Internal Use Only

http://biz.lgservice.com

Universal Air Conditioner

SVC MANUAL(Exploded View)

CAUTION

Before Servicing the unit, read the safety precautions in General SVC 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

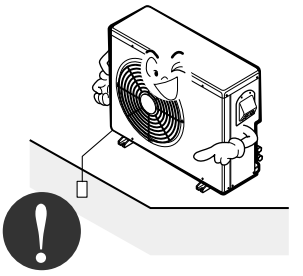
■ Installation

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.

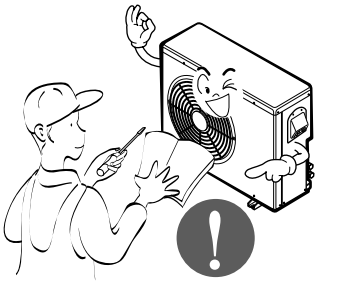
Always ground the product.

• There is risk of fire or electric shock.



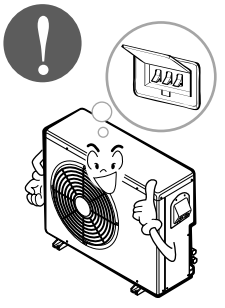
Install the panel and the cover of control box securely.

• There is risk of fire or electric shock.



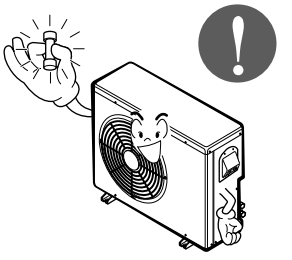
Always install a dedicated circuit and breaker.

• Improper wiring or installation may cause fire or electric shock



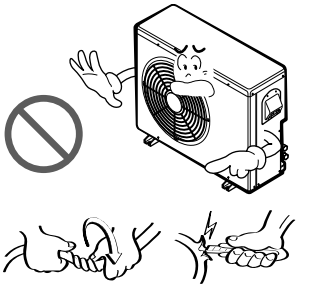
Use the correctly rated breaker or fuse.

• There is risk of fire or electric shock.



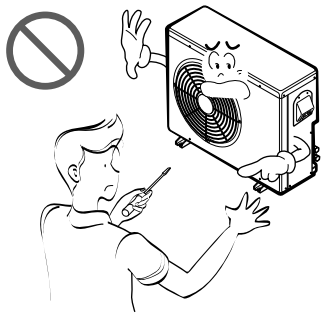
Do not modify or extend the power cable.

• There is risk of fire or electric shock.



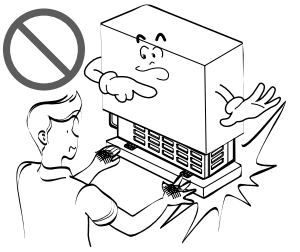
Do not install, remove, or re-install the unit by yourself (customer).

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



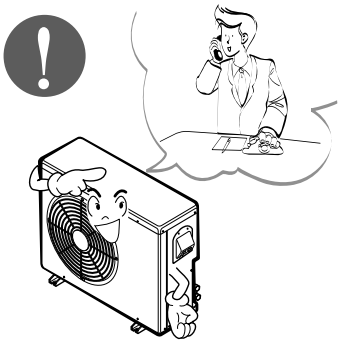
Be cautious when unpacking and installing the product.

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



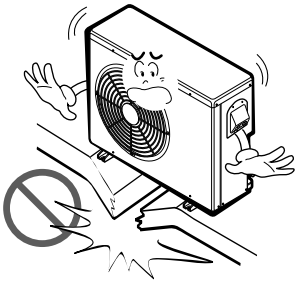
For installation, always contact the dealer or an Authorized Service Center.

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



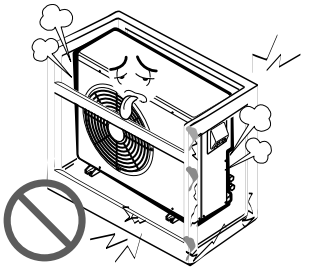
Do not install the product on a defective installation stand.

- 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.

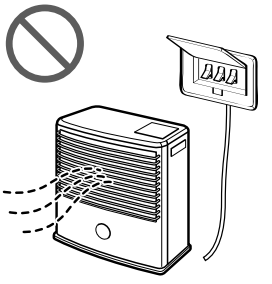
■ Operational

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

- There is risk of fire or electrical shock.

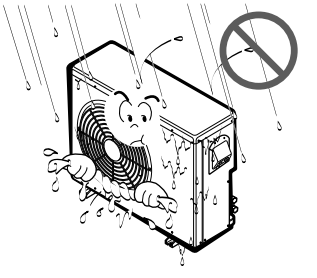
Do not place a heater or other appliances near the power cable.

- There is risk of fire or electric shock.



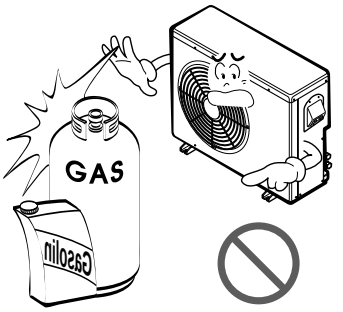
Do not let electric parts of the product get wet.

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



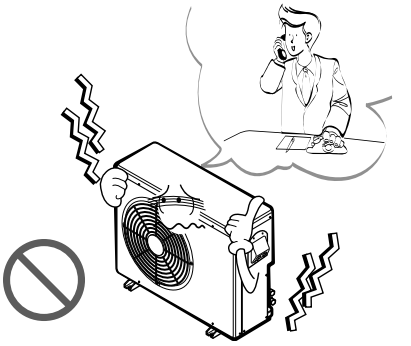
Do not store or use flammable gas or combustibles near the product.

• There is risk of fire or failure of product.



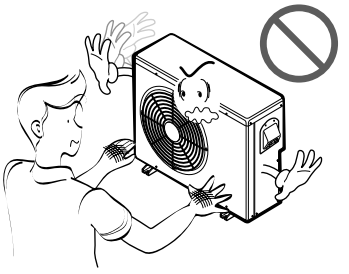
If strange sounds, or small or smoke comes from product. Turn the breaker off or disconnect the power supply cable.

• There is risk of electric shock or fire.



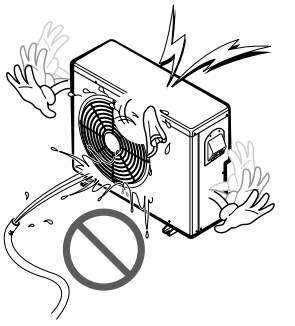
Do not open the inlet grill of the product during operation. (Do not touch the electrostatic filter, if the unit is so equipped.)

• 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.

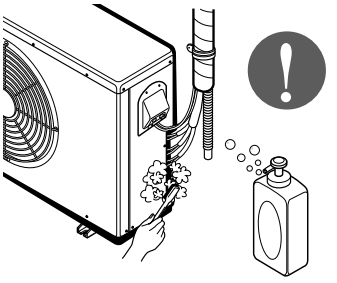


⚠CAUTION

■ Installation

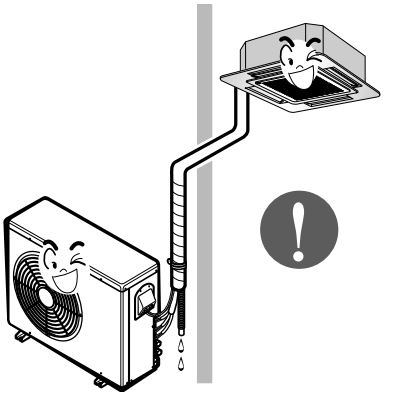
Always check for gas (refrigerant) leakage after installation or repair of product.

• Low refrigerant levels may cause failure of product.



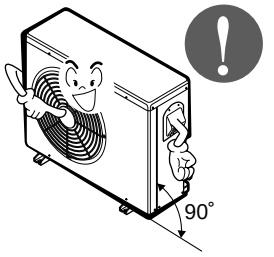
Install the drain hose to ensure that water is drained away properly.

• A bad connection may cause water leakage.



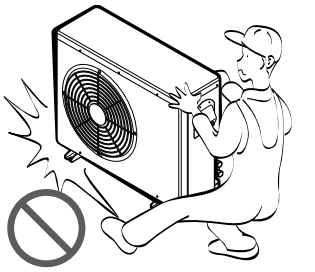
Keep level even when installing the product.

• To avoid vibration or water leakage.



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

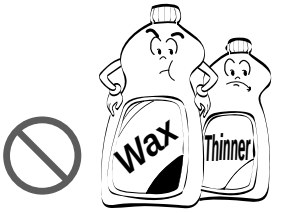
• Avoid personal injury.



■ Operational

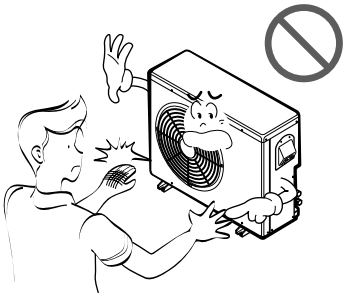
Use a soft cloth to clean. Do not use harsh detergents, solvents, etc.

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



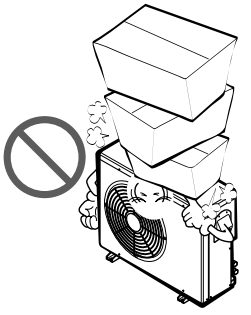
Do not touch the metal parts of the product when removing the air filter. They are very sharp!

• There is risk of personal injury.



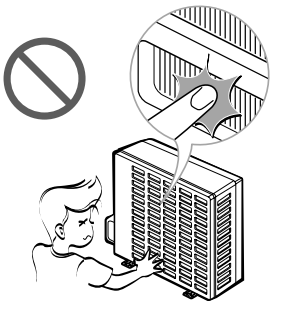
Do not step on or put anyting on the product. (outdoor units)

• 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

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Ceiling Cassette 4-way **10**

Ceiling & Floor **37**

Ceiling Concealed Duct **54**

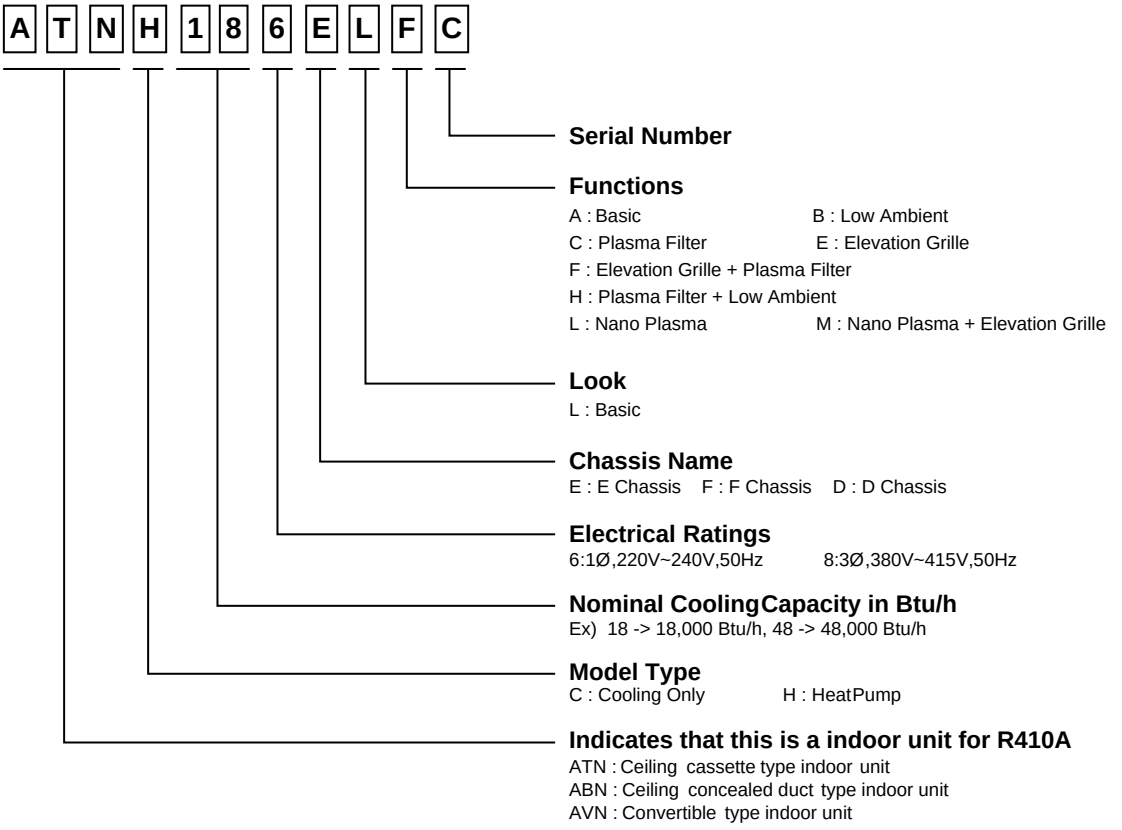
Introduction

• Models List

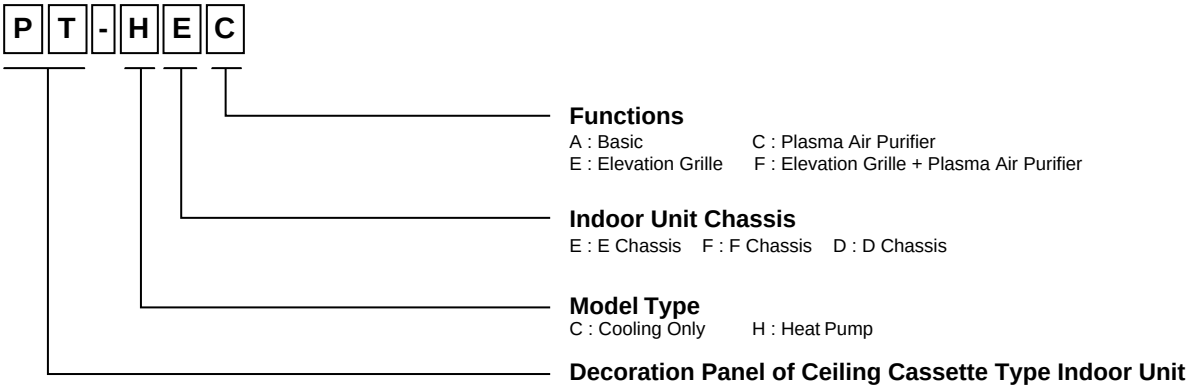
Indoor unit			Model name Nominal capacity [Btu/h(kW)]							Power Supply
Type	Refrigerant	Chassis name	12,000 (3.5)	18,000 (5.3)	24,000 (7.0)	30,000 (8.8)	36,000 (10.6)	48,000 (14.1)	60,000 (17.6)	
Ceiling Cassette 4-Way	R410A	TE	ATNH 126ELFC	ATNH 186ELFC	-	-	-	-	-	1Ø, 220-240V, 50Hz
		TF	-	-	ATNH 246FLFC	ATNH 306FLFC	-	-	-	
		TD	-	-	-	-	ATNH 366DLFC	ATNH 486DLFC	ATNH 606DLFC	
Ceiling & Floor	R410A	VE	AVNH 126ELAC	-	-	-	-	-	-	
		VB	-	AVNH 186BLAC	AVNH 246BLAC	AVNH 306BLAC	-	-	-	
		VK	-	-	-	-	AVNH 366KLAC	-	-	
		VL	-	-	-	-	-	AVNH 486LLAC	AVNH 606LLAC	
Ceiling Concealed Duct	R410A	BH	-	ABNH 186HLAC	ABNH 246HLAC	-	-	-	-	
		BG	-	-	-	ABNH 306GLAC	ABNH 366GLAC	-	-	
		BR	-	-	-	-	-	ABNH 486RLAC	ABNH 606RLAC	

• 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 stanby power consumption
• Jet cool
• Swirl swing
• Space control

■ **Convenience**

• Auto elevation grille(Accessory)
• Tele control(Accessory)
• LCD wired remote control
• Group control
• Central control(Accessory)
• Weekly progam

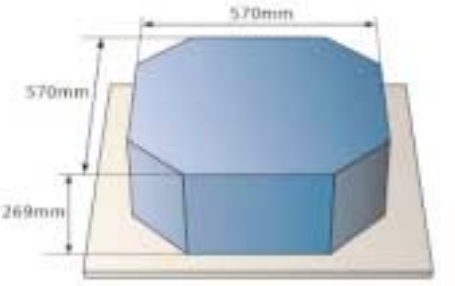
■ **Cleanness**

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

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.

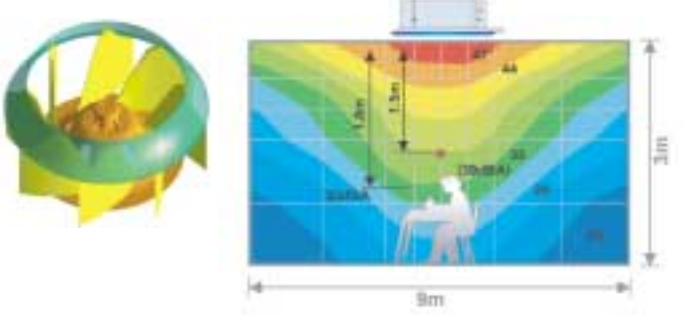


(18k Btu/h model)

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.



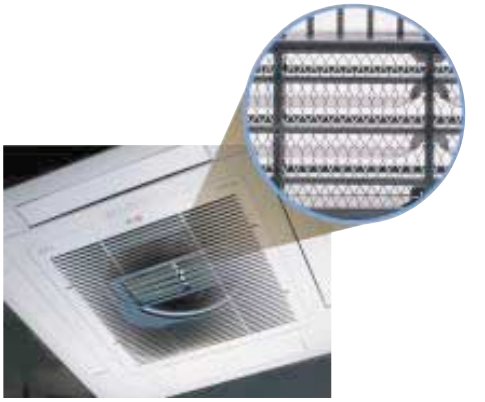
Hygienic and Easy-to-Clean Filter

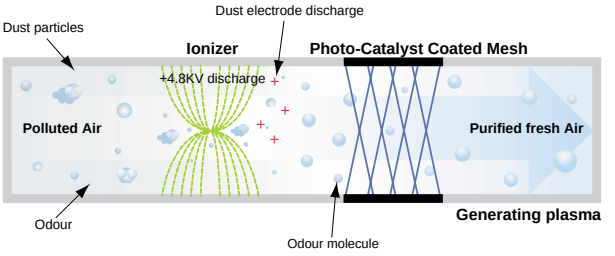
Washable and anti bacteria filter is adopted.

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.

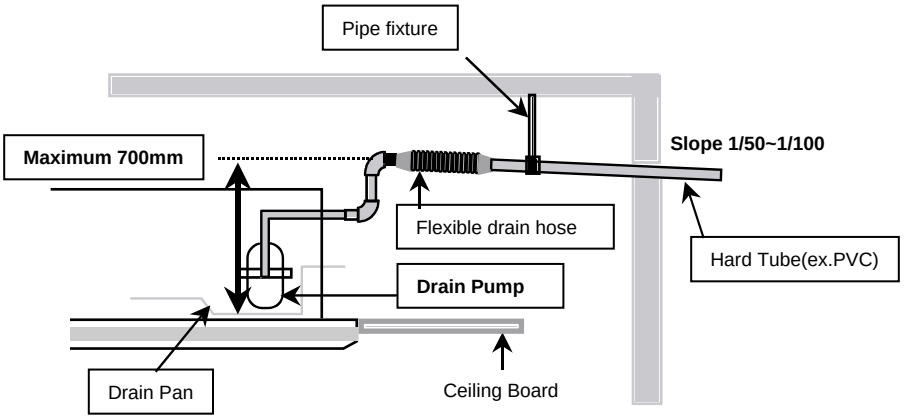




High Head Drain Pump(700mm)

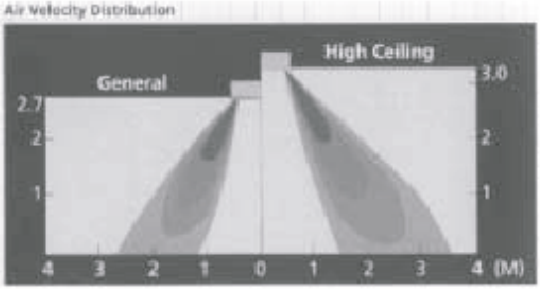
Built-in Drain Pump drains out water automatically.

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)

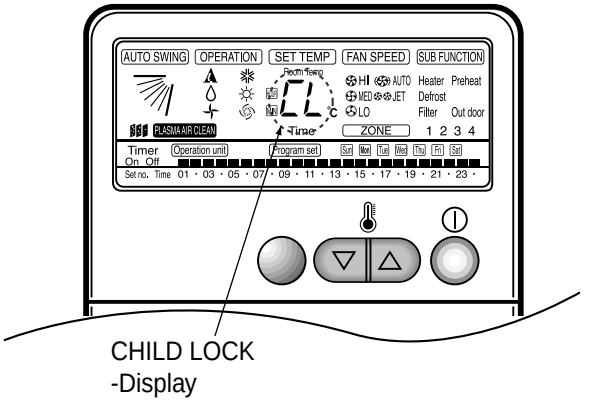
- It provides you ease of control. Air conditioner can be switched on/off by the telephone. It saves time & energy.

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.

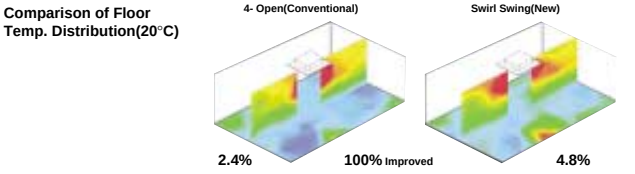


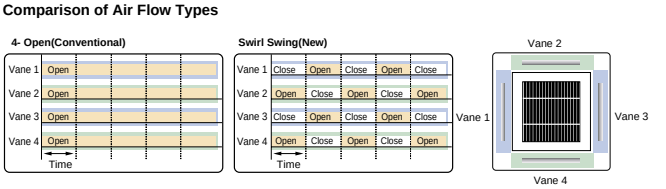
Auto Elevation Grille(Accessory)

-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.

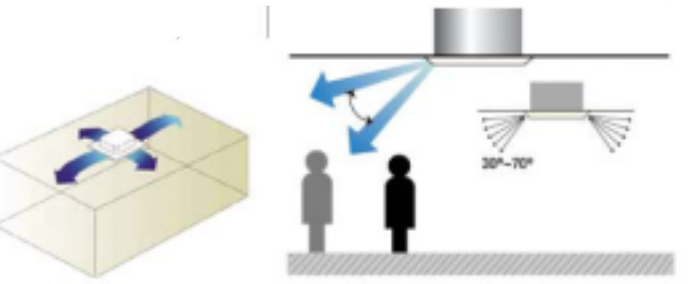




Space Control

Vanes 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

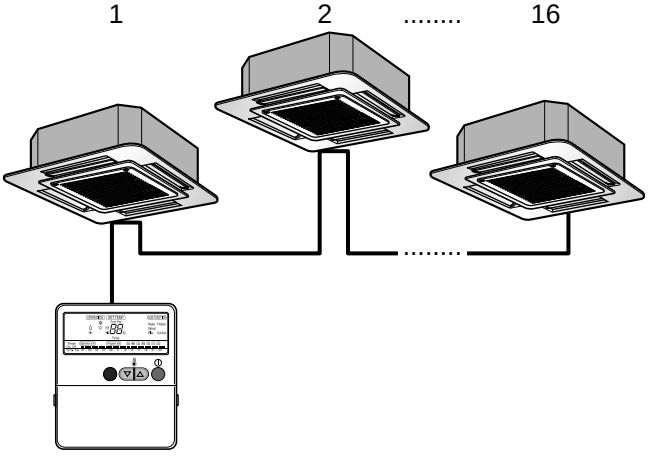
- Whenever there is electricity failure to the unit, and after resumption of the power, unit will start in the same mode prior to the power failure. Memorized condition are on / off condition, operating mode (cooling/heating), set temperature and fan speed.The unit will memorize the above conditions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

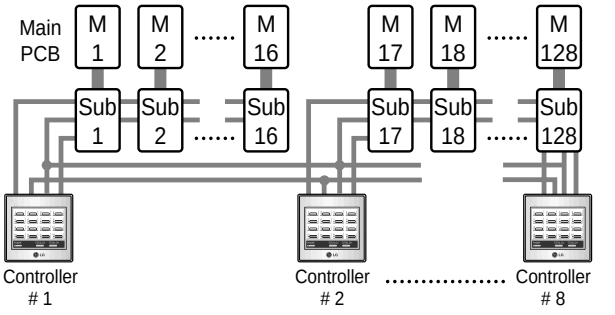
Group Control

- 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

Function	Ceiling Cassette-4way		
	ATNH-EL	**ATNH-FL**	**ATNH-DL**
Air Discharge Outlet	4	4	4
Airflow Direction control (left & right)	-	-	-
Airflow Direction control (up & down)	Auto	Auto	Auto
Airflow Steps(Fan / Cool /Heat)	3/4/3	3/4/3	3/4/3
Auto Changeover	O	O	O
Auto Elevation Grille	Accessory	Accessory	Accessory
Auto Operation	O	O	O
Auto Restart Operation	O	O	O
Auto Swing	O	O	O
Central Control	Accessory	Accessory	Accessory
CHAOS Wind (Auto wind)	-	-	-
Child Lock Function	O	O	O
Cooling & Fan Operation(Cooling Only)	-	-	-
Cooling, heating & Fan Operation(Heat Pump)	O	O	O
Defrost / Deicing	O	O	O
Deodorizing Filter	-	-	-
Drain Pump	O	O	O
E.S.P. Control	-	-	-
Electric Heater	-	-	-
Environment Friendly Refrigerant	O	O	O
Fire Alarm Function	-	-	-
Forced Operation	O	O	O
Group Control	O	O	O
High Ceiling Operation	O	O	O
Hot Start	O	O	O
Jet Cool	O	O	O
Plasma Air Purifier	O	O	O
Prefilter(Washable / Anti-fungus)	O	O	O
Self Diagnosis	O	O	O
Sleep Mode	O	O	O
Soft Dry Operation	O	O	O
Swirl Swing	O	O	O
Space Control	O	O	O
Tele Control	Accessory	Accessory	Accessory
Temperature Control	O	O	O
Test Function	O	O	O
Time Delay Safety function	O	O	O
Timer (weekly)	O	O	O
Two Thermistor Control	O	O	O
Wired LCD Remote Control	O	O	O
Wireless Remote Control	Accessory	Accessory	Accessory
Zero Standby Power	O	O	O

Notes :
O : Basic
Optional : Factory-Installed
Accessory : Field-Installed
- : Not available on this system

3. Specifications

Indoor Unit Type			Ceiling Cassette 4-way			
Model	Indoor Unit		ATNH126ELFC	ATNH186ELFC	ATNH246FLFC	ATNH306FLFC
	Decoration Panel		PT-HEC(F)	PT-HEC(F)	PT-HFC(F)	PT-HFC(F)
Nominal Cooling Capacity		kcal/h(W)	3024(3517)	4536(5275)	6048(7033)	7560(8793)
		Btu/h	12000	18000	24000	30000
Nominal Heating Capacity		kcal/h(W)	3326(3869)	4990(5803)	6653(7738)	8316(9672)
		Btu/h	13200	19800	26400	33000
Air Circulation	H/M/L	CMM(CFM)	9.5/8/7(336/283/247)	13/12/11(459/424/388)	15/14/13(523/494/459)	19/17/15(671/600/530)
Setting temperature range(cool/heat)		°C	18~30 / 16~30	18~30 / 16~30	18~30 / 16~30	18~30 / 16~30
Fan motor	Output	W	18.3	22.4	40.3	48.6
	Model		IC-9630LGAE	IC-9630LGAC	OBM-350292	OBM-4015P2
	No. of Poles		6	6	6	6
	Input	W	75	90	121	146
	Running Current	A	0.35	0.43	0.53	0.67
	Capacitor	µF/Vac	2.5/440	2.5/440	4/440	4/440
Fan	Type		Turbo Fan	Turbo Fan	Turbo Fan	Turbo Fan
	No. Used / Diameter	EA/inch(mm)	1/13.0(330)	1/13.0(330)	1/15.0(382)	1/15.0(382)
Noise Level (Sound Press,1.5m)	H/M/L	dB(A)	38 / 35 / 32	41/39/37	43/41/39	45/42/39
Temperature controller			Thermistor	Thermistor	Thermistor	Thermistor
Coil	Tube Size (OD)	inch(mm)	0.275(7)	0.275(7)	0.275(7)	0.275(7)
	Fins per inch		19	19	21	21
	No. of Rows & Column		2R,11C	2R11C	2R12C	2R12C
Dehumidification Rate		l/h	1.2	2.4	3	3.3
Dimensions (W*H*D)	Indoor Unit	inch(mm)	22.4*10.5*22.4(570*269*570)	22.4*10.5*22.4 (570*269*570)	29.3*11.5*29.4 (744*292*744)	29.3*11.5*29.3(744*292*744)
	Decoration Panel	inch(mm)	26.4*1.2*26.4(670*30*670)	26.4*1.2 *26.4(670*30*670)	33.5*1.2 *33.5(850*30*850)	33.5*1.2*33.5(850*30*850)
Net Weight	Indoor Unit	kg(lbs)	19(41.9)	19(41.9)	24(52.9)	24(52.9)
	Decoration Panel	kg(lbs)	3(6.6)	3(6.6)	3(6.6)	3(6.6)
Piping Connection	Liquid	inch(mm)	1/4 (6.35)	1/4 (6.35)	1/4 (6.35)	1/4 (6.35)
	Gas	inch(mm)	3/8 (9.52)	1/2 (12.7)	1/2 (12.7)	5/8 (15.88)
	Drain hose (ID Ø)	inch(mm)	1.26(32)	1.26(32)	1.26(32)	1.26(32)
Packing Dimension (W*H*D)	Indoor Unit	inch(mm)	25.2*13.0*25.2(640*330*640)	25.2*13.0*25.2(640*330*640)	32.6*14.4*32.6(828*365*828)	32.6*14.4*32.6(828*365*828)
	Decoration Panel	inch(mm)	29.5*3.1*29.5(750*80*750)	29.5*3.1*29.5(750*80*750)	36.8*3.5*36.8(935*90*935)	36.8*3.5*36.8(935*90*935)
Stuffing Quantity	Without S/Parts	20/40ft	189/378	189/378	84/168	84/168

For outdoor units	Single Split	See chapter MPS Variable SINGLE-A(AUUH-B)
	Application Split(Simultaneous operation)	See chapter MPS Variable SINGLE-A(AUUH-B)

Notes:

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
   - Interconnecting Piping Length 7.5m
   - Level Difference of Zero.
   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
   - Interconnecting Piping Length 7.5 m
   - Level Difference of Zero.
2. Capacities are Net Capacities.
3. Due to our policy of innovation some specifications may be changed without notification.

Indoor Unit Type			Ceiling Cassette 4-way		
Model	Indoor Unit		ATNH366DLFC	ATNH486DLFC	ATNH606DLFC
	Decoration Panel		PT-HDC(F)	PT-HDC(F)	PT-HDC(F)
Nominal Cooling Capacity		kcal/h(W)	9072(10549)	12095(14067)	14112(16412)
		Btu/h	36000	48000	56000
Nominal Heating Capacity		kcal/h(W)	9979(11607)	13305(15474)	15523(18053)
		Btu/h	39600	52800	61600
Air Circulation	H/M/L	CMM(CFM)	25/23/21(883/812/742)	30/28/26(1059/988/918)	34/32/30(1200/1130/1059)
Setting temperature range(cool/heat)		°C	18~30 / 16~30	18~30/16~30	18~30/16~30
Fan motor	Output	W	52.5	58.5	107
	Model		IC-1630LGPJ	IC-1640LGPH	IC-14640LGPM
	No. of Poles		6	6	6
	Input	W	175	195	237
	Running Current	A	0.76	1.5	1.8
	Capacitor	µF/Vac	4/440	6/400	6/400
Fan	Type		Turbo Fan	Turbo Fan	Turbo Fan
	No. Used / Diameter	EA/inch(mm)	1/18.1(460)	1/18.1(460)	1/18.1(460)
Noise Level (Sound Press,1.5m)	H/M/L	dB(A)	40/38/36	43/41/39	50/47/43
Temperature controller			Thermistor	Thermistor	Thermistor
Coil	Tube Size (OD)	inch(mm)	0.275(7)	0.275(7)	0.275(7)
	Fins per inch		21	21	21
	No. of Rows & Column		2R12C	2R12C	2R12C
Dehumidification Rate		l/h	4.0	5.5	6.5
Dimensions (W*H*D)	Indoor Unit	inch(mm)	33.1*11.3*33.1(840*288*840)	33.1*11.3*33.1(840*288*840)	33.1*11.3*33.1(840*288*840)
	Decoration Panel	inch(mm)	37.4*1.2*37.4(950*30*950)	37.4*1.2*37.4(950*30*950)	37.4*1.2*37.4(950*30*950)
Net Weight	Indoor Unit	kg(lbs)	32(70.4)	32(70.4)	32(70.4)
	Decoration Panel	kg(lbs)	5(11)	5(11)	5(11)
Piping Connection	Liquid	inch(mm)	1/4 (6.35)	3/8(9.52)	3/8(9.52)
	Gas	inch(mm)	5/8 (15.88)	3/4(19.05)	3/4(19.05)
	Drain hose (ID Ø)	inch(mm)	1.26(32)	1.26(32)	1.26(32)
Packing Dimension (W*H*D)	Indoor Unit	inch(mm)	36.4*13.8*36.4(925*350*925)	36.4*13.8*36.4(925*350*925)	36.4*13.8*36.4(925*350*925)
	Decoration Panel	inch(mm)	40.6*3.5*40.6(1,030*90*1,030)	40.6*3.5*40.6(1,030*90*1,030)	40.6*3.5*40.6(1,030*90*1,030)
Stuffing Quantity	Without S/Parts	20/40ft	72/144	72/144	72/144

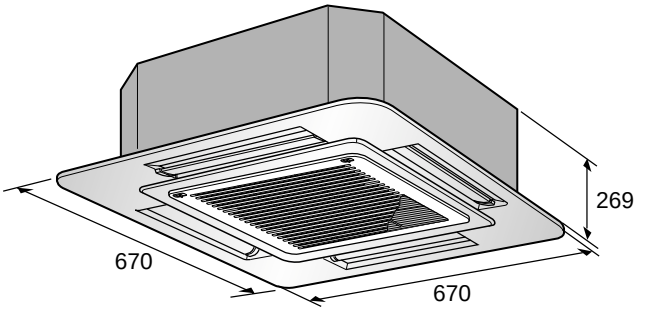
For outdoor units	Single Split	See chapter MPS Variable SINGLE-A(AUUH-B)
	Application Split(Simultaneous operation)	See chapter MPS Variable SINGLE-A(AUUH-B)

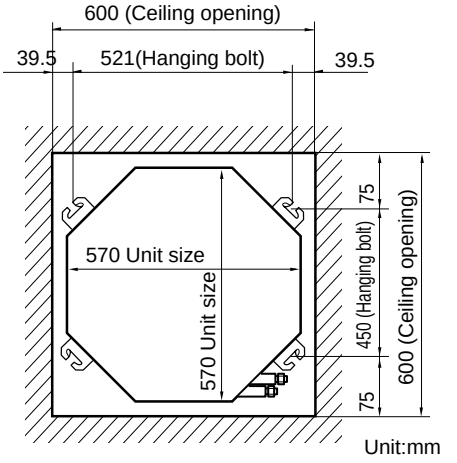
Notes:

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
   - Interconnecting Piping Length 7.5m
   - Level Difference of Zero.
   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
   - Interconnecting Piping Length 7.5 m
   - Level Difference of Zero.
2. Capacities are Net Capacities.
3. Due to our policy of innovation some specifications may be changed without notification.

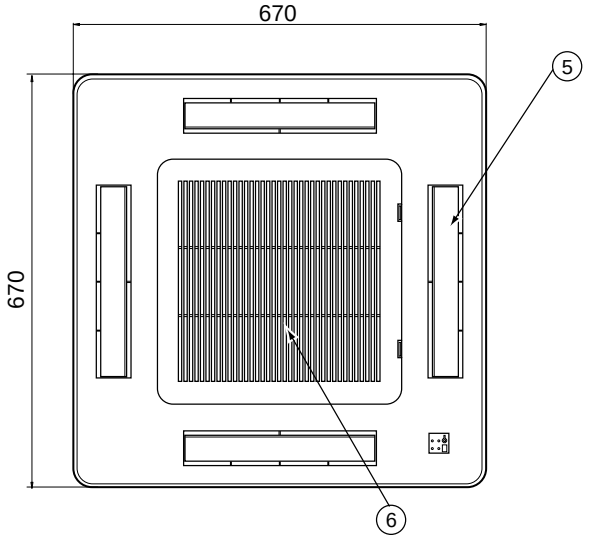
4. Dimensional Drawings

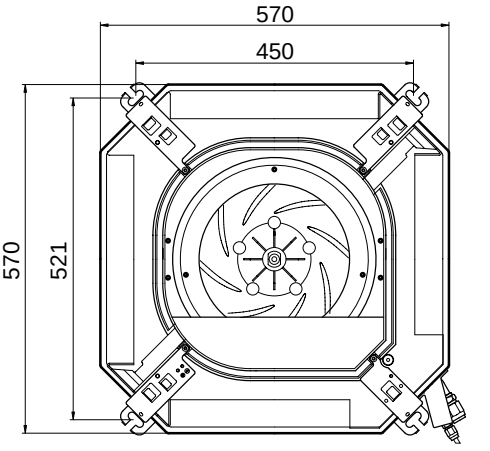
ATNH-EL

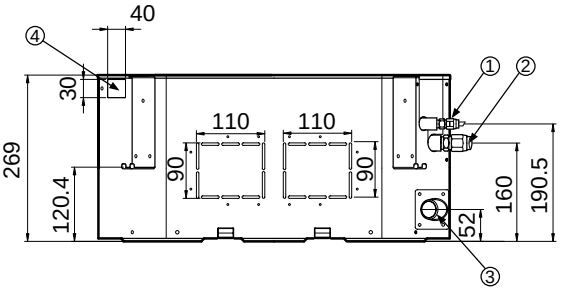




Unit:mm



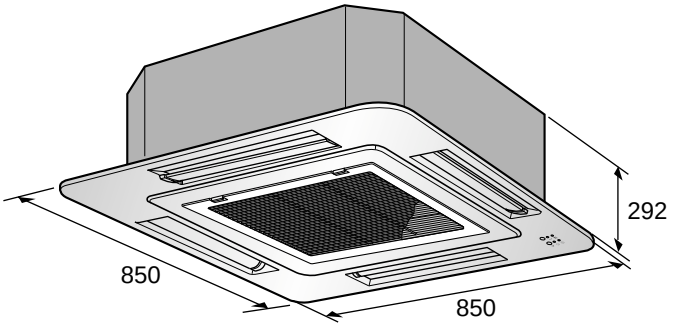


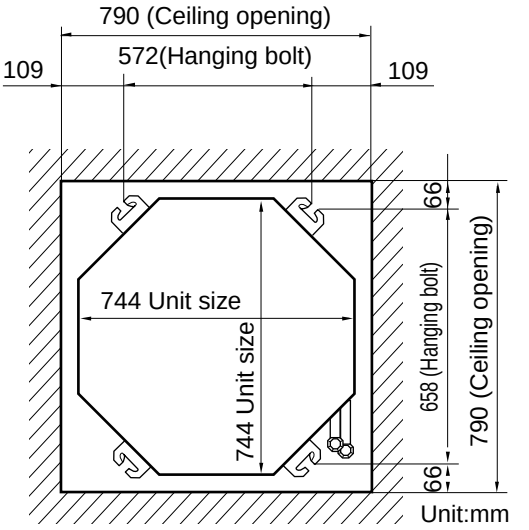


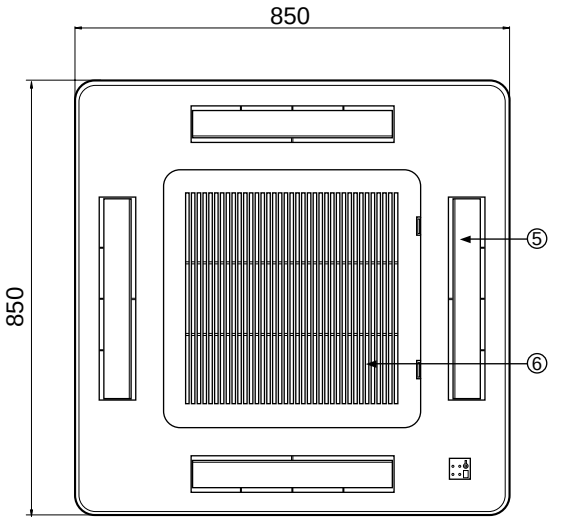
(unit : mm)

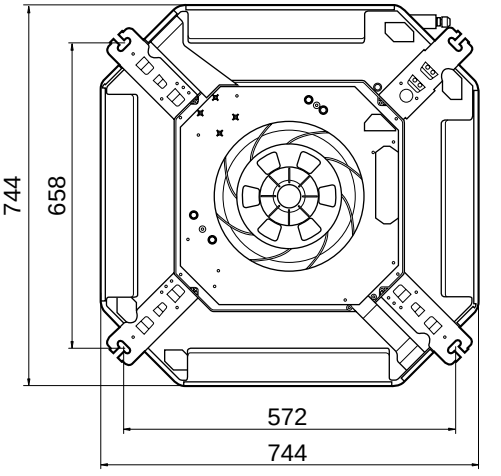
Number	Name	Descripition
1	Liquid pipe connection	ø6.35 flare
2	Gas pipe connection	12k: ø9.52, 18k: ø12.7 flare
3	Drain pipe connection	
4	Power supply connection	
5	Air discharge grille	
6	Air suction grille	

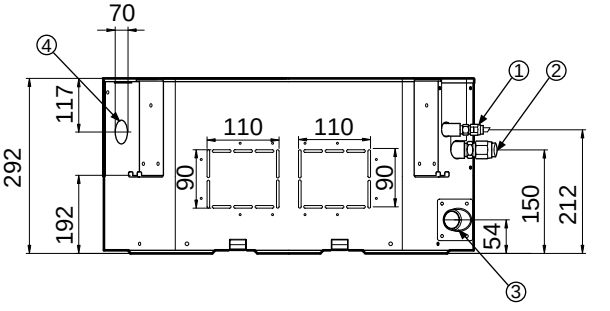
ATNH-FL







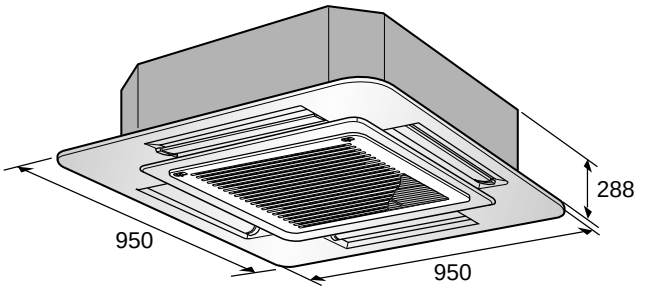


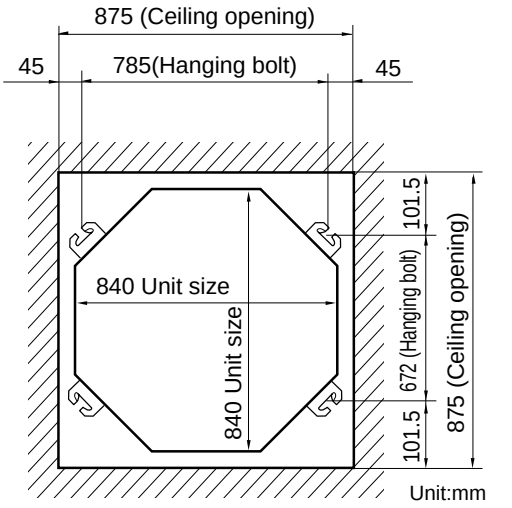


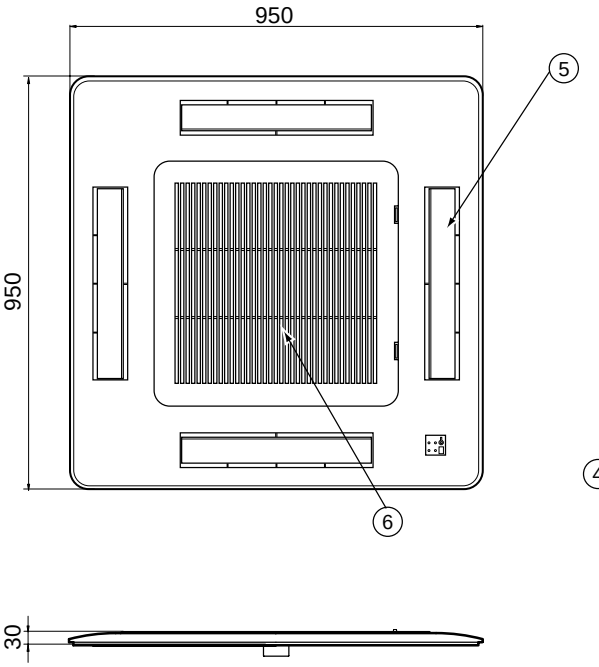
(unit : mm)

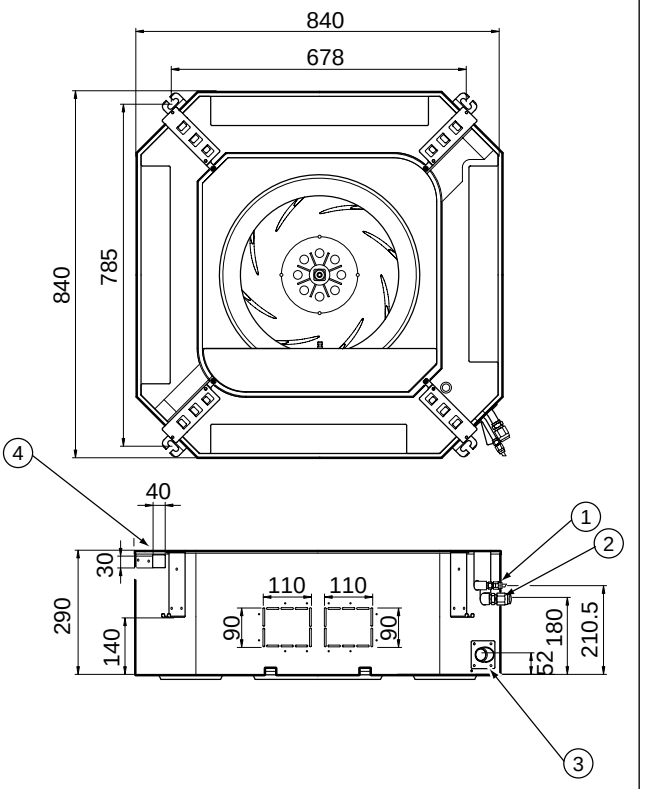
Number	Name	Descripition
1	Liquid pipe connection	ø6.35 flare
2	Gas pipe connection	24K: ø12.7, 30K: ø15.88 flare
3	Drain pipe connection	
4	Power supply connection	
5	Air discharge grille	
6	Air suction grille	

ATNH-DL





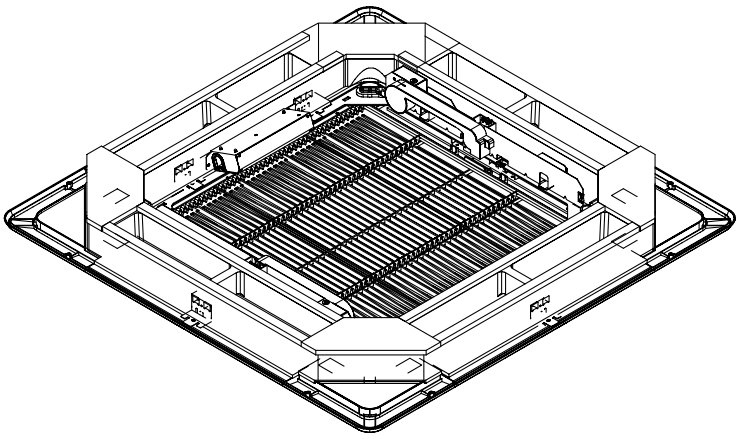


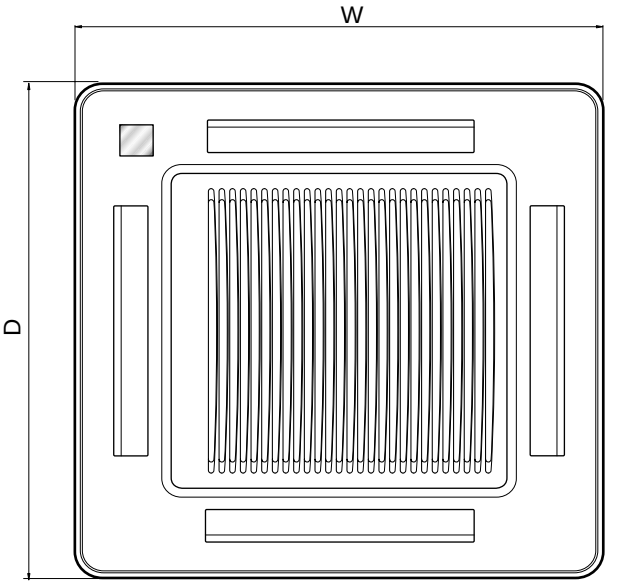


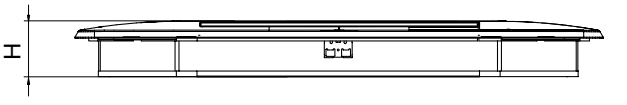
(unit : mm)

Number	Name	Descripition
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	

PT-HEF/HFF/HDF





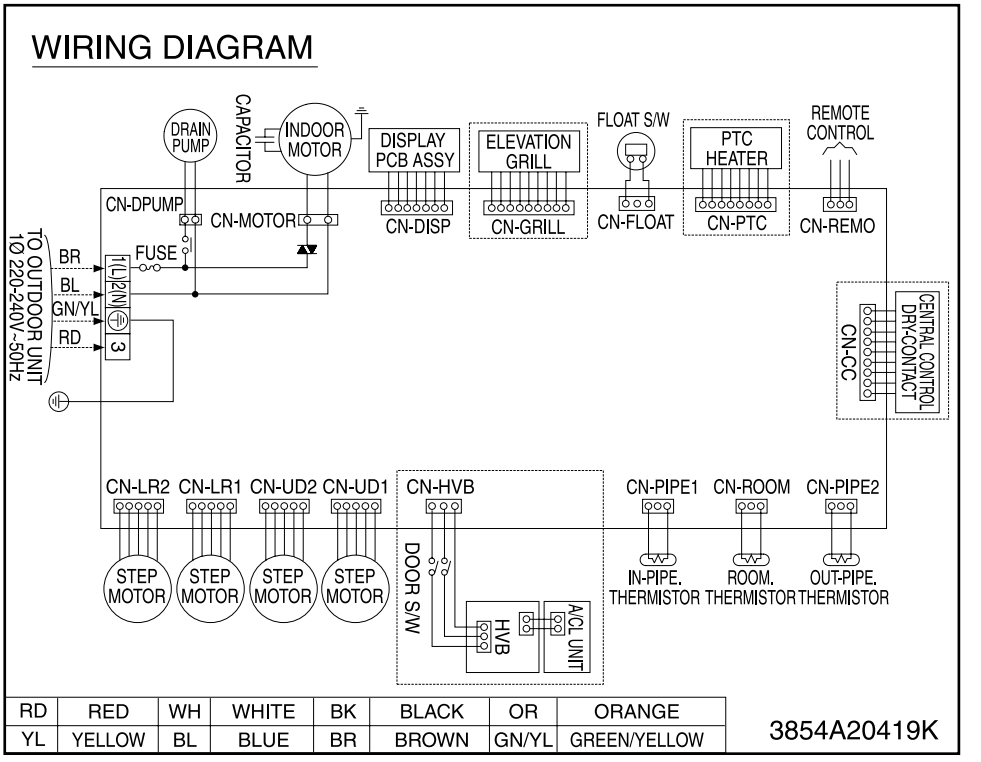


(unit : mm)

DIM \ Model / Unit	PT-HEF	PT-HFF	PT-HDF
W mm	670	850	950
H mm	90	90	90
D mm	670	850	950

