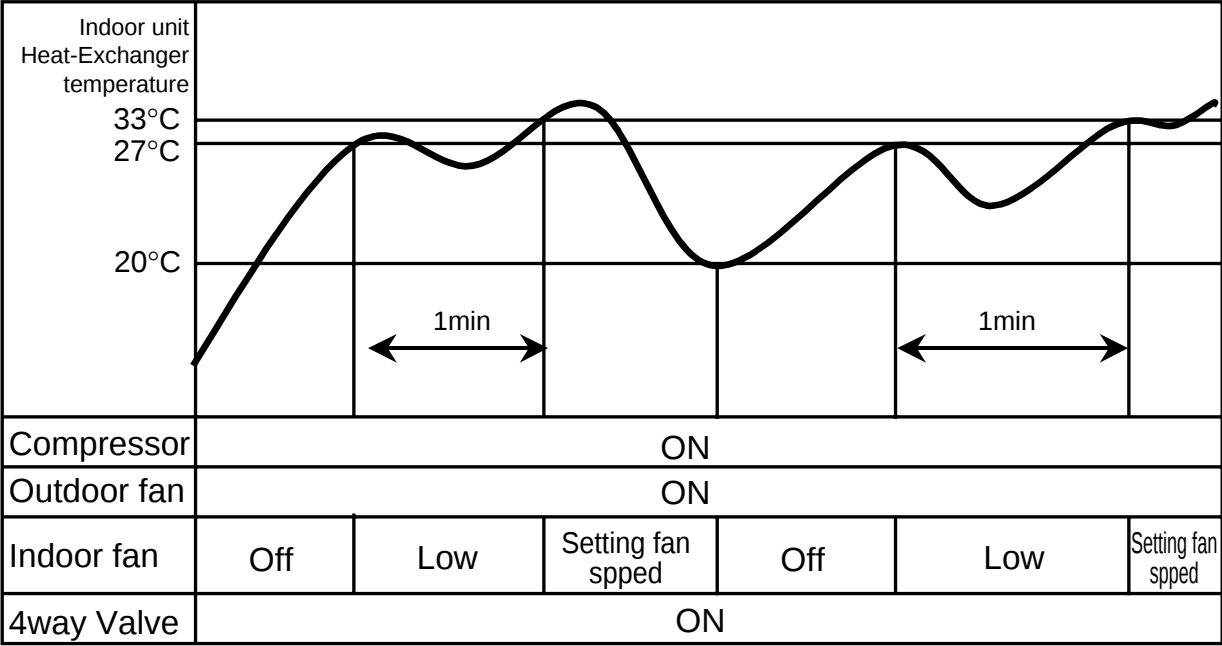
The unit will operate according to the setting by the remote controller and the operation diagram is shown as following.



- **Compressor-off interval** : - (A) While the indoor Heat-Exchanger temperature is higher than 40°C, fan operates at low speed, when it becomes lower than 40°C fan stops.
- (B) For eliminating latent heat-loss, fan operates at low speed for 10 seconds periodically.

Hot-Start Control

- The indoor fan does not rotate until the indoor unit Hex-Exchanger temperature reaches 27°C.
- The operation diagram is as following.



Ceiling & Floor

The function of main control

■ Soft-Dry Operation

- The indoor fan speed is automatically set to the low, so the shift of the indoor fan speed is impossible because of already being set to the best speed for Dry Operation by microcontroller control.

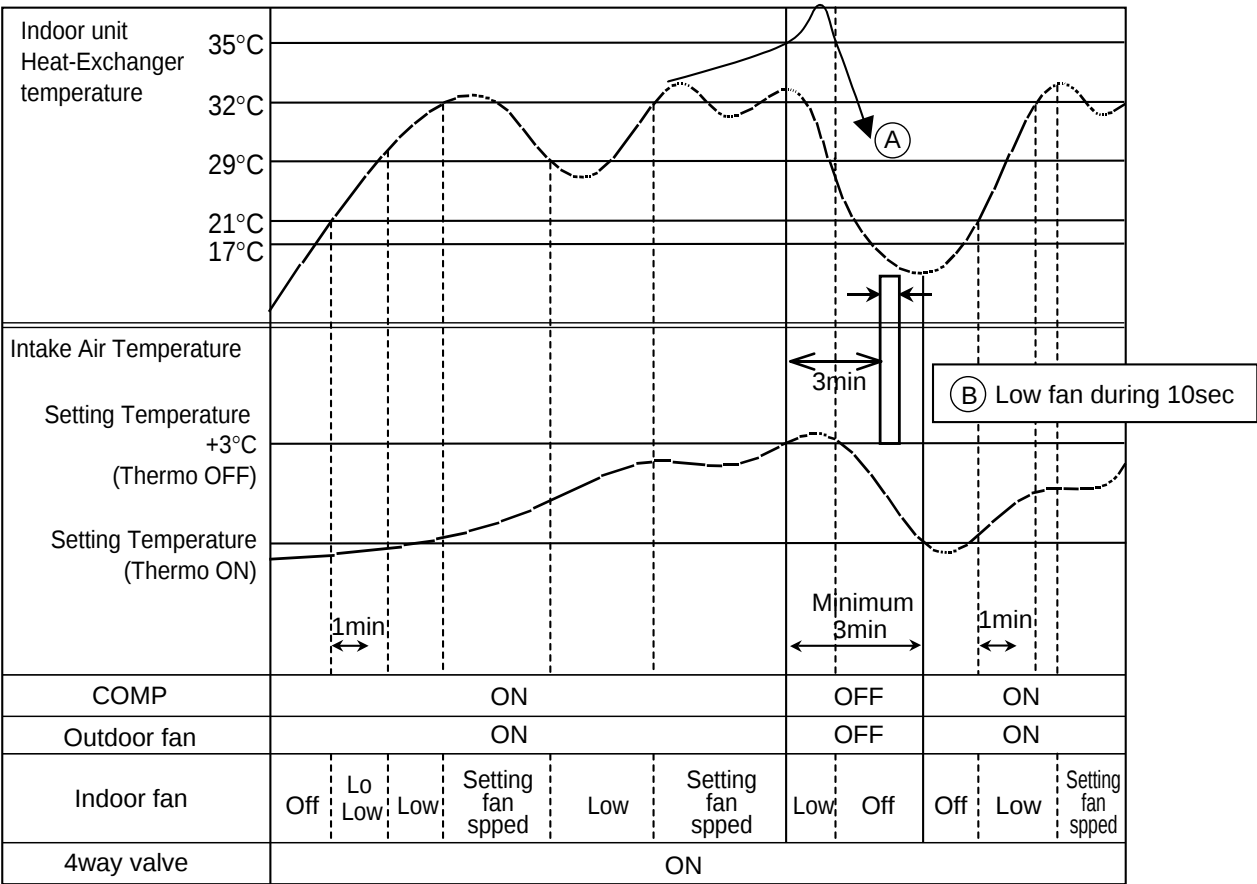
■ Cooling Mode Operation

- When selecting the Cooling(※) Mode Operation, the unit will operate according to the setting by the remote controller and the operation diagram is as following.

Intake Air Temperature					
SET TEMPERATURE +0.5°C (Thermo. ON)					
SET TEMPERATURE -0.5°C (Thermo. OFF)					
INDOOR FAN	Selecting fan speed	Low	Selecting fan speed	Low	Selecting fan speed
COMPRESSOR	ON	OFF	ON	OFF	ON

■ Heating Mode Operation

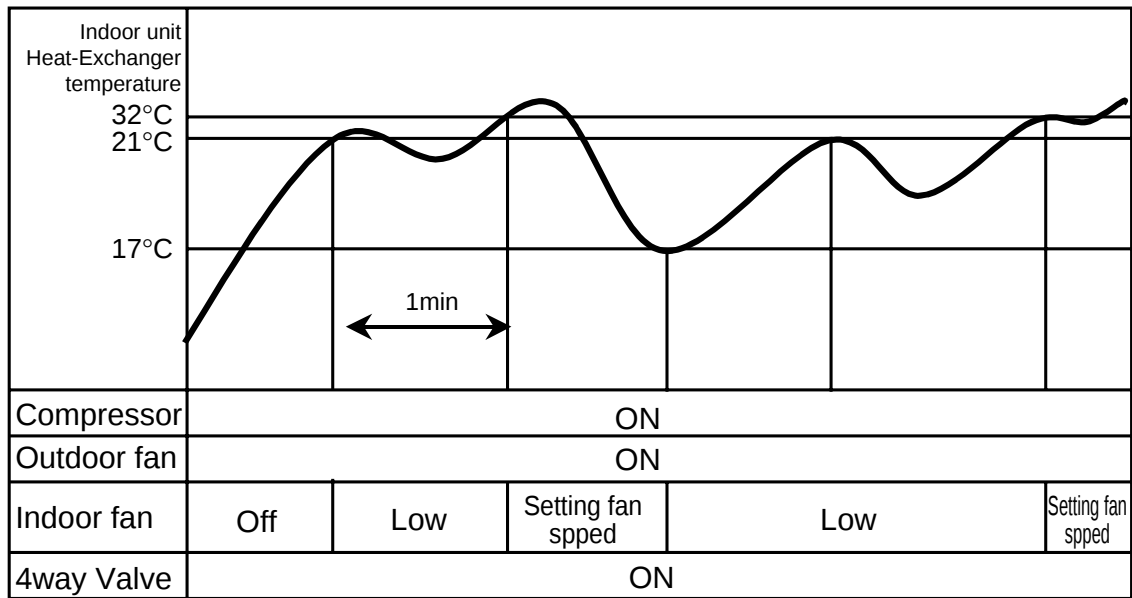
The unit will operate according to the setting by the remote controller and the operation diagram is shown as following.



- **Compressor-off interval :** - (A) While the indoor Heat-Exchanger temperature is higher than 35°C, fan operates at low speed, when it becomes lower than 35°C fan stops.
- (B) For eliminating latent heat-loss, fan operates at low speed for 10 seconds periodically.

■ Hot-Start Control

- The indoor fan does not rotate until the indoor unit Hex-Exchanger temperature reaches 21°C.
- The operation diagram is as following.



Outdoor Units

1. Basic control

1.1 Normal operation

	Cooling mode	Heating mode	Stop state
Compressor	Step Control	Step Control	stop
Fan	Step Control	Step Control	After 30sec, Off
EEV	PID Control	PID Control	After 60sec, Full Open
4 way valve	Off	On	After 30sec, Off

※ PID : Proportional Integrate Derivative

1.2 Compressor control

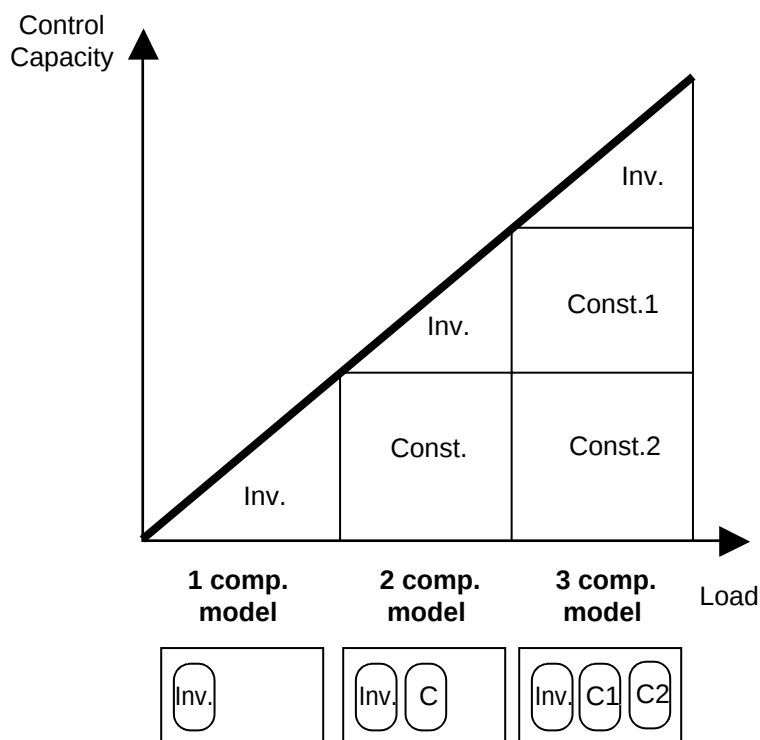
Frequency Control: Frequency that corresponds to a room capacity will be determined according to the room temperature, outdoor temperature and the difference in the temperature of a room and the temperature set by the remote controller.

$$\text{Comp_Step} = (\text{Step_base} + \text{Long piping compensation}) \times \Delta\text{Step_TAO} \times \Delta\text{Step_TAI} \times \Delta\text{Step_DTAI}$$

Step_base	Standard frequency step by $\sum Q_j$ (Summation of capacity code)
Long piping	Comp. Step compensation by setting long piping
$\Delta\text{Step_TAO}$	step compensation by TAO (Outdoor temp.)
$\Delta\text{Step_TAI}$	step compensation by TAI (Indoor temp.)
$\Delta\text{Step_DTAI}$	Step Compensation of temperature difference Indoor Temp. and Setting Temp.

- ✱ Target frequency step (Step_base) exceeds maximum step, the Step_base value follows the maximum step value.
- ✱ The compressor get the minimum step in case Step_base value is lower than the minimum step of operating capacity.

Compressor operation range



1.3 EEV control

(1) Superheating control (Cooling Mode)

- Superheating : $T_{\text{superheating}} = T_{\text{out}} - T_{\text{in}} = 2^{\circ}\text{C}$
- LEV pulse up : $T_{\text{superheating}} > 2^{\circ}\text{C}$
- LEV pulse down : $T_{\text{superheating}} < 2^{\circ}\text{C}$

(2) Target Temperature Control (Cooling mode)

- In case, outdoor temperature $> 39^{\circ}\text{C}$...
- Target superheating : $T_{\text{target}} = T_{\text{in}} = 18^{\circ}\text{C}$
- LEV pulse up : $T_{\text{target}} < 18^{\circ}\text{C}$
- LEV pulse down : $T_{\text{target}} > 18^{\circ}\text{C}$

(3) Target Temperature Control (Heating mode)

- LEV pulse up : $T_{\text{target}} > T_{\text{out}}$
- LEV pulse down : $T_{\text{target}} < T_{\text{out}}$

(4) LEV pulse change Value

1.4 Fan control

Control logic of outdoor fan depends on Outdoor temperature.

(1) Single fan model

Step_Fan	Fan A
2	High
1	Low
0	X

(2) Two fan model

Step_Fan	Fan (A)	Fan (B)
4	High	High
3	Low	Low
2	High	X
1	Low	X
0	X	X

Cooling Single FAN	Outdoor temperature	Cooling two FAN
Step_Fan + 1	41°C	Step_Fan + 2
		Step_Fan + 1
Step_Fan (2)	38°C	Step_Fan
Step_Fan - 1	28°C	Step_Fan - 1
	22°C	Step_Fan - 2
	10°C	Step_Fan - 3

Heating Single FAN	Outdoor temperature	Heating two FAN
Step_Fan - 1	20°C	Step_Fan - 2
		Step_Fan - 1
Step_Fan (4)	14°C	Step_Fan
Step_Fan + 1	4°C	Step_Fan + 1
	-3°C	Step_Fan + 2

2. Special control

2.1 Defrost control

2.1.1 Starting to the defrosting operation

1) Defrost operation will be start when the conditions below are matched

- a) Accumulation time of operation and the period after completion of defrost = 35 min.
- b) After 10 minutes from re-starting the compressor .In case of being over 35 minutes of accumulated operating time, defrosting operation starts after 10 minutes.
- c) Piping temperature of the outdoor heat exchanger maintain below defrost starting temperature for 4 minutes after 35 minutes continuous operation.
- d)In case of passing 10 minutes after oil recovery operation

2) Outdoor piping temperature is below than –6 (Option) °C for starting defrosting operation.

2.1.2 Defrosting Control Algorithm

1) Lowering the compressor frequency when starts the defrosting operation.

Constant speed compressor is ON after 10 seconds from the arrival time of 30 Hz (Option) frequency and is speed up its revolution till 100 Hz (Option)

2) Every LEV have 350 pulse (Option) of opening when starts defrosting operation.

3) Reversing valve is OFF after 5 seconds from arriving the compressor operating frequency of 30 Hz and then fans of indoor units turn OFF.(including the indoor unit with being OFF except the remote controller is being OFF)

4) After 5 seconds minutes from the time arriving 30 Hz, fans of outdoor unit turn OFF and Hot Gas bypass/Oil separator valve turn ON.

2.1.3 Control algorithm of defrost completion

1) Frequency of compressor lowering to 30 Hz and maintain constant speed operation with 30 Hz for 75 seconds and then stating operation. If the constant speed compressor is OFF, it will be receive OFF signal after 5 seconds from the arrival time of 30 Hz.

2) The LEV will open with the standard previous pulse after 5 seconds from the time of 30 Hz.

3) Reversing valve is ON after 15 seconds from the time of 30 Hz of compressor frequency.

4) Fan of outdoor unit is ON with high speed and maintain it after 5 seconds from the time of 30Hz.

