



# **ECC - ECE MIDWALL SPLIT UNIT**

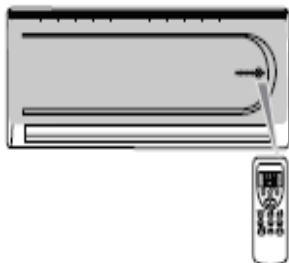


## **INSTALLATION & OPERATION MANUAL**

**Midwall**

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## Transmission procedure



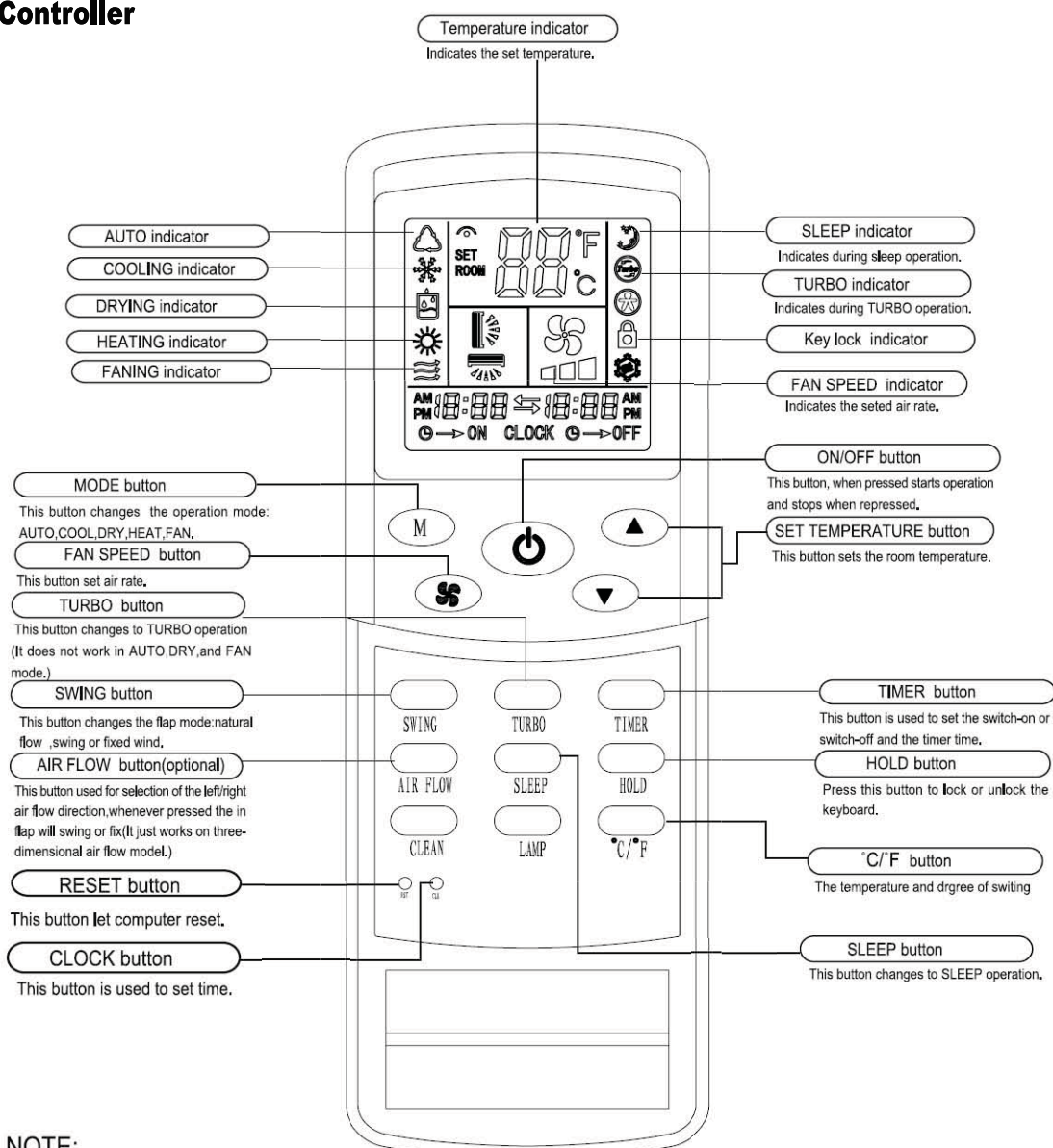
When each button on the remote controller is pressed with the remote controller pointing toward the air conditioner unit, signal is sent.

When the signal is received correctly, the receiving sound is emitted from the unit.

The "LAMP" and "CLEAN" button are applicable for special latest developed new models only instead of normal models.

The "AIR FLOW" button is an optional function button, it just works on those models with three-dimensional air flow function.

## Remote Controller



## NOTE:

- Above figure shows all indications for the purpose of explanation, but practically only the pertinent parts are indicated. When air-conditioner is cooling-only model, the HEAT is for FAN.
- When TURBO operation is selected, room temperature is not controlled with operation being continually. If you feel the room temperature is too cool or too heat, please cancel the TURBO operation.

## OPERATING MACHINE IN SELECTED MODES

1. Point the remote controller at the unit, press the ON/OFF button, then press the MODE button, select the needed mode: ATUO, COOL, DRY, HEAT, or FAN.
2. Press the SET TEMPERATURE button to increase or decrease the readings until the needed temperature is displayed. The room set temperature range is from 16°C-32°C (61°F-90°F).  
(It would be automatically set at 25°C (76°F) and unadjustable in AUTO and DRY mode.)
3. Press the FAN SPEED button to choose the air rate you want: Low (display indicates "■"), Med (display indicates "■■"), Hi (display indicates "■■■"), Auto (display "■■■" indicator flashing).  
(It would be automatically set at low speed and unadjustable in DRY mode.)
4. Press the SWING button to choose the up/down air flow direction you want: natural flow (display indicates "⌋"), swing (display "⌋" indicator flashing), fixed wind (display indicates "⌋").  
(It would be automatically set at fixed wind air flow direction in DRY mode.)

## TURBO OPERATION

Press TURBO button during COOL or HEAT operation, the air rate can be set in HIGH. Press the TURBO button again can release the TURBO operation.

Note: during TURBO operation, the air rate can't be changed.

## ADJUSTING LEFT/RIGHT AIR FLOW DIRECTION

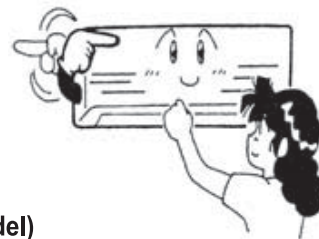
### Methods 1: Manually adjust

Adjust the direction by moving directly the left/right air flow direction adjusting fin by hand.

Caution: when adjust the direction, stop air conditioner.

### Methods 2: Horizontal & vertical auto swing (three-dimensional air flow model)

Adjust the direction by remote controller. Press the AIR FLOW button, the air swinging fins will constantly make the left/right swinging or fixed direction in air delivery.



## SLEEP OPERATION

Use this mode to reduce operation sound when sleeping, etc.

Press the SLEEP button, the air flow sound from the indoor unit is decreased.

Press the SLEEP button again can release the mode.

NOTE:

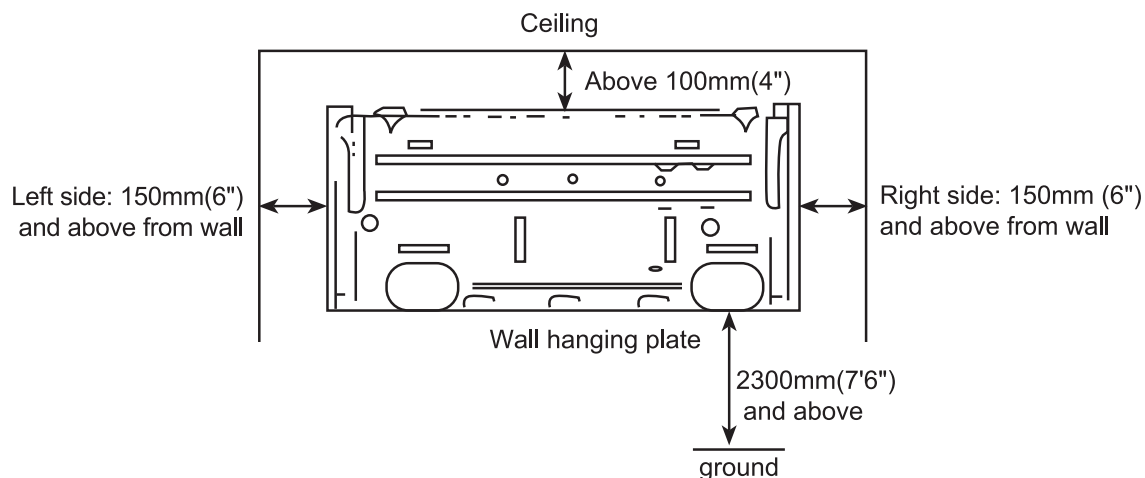
- Use the sleep mode when you are going to bed. If this mode is used in the day, the capacity is reduced since the ambient temperature is too high. (COOL MODE).
- During the operation of cooling, the room temperature will be raised gradually by 2°C (4°F) higher than the setting after the machine begins to operate in the sleeping mode.
- During the operation of heating mode, the room temperature will be dropped gradually 5°C (9°F) lower than the setting after the machine begins to operate in the sleeping mode.