5. Wiring Diagrams

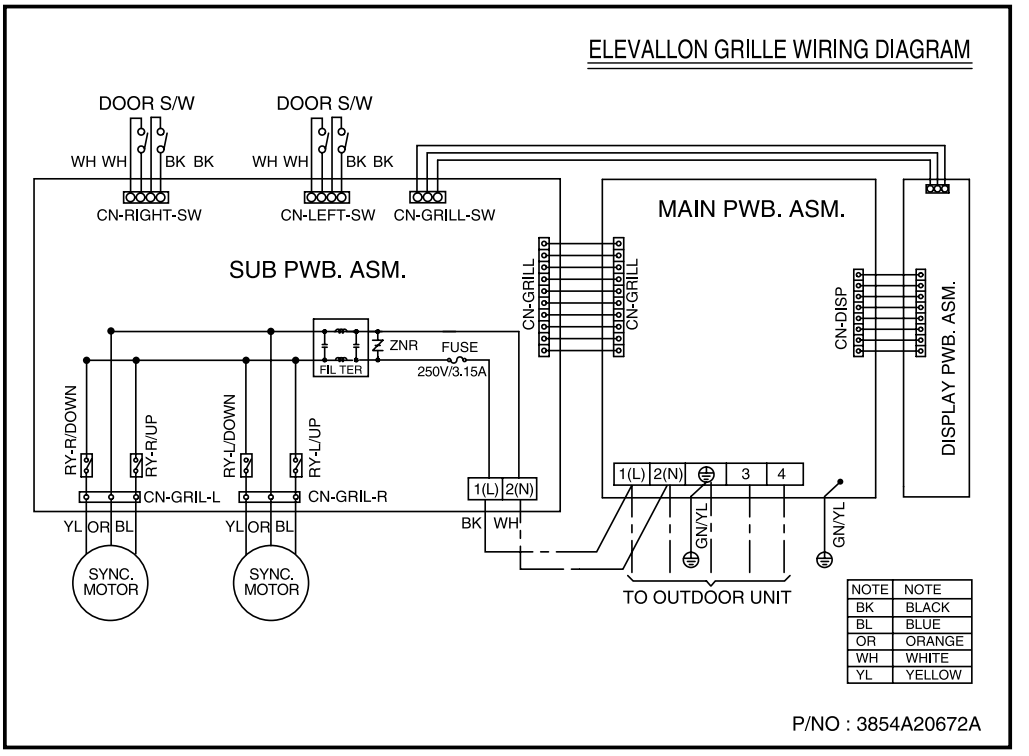
5.1 Wiring Diagrams(Product)



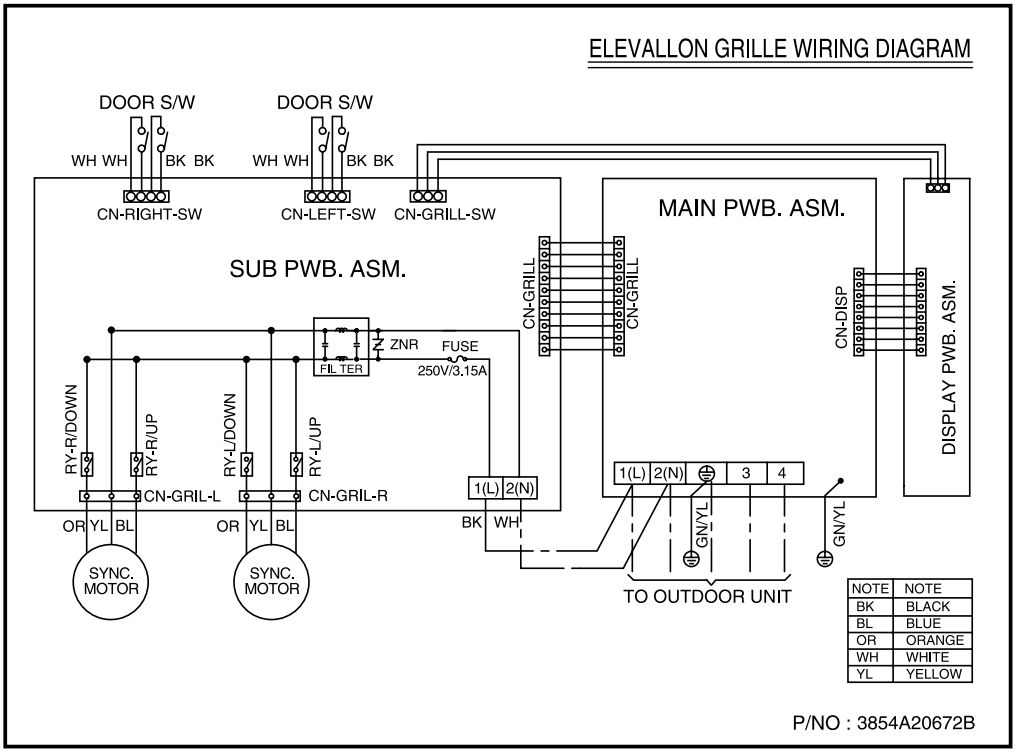
CONNECTOR NUMBER	LOCATION
CN-POWER	AC POWER SUPPLY
CN-MOTOR	BLDC FAN MOTOR OUTPUT
CN-D/PUMP	DRAIN PUMP OUTPUT
CN-DISP	DISPLAY
CN-FLOAT	FLOAT SWITCH INPUT
CN-PTC	PTC HEATER INUT
CN-REMO	REMOTE CONTROL
CN-GRILL	GRILL CONTROL
CN-CC	CENTRAL CONTROL
CN-PIPE2	DISCHARGE PIPE SENSOR
CN-ROOM	ROOM SENSOR
CN-PIPE1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

5.2 Wiring Diagrams(Elevation Grill)

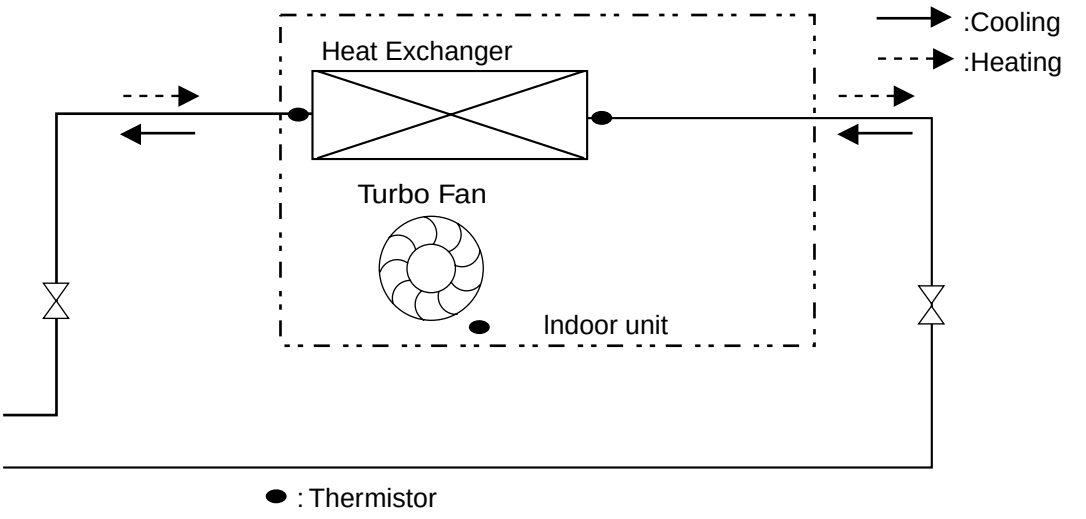
PT-HEF



PT-HFF/HDF



6. Piping Diagrams



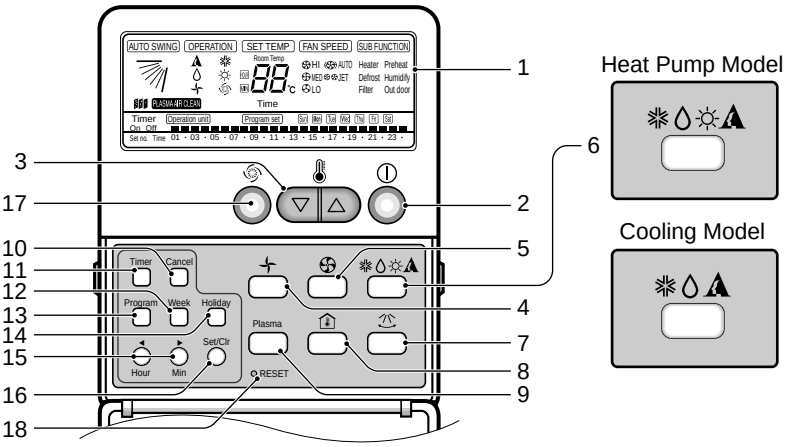
Refrigerant pipe connection port diameter

[unit: mm(inch)]

Model	Gas	Liquid
ATNH126ELFC	9.52(3/8)	6.35(1/4)
ATNH186ELFC	12.7(1/2)	
ATNH246FLFC		
ATNH306FLFC	15.88(5/8)	
ATNH366DLFC		
ATNH486DLFC	19.05(3/4)	9.52(3/8)
ATNH606DLFC		

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.

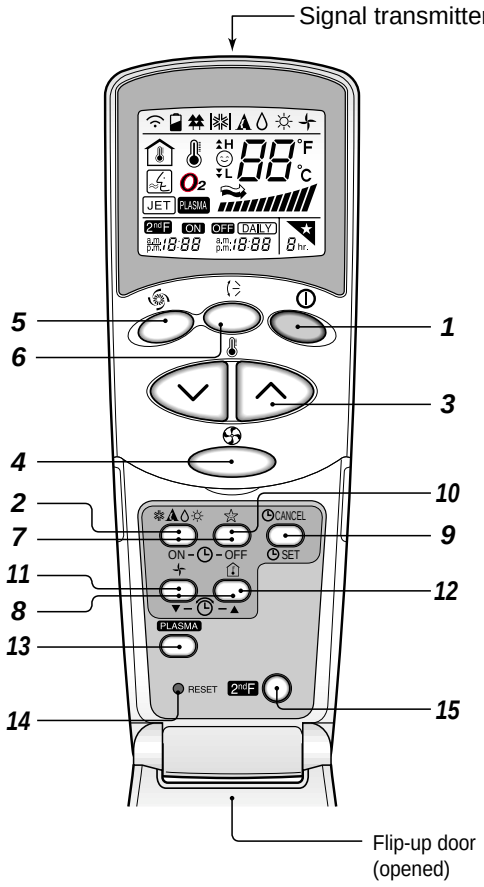
17. Swirl Button (4 way)
Used to select swirl mode.
Jet Cool Button (1 way)

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.



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

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.

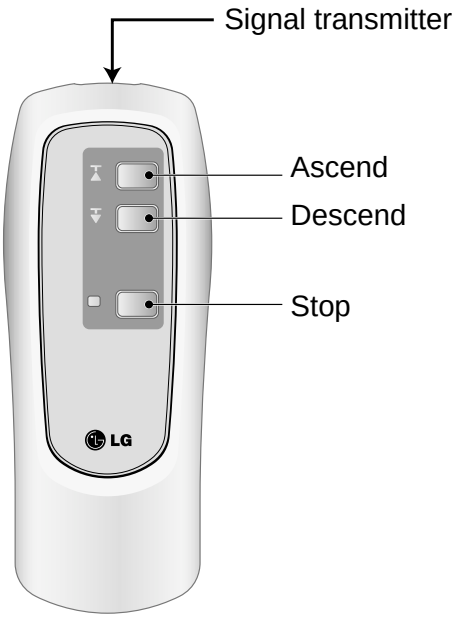
14. RESET BUTTON
Initialize remote controller.

15. 2nd F Button
Used prior to using modes printed in blue at the bottom of buttons.

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)**

■ ELEVATION GRILL (REMOTE CONTROLLER_Accessory)



• Main Components of Lift Grill

① Lift grill front panel assembly

② Bolts for installation (4 EA, P/No. 3A00255K)

③ Instruction manual

④ Remote Controller for lift grill

• How to Use Remote Controller

As for operation of Remote Controller, use it by directing the transmitter part of Remote Controller to the receiver part of front panel directly under front panel.

- Do not drop it down or into water. Or else there is worry about trouble failure.
- Do not press hard the Remote Controller button with nail (ball-point pen or other sharp substance). Or else there is worry about trouble failure.
- In case when obstacle such as curtain hides the signal reception part of receiver in between the space interval, Remote Controller operation is infeasible.

• How to Operate the Lift Grill

⚠ CAUTION

- Always stop the air conditioner operation for safety before operating lift grill.
- Take heed _ there is worry about dust fall etc. when suction grill descends.
- In case when the set automatic stop distance goes wrong, check the set value of operation panel and confirm if there is neither obstacle nor mankind.
- When you are not to remove obstacle, stop the operation before touching the obstacle.

1. Stop the Air Conditioner Operation

2. Descend the Suction Grill

- Depress the down button(▼).
  Then suction grill descends and stops automatically at a certain distance.
- You may stop it at wanted distance point by depressing the stop button (■) when descending.

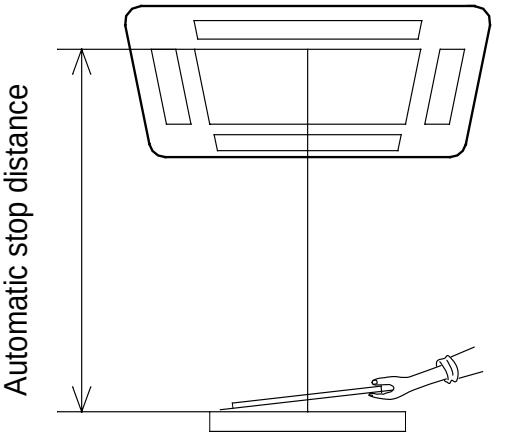
3. Raise the Suction Grill

- Depress the up button(▲).
  Then suction grill goes up and enters into the front panel.

4. Stop the Suction Grill during Rising

- Depress the stop button(■).
  Make use of this when you want to stop it at your wished position.

Automatic Stop Distance of Grill

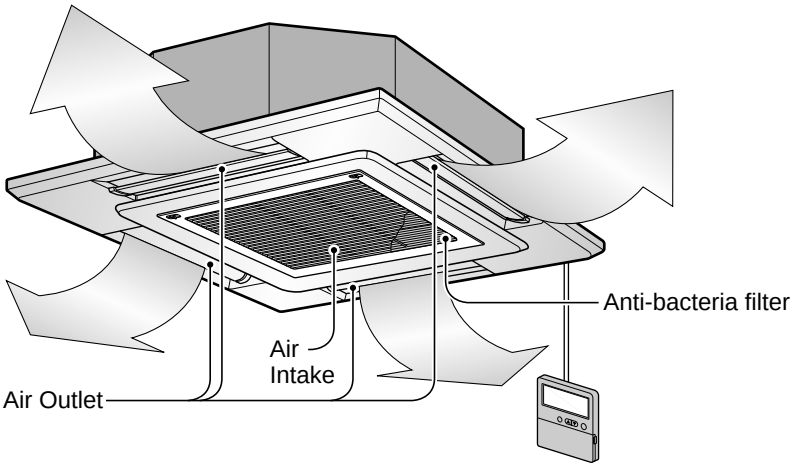


Ceiling height	Low	Medium (Height: 3~4 m)	High
Automatic stop distance	1.5±0.5 m	2.5±0.5 m	3.5±0.5 m

✳ If you want to change automatic distance setting, consult with your sale agency.

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

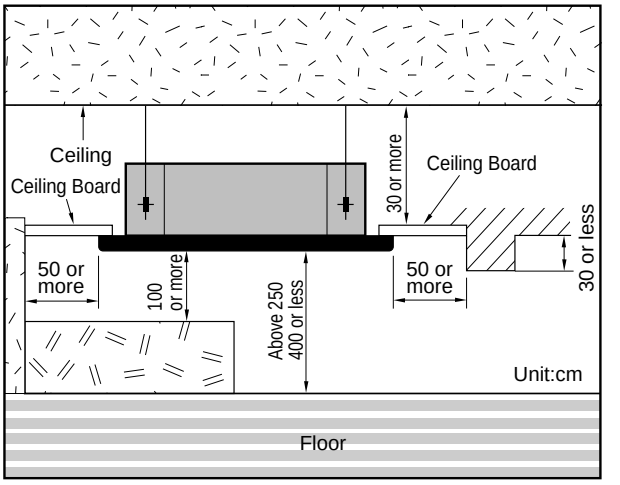
- Connecting cable
- Pipes: Gas side
  Liquid side
- Hanging Bolt
  (W 3/8 or M10 length 650mm)
- Insulated drain hose
- Additional Drain hose
  (Inner Diameter .....32mm)

Required Tools

- Level
- Screw driver
- Electric drill
- Hole core drill (ø70mm)
- Flaring Tools set
- Torque Wrenches
- Hexagonal Wrench (4mm, 5mm)
- Gas-leak detector
- Owner's Manual
- Thermometer

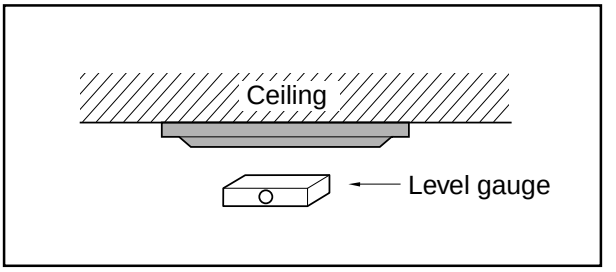
8.1 Selection of the best location

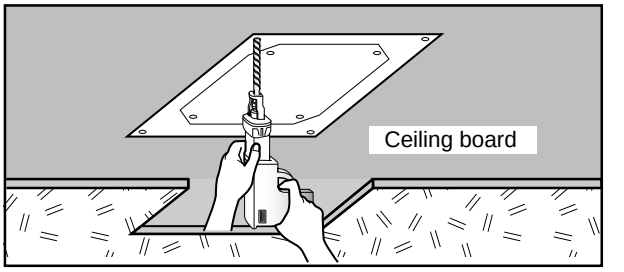
- There should not be any heat source or steam near the unit.
- There should not be any obstacles to the air circulation.
- There should be provision of easy condensate drain.
- Taking into accounting the noise prevention criteria, spot the installation location.
- Do not install the unit near the door 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.



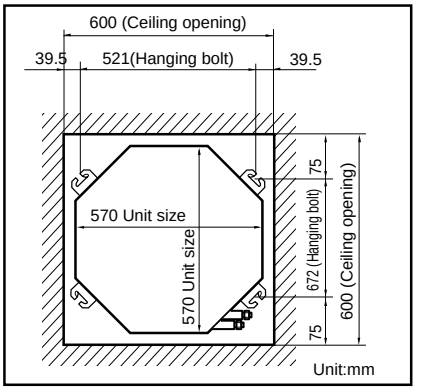
8.2 Ceiling opening dimensions and hanging bolt location

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

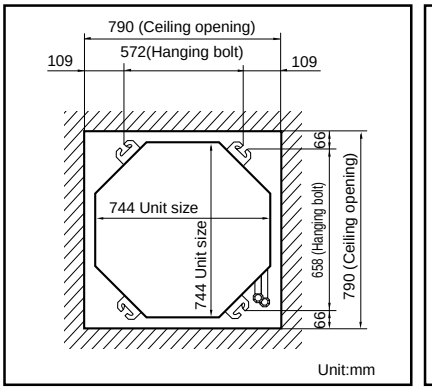




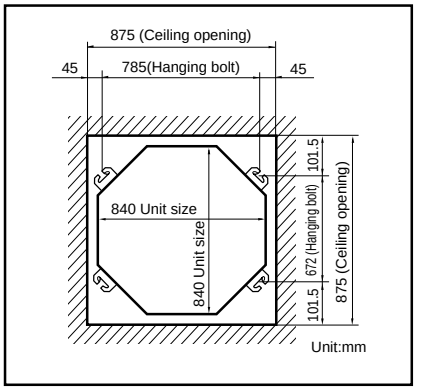
TE Model



TF Model



TD Model



⚠ CAUTION

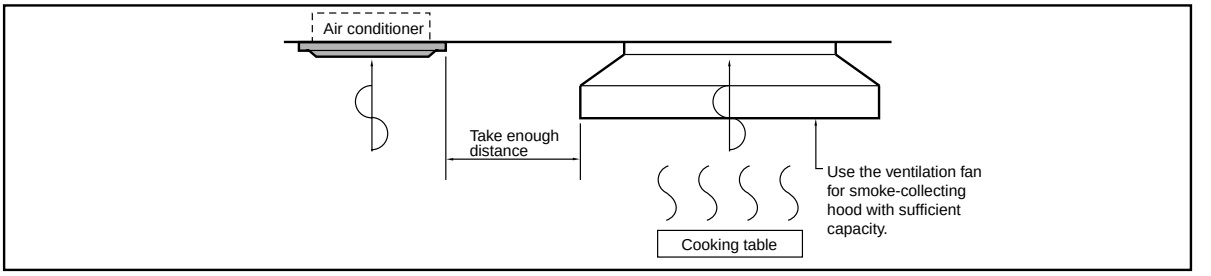
- This air-conditioner uses a drain pump.
- Install the unit horizontally using a level gauge.
- During the installation, care should be taken not to damage electric wires.

- 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.

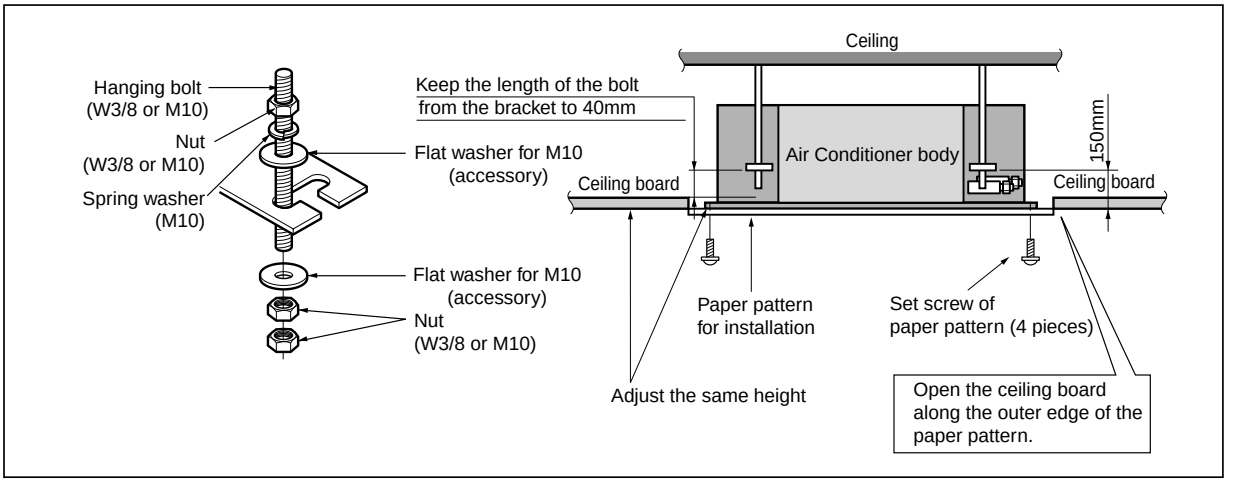
NOTE:

• Avoid the following installation location.

1. 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.



2. Avoid installng 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.



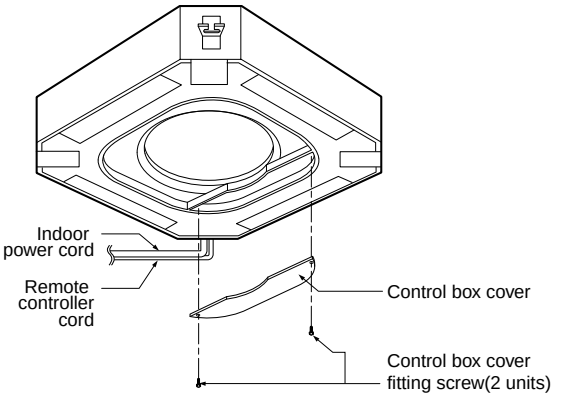
- The following parts are local purchasing.
  ① Hanging Bolt - W 3/8 or M10
  ② Nut - W 3/8 or M10
  ③ Spring Washer - M10
  ④ Plate Washer - M10

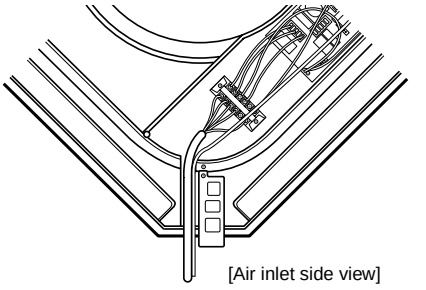
⚠ CAUTION

- 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.





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

Connected to outdoor unit

⚠ WARNING

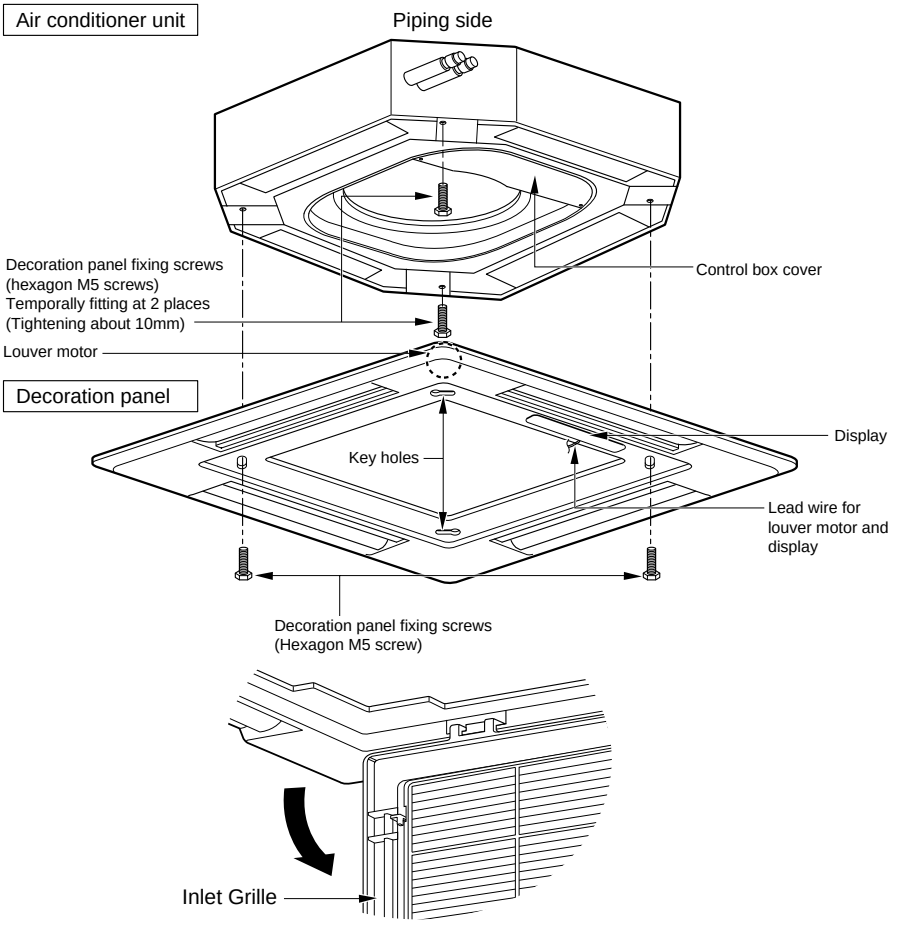
Make sure that the screws of the terminal are free from looseness.

8.4 Installation of Decoration Panel

The decoration panel has its installation direction.

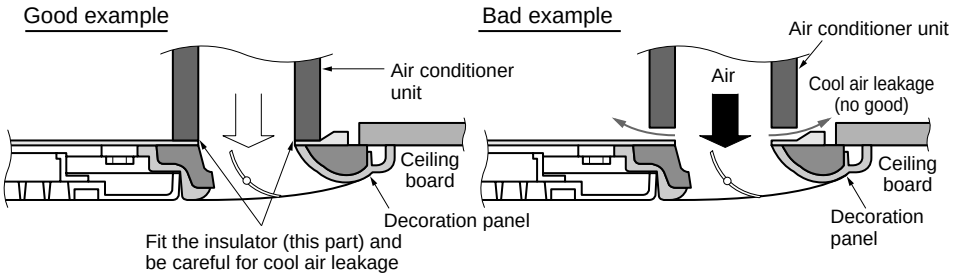
Before installing the decoration panel, always remove the paper template.

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.

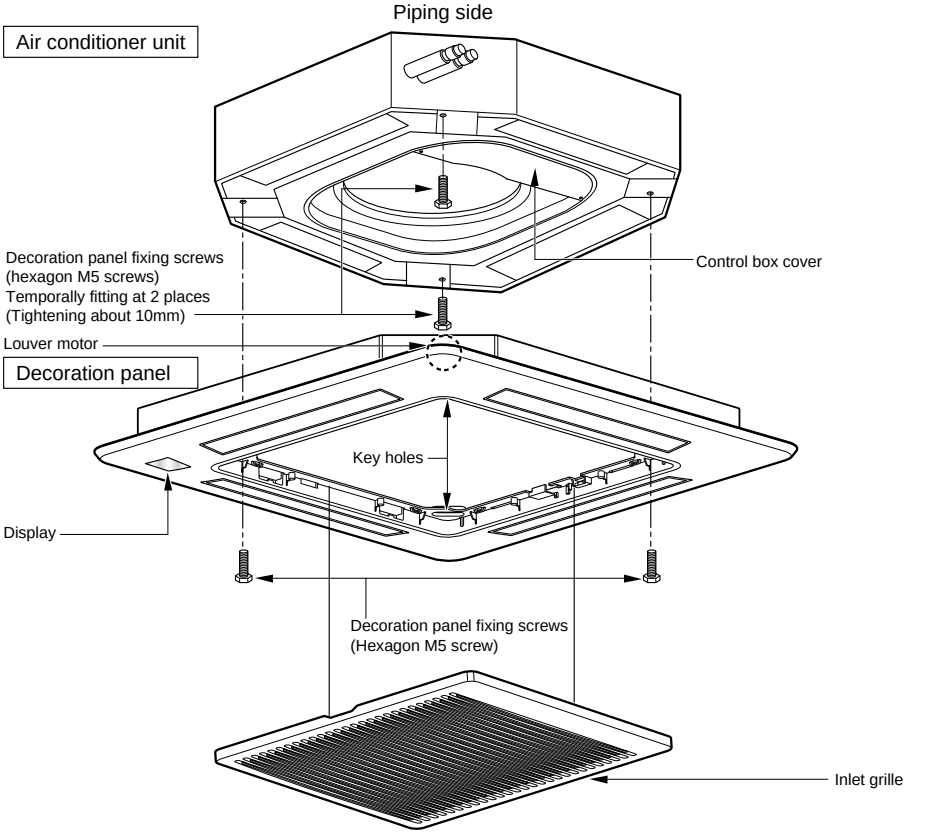


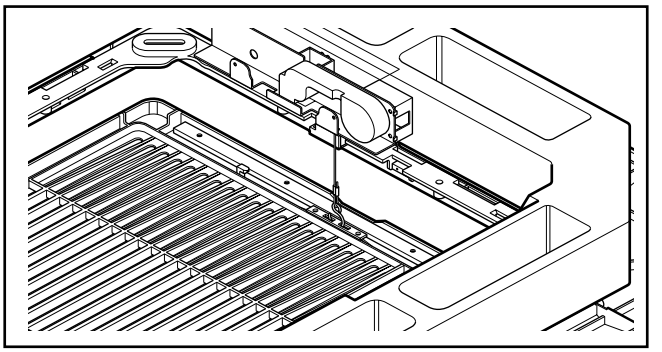
8.5 Installation of Decoration Panel(Elevation Grille)

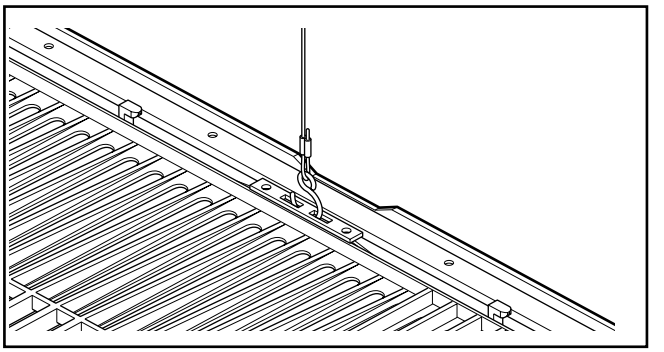
The decoration panel has its installation direction.

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 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 display connector, elevation grille connector and power supply connector
6. After tightening these screws, install the air inlet grille (including the air filter).







⚠ CAUTION

- Don't lay any material upon suction grill.
- Suction grill comprises 2 strands of wire. If any substance is placed on it then balance may be destroyed so that the substance would drop down and cause a breakage or damage. Also the matter may cause trouble owing to which the grill would not be correctly inserted at front panel.
- Don't shake suction grill. Or else there is worry that it may collide with adjacent material and the suction grill fall down.
- Don't pull suction grill. Don't draw out suction grill irrationally. Or else there is worry that lift grill drive part is damaged and suction grill might drop down.
- Don't place obstacle in lift passage of lift grill.
  When suction grill descends, it automatically stops at a certain distance.
  If there is any obstacle in lift passage, suction grill might drop down and there may be caused trouble failure of lift grill drive part.
- Turn off the air conditioner operation button before operating the lift grill.
  Always stop the air conditioner operation for safety when suction grill descends.
- Don't damage lift rope by a sharp material. Or else there is worry about suction grill dropping because of rope cutoff.

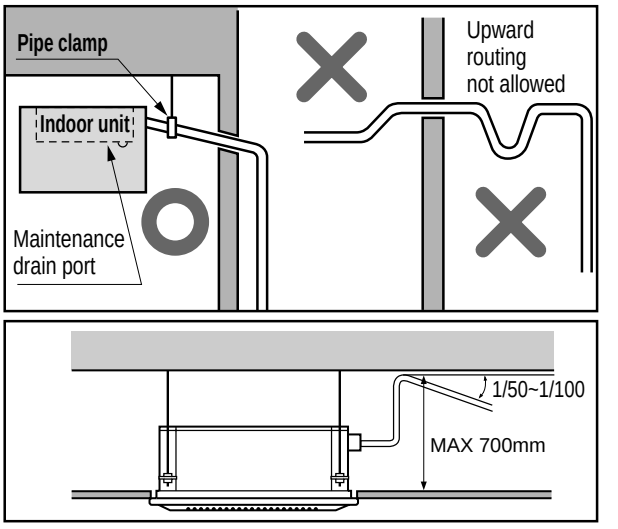
8.5 Indoor Unit Drain Piping

- 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

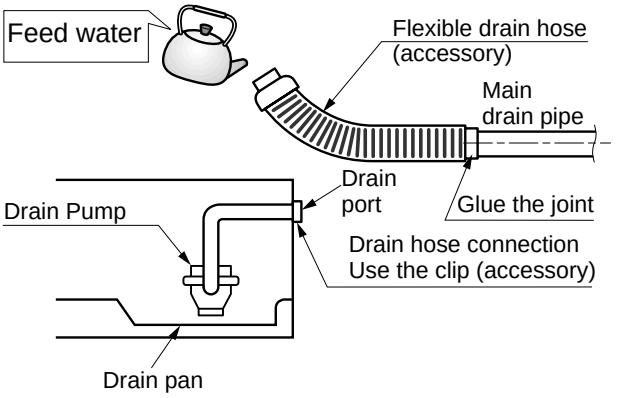
- Be sure to install heat insulation on the drain piping.

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

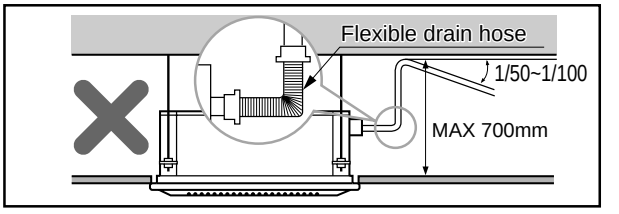


Drain test

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



- 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.



⚠ CAUTION

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

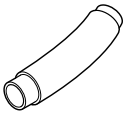
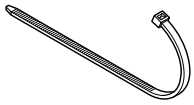
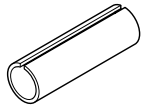
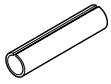
⚠ CAUTION

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.

9. Accessories

Standard Accessories

Name	Drain hose	Clamp metal	Washer for hanging backet	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/KL/LL

Contents

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6. Piping Diagrams.....47
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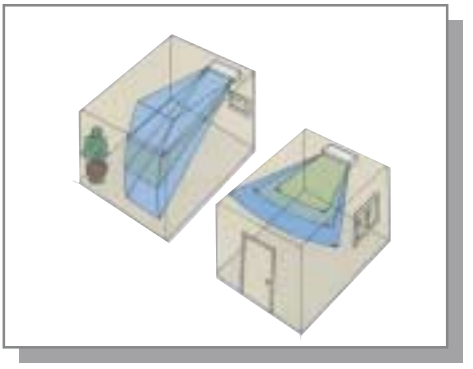
1. Features & Benefits

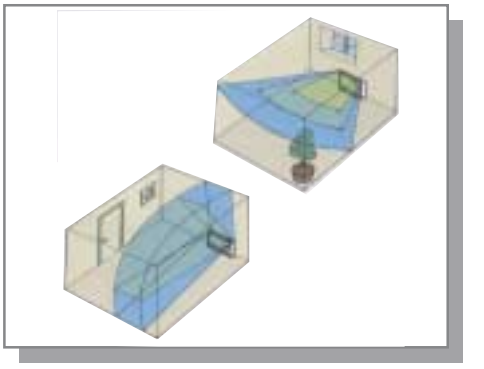
- **Flexible Installation**
- **Low noise**
- **4-Way Airflow Direction Control**
  (Automatic Vertical airflow & Manual Horizontal airflow)
- **LCD Wireless Remote Control**

Flexible Installation

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



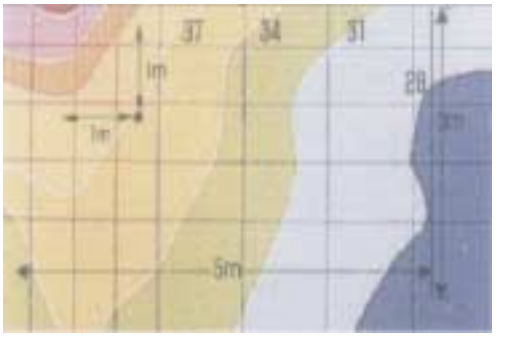
<Ceiling Installation>



<Floor Installation>

Low Noise

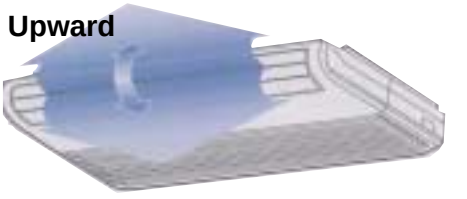
Advanced airflow system and cross flow fan give quiet and more comfortable environment.



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

Function	Ceiling & Floor (Convertible)			
	AVNH-EL	**AVNH-BL**	**AVNH-KL**	**AVNH-LL**
Air Discharge Outlet	1	1	1	1
Airflow Direction control (left & right)	Manual	Manual	Manual	Manual
Airflow Direction control (up & down)	Auto	Auto	Auto	Auto
Airflow Steps(Fan / Cool /Heat)	3/3/3	3/3/3	3/3/3	3/3/3
Auto Changeover	-	O	O	O
Auto Operation	O	O	O	O
Auto Restart Operation	O	O	O	O
Auto Swing	O	O	O	O
Central Control	Accessory	Accessory	Accessory	Accessory
CHAOS Wind (Auto wind)	O	O	O	O
Child Lock Function	-	-	-	-
Cooling & Fan Operation(Cooling Only)	-	-	-	-
Cooling, heating & Fan Operation(Heat Pump)	O	O	O	O
Defrost / Deicing	O	O	O	O
Deodorizing Filter	-	-	-	-
Drain Pump	-	-	-	-
E.S.P. Control	-	-	-	-
Electric Heater	-	-	-	-
Environment Friendly Refrigerant	O	O	O	O
Fire Alarm Function	-	-	-	-
Forced Operation	O	O	O	O
Group Control	-	-	-	-
High Ceiling Operation	-	-	-	-
Hot Start	O	O	O	O
Jet Cool	-	-	-	-
Plasma Air Purifier	Optional	-	-	-
Prefilter(Washable / Anti-fungus)	O	O	O	O
Self Diagnosis	O	O	O	O
Sleep Mode	O	O	O	O
Soft Dry Operation	O	O	O	O
Swirl Swing	-	-	-	-
Space Control	-	-	-	-
Tele Control	O	O	O	O
Temperature Control	O	O	O	O
Test Function	O	O	O	O
Time Delay Safety function	-	-	-	-
Timer (weekly)	-	-	-	-
Two Thermistor Control	-	-	-	-
Wired LCD Remote Control	-	-	-	-
Wireless Remote Control	O (LCD)	O (LCD)	O (LCD)	O (LCD)
Zero Standby Power	-	-	-	-
Zone Control	-	-	-	-

Notes :
O : Basic
Optional : Factory-Installed
Accessory : Field-Installed
- : Not available on this system

3. Specifications

Indoor Unit Type			Ceiling & Floor (Convertible)			
Model			AVNH126ELAC	AVNH186BLAC	AVNH246BLAC	AVNH306BLAC
Nominal Cooling Capacity		kcal/h(W)	3024(3517)	4536(5274)	6048(7032)	7056(8207)
		Btu/h	12000	18000	24000	28000
Nominal Heating Capacity		kcal/h(W)	3327(3869)	4991(5803)	6654(7737)	7762(9027)
		Btu/h	13200	19800	26400	30800
Air Circulation	H/M/L	CMM(CFM)	10.0/8.3/6.5(353/293/230)	13.5/12/11(477/424/388)	15/13.5/12(530/477/424)	18/16/14(636/564/494)
Setting temperature range(cool/heat)		°C	18-30/16-30	18-30/16-30	18-30/16-30	18~30/16~30
Fan motor	Output	W	17.5	30	35	42.5
	Model		IC-18422LG31A	IC-9430LGCG	IC-9430LGCE	OBM-3019P2
	No. of Poles		4	4	4	4
	Input	W	43	53	63	81
	Running Current	A	0.23	0.23	0.27	0.38
	Capacitor	µF/Vac	1.5/370	1.5/370	1.5/370	1.5/ 370
Fan	Type		Cross Flow Fan	Cross Flow Fan	Cross Flow Fan	Cross Flow Fan
	No. Used / Diameter	EA/inch(mm)	1/3.7(95)	1/3.1(80)	1/3.1(80)	1/3.1(80)
Noise Level (Sound Press, 1m)	H/M/L	dB(A)	40/36/31	43/40/37	45/42/39	45/42/39
Temperature controller			Thermistor	Thermistor	Thermistor	Thermistor
Coil	Tube Size (OD)	inch(mm)	0.197(5)	0.275(7)	0.275(7)	0.275(7)
	Fins per inch		20	18	20	20
	No. of Rows & Column		2R,12C	2R 12C	2R 14C	2R 14C
Dehumidification Rate		l/h	1.2	2.3	3.2	3.5
Dimensions (W*H*D)		inch(mm)	35.4*7.9*19.3(900*200*490)	47.2*8.1*24.2(1200*205*615)	47.2*8.1*24.2(1200*205*615)	47.2*8.1*24.2(1200*205*615)
Net Weight		kg(lbs)	12(26.5)	30(66.1)	30(66.1)	30(66.1)
Piping Connection	Liquid	inch(mm)	1/4 (6.35)	1/4 (6.35)	1/4 (6.35)	1/4 (6.35)
	Gas	inch(mm)	3/8 (9.52)	1/2 (12.7)	1/2 (12.7)	5/8 (15.88)
	Drain hose (OD Ø)	inch(mm)	20	20	20	20
Packing Dimension (W*H*D)		inch(mm)	38.2*11.2*22.2(970*285*565)	50.8*11.4*27.4(1290*290*696)	50.8*11.4*27.4(1290*290*696)	50.8*11.4*27.4(1290*290*696)
Stuffing Quantity	Without S/Parts	20/40ft	189/383	102/219	102/219	102/219

For outdoor units	Single Split	See chapter MPS Variable SINGLE-A(AUUH-C)
	Application Split(Simultaneous operation)	See chapter MPS Variable SINGLE-A(AUUH-C)

Notes:

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
   - Interconnecting Piping Length 7.5m
   - Level Difference of Zero.
   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
   - Interconnecting Piping Length 7.5 m
   - Level Difference of Zero.
2. Capacities are Net Capacities.
3. Due to our policy of innovation some specifications may be changed without notification.

Indoor Unit Type			Ceiling & Floor (Convertible)		
Model			AVNH366KLAC	AVNH486LLAC	AVNH606LLAC
Nominal Cooling Capacity		kcal/h(W)	8568(9965)	11718(13629)	13608(15827)
		Btu/h	34000	46500	54000
Nominal Heating Capacity		kcal/h(W)	9072(10552)	13306(15476)	14969(17410)
		Btu/h	36000	52800	59400
Air Circulation	H/M/L	CMM(CFM)	29/27/24(1023/953/847)	36/34/32(1271/1207/1136)	40/38/36(1412/1341/1270)
Setting temperature range(cool/heat)		°C	18-30/16-30	18-30/16-30	18-30/16-30
Fan motor1	Output	W	63	63	63
	Model		IC-9430LG58C	IC-9430LG58C	IC-9430LG58C
	No. of Poles		4	4	4
	Input	W	152	152	152
	Running Current	A	0.67	0.67	0.67
	Capacitor	µF/Vac	4.0/440	4.0/440	4.0/440
Fan motor2	Output	W	45	63	63
	Model		IC-9430LG58E	IC-9430LG58C	IC-9430LG58C
	No. of Poles		4	4	4
	Input	W	80	152	152
	Running Current	A	0.4	0.6	0.6
	Capacitor	µF/Vac	4.0/440	4.0/440	4.0/440
Fan	Type		Cross Flow Fan	Cross Flow Fan	Cross Flow Fan
	No. Used / Diameter	EA/inch(mm)	3/5.7(145)	3/5.7(145)	3/5.7(145)
Noise Level (Sound Press, 1m)	H/M/L	dB(A)	44/42/40	54/52/50	56/54/52
Temperature controller			Thermistor	Thermistor	Thermistor
Coil	Tube Size (OD)	inch(mm)	0.275(7)	0.275(7)	0.275(7)
	Fins per inch		19	19	19
	No. of Rows & Column		3R,14C	3R,14C	3R,14C
Dehumidification Rate		l/h	3.3	5	6.1
Dimensions (W*H*D)		inch(mm)	53.2*8.66*24.8(1350*220*630)	68.9*8.66*24.8(1750*220*630)	68.9*8.66*24.8(1750*220*630)
Net Weight		kg(lbs)	35(77.2)	45(99.2)	45(99.2)
Piping Connection	Liquid	inch(mm)	1/4 (6.35)	3/8 (9.52)	3/8 (9.52)
	Gas	inch(mm)	5/8 (15.88)	3/4 (19.05)	3/4 (19.05)
	Drain hose (OD Ø)	inch(mm)	20	20	20
Packing Dimension (W*H*D)		inch(mm)	57.2*12.4*29.5(1452*315*750)	72.8*12.4*29.5(1850*315*750)	72.8*12.4*29.5(1850*315*750)
Stuffing Quantity	Without S/Parts	20/40ft	84/168	63/133	63/133

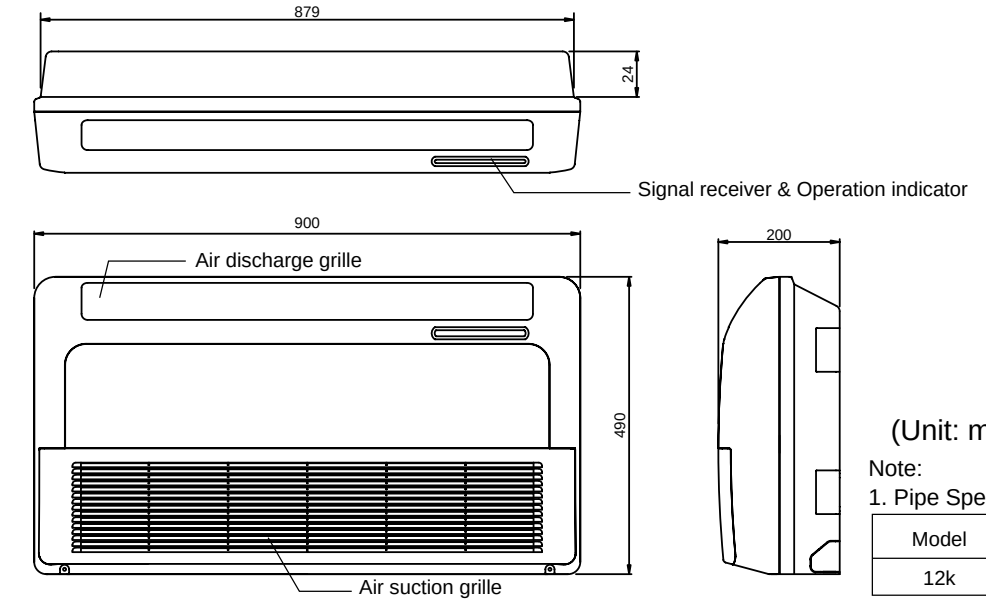
For outdoor units	Single Split	See chapter MPS Variable SINGLE-A(AUUH-C)
	Application Split(Simultaneous operation)	See chapter MPS Variable SINGLE-A(AUUH-C)

Notes:

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
   - Interconnecting Piping Length 7.5m
   - Level Difference of Zero.
   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
   - Interconnecting Piping Length 7.5 m
   - Level Difference of Zero.
2. Capacities are Net Capacities.
3. Due to our policy of innovation some specifications may be changed without notification.