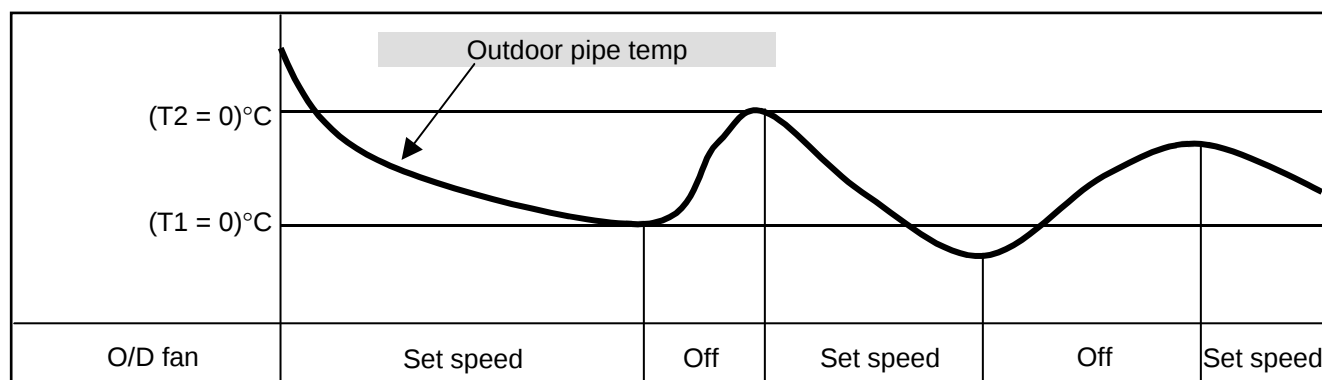
5) Hot Gas bypass valve/Oil separator bypass valve make OFF after 75 seconds from the time of 30Hz.

2.2 Low ambient control

Low ambient cooling case : In this situation outdoor fan works in ON/OFF control.

: If the pipe temperature 0°C and it is falling rapidly in that case compressor will run for 5 min & then it will go in low ambient control. (※ Temp. value can be different for each model.)

※ After the system is stopped by CT cut or heat sink cut-off then the cycle returns to the normal condition control.



2.3 Oil return control

2.3.1 Operating Contion

- 1) When the continuous running time is over 3hr.(option), oil returning operation is made for 3min.
In case of the initial operation, oil returning operation is made, after completing initial operation.
- 2) After defrost and oil returning operation, the continuous running time is resetted.

2.3.2 Operation Process

- 1) EEV-Full open, Hot gas bypass valve-On
- 2) Compressor Step-70Hz + Constant Comp. On(Optional)
- 3) Reversing valve-Off(Process of Off/On, follows defrost operating.)
- 4) Outdoor Fan-Low step

2.4 Oil equalizing control

2.4.1 Inv comp. Only : in heating & cooling

Operating condition :

- 1) When the continuous inverter compressor running time at under 25 Hz(option) is over 25 min.(option),oil restoring operation is made.
- 2) If safety control device is operating under the 1) condition,this operation is not made.
- 3) During this operation,if operating Hz couldn't be changed by safety control ,stop this operation.

Operating process :Once change the operating HZ to 50(option), and recover to the last value.

2.4.2 MPS system : in heating & cooling

Operating condition :

- 1) When the continuous inverter compressor running time at under 40 Hz(option) is over 2 hours(option) in 2 compressor system, oil restoring operation is made.
- 2) If compressor operating Hz is below 40 Hz by the safety control, the accumulated time will be cleared and oil restoration is not made.
- 3) During this operation,if operating Hz couldn't be changed by safety control ,stop this operation.

Operating process : Raise the operating HZ up to 70,and after 20 sec.(option) recover to the last value.

2.5 Sump heating control

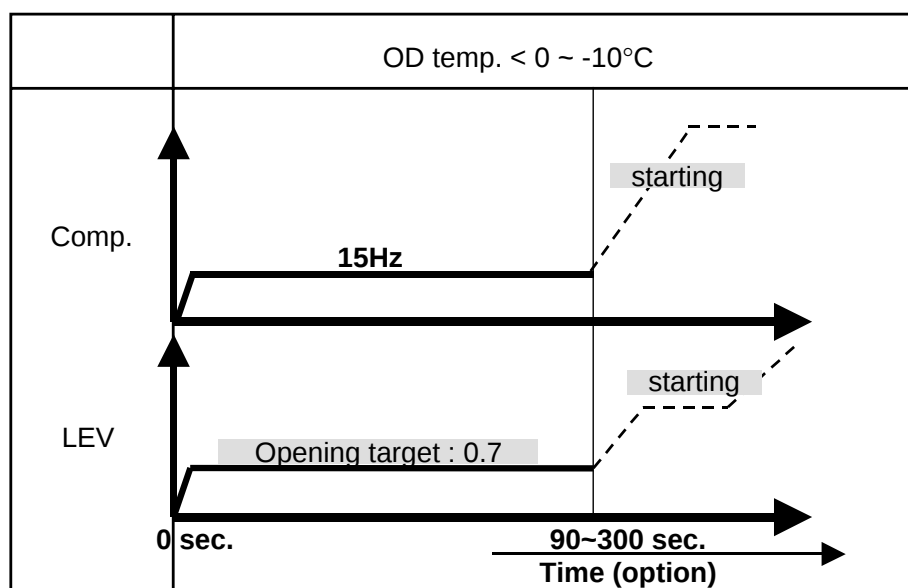
2.5.1 Inverter compressor sump heating function

: A function protecting inverter compressor from damages, by increasing oil viscosity in low outdoor temperature.

For the control, compressor operates in low frequencies.

Operating condition : in case of the following 3 conditions are fulfilled at the same time.

- Outdoor temperature, D-pipe temperature, Heat sink temperature : below 0°C,



2.5.2 Constant compressor sump heater (option)

: An optional function protecting constant compressor from damages, by increasing oil viscosity in low outdoor Temperature.

For this function, heater operates before compressor starting.

Operating condition : before the starting of compressor

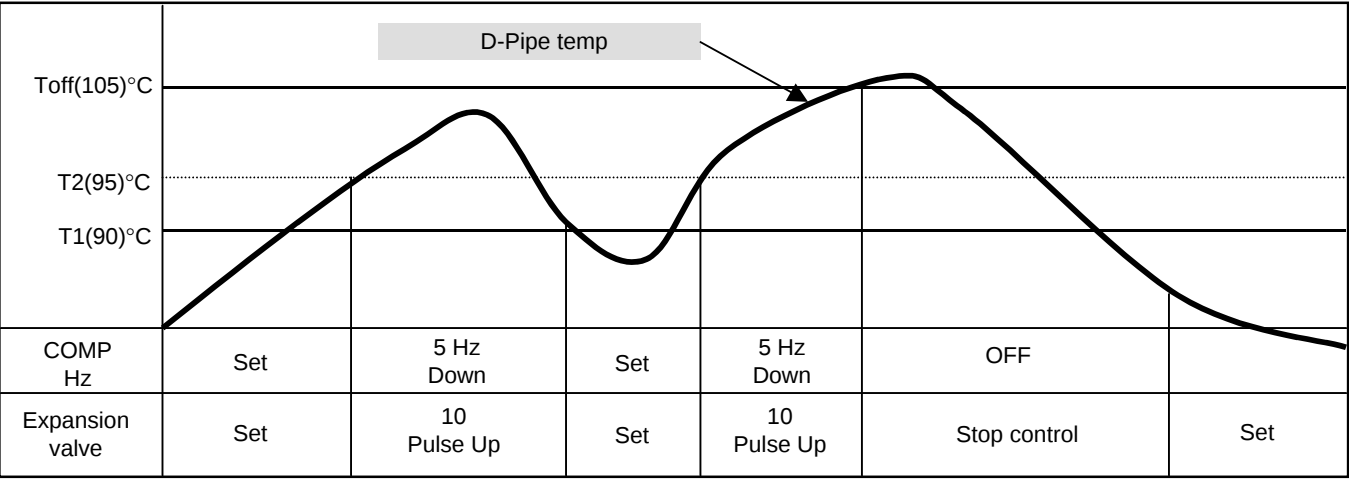
outdoor temperature : below 0°C ➡ heater ON, over 3°C ➡ heater OFF

3. Protection control

3.1 Discharge Temperature control

3.1.1 Discharge pipe control for Inverter compressor

- 1) There can be two situations
- (a) Sensor is failed (error code for sensor failure will be generated)
 - (b) Abnormal high temperature discharge temperature (error code for high discharge will be generated)
Both cases unit will stop.
- 2) Compressor working
- (a) If discharge pipe temperature $\leq T1$ No limitation on compressor frequency
 - (b) $T2 \leq$ discharge pipe temperature $\leq T \text{ off}$ (Hysteresis control) Compressor frequency down by 5Hz and expansion valve up by 10 pulse in every 1 min.
 - (c) Discharge pipe temperature $\geq T \text{ off}$ Compressor will be off



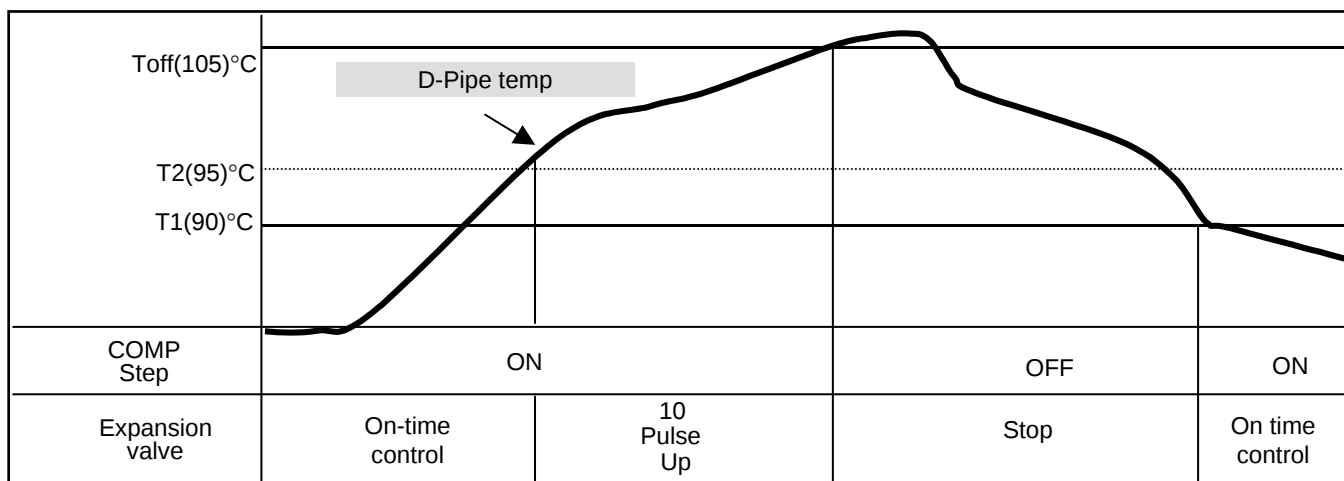
3.1.2 Discharge pipe control for constant compressor

1) There can be two situations

- (a) Sensor is failed (error code for sensor failure will be generated)
 - (b) Abnormal high temperature discharge temperature (error code for high discharge will be generated)
- Both cases unit will stop.

2) Compressor working

- (a) If discharge pipe temperature $< T1$ Compressor ON, LEV on-time control
- (b) $T2 \leq$ discharge pipe temperature $< T_{off}$ (Hysteresis control) Expansion valve up by β pulse every 1 min.
If LEV is in the starting control it will follow it as it is.
- (c) Discharge pipe temperature $\geq T_{off}$ Compressor will be OFF
System will stop if this situation occurs 5 times in 1 hour and error code will be generated.



3.2 Inverter Protection control(1)

3.2.1 Function

: Controlling total power current to protect power semiconductor devices from burn-out by the low current (including connecting mistake) and over current.

3.2.2 Operating process

- 1) Detection : check the output DC voltage of Current Transformer(CT).
- 2) Current Transformer Sensing Error
 - a) In initial power input, if the CT output is over 4.0V (25A) it shows Self-Diagnosis Error Mode 40 (defect in CT sensing)
- 3) CT 1 detection :
 - a) If total current exceeds CT1 value.reduce 1 step of operating Hz.
 - Step down 10Hz from current step.
 - If new Hz is below (cooling : Fc min,, heating :Fh min), then turn off the compressor.
 - b) After step down,if the total current exceed i1 for more than 5 sec. then step down 1 more step.
 - c) If the current continue below i1 for more than 1 min.,return the Hz to setting Hz.
- 4) CT 2 detection :
 - a) If total current exceeds CT2 turn off compressor.
And after 3 min turn on the compressor and check the current again.
 - b) If CT2 occurs 5 times in 1 hour,stop the operation and shows Self-Diagnosis Error Mode 22

Model	cooling (CT 1)	heating (CT 1)	CT 2
12k	8A	9A	11A
18k~36k	11A	12A	14A
48~60k	13A	14A	16A

3.3 Inverter Protection control(2)

3.3.1 Function

: Power module failure protection by checking the temperature of heat sink.
There is a temperature sensor for checking the heat sink temperature.

3.3.2 Heat sink sensor failure error

Short Check : if temperature $\geq 130^{\circ}\text{C}$

Open Check : if temperature $< -30^{\circ}\text{C}$

System will go in self diagnosis (error 65) is displayed and product stops.

3.3.3 Heat sink temperature control

a) Heat sink temperature $< T_2$: No limitation on compressor frequency

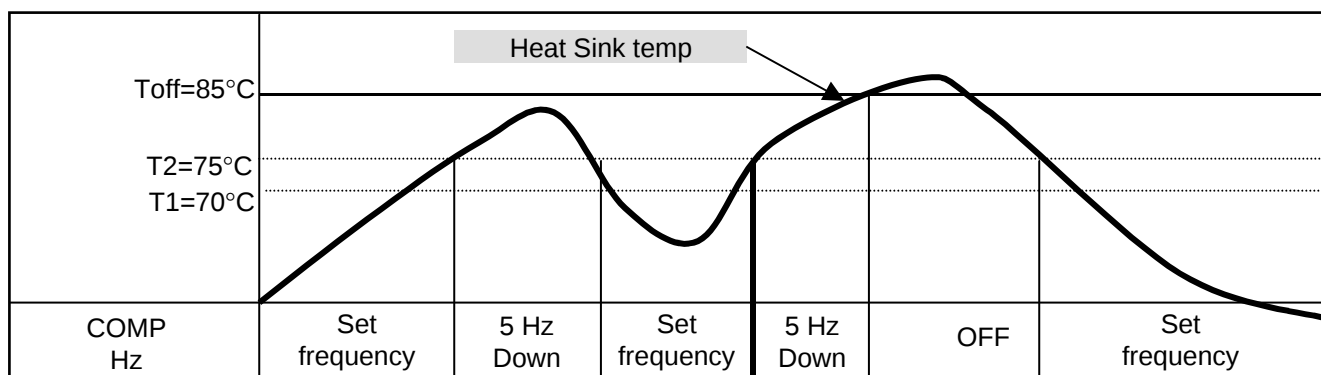
b) $T_2 \leq \text{heat sink temperature} < T_{\text{off}}$: Compressor frequency down by 5 Hz

c) Heat sink temperature $\geq T_{\text{off}}$: Compressor will be off.

System will stop if this situation occurs 5 times in 1 hour and error code will be generated also self diagnosis will start.

If high temperature situation occurs 5 times in 1 hr system counts 1 error and after that 4 times if this situation occurs system stops and give error code.

If the temperature reached T_{off} condition system will count 5 times after that and system will stop with error code.