## Selection of installation positions for indoor unit

- To be installed at the position where the air delivered from the unit can reach every corner of the room;
- To avoid being affected by the outdoor air;
- To avoid blockage to the air inlet or outlet of the unit;
- To avoid too much oil smoke or steam;
- To avoid possible generation, inflow, lingering or leakage of flammable gases;
- To avoid high-frequency facilities (such as high frequency arc welders, etc.);
- To avoid the places where acid solutions are frequently used;
- To avoid the places where some special sprayers (sulfides) are frequently used.
- Not to install on top of the musical instruments, TV, computer etc. valuable appliance.
- Not to install a fire alarming device near the air outlet of the unit (during operation, the fire alarm device might be erroneously triggered by the warm air from the unit);

### ■ Make sure of enough space for installation and maintenance.

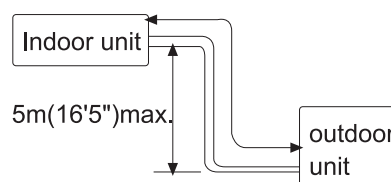
- To take into consideration the operational convenience and safety in installation, it is recommended to ensure enough space between the unit and the walls.



**Attention:** If there are some additional function devices to install on the air conditioner, Be sure add to the installation space for the function devices.

### ■ Height limits of indoor and outdoor units.

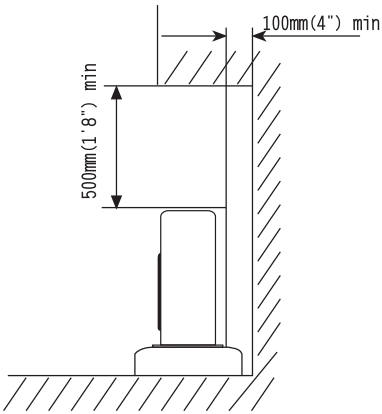
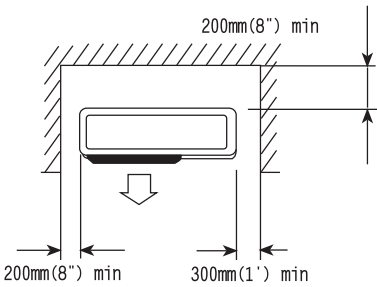
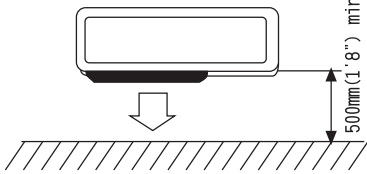
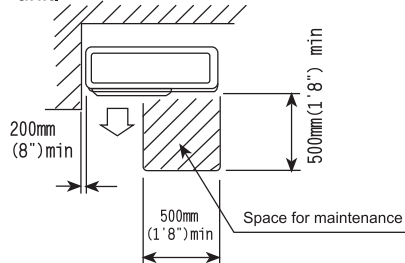
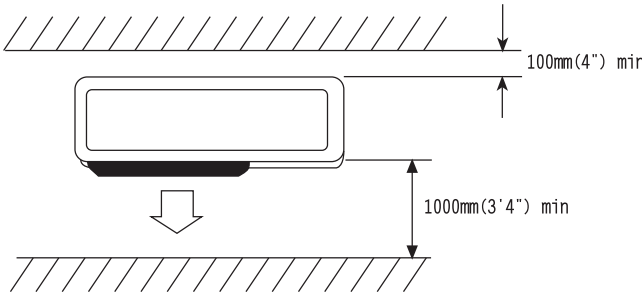
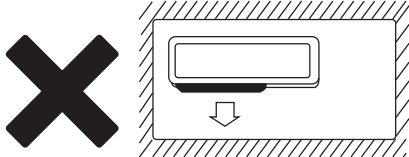
- Either the indoor unit or the outdoor unit can be higher, but the height difference must comply the stated requirements.
- Try to reduce the bending of the piping line as much as possible so as to avoid possible negative impacts upon the performances of the units.



## Selection of installation positions for outdoor unit

- To install the outdoor unit at the places which can stand the load of the machine weight and will not cause big vibrations and noises;
- To install the unit at the places not to be exposed to rain or direct sunshine, and the places with good ventilation;
- The noises generated from the unit will not affect the neighboring places;
- Do not install the unit on non-metal frame;
- Not to install the unit at the places where there might occur the generation, inflow, stay or leakage of inflammable gases;
- Pay attention to the drainage of the condensed water from the base plate during operations;
- To avoid the air outlet being directly against the wind.

## Detailed space requirements around the outdoor unit

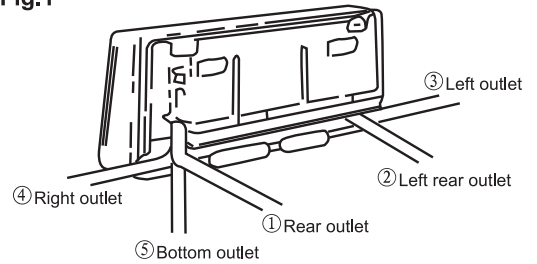
<p>1. When there are obstacles above the unit</p> 	<p>2. When the front (air outlet) is open</p> 	<p>3. When there are obstacles only in the front (air outlet)</p>  <p><b>Space for maintenance</b> Shown as in the following figure. Keep the maintenance space in front of the unit.</p> 
<p>4. When there are obstacles at the front and rear sides.</p> 		<p>5. When there are obstacles all around the unit on four sides. Although the top side is open, the installation is not to be done if there are obstacles all around.</p>  <p>● At least two sides should be kept open.</p>



## Installation fixture of indoor unit

Pipelines can be connected in the directions of ①、②、③、④、 and ⑤ as indicated in Fig.1. When the pipelines are connected to the directions of ③、④ and ⑤, a groove for the pipes has to be opened at the proper place on the base stand.

Fig.1



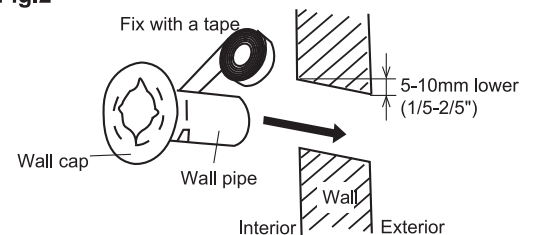
### 1.Installation of wall-mounting plate

Fix the wall-mounting plate firmly on the wall with screws. Make sure of the leveling of the plate. Slanted wall-mounting plate might jeopardize the smooth discharge of the condensed water.

### 2.Drill holes on the wall

Drill holes at places slightly below the wall-mounting plate, with hole diameter of 65mm(2-3/5") and the outer edge of the hole 5-10mm(1/5-2/5") lower (Fig.2) so that the condensed water can smoothly flow out. Cut the wall penetrating pipe to proper length according to the thickness of the wall (3-5mm(1/10-1/5") longer than the wall thickness) and insert the pipe as indicated in Fig.2.

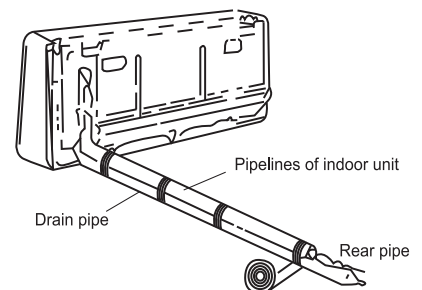
Fig.2



### 3.Installation of drain pipe

Install the pipelines of the indoor unit in accordance with the direction of the wall holes. Wrap tightly the drain pipe and the pipelines with tape. Make sure that the drain pipe is underneath the pipelines. (Fig.3) (When the drain pipe passes the room interior, some condensed water might occur to its surfaces if the humidity is very high).

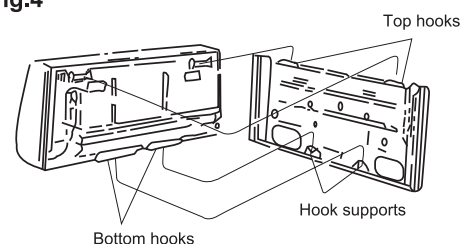
Fig.3



### 4.Installation of indoor unit

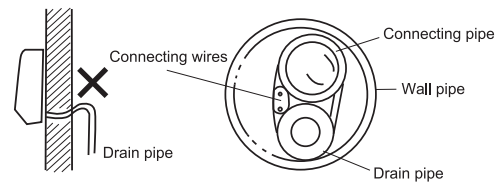
Pass the connection wires, connecting pipelines and drain pipe through the wall hole. Hang the indoor unit on the hooks at the top of the wall-mounting plate so that the hooks at the bottom of the indoor unit match the hooks of the wall-mounting plate. (Fig.4)

Fig.4

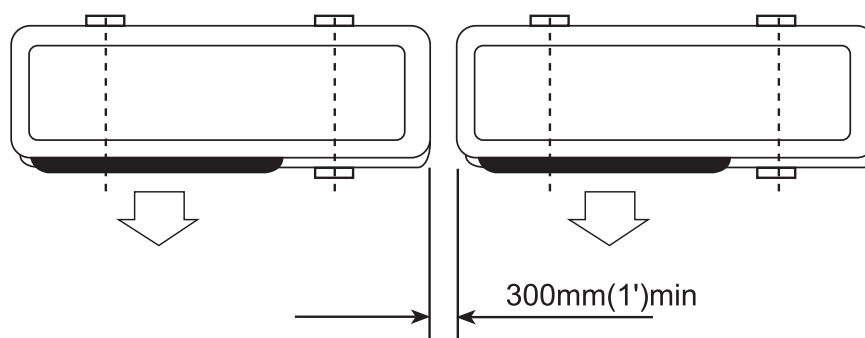


**Inspections:**

- Check if the hooks at the top and bottom are firmly fixed.
- Check if the position of the master unit is properly leveled.
- The drain pipe should not curve upward (Fig.5).
- The drain pipe should be at the lower part of the wall pipes (Fig. 5).