4. Dimensional Drawings

AVNH-EL



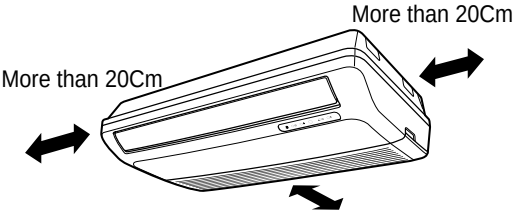
(Unit: mm)

Note:

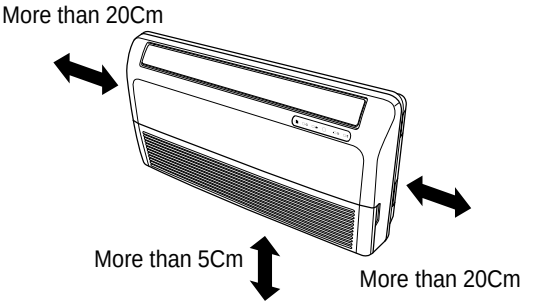
1. Pipe Specification(mm)

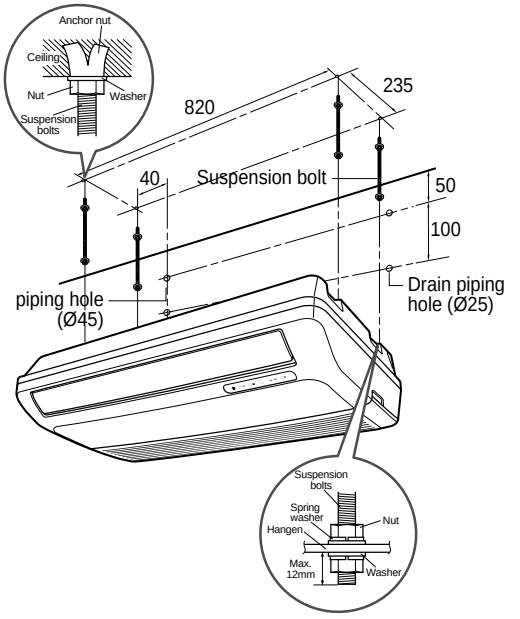
Model	Liquid	Gas
12k	Ø 6.35	Ø 9.52

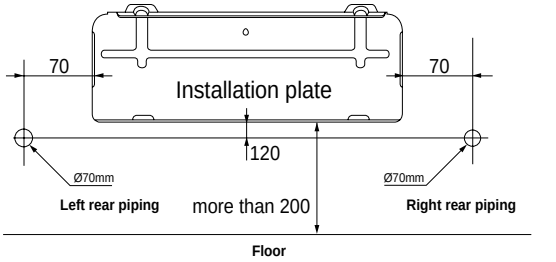
<Ceiling Installation>



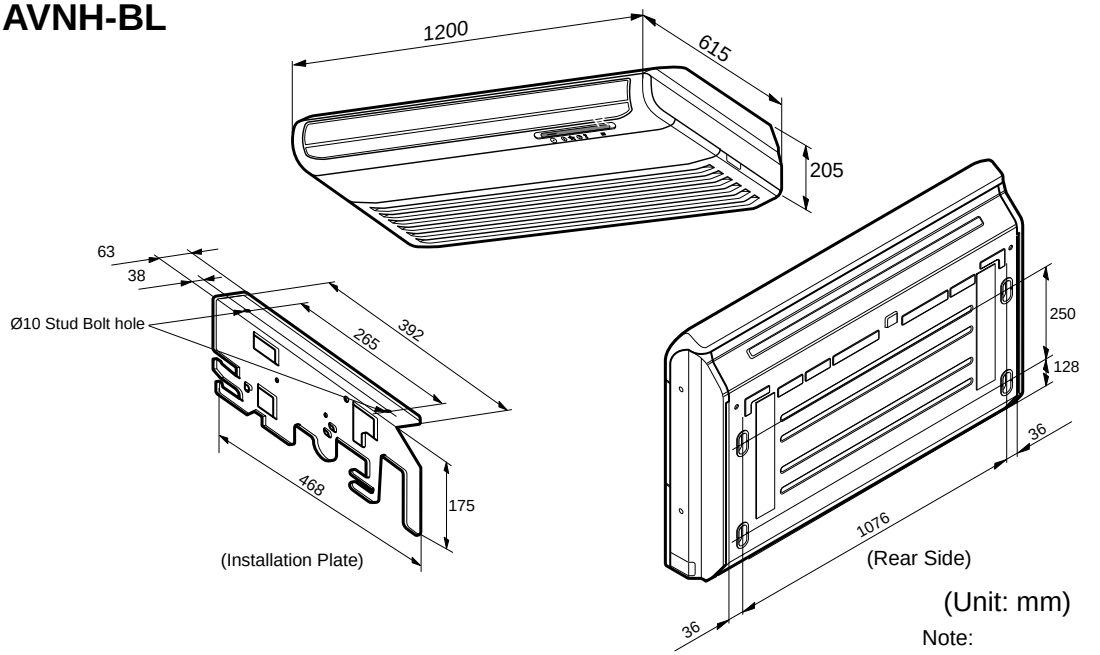
<Floor Installation>







AVNH-BL

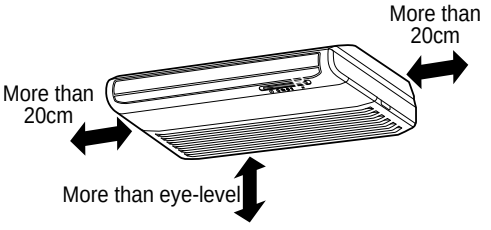


(Unit: mm)

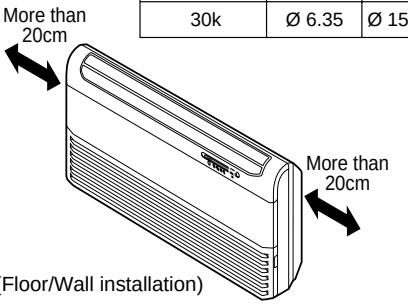
Note:

1. Pipe Specification(mm)

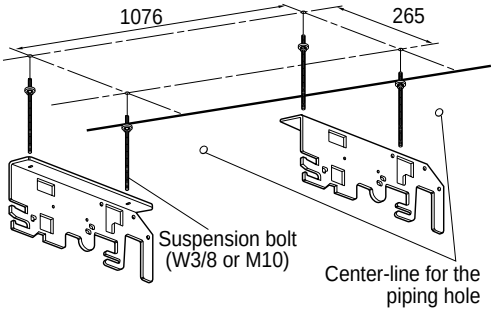
Model	Liquid	Gas
18k, 24k	Ø 6.35	Ø 12.7
30k	Ø 6.35	Ø 15.88

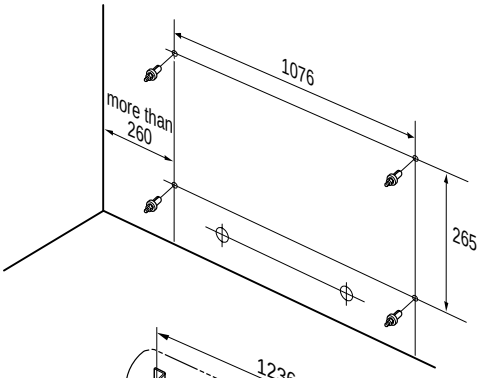


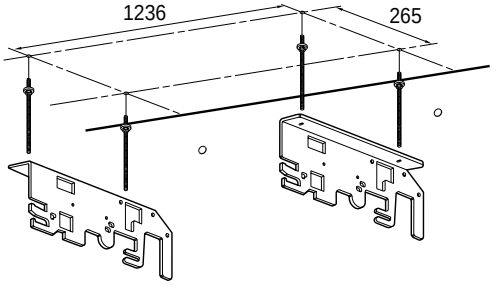
(Ceiling installation)

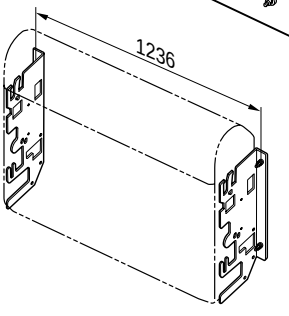


(Floor/Wall installation)

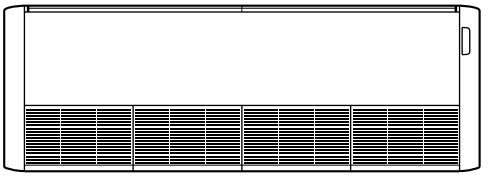


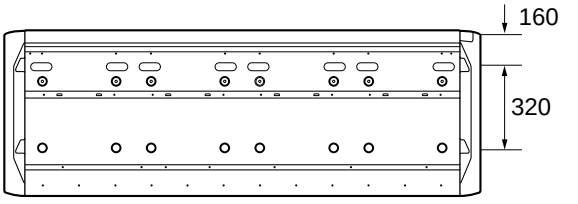


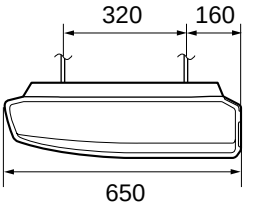


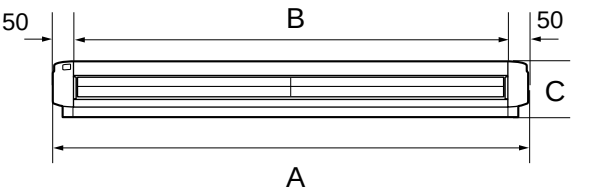


AVNH-KL/LL



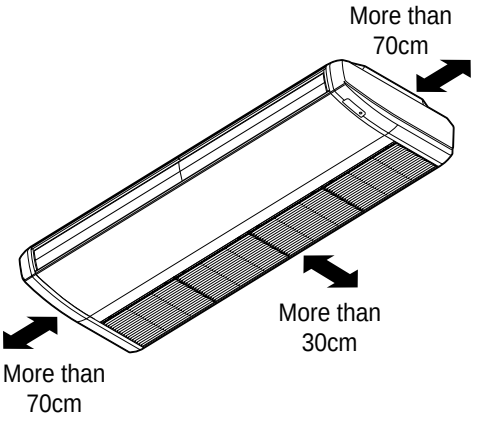


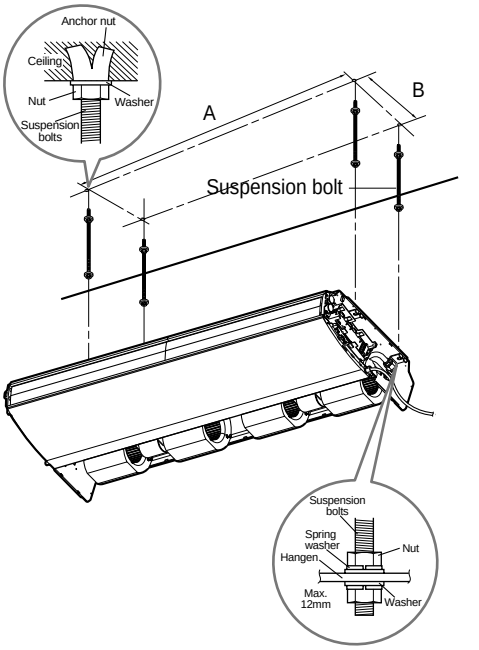




(unit: mm)

Dimension / Chassis	A	B	C
VL Chassis	1750	1655	220
VK Chassis	1350	1255	220





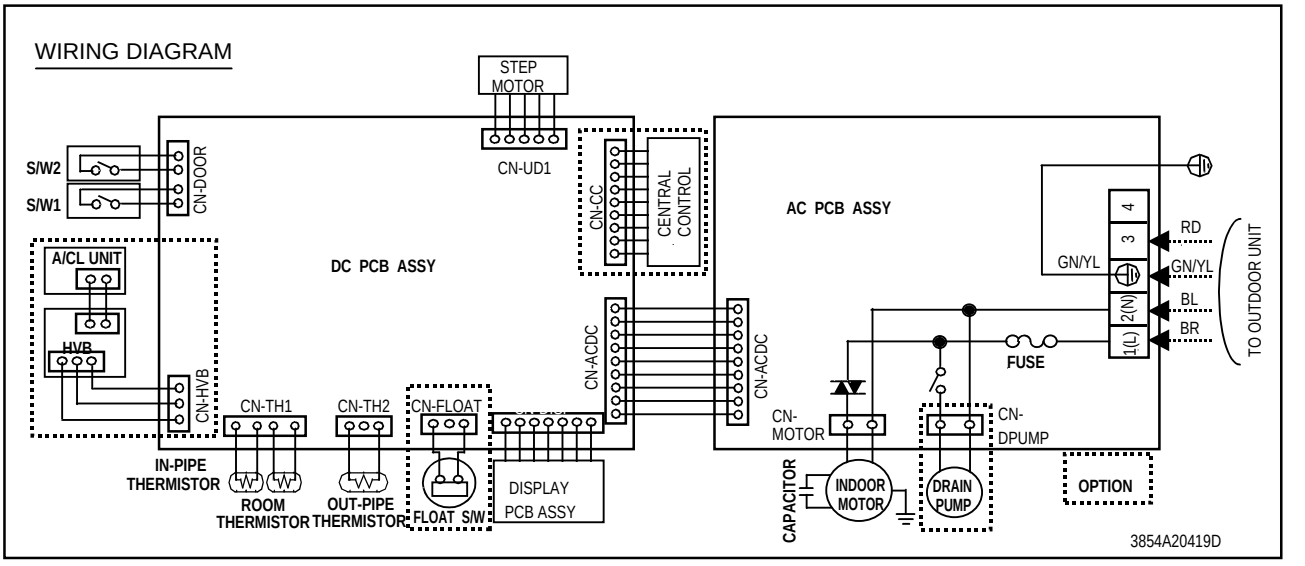
Note

1. Pipe Specification(mm)

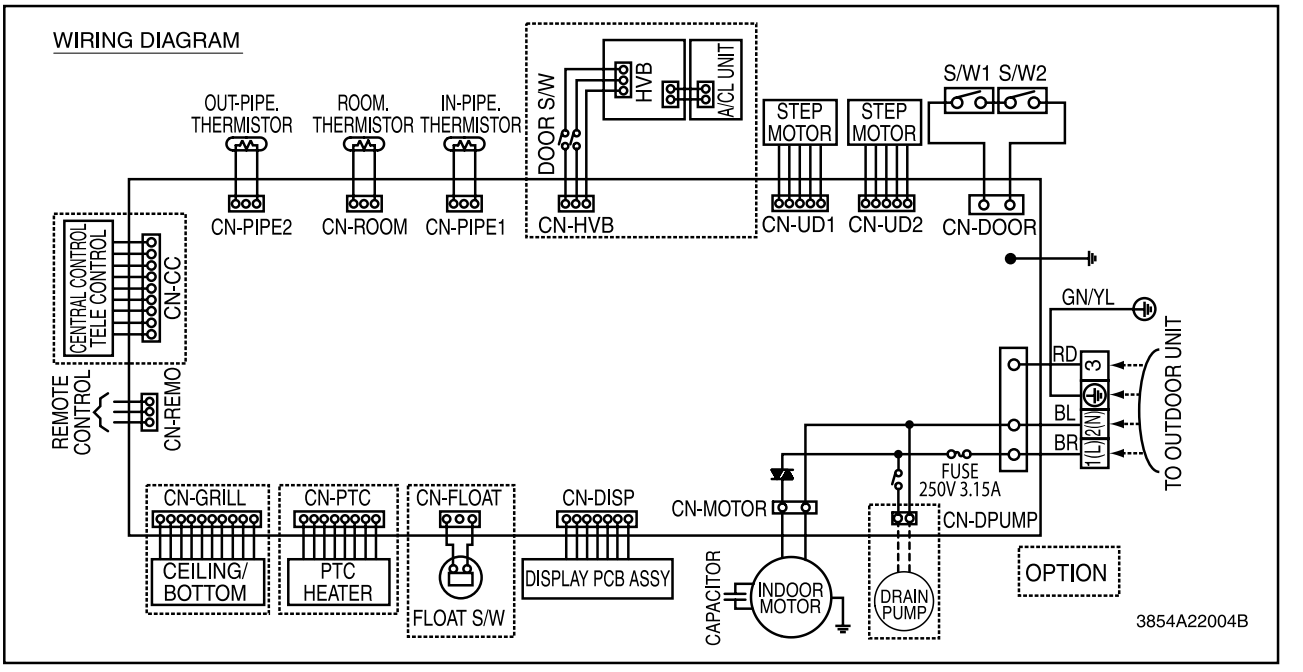
Model	Liquid	Gas
36k	Ø6.35	Ø15.88
48k, 60k	Ø9.52	Ø19.05

5. Wiring Diagrams

AVNH-EL

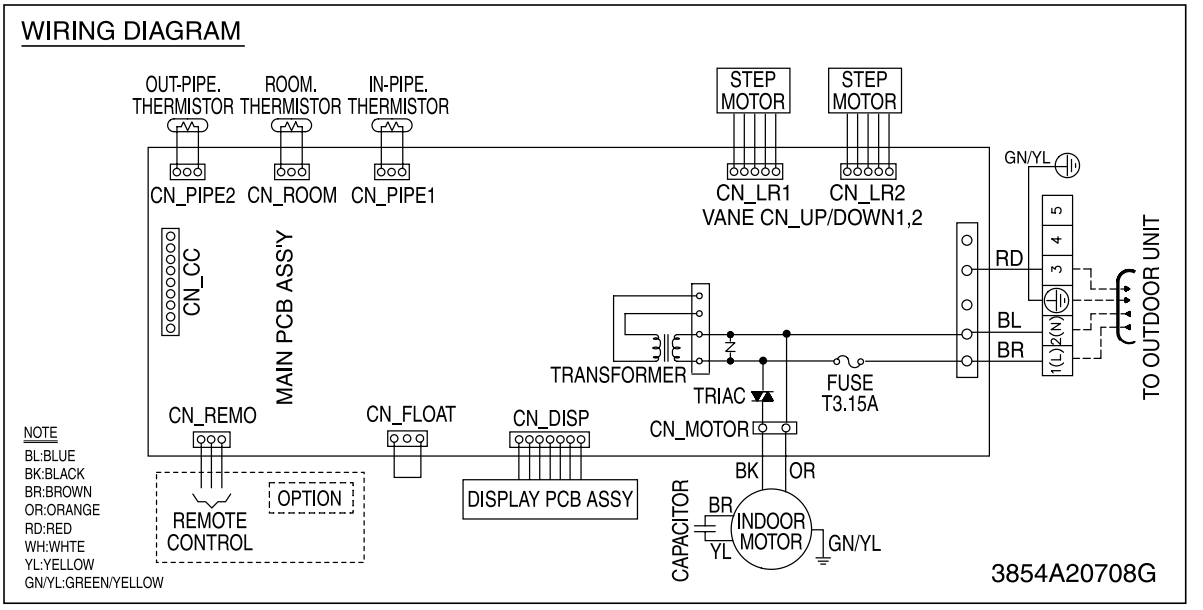


AVNH-BL

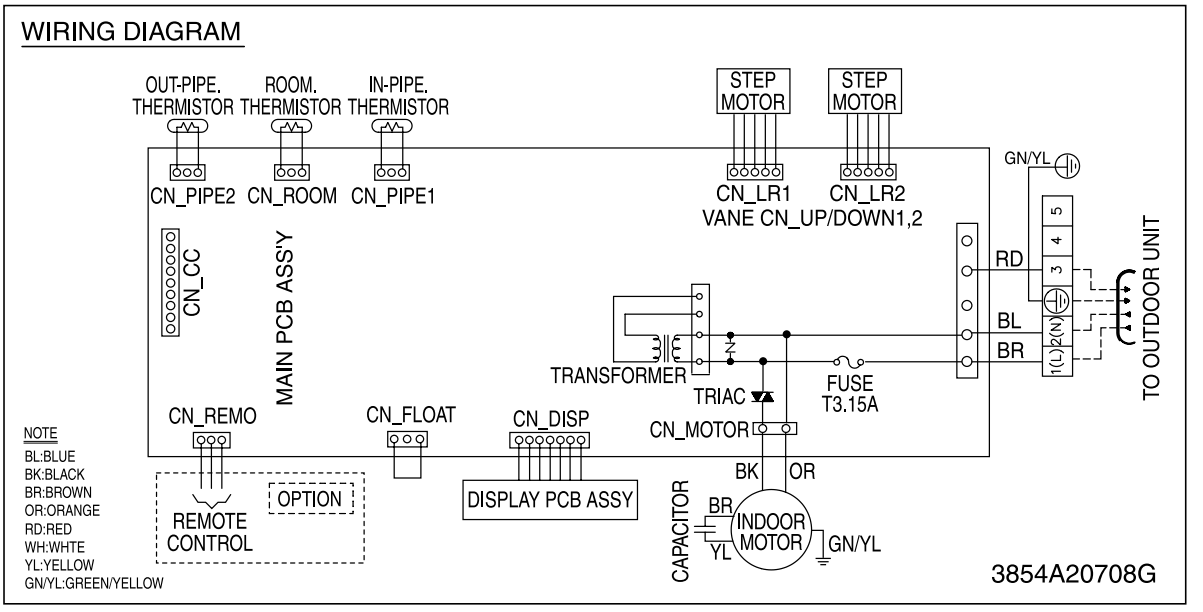


CONNECTOR NUMBER	LOCATION	CONNECTOR NUMBER	LOCATION
CN-POWER	AC POWER SUPPLY	CN-TH2	DISCHARGE PIPE SENSOR
CN-MOTOR	BLDC FAN MOTOR OUTPUT	CN-TH1	PIPE AND ROOM SENSOR
CN-D/PUMP	DRAIN PUMP OUTPUT	CN-HVB	AIR CLEANER
CN-AC/DC	AC/DC CONNECTION	CN-DOOR	STEP MOTOR
CN-DISPLAY	DISPLAY	CN-U/D1	STEP MOTOR
CN-FLOAT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

AVNH-KL

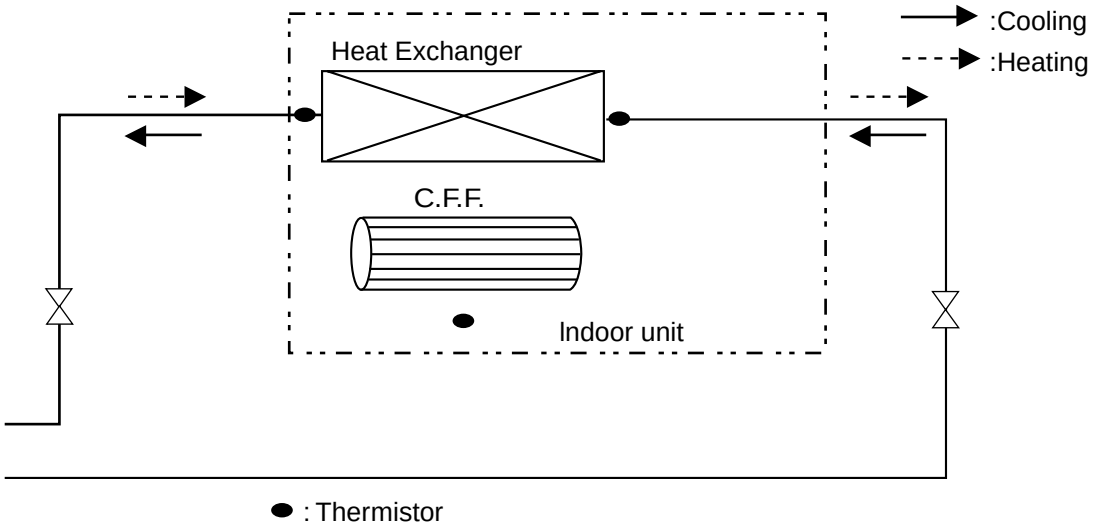


AVNH-LL



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

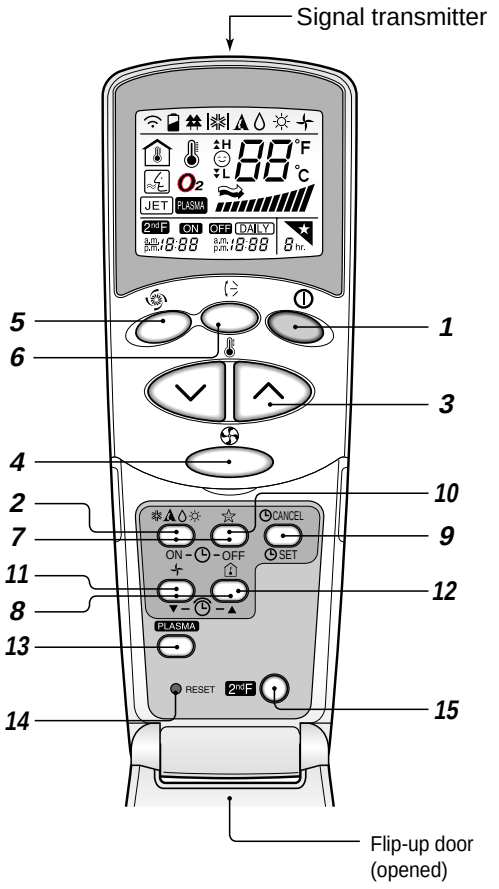
[unit: mm(inch)]

Model	Gas	Liquid
AVNH126ELAC	9.52(3/8)	6.35(1/4)
AVNH186BLAC	12.7(1/2)	
AVNH246BLAC		
AVNH306BLAC	15.88(5/8)	
AVNH366KLAC		
AVNH486LLAC	19.05(3/4)	9.52(3/8)
AVNH606LLAC		

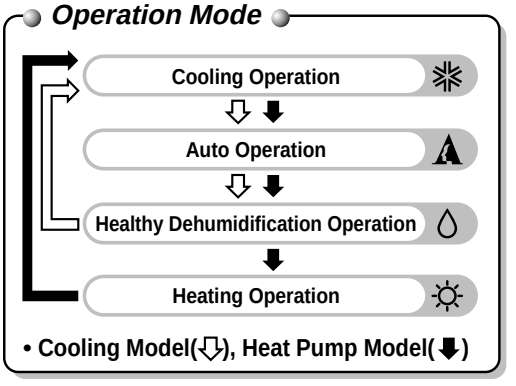
7. Operating Instructions

■ Remote Control Operation

The Remote Controller transmits the signals to the system.



Operation Mode



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.

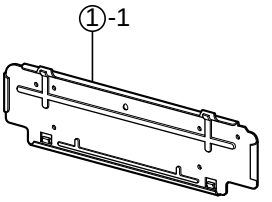
❋ For the convertible type of air conditional, jet cool mode does not operate.

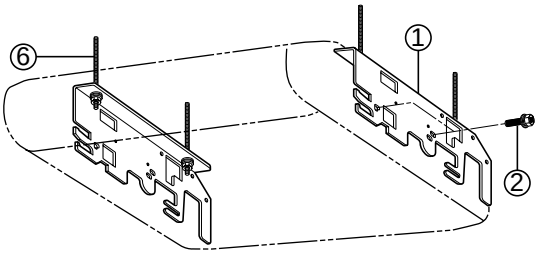
8. Installation

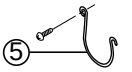
- Please read this instruction sheet completely before installing the product.
- When the power cord is damaged, replacement work shall be performed by authorized personnel only.
- Installation work must be performed in accordance with the national wiring standards by authorized personnel only.

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





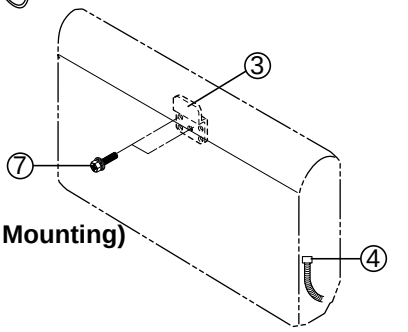


(Ceiling/Wall Mounting)

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



(Floor Mounting)

Required Parts

- Installation Plate
- Four Type “A” screws
- Connecting cable

- Pipes: Gas side Ø9.52, 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·m .....Gas side piping
  Spanner .....Half union

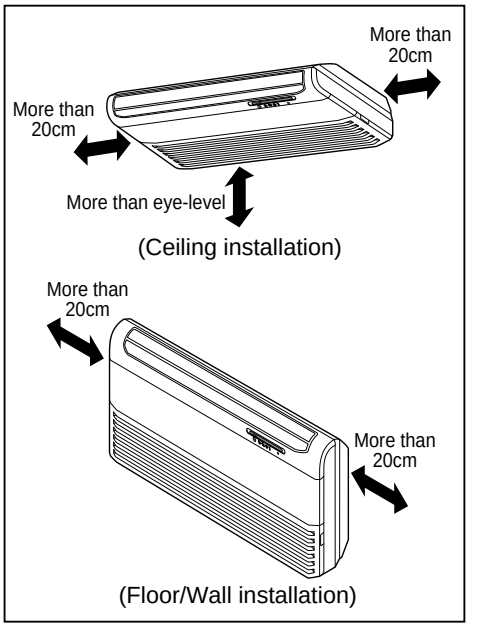
- Specified Torque Wrenches
  1.8kg·m.....Liquid side piping
  5.5kg·m.....Gas side piping

- Hexagonal Wrench (4mm)
- Gas-leak Detector

- Owner’s Manual
- Thermometer

8.1 Selection of the best location

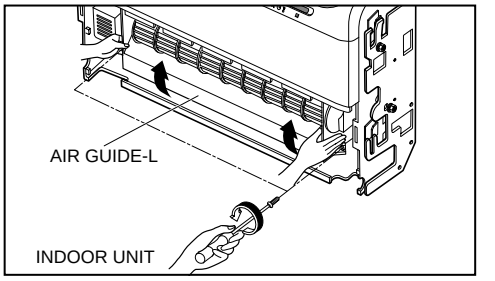
- There should not be any heat source or steam near the unit.
- There should not be any obstacles to the air circulation.
- There should be provision of easy condensate drain.
- Taking into accounting the noise prevention criteria, spot the installation location.
- Do not install the unit near the door 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.

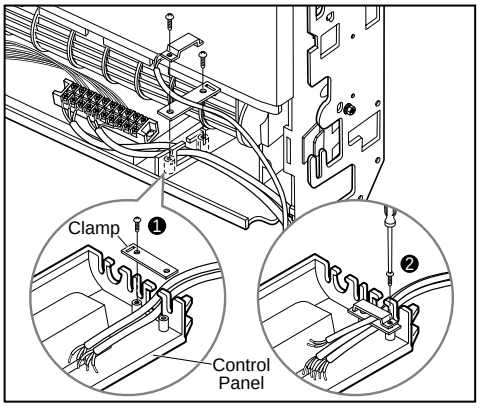


8.2 Wiring connection

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





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

Connected to outdoor unit

2) Clamping of cables

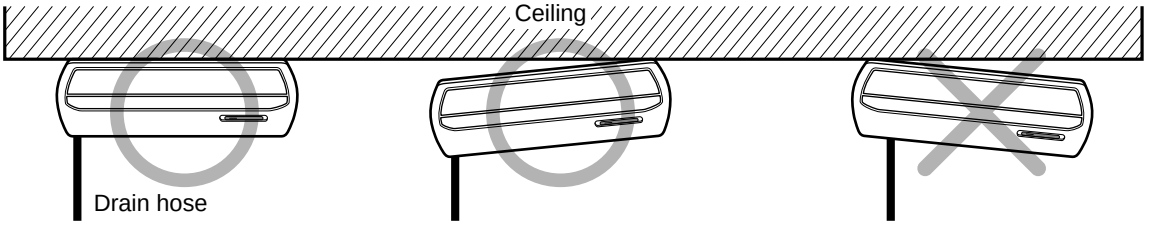
1) Arrange 2 power cables on the control panel.
2) First, fasten the steel clamp with a screw to the inner boss of control panel.
3) For the cooling model, fix the other side of the clamp with a screw strongly.
   For the heat pump model, put the 0.75mm^2 cable(thinner cable) on the clamp and tighten 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.

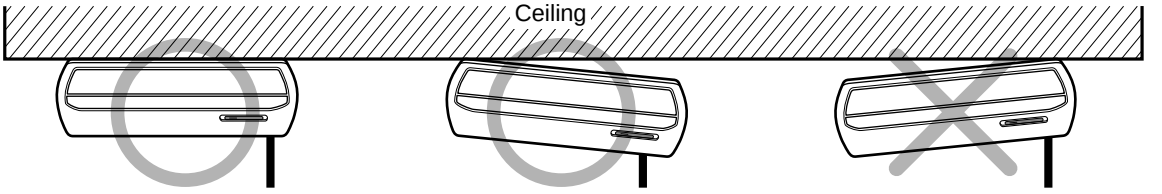
CAUTION

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

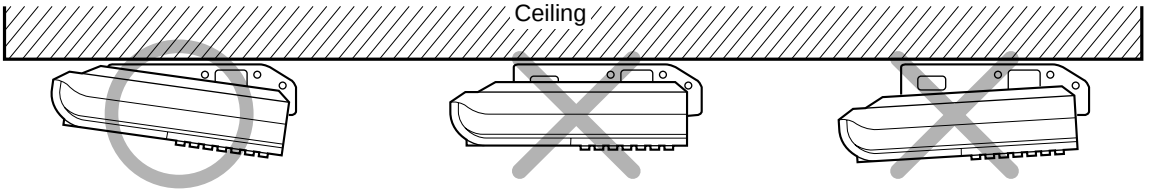
• The unit must be horizontal or declined to the drain hose connected when finished installation.





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.

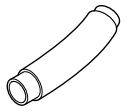
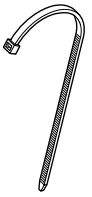
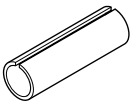
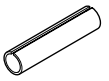
9) The following troubles would be caused by voltage drop-down.

- 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 backet	Clamp	Insulation for fitting	(Other)
Quantity	1 EA	1 EA	8 EA	6 EA	1 set	
Shape					 for gas pipe  for liquid pipe	• Owner's manual • Installation manual

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

Contents

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6. Piping Diagrams.....62
7. E.S.P. Setting for EZTuning 63
8. Operating Instructions 67
9. Installation.....69
10. Accessories 74

1. Features & Benefits

■ Easy Installation
• Compact & light design
• EZtuning (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

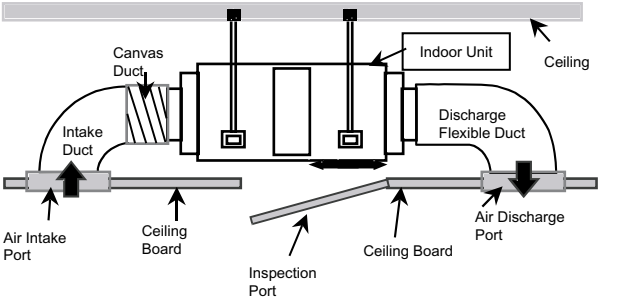
■ Convenience
• Tele control(Accessory)
• LCD wired remote control
• Group control
• Zone control(Accessory)
• Central control(Accessory)
• Weekly progam

■ 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

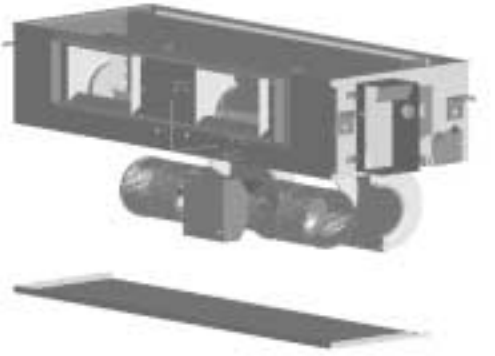


Innovative Design of Fan and Housing System

Low Noise ! Easy Serviceability!

Plastic Fan and Housing Assembly

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

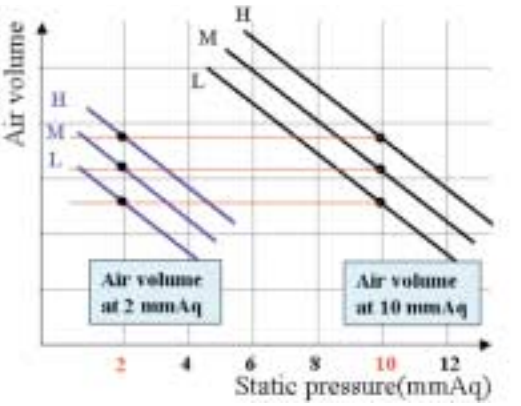


This product guarantees lower sound level and gives lesser service expenses.

EZ Tuning

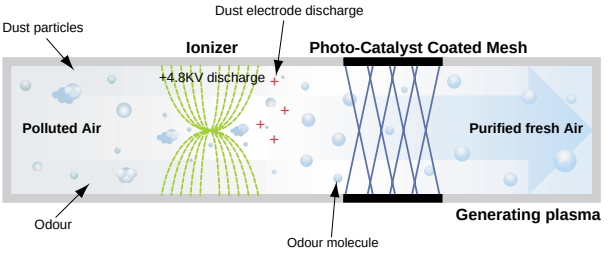
LG's High Technology provide Easy and Low cost Design of Duct work

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.



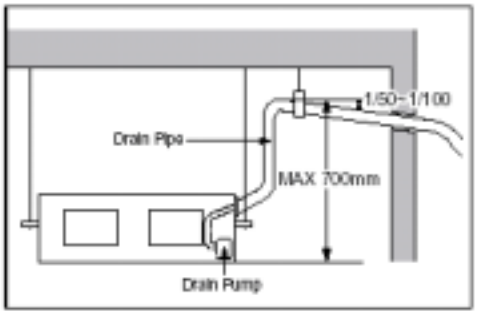
Plasma Air Purifying Kit (Accessory)

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.



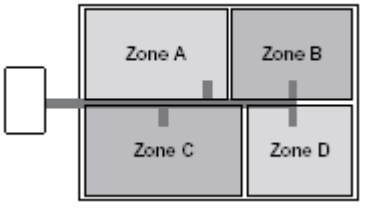
High Head Drain Pump(Accessory:700mm)

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

Function	Ceiling Concealed Duct		
	ABNH-HL	ABNH-GL	ABNH-RL
Air Discharge Outlet	-	-	-
Airflow Direction control (left & right)	-	-	-
Airflow Direction control (up & down)	-	-	-
Airflow Steps(Fan / Cool /Heat)	3/3/3	3/3/3	3/3/3
Auto Changeover	O	O	O
Auto Operation	O	O	O
Auto Restart Operation	O	O	O
Auto Swing	-	-	-
Central Control	Accessory	Accessory	Accessory
CHAOS Wind (Auto wind)	-	-	-
Child Lock Function	O	O	O
Cooling & Fan Operation(Cooling Only)	-	-	-
Cooling, heating & Fan Operation(Heat Pump)	O	O	O
Defrost / Deicing	O	O	O
Deodorizing Filter	-	-	-
Drain Pump	Accessory	Accessory	Accessory
E.S.P. Control	O	O	O
Electric Heater	Accessory	Accessory	Accessory
Environment Friendly Refrigerant	O	O	O
Fire Alarm Function	-	-	-
Forced Operation	O	O	O
Group Control	O	O	O
High Ceiling Operation	-	-	-
Hot Start	O	O	O
Jet Cool	-	-	-
Plasma Air Purifier	Accessory	Accessory	Accessory
Prefilter(Washable / Anti-fungus)	O	O	O
Self Diagnosis	O	O	O
Sleep Mode	O	O	O
Soft Dry Operation	O	O	O
Swirl Swing	-	-	-
Space Control	-	-	-
Tele Control	Accessory	Accessory	Accessory
Temperature Control	O	O	O
Test Function	O	O	O
Time Delay Safety function	O	O	O
Timer (weekly)	O	O	O
Two Thermistor Control	O	O	O
Wired LCD Remote Control	O	O	O
Wireless Remote Control	Accessory	Accessory	Accessory
Zero Standby Power	O	O	O
Zone Control	Accessory	Accessory	Accessory

Notes :
O : Basic
Optional : Factory-Installed
Accessory : Field-Installed
- : Not available on this system

3. Specifications

Indoor Unit Type			Ceiling Concealed Duct		
Model			ABNH186HLAC	ABNH246HLAC	ABNH306GLAC
Nominal Cooling Capacity		kcal/h(W)	4536(5276)	6048(7034)	8064(9379)
		Btu/h	18000	24000	32000
Nominal Heating Capacity		kcal/h(W)	4990(5803)	6653(7738)	8870(10317)
		Btu/h	19800	26400	35200
Air Circulation	H/M/L	CMM(CFM)	16.5/14.5/13(583/512/459)	18/16.5/14(636/583/494)	26.5/23/20(936/812/706)
External Static Pressure		mmAq	8	8	10
Setting temperature range(cool/heat)		°C	18~30 / 16~30	18~30 / 16~30	18~30 / 16~30
Fan motor	Output	W	118	118	211
	Model		IC-13450LG13C	IC-13450LG13C	IC-13450LG13J
	No. of Poles		4	4	4
	Input	W	180	180	300
	Running Current	A	0.92	0.92	1.34
	Capacitor	µF/Vac	6/370	6/370	6/370
Fan	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan
	No. Used / Diameter	EA/inch(mm)	1/6.97(177)	1/6.97(177)	1/6.97(177)
Noise Level (Sound Press,1.5m)	H/M/L	dB(A)	36/34/32	38/36/34	40/38/35
Temperature controller			Thermistor	Thermistor	Thermistor
Coil	Tube Size (OD)	inch(mm)	0.275(7)	0.275(7)	0.275(7)
	Fins per inch		21	21	21
	No. of Rows & Column		3R10C	3R10C	3R,12C
Dehumidification Rate		l/h	2.0	2.5	3.3
Dimensions (W*H*D)		inch(mm)	34.6*10.2*17.7(880*260*450)	34.6*10.2*17.7 (880*260*450)	46.5*11.7*17.7(1180*298*450)
Net Weight		kg(lbs)	35(77.2)	35(77.2)	38(84)
Piping Connection	Liquid	inch(mm)	1/4 (6.35)	1/4 (6.35)	1/4 (6.35)
	Gas	inch(mm)	1/2 (12.7)	1/2 (12.7)	5/8 (15.88)
	Drain hose (OD Ø)	inch(mm)	25.4	25.4	25.4
Packing Dimension (W*H*D)		inch(mm)	44.7*13.4*22.0(1135*340*565)	44.7*13.4*22.0 (1135*340*565)	56.5*14.8*22.9(1,435*375*582)
Stuffing Quantity	Without S/Parts	20/40ft	120/252	120/252	95/191

For outdoor units	Single Split	See chapter MPS Variable SINGLE-A(AUUH-C)
	Application Split(Simultaneous operation)	See chapter MPS Variable SINGLE-A(AUUH-C)

Notes:

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
   - Interconnecting Piping Length 7.5m
   - Level Difference of Zero.
   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
   - Interconnecting Piping Length 7.5 m
   - Level Difference of Zero.
2. Capacities are Net Capacities.
3. Due to our policy of innovation some specifications may be changed without notification.

Indoor Unit Type			Ceiling Concealed Duct		
Model			ABNH366GLAC	ABNH486RLAC	ABNH606RLAC
Nominal Cooling Capacity		kcal/h(W)	9072(10552)	12096(14069)	14112(16414)
		Btu/h	36000	48000	56000
Nominal Heating Capacity		kcal/h(W)	9979(11607)	13306(15476)	15523(18055)
		Btu/h	39600	52800	61600
Air Circulation	H/M/L	CMM(CFM)	32/29/26(1130/1024/918)	40/35/30(1413/1236/1059)	50/45/40(1766/1413/1236)
External Static Pressure		mmAq	10	15	15
Setting temperature range(cool/heat)		°C	18~30 / 16~30	18~30/16~30	18~30/16~30
Fan motor	Output	W	272	431	431
	Model		IC-13450LG13A	Y002276-1	Y002276-1
	No. of Poles		4	4	4
	Input	W	323	818	818
	Running Current	A	1.42	3.65	3.65
	Capacitor	µF/Vac	6/370	15/450	15/450
Fan	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan
	No. Used / Diameter	EA/inch(mm)	1/6.97(177)	2/9.1(230)	2/9.1(230)
Noise Level (Sound Press,1.5m)	H/M/L	dB(A)	42/39/36	44/42/40	46/44/42
Temperature controller			Thermistor	Thermistor	Thermistor
Coil	Tube Size (OD)	inch(mm)	0.275(7)	0.375(9.52)	0.375(9.52)
	Fins per inch		21	19	19
	No. of Rows & Column		3R,10C	3R13C	4R13C
Dehumidification Rate		l/h	4.0	6	6.5
Dimensions (W*H*D)		inch(mm)	46.5*11.7*17.7(1180*298*450)	48.4*15.0*23.2(1230*380*590)	48.4*15.0*23.2(1230*380*590)
Net Weight		kg(lbs)	38(84)	60(132)	60(132)
Piping Connection	Liquid	inch(mm)	1/4 (6.35)	3/8(9.52)	3/8(9.52)
	Gas	inch(mm)	5/8 (15.88)	3/4(19.05)	3/4(19.05)
	Drain hose (OD Ø)	inch(mm)	25.4	25.4	25.4
Packing Dimension (W*H*D)		inch(mm)	56.5*14.8*22.9(1,435*375*582)	56.9*17.9*27.6(1445*455*700)	56.9*17.9*27.6(1445*455*700)
Stuffing Quantity	Without S/Parts	20/40ft	95/191	57/120	57/120

For outdoor units	Single Split	See chapter MPS Variable SINGLE-A(AUUH-C)
	Application Split(Simultaneous operation)	See chapter MPS Variable SINGLE-A(AUUH-C)

Notes:

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
   - Interconnecting Piping Length 7.5m
   - Level Difference of Zero.
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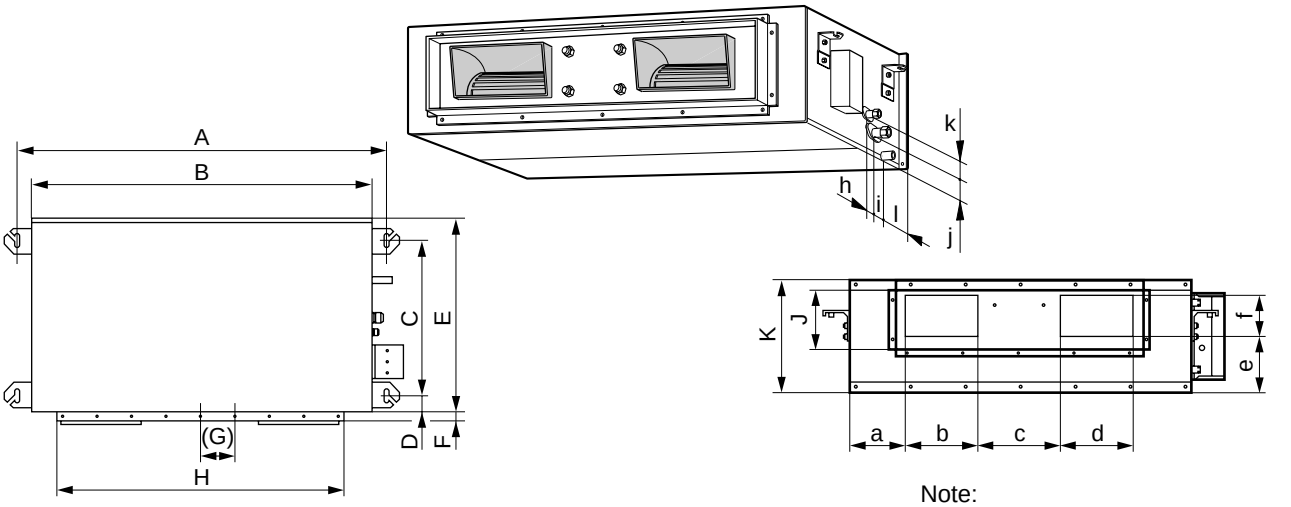
   - Outdoor Temperature 7°C(44.6°F) DB / 6°C(42.8°F) WB
   - Interconnecting Piping Length 7.5 m
   - Level Difference of Zero.
2. Capacities are Net Capacities.
3. Due to our policy of innovation some specifications may be changed without notification.

4. Dimensional Drawings

ABNH-HL, GL, RL



Note:

1. Pipe Specification(mm)

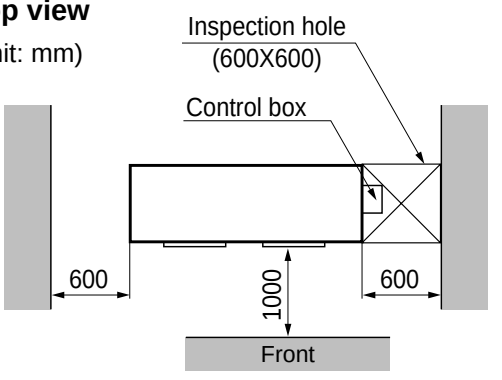
Model	Liquid	Gas
18, 24k	Ø 6.35	Ø 12.7
30, 36k		Ø 15.88
48, 60k	Ø 9.52	Ø 19.05

(Unit: mm)

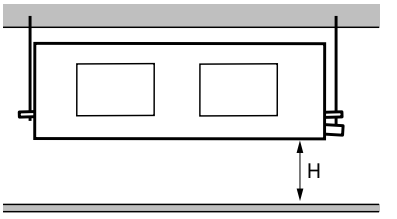
Capacity	A	B	C	D	E	F	(G)	H	J	K	a	b	c	d	e	f	h	i	j	k	l
ABNH186HLAC ABNH246HLAC	932	882	355	45.5	450	30	87	750	163	260	61.5	243	212.3	243	110	130	52	66	81	30	158.5
ABNH306GLAC ABNH366GLAC	1232	1182	355	45.5	450	30	87	830	186	298	229.5	243	232	243	116	160	53	59	81	19	158.5
ABNH486RLAC ABNH606RLAC	1282	1230	477	56	590	30	120	1006	294	380	215	279	241	279	185	168	51	98	83	17	172

Top view

(unit: mm)



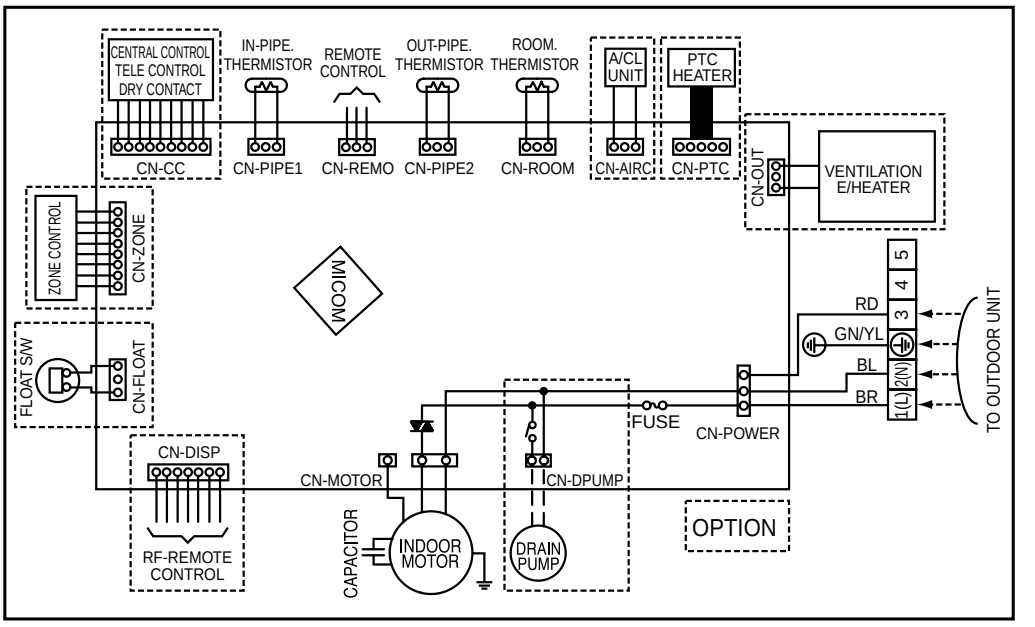
Front view



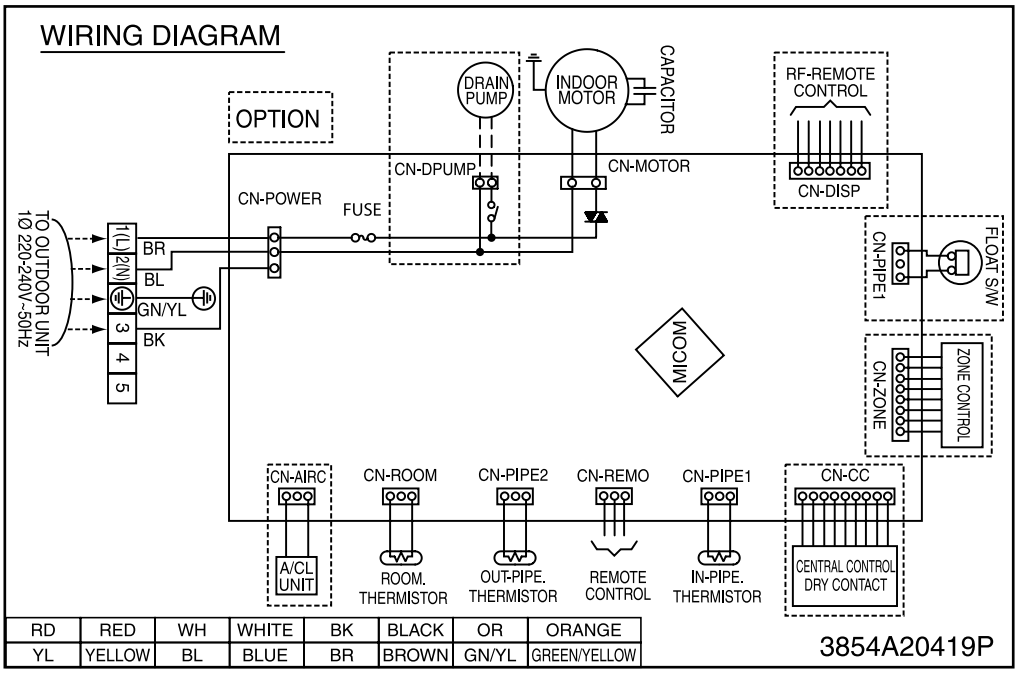
※Suitable dimension "H" is necessary to get a slope to drain as figure.

5. Wiring Diagrams

ABNH-HL, ABNH-GL

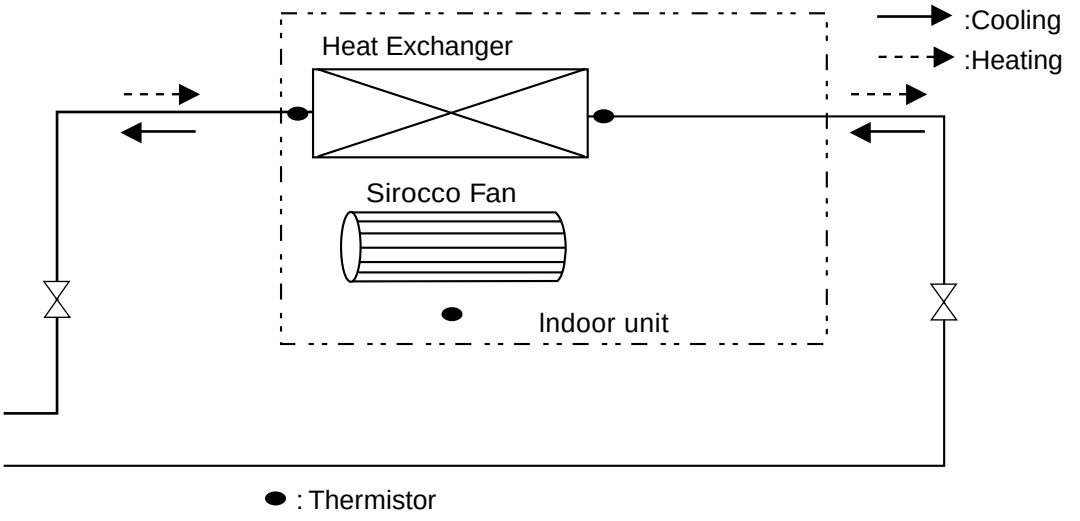


ABNH-RL



CONNECTOR NUMBER	LOCATION	CONNECTOR NUMBER	LOCATION
CN-POWER	AC POWER SUPPLY	CN-PIPE1	PIPE SENSOR
CN-MOTOR	BLDC FAN MOTOR OUTPUT	CN-PIPE2	DISCHAGE 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
ABNH186HLAC	12.7 (1/2)	6.35 (1/4)
ABNH246HLAC		
ABNH306GLAC	15.88(5/8)	
ABNH366GLAC		
ABNH486RLAC	19.05(3/4)	9.52(3/8)
ABNH606RLAC		

7. E.S.P. Setting for EZ Tuning

EZ Tuning (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**

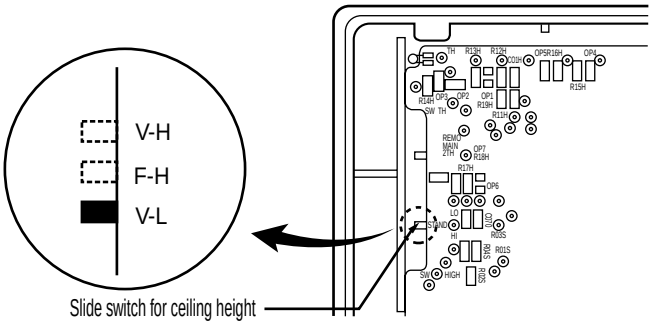
1. Position V-H, F-H:
   • This position sets the maximum E.S.P as a default set.
2. Position V-L:
   • This position sets the minimum E.S.P as a default set.