VII. Exploded View & Replacement Parts List

Indoor Unit151

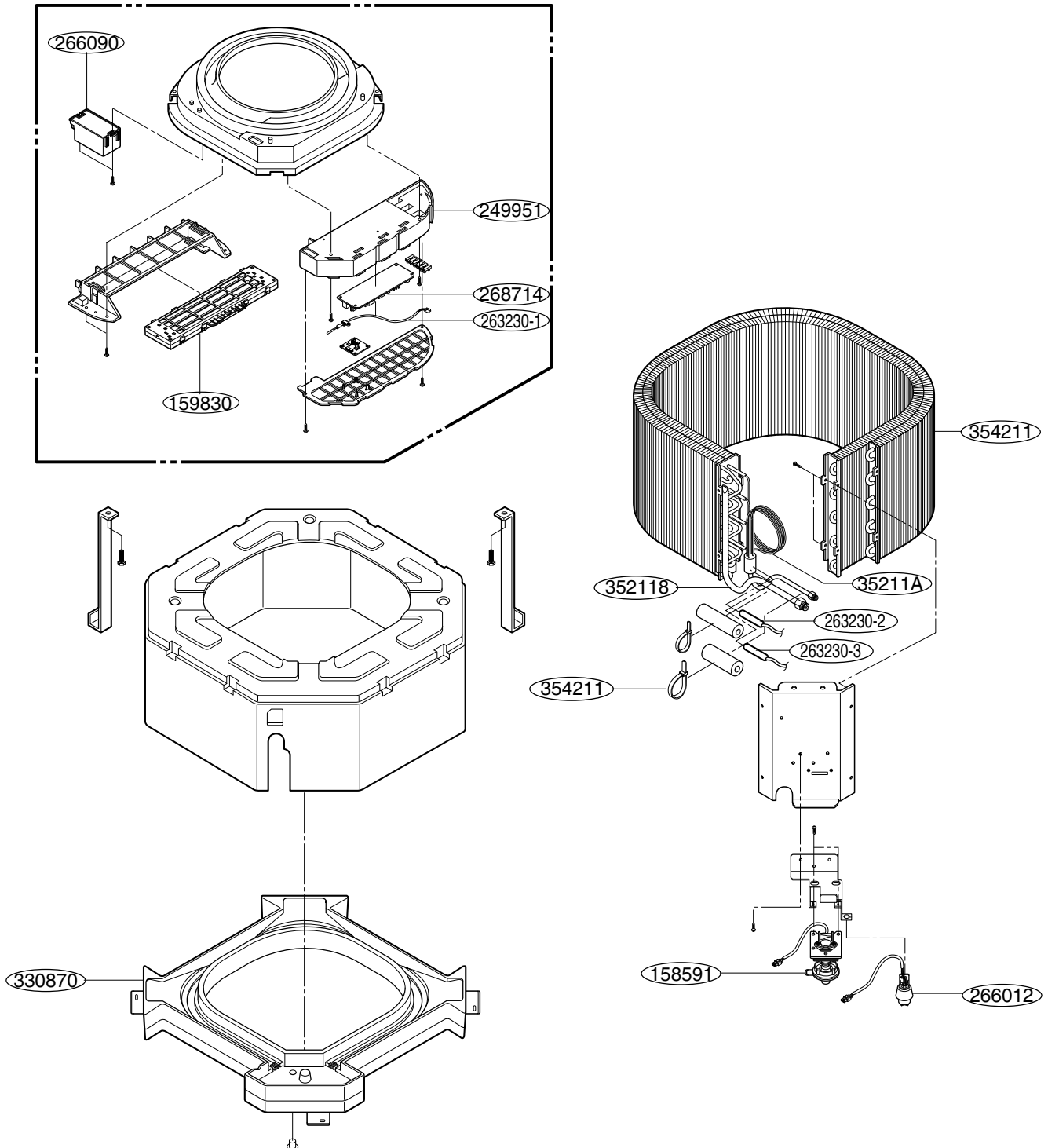
Outdoor Unit169

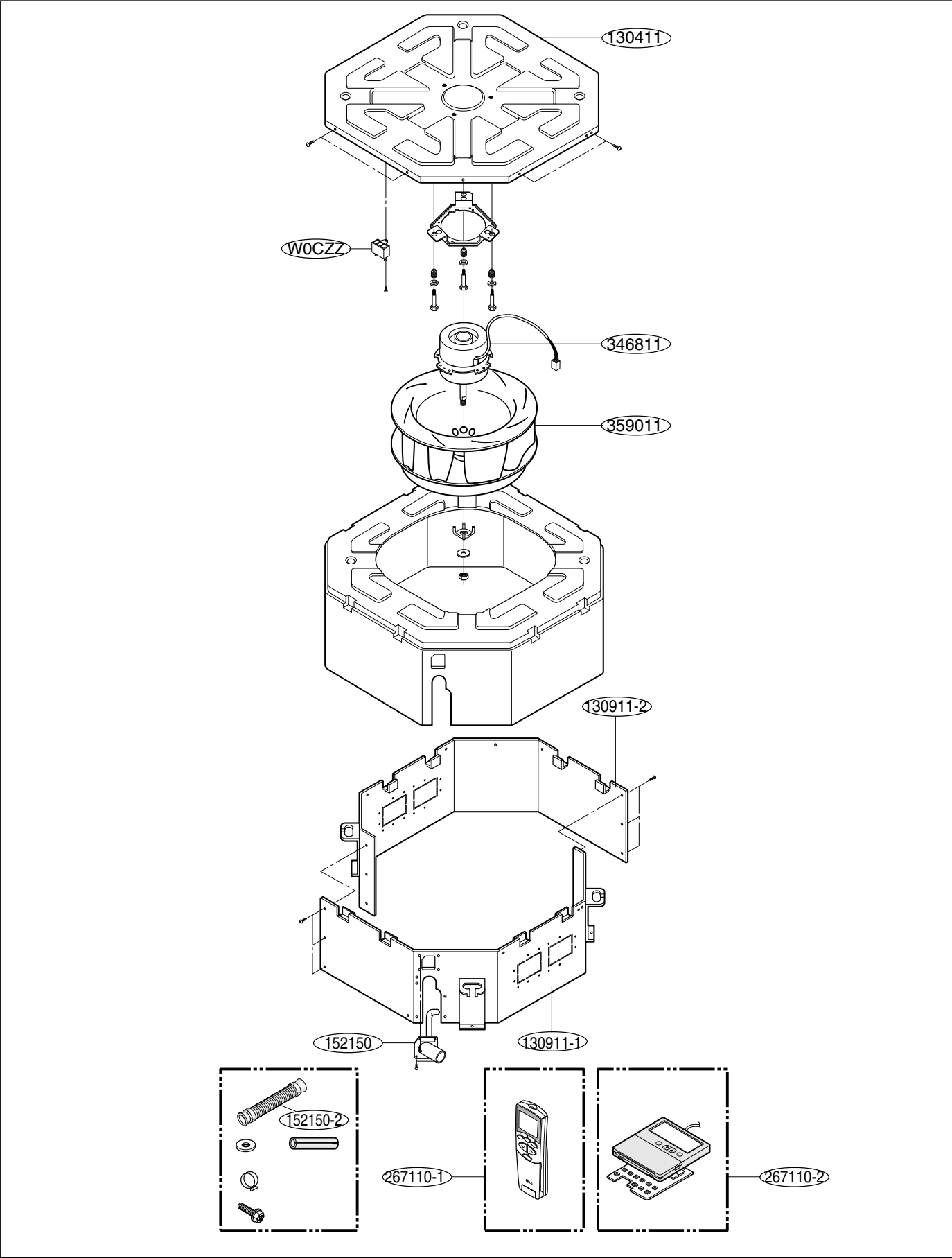
Panel Assembly, Front179

Ceiling Cassette 4-way

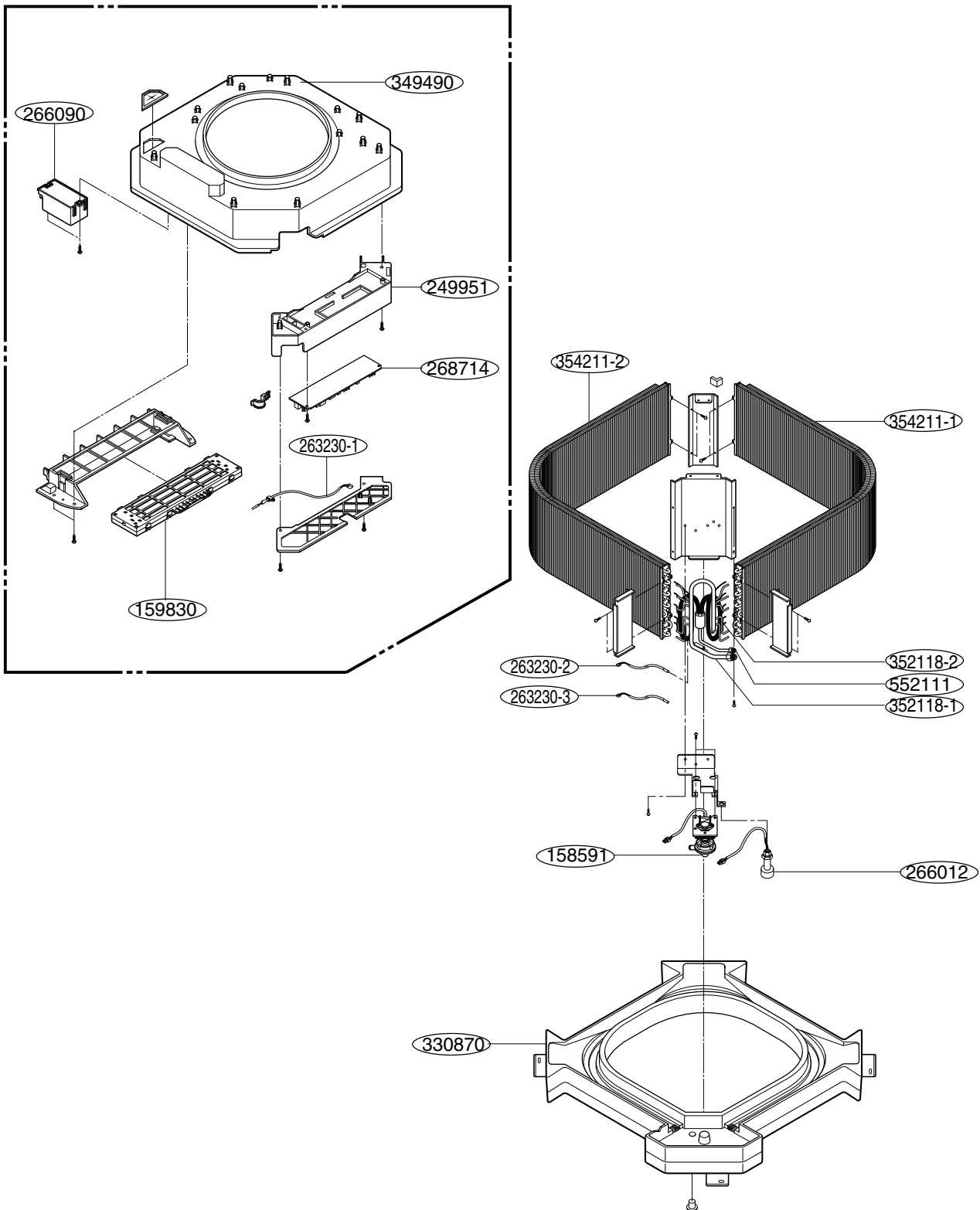
Ceiling Cassette Type

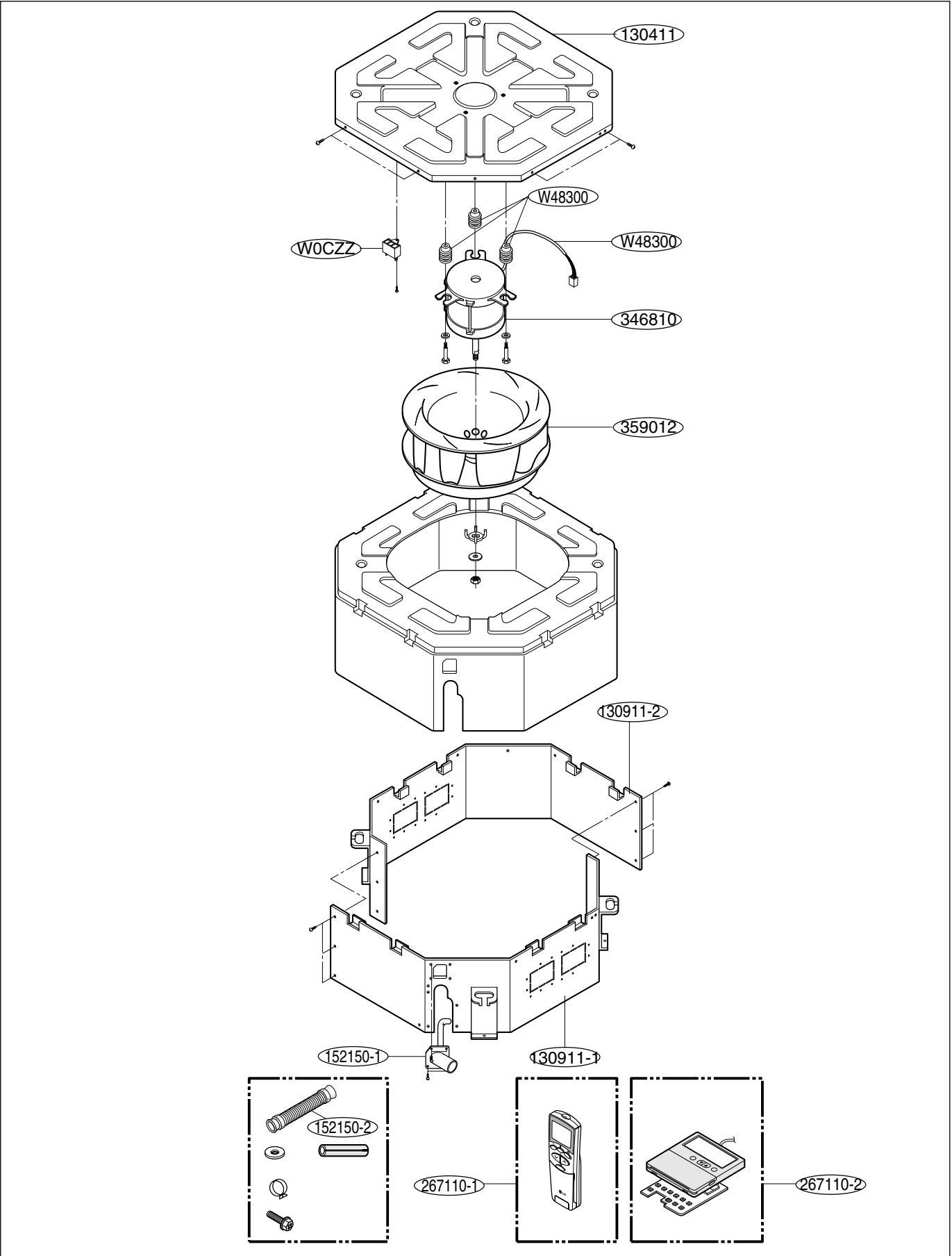
ATNH-EL



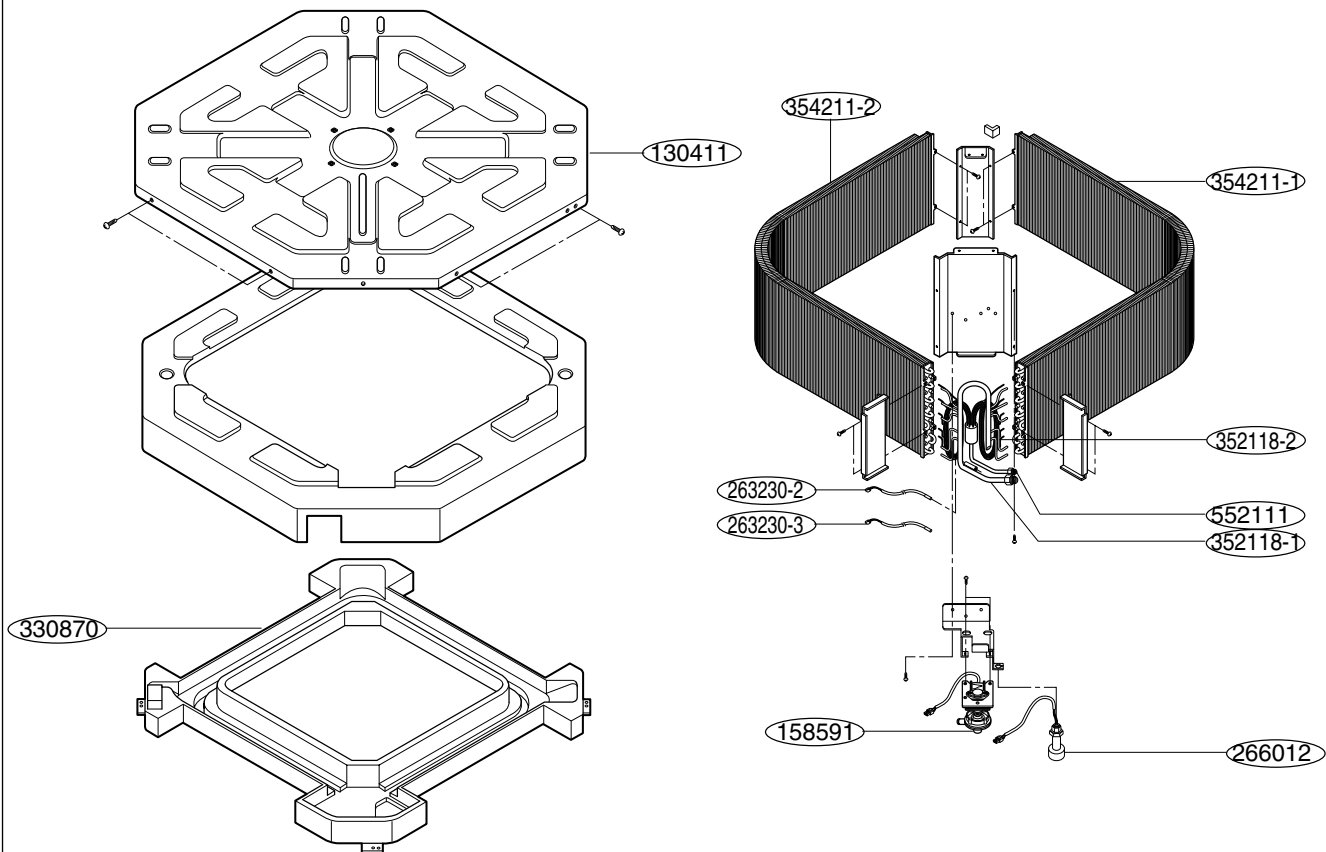
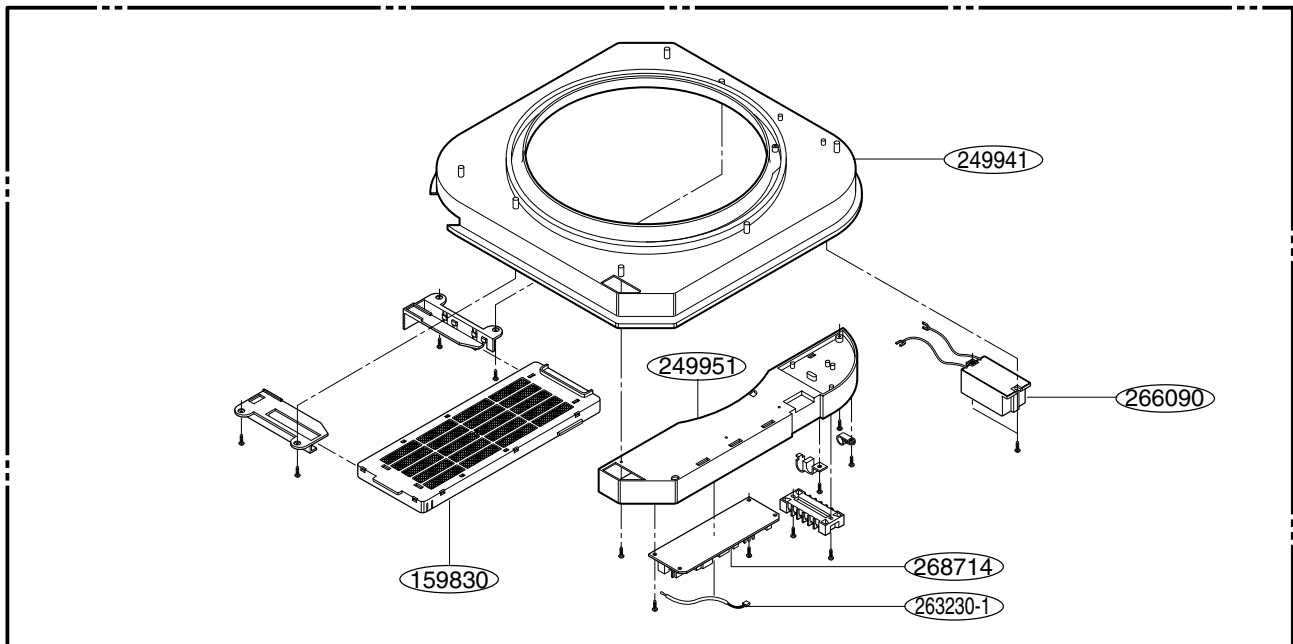