**Fig.5****Installation fixture of outdoor unit**

- Try to ship the product to the installation location in its original package;
- As the gravity center of the unit is not at the installation center, special caution should be taken when using hoisting cables to lift it up;
- During shipping, the outdoor unit must not be slanted to over 45 degrees (Do not store the unit in a horizontal way).
- Use expansion bolts to fix the mounting supports on the wall;
- Use bolts and nuts to fix the outdoor unit firmly on the supports and keep on the same level;
- If the unit is installed on the wall or at the rooftop, the supports have to be firmly fixed so as to resist earthquake or strong wind.

**Dimensions for parallel units installations****Ordinary pipelines connection & Air purging**

- The following ordinary pipelines connection and air purging procedures are just suitable for non-quick coupler model.

**■ Ordinary pipelines connection**

No dust, foreign articles, air or moisture should be allowed to enter the air conditioning system. Careful attention should be paid when pipeline connection for outdoor unit is made. Try to avoid repeated curves as much as possible, otherwise hardening or cracks might be caused to the copper pipes. Suitable wrenches should be used when the pipeline connection is done so as to ensure appropriate torque (refer to following torque Table 1). Excessive torque might damage the joints while too little torque might lead to leakage.



**Table 1** Torque based upon the wrench to be used

Outer diameter of copper pipe	Tightening torque	Strengthened tightening torque
Ø 6.35(1/4")	160kgf.cm(63kgf.inch)	200kgf.cm(79kgf.inch)
Ø 9.52(3/8")	300kgf.cm(118kgf.inch)	350kgf.cm(138kgf.inch)
Ø 12.7(1/2")	500kgf.cm(197kgf.inch)	550kgf.cm(216kgf.inch)
Ø 15.88(5/8")	750kgf.cm(295kgf.inch)	800kgf.cm(315kgf.inch)
Ø 19.05(3/4")	1200kgf.cm(472kgf.inch)	1400kgf.cm(551kgf.inch)

## ■ Air purging with vacuum pump

1.Check that pipelines connection have been properly connected,remove the charging port cap,and connect the manifold gauge and the vacuum pump to the charging valve by service hoses as shown Fig.6.

2.Open the valve of the low pressure side of manifold gauge,then,run the vacuum pump.Vacuum the indoor unit and the connecting pipes until the pressure in them lowers to below 1.5mmHG(The operation time for vacuuming is about 10 minutes).When the desired vacuum is reached,close the valve of the low pressure side of the manifold and stop the vacuum pump.

3.Disconnect the service hoses and fit the cap to the charging valve.

4.Remove the blank caps,and fully open the spindles of the 2-way and 3-ways valves with a service valve wrench.

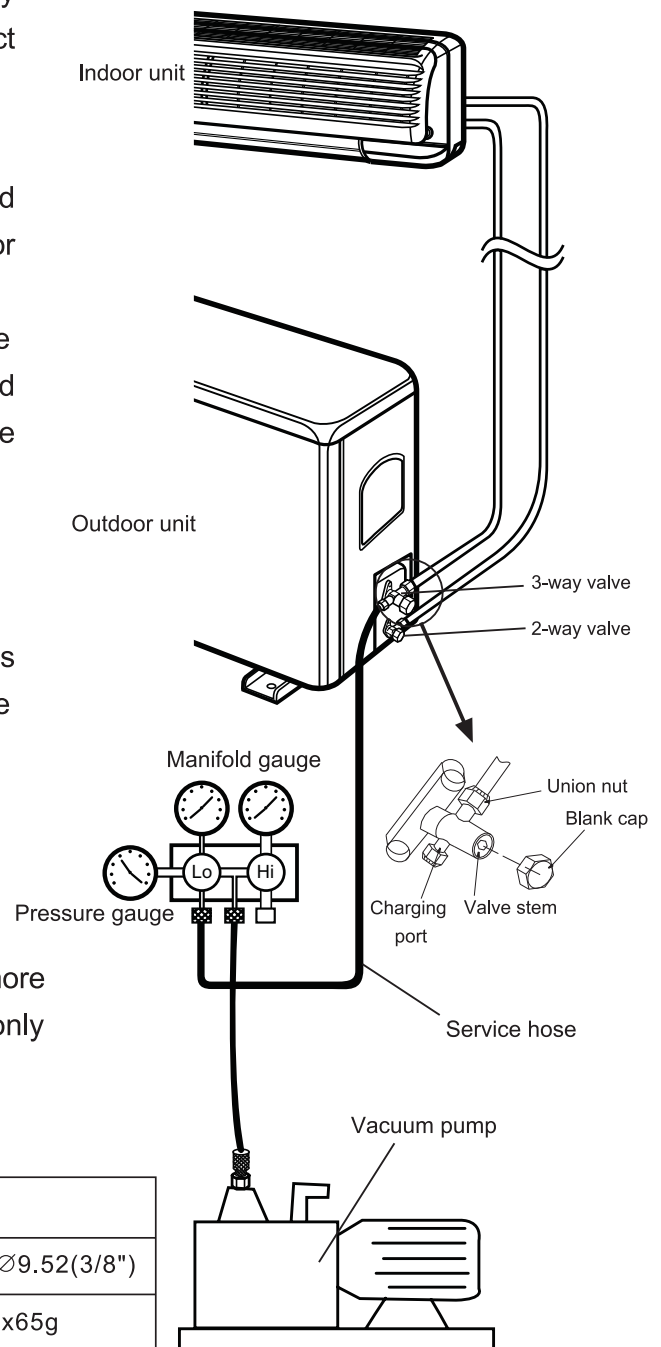
5.Tighten the blank caps of the 2-way and 3-ways valves,applying the above torque Table 1.

## ■ Adding refrigerant

Refrigerant must be added if the piping measures more than 5 metres(16'5") in length.This operation can only be performed by a professional technician,for the additional amount,see the table 2 below.

**Table 2**

Additional refrigerant amount	
Liquid pipe diameter Ø6.35(1/4")	Liquid pipe diameter:Ø9.52(3/8")
(piping length-5)m x 30g or (piping length-16)ft x 0.3oz	(piping length-5)m x 65g or (piping length-16)ft x 0.7oz



**Fig.6**

## ■ Gas leakage inspection

After the pipeline connection is done, use a leakage inspection device or soap suds to carefully check if there is any leakage at the joints. This is an important step to ensure the quality of installation. Once a leakage is detected, proper treatment should be taken immediately.

## Pipelines connection for Split type quick coupler model

● If you purchase the machine for split type quick coupler model, please adopt the following pipelines connection procedures:

1. Remove the dust caps from the indoor and outdoor units, and the connecting pipe.

2. Align the joint counter of connecting pipe with the proper indoor and outdoor joint conic surfaces, tighten the connecting nut manually. Then, make it secure with a wrench as shown Fig.7, applying to above torque Table 1.

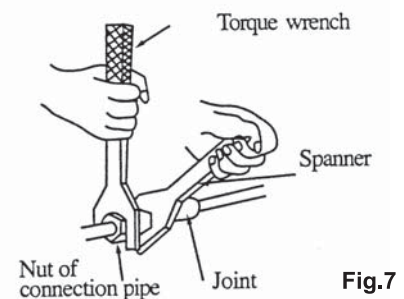


Fig.7

3. Remove the two valve core caps from the outdoor unit.

4. Turn on the high and low pressure valve cores with an socket wrench, then tighten the two valve core caps of the outdoor unit (Fig.8).

5. Finally, wrap the hot insulating cotton around the joints of indoor and outdoor units.

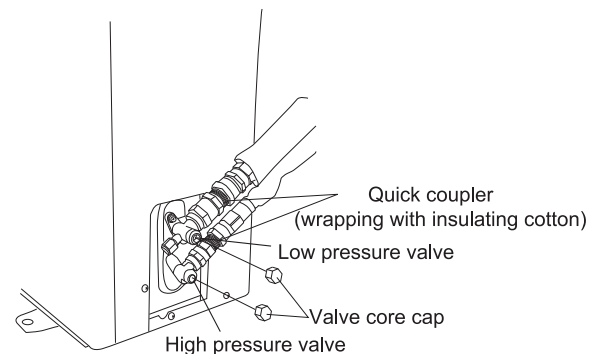


Fig.8

## ● Notes on installation of quick coupler:

1. Connecting pipe bending minimum radius parameters (Table 3)

2. Quick coupler assembly and disassembly limit: the assembly and disassembly times are inadvisably more than 7.

Table 3 Minimum bending radius

Normal diameter(mm)	Minimum bending radius(mm)	cooling capacity
DN8(5/16")	80(3")	2100~2300W (7000~8000BTU)
DN10-12 (1/2")	100(4")	2500~5100W (9000~18000BTU)
DN14-16 (5/8")	150(6")	6100~7000W (22000~24000BTU)

## Pipelines connection for Whole-Unit type quick coupler model

● If you purchase the machine for Whole-Unit type quick coupler model, please adopt the following pipelines connection procedures:

### STEP 1

● Remove two screws on the maintenance plate with a screwdriver and take off the plate, then remove the dust caps on both indoor male coupler and outdoor female coupler, See Fig.9.