■ **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.



(4) Close the rear cover and check if it works normally.

⚠ CAUTION

- Select the position after checking duct work and E.S.P of the unit.
- Maunfactured in the position F-H.

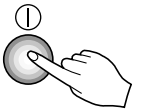
How to Set E.S.P?

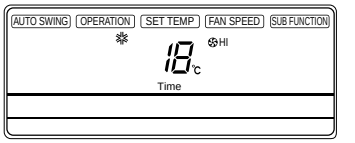
Procedure of RPM change:

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

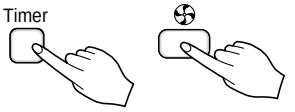
• To protect the unit, compressor is designed to be off during E.S.P. setting.

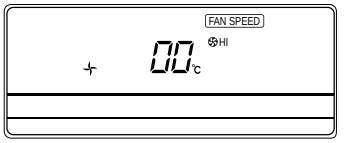
1 Push the "On/Off" button.
The unit will start.



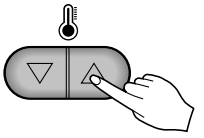


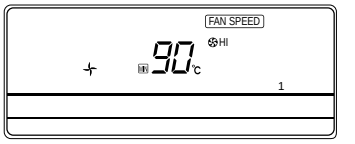
2 Push the "Timer" and "Wind" button simultaneously for more then 3 seconds.





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.)

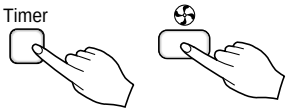




Note: The range of selection is from 1~254. Since, the display is two Digit only.
If the range selection is above 100 then the third digit will appear in the screen as shown.

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.



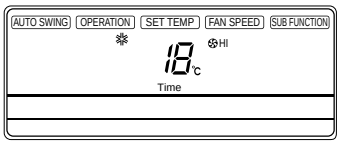


Table 7-1

Static Pressure(mmAq)			0	2	4	6	8	10	12	14	15
Model Name	Step	CMM(CFM)	Setting Value								
ABNH186HLAC	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				
ABNH246HLAC	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				
ABNH306GLAC	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			
ABNH366GLAC	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			
ABNH486RLAC	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
ABNH606RLAC	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)								
ABNH186HLAC	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)				
ABNH246HLAC	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)				
ABNH306GLAC	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)			
ABNH366GLAC	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)			
ABNH486RLAC	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)
ABNH606RLAC	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)

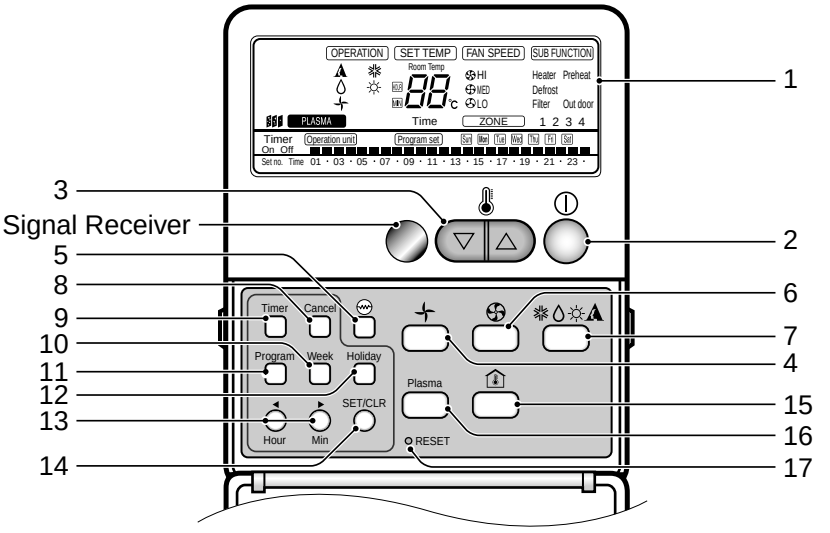
Notes:

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.

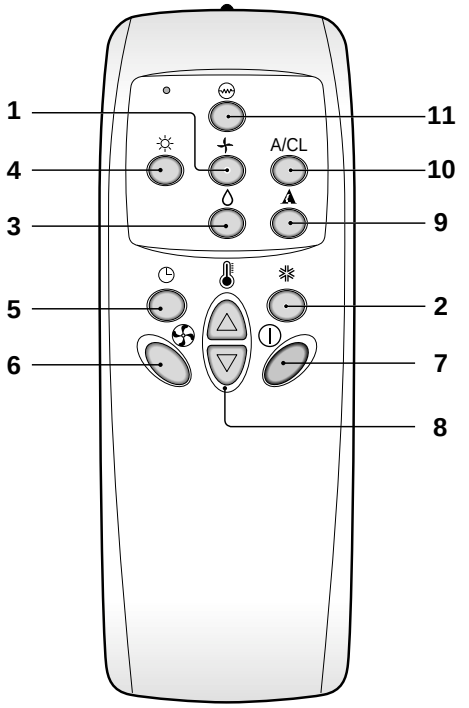
■ Optional Function

• 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.

Signal transmitter

Transmits the signals to the signal receptor.



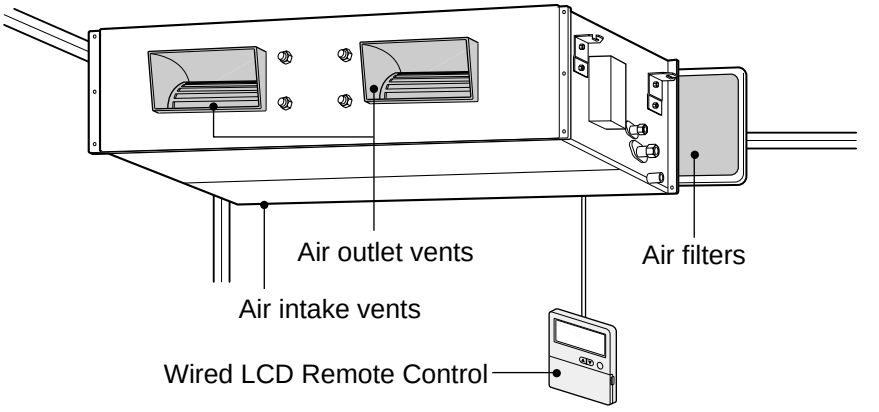
1. **FAN Operation Button**
   Used to circulate room air without cooling or heating.
2. **Cooling Operation Button**
3. **Soft Dry Operation Button**
   Used to dehumidify without overcooling.
4. **Heating Operation Button**
   (Heat pump model only)
5. **Timer Set Button**
   Used to set the timer 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 Dia .....25.4mm)

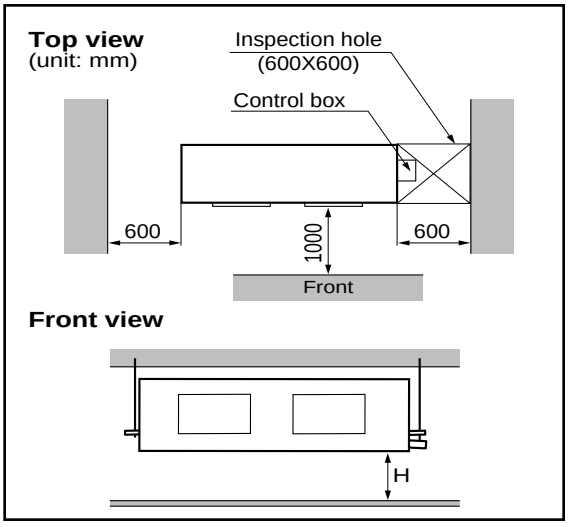
Required Tools

- Level
- Screw driver
- Electric drill
- Hole core drill (ø70mm)
- Flaring Tools set
- Torque Wrenches
- Hexagonal Wrench (4mm, 5mm)
- Gas-leak detector
- Owner's Manual
- Thermometer

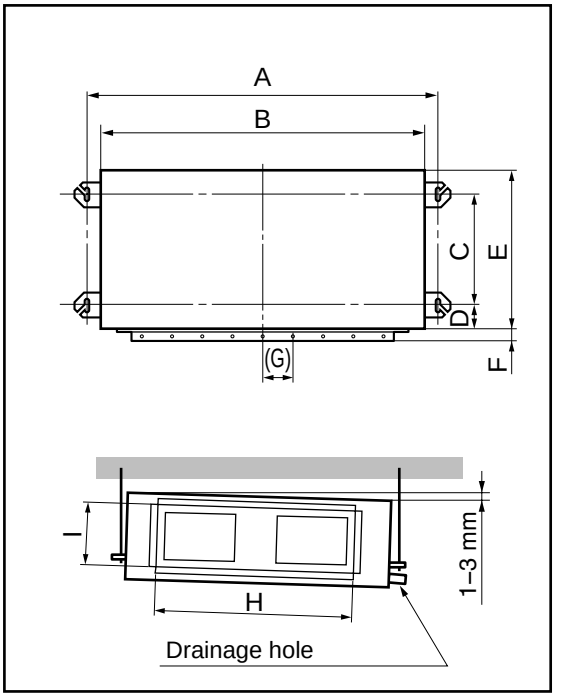
9.1 Selection of the best location

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**

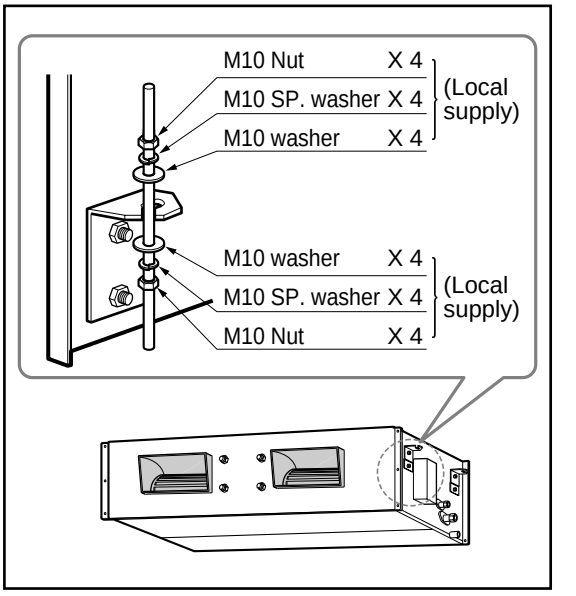
Install the unit above the ceiling correctly.

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 toDimensinal 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:

• Throughly 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.

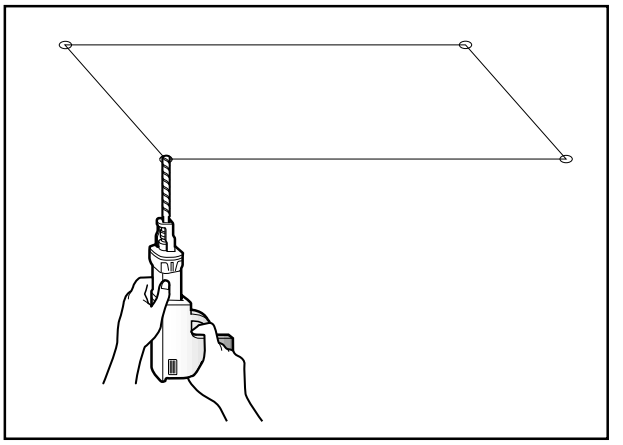
2. Avoid installing air conditioner in such circumstances where cutting oil mist or iron powder is in suspension in factories, etc.

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.

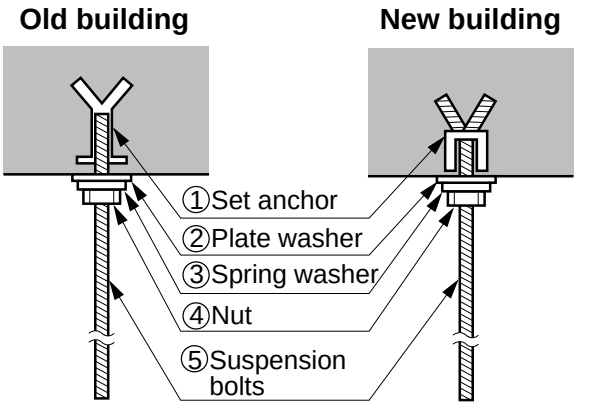
• Select and mark the position for fixing bolts.
• Drill the hole for set anchor on the face of ceiling.



⚠ CAUTION

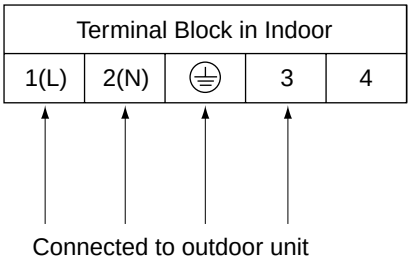
Tighten the nut and bolt to prevent unit falling.

• 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



⚠ WARNING

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

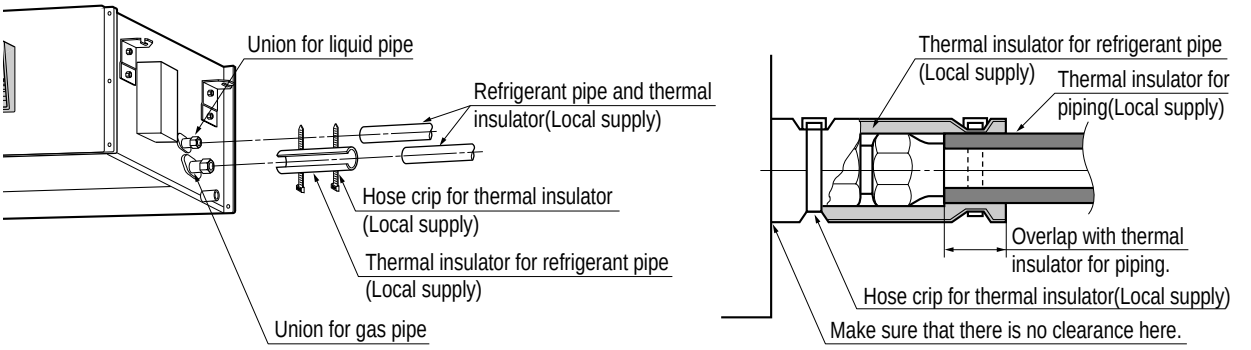
Clamping of cables

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 0.75mm^2 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

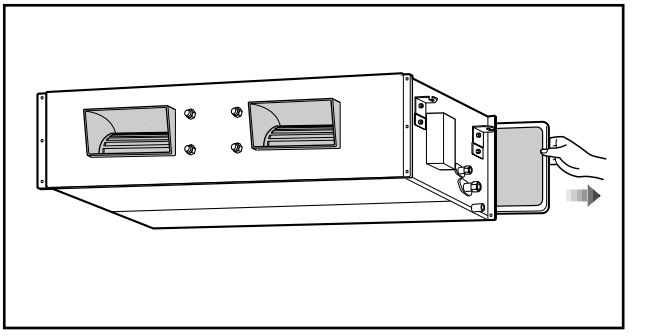
THERMAL INSULATION All thermal insulation must comply with local requirement.

INDOOR UNIT



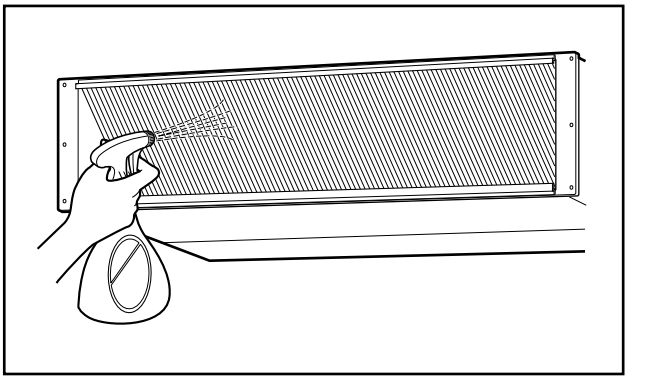
9.5 Checking the Drainage

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.

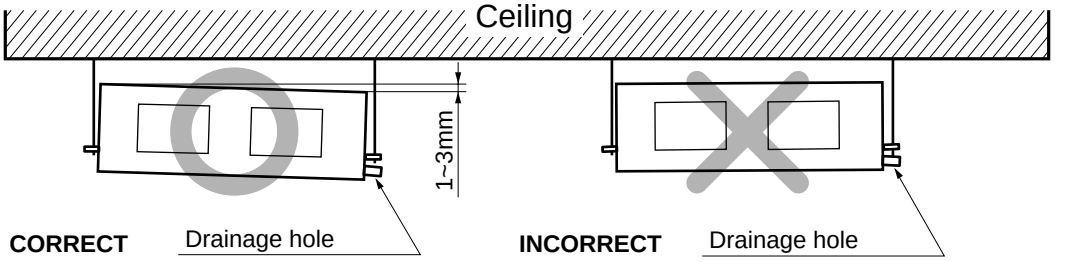


CAUTION

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

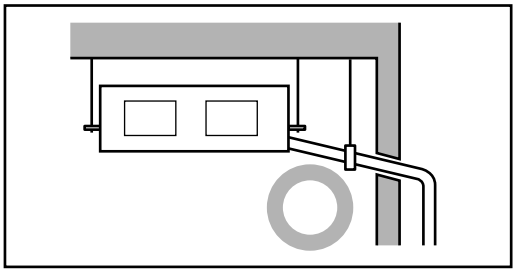
• The unit must be or declined to wards drain hose while installation.



CAUTION FOR GRADIENT OF UNIT AND DRAIN PIPING

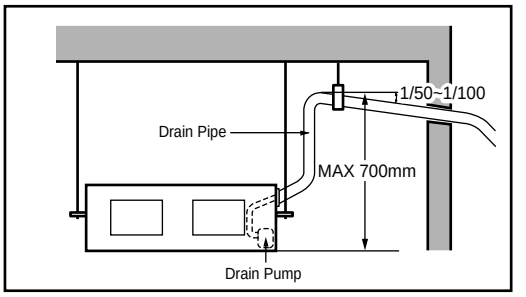
Lay the drain hose with a downware inclination so water will drain out.

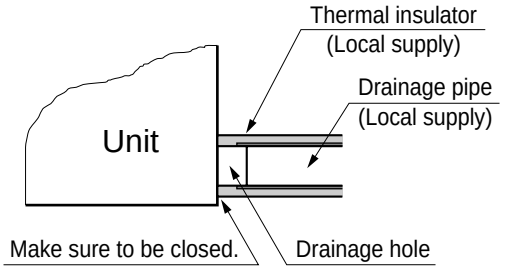
• Alway lay the drain with downward inclination (1/50 to 1/100).
Prevent any upward flow or reverse flow in any part.
• 5mm or thicker formed thermal insulator shall always be provided for the drain pipe.

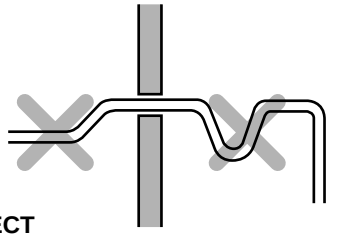


CORRECT

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



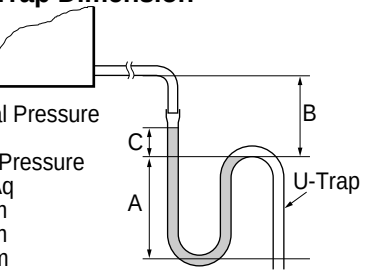




INCORRECT

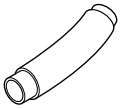
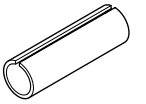
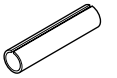
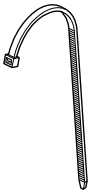
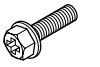
Applied U-Trap Dimension

A ≥ 70mm
B ≥ 2C
C ≥ 2 x SP
SP = External Pressure (mmAq)
Ex) External Pressure = 10mmAq
A ≥ 70mm
B ≥ 40mm
C ≥ 20mm



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 puirifying filter	-	ABPAHH	• Plasm Air Purifier Kit: 1EA • Wired Remote Control: 1EA
3	Zone Control	-	ABZCA	• Factory sypplied-Zone control PCB • Durchased 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

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MPS Variable SINGLE A 78

Introduction

SINGLE A Outdoor Units - R410A (AUUH-C)

• Models List

Series			Model name	Power supply
Single A	Heat Pump	1 Compressor	AUUH126C	1Ø, 220-240V, 50Hz
			AUUH186C	
			AUUH246C	
		MPS Variable	AUUH306C	
			AUUH368C	3Ø, 380-415V, 50Hz
			AUUH488C	
		1 Compressor	AUUH608C	

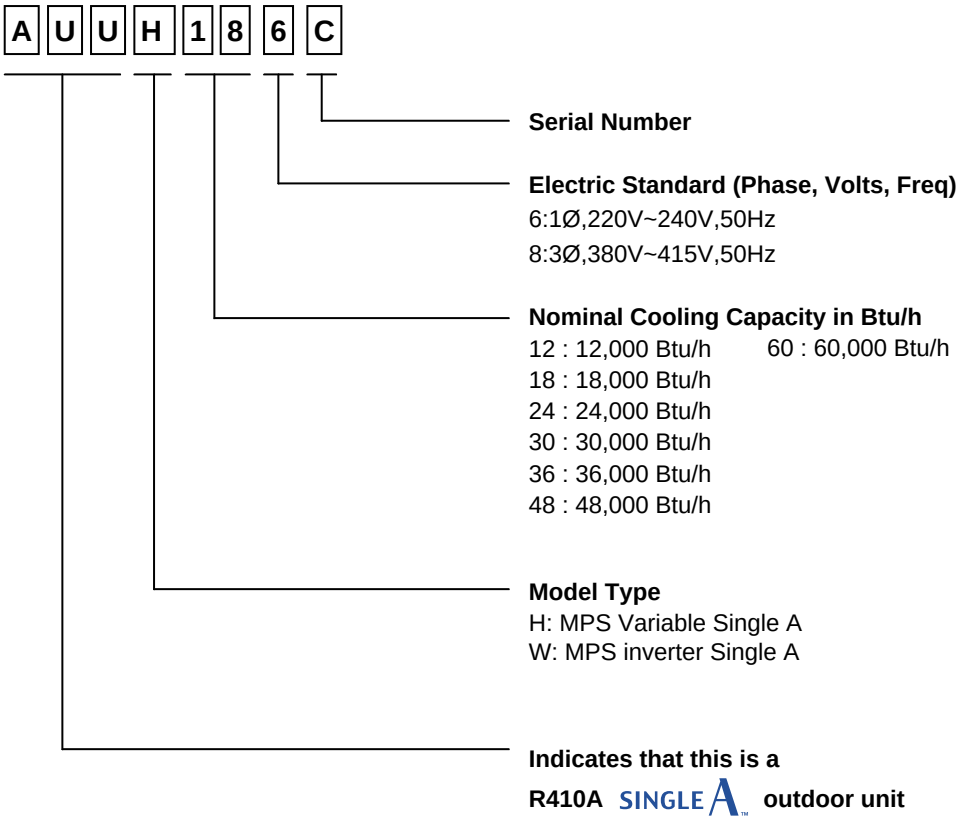
• Indoor Unit Matching

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
AUUH126C	Ceiling Cassette	ATNH126ELFC
	Ceiling & Floor	AVNH126ELAC
AUUH186C	Ceiling Cassette	ATNH186ELFC
	Ceiling & Floor	AVNH186BLAC
	Ceiling Concealed Duct	ABNH186HLAC
AUUH246C	Ceiling Cassette	ATNH246FLFC
	Ceiling & Floor	AVNH246BLAC
	Ceiling Concealed Duct	ABNH246HLAC
AUUH306C	Ceiling Cassette	ATNH306FLFC
	Ceiling & Floor	AVNH306BLAC
	Ceiling Concealed Duct	ABNH306GLAC
AUUH368C	Ceiling Cassette	ATNH366DLFC
	Ceiling & Floor	AVNH366KLAC
	Ceiling Concealed Duct	ABNH366GLAC
AUUH488C	Ceiling Cassette	ATNH486DLFC
	Ceiling & Floor	AVNH486LLAC
	Ceiling Concealed Duct	ABNH486RLAC
AUUH608C	Ceiling Cassette	ATNH606DLFC
	Ceiling & Floor	AVNH606LLAC
	Ceiling Concealed Duct	ABNH606RLAC

• Model Number Nomenclature



MPS Variable SINGLE A

MPS Variable SINGLE A

(R410A·Outdoor Units)

AUUH-C

Contents

1. Features & Benefits 79
2. Specifications.....81
3. Dimensional Drawings 85
4. Wiring Diagrams 89
5. Piping Diagrams.....93
6. Electric Characteristics 96
7. Operation Range.....97
8. Installation.....98

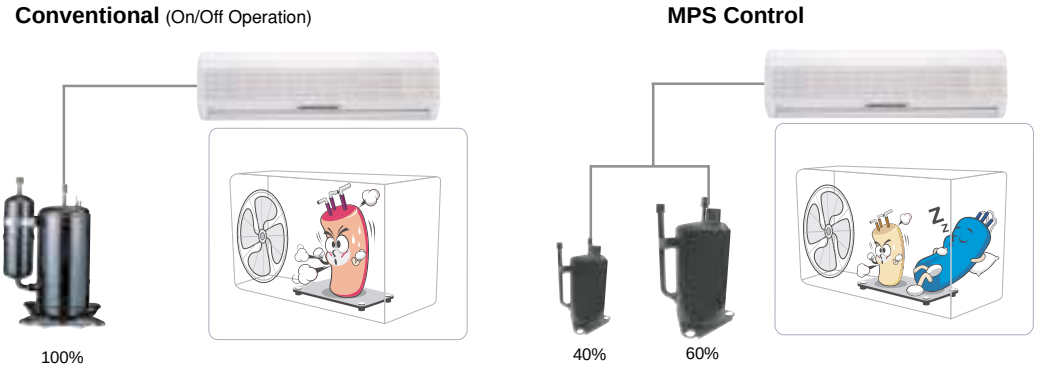
1. Features & Benefits

MPS(Multi Power System) Variable Control : (Except: AUUH126B/186B/246B/608B)

Big Energy Saving with MPS Variable Control

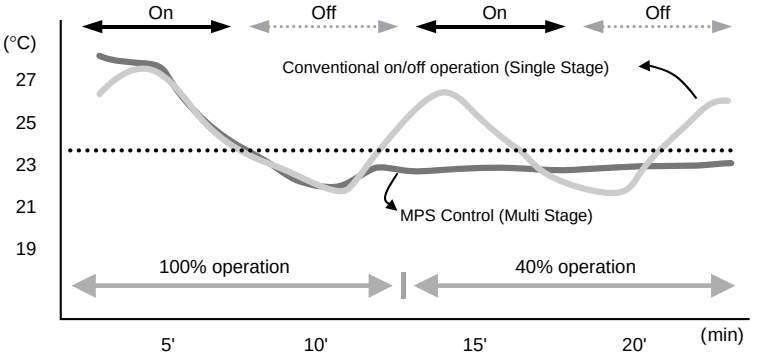
• Basic Principle of MPS Variable Control

MPS control provides comfortable and convenient environment as there are two compressors with 60&40% load sharing with on compressor of small capacity always working to maintain the set temperature conditions & meanwhile other compressor is at rest if the load is low whereas in conventional system the only compressor is working with ON/OFF cycles.



• Comfort Control

- Conventional Operation : The compressor must turn on and off to reach desired temperature setting. A large portion of power is used during restarting. This causes unnecessary power consumption.
- MPS(Multi Power System) Control : This is a power saving system with two rotary compressors of different capacity (60% & 40%) operating an A/C at high power until it reaches desired temperature. And when it reaches the temperature, only the 40% capacity rotary compressor operates.

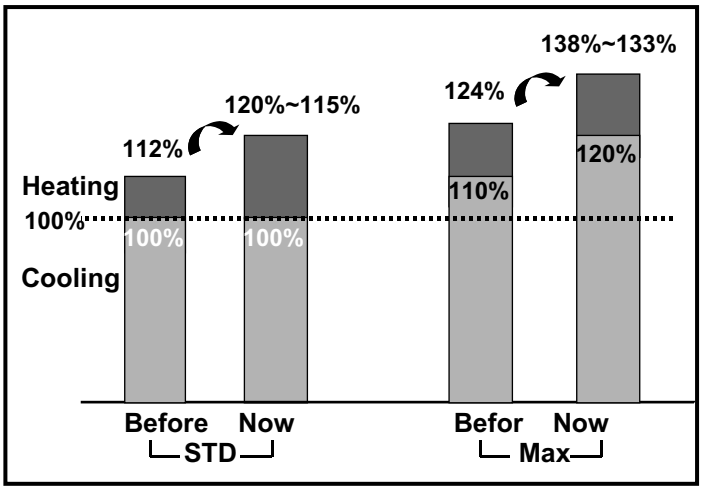


Low Ambient Control

If the outdoor temperature drops below certain temperature, liquid back to the compressor is prevented by reducing outdoor fan speed. It can prevent frosting of evaporator and keep cooling operation on.

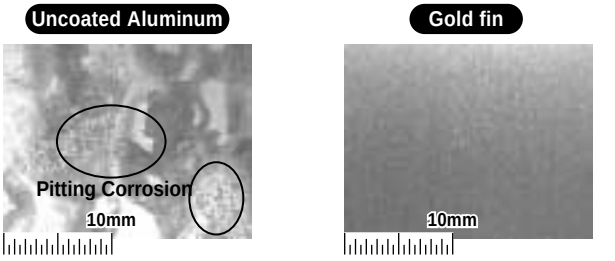
Heating Capacity Improved

- Using MPS technology, LG's air conditioning 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						
For combination indoor units + outdoor units :						
Indoor Units			ATNH126ELFC	ATNH186ELFC	ATNH246FLFC	ATNH306FLFC
Outdoor Units			AUUH126C	AUUH186C	AUUH246C	AUUH306C
Nominal Capacity	Cooling	Btu/h	12,000	18,000	24,000	30,000
		W	3,517	5,275	7,033	8,793
	Heating	Btu/h	13,200	19,800	26,400	33,000
		W	3,869	5,803	7,738	9,672
Nominal Input	Cooling	W	1,350	1,880	2,500	3,970
	Heating	W	1,370	2,060	2,750	4,020
EER		Btu/h.W(W/W)	8.89(2.61)	9.57(2.81)	9.60(2.81)	7.56(2.21)
COP		Btu/h.W(W/W)	9.64(2.82)	9.61(2.82)	9.60(2.81)	8.20(2.41)

Nominal Capacity and Nominal Input						
For combination indoor units + outdoor units :						
Indoor Units			-	ABNH186HLAC	ABNH246HLAC	ABNH306GLAC
Outdoor Units			-	AUUH186C	AUUH246C	AUUH306C
Nominal Capacity	Cooling	Btu/h	-	18,000	24,000	32,000
		W	-	5,275	7,033	9,379
	Heating	Btu/h	-	19,800	26,400	35,200
		W	-	5,803	7,738	10,317
Nominal Input	Cooling	W	-	1,880	2,500	4,250
	Heating	W	-	2,060	2,750	3,670
EER		Btu/h.W(W/W)	-	9.57(2.81)	9.60(2.81)	7.53(2.21)
COP		Btu/h.W(W/W)	-	9.61(2.82)	9.60(2.81)	9.59(2.81)

Nominal Capacity and Nominal Input						
For combination indoor units + outdoor units :						
Indoor Units			AVNH126ELAC	AVNH186BLAC	AVNH246BLAC	AVNH306BLAC
Outdoor Units			AUUH126C	AUUH186C	AUUH246C	AUUH306C
Nominal Capacity	Cooling	Btu/h	12,000	18,000	24,000	28,000
		W	3,517	5,275	7,033	8,207
	Heating	Btu/h	13,200	19,800	26,400	30,800
		W	3,869	5,803	7,738	9,027
Nominal Input	Cooling	W	1,350	1,880	2,500	3,720
	Heating	W	1,370	2,060	2,750	4,020
EER		Btu/h.W(W/W)	8.89(2.61)	9.57(2.81)	9.60(2.81)	7.53(2.21)
COP		Btu/h.W(W/W)	9.64(2.82)	9.61(2.82)	9.60(2.81)	7.66(2.25)

Nominal Capacity and Nominal Input					
For combination indoor units + outdoor units :					
Indoor Units			**ATNH366DLFC**	**ATNH486DLFC**	**ATNH606DLFC**
Outdoor Units			**AUUH368C**	**AUUH488C**	**AUUH608C**
Nominal Capacity	Cooling	Btu/h	36,000	48,000	56,000
		W	10,552	14,069	16,414
	Heating	Btu/h	39,600	52,800	61,600
		W	11,607	15,476	18,055
Nominal Input	Cooling	W	4,050	5,840	6,820
	Heating	W	3,620	5,630	6,910
EER		Btu/h.W(W/W)	8.89(2.61)	8.22(2.41)	8.21(2.41)
COP		Btu/h.W(W/W)	10.94(3.21)	9.38(2.75)	8.91(2.61)

For combination indoor units + outdoor units :					
Indoor Units			**ABNH366GLAC**	**ABNH486RLAC**	**ABNH606RLAC**
Outdoor Units			**AUUH368C**	**AUUH488C**	**AUUH608C**
Nominal Capacity	Cooling	Btu/h	36,000	48,000	56,000
		W	10,552	14,069	16,414
	Heating	Btu/h	39,600	52,800	61,600
		W	11,607	15,476	18,055
Nominal Input	Cooling	W	4,050	5,840	6,800
	Heating	W	4,130	5,630	6,440
EER		Btu/h.W(W/W)	8.89(2.61)	8.22(2.41)	8.23(2.41)
COP		Btu/h.W(W/W)	9.59(2.81)	9.38(2.75)	9.57(2.80)

For combination indoor units + outdoor units :					
Indoor Units			**AVNH366KLAC**	**AVNH486LLAC**	**AVNH606LLAC**
Outdoor Units			**AUUH368C**	**AUUH488C**	**AUUH608C**
Nominal Capacity	Cooling	Btu/h	34,000	46,500	54,000
		W	9,965	13,629	15,827
	Heating	Btu/h	36,000	52,800	59,400
		W	10,552	15,476	17,410
Nominal Input	Cooling	W	4,130	5,650	6,580
	Heating	W	4,050	5,630	6,200
EER		Btu/h.W(W/W)	8.23(2.41)	8.23(2.41)	8.21(2.41)
COP		Btu/h.W(W/W)	8.89(2.61)	9.38(2.75)	9.58(2.81)

Technical Specification						
Outdoor Units			**AUUH126C**	**AUUH186C**	**AUUH246C**	**AUUH306C**
Running Current	Cooling/Heating	A	7.5/7.0	8.4/9.2	11.0/12.0	20.0/20.0
Starting Current	Cooling/Heating	A				
Power Supply		Ø,V,Hz	1,220~240,50	1,220~240,50	1,220~240,50	1,220~240,50
Power Factor		%				
Compressor (Constant)	Type		Rotary	Rotary	Rotary	Rotary
	Model		GK151PAC	5KS225DAF21	GP290PAC	5KS225DKSM
	Quantity		1	1	1	2
	Motor Input	W	1,245	1,980	2,505	2,175
	Oil Charge	cc	350	600	1,130	1,340
	Oil Type		FVC68D	FV50S	FVC68D	FV50S
Refrigerant charge	Charge*	g(oz)	1200(42.4)	1300(45.90)	1950(68.9)	2300(81.37)
	Type		R410A	R410A	R410A	R410A
	Control		capillary	L.E.V	L.E.V	L.E.V
Coil	Tube Size (OD)	inch(mm)	0.276(7.0)	0.276(7.0)	0.276(7.0)	0.276(7.0)
	Fins per inch		18	18	18	18
	No. of Rows & Column/No.		2R,24C	2R,28C	2R,36C	2R,36C
Fan motor	Model		OBM-2012P2	IC28640LG28P	IC28640LG28P	IC28640LG28J
	Output	W	25.5	67.2	67.2	67.2
	Capacitor	µF/Vac	1.5/370	6/370	6/370	6/370
Fan	Type		Propeller	Propeller	Propeller	Propeller
	No. Used / Diameter	EA/inch(mm)	1/15.7(400)	1/18.1(460)	1/18.1(460)	1/18.1(460)
	Discharge	Side / Top	Side Discharge	Side Discharge	Side Discharge	Side Discharge
Air Circulation		CMM(CFM)	26(918)	58(2048)	58(2048)	53(1872)
Noise Level(H/L)	Sound Press,1m	dB(A)±1	47	52	52	53
Defrosting			Inversion cycle	Inversion cycle	Inversion cycle	Inversion cycle
SVC Valve	Liquid	inch(mm)	1/4 (6.35)	1/4 (6.35)	1/4 (6.35)	1/4 (6.35)
	Gas	inch(mm)	3/8 (9.52)	1/2 (12.7)	1/2 (12.7)	5/8 (15.88)
Dimensions	W*H*D	inch(mm)	30.3*21.3*9.6 (770*540*245)	34.3*25.8*12.6 (870*655*320)	34.3*31.5*12.6 (870*800*320)	34.3*31.5*12.6 (870*800*320)
Net Weight	Outdoor	kg(lbs)	31(68.3)	52(114.6)	60(132.2)	64(141)
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
Max. Piping Length/Elevation		m	15/10	50/30	50/30	50/30
Additional Refrigerant Charge (Over 7.5m)		g/m	20	35	35	35
Packing Dimension	W*H*D	inch(mm)	36.2*20.8*14.2(920*580*360)	40.2*28.1*17.3(1020*715*440)	40.2*34.3*17.3(1020*870*440)	40.2*34.3*17.3(1020*870*440)
Stuffing Quantity	Without S/Parts	20/40ft	144/312	81/171	54/114	54/114

Notes:

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(25ft)
     - Level Difference of Zero.
2. * : Full factory charge is shipped in the outdoor unit. The charge is determined based on 7.5m(25ft) of line.
3. Due to our policy of innovation some specifications may be changed without notification.

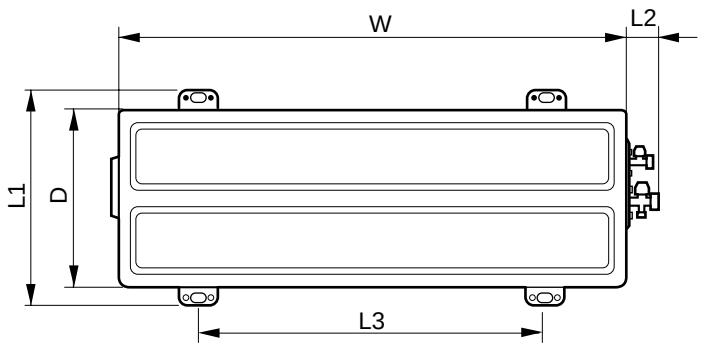
Technical Specification					
Outdoor Units			**AUUH368C**	**AUUH488C**	**AUUH608C**
Running Current	Cooling/Heating	A	7.8/6.6	11.5/11.0	32.5/31.5
Starting Current	Cooling/Heating	A			
Power Supply		Ø,V,Hz	3,380~415,50	3,380~415,50	3,380~415,50
Power Factor		%			
Compressor (Constant)	Type		Rotary	Rotary	SCROLL
	Model		5KS225PAA21	GPT330Y	AR073YA
	Quantity		2	2	1
	Motor Input	W	2,065	2,550	6,473
	Oil Charge	cc	1,340	1,200	2,325
	Oil Type		FV50S	FVC68D(PVE)	FVC68ST
Refrigerant charge	Charge*	g(oz)	2600(92.1)	4200(148.1) for 30m	4700(197) for 30m
	Type		R410A	R410A	R410A
	Control		L.E.V	L.E.V	L.E.V
Coil	Tube Size (OD)	inch(mm)	0.276(7.0)	0.276(7.0)	0.276(7.0)
	Fins per inch		18	17	17
	No. of Rows & Column/No.		2R,36C	2R 52C	2R 52C
Fan motor	Model		5BM-3018P2*2	AMR071B9*2	AMR071B9*2
	Output	W	47.2*2	70*2	70*2
	Capacitor	µF/Vac	2.0/400	6/370	6/370
Fan	Type		Propeller	Propeller	Propeller
	No. Used / Diameter	EA/inch(mm)	2 /15.7(400)	2/18.1(460)	2/18.1(460)
	Discharge	Side / Top	Side Discharge	Side Discharge	Side Discharge
Air Circulation		CMM(CFM)	32(1130)*2	53(1872) *2	53(1872) *2
Noise Level(H/L)	Sound Press,1m	dB(A)±1	52	57	57
Defrosting			Invertion cycle	Invertion cycle	Invertion cycle
SVC Valve	Liquid	inch(mm)	1/4 (6.35)	3/8 (9.52)	3/8 (9.52)
	Gas	inch(mm)	5/8 (15.88)	3/4 (19.05)	3/4 (19.05)
Dimensions	W*H*D	inch(mm)	35.3*41.7*12.6(870*1060*320)	35.4*45.8*14.5(900*1165*370)	35.4*45.8*14.5(900*1165*370)
Net Weight	Outdoor	kg(lbs)	80(176)	105(231)	93(205)
Power Supply Cable(Includes earth)		No.* mm^2	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
Max. Piping Length/Elevation		m	50/30	50/30	50/30
Additional Refrigerant Charge (Over 7.5m)		g/m	40	75(30m chargeless)	75(30m chargeless)
Packing Dimension	W*H*D	inch(mm)	41.1*44.9*17.3(1045*1140*440)	41.7*48.0*18.3(1060*1220*465)	41.7*48.0*18.3(1060*1220*465)
Stuffing Quantity	Without S/Parts	20/40ft	51/111	27/55	27/55

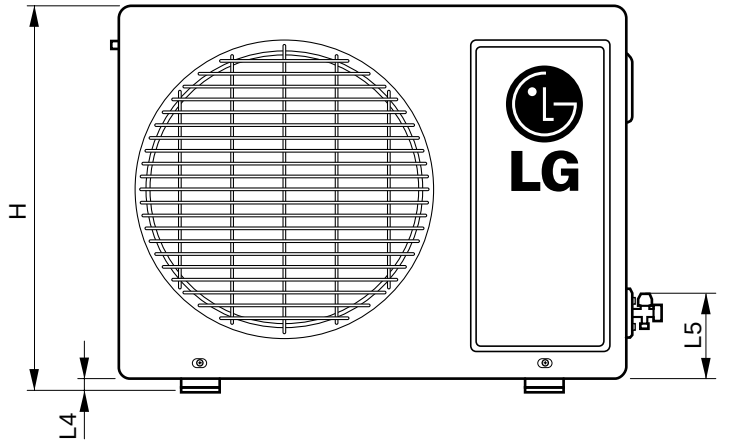
Notes:

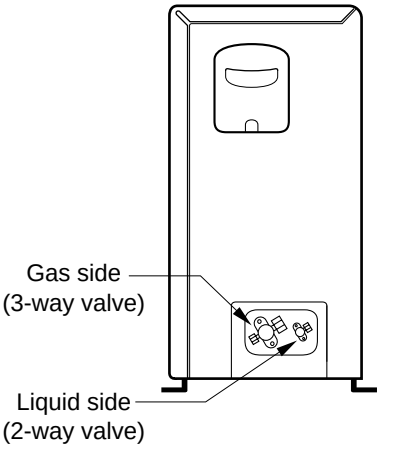
1. Capacities are based on the following conditions:
   - Cooling: - Indoor Temperature 27°C(80.6°F) DB /19°C(66.2°F) WB
   - Outdoor Temperature 35°C(95°F) DB /24°C(75.2°F) WB
   - Heating: - Indoor Temperature 20°C(68°F) DB / 15°C(59°F) WB
   - Outdoor Temperature 7°C(44.6°F) DB / 6°C(42.8°F) WB
   - Piping Length - Interconnecting Piping Length 7.5m(25ft)
   - Level Difference of Zero.
2. ★ : Full factory charge is shipped in the outdoor unit.
   The charge of 36k model is determined based on 7.5m(25ft) of line.
   48/60k models : Chargeless for 30m of piping length.
3. Due to our policy of innovation some specifications may be changed without notification.

3. Dimensional Drawings

AUUH126C

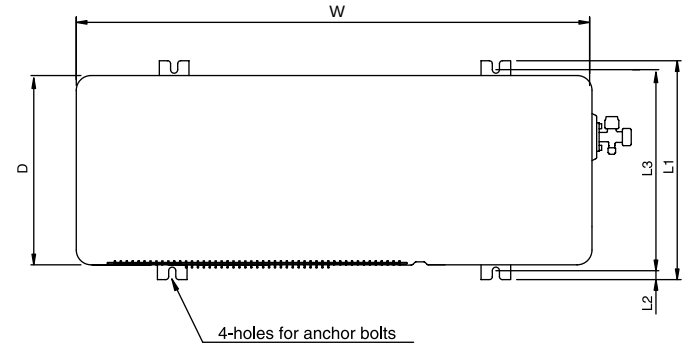


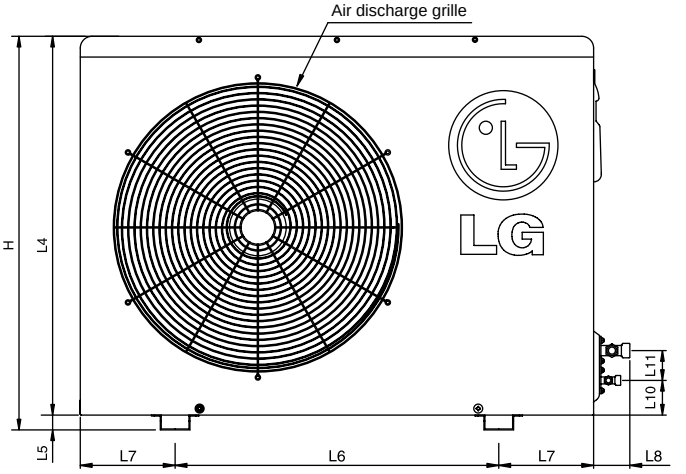


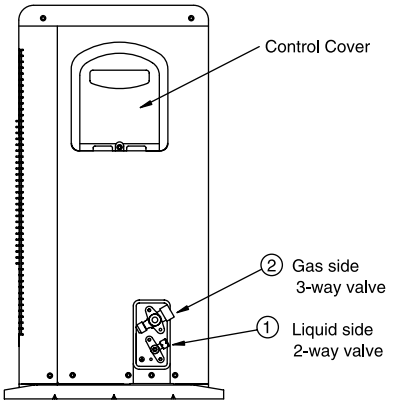


DIM \ MODEL	unit	AUUH126C
W	mm	770
H	mm	540
D	mm	245
L1	mm	287
L2	mm	64
L3	mm	518
L4	mm	10
L5	mm	100

AUUH186C/AUUH246C/AUUH306C

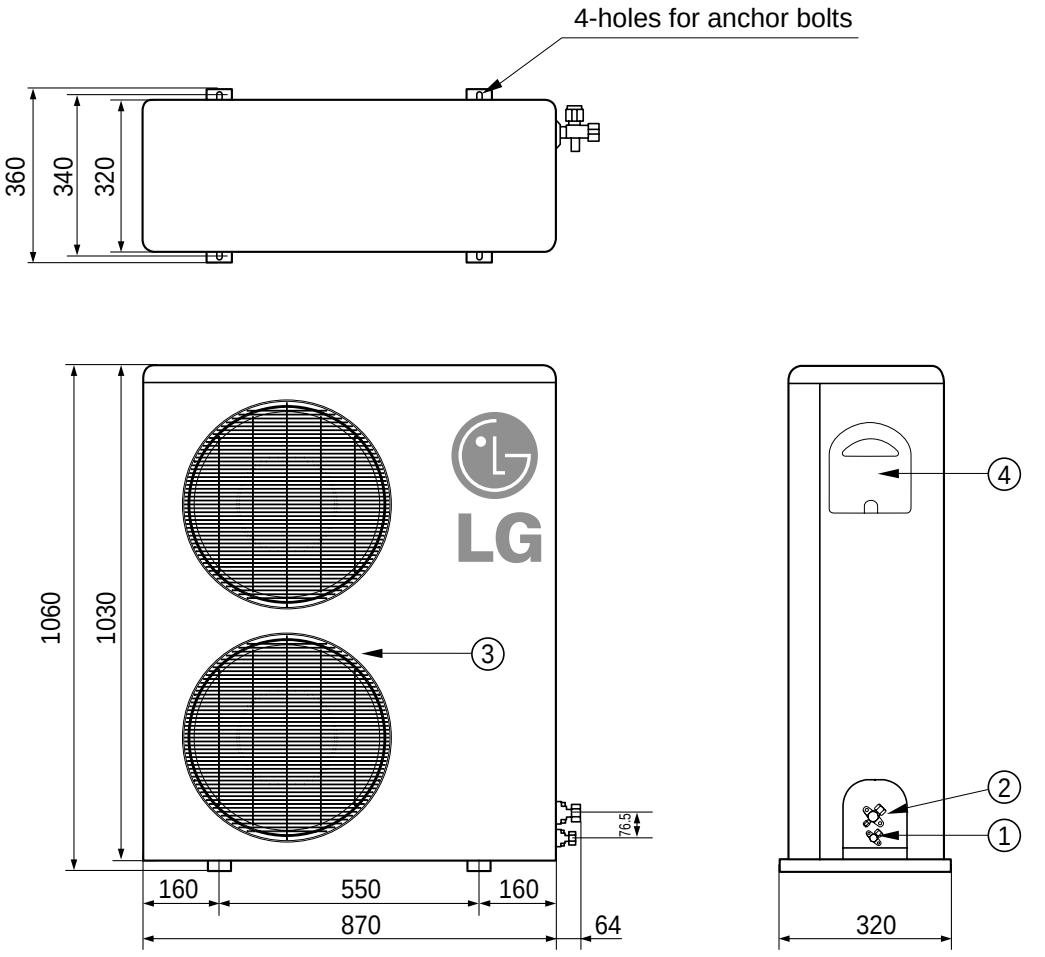






Dimensions \ Model		AUUH186C	AUUH246C/306C
W	mm	870	870
H	mm	655	800
D	mm	320	320
L1	mm	370	370
L2	mm	25	25
L3	mm	340	340
L4	mm	775	775
L5	mm	25	25
L6	mm	546	546
L7	mm	162	162
L8	mm	162	162
L9	mm	54	54
L10	mm	74.5	74.5
L11	mm	79	79
①	mm	Ø6.35	Ø6.35
②	mm	Ø12.7	24k : Ø12.7, 30k : Ø15.88