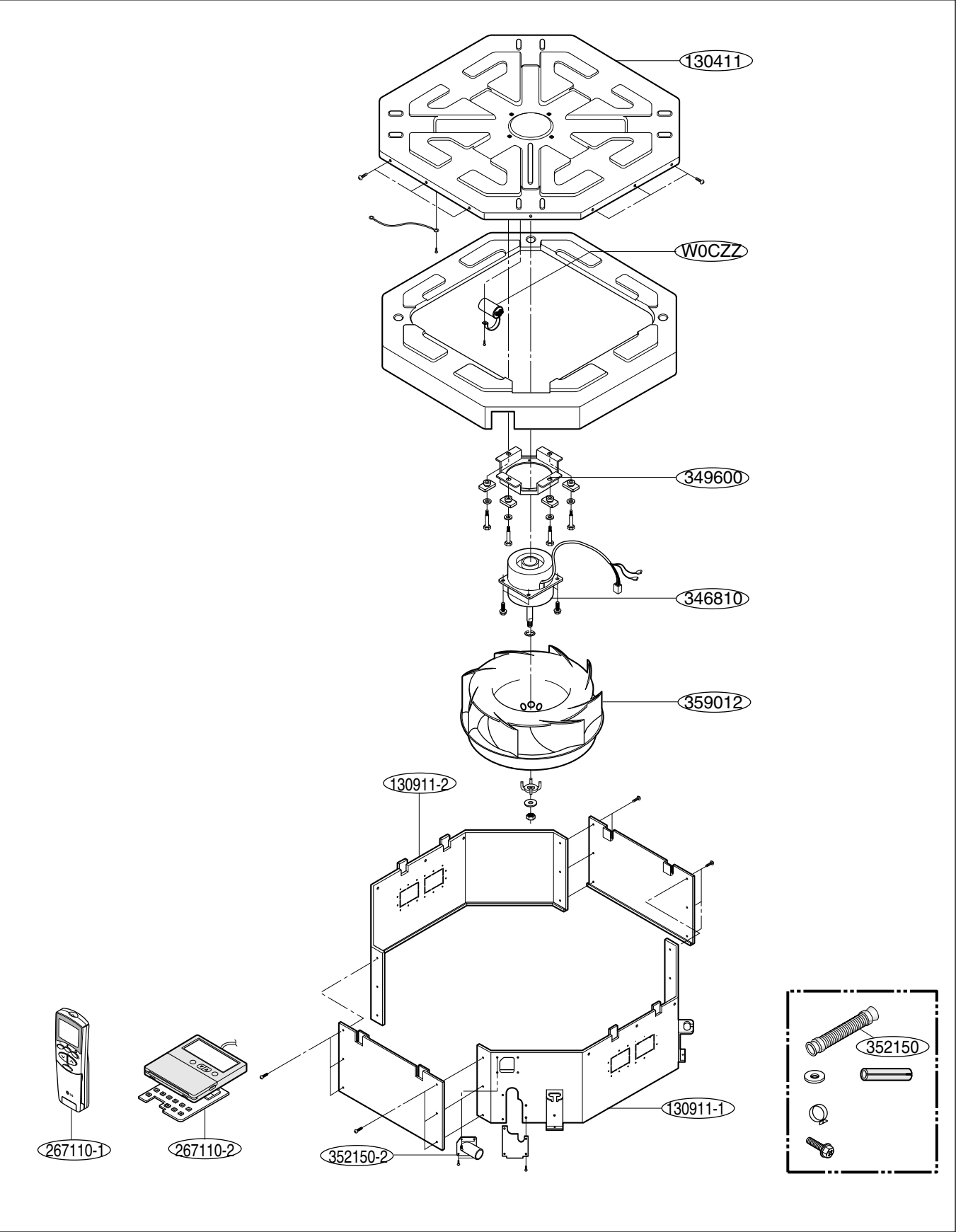
ATNH-FL





ATNH-DL





Parts List

LOCATION No.	DESCRIPTION	Part No.		SVC CODE
		ATNH126ELFB [UT12 NEB]	ATNH186ELFB [UT18 NEB]	
130411	BASE ASSEMBLY,WELD(INDOOR)	3041A10013A	3041A10013A	R
130911-1	CABINET ASSEMBLY,INDOOR	3091A10023C	3091A10023C	R
130911-2	CABINET ASSEMBLY,INDOOR	3091A10023D	3091A10023D	R
158591	PUMP ASSEMBLY,WATER	5859A20001M	5859A20001M	R
159830	AIR CLEANER ASSEMBLY	5983A10002A	5983A10002A	R
249951	CONTROL BOX ASSEMBLY,INDOOR	4995A14001L	4995A14001M	R
263230-1	THERMISTOR ASEEMBLY (INDOOR INLET)	6323A10002A	6323A10002A	R
263230-2	THERMISTOR ASEEMBLY (PIPE INLET)	6323AQ3226T	6323AQ3226T	R
263230-3	THERMISTOR ASEEMBLY (PIPE OUTLET)	6323AQ3226F	6323AQ3226F	R
266012	SWITCH ASSY,FLOAT	6601A20001G	6601A20001G	R
266090	H.V ASSEMBLY	6609A20005C	6609A20005C	R
267110-1	REMOTE CONTROLLER ASSEMBLY	6711A20096B	6711A20096B	R
267110-2	REMOTE CONTROLLER ASSEMBLY	6711A20076J	6711A20076J	R
330870	DRAIN PAN ASSEMBLY	3087A10002A	3087A10002A	R
346811	MOTOR ASSEMBLY,SINGLE	4681AC2026E	4681AC2026C	R
35211A	TUBE ASSEMBLY,SUCTION INDOOR	5211A20243M	5211A20243N	R
354211	EVAPORATOR ASSY,BENDING	5421A10006A	5421A10006A	R
359011	FAN,TURBO	5900A10004A	5900A10004A	R
352118	TUBE ASSEMBLY,MENIFOLD(INDOOR)	5211A20241S	5211A20241R	R
W0CZZ	CAPACITOR,DRAWING	3H00660N	3H00660N	R
268714	PWB(PCB) ASSEMBLY,MAIN	6871A10209E	6871A10209F	R
349600	BRACKET,MOTOR	4960A20010A	4960A20010A	R
152510-1	HOSE ASSEMBLY DRAIN	5251A20002A	5251A20002A	R
152510-2	HOSE ASSEMBLY DRAIN	5251AP2984A	5251AP9984A	R

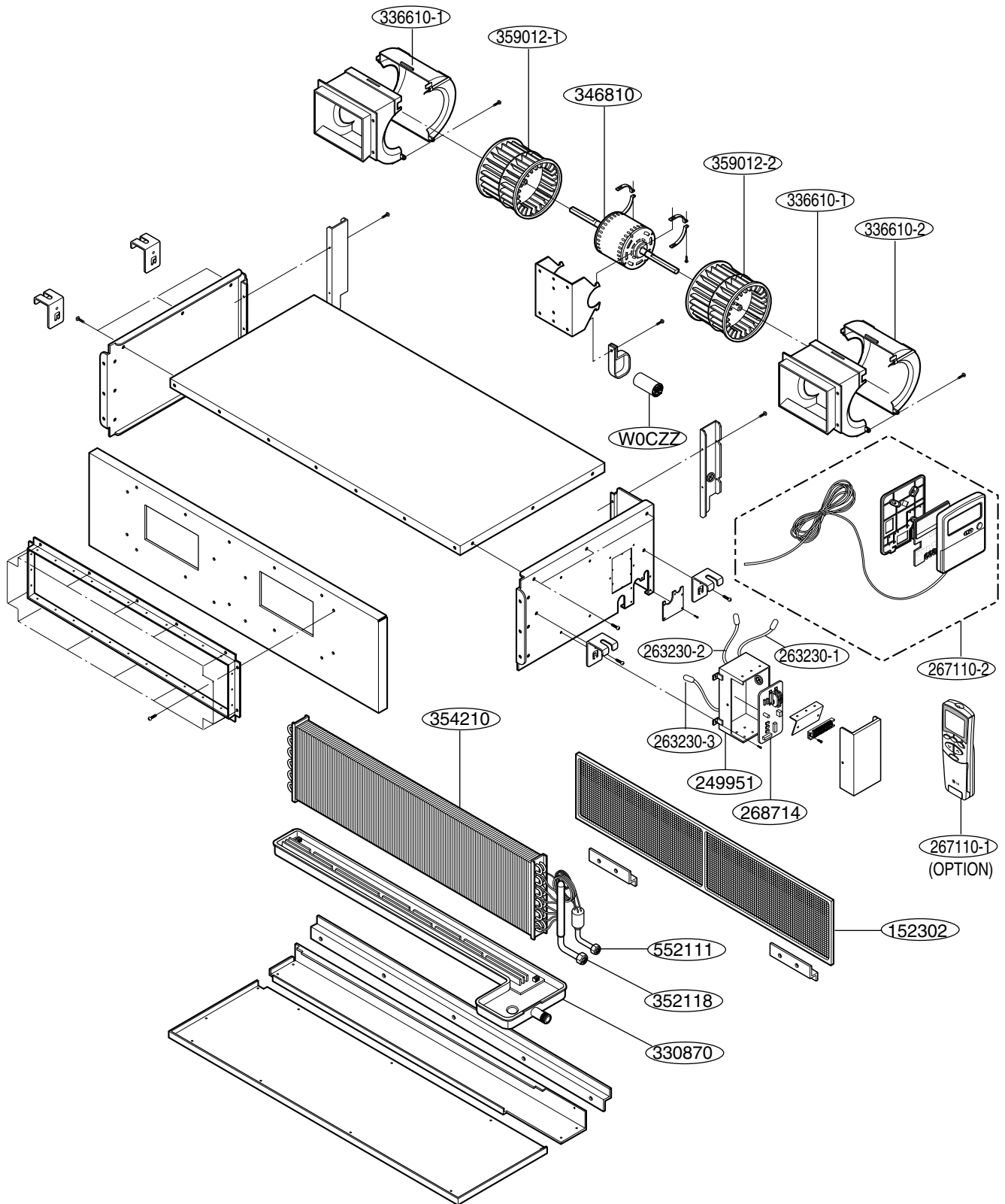
LOCATION No.	DESCRIPTION	Part No.		SVC CODE
		ATNH246FLFB [UT24 NFB]	ATNH306FLFB [UT30 NFB]	
130411	BASE ASSEMBLY,WELD(INDOOR)	3041A10030B	3041A10030B	R
130911-1	CABINET ASSEMBLY,INDOOR	3091A10051C	3091A10051C	R
130911-2	CABINET ASSEMBLY,INDOOR	3091A10051D	3091A10051D	R
158591	PUMP ASSEMBLY,WATER	5859A20001K	5859A20001K	R
159830	AIR CLEANER ASSEMBLY	5983A10002A	5983A10002A	R
249951	CONTROL BOX ASSEMBLY,INDOOR	4995A10093Y	4995A10093Z	R
263230-1	THERMISTOR ASEEMBLY (INDOOR INLET)	6323A10002A	6323A10002A	R
263230-2	THERMISTOR ASEEMBLY (PIPE INLET)	6323AQ3226Y	6323AQ3226Y	R
263230-3	THERMISTOR ASEEMBLY (PIPE OUTLET)	6323AQ3226E	6323AQ3226E	R
266012	SWITCH ASSEMBLY,FLOAT	6601A20001H	6601A20001H	R
266090	H.V ASSEMBLY	6609A20005E	6609A20005E	R
267110-1	REMOTE CONTROLLER ASSEMBLY	6711A20096B	6711A20096B	R
267110-2	REMOTE CONTROLLER ASSEMBLY	6711A20076J	6711A20076J	R
268714	PWB(PCB) ASSEMBLY,MAIN	6871A10209G	6871A10209H	R
330870	DRAIN PAN ASSEMBLY	3087A10010B	3087A10010B	R
346810	MOTOR ASSEMBLY,INDOOR	4681A20051Z	4681A20051W	R
349490	ORIFICE ASSEMBLY	4949A10007B	4949A10007B	R
352118-1	TUBE ASSEMBLY,MENIFOLD(INDOOR)	5211A20251Q	5211A20251K	R
352118-2	TUBE ASSEMBLY,MENIFOLD(INDOOR)	5211A20251K	5211A20251U	R
354211-1	EVAPORATOR ASSEMBLY,BENDING	5421A10016G	5421A10016G	R
354211-2	EVAPORATOR ASSEMBLY,BENDING	5421A10016H	5421A10016H	R
359012	FAN ASSEMBLY,TURBO	5901A10036A	5901A10036A	R
552111	TUBE ASSEMBLY,CAPILLARY	5211A21137C	5211A21137C	R
W0CZZ	CAPACITOR,DRAWING	3H00660M	3H00660M	R
152150-1	HOSE ASSEMBLY DRAIN	5251A20002B	5251A20002B	R
152150-2	HOSE ASSEMBLY DRAIN	5251AP2984A	5251AP2984A	R
W48300	MOTOR BUSHING	4830A30003C	4830A30003C	R

Parts List

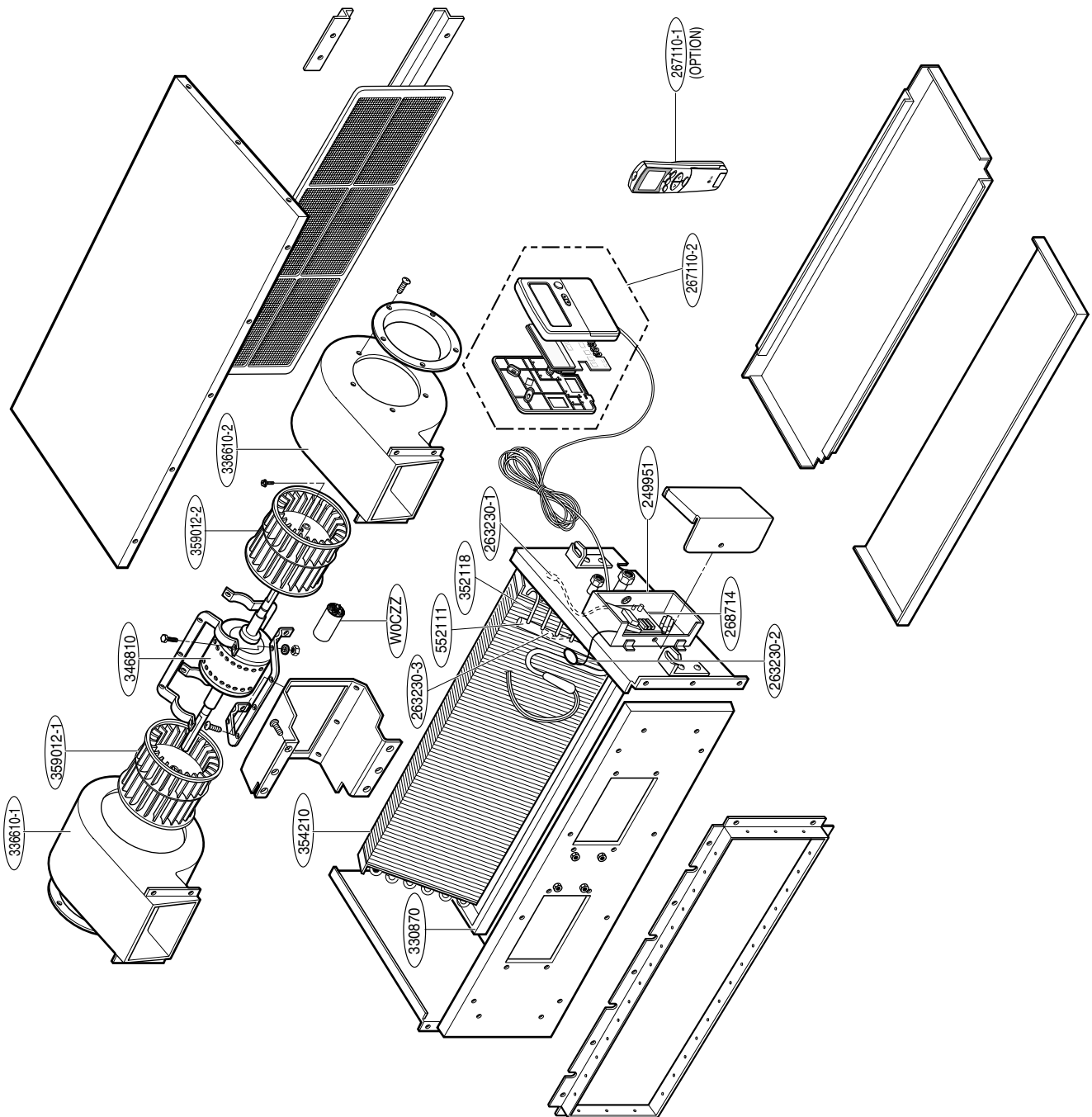
LOCATION No.	DESCRIPTION	Part No.			SVC CODE
		ATNH366DLFB [UT36 NDB]	ATNH486DLFB [UT48 NDB]	ATNH606DLFB [UT60 NDB]	
130411	BASE ASSEMBLY,WELD(INDOOR)	3041A10016A	3041A10016A	3041A10016A	R
130911-1	CABINET ASSEMBLY,INDOOR	3091A20035A	3091A20035A	3091A20035A	R
130911-2	CABINET ASSEMBLY,INDOOR	3091A20035B	3091A20035B	3091A20035B	R
158591	PUMP ASSEMBLY,WATER	5859A20001D	5859A20001D	5859A20001D	R
266012	SWITCH ASSY,FLOAT	6601A20001F	6601A20001F	6601A20001F	R
159830	AIR CLEANER ASSEMBLY	5983A10003D	5983A10003D	5983A10003D	R
249951	CONTROL BOX ASSEMBLY,INDOOR	4995A22004Z	4995A22004W	4995A20168A	R
263230-1	THERMISTOR ASEEMBLY (INDOOR INLET)	6323A10002B	6323A10002B	6323A10002B	R
263230-2	THERMISTOR ASEEMBLY (PIPE INLET)	6323AQ3226T	6323AQ3226T	6323AQ3226T	R
263230-3	THERMISTOR ASEEMBLY (PIPE OUTLET)	6323A30002A	6323A30002A	6323A30002A	R
266090	H.V ASSEMBLY	6609A20005H	6609A20005H	6609A20005H	R
267110-1	REMOTE CONTROLLER ASSEMBLY	6711A20096B	6711A20096B	6711A20096B	R
267110-2	REMOTE CONTROLLER ASSEMBLY	6711A20076J	6711A20076J	6711A20076J	R
330870	DRAIN PAN ASSEMBLY	3087A10006A	3087A10006A	3087A10006A	R
346810	MOTOR ASSEMBLY,INDOOR	4681A20006J	4681A20006H	4681A20006M	R
354211-1	EVAPORATOR ASSY,BENDING	5421A10016A	5421A10016A	5421A10016A	R
354211-2	EVAPORATOR ASSY,BENDING	5421A10016B	5421A10016B	5421A10016B	R
552111	TUBE ASSEMBLY,CAPILLARY	5211A20316S	5211A20316R	5211A20316R	R
352118-1	TUBE ASSEMBLY,MENIFOLD(INDOOR)	5211A20251R	5211A20251W	5211A20251A	R
352118-2	TUBE ASSEMBLY,MENIFOLD(INDOOR)	5211A20251B	5211A20251B	5211A20251B	R
359012	FAN ASSEMBLY,TURBO	5900A10003B	5900A10003B	5900A10003B	R
W0CZZ	CAPACITOR,DRAWING	3H00660M	2A00986D	2A00986D	R
268714	PWB(PCB) ASSEMBLY MAIN	6871A10209J	6871A10209K	6871A10209L	R
352150	ELBOW	5212A20004A	5212A20004A	5212A20004A	R
352150	HOSE DRAIN ASSEMBLY	5251AP2984A	5251AP2984A	5251AP2984A	R
249941	CASE, CONTROL (INDOOR)	4994A10020H	4994A10020H	4994A10020H	R