### STEP 2

● Press the projecting section of outdoor female coupler backward with a little force by the thumb to make inner hooks open, and then you can easily take out the outdoor valve for gas leaking by the other hand, See Fig.10.

### STEP 3

● In the same way, press the projecting section backward, then connect the indoor male coupler to the outdoor female coupler, See Fig.11.

### STEP 4

● Close the key lever of indoor male coupler to the horizontal position, then indoor and outdoor refrigerant will be circulating, and now you can obviously hear the sound of inner air flowing, See Fig.12.

### STEP 5

● Connect the outdoor quick cable coupler with indoor quick cable coupler, See Fig.13.

### STEP 6

● Finally, Re-install the maintenance plate back into its place, See Fig.14.

As for the outdoor valve for gas leaking and the dust caps, you can preserve them for future possible use on the removal of your air conditioner.

Fig.9

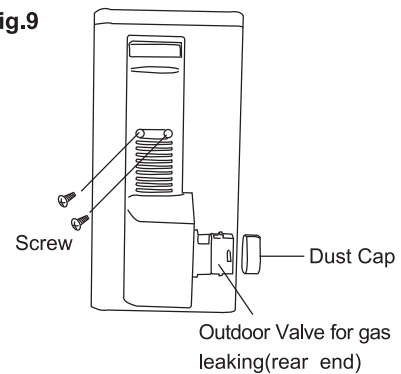


Fig.10

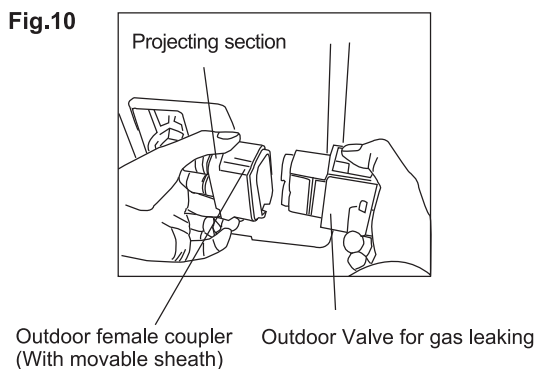


Fig.11

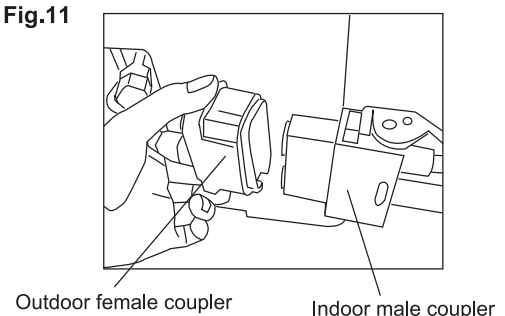


Fig.12

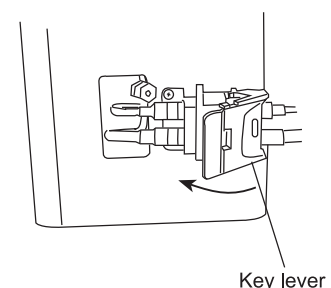
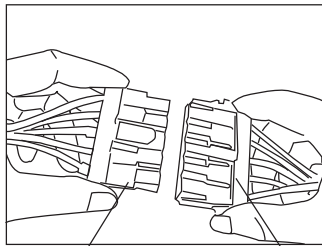


Fig.13



Outdoor quick cable coupler

Indoor quick cable coupler

## Connection of power cable

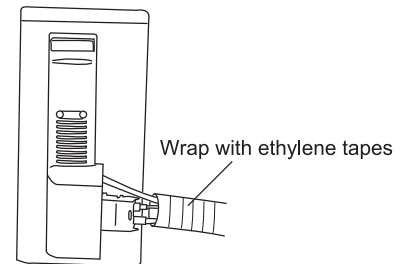
1. Remove the drawer of the outdoor unit.
2. **Non-quick coupler:** connect the indoor power and control wires with the matched outdoor wires in accordance with the electric schematic diagram and make sure that the connection is firmly done (Fig.15.)

**Quick coupler:** directly connect quick cable couplers with indoor and outdoor quick cable couplers after disassembly of the outdoor unit connecting box cover (Fig.16.)

3. Use a press plate to fix the wires firmly, and re-install the drawer.

4. Optional steps: In some cooling and heating models, you should connect the indoor wire connector with outdoor probe wire connector for defrosting, see Fig.17.

Fig.14



Wrap with ethylene tapes

Fig.15

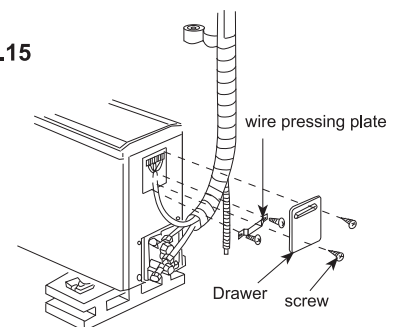


Fig.16

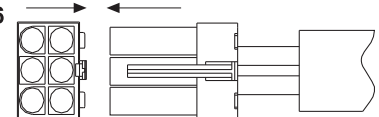
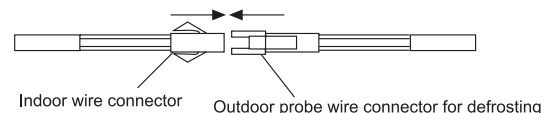


Fig.17



Note: Do not connect the wires in a wrong way, otherwise electric malfunctions will be caused and even damages to the units will occur. The appliance shall be installed in accordance with national wiring regulation. If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similarly qualified person in order to avoid a hazard. The plug shall be accessible after installing the appliance. If the model have not plug that a switch which have a contact separation of at least 3 mm in all poles shall be added in fixed wiring.

## Finishing touches

- wrap the pipelines tightly with ethylene tapes.
- Fix the wrapped pipelines on the exterior wall with clamps.
- Fill in the gaps left over by the pipeline hole and wall hole to prevent rain-water from entering.

## Test running

- Connect to the power source, check if the function selection keys on the remote controller are working properly.
- Check if the room temperature adjustments and timer settings are working properly.
- Check if the drain is smooth.
- Check if there is any abnormal noise or vibration during operation.
- Check if there is leakage of refrigerant.

## Is the unit installed correctly?

### ■ Suitable Installation Position

- Isn't there anything which prevents ventilation or obstructs operation in front of the indoor unit ?

Do not install the unit following place .

- Inflammable gases may leak .
  - Oil splashes a lot .
  - In case where the unit is used in such places as poisonous or sultry gases are generated or seaside district exposed to sea breezes corrosion may cause malfunction . Consult with your distributor .
  - Air conditioner body and remote controller must be 1 m(39-3/4") or more away from a TV or a radio.
- Drain the dehumidified water from the indoor unit to a place which drains well .

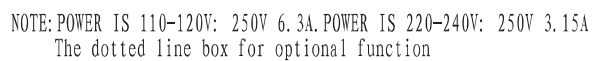
### ■ Pay attention to operation noise

- When installing the unit , choose a place which can stand the weight of the unit well and does not increase the operation noise or vibration . Especially where there is a possibility that vibration be transmitted to the house , fix the unit by inserting attached vibration -proof pads between the unit and fittings .
- Choose the place where hot air and operation noise from the outlet of the outdoor unit do not annoy the neighborhood .
- Things left near the outlet and inlet of the outdoor unit cause malfunction or increased operation noise . Do not leave obstacles near the outlet and inlet .
- If irregular sound is heard during operation , consult with your distributor .

### ■ Inspection and Maintenance

- According to the service conditions and operating environment , the inside of the air conditioner will become dirty after several seasons (3 to 5years ) of service , resulting in decreased operating performance .Inspection and maintenance are recommended in addition to usual cleaning (The air conditioner can be used for a longer period and without anxiety .)
- As to inspection and maintenance , consult your dealer or any one of business offices of dealing companies .(Service charge is required in this case .)
- We recommend to perform inspection and maintenance during an off seasons.