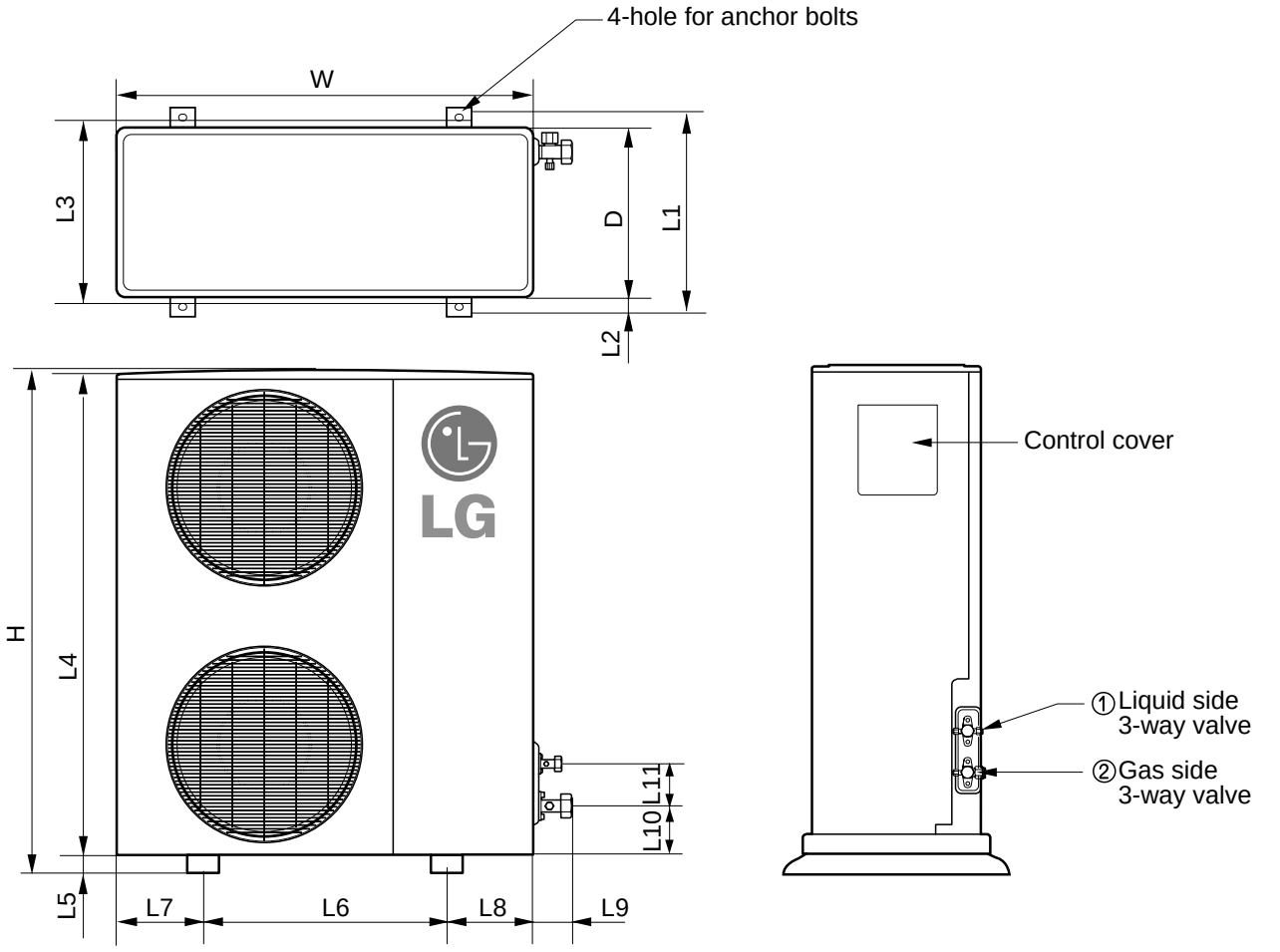
AUUH368C



(Unit: mm)

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

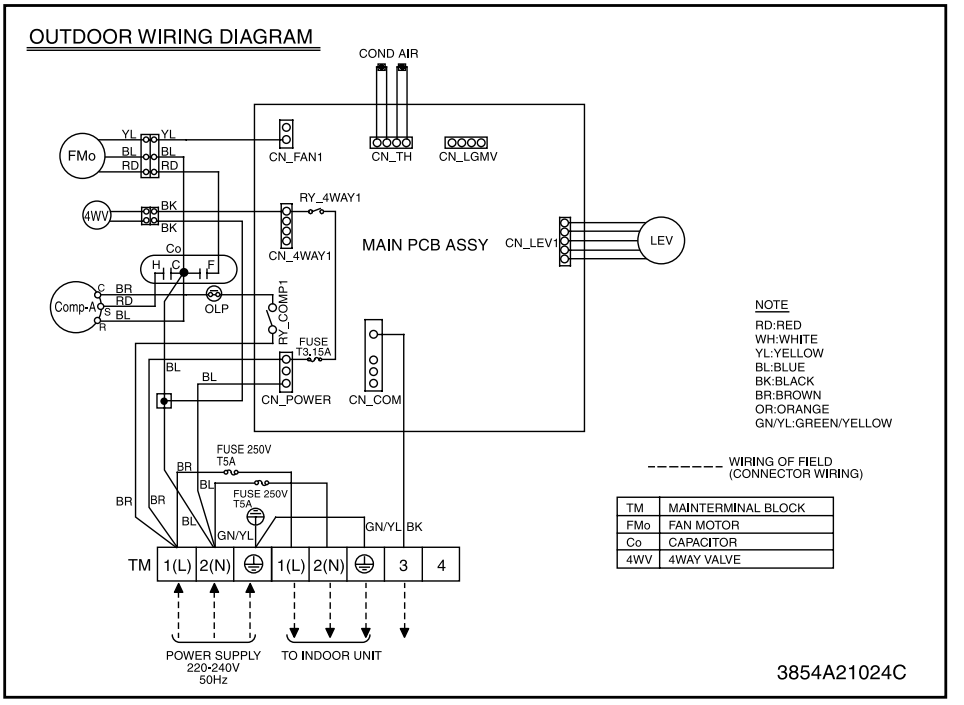
AUUH488C/AUUH608C



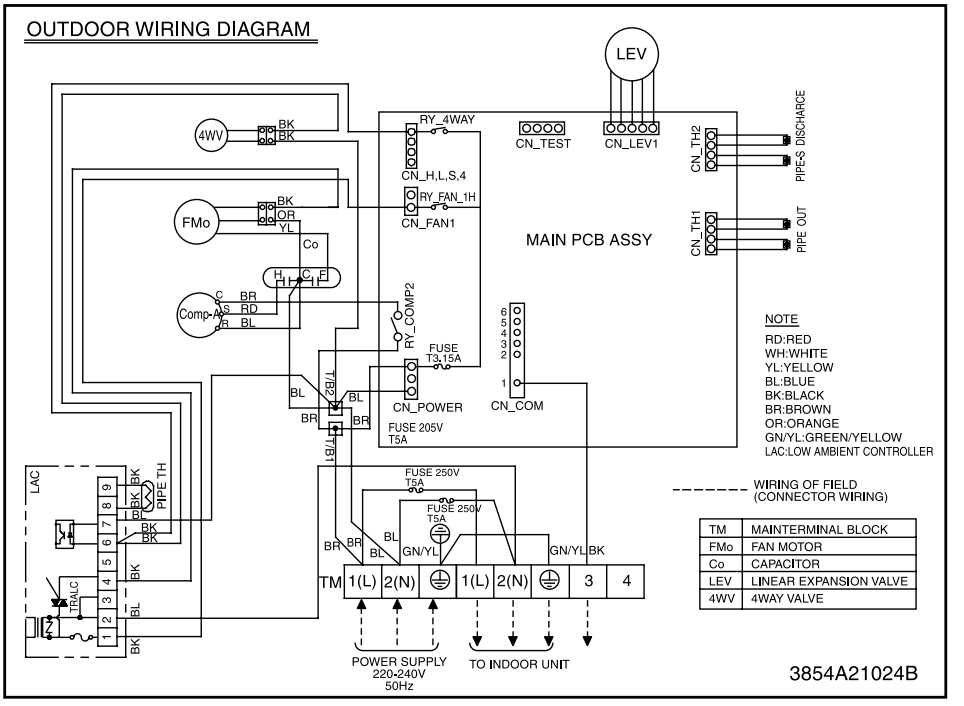
Dimensions \ Model		AUUH488C/AUUF608C
W	mm	900
H	mm	1,165
D	mm	370
L1	mm	460
L2	mm	45
L3	mm	410
L4	mm	1,135
L5	mm	30
L6	mm	550
L7	mm	175
L8	mm	175
L9	mm	112
L10	mm	120
L11	mm	83
①	mm	Ø9.52
②	mm	Ø19.05

4. Wiring Diagrams

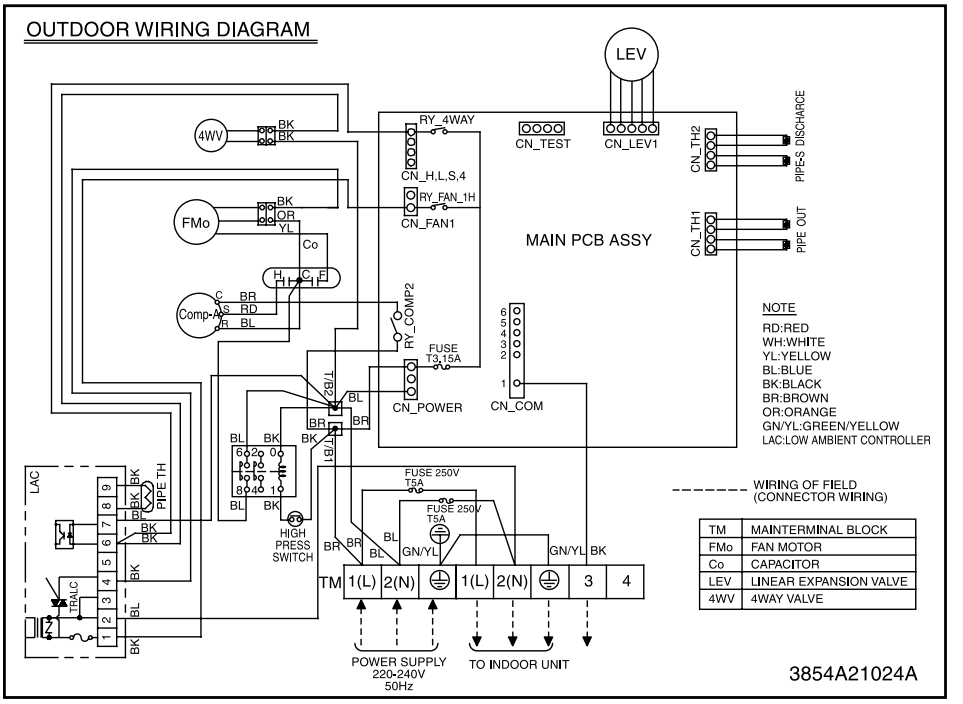
AUUH126C



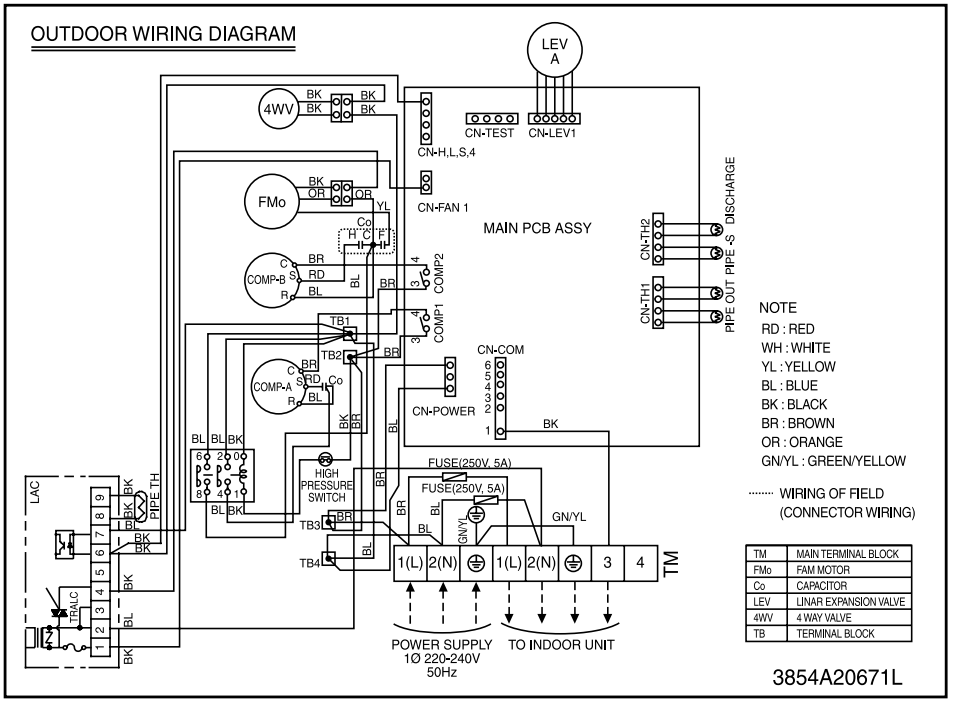
AUUH186C



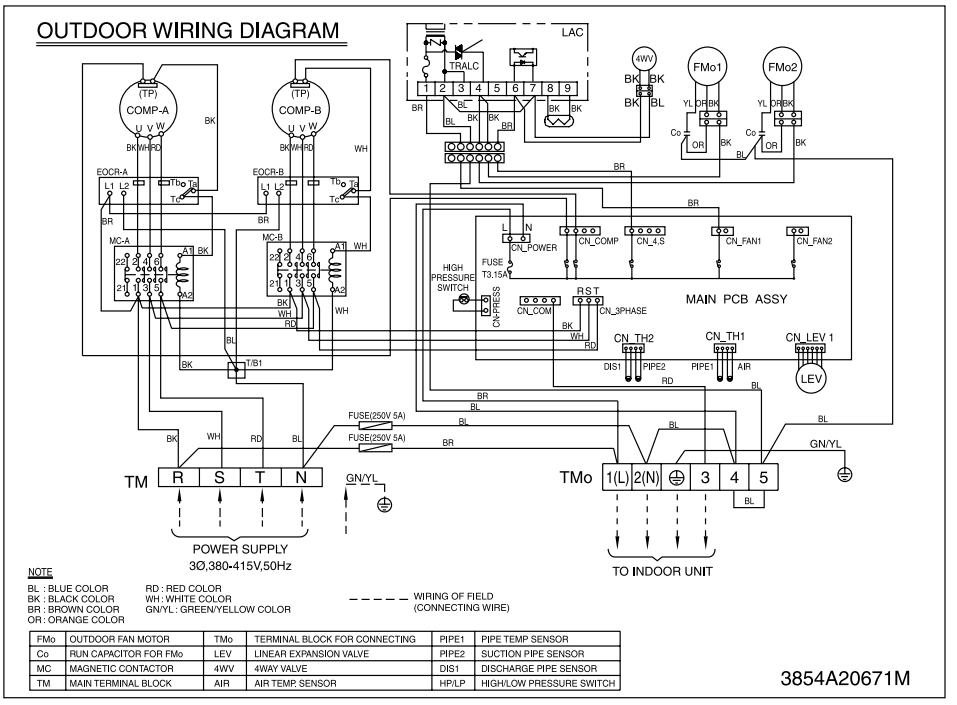
AUUH246C



AUUH306C



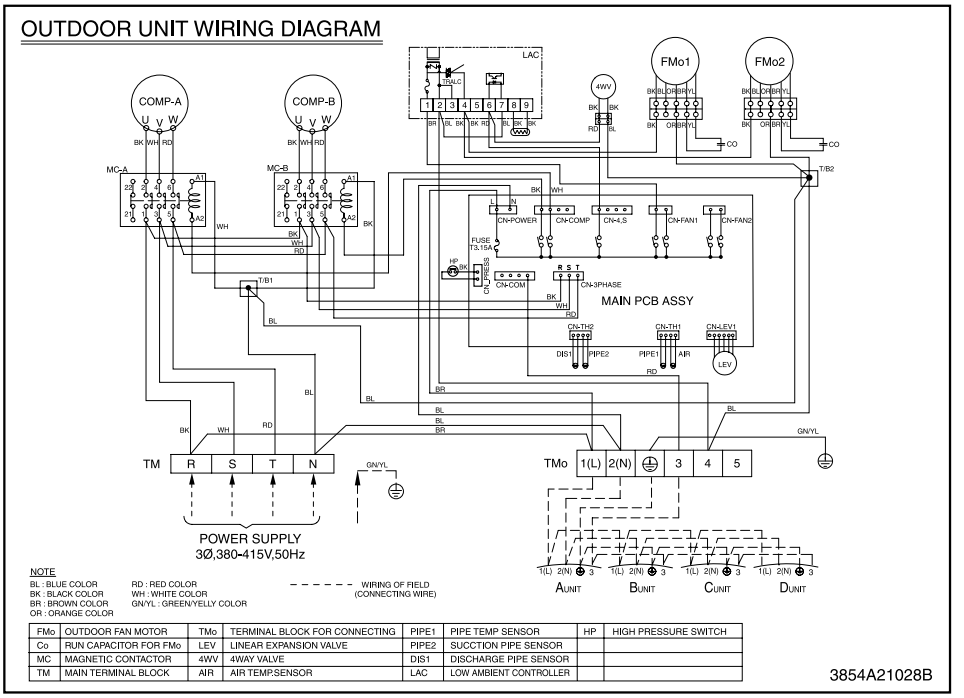
AUUH368C



FMo	OUTDOOR FAN MOTOR	TMo	TERMINAL BLOCK FOR CONNECTING	PIPE1	PIPE TEMP SENSOR
Co	RUN CAPACITOR FOR FMo	LEV	LINEAR EXPANSION VALVE	PIPE2	SUCTION PIPE SENSOR
MC	MAGNETIC CONTACTOR	4WV	4WAY VALVE	DIS1	DISCHARGE PIPE SENSOR
TM	MAIN TERMINAL BLOCK	AIR	AIR TEMP. SENSOR	HP/LP	HIGH/LOW PRESSURE SWITCH

3854A20671M

AUUH488C



FMo	OUTDOOR FAN MOTOR	TMo	TERMINAL BLOCK FOR CONNECTING	PIPE1	PIPE TEMP SENSOR	HP	HIGH PRESSURE SWITCH
Co	RUN CAPACITOR FOR FMo	LEV	LINEAR EXPANSION VALVE	PIPE2	SUCCTION PIPE SENSOR		
MC	MAGNETIC CONTACTOR	4WV	4WAY VALVE	DIS1	DISCHARGE PIPE SENSOR		
TM	MAIN TERMINAL BLOCK	AIR	AIR TEMP.SENSOR	LAC	LOW AMBIENT CONTROLLER		

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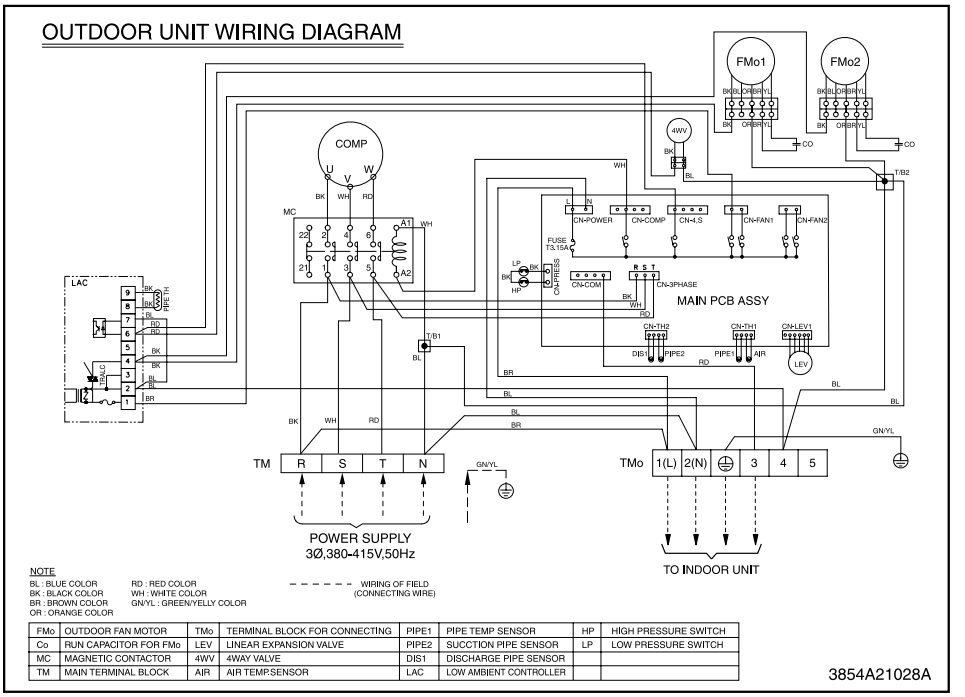
AUUH608C



FMo	OUTDOOR FAN MOTOR	TMo	TERMINAL BLOCK FOR CONNECTING	PIPE1	PIPE TEMP SENSOR	HP	HIGH PRESSURE SWITCH
Co	RUN CAPACITOR FOR FMo	LEV	LINEAR EXPANSION VALVE	PIPE2	SUCCTION PIPE SENSOR	LP	LOW PRESSURE SWITCH
MC	MAGNETIC CONTACTOR	4WV	4WAY VALVE	DIS1	DISCHARGE PIPE SENSOR		
TM	MAIN TERMINAL BLOCK	AIR	AIR TEMP.SENSOR	LAC	LOW AMBIENT CONTROLLER		

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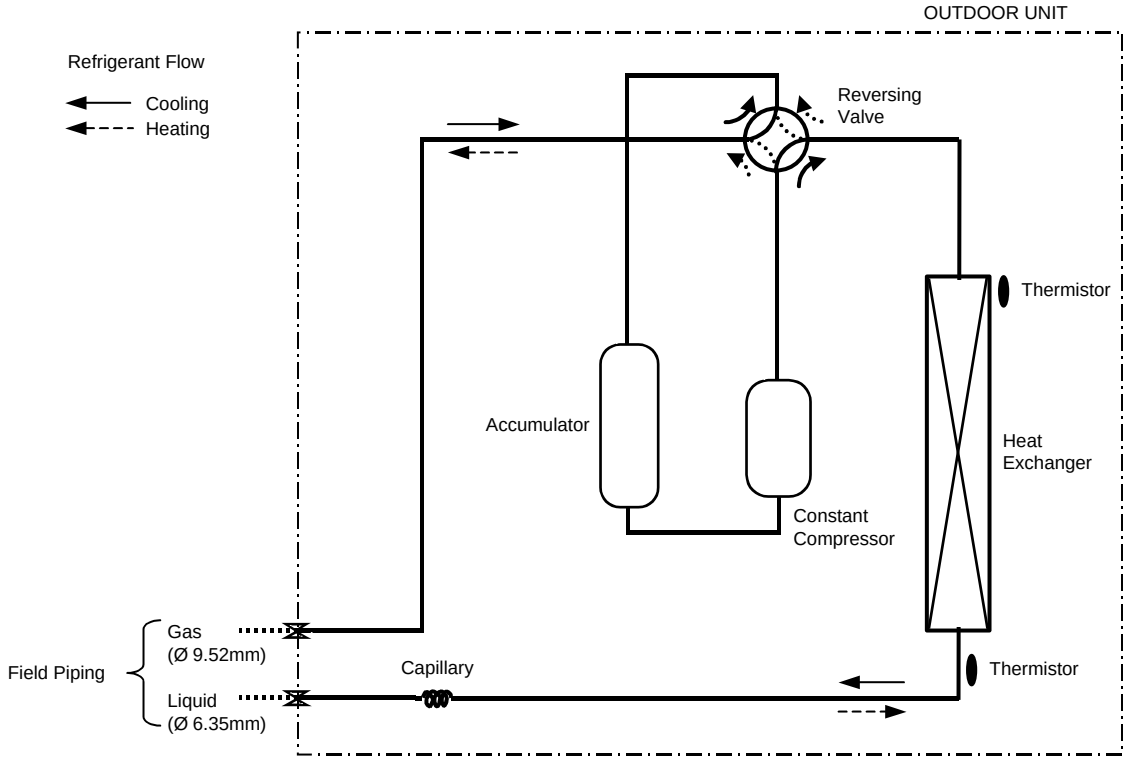
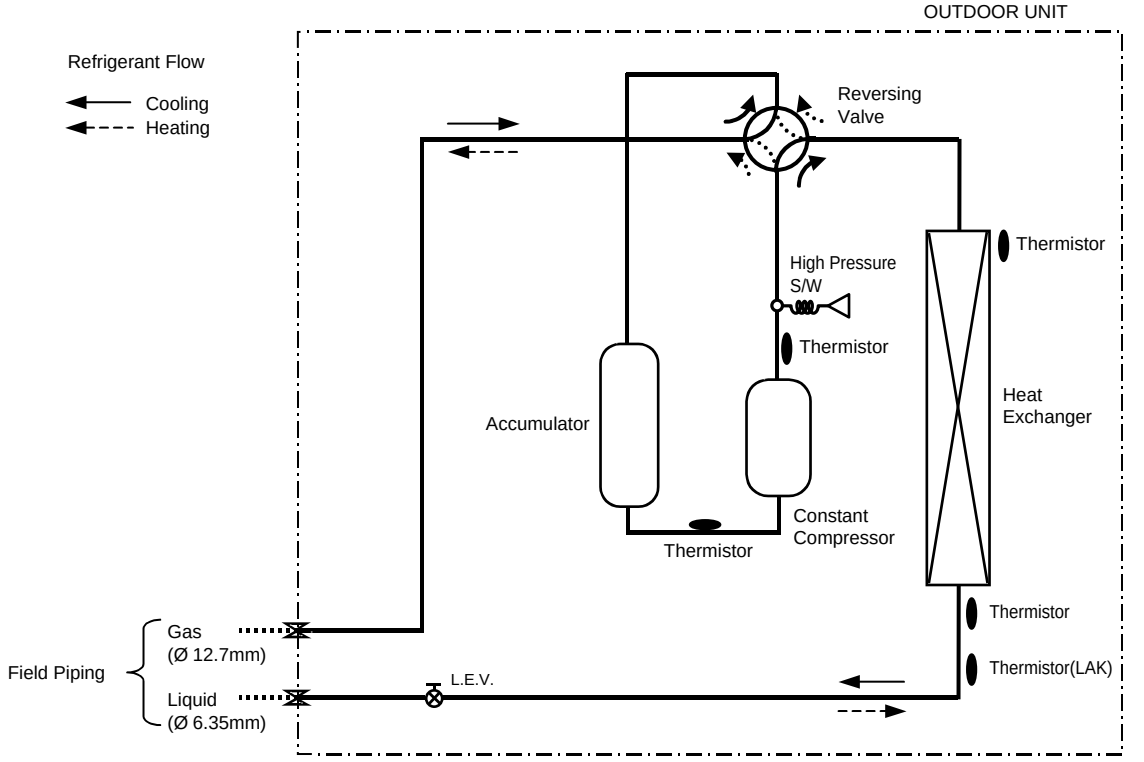
5. Piping Diagram

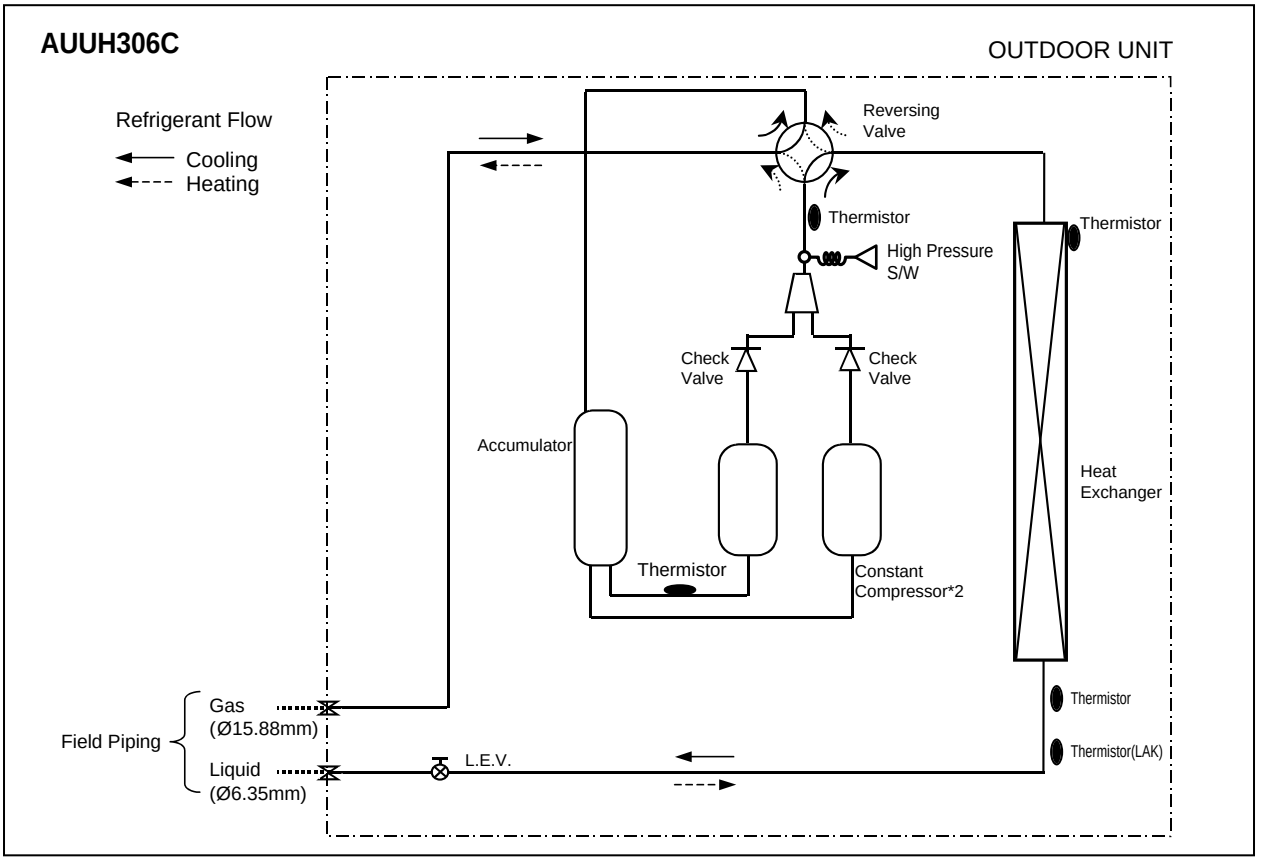
AUUH126C



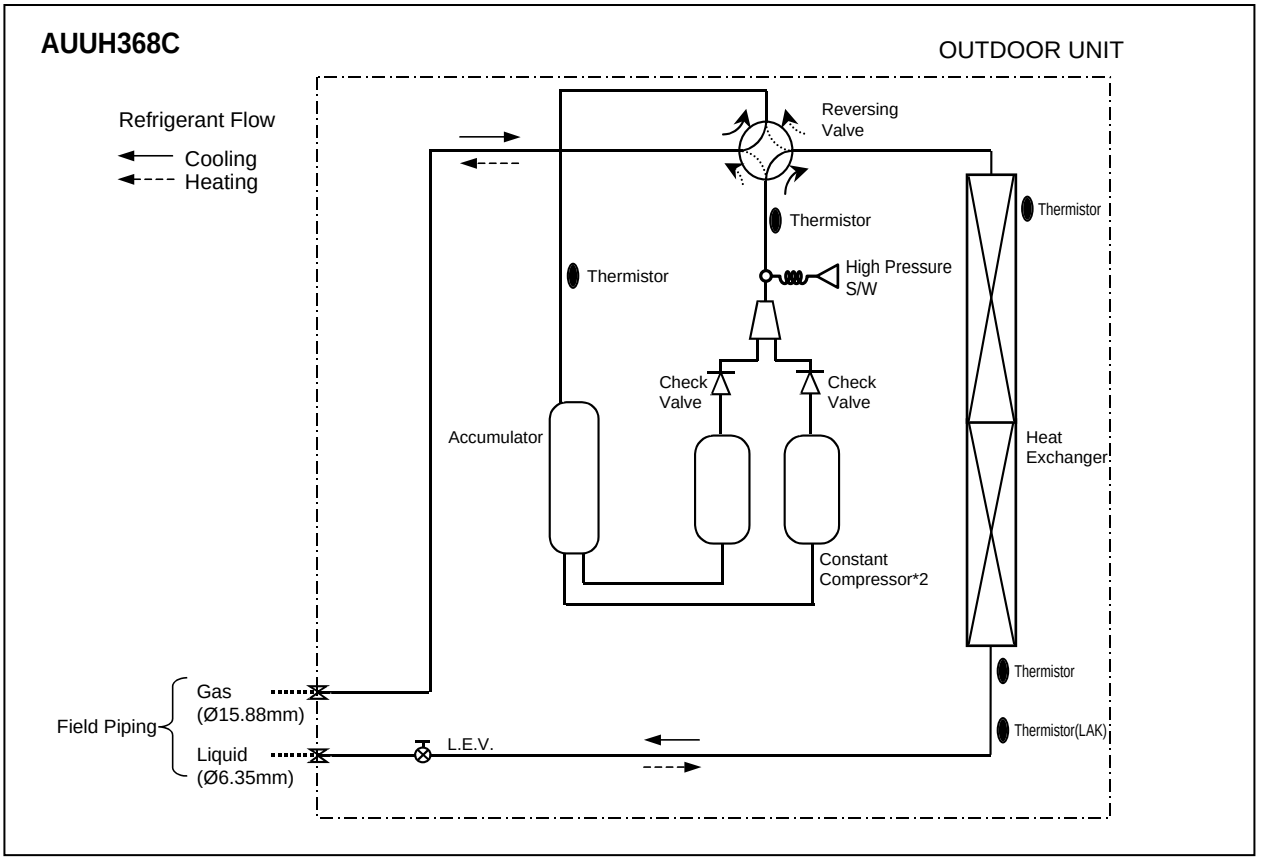
AUUH186C/246C

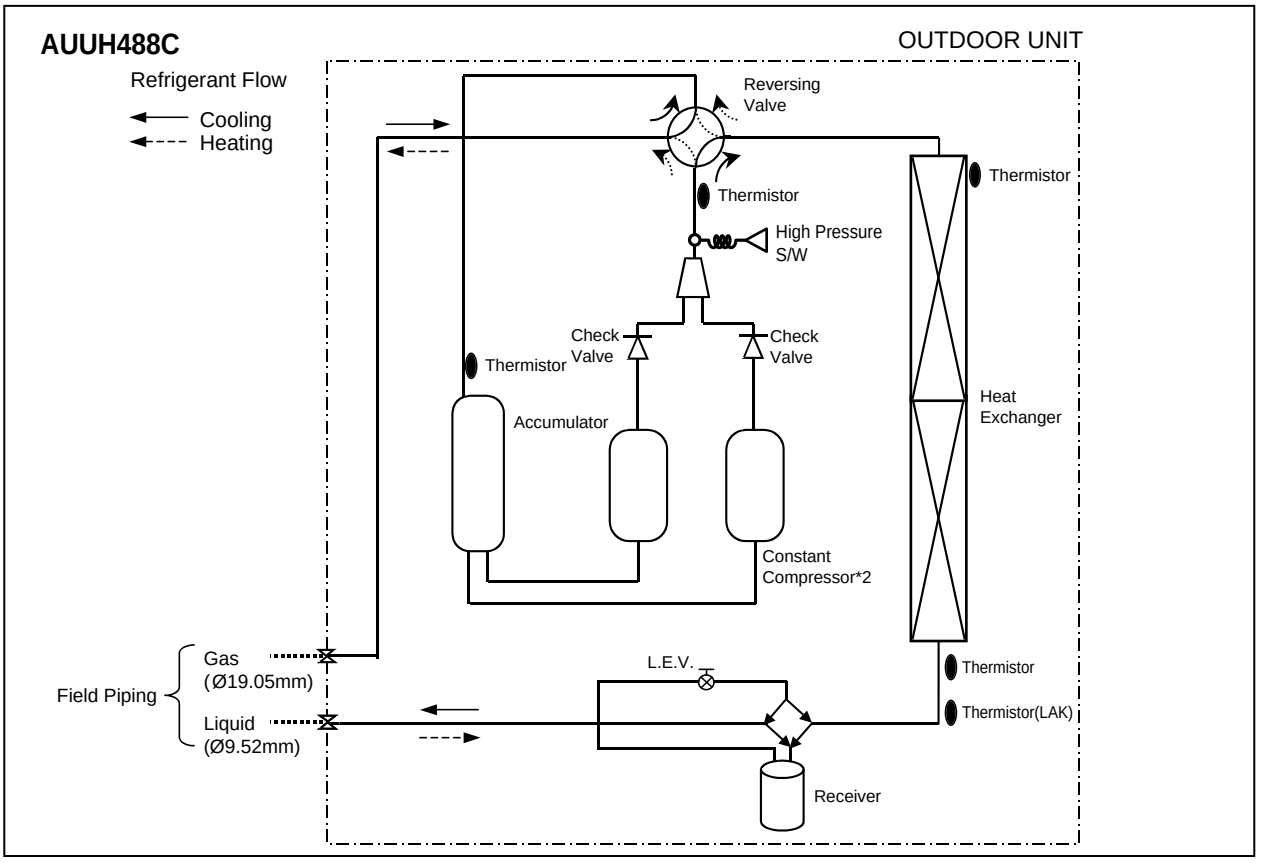


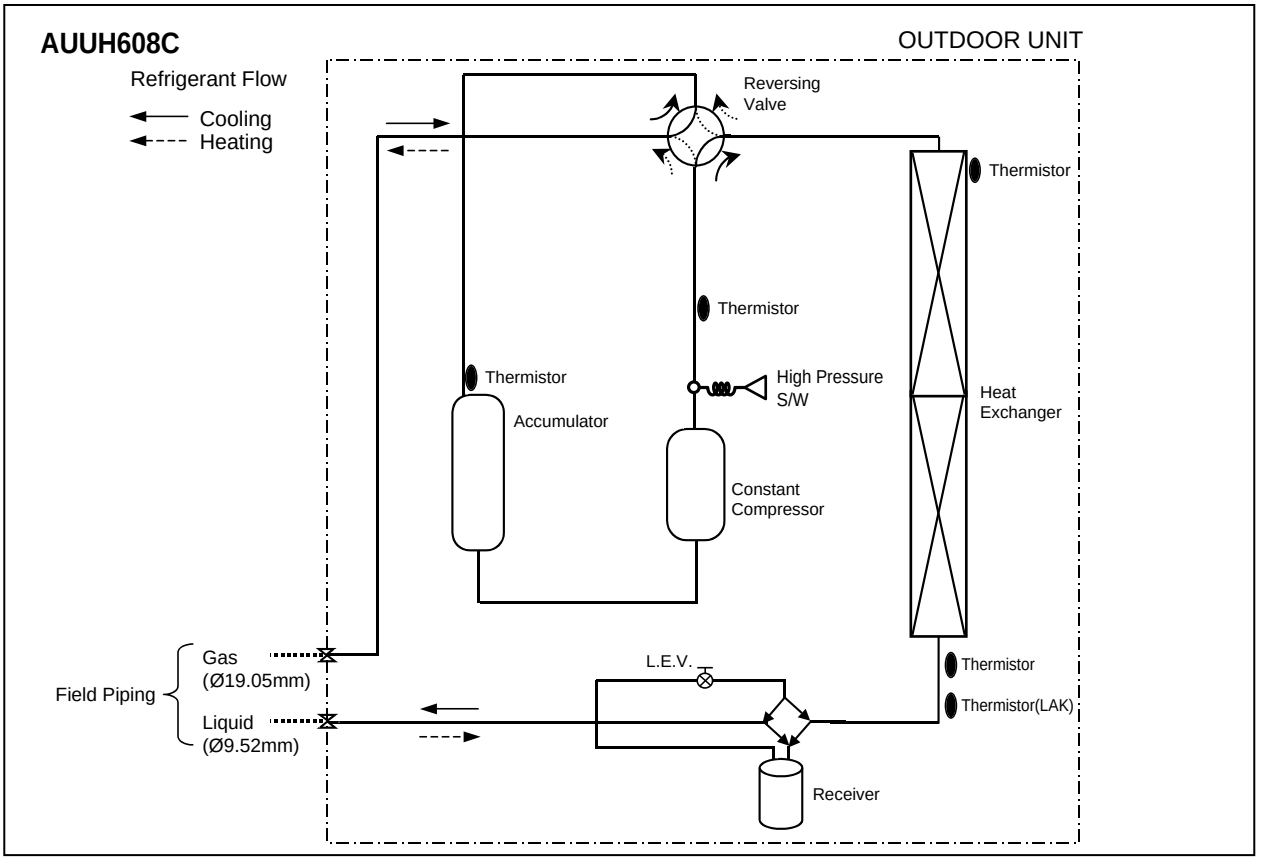
AUUH306C



AUUH368C







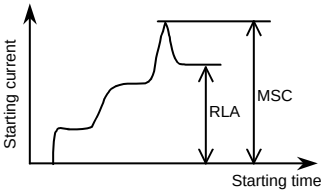
6. Electric Characteristics

Models		Power Supply				Compressor		OFM		IFM	
Indoor Unit	Outdoor Unit	Hz, Volts	Voltage range	MCA	MFA	LRA	RLA	kW	FLA	kW	FLA
ATNH126ELFC	AUUH126C	50, 220~240	Min. 198V Max. 246V	8.0	15	24	5.7	0.026	0.51	0.018	0.35
AVNH126ELAC				7.9	15		5.7		0.51	0.018	0.23
ATNH186ELFC	AUUH186C			12.3	15	33.8	8.9	0.067	0.7	0.022	0.43
ABNH186HLAC				12.8	15		8.9		0.7	0.118	0.92
AVNH186BLAC				12.1	15		8.9		0.7	0.030	0.23
ATNH246FLFC	AUUH246C			15.4	20	62	11.3	0.067	0.7	0.040	0.53
ABNH246HLAC				15.7	20		11.3		0.7	0.118	0.92
AVNH246BLAC				15.1	20		11.3		0.7	0.035	0.27
ATNH306FLFC	AUUH306C			14.4	30	36+36	9.9+9.9	0.067	1.4	0.049	0.67
ABNH306GLAC				15.1	30		9.9+9.9		1.4	0.211	1.34
AVNH306BLAC				14.2	30		9.9+9.9		1.4	0.043	0.38
ATNH366DLFC	AUUH368C			11.6	20	18+18	3.95+3.95	0.047x2	0.48x2	0.053	0.76
ABNH366GLAC				12.3	20		3.95+3.95		0.48x2	0.272	1.42
ATNH486DLFC	AUUH488C			17.1	20	42+42	5.65+5.65	0.070x2	0.73x2	0.059	1.50
ABNH486RLAC				19.2	20		5.65+5.65		0.73x2	0.431	3.65
ATNH606DLFC	AUUH608C			17.3	25	75	11.2	0.070x2	0.73x2	0.107	1.80
ABNH606RLAC				19.1	25		11.2		0.73x2	0.431	3.65

Symbols:

MCA: Minimum Circuit Amperes (A)
MFA : Maximum Fuse Amperes(A)
MSC : Maximum Starting Current Amperes(A)
RLA : Rated Load Amperes(A)
OFM : Outdoor Fan Motor
kW : Fan Motor Rated Output(kW)
FLA : Full Load Amperes(A)

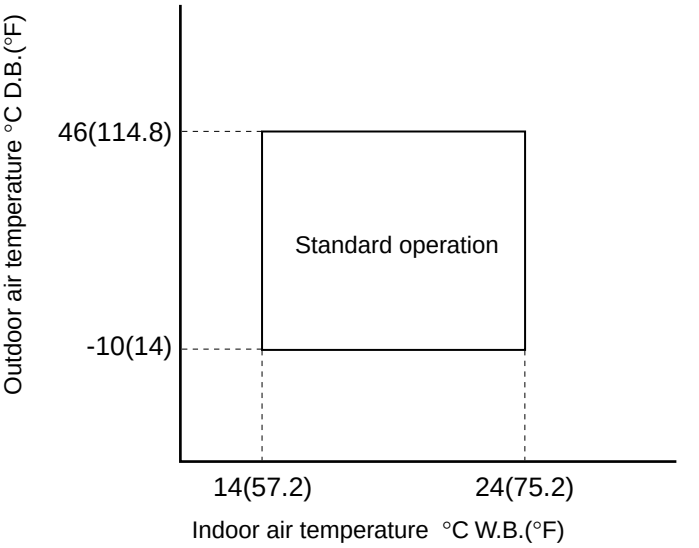
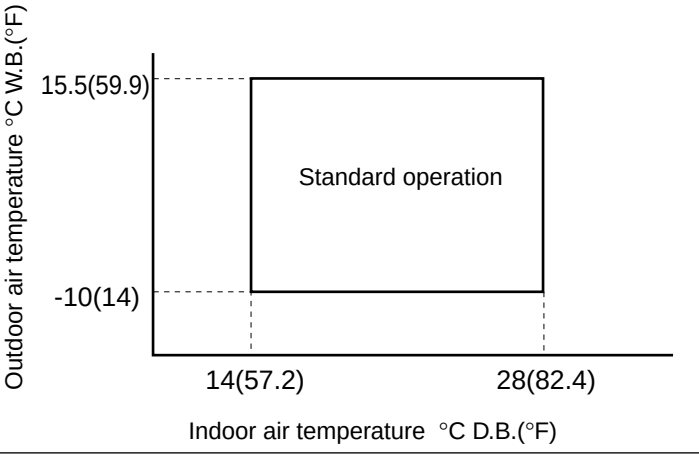
The relationship between the starting time and starting current



Note :

1. Voltage Range
   Units are suitable for use on electrical system where voltage supplied to unit terminals is not below or above listed range limits.
2. Maximum allowable voltage unbalance between phase is 2%.
3. Select wire size based on the MCA
4. MFA is used to select the circuit breaker and ground fault circuit interrupter(each leakage circuit breaker).
5. RLA is based on the following conditions.
   Indoor temperature : 27 DB / 19.0 WB
   Outdoor temperature : 35 DB

7. Operation Range

Item	Range
Inlet air temperature (Cooling)	
Inlet air temperature (Heating)	
Power source voltage	Rating ±10%
Voltage at starting	Min. 85% of rating

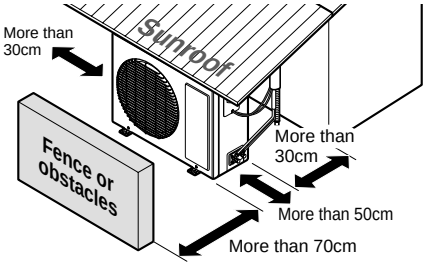
8. Installation

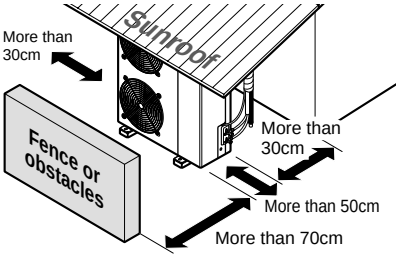
8.1 Selection of the best location

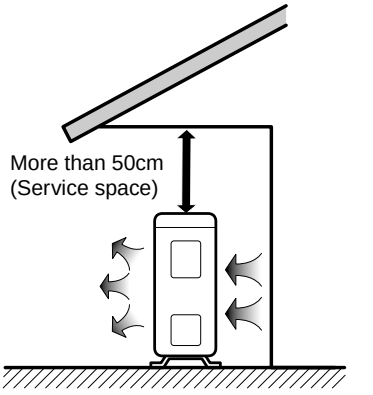
- If a roof is built over the unit to prevent direct sunlight or rain exposure, make sure that heat radiation from the condenser is not restricted.
- Do not place animals and plants in the path of the warm air.
- Take the air conditioner weight into account and select a place where noise and vibration 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 : AUUH12-306B, AUUH36-608B

- 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.

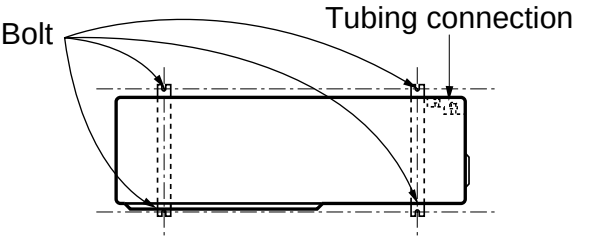






8.2 Settlement of outdoor unit

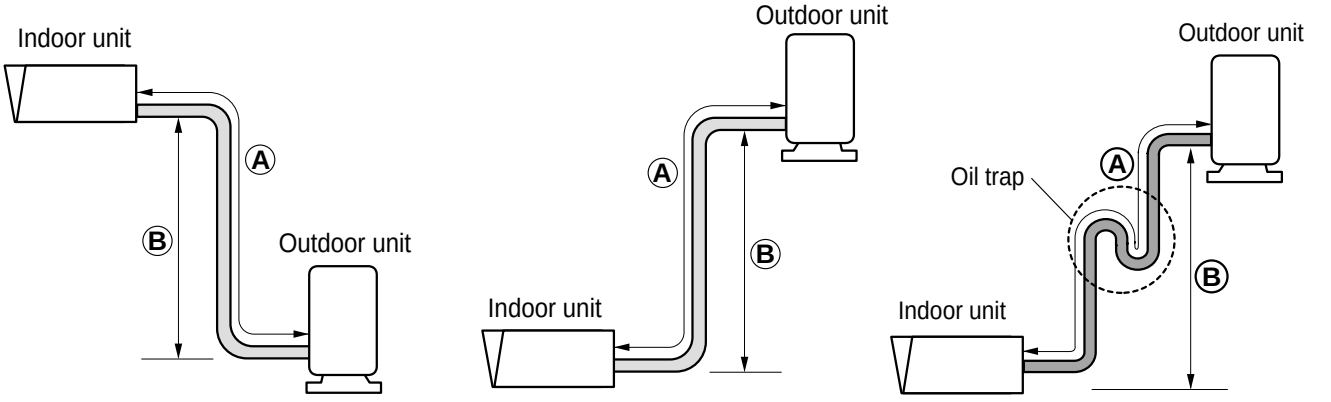
- Anchor the outdoor unit with a bolt and nut(ø10mm) tightly and horizontally on a concrete or rigid mount.
- When installing on the wall, roof or rooftop, anchor the mounting base securely with a nail or wire assuming the influence of wind and earthquake.
- In the case when the vibration of the unit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



8.3 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	3/8" (9.52mm)	1/4" (6.35mm)	7.5	15	5	5	20
18k Btu/h	1/2" (12.7mm)	1/4" (6.35mm)	7.5	50	5	30	35
24k Btu/h	1/2" (12.7mm)	1/4" (6.35mm)	7.5	50	5	30	35
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	40
48k Btu/h	3/4" (19.05mm)	3/8" (9.52mm)	7.5	50	5	30	75 (Chargeless 30m)
60k Btu/h	3/4" (19.05mm)	3/8" (9.52mm)	7.5	50	5	30	80 (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.

8.4 Refrigerant Additional Charging Method

(Except: AUUH126C / 186C / 246C / 306C / 368C)
There is not additional charging of refrigerant by main pipe of 30m below.
For additional charging method, see below table.
* Example(AUUH608C)

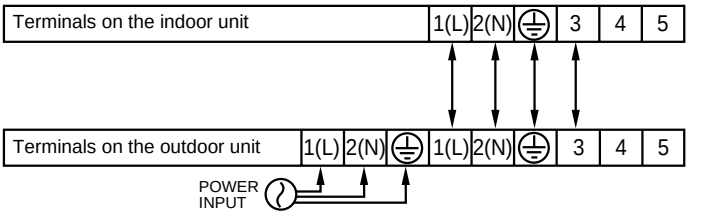
Single	Refrigerant=(L1-30)*0.08

*(L1=Main Pipe)

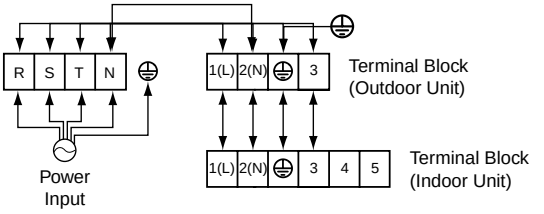
8.5 Wiring Connection

1. All wiring must comply with LOCAL REGULATIONS.
2. Select a power source that is capable of supplying the current as required by the air conditioner.
3. Feed the power source to the unit via a distribution switch board designed for this purpose.
4. The terminal screws inside the control box may be loose due to vibration during transport.
   Check the screws for loose connection.
   (Running the air conditioner with loose connection can overload and damage electrical components.)
5. Always ground the air conditioner with a grounding wire and connector to meet the LOCAL REGULATION.

1Phase
Heat Pump Model.

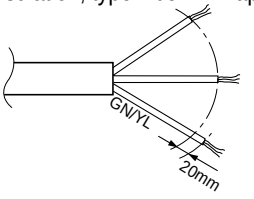


3Phase
Heat Pump Model.



⚠ CAUTION

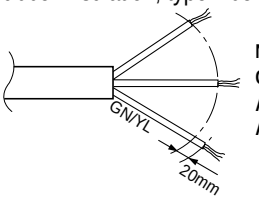
The power cord connected to the outdoor unit should be complied with the following specifications (Rubber insulation, type H05RN-F approved by HAR or SAA).



NORMAL CROSS-SECTIONAL AREA

Capacity	1 Phase	3 Phase
12k BTU/h	1.0mm	-
18k BTU/h	2.5mm	-
24k BTU/h	2.5mm	-
30k BTU/h	2.5mm	-
36k BTU/h	-	2.5mm²
48k BTU/h	-	3.0mm²
60k BTU/h	-	3.0mm²

The connecting cable connected to the indoor and outdoor unit should be complied with the following specifications (Rubber insulation, type H05RN-F approved by HAR or SAA).



NORMAL CROSS-SECTIONAL AREA 0.75mm² (12k/18k/24k/30k)
AREA 1.25mm² (36k/48k60k)

If the supply cord is damaged, it must be replaced by a special cord or assembly available from the manufacturer of its service agent.

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

III. Troubleshooting Guide

Self-diagnosis Function 102

Electronic Parts Troubleshooting Guide 103

Self-diagnosis Function

■ Error Indicator

① The function is to self-diagnoisis airconditioner and express the troubles identifically if there is any trouble.
② If more than two troubles occur simultaneously, primarily the highest trouble fo error code is expressed.
③ After error occurrence, if error is released, error LED is also released simultaneously.
④ Having or not of error code is different from Model.