Ceiling Concealed Duct Type

ABNH-HL, ABNH-GL



ABNH-RL



Parts List

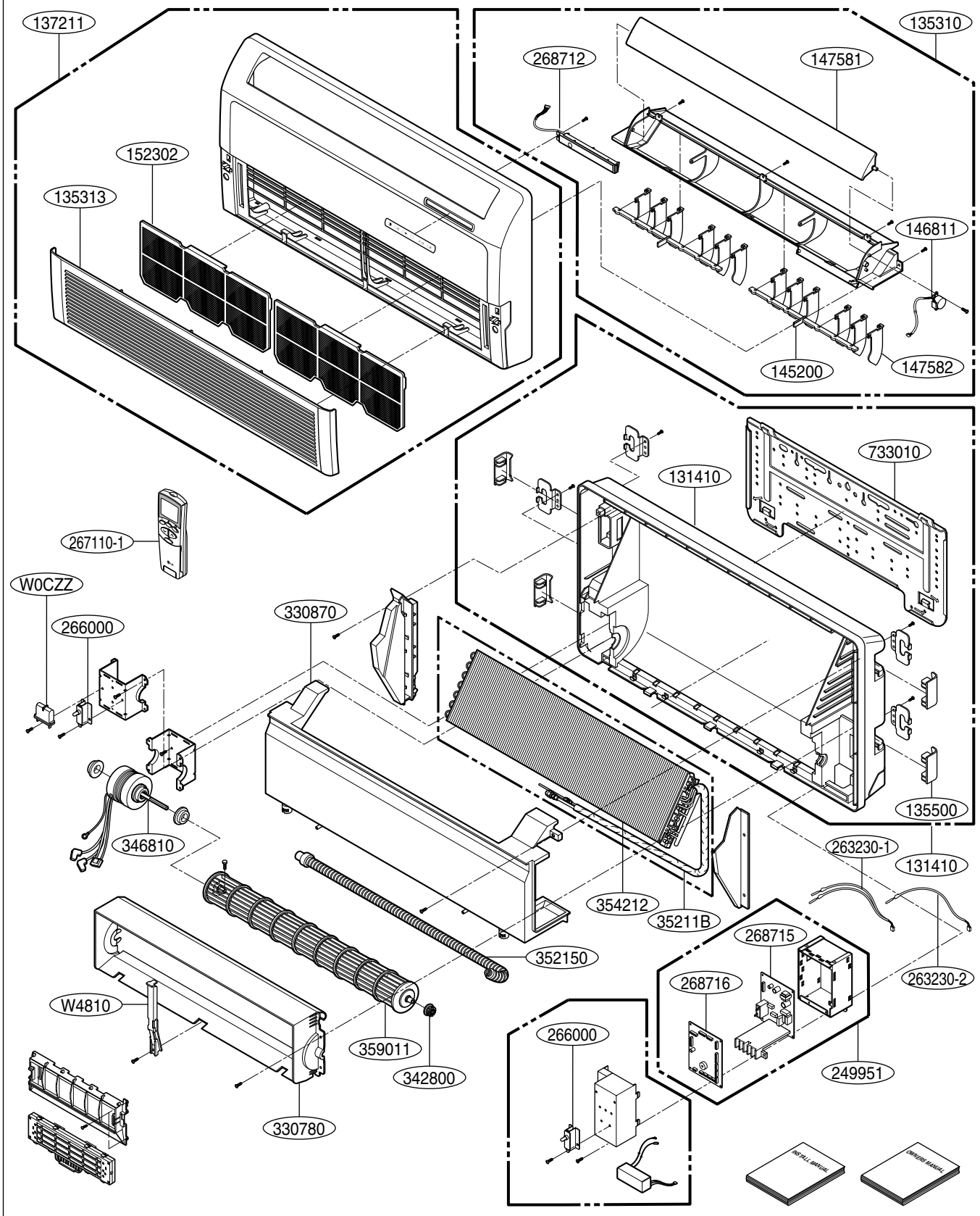
LOCATION No.	DESCRIPTION	Part No.		SVC CODE
		ABNH186HLAB [UB18 NHB]	ABNH246HLAB [UB24 NHB]	
263230-1	THERMISTOR ASESEMBLY (INDOOR INLET)	6323AQ3214E	6323AQ3214E	R
263230-2	THERMISTOR ASESEMBLY (PIPE INLET)	6323AQ3226V	6323AQ3226V	R
263230-3	THERMISTOR ASESEMBLY (PIPE OUTLET)	6323AQ3226E	6323AQ3226E	R
336610-1	HOUSING (MECH),WRAPPER	3660A20017A	3660A20017A	R
336610-2	HOUSING (MECH),WRAPPER	3660A20018A	3660A20018A	R
346810	MOTOR ASSEMBLY,INDOOR	4681A10013C	4681A10013C	R
359012-1	FAN ASSEMBLY,BLOWER	5901A10026A	5901A10026A	R
359012-2	FAN ASSEMBLY,BLOWER	5901A10028B	5901A10028B	R
W0CZZ	CAPACITOR,DRAWING	2A00986D	2A00986D	R
354210	EVAPORATOR ASSEMBLY,FIRST	5421A10027A	5421A20100B	R
352118	TUBE ASSEMBLY,MENIFOLD(INDOOR)	5211A20416J	5211A20465G	R
552111	TUBE ASSEMBLY,CAPILLARY	5211A20693E	5211A20466N	R
330870	DRAIN PAN ASSEMBLY	3087A10008B	3087A10008B	R
249951	CONTROL BOX ASSEMBLY,INDOOR	4995A14002E	4995A14002F	R
268714	PWB(PCB) ASSEMBLY,MAIN	6871A10140X	6871A10140Y	R
267110-2	REMOTE CONTROLLER ASSEMBLY	6711A10008D	6711A10008D	R
152302	FILTER(MECH),A/C	5230A30001M	5230A30001M	R

LOCATION No.	DESCRIPTION	Part No.		SVC CODE
		ABNH306GLAB [UB30 NGB]	ABNH366GLAB [UB36 NGB]	
263230-1	THERMISTOR ASEEMBLY (INDOOR INLET)	6323AQ3214E	6323AQ3214E	R
263230-2	THERMISTOR ASEEMBLY (PIPE INLET)	6323AQ3226V	6323AQ3226V	R
263230-3	THERMISTOR ASEEMBLY (PIPE OUTLET)	6323AQ3226E	6323AQ3226E	R
336610-1	HOUSING (MECH),WRAPPER	3660A20019A	3660A20019A	R
336610-2	HOUSING (MECH),WRAPPER	3660A20020A	3660A20020A	R
346810	MOTOR ASSEMBLY,INDOOR	4681A10013J	4681A10013A	R
359012-1	FAN ASSEMBLY,BLOWER	5901A10026A	5901A10026A	R
359012-2	FAN ASSEMBLY,BLOWER	5901A10028J	5901A10028A	R
W0CZZ	CAPACITOR,DRAWING	2A00986D	2A00986D	R
354210	EVAPORATOR ASSEMBLY,FIRST	5421A10027A	5421A10027A	R
552111	TUBE ASSEMBLY,DISTRIBUTOR	5211A20693E	5211A20693E	R
352118	TUBE ASSEMBLY,MENIFOLD(INDOOR)	5211A20416J	5211A20416J	R
330870	DRAIN PAN ASSEMBLY	3087A10008A	3087A10008A	R
249951	CONTROL BOX ASSEMBLY,INDOOR	4995A14002G	4995A14002H	R
268714	PWB(PCB) ASSEMBLY,MAIN	6871A10131Q	6871A10131R	R
267110-2	REMOTE CONTROLLER ASSEMBLY	6711A10008D	6711A10008D	R
152302	FILTER(MECH),A/C	5230A30001L	5230A30001L	R

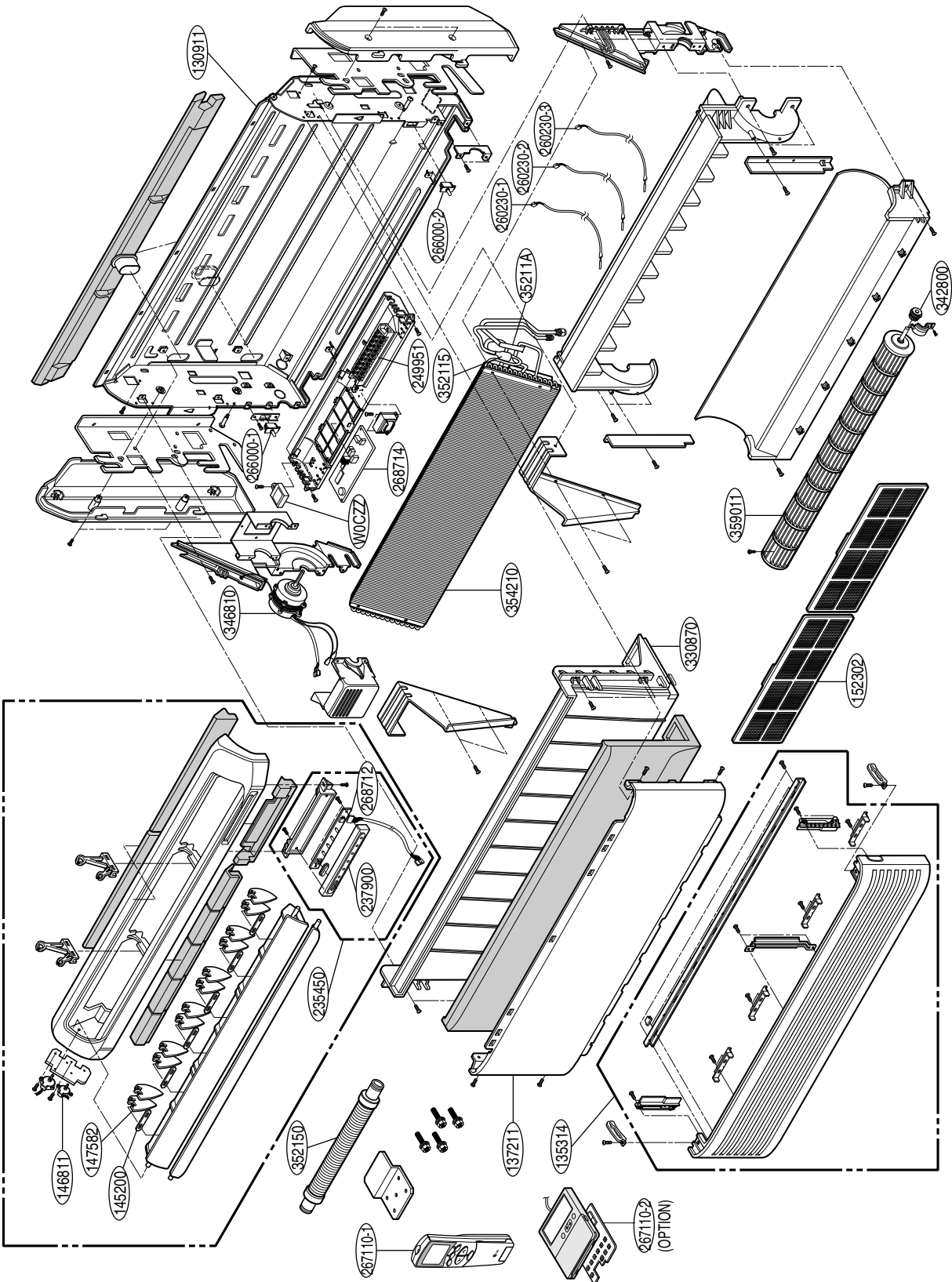
LOCATION No.	DESCRIPTION	Part No.		SVC CODE
		ABNH486RLAB [UB48 NRB]	ABNH606RLAB [UB60 NRB]	
263230-1	THERMISTOR ASESEMBLY (INDOOR INLET)	6323AQ3214E	6323AQ3214E	R
263230-2	THERMISTOR ASESEMBLY (PIPE INLET)	6323AQ3226V	6323AQ3226V	R
263230-3	THERMISTOR ASESEMBLY (PIPE OUTLET)	6323AQ3226E	6323AQ3226E	R
336600-1	HOUSING (MECH),WRAPPER	3660A20044A	3660A20044A	R
336600-2	HOUSING (MECH),WRAPPER	3660A20045A	3660A20045A	R
346810	MOTOR ASSEMBLY,INDOOR	4681A10032A	4681A10032A	R
359012-1	FAN ASSEMBLY,BLOWER	5901A10051A	5901A10051A	R
359012-2	FAN ASSEMBLY,BLOWER	5901A10053A	5901A10053A	R
W0CZZ	CAPACITOR,DRAWING	0CZZA20001B	0CZZA20001B	R
354210	EVAPORATOR ASSEMBLY,FIRST	5421A20212B	5421A20210B	R
330870	DRAIN PAN ASSEMBLY	3087A20025A	3087A20025A	R
249951-1	CONTROL BOX ASSEMBLY,INDOOR	4994A20001C	4994A22001C	R
249951-2	CONTROL BOX ASSEMBLY,INDOOR	4995A22003G	4995A22003H	R
268714	PWB(PCB) ASSEMBLY,MAIN	6871A10131N	6871A10131P	R
267110-2	REMOTE CONTROLLER ASSEMBLY	6711A10008D	6711A10008D	R
152302	FILTER(MECH),A/C	5230A30017A	5230A30017A	R