### Circuit Diagram

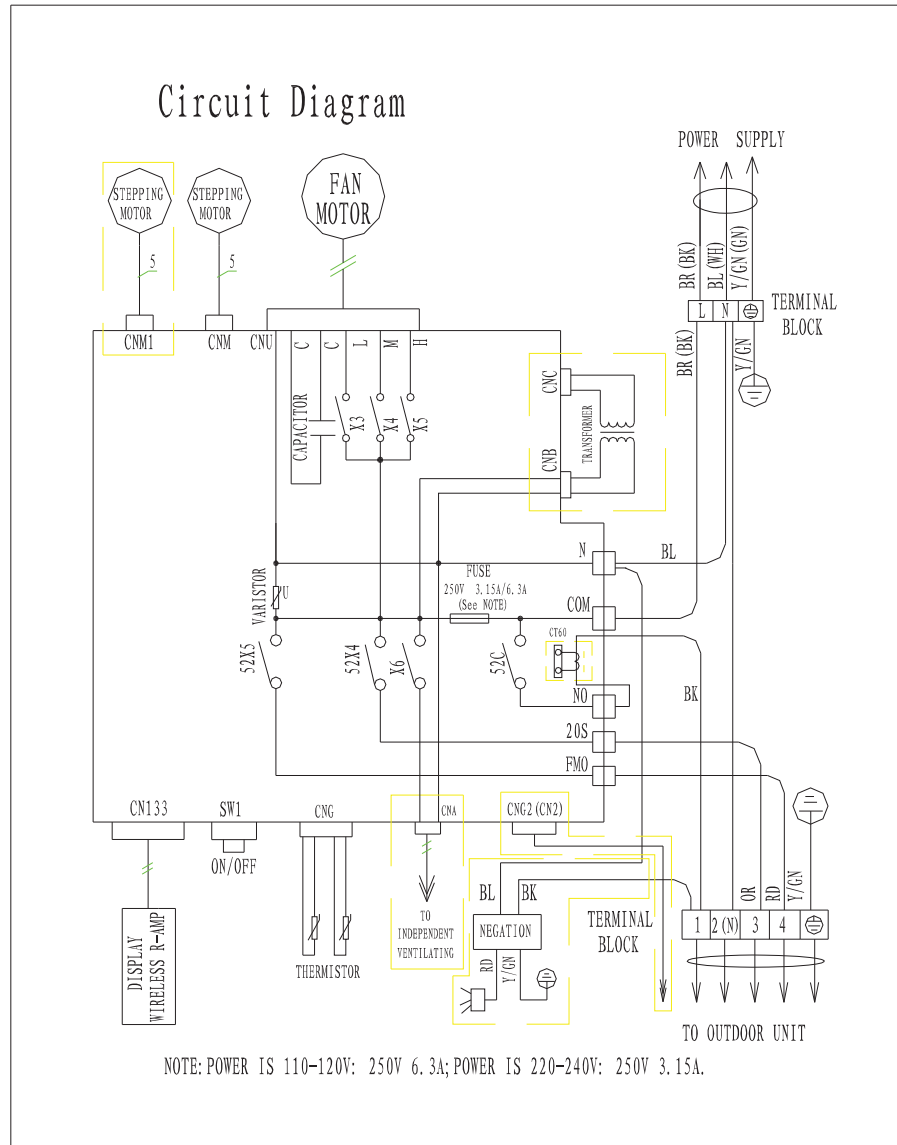


### Circuit Diagram

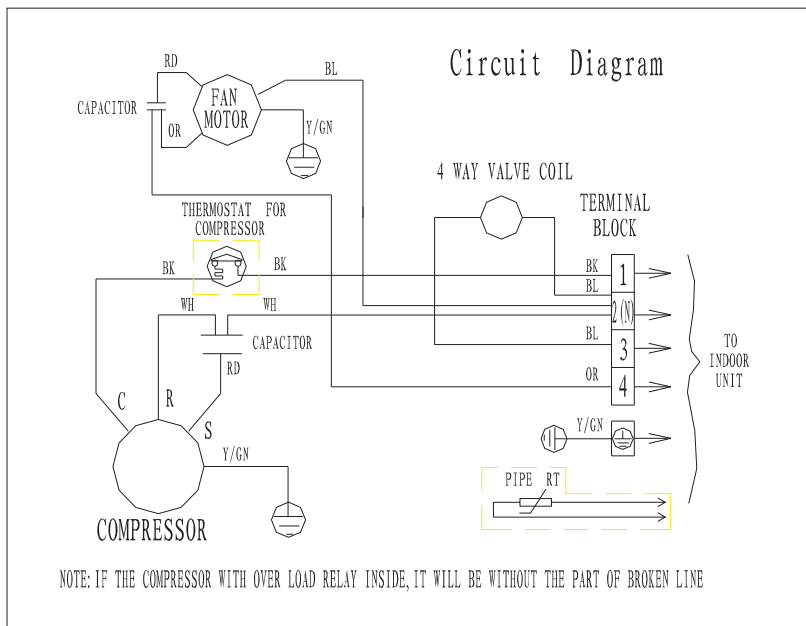




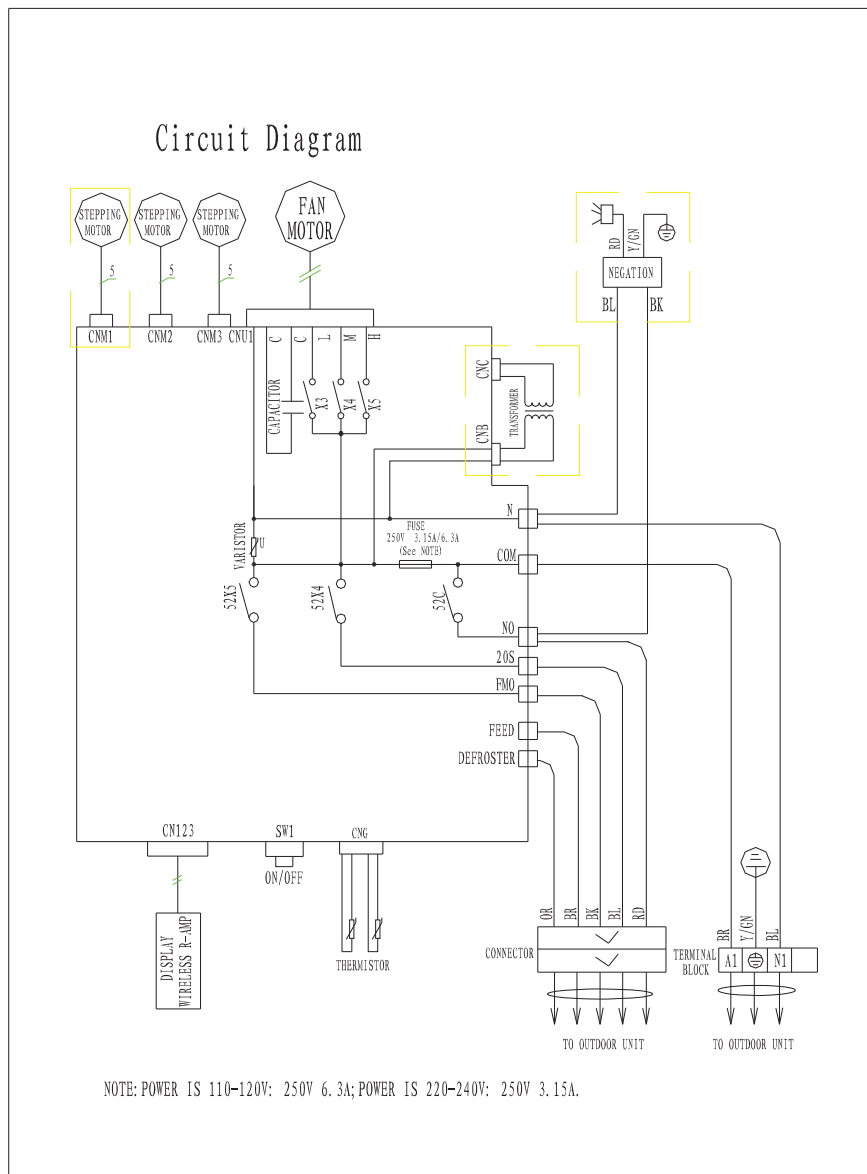
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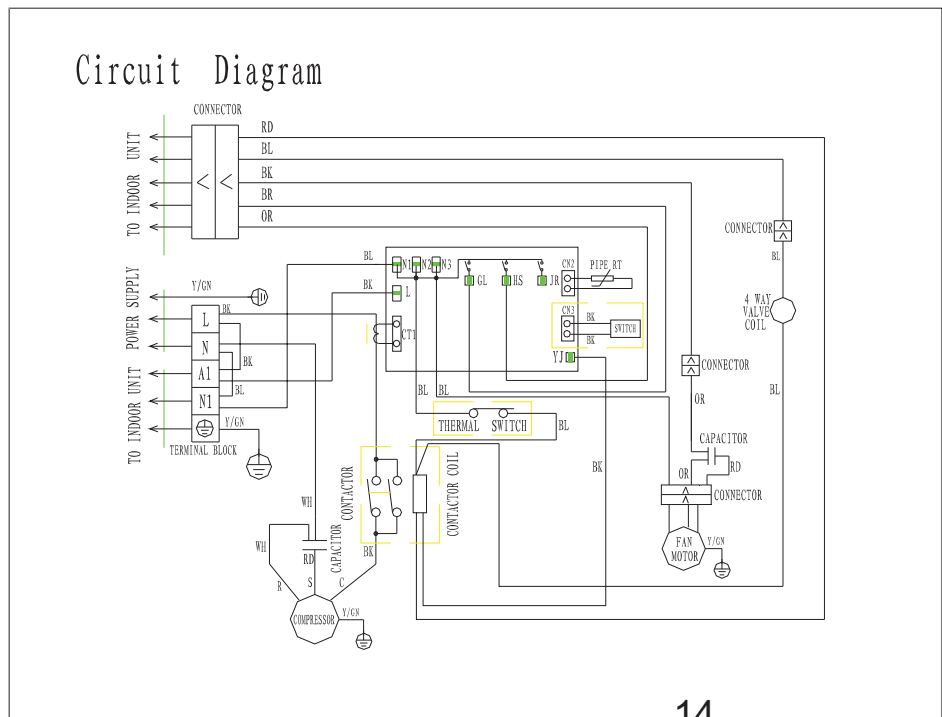
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## Troubleshooting

Our company provides the thoughtful services for customer,air conditioners had been installed self diagnosis system to display the information for the units.