■ ERROR display

• Error display method is classified depending on method and frequencies of flickering as example:

ex) ERROR CODE = 45

Number of "10" cipher "4"= Flickers lengthily 4 times.

Number of "1" cipher "5"= Flickers shortly 5 times.

■ Type and code of indoor unit error

[ERROR CODE]

① No Error 01
② Indoor Room themistor error 01
③ Indoor in-piping sensor error 02
④ Remote controller error 03
⑤ Drain Pump error 04
⑥ Communcation error between in and out 05
⑦ Indoor Out-Piping sensor error 06
⑧ Differnt mode operation 07

■ Type and code of outdoor unit error

[ERROR CODE]

⑨ Outdoor unit, outdoor temperature Thermister open/short 44
⑩ Outdoor unit pipe temperature Thermister open/short 45
⑪ Excess of capacity (inconsistency with option capacity setup in outdoor unit) 51
⑫ Communication between indoor unit and outdoor unit in-available 5
⑬ D-Pipe Temperature High 33
⑭ D-Pipe thermister open/short 47
⑮ Outdoor unit suction temperature Thermister open/short 48

■ Countermeasure of error occurred

1) For error as described in above item ⑨ ~ ⑪, ⑬ ⑭): Stops operation of the outdoor unit
Transmits error code to the indoor unit.

2) For error as described in above item 4): Transmits error code to the indoor unit

• For thermister error, error terminates after powering off.

• Excess of capacity (Where capacity of the outdoor unit differs from capacity of the indoor unit Error display)

3) Error of the discharge temperature sensor is processed in following method:
For sensor open process, check 4 minutes after COMP operation and 10 minutes after power application.
For short process, check and process from the time when power is applied.

Electronic Parts Troubleshooting Guide

1. The Outdoor Unit does not operate at all

Does the Operating LED of indoor unit blink when Operation's ON?

NO → Refer to the self-diagnosis function.

NO

Is the Connection between CN-Power of indoor unit and terminal block?

NO → Check the connecting state of connector

YES

Is the connection of cable between indoor and outdoor unit ringht?

NO →

Indoor	Outdoor
1(L)	1(L)
2(N)	2(N)
⏚	⏚
3	3

YES

Is the voltage of CN-POWER ①, ③ in outdoor PCB Ass'y about AC220V / 240V?

NO → Check the main power

YES

Check the Fuse of outdoor PCB Ass'y.
Chek the connecting state of wires

NO

Replace the PCB Ass'y.

* MPS units start at three minutes after main power turning on.

2. The product is not operate with the remote controller.

Turn on Main Power

While the compressor has been stopped, the compressor does not operate owing to the delaying function for 3 minutes after stopped.

When the compressor stopped Indoor Fan is driven by a low speed. At this point the wind speed is not controlled by the remote controller. (When operated in the Sleeping Mode, the wind speed is set to the low speed by force.)

Caused by the remote controller

When the mark( ) is displayed in LCD screen, replace battery.

When the detect switch(double key) inside the remote controller door is fault, it is impossible to operate temperature regulating(▲/▼) and wind speed selecting.

Replace remote controller

Caused by other parts except the remote controller

Check the contact of CN-DISP1 connector.

Check DISP PWB Ass'y
- Voltage between CN DISP1 ① - ⑦ : DC +5V

Check point

- Check the connecting circuit between PIN ②- R01L(1K) - C01L(680PF) - MICOM PIN
- Check Receiver Ass'y

3. When cooling does not operate

Turn on Main Power

↓

Operate "Cooling Mode(❋)" by setting the desired 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 attached as close as to be effected by the temperature of Heat Exchanger(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 indoor temperature sensor is disconnected or not(About 10kΩ / at 25°C).

↓

Check Relay(RY - COMP) for driving compressor.

• When the power(About AC220V/240V) is applied to the connecting wire terminal support transferred to compressor, PWB Ass'y is normal.
• Check the circuit related to the relay.

Check point	COMP ON	COMP OFF
Between two pin of DC part in relay for COMP	Below DC 1V (app)	About DC12V

4. When Heating does not operate

Turn ON Main Power

↓

Operate “Heating Mode(☼)” by setting the desired temperature of the remote control is higher than one of the indoor temperature by 2°C at least.

↓

In heating Mode, the indoor fan operates in case the pipe temperature is higher than 28°C.

↓

Check the connector of intake and pipe sensor(thermistors)

- Check the indoor room temperature is disconnected or not (about 10KΩ/at 25°C).
- Check the indoor pipe temperature is disconnected or not (about 5KΩ/at 25°C).

↓

Check the DC voltage on the PWB ASS’Y

- The details of check are as followings

- Comp Relay.

Check point	Comp ON	Comp OFF
Between two pin of DC part in relay for COMP.	Below DC 1V	About DC 12V

- 4-Way Relay

Check point	4-Way ON	4-Way OFF
Between two pin of DC part in relay for 4-way.	Below DC 1V	About DC 12V

↓

Check Outdoor Unit

5. When indoor Fan does not operate

Turn off Main power

⇩

Check the connection of CN-FAN or CN-MOTOR

⇩

Check the Fan Motor

⇩

Check the Fuse(AC250V/T2A)

⇩

Check the related circuit of indoor Fan Motor.

- The pin of Micom, and the part for driving SSR
- Check the pattern
- Check the SSR
  - SSR Open: Indoor Fan Motor never operate
  - SSR short: Indoor Fan Motor always operates in case of ON or OFF.

⇩

Turn ON Main Power

⇩

Check the SSR high speed operation by remote control.
(The Indoor Fan Motor is connected)

The voltage of PIN NO 1(blue) and 3(yellow) of CN-FAN or CN-MOTOR.

⇩

About AC 160V over	About AC 50V over
⇩	⇩
SSR is not damaged	SSR Check

6. When Vertical 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 Connector
- Check the soldering condition(on PWB) of CN-U/D Connector

⇩

Check the operating circuit of the Vertical Louver

- Confirm that there is DC +12V between pin ①(RED) of CN-U/D and GND.

⇩

If there are no problems after above checks

- Confirm the assembly conditions that are catching and interfering parts in the rotation radial of the Vertical Louver

IV. Electronic Control Device

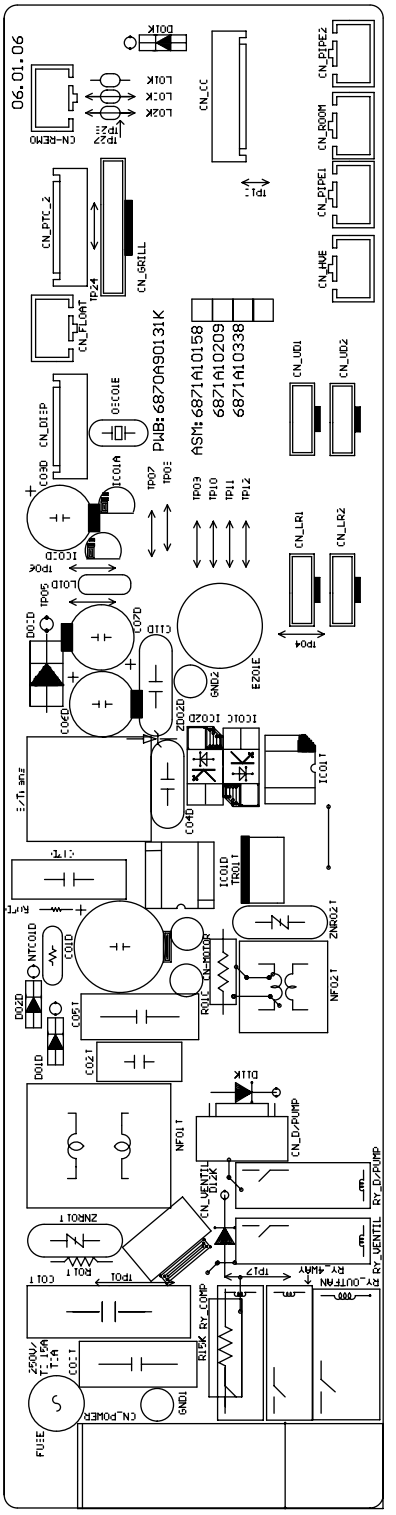
Ceiling Cacsette Type.....110

Ceiling Duct Type.....111

Celing & Floor 113

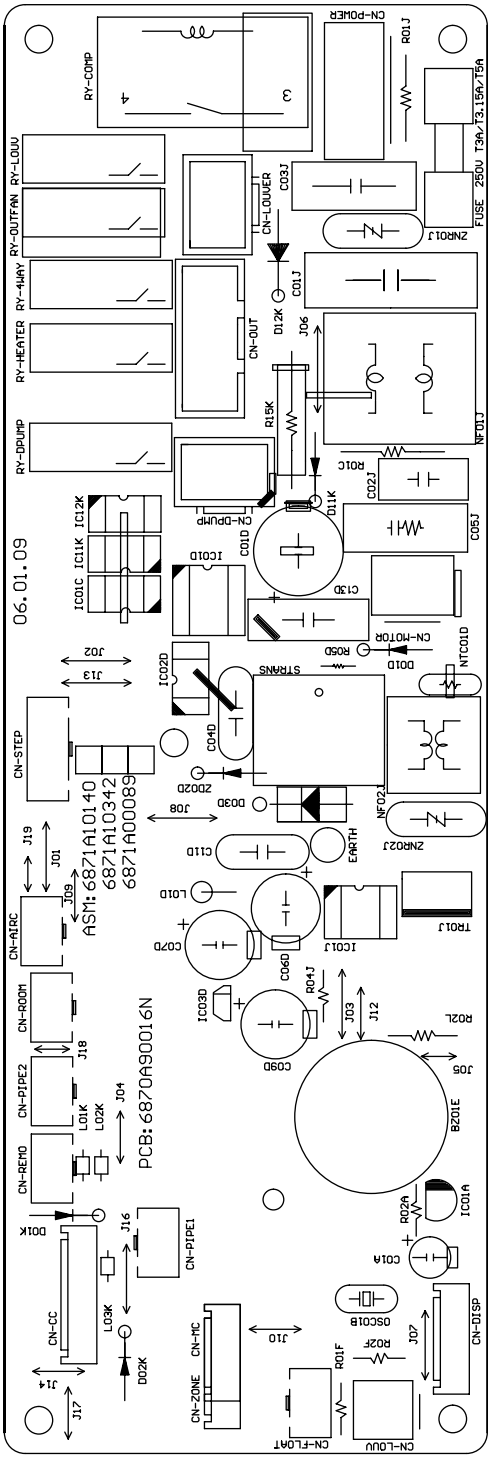
Ceiling Cassette Type

Main P.C.B ASM

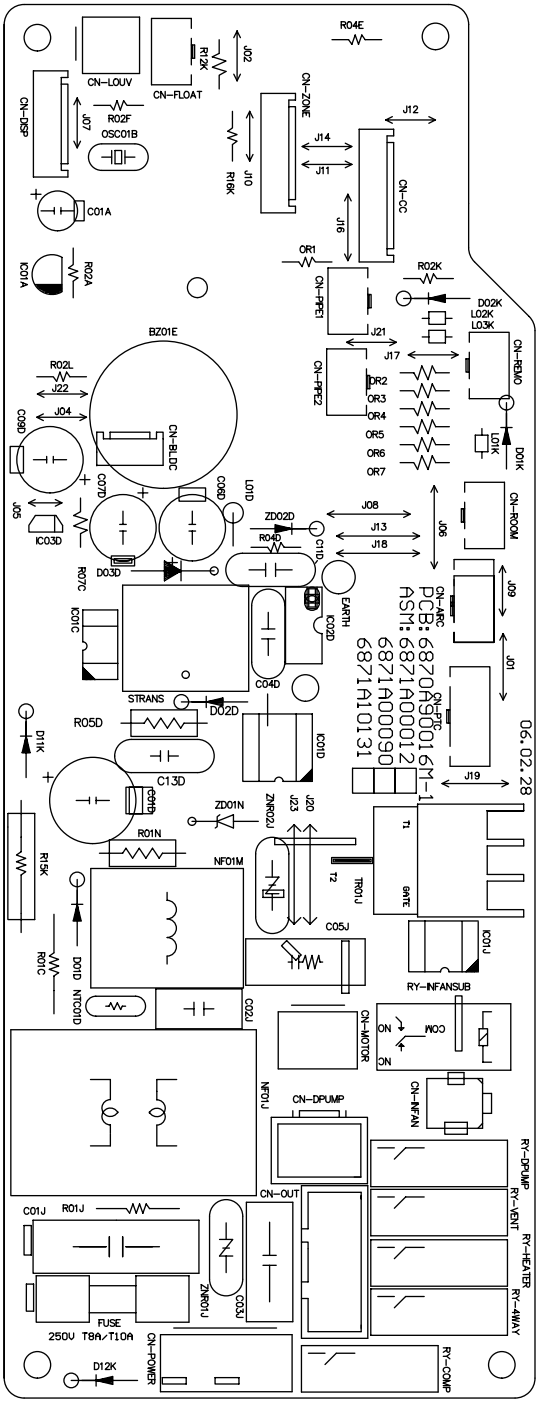


Ceiling Duct Type

(BH Series)



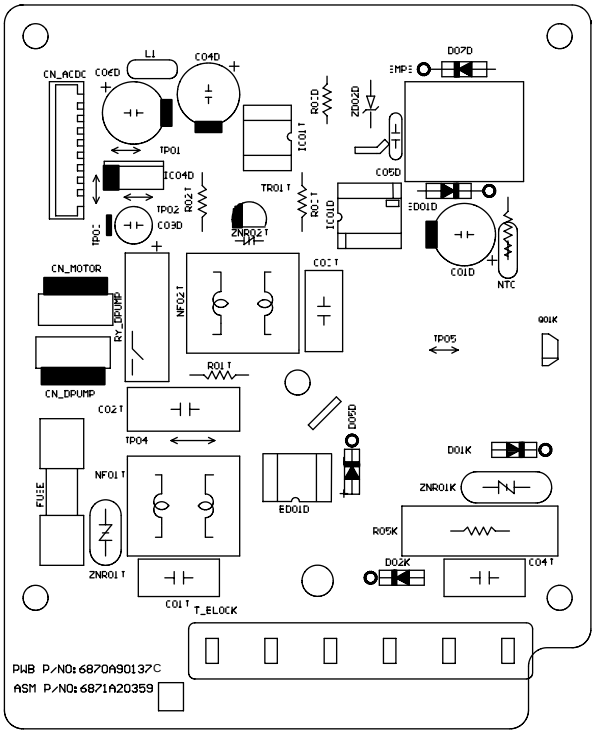
(BG/BR Series)



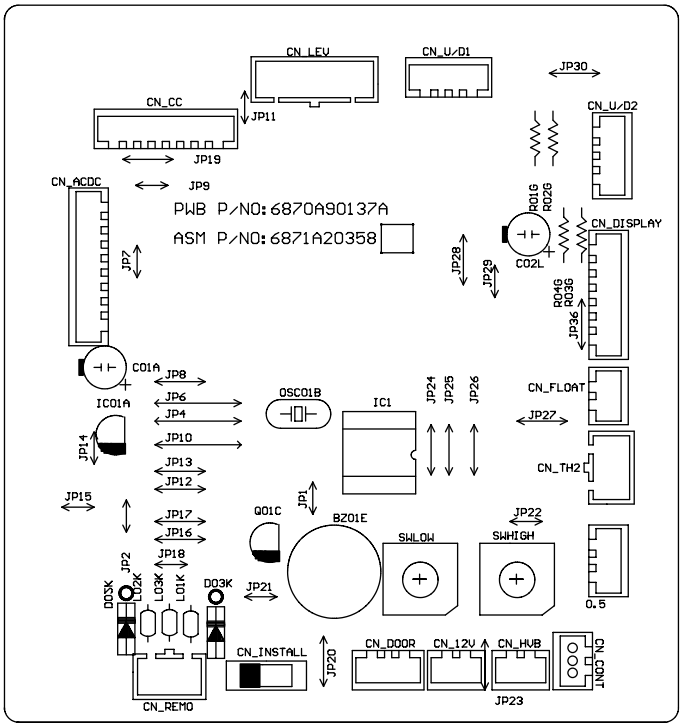
Ceiling & Floor

(VE Series)

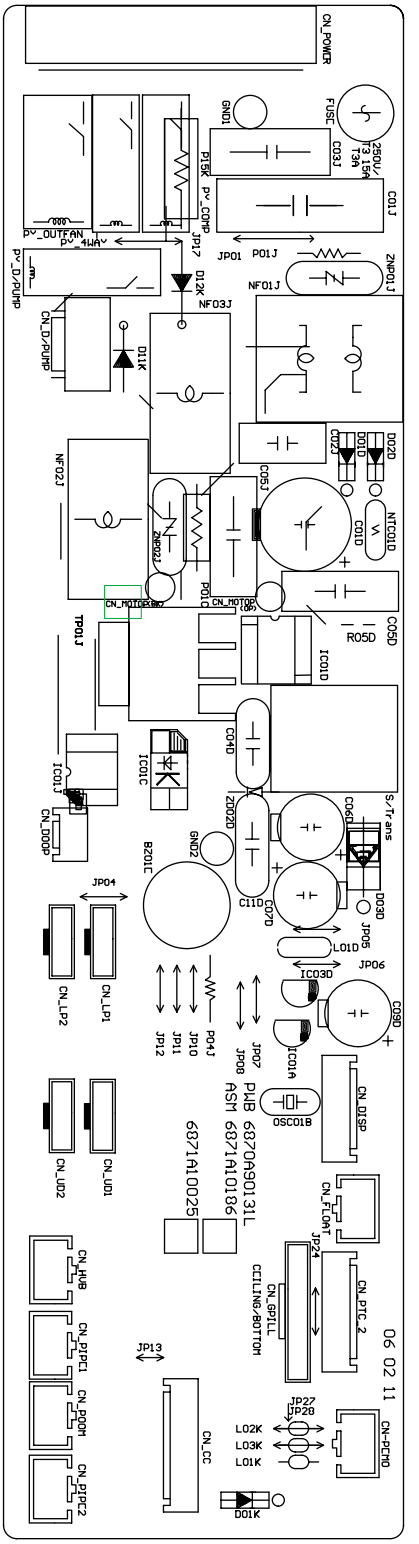
AC



DC



(VB/VK/VL Series)



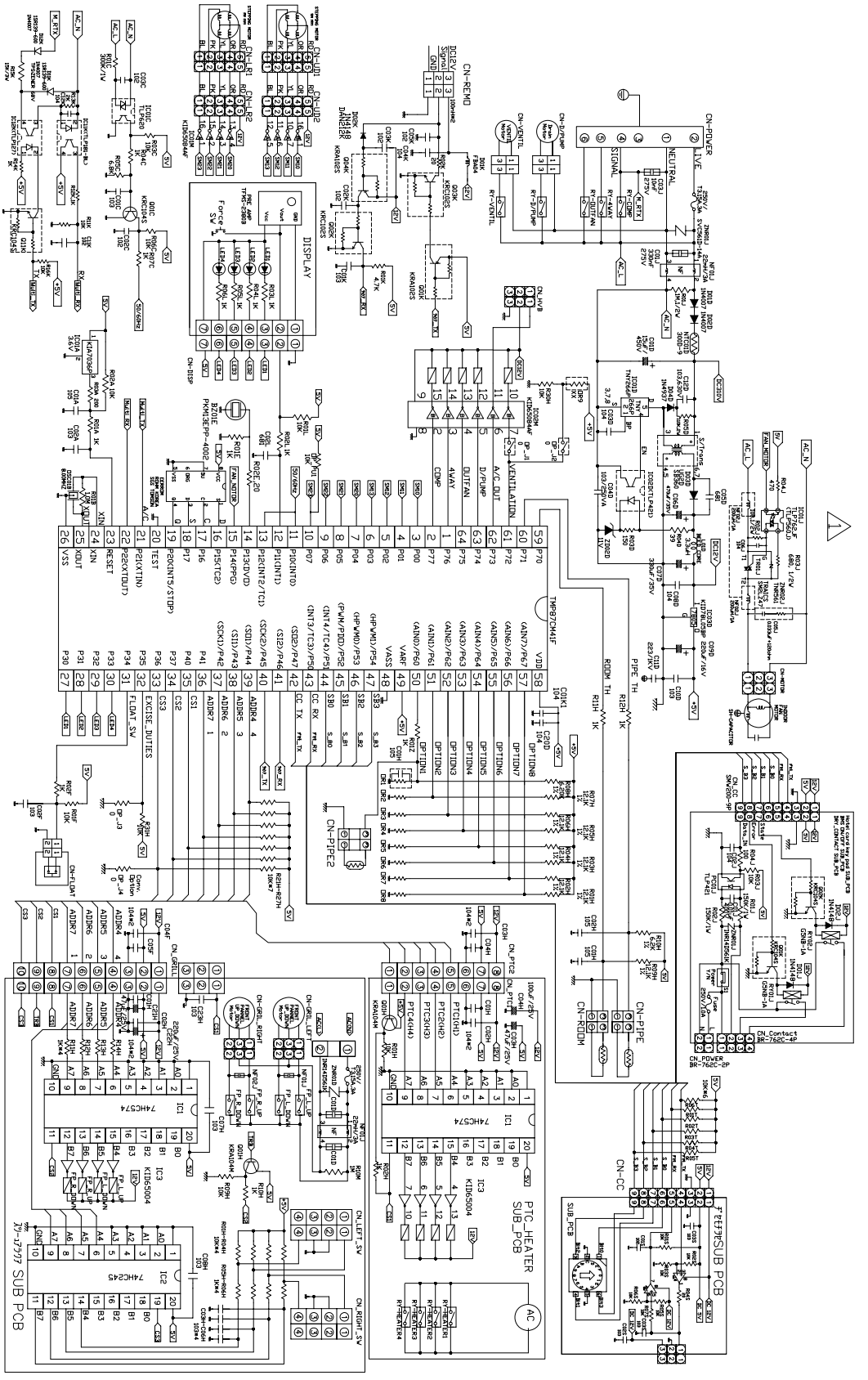
V. Schematic Diagram

Ceiling Cacsette Type.....116

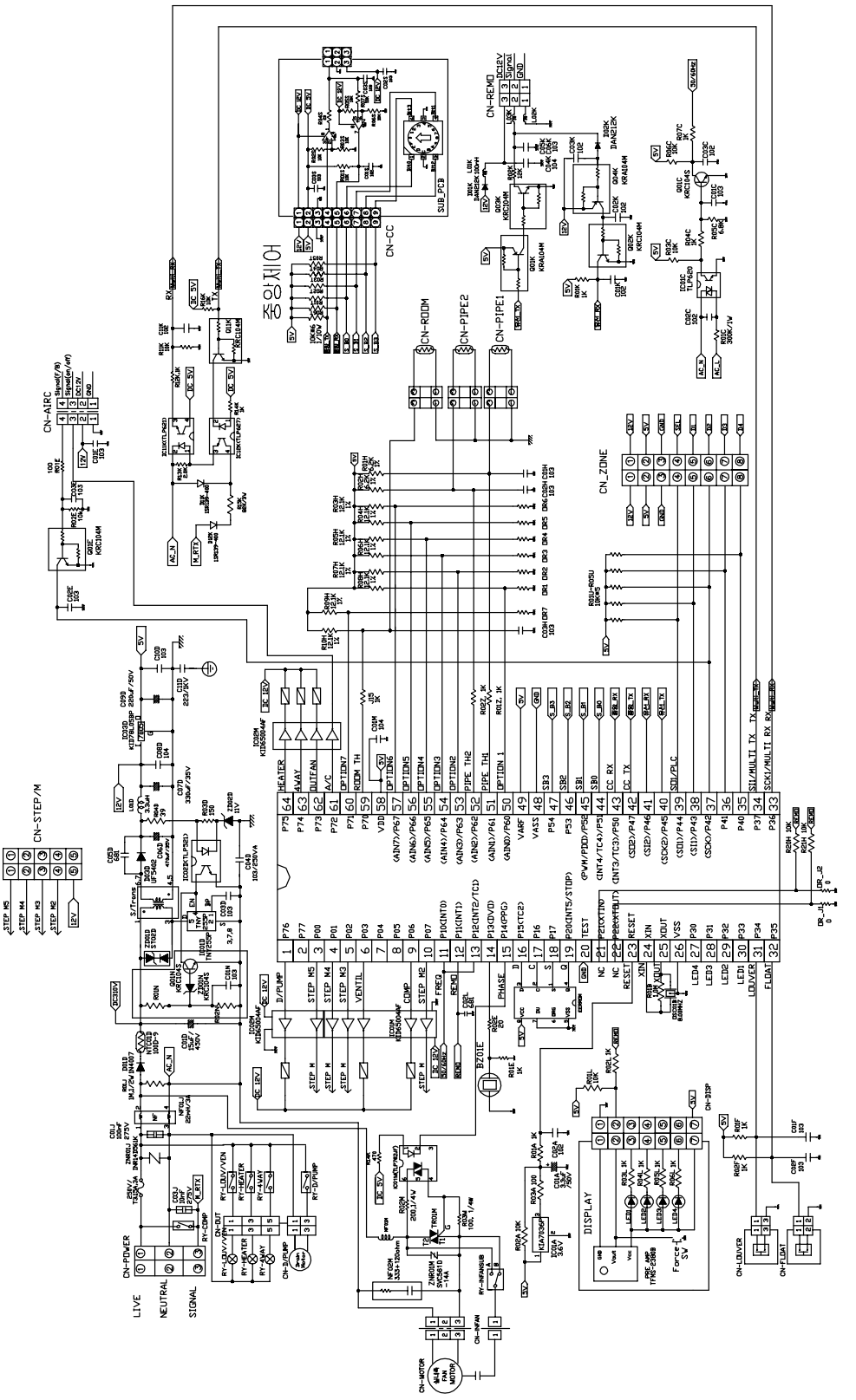
Ceiling Duct Type.....117

Celing & Floor 118

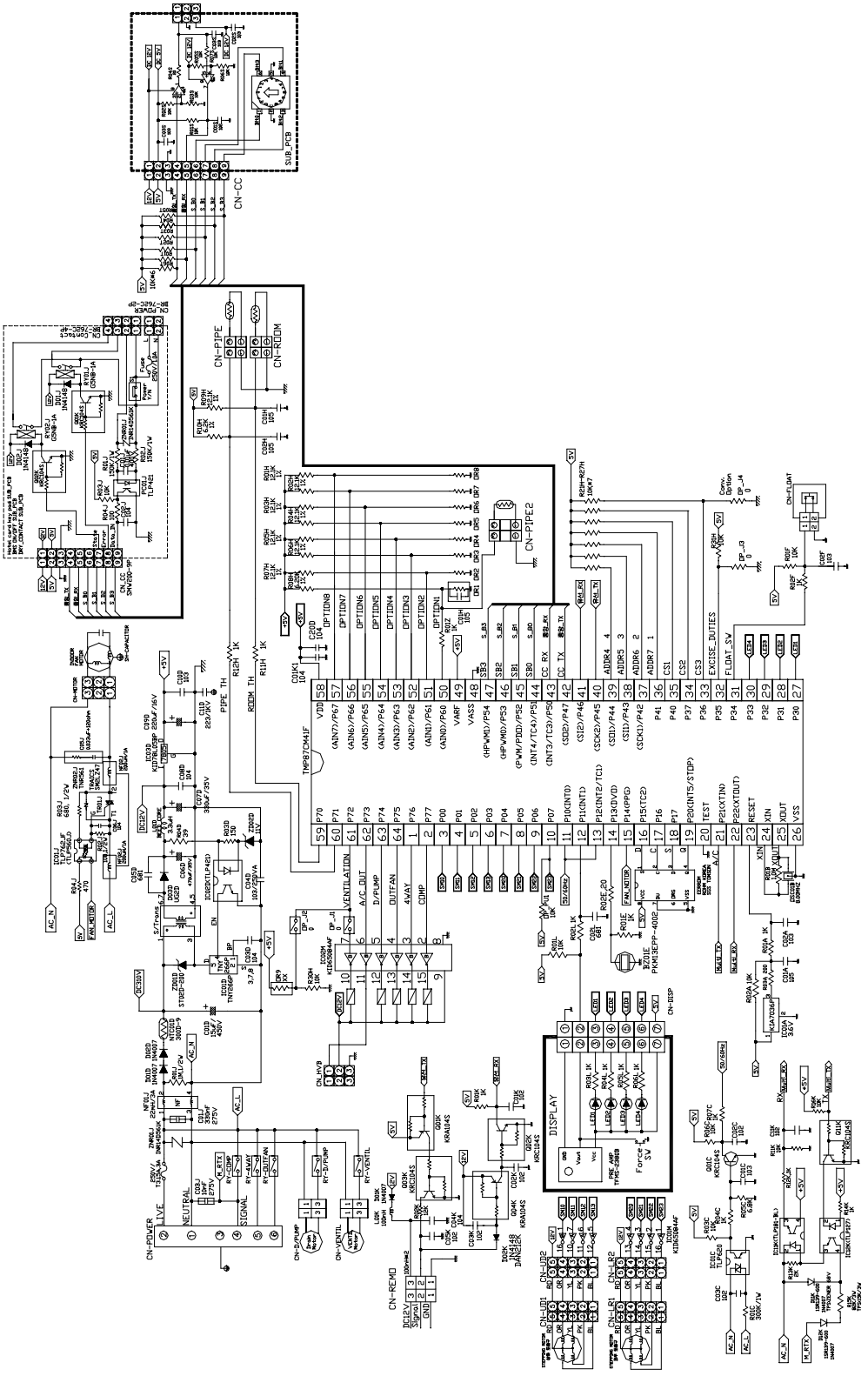
Ceiling Cassette Type



Ceiling Duct Type



Ceiling & Floor



VI. Functional Description

Ceiling Cacsette Type.....120

Ceiling Duct Type.....122

Celing & Floor 125

Outdoor Unit.....128

Ceiling Cassette Type

The function of main control

■ Auto Swing Control

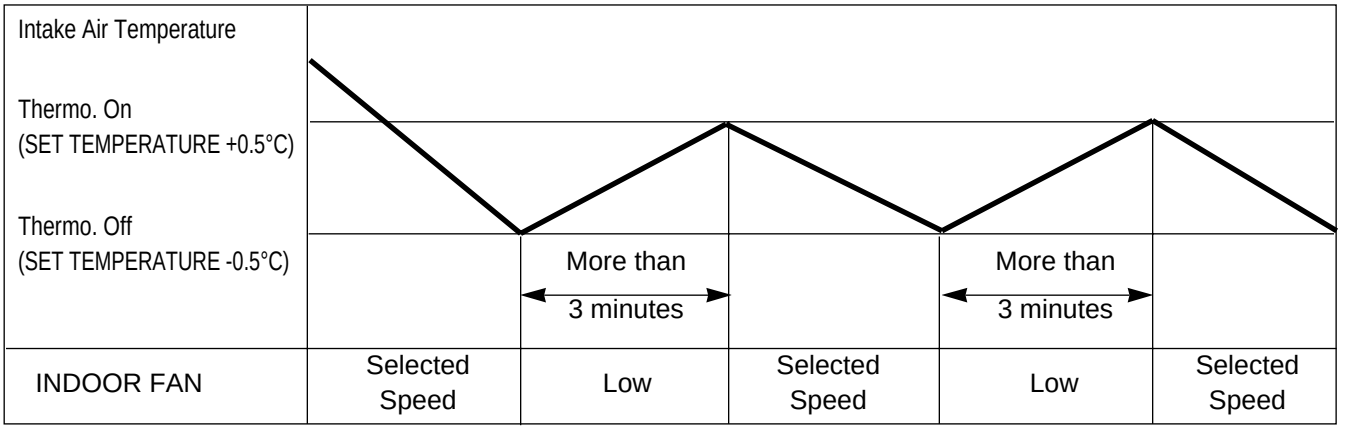
• This function is to swing the louver up and down automatically.

■ 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

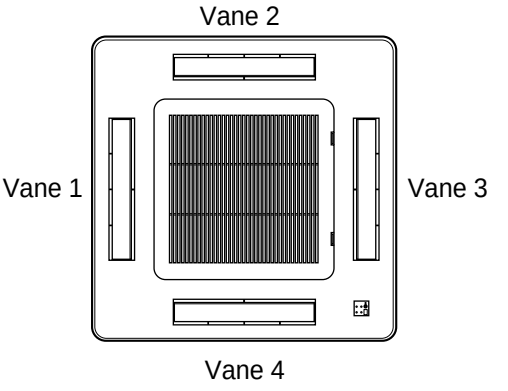
• When selecting the Cooling(❄) Mode Operation, the unit will operate according to the setting by the remote controller and the operation diagram is as following



■ Swirl Swing Control

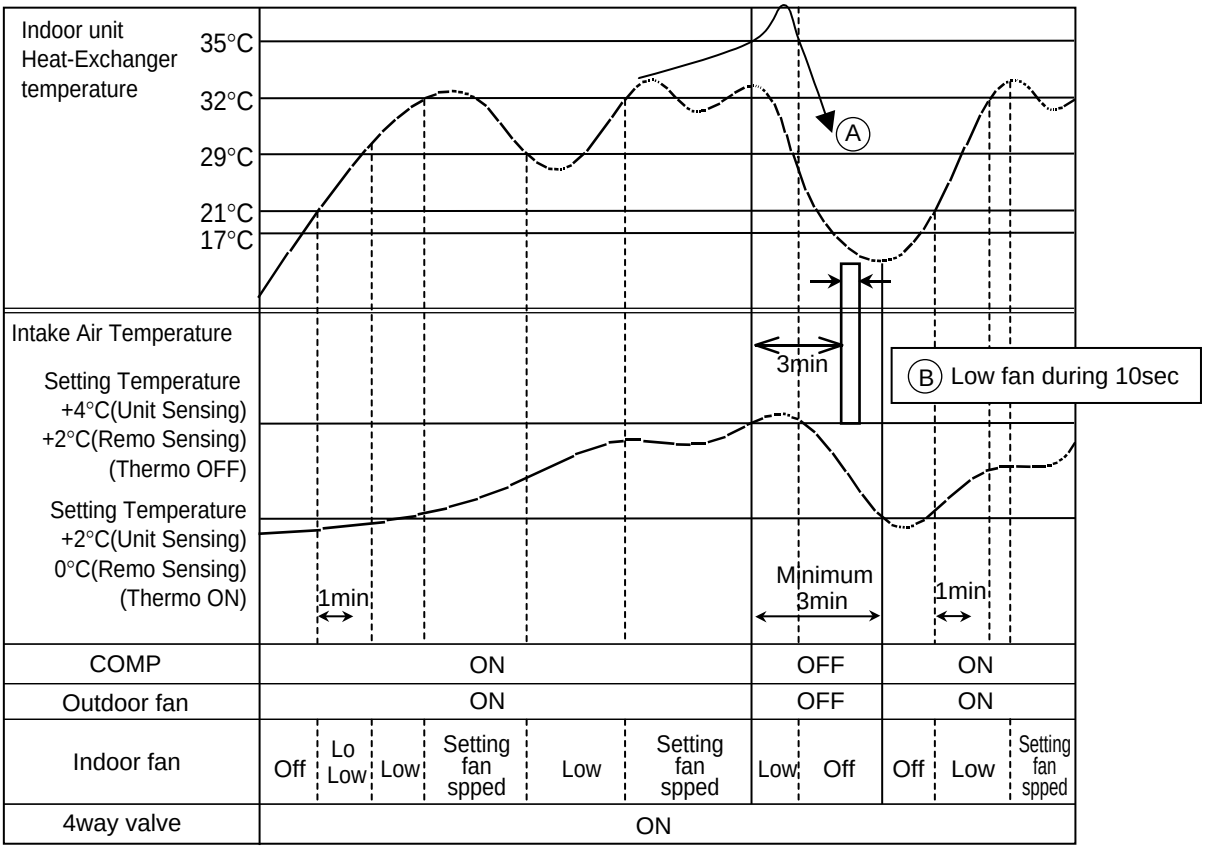
Vane 2, 4 is almost vane closed while vane1, 3 is opened.

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



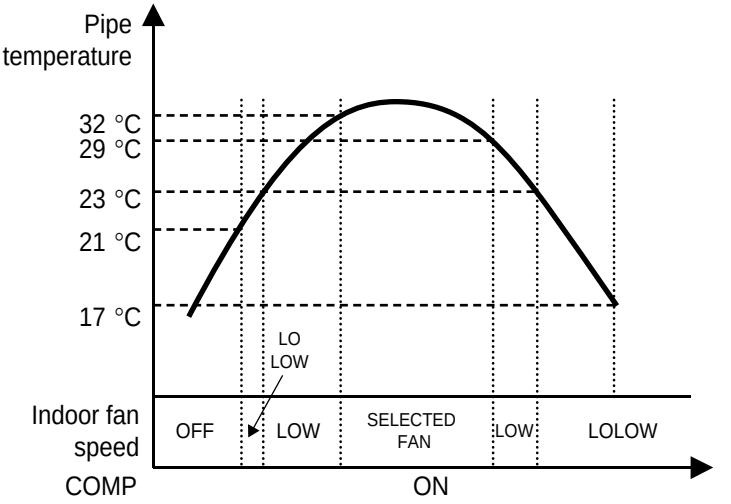
■ Heating Mode Operation

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 no rotate until the evaporator piping temperature will be reached to 21°C.
- The operation diagram is as following.



Ceiling Duct Type

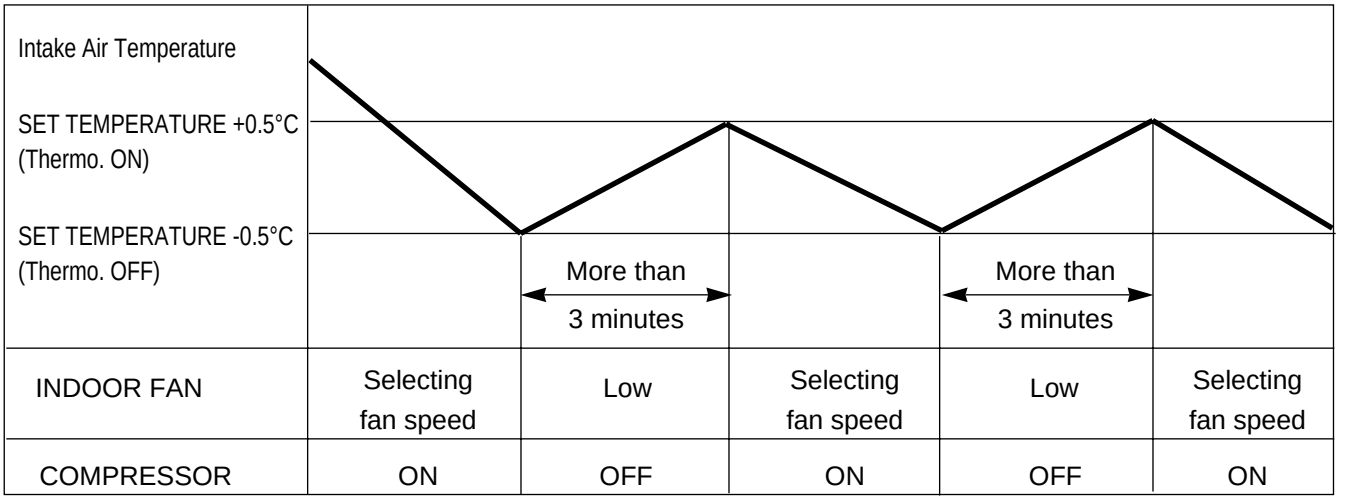
The function of main control

■ 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

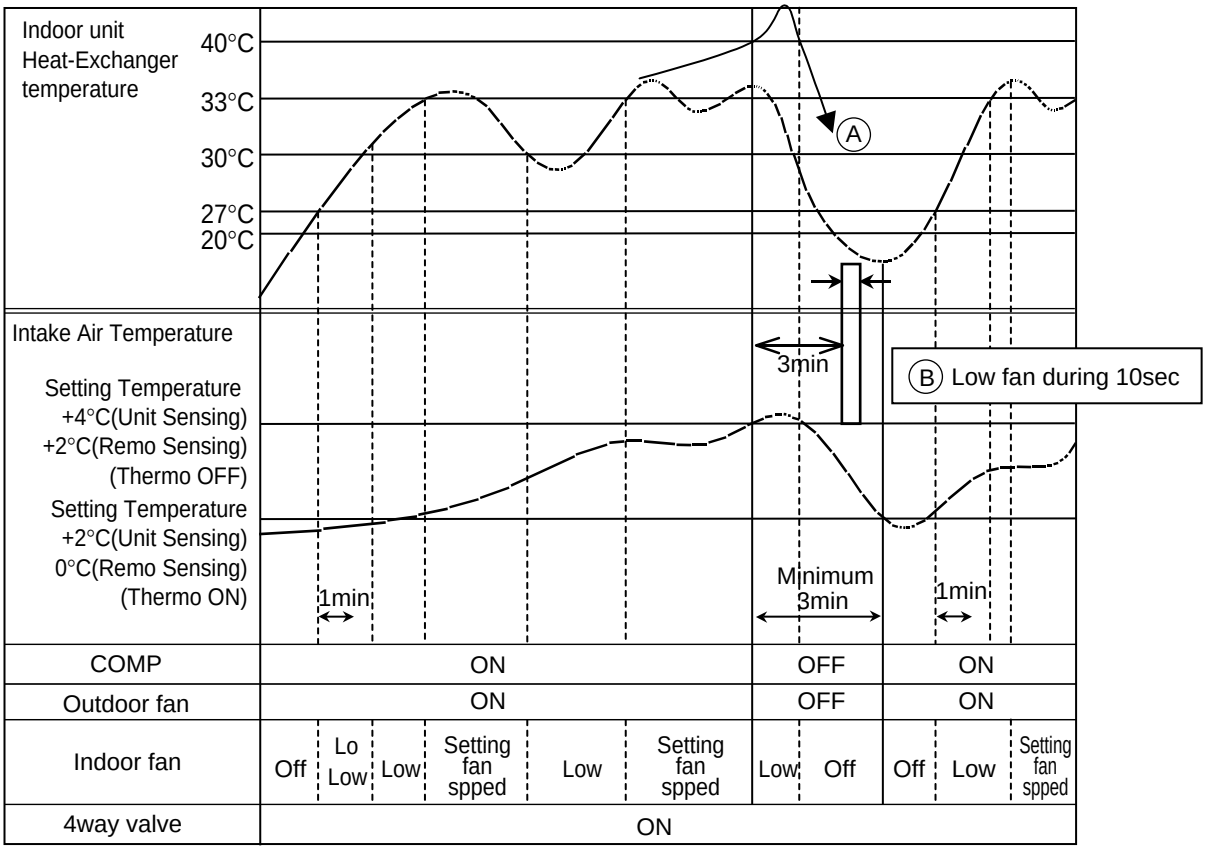
• When selecting the Cooling(❄) Mode Operation, the unit will operate according to the setting by the remote controller and the operation diagram is as following.



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.

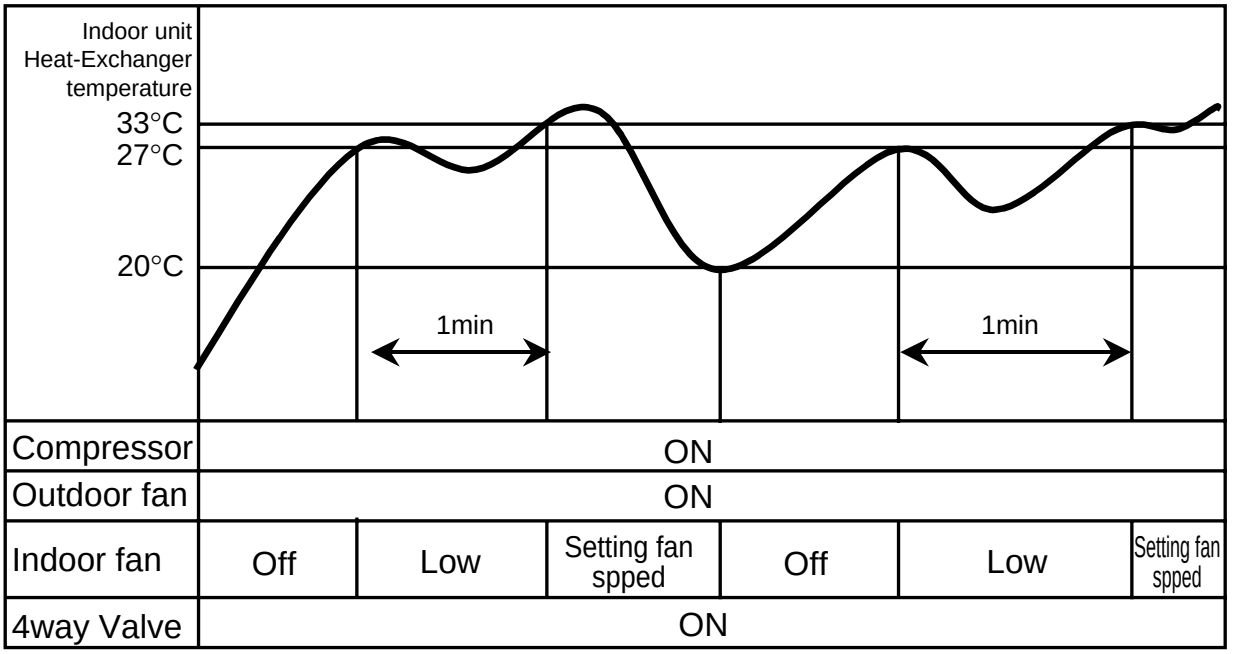


• **Compressor-off interval** : - (A) While the indoor Heat-Exchanger temperature is higher than 40°C, fan operates at low speed, when it becomes lower than 40°C fan stops.
- (B) For eluminating latent heat-loss, fan operates at low speed for 10 seconds periodically.

■ 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

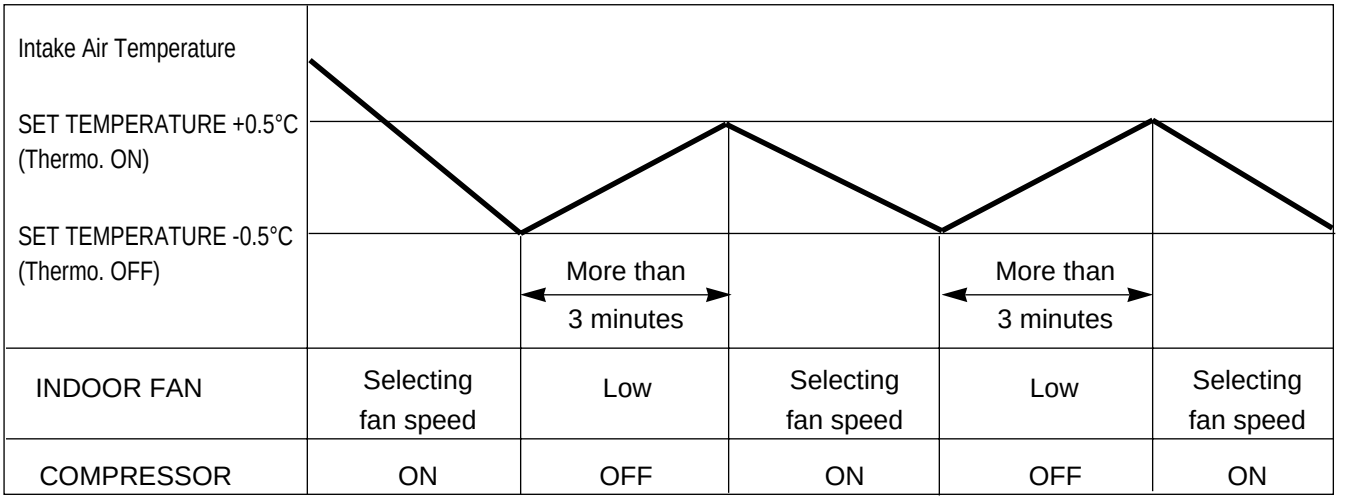
The function of main control

■ 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

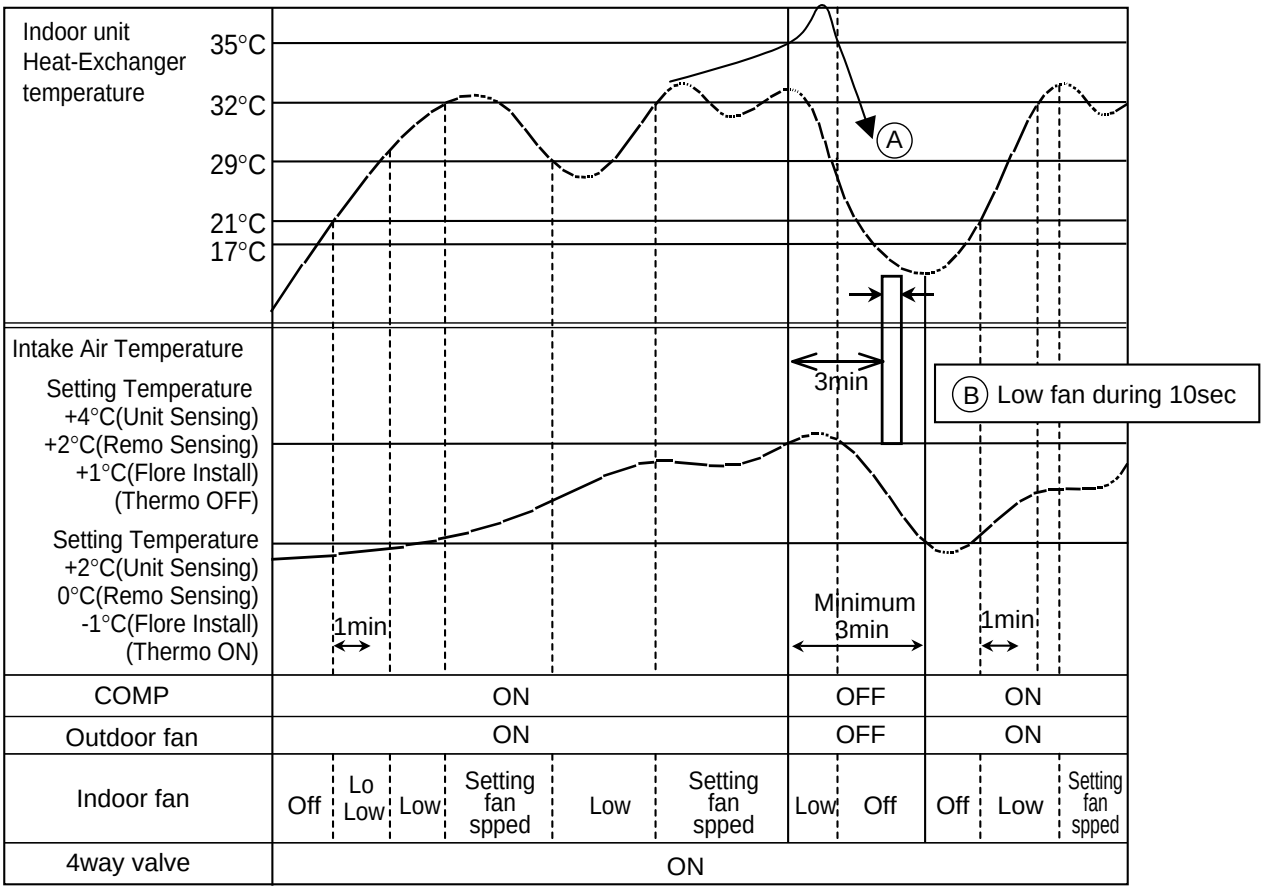
• When selecting the Cooling(❄) Mode Operation, the unit will operate according to the setting by the remote controller and the operation diagram is as following.



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.

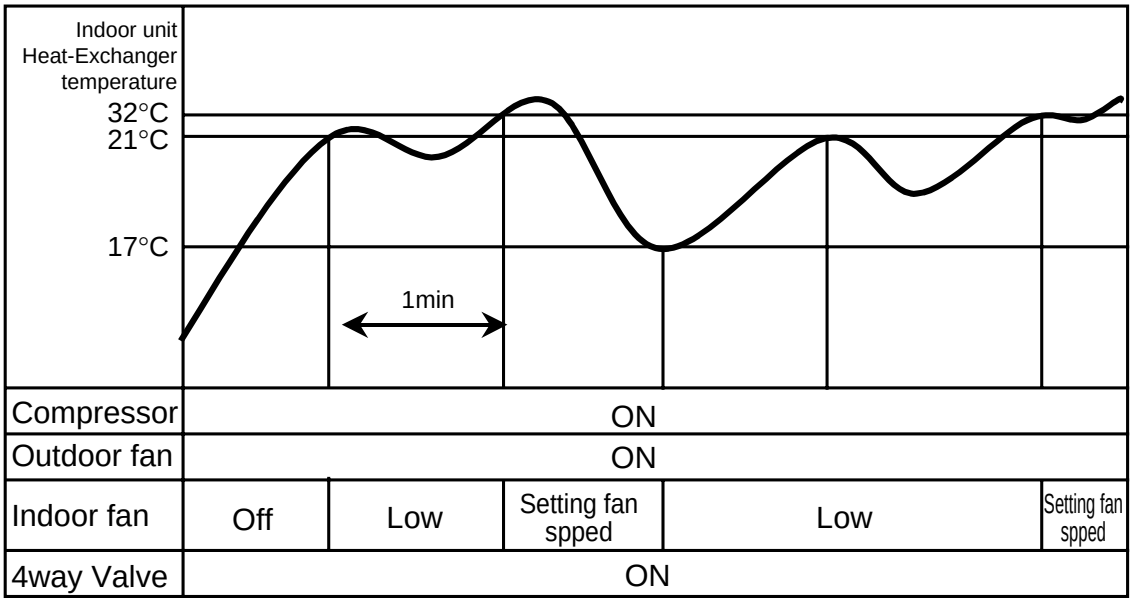


• **Compressor-off interval** : - (A) While the indoor Heat-Exchanger temperature is higher than 35°C, fan operates at low speed, when it becomes lower than 35°C fan stops.
- (B) For eluminating latent heat-loss, fan operates at low speed for 10 seconds periodically.