Ceiling & Floor Type

AVNH-EL



AVNH-BL



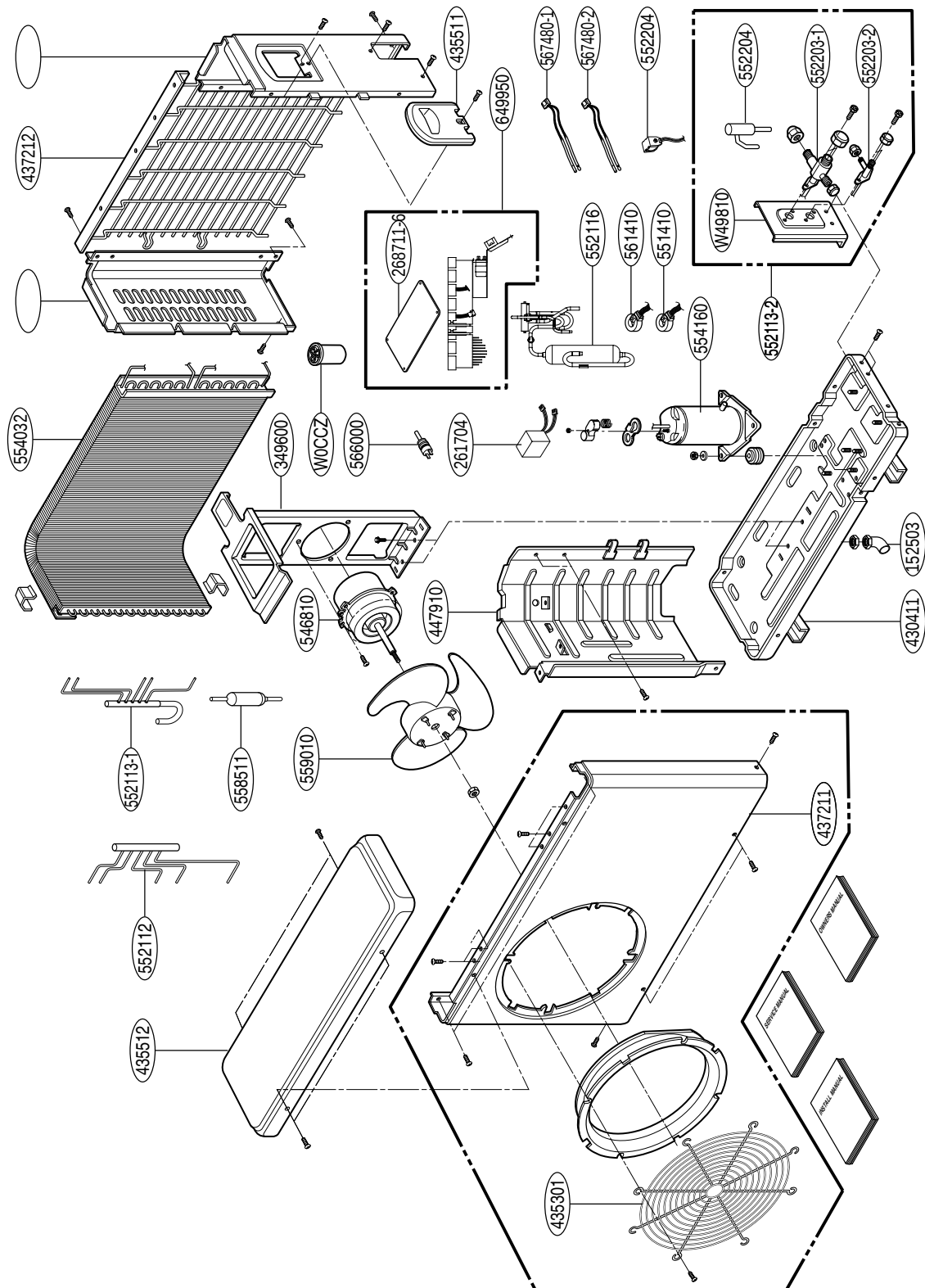
Parts List

LOCATION No.	DESCRIPTION	Part No.	SVC CODE
		AVNH126ELAB [UV12 NEB]	
137211	PANEL ASSEMBLY,FRONT(INDOOR)	3721A10092A	R
146811	MOTOR ASSEMBLY,STEP	4681A20055A	R
147581	LOUVER,HORIZONTAL	4758A10006A	R
152302	FILTER(MECH),A/C	5230A10009A	R
249951	CONTROL BOX ASSEMBLY,INDOOR	4995A20356A	R
263230-1	THERMISTOR ASEEMBLY (INDOOR INLET & PIPE OUT)	6323A20004T	R
263230-2	THERMISTOR ASEEMBLY (PIPE INLET)	6323AQ3226V	R
266000	SWITCH,PUSH	6600AP2059B	R
267110-1	REMOTE CONTROLLER ASSEMBLY	6711A20096A	R
268712	PWB(PCB) ASSEMBLY,DISPLAY	6871A20390D	R
268715	PWB(PCB) ASSEMBLY,MAIN(AC)	6871A20359B	R
268716	PWB(PCB) ASSEMBLY,MAIN(DC)	6871A20358G	R
330780	CUT OFF	3078A20001A	R
330870	DRAIN PAN ASSEMBLY	3087A10018A	R
342800	BEARING	4280A20004A	R
346810	MOTOR ASSEMBLY,INDOOR	4681A20131A	R
35211B	TUBE ASSEMBLY,TUBING	5211A21217B	R
352115	TUBE ASSEMBLY,EVAPORATOR IN	5211A25012B	R
352116	TUBE ASSEMBLY,EVAPORATOR OUT	5211A22007B	R
352150	HOSE ASSEMBLY,DRAIN	5251AR2575Q	R
354212	EVAPORATOR ASSEMBLY,FINAL	5421A10044B	R
359011	FAN ASSEMBLY,CROSS FLOW	5901A20008E	R
733010	PLATE ASSEMBLY,INSTALL	3301A10002A	R
W0CZZ	CAPACITOR,DRAWING	3H00671A	R
W4810	BRACKET	4810A21019A	R
131410	CHASSIS ASSEMBLY	3141A10009A	R
135500	COVER	3550A30201A	R
135310	GRILLE ASSEMBLY,DIFFUSER(INDOOR)	3531A10248A	R
135313	GRILLE ASSEMBLY,INLET	3531A10247A	R
147582	LOUVER, VERTICAL	4758AP4249A	R
145200	LINK	4520A3063A	R

LOCA TION No.	DESCRIPTION	Part No.			SVC CODE
		AVNH186BLAB [UV18NBB]	AVNH246BLAB [UV24 NBB]	AVNH306BLAB [UV30 NBB]	
135314	GRILLE ASSEMBLY,INLET SUB	5237AP2817B	5237AP2817B	5237AP2817B	R
137211	PANEL ASSEMBLY,FRONT(INDOOR)	3720AP2767P	3720AP2767P	3720AP2767P	R
146811	MOTOR ASSEMBLY,STEP	4681A20055A	4681A20055A	4681A20055A	R
152302	FILTER(MECH),A/C	5230AP7093A	5230AP7093A	5230AP7093A	R
263230-1	THERMISTOR ASEEMBLY (INDOOR INLET)	6323A30004D	6323A30004D	6323A30004D	R
263230-2	THERMISTOR ASEEMBLY (PIPE INLET)	6323AQ3226Y	6323AQ3226Y	6323AQ3226Y	R
263230-3	THERMISTOR ASEEMBLY (PIPE OUTLET)	6323A30002C	6323A30002C	6323A30002C	R
266000-1	SWITCH,PUSH	6600AP2059A	6600AP2059A	6600AP2059A	R
266000-2	SWITCH,PUSH	6600AP2059A	6600AP2059A	6600AP2059A	R
235450	DISPLAY ASSEMBLY (MECH)	3545AP7224E	3545AP7224E	3545AP7224E	R
237900	WINDOW,DISPLAY	3790AP7080A	3790AP7080A	3790AP7080A	R
267110-1	REMOTE CONTROLLER ASSEMBLY	6711A20096A	6711A20096A	6711A20096A	R
268712	PWB(PCB) ASSEMBLY,DISPLAY	6871AQ3263B	6871AQ3263B	6871AQ3263B	R
268714	PWB(PCB) ASSEMBLY,MAIN	6871A10025A	6871A10025B	6871A10025C	R
330870	DRAIN PAN ASSEMBLY	3087AP7233A	3087AP7233A	3087AP7233A	R
342800	BEARING	3H02821B	3H02821B	3H02821B	R
346810	MOTOR ASSEMBLY,INDOOR	4681AP2306M	4681AP2306N	4681AP2306P	R
352115	TUBE ASSEMBLY,EVAPORATOR IN	5211AP2810Q	5211AP2810R	5211AP2810R	R
35211A	TUBE ASSEMBLY,SUCTION INDOOR	5211AP2813G	5211AP2813H	5211AP2813J	R
354210	EVAPORATOR ASSEMBLY,FIRST	5421AP2812B	5421AP2812A	5421AP2812A	R
359011	FAN ASSEMBLY,CROSS FLOW	5901AR2351E	5901AR2351E	5901AR2351E	R
352150	HOSE ASSY,DRAIN	5251AP2460B	5251AP2460B	5251AP2460B	R
W0CZZ	CAPACITOR,DRAWING	3H00671A	3H00671A	3H00671A	R
130911	CABINET ASSEMBLY,INDOOR	3091AP2533A	3091AP2533A	3091AP2533A	R
249951	CONTROL BOX ASSEMBLY,INDOOR	4995A10172A	4995A10172B	4995A10172C	R
147582	LOUVER VERTICAL	4758AP4249A	4758AP4249A	4758AP4249A	R
145200	LINK	4520AP4263A	4520AP4263A	4520AP4263A	R

Outdoor Unit

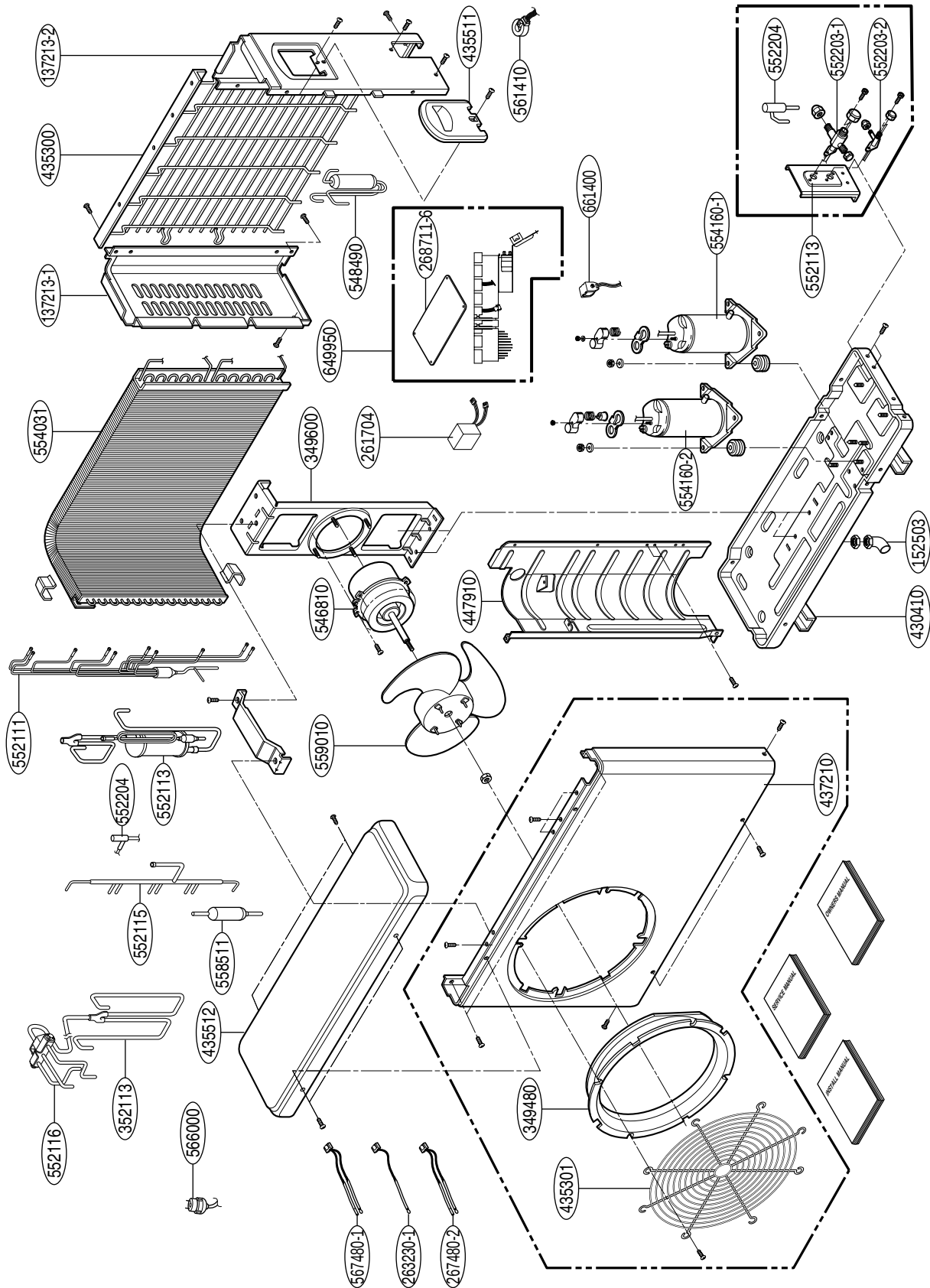
Model No.: AUUW126B [UU12 WUEB] / AUUW186B [UU18 WUEB]



Parts List

LOCATION No.	DESCRIPTION	Part No.		SVC CODE
		AUUW126B [UU12 WUEB]	AUUW186B [UU18 WUEB]	
152503	NIPPLE,DRAIN	4H01010A	4H01157A	R
567480-1	THERMISTOR ASSEMBLY(D-PIPE & S-PIPE SENSOR)	6323A20020G	6323A90001F	R
267480-2	THERMISTOR ASSEMBLY(CONDENSOR & AIR SENSOR)	6323A20020F	6323A20020F	R
430411	BASE ASSEMBLY, WELD(OUTDOOR)	3041A20022Q	3041A20022Q	R
435301	GRILLE, DISCHARGE	3530A20007B	3530A20007B	R
435511	COVER ASSEMBLY, CONTROL(OUTDOOR)	3551A21002A	3551A21002A	R
435512	COVER ASSEMBLY, TOP(OUTDOOR)	3H03266K	3H03266L	R
435300	GRILLE, REAR	-	1A00207B	R
437211	PANEL ASSEMBLY, FRONT(OUTDOOR)	3721A20005P	3721A23001A	R
437212	PANEL ASSEMBLY, REAR	3720AP0003L	-	R
447910	BARRIER ASSEMBLY, OUTDOOR	3H03307L	3H03307L	R
546810	MOTOR ASSEMBLY, OUTDOOR	4681A20028J	4681A20028J	R
552112	TUBE ASSEMBLY, CONDENSER IN	5211A24019A	5211A30298A	R
552113-1	TUBE ASSY, CONDENSER OUT	5211A24018B	5210AR3521J	R
552113-2	TUBE ASSEMBLY, CONDENSER OUT	5211A21366D	5211A12011A	R
552203-1	VALVE, SERVICE(Ø12.7)	5220A20001A	5220A20006A	R
552203-2	VALVE, SERVICE(Ø6.35)	5220A20007A	5220A20007A	R
552116	TUBE ASSEMBLY, REVERSING	5211A00029A	5211A20493P	R
554032	CONDENSER ASSEMBLY, FINAL	5403A10013H	5403A20072N	R
554160	COMPRESSOR	5416A90015A	5416A90015A	R
558511	DRIER ASSEMBLY	5851A30004A	5851A30004A	R
559010	FAN ASSEMBLY, PROPELLER	5901A10032A	5901A10032A	R
561410	COIL ASSEMBLY, REVERSING VALVE	6141AR3509L	6141AR3509L	R
566000	SWITCH, PRESSURE	3A02524F	3A02524F	R
649950	CONTROL BOX ASSEMBLY, OUTDOOR	4995A10101U	4995A10101G	R
261704	REACTOR	5874A90007A	5874A90007A	R
268711-6	PWB(PCB) ASSEMBLY, MAIN(OUTDOOR)	6871A20679C	6871A10117S	R
W0CZZ	CAPACITOR, DRAWING	2A00986D	2A00986D	R
W49810	SUPPORTER ASSEMBLY	4980A20001D	4980A20001D	R
552204	COIL ASSEMBLY, EXPANSION	5220A90006A	5220A90006A	R
349480	ORIFICE	4948A20005A	4948AP2527A	R
349600	BRACKET, MOTOR	4960AP1361A	4960AP1361A	R
137213-1	PANEL ASSEMBLY, SIDE	-	1A002010	R
137213-2	PANEL ASSEMBLY, SIDE	-	3721A21009A	R

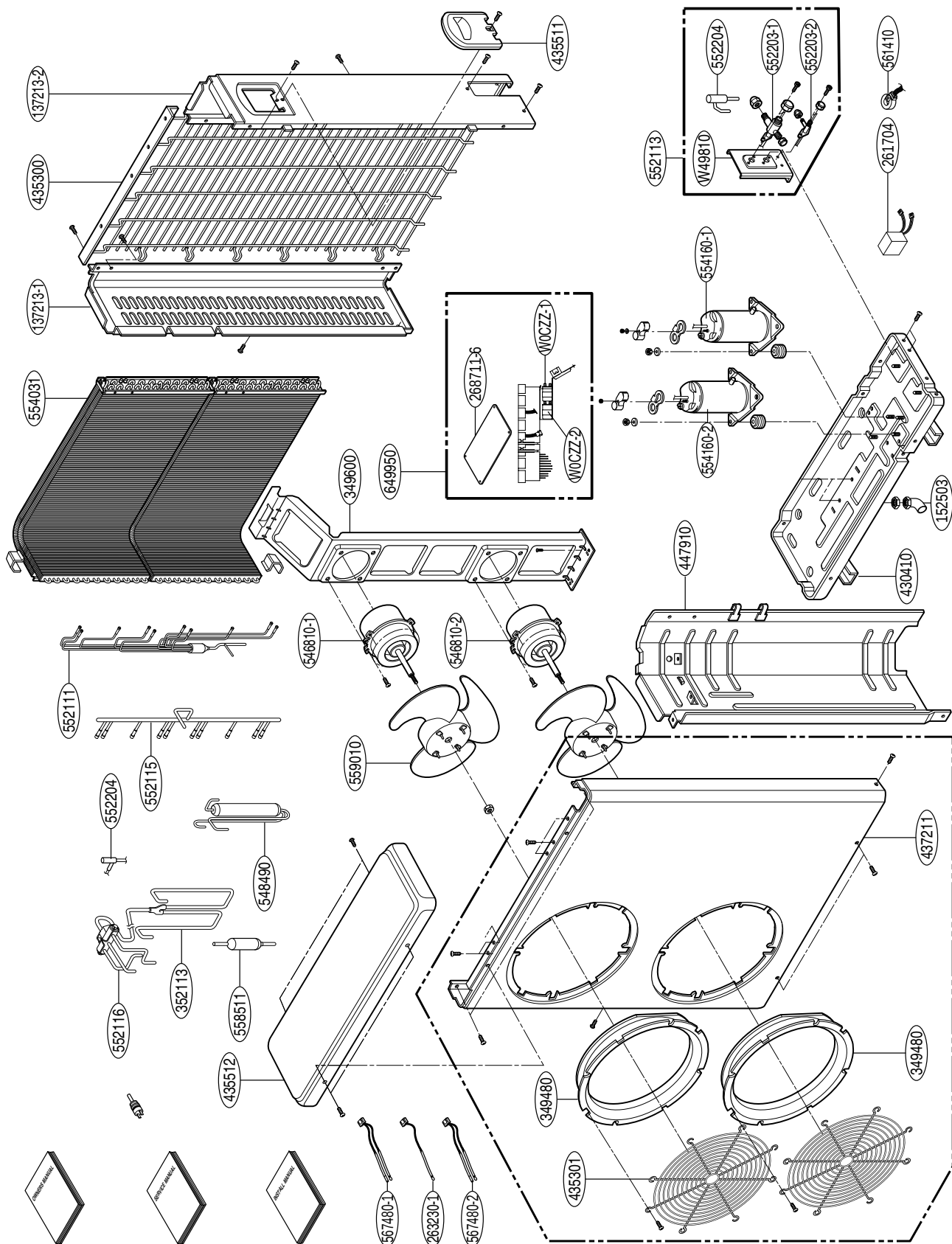
Model No.: AUUW246B [UU24 WUEB]