<i>Self-check information</i>	<i>Self-check code of luminotron/ (Self-check code of running lamp)</i>	<i>Digital self-check code/ (Polychrome screen self-check code)</i>
Defrost indication	Flicker 1 time/1s	Indicates "dF"or Heating icon flash
Anti cold wind	Flicker 1 time/1s	Fan motor picture not running
Room temperature sensor fault	Flicker 1 times/8s	E2
Coil temperature sensor	Flicker 2 times/8s	E3
External feedback fault	Flicker 7 times/8s	E7
Outdoor tube temperature sensor faults	Flicker 4 times/8s	E1
(EEPROM)communication failures	Flicker 6 times/8s	E6
North American environment outside temperature exceeds the scope	Flicker 1 times/1s	FF

Note:Above self check information is commonly applicable in our most air conditioners,but some are special,you can refer to the User's Manual for information or contact the dealer or authorized maintenance people for help.

## Fault display table for indoor unit

Our company provides the thoughtful services for customer,air conditioners had been installed self diagnosis system to display the information for the units.

Malfunction content	Indoor unit display status		
	Code	LED(Indoor unit without the nixietube	
		Running lamp flashing frequency	Timing lamp flashing frequency
The communication faults between the indoor and out door units	F1	1	lighten
Indoor ambient temperature sensor fault	F2	2	lighten
Indoor coil temperature sensor fault (Include;inlet, middle of pipe,outlet)	F3	3	lighten
Indoor fan fault	F4	4	lighten
Outdoor module fault	F5	5	lighten
Outdoor ambient temperature sensor fault	F6	6	lighten
Outdoor coil temperature sensor fault	F7	7	lighten
Compressor suction temperature sensor fault	F8	8	lighten
Compressor discharge tempaerature sensor fault	F9	9	lighten
Inductor of current or voltage fault	FA	10	lighten
Compressor driving abnormally fault	FC	11	lighten
Power supply phase lacking or phase sequence fault	FD	12	lighten
Refrigerant lacking fault	FF	14	lighten

Note:Above self check information is commonly applicable in our most air conditioners,but some are special,you can refer to the User's Manual for information or contact the dealer or authorized maintenance people for help.

## Protection display table for indoor unit

Our company provides the thoughtful services for customer,air conditioners had been installed self diagnosis system to display the information for the units.

Protection content	Indoor unit display status		
	Code	LED(Indoor unit without the nixietube)	
		Running lamp flashing frequencyn	Timing lamp flashing frequencyn
Evaporator temperature protection	P1	lighten	1
Overheat,over current protection of inverter module	P2	lighten	2
Over current protection	P3	lighten	3
Compressor discharging temperature protection	P4	lighten	4
Overheat of compessor top protection	P5	lighten	5
Compressor suction temperature protection	P6	lighten	6
Power supply over(low) current/over(low) voltage protection	P7	lighten	7
High pressure of discharge protection	F9	lighten	9
High temperature of condenser protection	PA	lighten	10
High temperature of outdoor ambient protection	PC	lighten	11
Other protection	PF	lighten	12

Note:Above self check information is commonly applicable in our most air conditioners,but some are special,you can refer to the User's Manual for information or contact the dealer or authorized maintenance people for help.

## Quick connector installation instruction

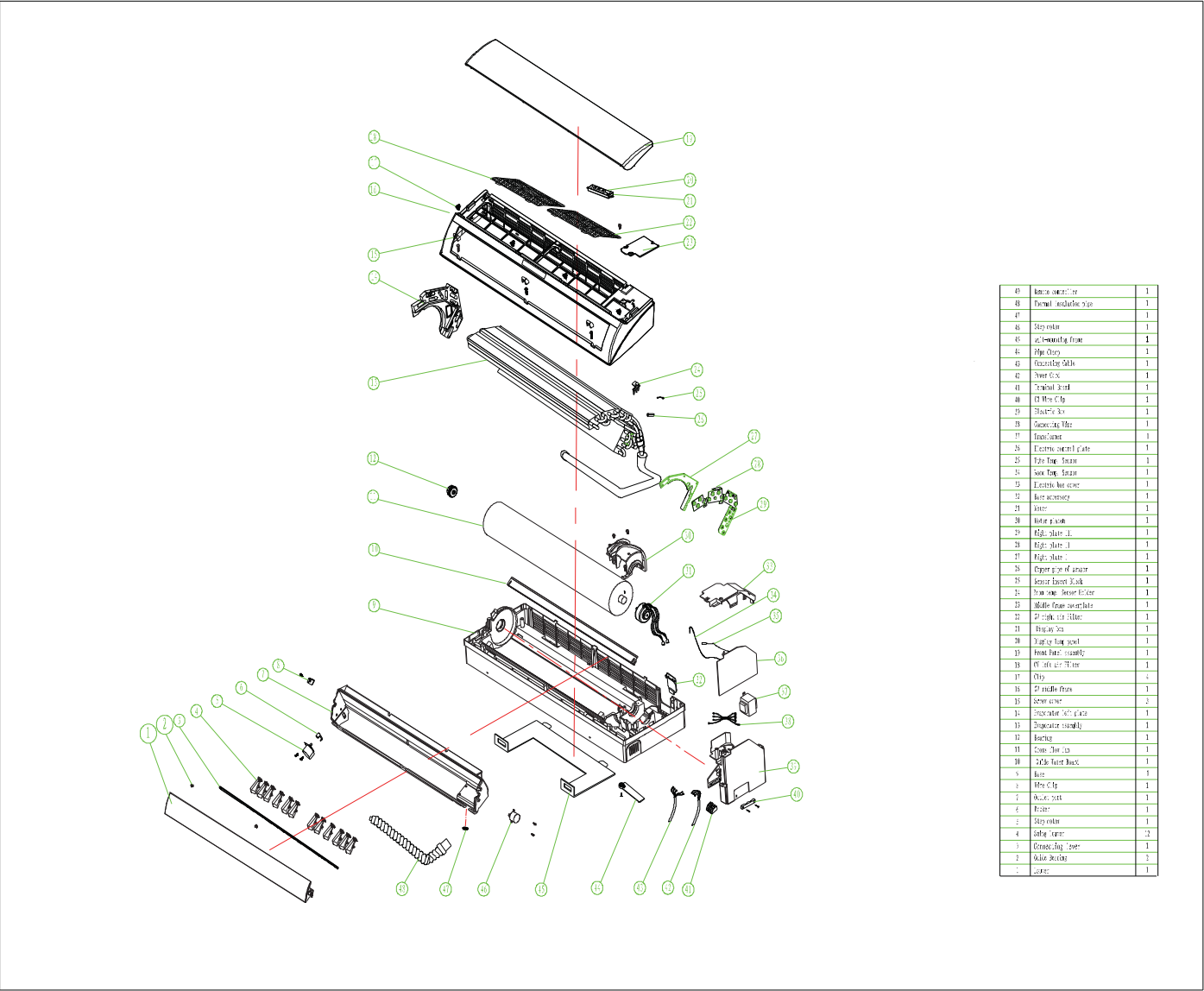
This sheet only guides the requirements of the installation for stainless quick connector pipe. Other installation requirements please refer to the installation guide along with the unit.

- To expand the connecting pipe, please hold one side then expand it following the right direction.
- Please insure the angles have a radian at some extent while installing the stainless soft pipe. Angles need to be around, not bended. (to the quick connecting spot and drilled point of wall).
- Please fix the stainless soft pipe while installing because the connecting pipes are soft, so that prevent them from getting bended or stretched.
- The minimum bending radius are as follows:

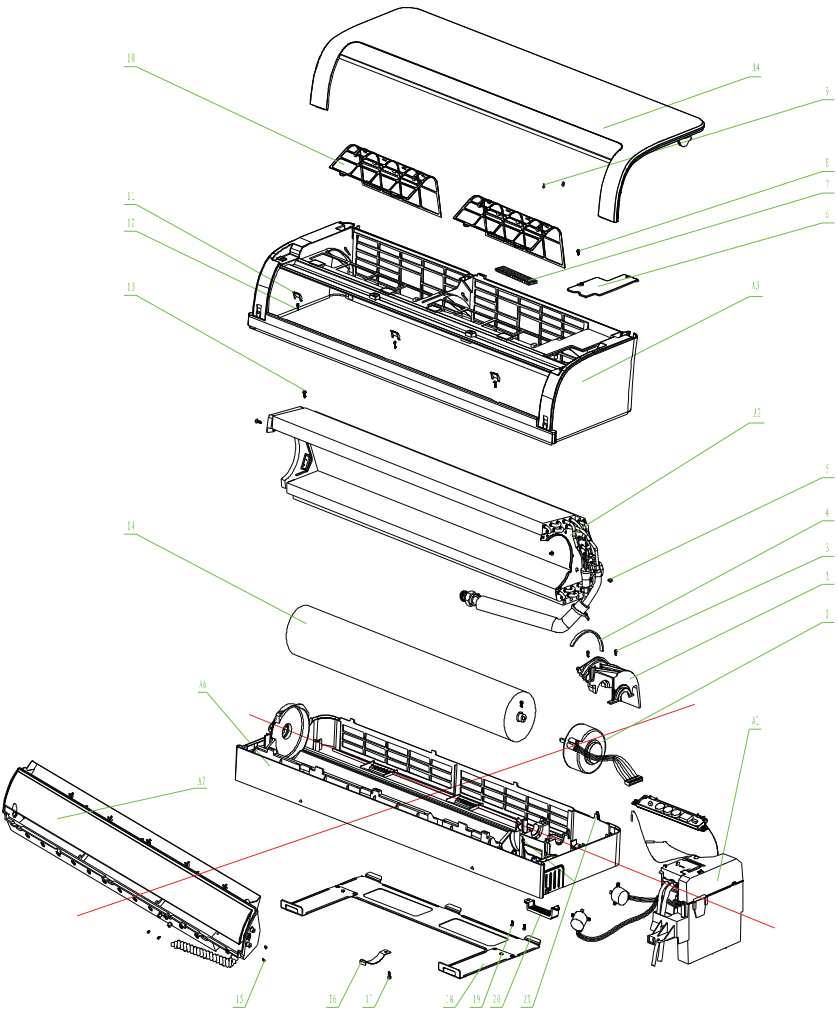
<i>Stainless soft pipe</i>	<i>Model</i>	<i>Minimum bending radius(mm)</i>
$\Phi$ <i>Eight</i>	Twenty-one, Twenty-five	Eighty(mm)
$\Phi$ <i>Ten</i>	Thirty-five	One hundred(mm)
$\Phi$ <i>Thirteen</i>	fifty-one	One hundred and fifteen(mm)



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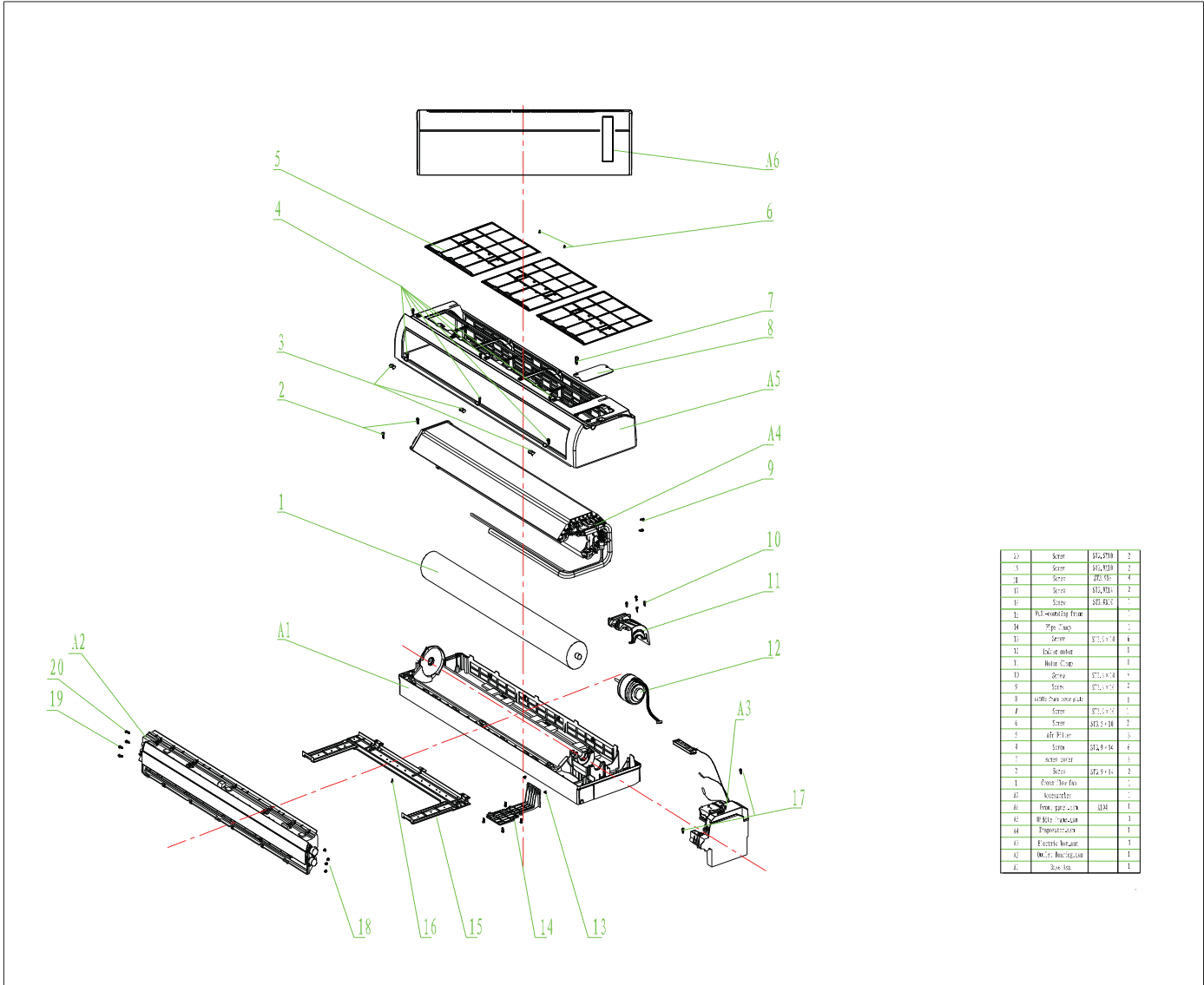


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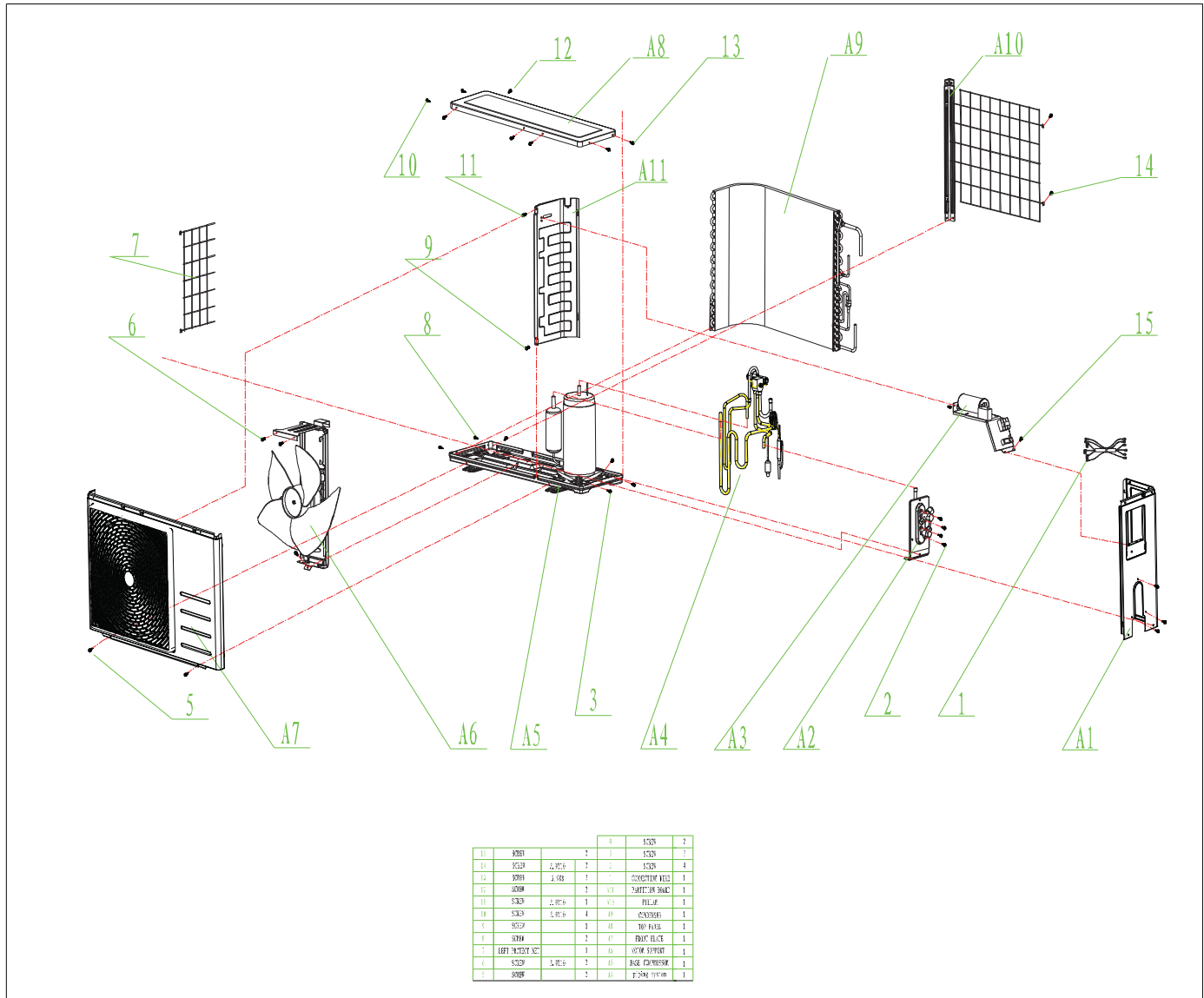
1	Screw	Ø10x100	2	
2	Top Shell/cover	1000	1	1000
3	Screw	Ø10x100	2	
4	Bottoming Part	100	1	
5	Screw	Ø10x100	2	
6	Part Case	1		
7	Screw	Ø10x100	4	
8	Outer Case Fan	1		
9	Screw	Ø10x100	2	
10	Screw	Ø10x100	2	
11	Screw	Ø10x100	2	
12	Screw	Ø10x100	2	
13	Screw	Ø10x100	2	
14	Screw	Ø10x100	2	
15	Screw	Ø10x100	2	
16	Screw	Ø10x100	2	
17	Screw	Ø10x100	2	
18	Screw	Ø10x100	2	
19	Screw	Ø10x100	2	
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97	Screw	Ø10x100	2	
98	Screw	Ø10x100	2	
99	Screw	Ø10x100	2	
100	Screw	Ø10x100	2	