■ 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	On/Off (1 Comp.) Step Control (2 Comp.)	On/Off (1 Comp.) Step Control (2 Comp.)	Stop
Fan	Phase control	Phase control	After 30sec, Off
EEV	Target Suction super heat and Discharge Temp. Control	Target Suction super heat and Discharge Temp. Control	After 60sec, Full Opne
4 way valve	Off	On	After 30sec, Off(Heating_

1.2 Compressor control

(1) Step Control : COMP Operation Step will be determined on the load according to the difference between indoor Temp.and outdoor Temp.

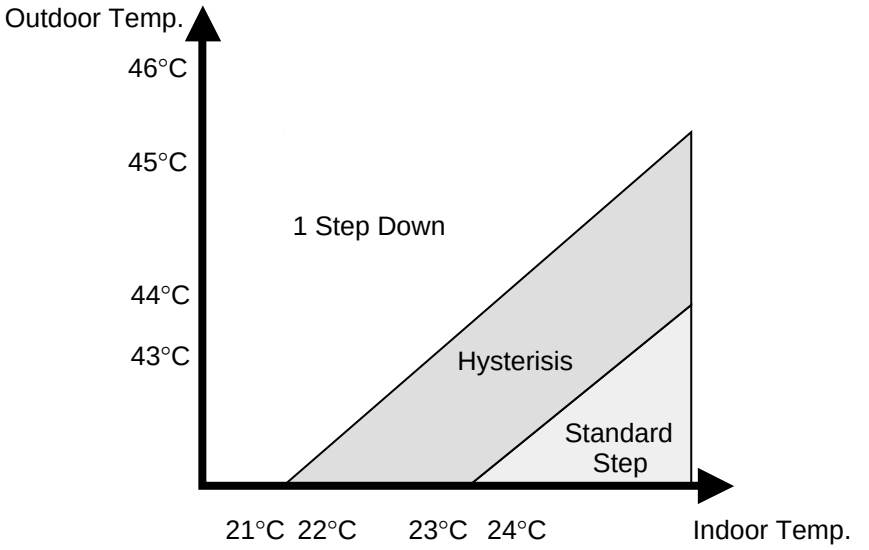
- The general load → Operating in Standard Step
- Below the specified load → Operating in lower one step than standard step.
- The Hysterisis → Operating in a previous step .

Capacity(Btu/h)	MODE	STEP1	STEP2	STEP3
		B COMP	A COMP	B+A COMP
12k	Cooling	O		
	Heating	O		
18k	Cooling	O		
	Heating	O		
24k	Cooling	O		
	Heating	O		
30k	Cooling	O		O
	Heating		O	O
36k	Cooling	O		O
	Heating		O	O
60k	Cooling	O		
	Heating	O		

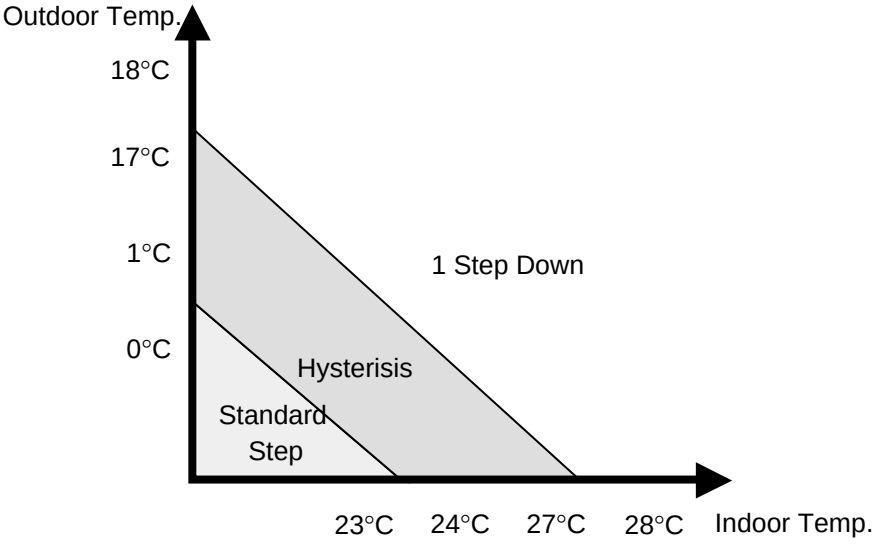
❋ Comp.Capacity Definition
1)Comp. B: 50% COMP
2)Comp. A: 50% COMP , Comp.A+B :100% COMP

(2) Operation field for Temp.

Cooling



Heating



✵ The standard field
→ Operating COMP standard step.

✵ Hysterisis field?
→ When [1_comp_operating_field] move [the standard field] owing to the change of temperature, or the opposite situation.
The comp will be operated in the previous step.

✵ 1STEP DOWN field?
Operating step is lower one step than standard step.

1.3 EEV Control

1) The base(the first stage) open_degree's establishment

The base open_degree is established [the standard open_degree classified by indoor_Type and capacity] that corrected to the indoor/outdoor Temp.

2) Starting Control (LEV target open_degree arrival process after starting Comp)

(1) LEV is arrived the previous decided open_degree within 30 seconds after starting COMP.

(2) The open-degree is increased to target_degree in proportion to Comp operation time.

❋ The starting control°Øs time is within 120 seconds after COMP operation

3) Normal Control

: The condensor's degree of superheat control + Compressor Discharge-Temp. Control

(1) Cooling mode

In cooling mode, normal control regulates EEV pulse that continues to fixed value for Superheat Temp. of the operating indoor unit.

Control subject	: The pipe Temp. of outdoor_unit
T_Target	: The pipe Temp. of indoor_unit + The degree of superheat

(2) Heating mode

In heating mode. It is used the degree of superheat control that be regular the difference with Compressor Suction pipe-Temp. (ACCUM) and pipe Temp. of outdoor_unit

▶ The degree of superheat = Compressor Suction pipe_Temp. (ACCUM) – The pipe Temp. of outdoor_unit

Control subject	: The suction_pipe of indoor_unit
T_Target	: The pipe Temp. of outdoor_unit + The degree of superheat

(3) EEV control

a. Superheating control (Cooling Mode)
- Superheating : T superheating = Tout – Tin = 2°C
- LEV pulse up : T superheating > 2°C
- LEV pulse down : T superheating < 2°C

b. Target Temperature Control (Cooling mode)
- In case, outdoor temperature > 39°C
- Target superheating : T target = Tin = 18°C
- LEV pulse up : T target < 18°C
- LEV pulse down : T target > 18°C

c. Target Temperature Control (Heating mode)
- LEV pulse up : T target > Tout
- LEV pulse down : T target < Tout

d. LEV pulse change Value
8 pulse (P1-P0 > 4°C)
4 pulse (4°C ≥ P1-P0 > 3°C)
2 pulse (3°C ≥ P1-P0 > 1°C)

(4) Compressor Discharge-Temp. Control
After 1 min. of normal control, if it is satisfied with fomula below, it starts to control of Comp. Discharge Temp.
Cooling mode : The present degree of superheat ≤ 3 (Option)
Heating mode : The target degree of superheat < 0 , The present degree of superheat ≤ 0 (Option)
The present degree of superheat ≥ 0, The present degree of superheat ≤ 5 (Option)

❋ The target degree of superheat is decided for indoor_unit and operation mode.

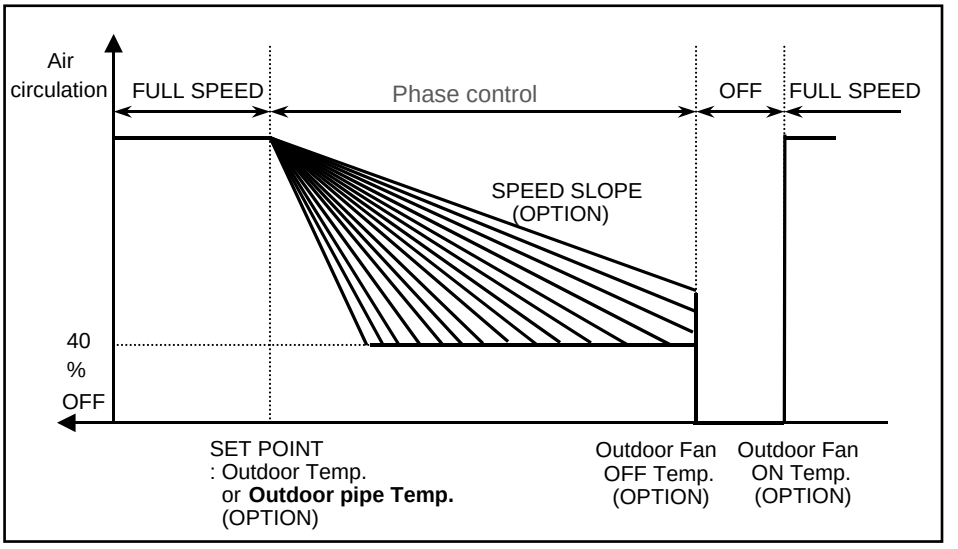
❋ The target Temp. of discharge pipe is decided for indoor_unit, outdoor_unit and Comp operation Step, the difference indoor and outdoor.

1.4 Fan control

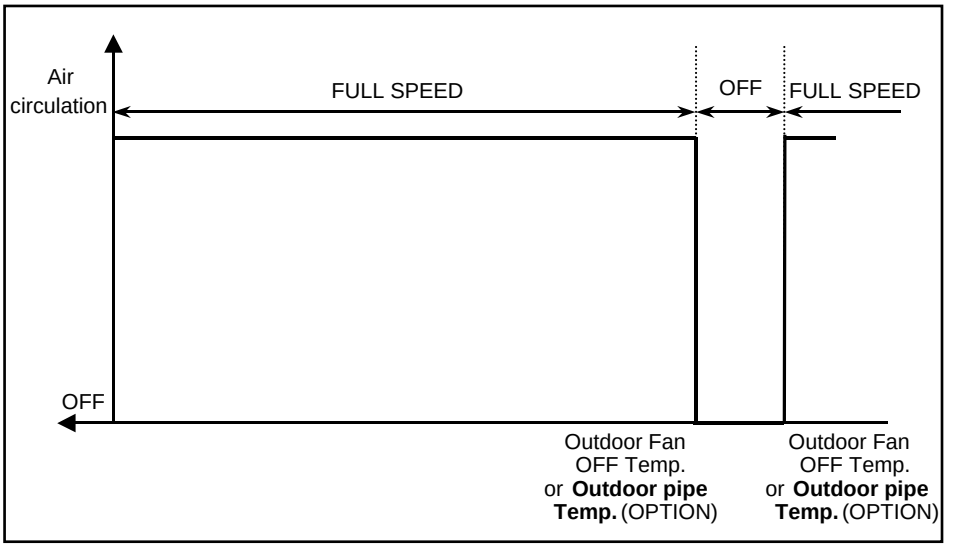
1) STANDARD STEP : Stop, Operation (2 Step)

2) Phase control : The low Temp.of outdoor (=Cooling), The high Temp. of outdoor (=heating) → Control fan On/Off, or Decrease the volume of fan's wind.

(1) COOLING



(2) HEATING



❋ OPTION: Each models have a different establishment.

1.5 Reversing Valve Control

1. The first situation of reversing valve maintains off(cooling) (Before that The power turns on the set of outdoor_unit and indoor_unit)
2. While the Cooling and Defrosting Process the Reversing valve control is OFF and during the Heating Process the Reversing valve control is ON
3. When the defrosting is started, unit follows the defrost algorithm.
4. In case the mode is changed from heating to cooling ,the outdoor unit resets (OFF → 3 minutes → ON), The Reversing valve is changed after that the comp of outdoor_unit will be Off for 30 seconds.
5. If the indoor units switched OFF by the REMOCON in the heating mode, The Reversing valve will be stopped after that the comp of outdoor unit will be OFF for 30 seconds.
6. In case of the comp is stopped according to the Thermo off signal in the heating mode, the outdoor units maintain the heating mode.

2. Special control

2.1 Defrost control

: In case the temperature of the outdoor unit heat exchanger falls continuously this function will prevent heat exchanger from freezing.

2.1.1 Defrost PROCESS Starting conditions

1) Only Operates in the heating mode.
2) The defrost timer (The first time : outdoor unit is turned on ,the minimum for defrost operation to start is over 45~120 minutes.
3) The compressor operates continuously for over ten minutes
4) Outdoor pope maintains a temperature of below -5°C for 4 minutes . (If the time of accumulated defrost operation is over 90 minutes, maintain below -3°C)
5) When the above 1)~4) conditions be satisfied, Defrost operation will be start.

2.1.2 Defrost cycle time

1) Defrost process starting conditions is decided after 45(30)~120min. according to the outdoor Temp.
2) Defrost process stop conditions is decided after 4min.
3) Defrost process stops at maximum 9 min.

2.1.3 Defrost PROCESS

1) The previous situation of outdoor unit maintains for 20 second just before changing defrost control.
2) The LEV phase of indoor unit open to the 500 phase(=full open)
4) Changing the cooling mode of 4WAY VALVE → Direct the fan of indoor unit to stop. (4WAY VALVE is operated to convert the process to cooling irrespective of the cycle's start/stop.
5) Stand by for 5 second.
6) The FAN of outdoor unit is OFF
7) Defrost PROCESS starts.
8) If the pipe Temp.of outdoor unit is above 12°C in Defrost mode, operate the fan of outdoor_unit.
   If it is under 8°C in Defrost mode, stop the fan of outdoor_unit. if it is between 9°C and 11°C, the outdoor_unit maintains the previous situation.
9) Defrost PROCESS stop conditions
   → Pipe temperature of the outdoor_unit is above 12°C for 150 minutes or defrosting operation starts after 6~9 minutes.
10) When these conditions be satisfied,Defrost operation will be maintained for 20 seconds
11) LEV initialization, the FAN of outdoor unit is ON, 4WAY_VALVE switched to heating mode, the FAN of indoor_unit stops the OFF situation.
12) Defrost PROCESS complete.

*. 8), 9) conditions is only applied to continuous operating CYCLE.

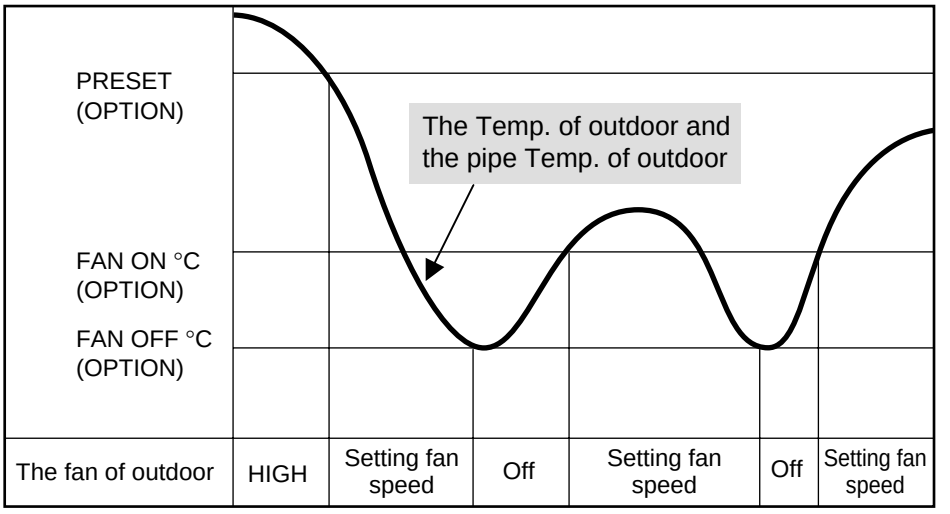
2.2 Low ambient control

2.2.1 The outline of Low ambient control.

: The control device makes [the outdoor_unit] operate the Cooling mode in low-temperature condition without overloading the comp.
If the Temp. of outdoor_unit goes down, The Evaporator will start freezing and the liquid refrigerant will flow inside the Compressor.
For preventing the situation,the Fan Speed of outdoor unit is reduced to 40% lower than Full speed according to the piping Temp. of outdoor unit.
This operation makes the CYCLE Temp to rise (=FAN control contents).

2.2.2 The particular contents of Low ambient control process

- The fan of outdoor_unit operates at Full speed when the COMP is On for 3 seconds(OPTION)
- The fan of outdoor_unit control is controlled according to the Temp.of outdoor_unit and the pipe temp.of outdoor_unit.(OPTION)
- If the established base Temp.is more than PRESET TEMPERATURE, The fan of outdoor_unit will be operated at HIGH Speed.
- If the established base Temp.is lower than PRESET TEMPERATURE, The outdoor_unit will be operated at Low ambient control.
(If The LOW AMBIENT function isn't used, the outdoor unit fan will be operated at 2 conditions (STOP,HIGH).



2.3 Oil control

: COMP OIL Equalizing Control (Only 2 COMPRESSOR Model)

: To equalize the oil level in each Compressors.

1) COMP OIL Equalizing Logic

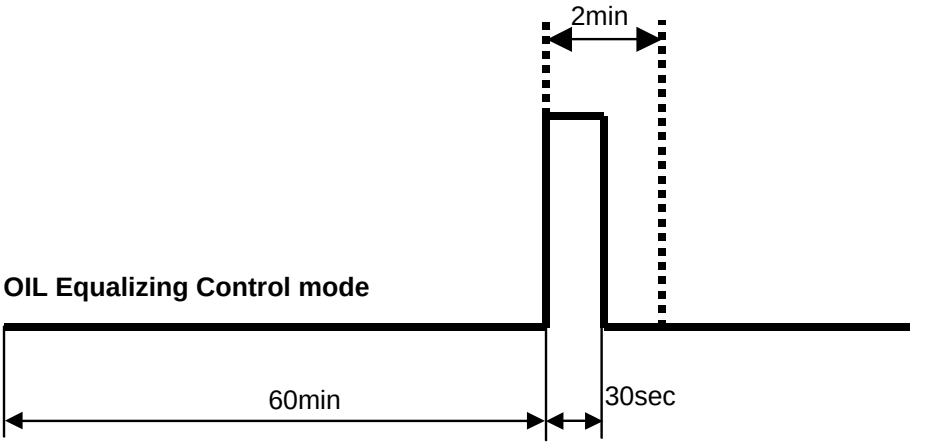
1. When the running time of solo operation of the specific COMP is over 1 hour.
   The other compressor will be operated at least for 30 seconds
2. The running time of single operation of the specific COMP includes the time of the COMP ON/OFF

2) The COMP OIL Equalizing Logic is not working in the Defrost mode.

3) When the COMP OIL Equalizing Control of the outdoor unit is started.

1.The outdoor-unit transmits a message of [COMP OIL Equalizing Control] to the indoor_unit in 2 minutes.

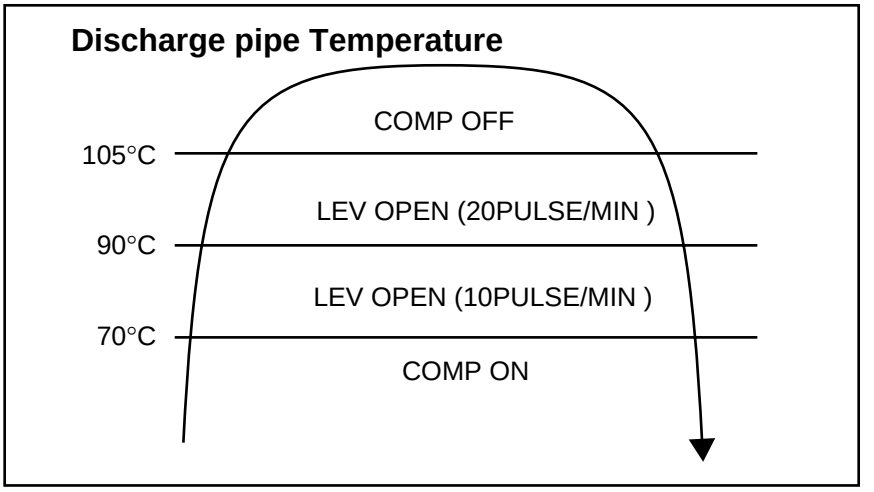
2. After the maximum 5 seconds the indoor unit ignores the message for 2 minutes as per the LOW Temp.sensing function.



❋ The LOW Temp.sensing function :
If the piping Temp. of outdoor_unit is under the –2°C,
This function will wait for 2 minutes before starting the COMP OIL Equalizing Logic.

3. Protection control

3.1 Discharge Temperature control



3.1.1 The outline of Discharge Temperature control

This function prevents the damage of COMP according to EEV Comp On/Off control.

- The EEV Comp On/Off control is predicted the Temp. of COMP according to the Temperature of the Discharge pipe.

3.1.2 The particular contents of Discharge Temperature control

1) The Discharge Temp.of the outdoor_unit_COMP(COMP TOTAL DISCHARGE SENSOR) ≥ 80°C
   : LEV OPEN (10PULSE/MIN)
2) The Discharge Temp.of the outdoor_unit_COMP(COMP TOTAL DISCHARGE SENSOR) ≥ 90°C
   : LEV OPEN (20PULSE/MIN)
3) The Discharge Temp.of the outdoor_unit_COMP(COMP TOTAL DISCHARGE SENSOR) < 80°C
   :LEV control according to regular control logic
4) The Discharge Temp.of the outdoor_unit_COMP(COMP TOTAL DISCHARGE SENSOR) ≥ 105°C
   : Stop the COMP at once and remains stopped for 3 minutes.
   : sign the Error code (Error Mode 33).
5) System will stop if this situation occurs 5 times in 1 hour and error code will be generated.

❋ Control Temp. and LEV Pulse can be different for each model.

3.2 Outdoor pipe Temperature control

- Outdoor pipe Temperature(condensation Temp.) is over 58 (or 60)°C according to overlord in Cooling mode, the COMP will be switched is OFF.
- Error code (CH61) will be generated if this situation occurs 5times (or 10times) in 40 minutes (or 1 hour).
- The Error code will be cleared if this situation occurs lower than 4times(or 9times) in 40 minutes (or 1 hour).

3.3 Abnormal temperature sensing function

3.3.1 The outline of Abnormal temperature sensing function

→ Sense the error in advance according to temperature sensor's Open /Short.

→ Prevent the abnormal operation according to abnormal sensing Temp.

3.3.2 The particular contents of Abnormal temperature sensing function

1) System will stop and display the error code if this situation occurs irrespective of system ON/OFF.

Sensor type	Open Data	Short Data	Error Mode
Outdoor Temp.	-48°C	93°C	44
The Cond. pipe of Outdoor	-48°C	93°C	45
The suction .pipe of Outdoor	-48°C	93°C	48
The Discharge of Outdoor	-13°C	150°C	47

3.4 High/Low Pressure Switch Function

1) If the outdoor_unit has the continuous incoming signal of power Cycle according to the operation of High/Low Pressure Switch, System will stop at once and restart after 3minutes (Not working in Defrosting mode)
2) System will stop if this situation operates 10 times in 1 hour and error, Error code(Error Mode 24) will be displayed. (If the power reset, this function will also reset.)