Parts List

LOCATION No.	DESCRIPTION	Part No.	SVC CODE
		AUUW246B [UU24 WUEB]	
137213-1	PANEL ASSEMBLY,SIDE	1A00202F	R
137213-2	PANEL ASSEMBLY,SIDE	1A00202A	R
152503	NIPPLE,DRAIN	4H01010	R
567480-1	THERMISTOR ASSEMBLY (INV. D-PIPE & S-PIPE SENSOR)	6323A20020G	R
567480-2	THERMISTOR ASSEMBLY (CONDENSOR & AIR SENSOR)	6323A20020H	R
263230-1	THERMISTOR ASSEMBLY (CONSTANT D-PIPE SENSOR)	6323A20001J	R
352113	TUBE ASSEMBLY,DISCHARGE	5211A23013F	R
430410	BASE ASSEMBLY,OUTDOOR	3041AP2741H	R
435300	GRILLE,REAR	1A00208H	R
435301	GRILLE,DISCHARGE	3530A20007J	R
435511	COVER ASSEMBLY,CONTROL(OUTDOOR)	3A01919B	R
435512	COVER ASSEMBLY,TOP(OUTDOOR)	3551A30113C	R
437210	PANEL ASSY,FRONT SUB	1A00197C	R
447910	BARRIER ASSEMBLY,OUTDOOR	4791A30004M	R
546810	MOTOR ASSEMBLY,OUTDOOR	4681A20028Y	R
548490	ACCUMULATOR ASSEMBLY(MECH)	4849A22003H	R
552111	TUBE ASSEMBLY,CAPILLARY	5211A22009F	R
552113	TUBE ASSEMBLY,CONDENSER OUT	5211A21366A	R
552115	TUBE ASSEMBLY,MENIFOLD(OUTDOOR)	5211A21440A	R
552116	TUBE ASSEMBLY,REVERSING	5211A22111A	R
552203-1	VALVE,SERVICE(Ø12.7)	5220A20006A	R
552203-2	VALVE,SERVICE(Ø6.35)	5220A20007A	R
552204	VALVE,SOLENOID	5220A90002C	R
554031	CONDENSER ASSEMBLY,BENT	5403A20070B	R
554160-1	COMPRESSOR(INVERTER)	5416A90015A	R
554160-2	COMPRESSOR(CONSTANT)	5416A90016A	R
558511	DRIER ASSEMBLY	5851A20003J	R
559010	FAN ASSEMBLY,PROPELLER	5901A10032A	R
561410	COIL ASSEMBLY,REVERSING VALVE	3A02028B	R
566000	SWITCH,PRESSURE	3A02524F	R
649950	CONTROL BOX ASSEMBLY,OUTDOOR	4995A10101N	R
261704	REACTOR	5874A90007A	R
268711-6	PWB(PCB) ASSEMBLY,MAIN(OUTDOOR)	6871A10117T	R
552201	VALVE,CHECK	5220A30004A	R
661400	COIL ASSEMBLY,EXPANSION	5220A90006A	R
349480	ORIFICE	4948A20005A	R
349600	BRACKET, MOTOR	3A01934B	R

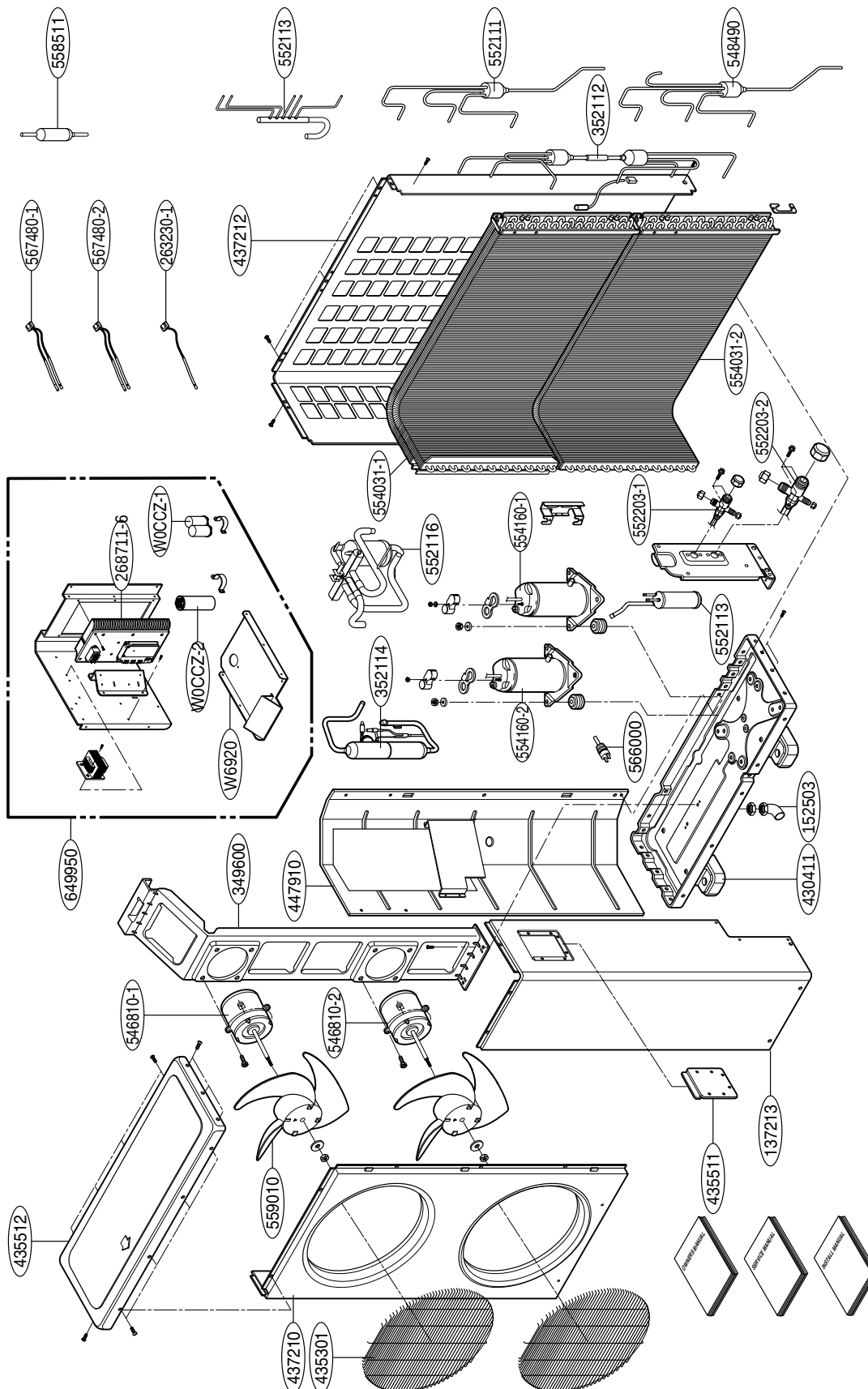
Model No.: AUUW306B [UU30 WUEB]



Parts List

LOCATION No.	DESCRIPTION	Part No.	SVC CODE
		AUUW306B [UU30 WUEB]	
137213-1	PANEL ASSEMBLY,SIDE	3721A10110A	R
137213-2	PANEL ASSEMBLY,SIDE	3721A10111B	R
152503	NIPPLE,DRAIN	4H01010A	R
567480-1	THERMISTOR ASSEMBLY (INV. D-PIPE & S-PIPE SENSOR)	6323A20020J	R
567480-2	THERMISTOR ASSEMBLY (CONDENSOR & AIR SENSOR)	6323A20020H	R
263230-1	THERMISTOR ASSEMBLY (CONSTANT D-PIPE SENSOR)	6323A20001K	R
352113	TUBE ASSEMBLY,DISCHARGE SINGLE	5211A23013K	R
430410	BASE ASSEMBLY,OUTDOOR	3041AP2741H	R
435300	GRILLE,REAR	3530A10176B	R
435511	COVER ASSEMBLY,CONTROL(OUTDOOR)	3A01919B	R
435512	COVER ASSEMBLY,TOP(OUTDOOR)	3551A30113C	R
437211	PANEL ASSEMBLY,FRONT(OUTDOOR)	3721A10109A	R
447910	BARRIER ASSEMBLY,OUTDOOR	4791A10019A	R
546810-1	MOTOR ASSEMBLY,OUTDOOR	4681AR1392Y	R
546810-2	MOTOR ASSEMBLY,OUTDOOR	4681AR1392Z	R
548490	ACCUMULATOR ASSEMBLY(MECH)	4849A22003L	R
552111	TUBE ASSEMBLY,CAPILLARY	5211A22010D	R
552113	TUBE ASSEMBLY,CONDENSER OUT	5211A21366B	R
552115	TUBE ASSEMBLY,MENIFOLD(OUTDOOR)	5211A21447A	R
552116	TUBE ASSEMBLY,REVERSING	5211A20896B	R
552203-1	VALVE,SERVICE(INVERTER)	5220A20013A	R
552203-2	VALVE,SERVICE(CONSTANT)	5220A20007A	R
552204	VALVE,SOLENOID (BODY)	5220A90002C	R
554031	CONDENSER ASSEMBLY,BENT	5403A20168B	R
554160-1	COMPRESSOR(INVERTER)	5416A90015A	R
554160-2	COMPRESSOR(CONSTANT)	5416A90021A	R
558511	DRIER ASSEMBLY	5851A20003J	R
559010	FAN ASSEMBLY,PROPELLER	5901A10033A	R
649950	CONTROL BOX ASSEMBLY,OUTDOOR	4995A10101R	R
261704	REACTOR	5874A90007A	R
268711-6	PWB(PCB) ASSEMBLY,MAIN(OUTDOOR)	6871A10117U	R
W0CZZ-1	CAPACITOR,DRAWING	2A00986X	R
W0CZZ-2	CAPACITOR,DRAWING	3H00660P	R
561410	COIL ASSEMBLY,REVERSING VALVE	3A02028B	R
349480	ORIFICE	4948A20001A	R
435301	GRILLE DISCHARGE	3530A20006G	R
349600	BRACKET, MOTOR	4960A10012A	R
W49810	SUPPORTER ASSEMBLY	4980A20001D	R

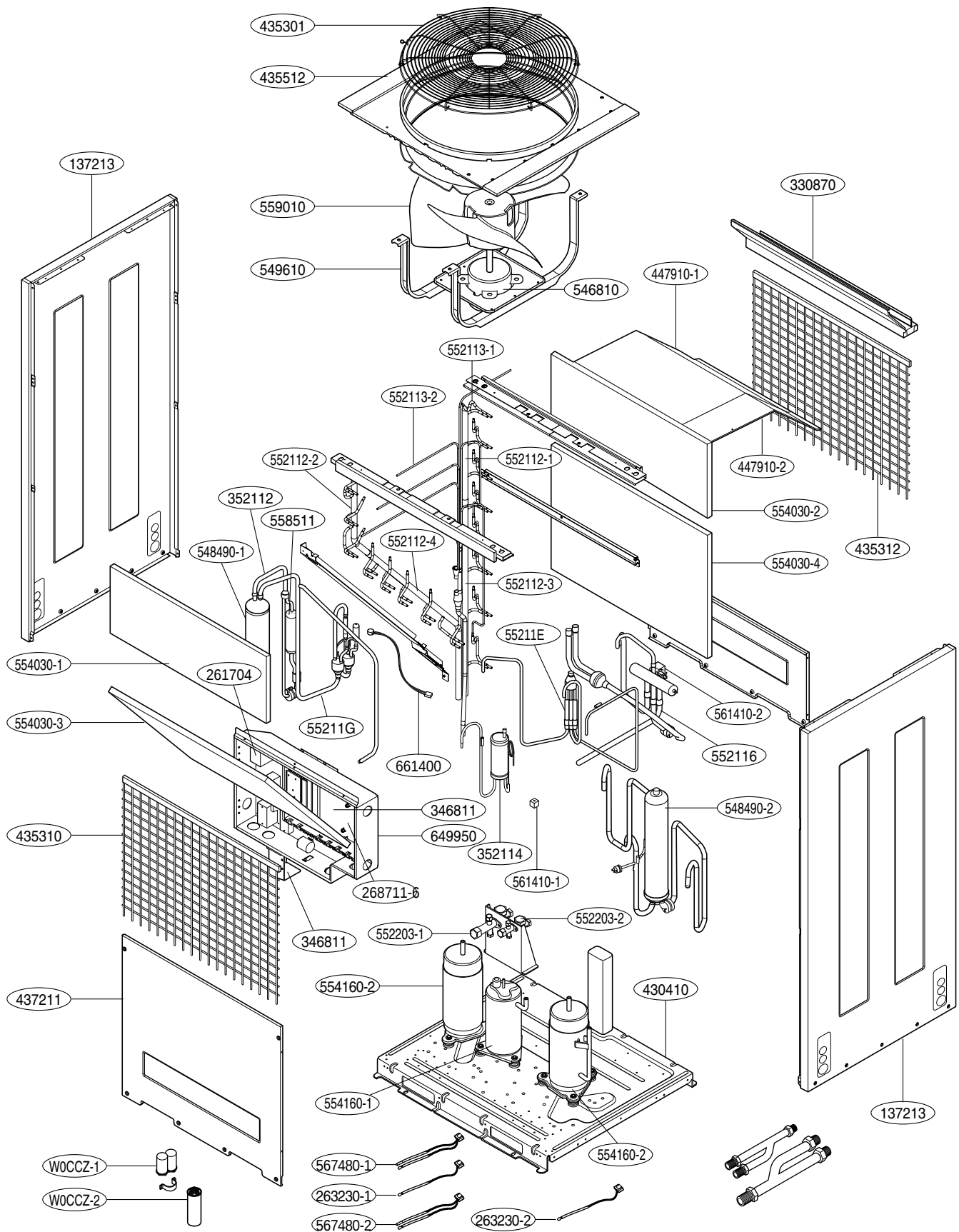
Model No.: AUUW366B [UU36 WUHB]



Parts List

LOCATION No.	DESCRIPTION	Part No.	SVC CODE
		AUUW366B [UU36 WUHB]	
137213	PANEL ASSEMBLY,SIDE	3721A20229A	R
152503	NIPPLE,DRAIN	5212AP3173A	R
567480-1	THERMISTOR ASSEMBLY (INV. D-PIPE & S-PIPE SENSOR)	6323A20020J	R
567480-2	THERMISTOR ASSEMBLY (CONDENSOR & AIR SENSOR)	6323A20020H	R
263230-1	THERMISTOR ASSEMBLY (CONSTANT D-PIPE SENSOR)	6323A20001K	R
352112	TUBE ASSEMBLY,COUPLING	5211A10433C	R
430411	BASE ASSEMBLY,WELD(OUTDOOR)	3041A20047K	R
435301	GRILLE,DISCHARGE	3530AP1225D	R
435511	COVER ASSY,CONTROL(OUTDOOR)	3A01293X	R
435512	COVER ASSEMBLY,TOP(OUTDOOR)	3550AP1213B	R
437210	PANEL ASSEMBLY,FRONT SUB	3720AP1212B	R
437212	PANEL ASSEMBLY,REAR(OUTDOOR)	3720AP1202C	R
447910	BARRIER ASSEMBLY,OUTDOOR	4791A20012E	R
546810-1	MOTOR ASSEMBLY,OUTDOOR	4681A20028J	R
546810-2	MOTOR ASSEMBLY,OUTDOOR	4681A20028Q	R
552111	TUBE ASSEMBLY,CAPILLARY	5211A10430E	R
552113	TUBE ASSEMBLY,CONDENSER OUT	5211A21457A	R
552116	TUBE ASSEMBLY,REVERSING	5211A21188C	R
548490	ACCUM ASSEM	5211A21187A	R
552203-1	VALVE,SERVICE(INVERTER)	5220A20013A	R
552203-2	VALVE,SERVICE(CONSTANT)	5220A20007A	R
554031-1	CONDENSER ASSEMBLY,BENT	5403A20116J	R
554031-2	CONDENSER ASSEMBLY,BENT	5403A20116L	R
554160-1	COMPRESSOR (INVERTER)	5416A90015A	R
554160-2	COMPRESSOR (CONSTANT)	5416A90017A	R
558511	DRIER ASSEMBLY	5851A20002A	R
559010	FAN ASSEMBLY,PROPELLER	5901A10032A	R
566000	SWITCH,PRESSURE	3A02524F	R
649950	CONTROL BOX ASSEMBLY,OUTDOOR	4995A10118E	R
268711-6	PWB(PCB) ASSEMBLY,MAIN(OUTDOOR)	6871A10117V	R
W6920	RELAY	6920AP3400A	R
W0CZZ-1	CAPACITOR,DRAWING	2A00986D	R
W0CZZ-2	CAPACITOR,DRAWING	2A00986A	R
352114	TUBE ASSEMBLY,DISTRIBUTOR	5211A21190A	R
349600	BRACKET, MOTOR	4960A10004A	R

Model No.: AUUW4860 [UU48 WUYB] / AUUW6060 [UU60 WUYB]