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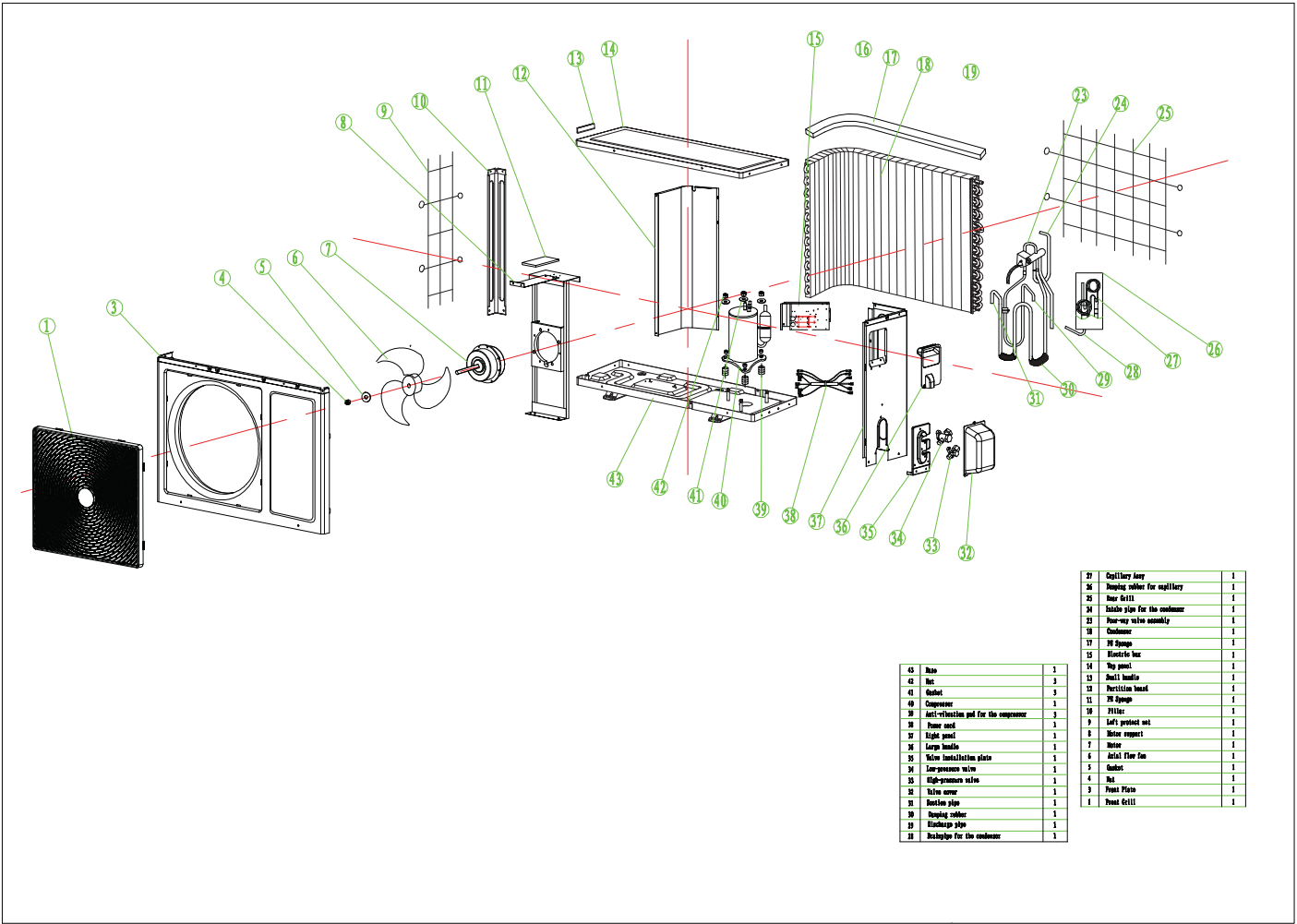


QTY	Part Name	Part No.	Unit
1	Screw	PH2.5x10	2
2	Screw	PH2.5x10	4
3	Screw	PH2.5x10	2
4	Screw	PH2.5x10	2
5	PLC-mounting frame		1
6	Pipe Clamp		2
7	Screw	PH2.5x10	4
8	Exhaust motor		1
9	Motor Cap		1
10	Cap	PH2.5x10	1
11	Screw	PH2.5x10	2
12	Exhaust pipe		1
13	Screw	PH2.5x10	2
14	Screw	PH2.5x10	2
15	Exhaust pipe		1
16	Screw	PH2.5x10	2
17	Exhaust pipe		1
18	Exhaust pipe		1
19	Exhaust pipe		1
20	Exhaust pipe		1

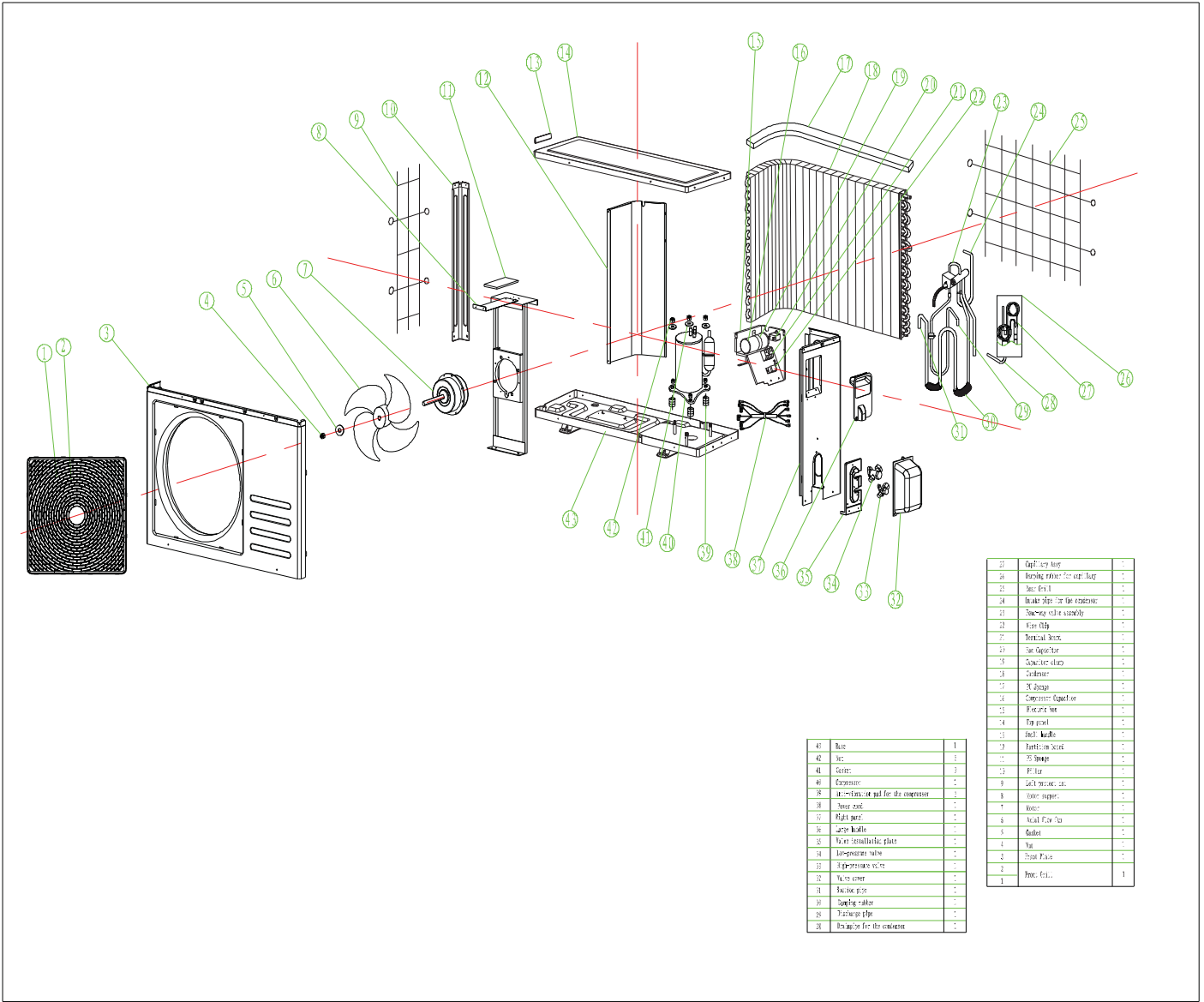
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