VI. Exploded View & Replacement Parts List

Indoor Unit 140

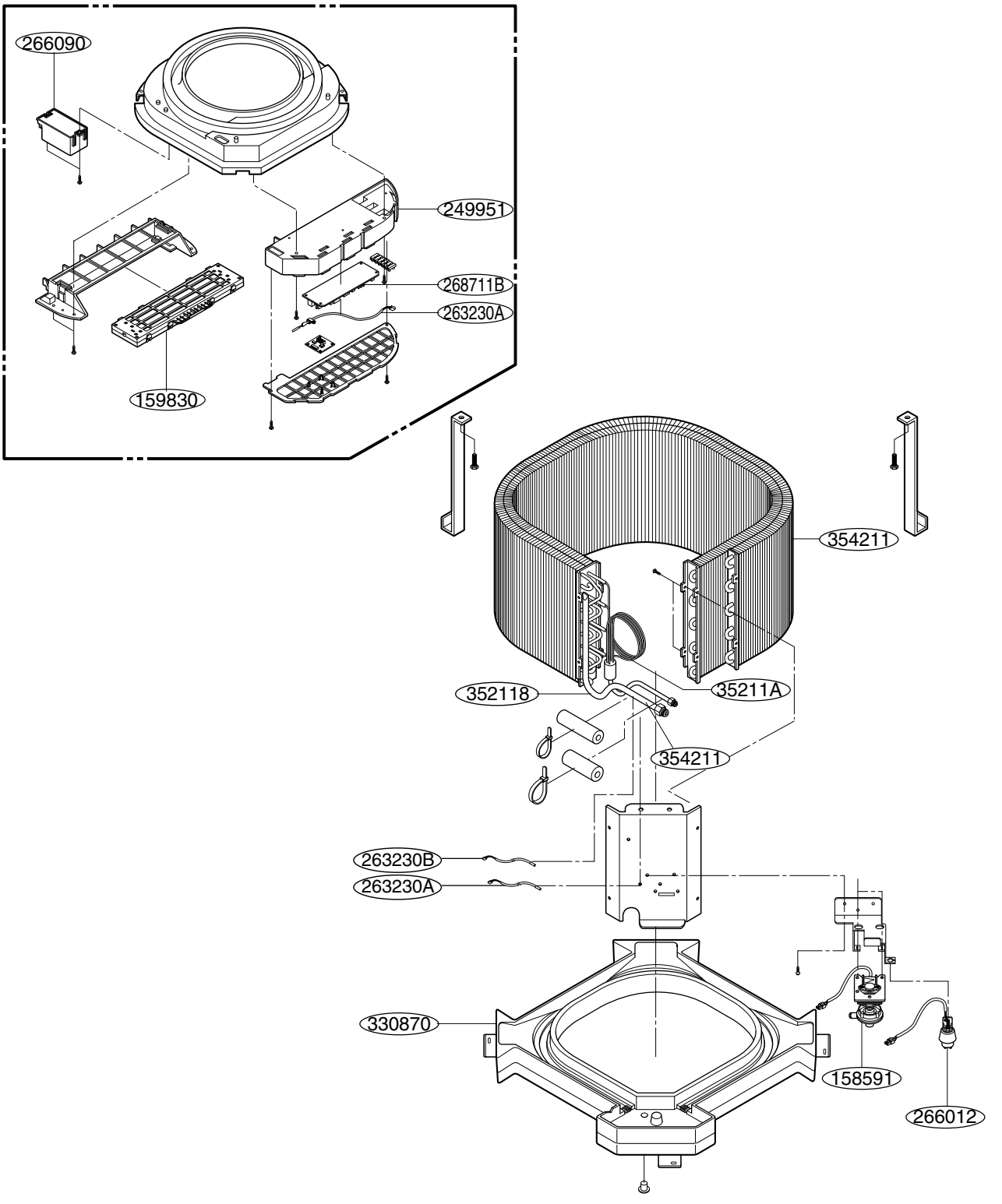
Outdoor Unit 159

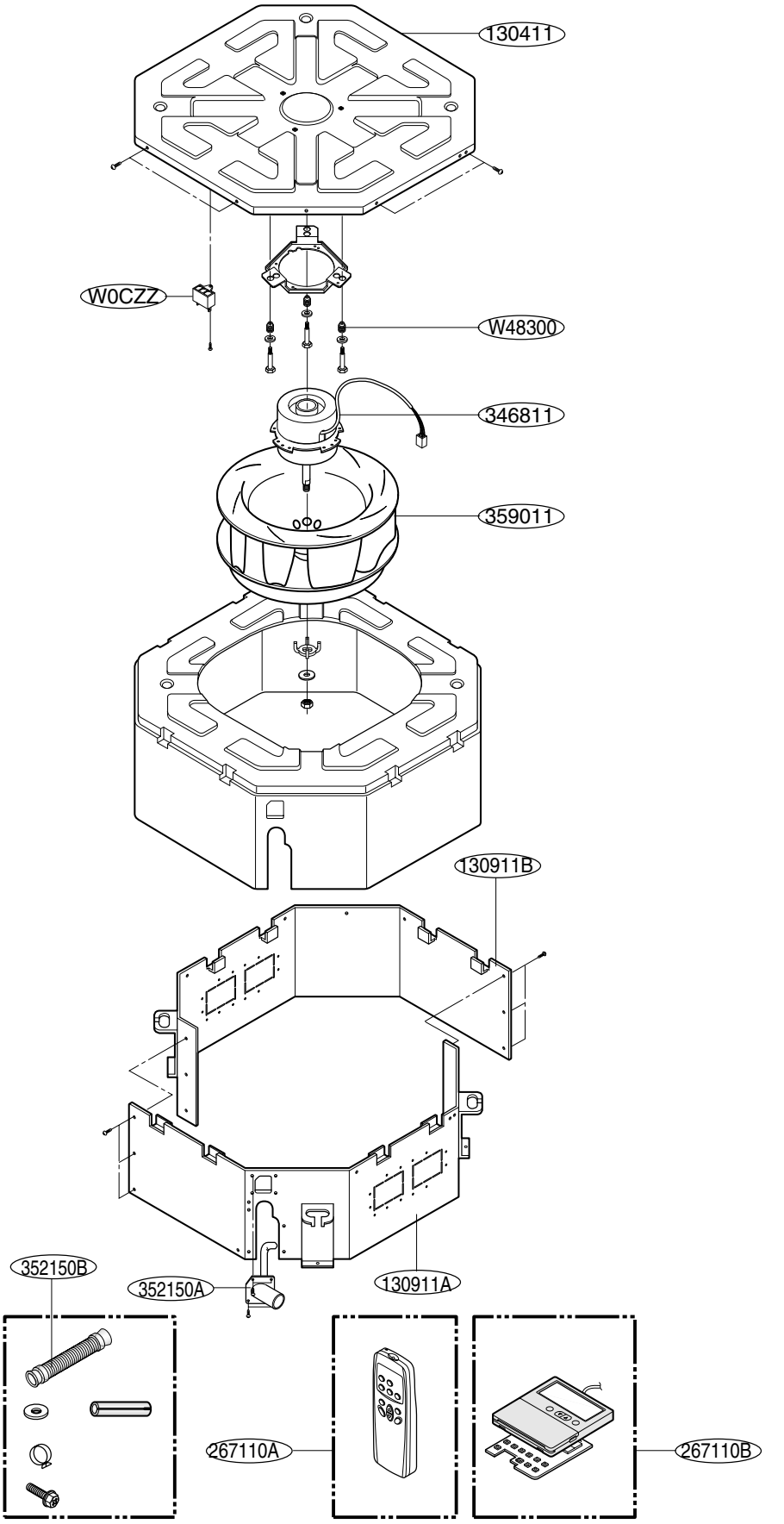
Panel Assembly, Front 173

Indoor Unit

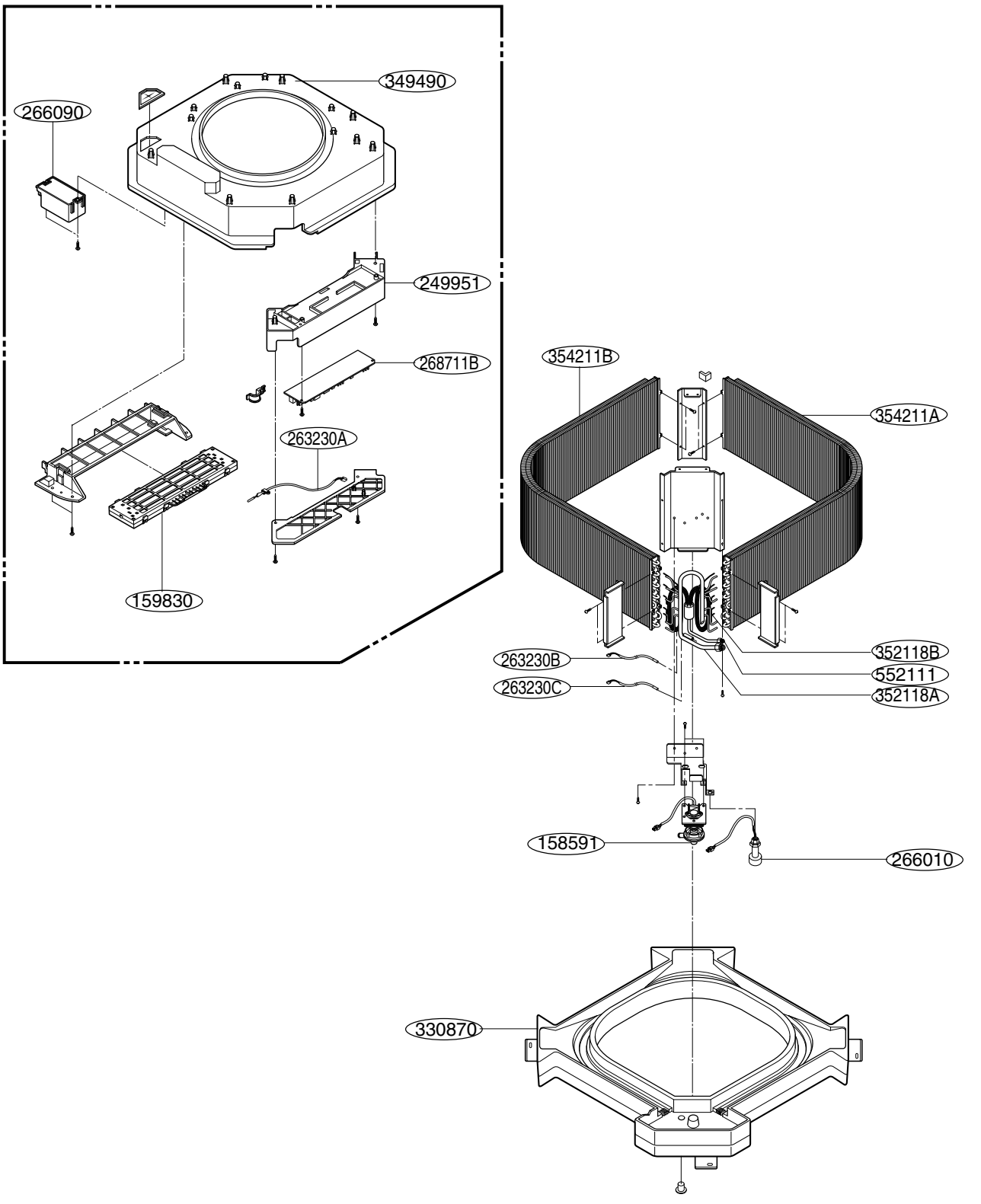
Ceiling Cassette Type

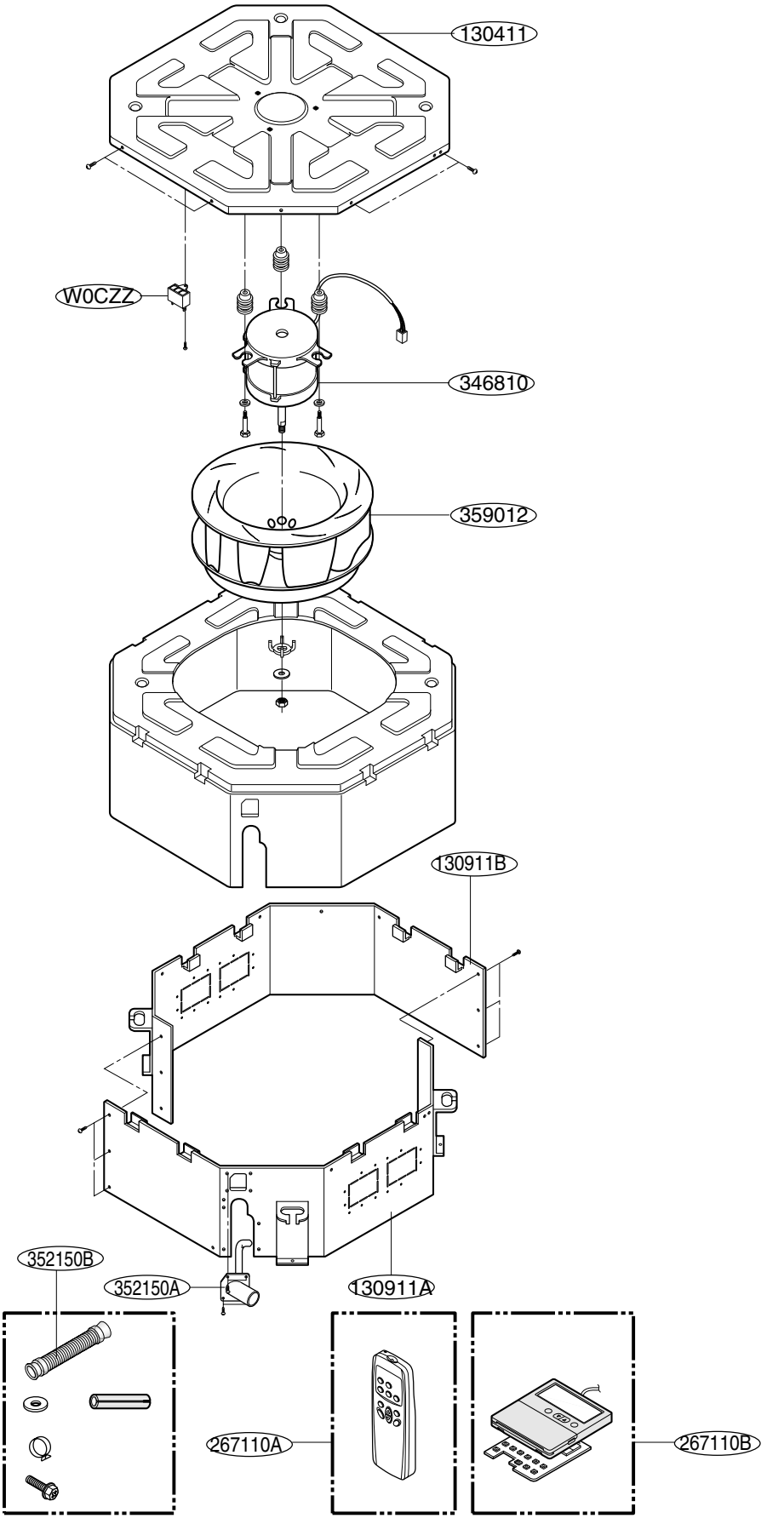
ATNH-EL



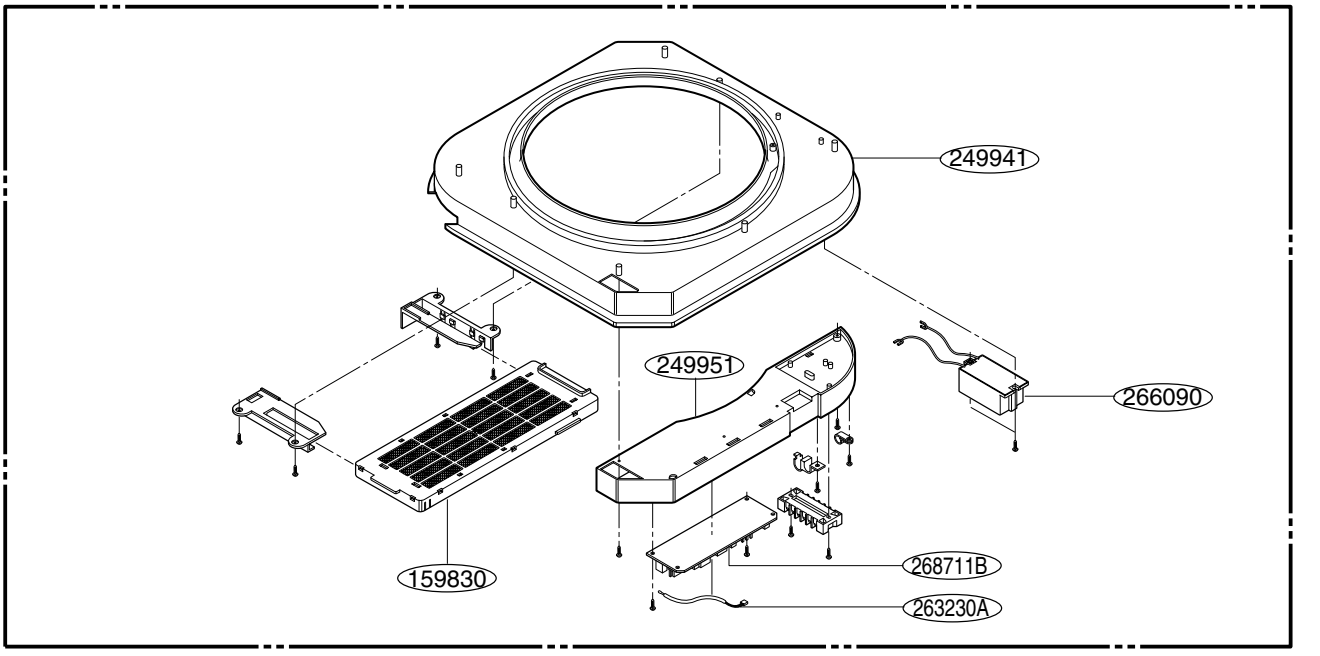


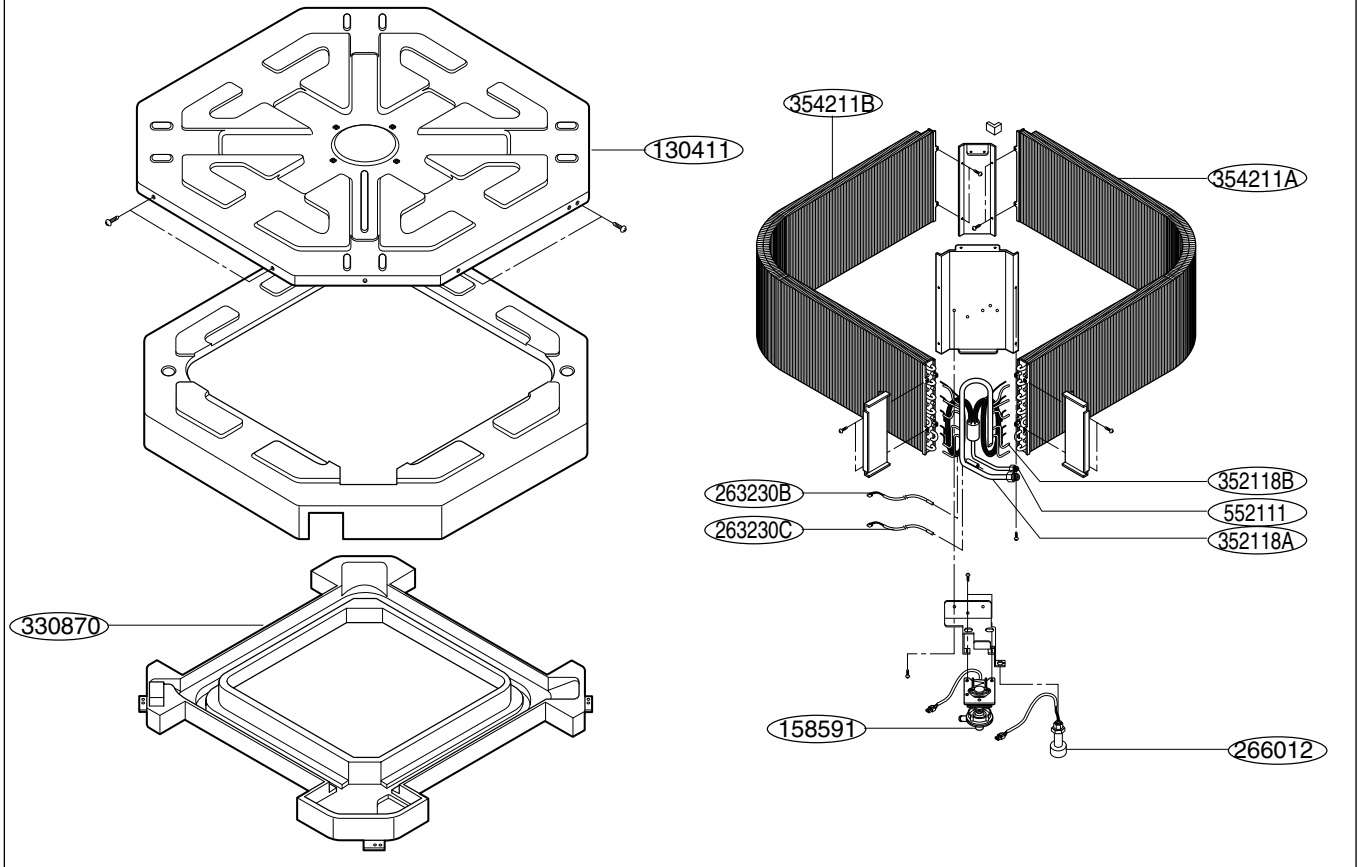
ATNH-FL

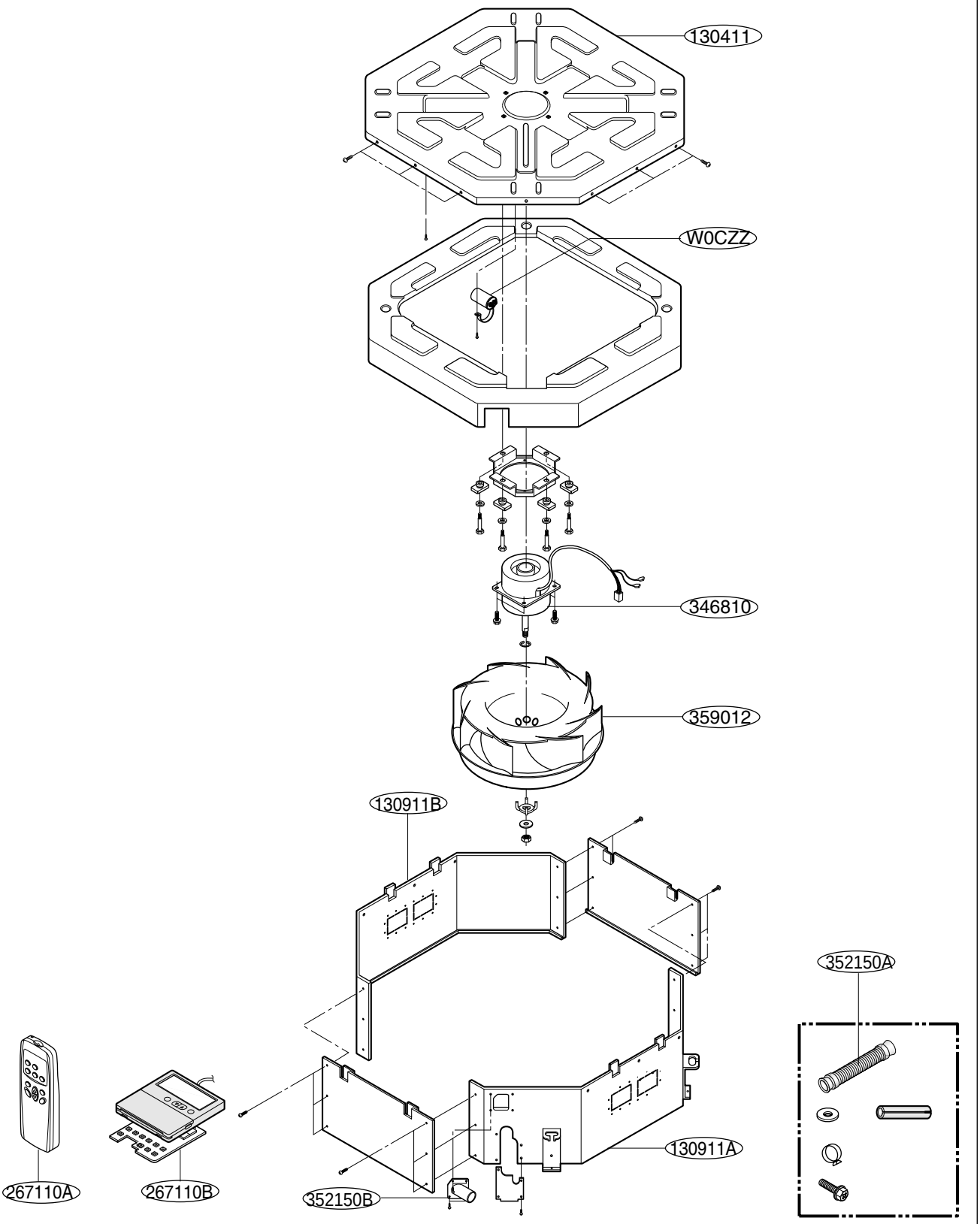




ATNH-DL

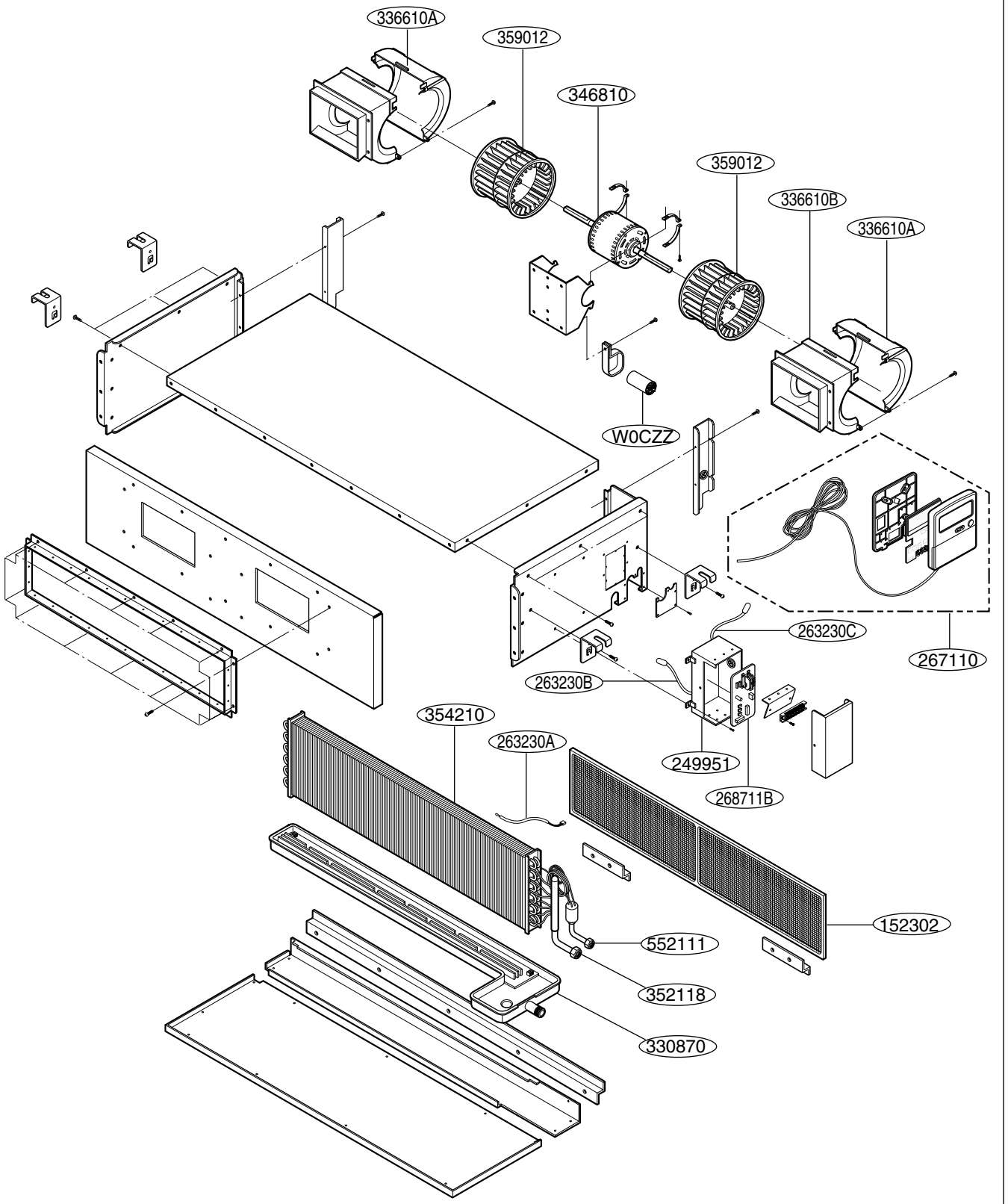




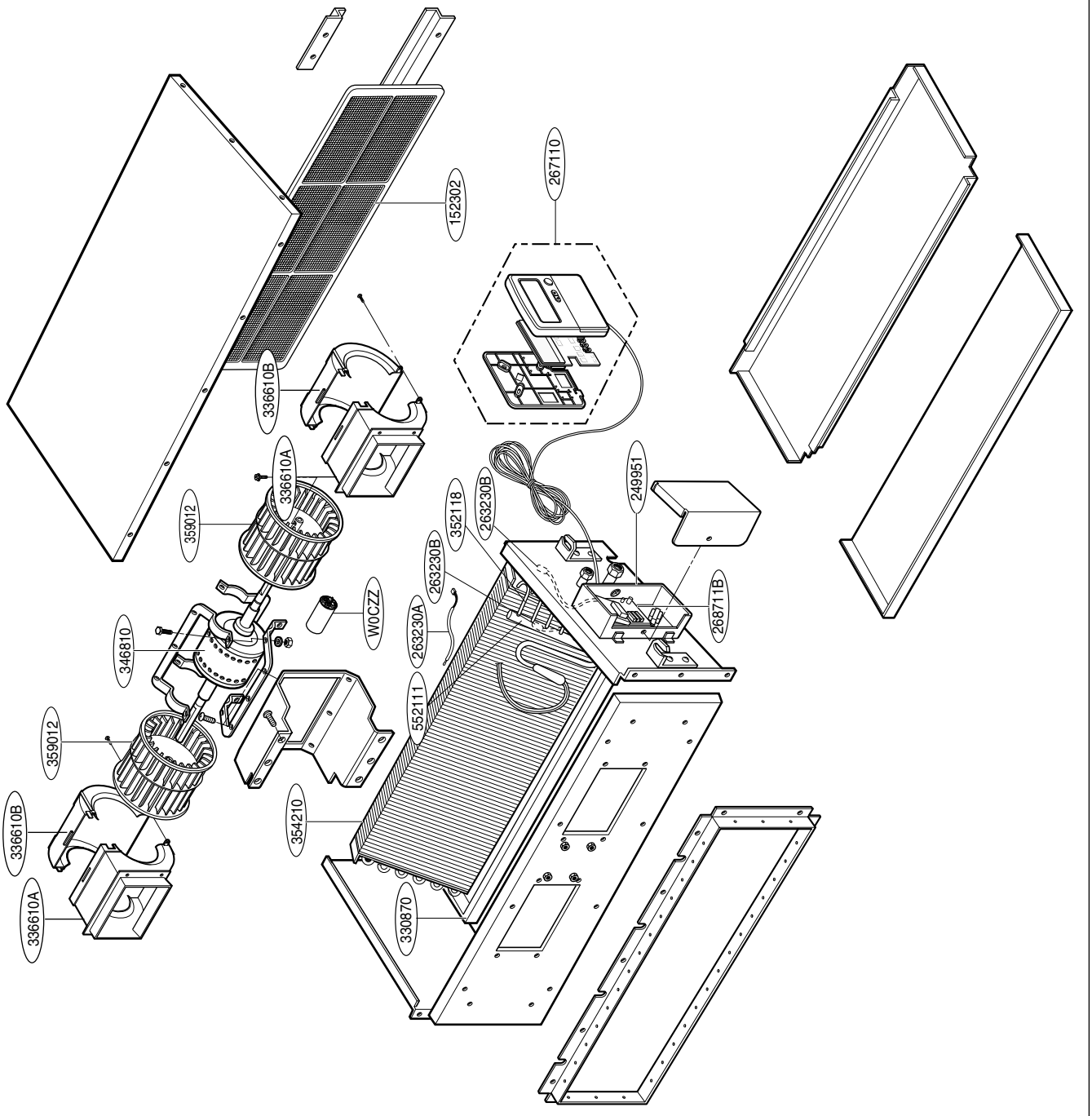


Ceiling Concealed Duct Type

ABNH-HL, ABNH-GL

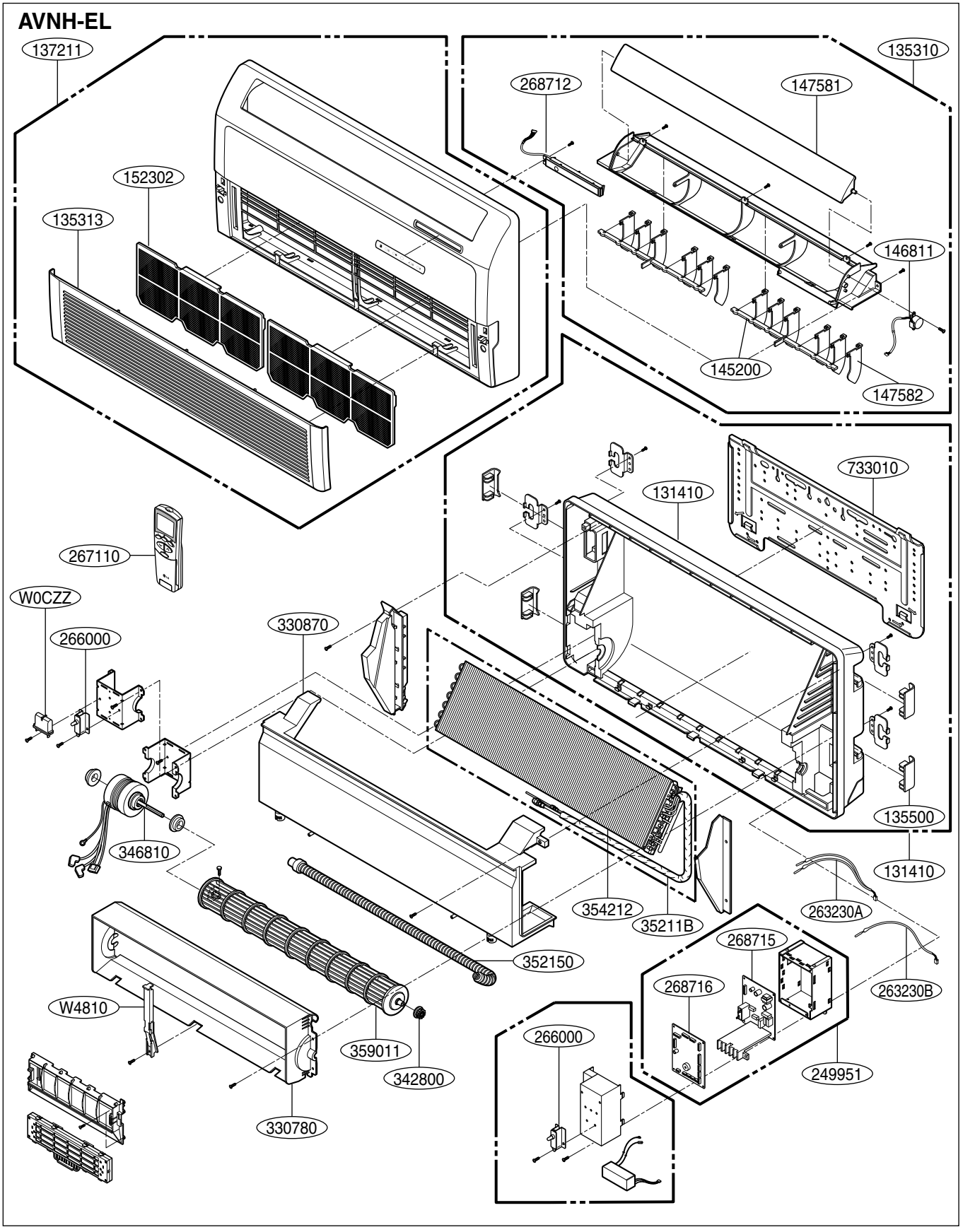


ABNH-RL

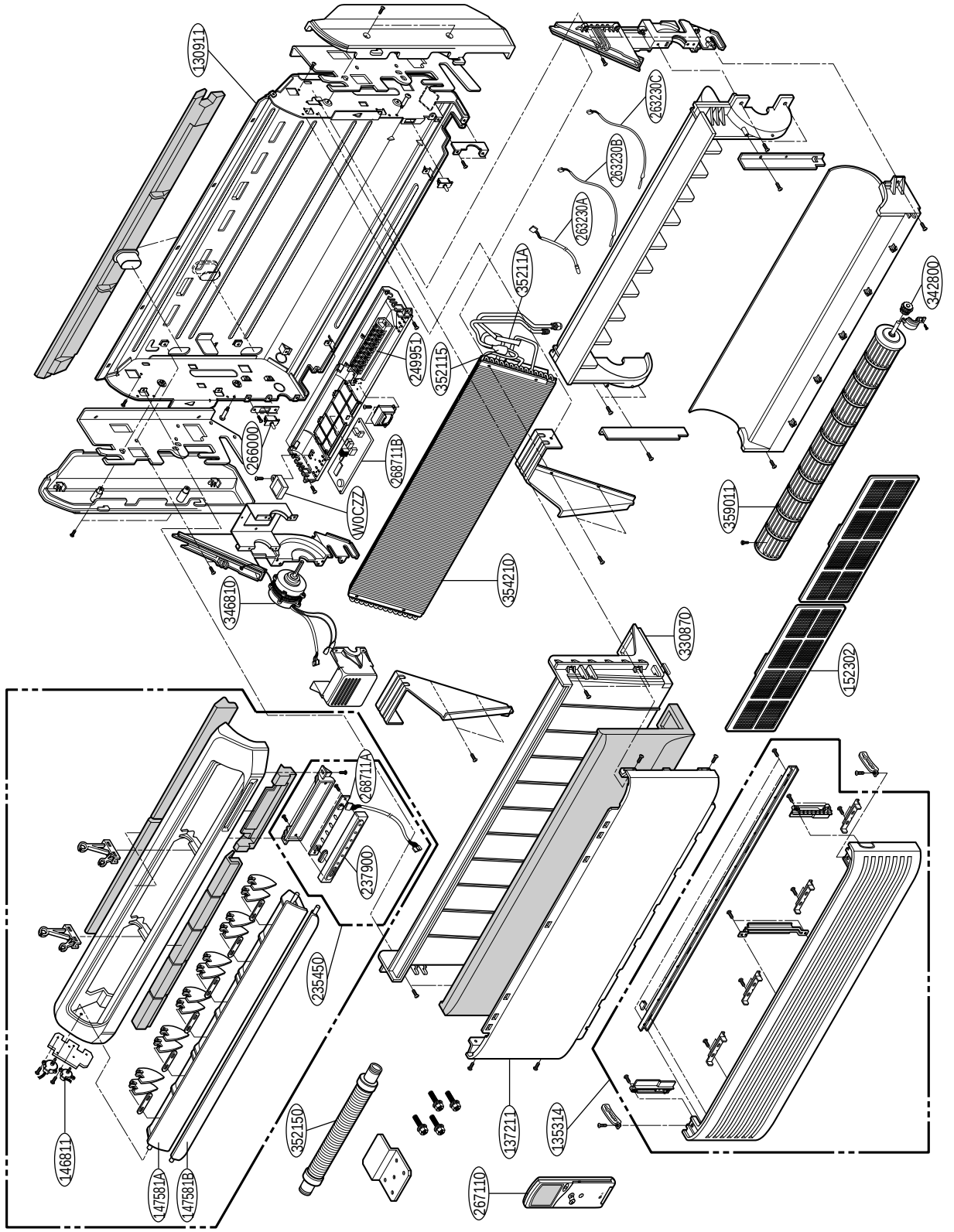


Ceiling & Floor Type

AVNH-EL

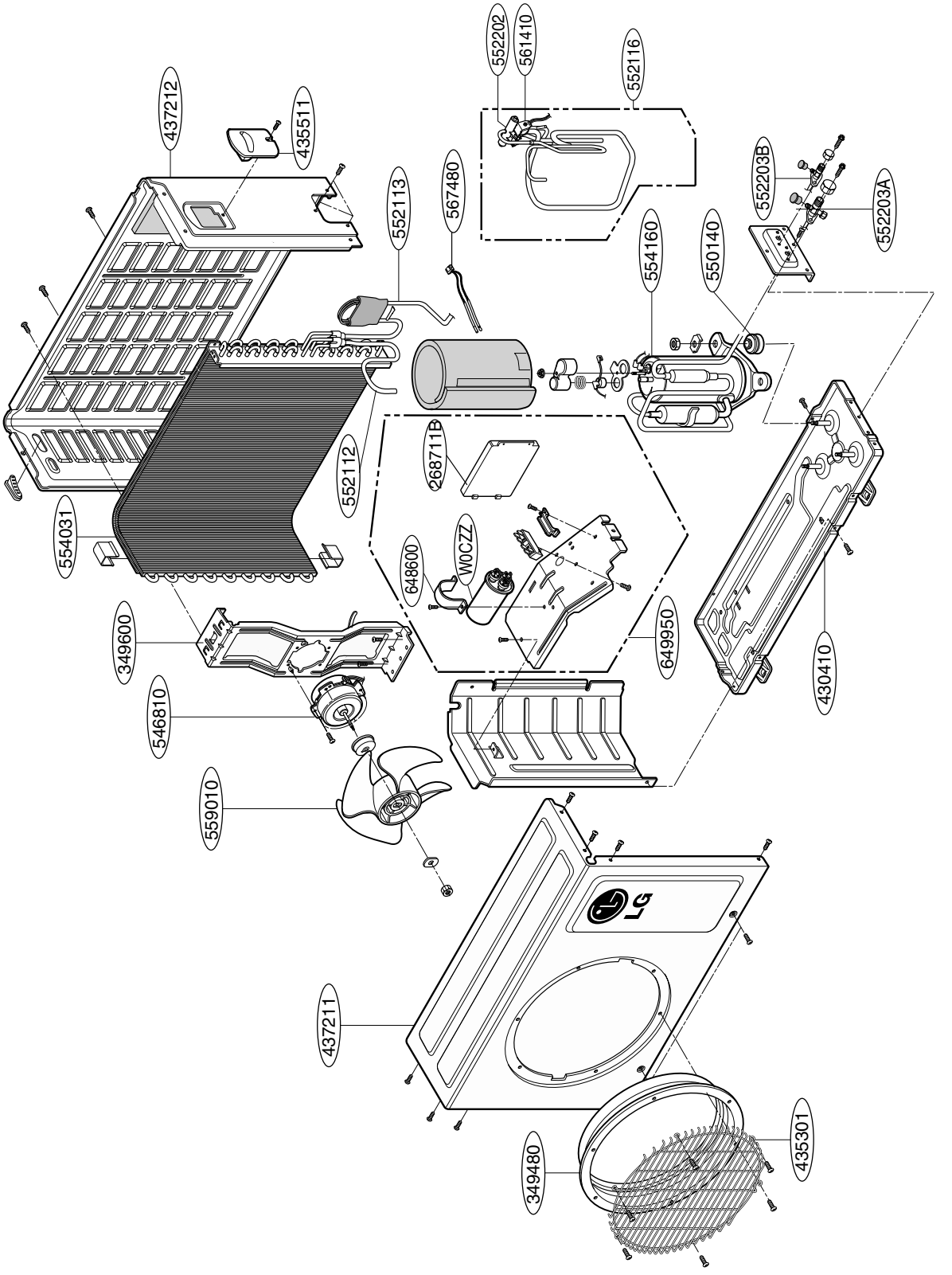


AVNH-BL

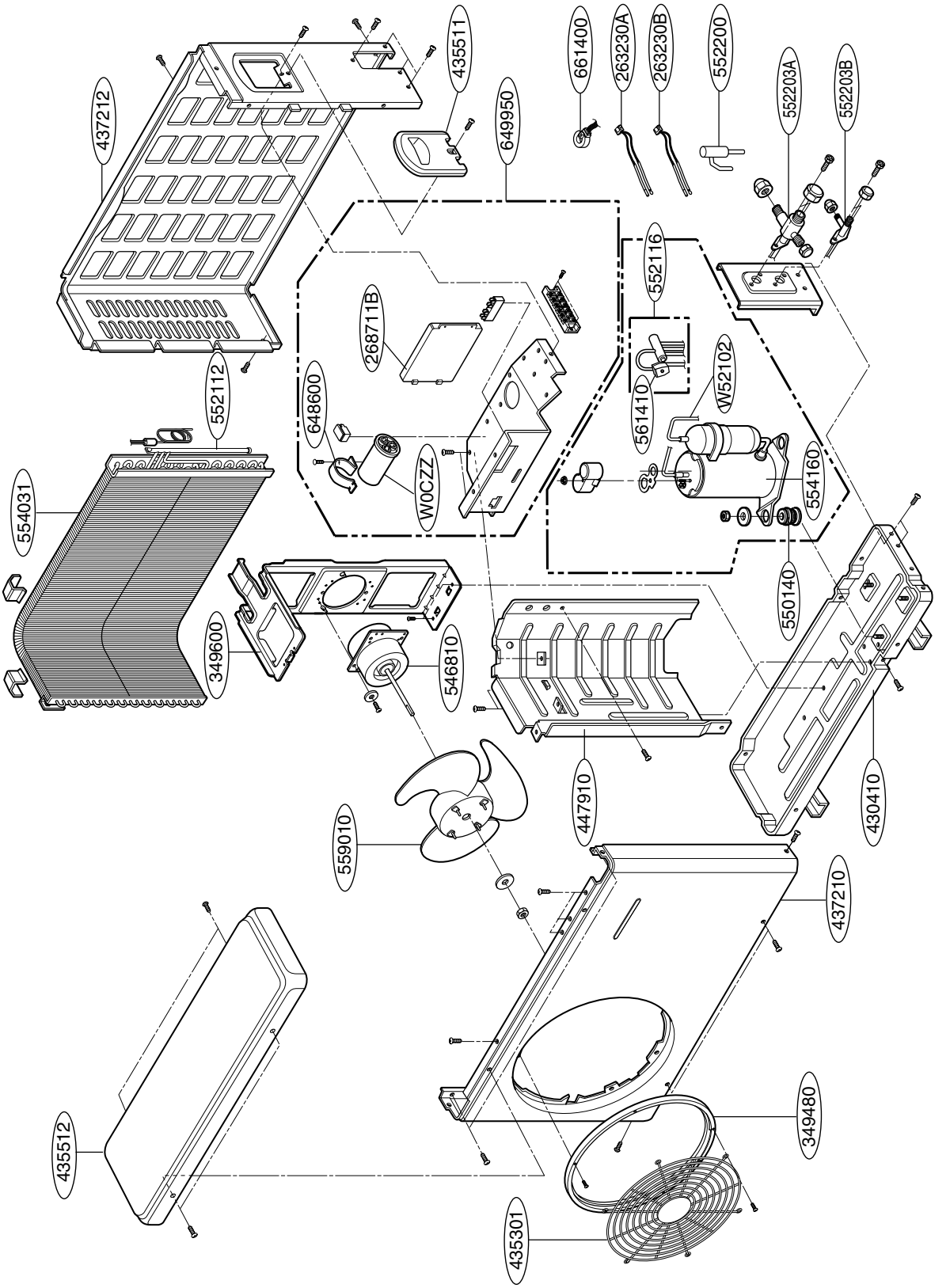


Outdoor Unit

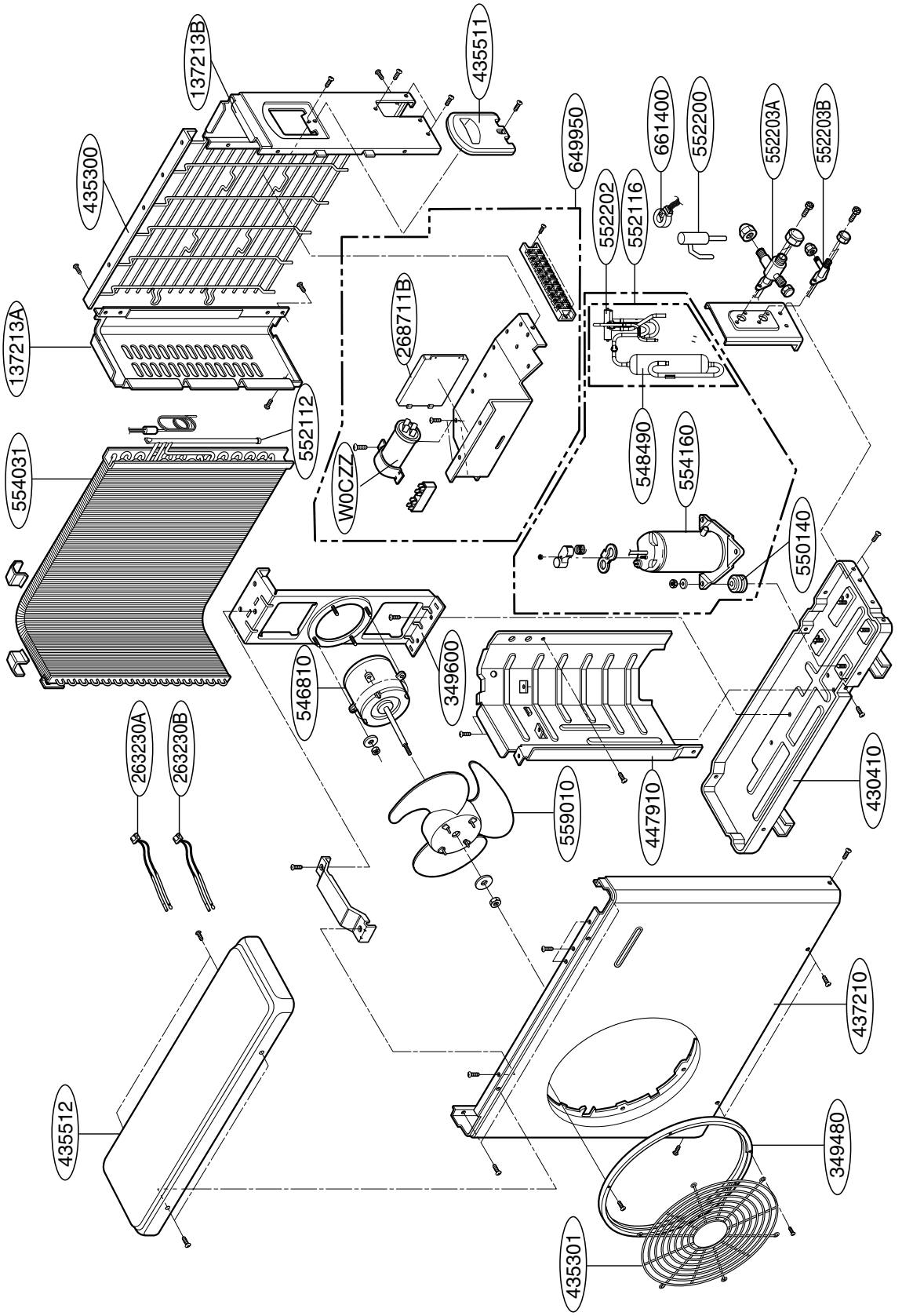
Model No.: AUUH126C



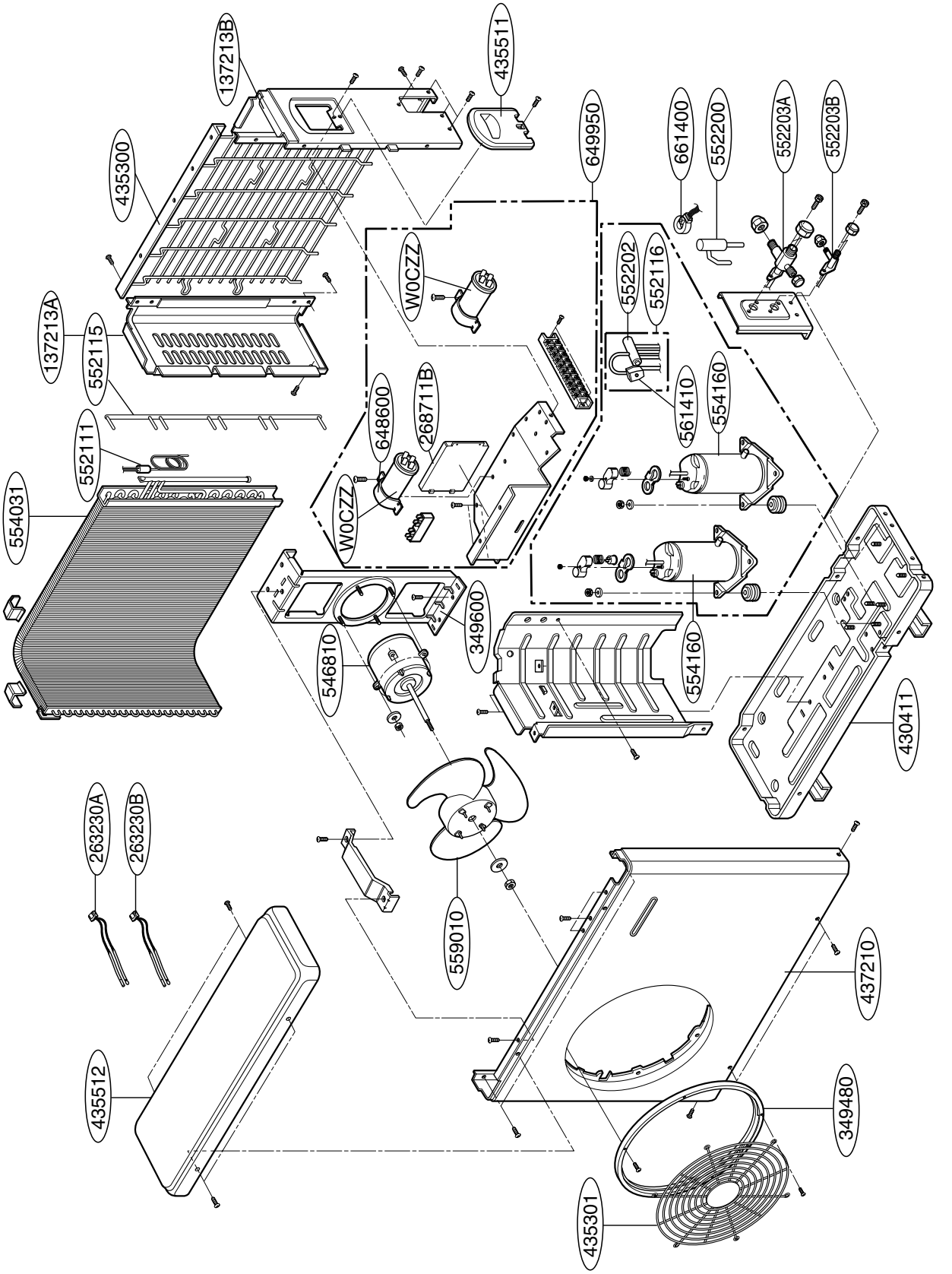
Model No.: AUUH186C



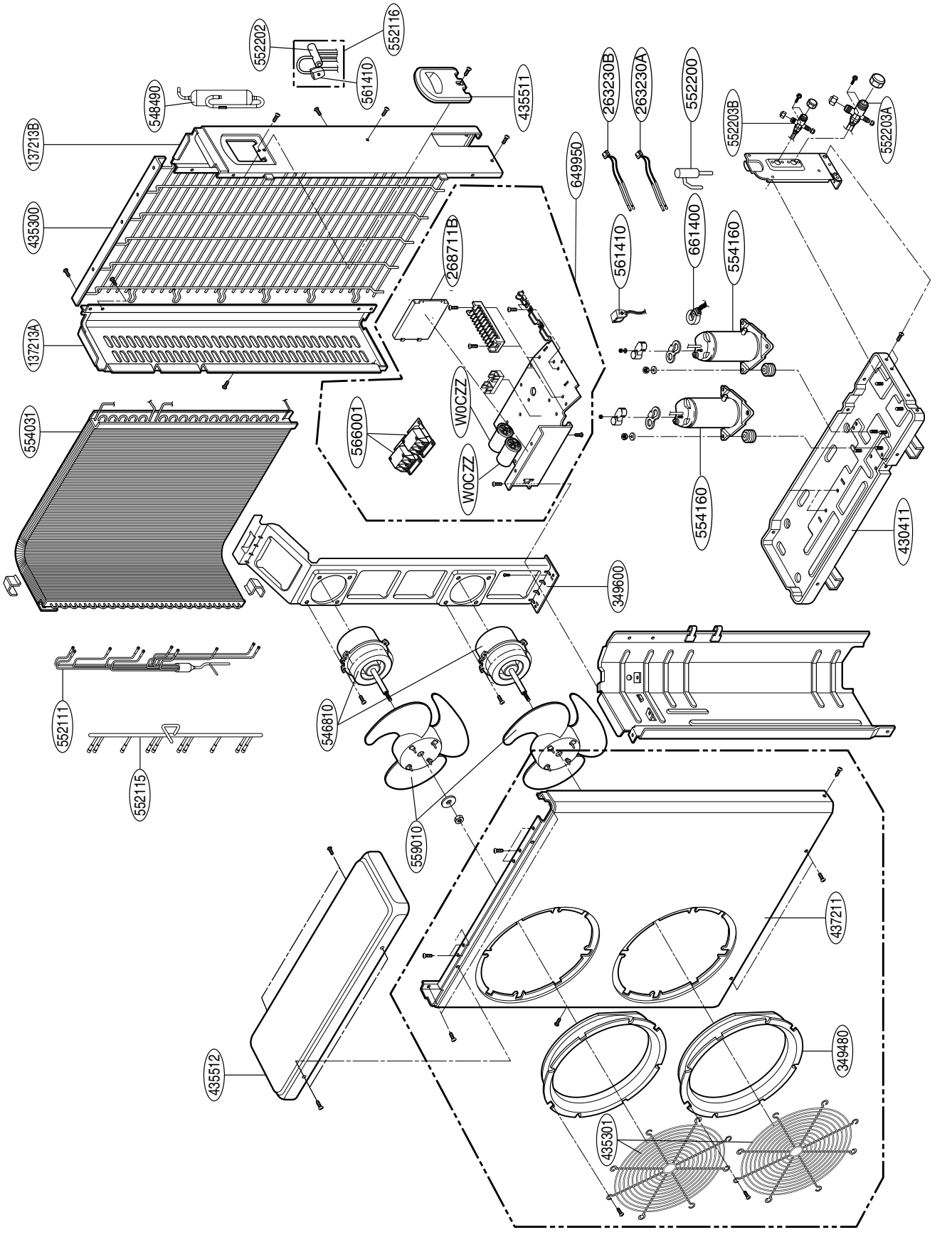
Model No.: AUUH246C



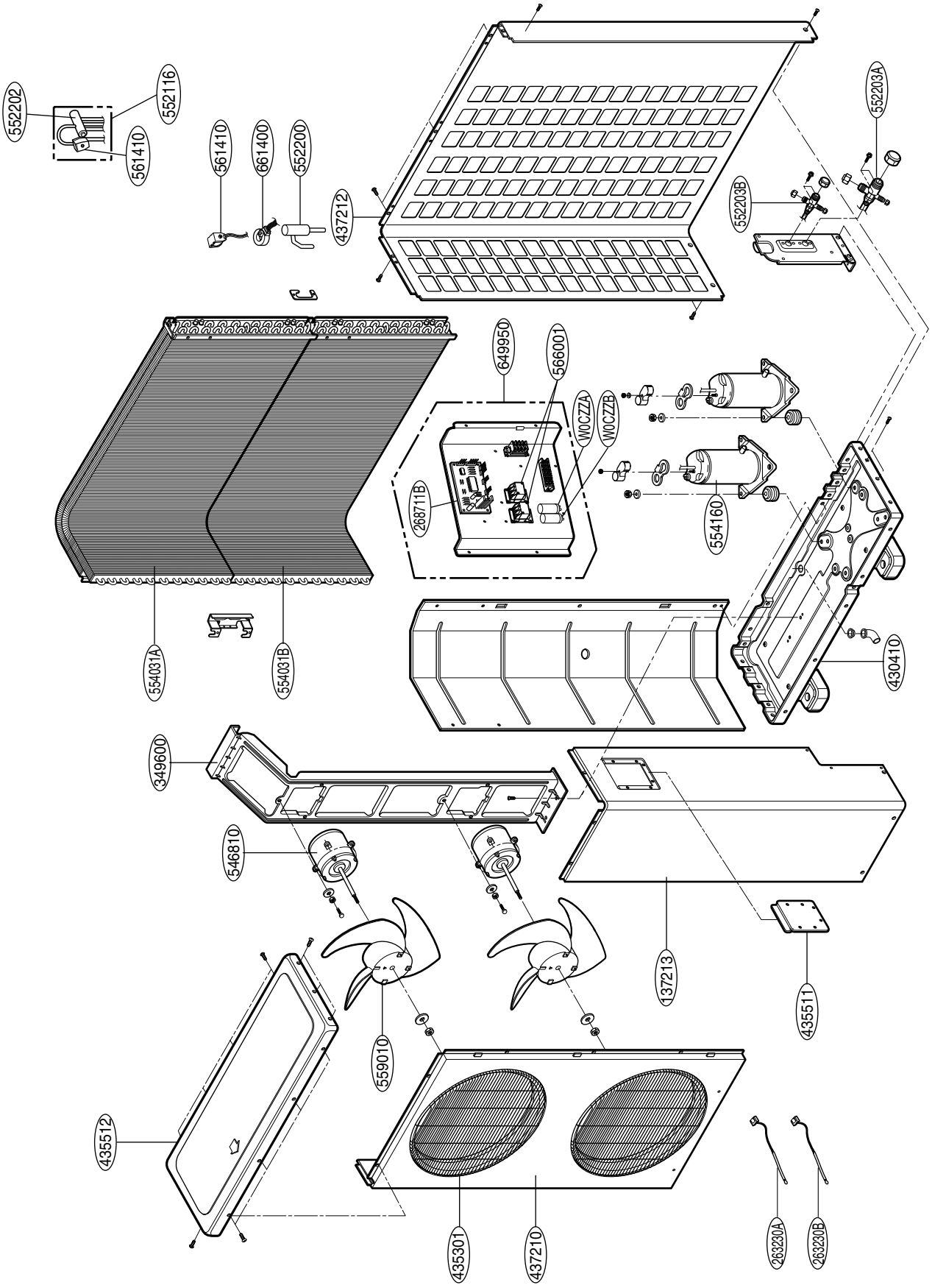
Model No.: AUUH306C



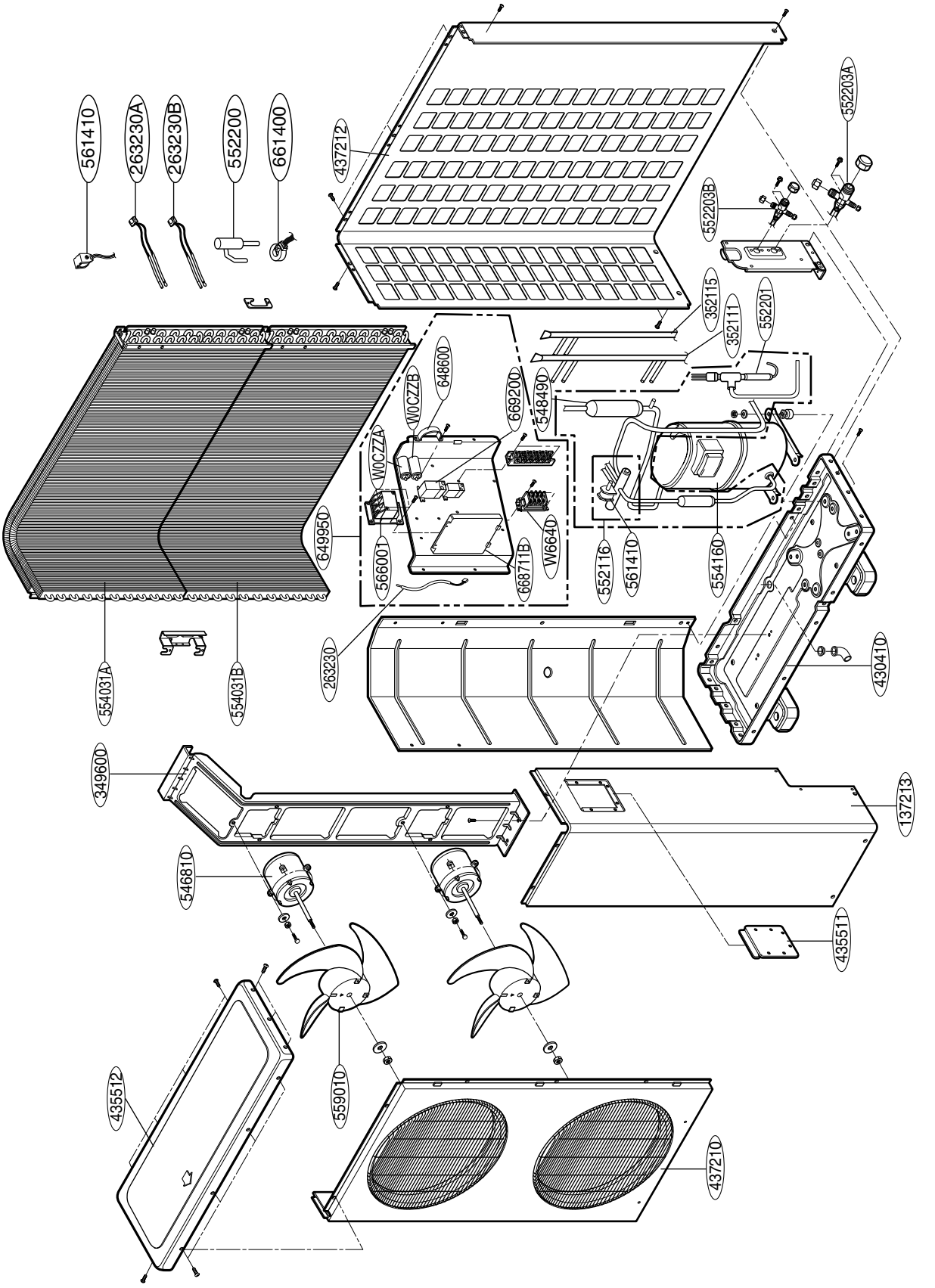
Model No.: AUUH368C



Model No.: AUUH488C

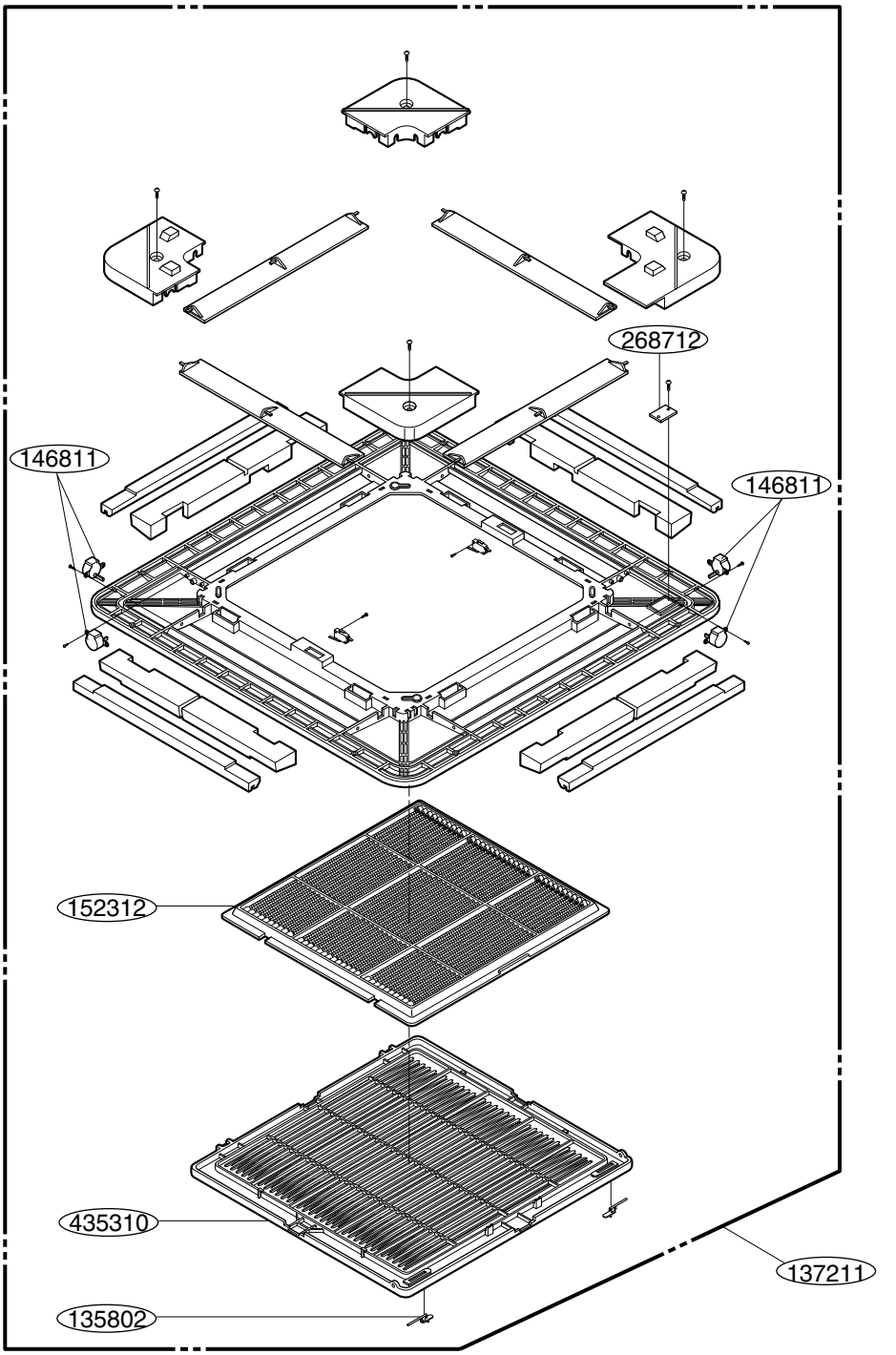


Model No.: AUUH608C

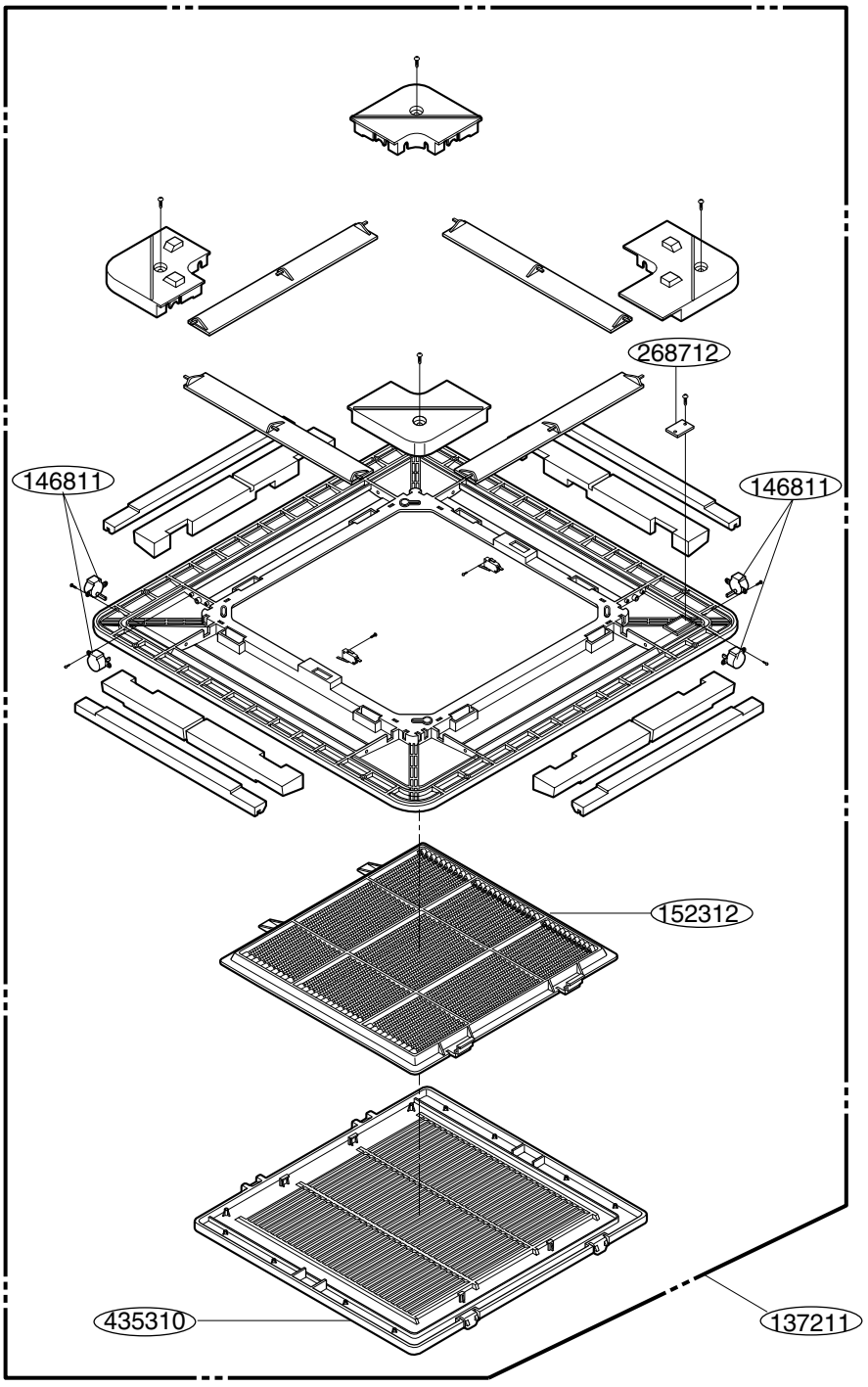


Panel Assembly, Front

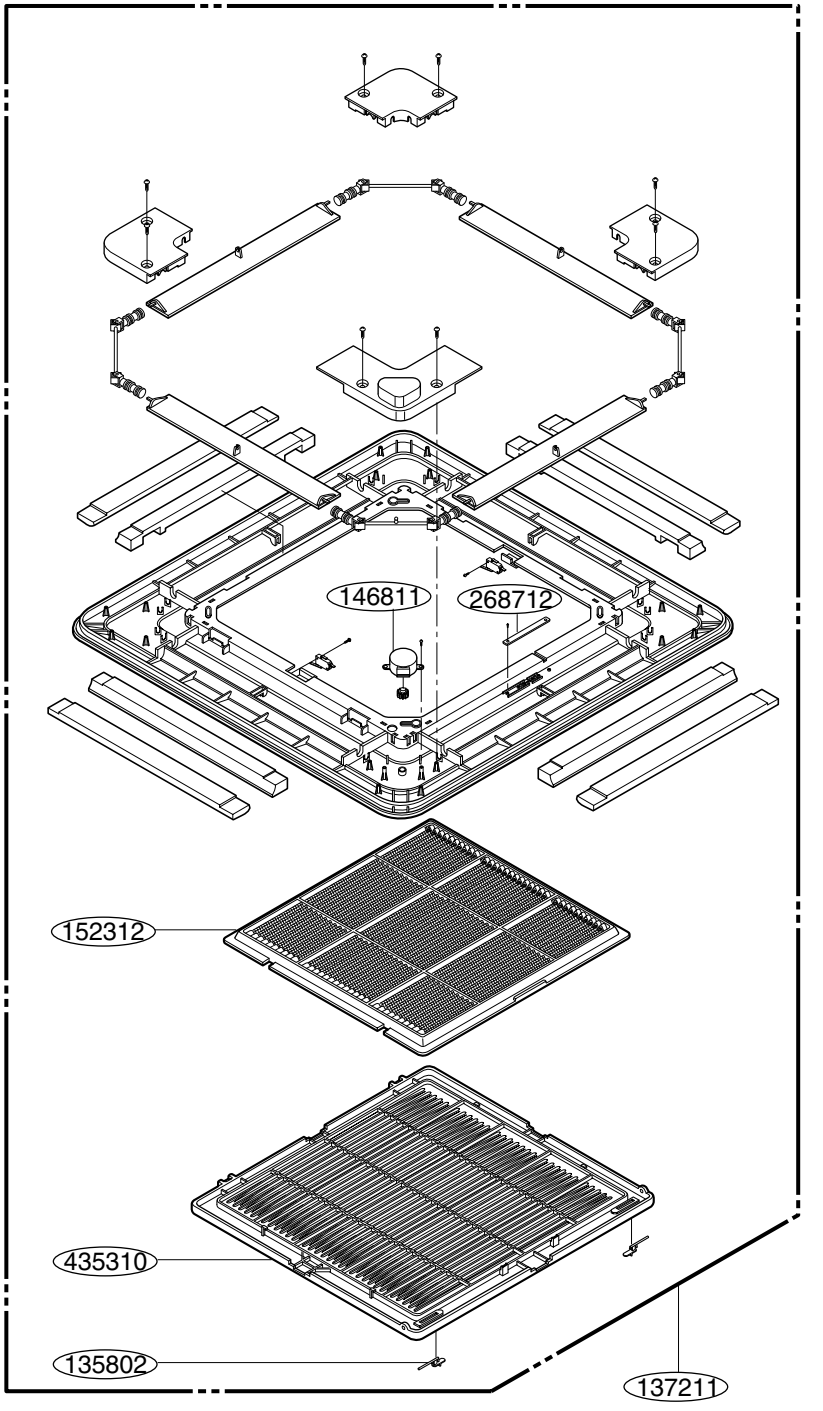
PT-HEA/C



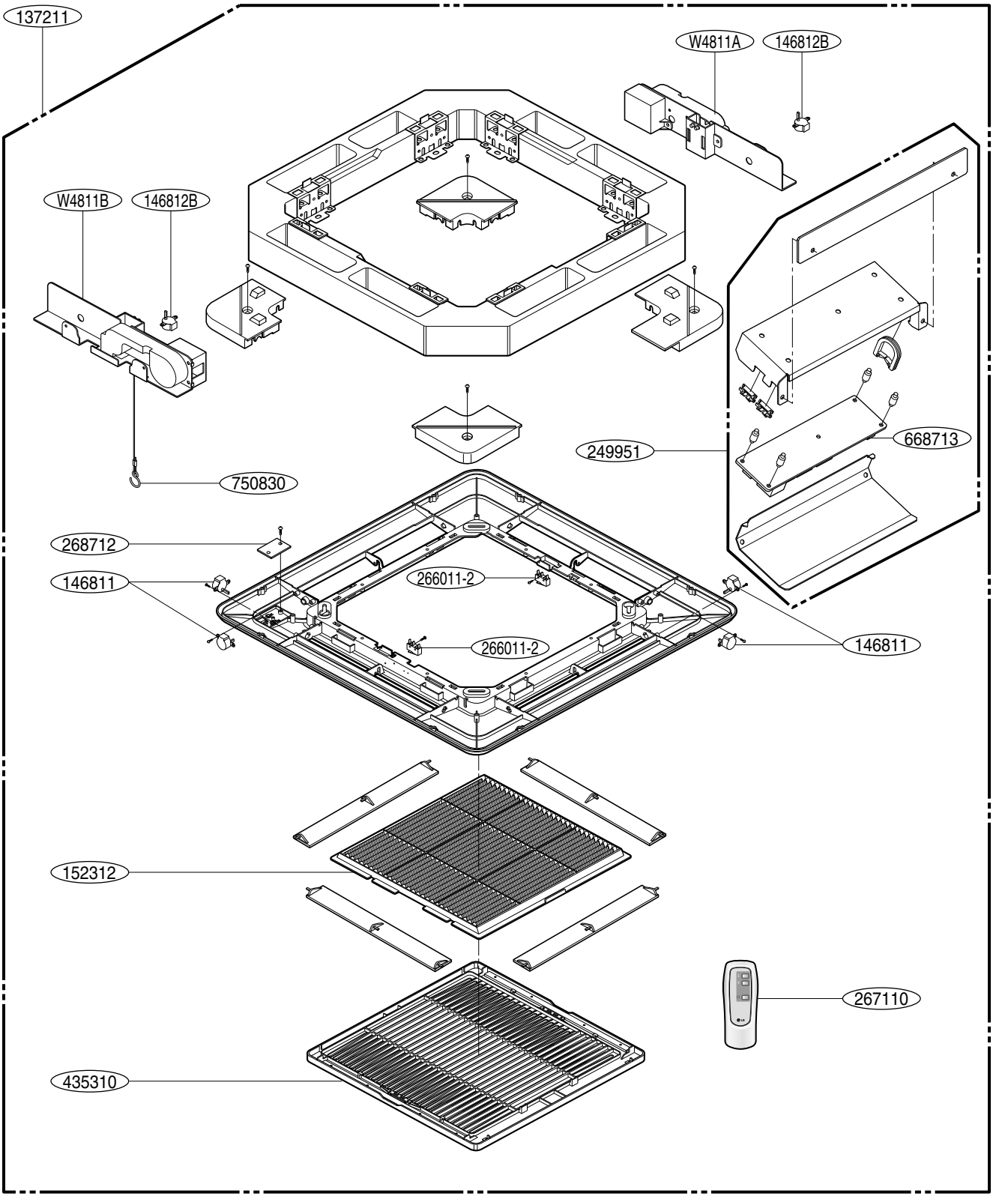
PT-HFA/C



PT-HDA/C



PT-HEF/HFF/FDF (Elevation Grille_Accessory)



P/NO : 3828A22009P

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