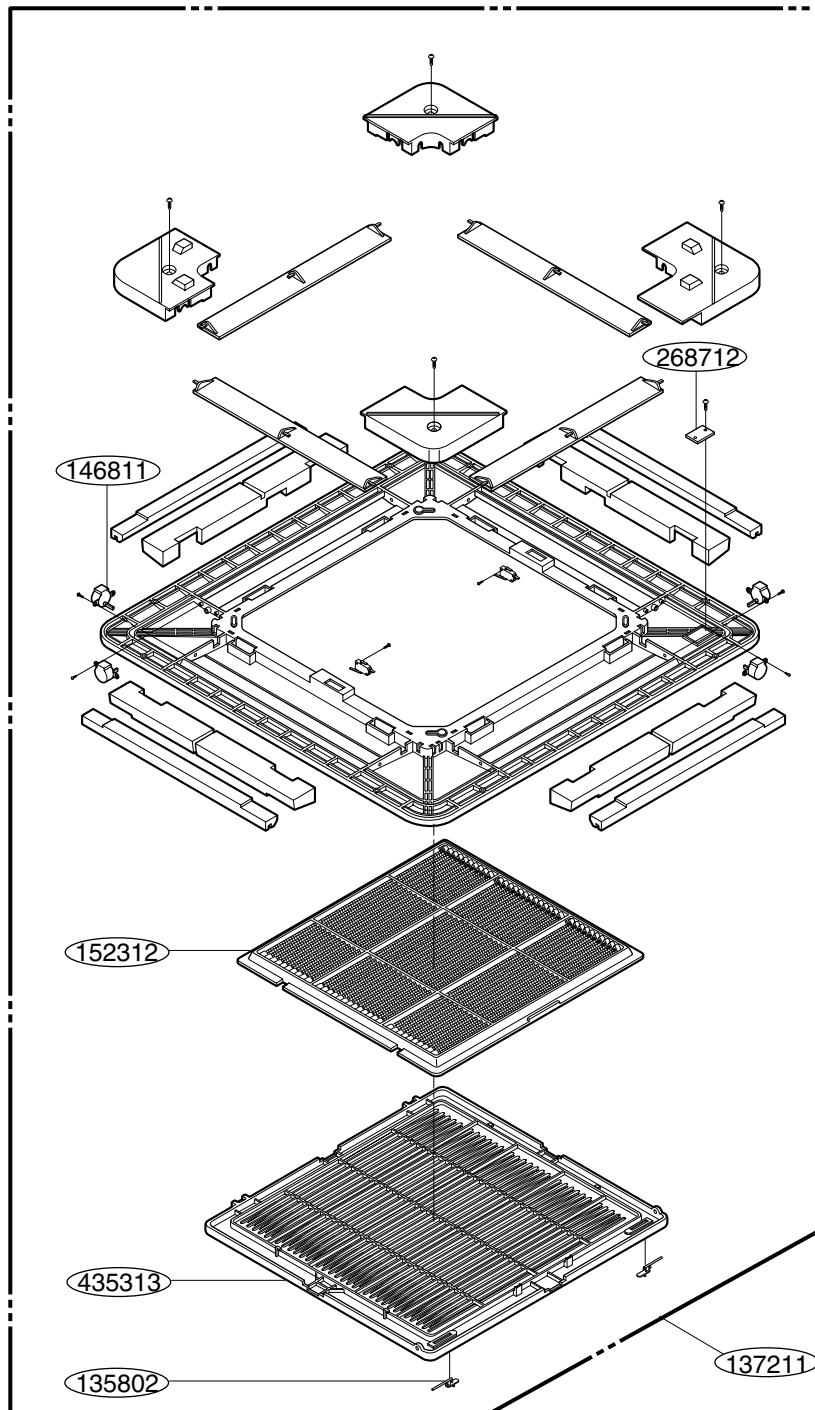


Parts List

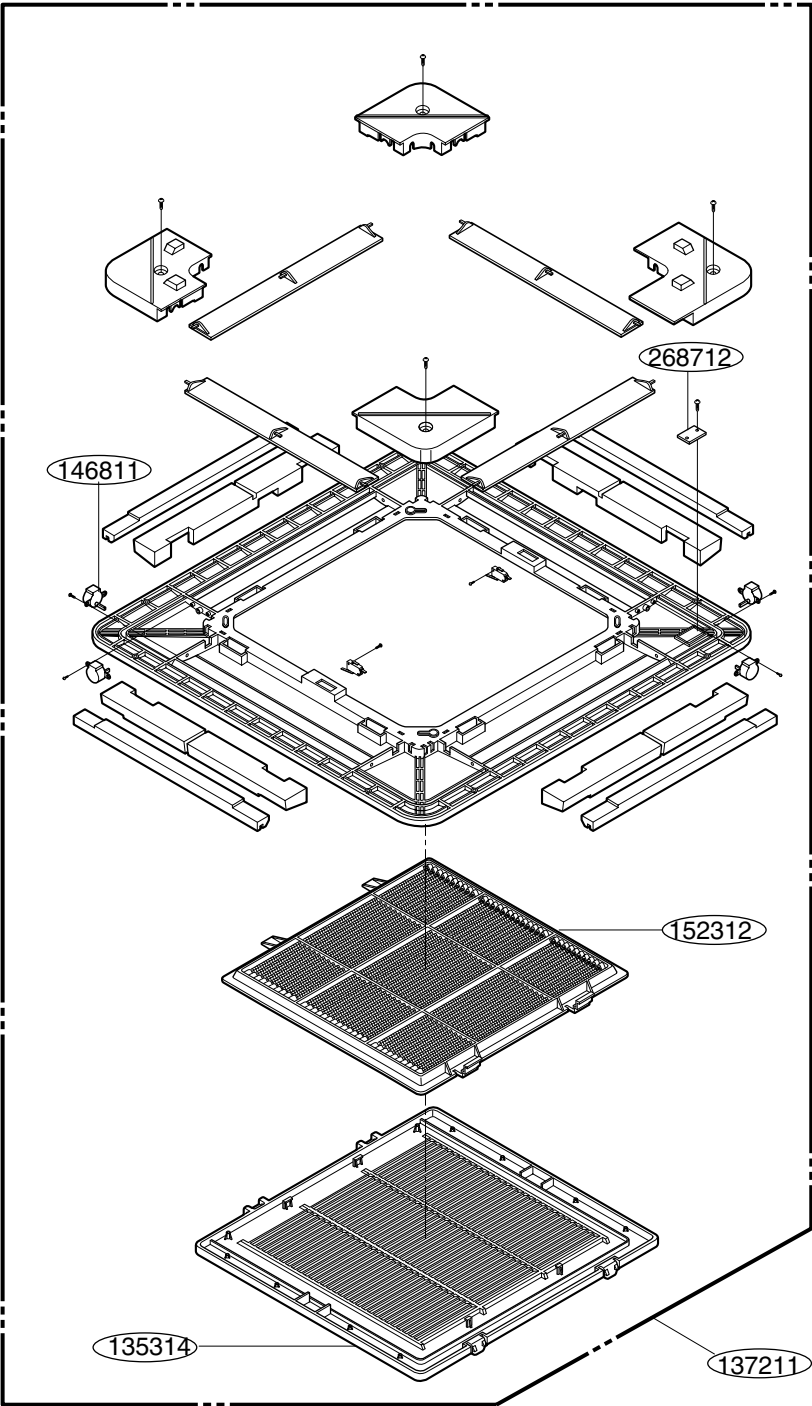
LOCATION No.	DESCRIPTION	Part No.		SVC CODE
		AUUW4860 [UU48 WUYB]	AUUW6060 [UU60 WUYB]	
137213	PANEL ASSEMBLY,SIDE	3721A10120A	3721A10120A	R
567480-1	THERMISTOR ASSEMBLY(INV. D-PIPE & S-PIPE SENSOR)	6323A20020L	6323A20020L	R
567480-2	THERMISTOR ASSEMBLY(CONDENSOR & AIR SENSOR)	6323A20020K	6323A20020K	R
263230-1	THERMISTOR ASSEMBLY (CONSTANT D-PIPE SENSOR)	6323A20001Q	6323A20001Q	R
263230-2	THERMISTOR ASSEMBLY (CONSTANT D-PIPE SENSOR)	6323A20001R	6323A20001R	R
330870	DRAIN PAN ASSEMBLY	3087A10023C	3087A10023C	R
346811	MOTOR ASSEMBLY,SINGLE	4681A20155B	4681A20155B	R
352112	TUBE ASSEMBLY,COUPLING	5211A10284D	5211A10284D	R
352114	TUBE ASSEMBLY,DISTRIBUTOR	5211A21190B	5211A21190B	R
430410	BASE ASSEMBLY,OUTDOOR	3041A10058C, B	3041A10058C	R
435310	GRILLE ASSEMBLY,FRONT(OUTDOOR)	3531A10266D	3531A10266D	R
435301	GRILLE,DISCHARGE	3530A20117A	3530A20117A	R
435512	COVER ASSEMBLY,TOP(OUTDOOR)	3551A10062A	3551A10062A	R
437211	PANEL ASSEMBLY,FRONT(OUTDOOR)	3721A10107B	3721A10107B	R
447910-1	BARRIER ASSEMBLY,OUTDOOR	4791A10022A	4791A10022A	R
447910-2	BARRIER ASSEMBLY,OUTDOOR	4791A20035A	4791A20035A	R
55211E	TUBE ASSEMBLY,CHECK VALVE	5211A23023C	5211A23023B	R
546810	MOTOR ASSEMBLY,OUTDOOR	4681A10014H	4681A10014H	R
548490-1	ACCUMULATOR ASSEMBLY(MECH)	4849A10003F	4849A10003F	R
548490-2	ACCUMULATOR ASSEMBLY(MECH)	4849A10041D, E	4849A10041D	R
549610	MOUNT ASSEMBLY,MOTOR(OUTDOOR)	4961A20028B	4961A20028B	R
552112-1	TUBE ASSEMBLY,CONDENSER IN	5211A10480A	5211A10480A	R
552112-2	TUBE ASSEMBLY,CONDENSER IN	5211A10480B	5211A10480B	R
552112-3	TUBE ASSEMBLY,CONDENSER IN	5211A10480E	5211A10480E	R
552112-4	TUBE ASSEMBLY,CONDENSER IN	5211A10480F	5211A10480F	R
552113-1	TUBE ASSEMBLY,CONDENSER OUT	5211A10481A	5211A10481A	R
552113-2	TUBE ASSEMBLY,CONDENSER OUT	5211A10481B	5211A10481B	R
552116	TUBE ASSEMBLY,REVERSING	5211A21324C	5211A21324C	R
55211G	TUBE ASSEMBLY,EXPANSION	5211A11049A	5211A11049A	R
552203-1	VALVE,SERVICE	2A00499N	2A00499N	R
552203-2	VALVE,SERVICE	5220A20001J	5220A20001J	R
554030-1	CONDENSER ASSEMBLY,FIRST	5403A21003E	5403A21003E	R
554030-2	CONDENSER ASSEMBLY,FIRST	5403A21003F	5403A21003F	R
554030-3	CONDENSER ASSEMBLY,FIRST	5403A21003G	5403A21003G	R
554030-4	CONDENSER ASSEMBLY,FIRST	5403A21003H	5403A21003H	R
554160-1	COMPRESSOR(INVERTER)	5416A90015A	5416A90015A	R
554160-2	COMPRESSOR(CONSTANT)	5416A90021A	5416A90021A	R
554160-3	COMPRESSOR(CONSTANT)	5416A90021A	5416A90017A	R
558511	DRIER ASSEMBLY	5851A20002A	5851A20002A	R
559010	FAN ASSEMBLY,PROPELLER	5901A10029A	5901A10029A	R
561410-1	COIL ASSEMBLY,REVERSING VALVE	6141A20013W	6141A20013W	R
561410-2	COIL ASSEMBLY,REVERSING VALVE	6141A20024A	6141A20024A	R
661400	COIL ASSEMBLY,EXPANSION	6141A30003P	6141A30003P	R
649950	CONTROL BOX ASSEMBLY,OUTDOOR	4995A10145F, E	4995A10145F	R
261704	REACTOR	5874A90006A	5874A90006A	R
268711-6	PWB(PCB) ASSEMBLY,MAIN(OUTDOOR)	6871A10117W	6871A10117X	R
WOCZZ-1	CAPACITOR,DRAWING	2A00986Y	2A00986Y	R
WOCZZ-2	CAPACITOR,DRAWING	2A00986C	2A00986C	R
WOCZZ-3	CAPACITOR,DRAWING	-	2A00986A	R
435312	GRILL ASSEMBLY REAR(OUTDOOR)	3721A10108B	3721A10108B	R

Panel Assembly, Front

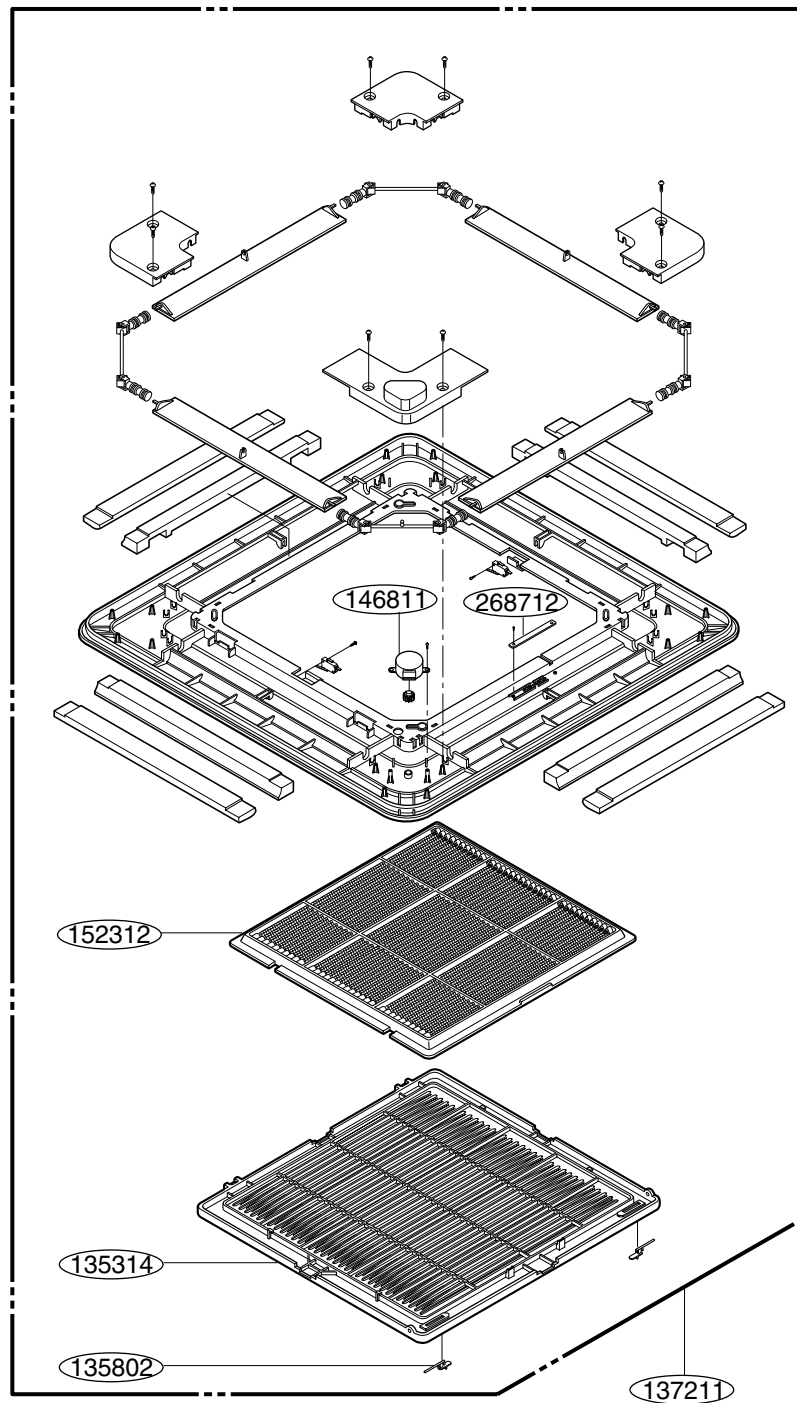
PT-HEA/C



PT-HFA/C



PT-HDA/C



Parts List

LOCATION No.	DESCRIPTION	Part No.		SVC CODE
		PT-HEA	PT-HEC	
137211	PANEL ASSEMBLY,FRONT(INDOOR)	3721A10105A	3721A10105B	R
435313	GRILLE ASSEMBLY,FRONT(INDOOR)	3531A10059A	3531A10059A	R
152312	FILTER ASSY,AIR CLEANER	5231A10005A	5231A10005A	R
146811	MOTOR ASSEMBLY,STEP	4681A20055A	4681A20055A	R
268712	PWB(PCB) ASSEMBLY,DISPLAY	6871A20096J	6871A20096J	R
135802	DOOR	3580A20005A	3580A20005A	R

LOCATION No.	DESCRIPTION	Part No.		SVC CODE
		PT-HFA	PT-HFC	
137211	PANEL ASSEMBLY,FRONT(INDOOR)	3721A10072A	3721A10072E	R
135314	GRILLE ASSEMBLY,INLET	3531A10211A	3531A10211C	R
152312	FILTER ASSY,AIR CLEANER	5231A10012A	5231A10012A	R
146811	MOTOR ASSEMBLY,STEP	4681A20055A	4681A20055A	R
268712	PWB(PCB) ASSEMBLY,DISPLAY	6871A20096J	6871A20096J	R

LOCATION No.	DESCRIPTION	Part No.		SVC CODE
		PT-HDA	PT-HDC	
137211	PANEL ASSEMBLY,FRONT(INDOOR)	3721A10106A	3721A10106B	R
135314	GRILLE ASSY INLET	3531A10066A	3531A10066A	R
152312	FILTER ASSY,AIR CLEANER	5231A10004A	5231A10004A	R
146811	MOTOR ASSEMBLY,STEP	4681A20055A	4681A20055A	R
268712	PWB(PCB) ASSEMBLY,DISPLAY	6871A20096J	6871A20096J	R
135802	DOOR	3580A20005A	3580A20005A	R

