



SERVICE MANUAL

**Room Airconditioner
Split Wall-Mounted Type**



**FS Art-70HF
FS Art-90HF
FS Art-120HF
FS Art-180HF**

NOTE:

Before servicing the unit, please read this at first.

Always contact with your service center if meet problem.

FI_SM_FS Art70-180HF_090909

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1 Precaution

1.1 Safety Precaution

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.

Before service unit, be sure to read this service manual at first.

1.2 Warning

➤ Installation

Do not use a defective or underrated circuit breaker. Use this appliance on a dedicated circuit.

There is risk of fire or electric shock.

For electrical work, contact the dealer, seller, a qualified electrician, or an Authorized service center.

Do not disassemble or repair the product, 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 reinstall the unit by yourself (customer).

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

Be caution 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 windows is left open.

Moisture may condense and wet or damage furniture.

Take care to ensure that power cable could not be pulled out or damaged during operation.

There is risk of fire or electric shock.

Do not place anything on the power cable.

There is risk of fire or electric shock.

Do not plug or unplug the power supply plug during operation.

There is risk of fire or electric shock.

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

There is risk of fire or electric shock.

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

There is risk of fire and electric shock.

Do not allow water to run into electric parts.

It may cause fire, failure of the product, or electric shock.

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

There is risk of fire or failure of product.

Do not use the product in a tightly closed space for a long time.

Oxygen deficiency could occur.

When flammable gas leaks, turn off the gas and open a window for ventilation before turn the product on.

Do not use the telephone or turn switches on or off.

There is risk of explosion or fire.

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.

Stop operation and close the window in storm or hurricane. If possible, remove the product from the window before the hurricane arrives.

There is risk of property damage, failure of product, or electric shock.

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.

When the product is soaked (flooded or submerged), contact an Authorized service center.

There is risk of fire or electric shock.

Be caution that water could not enter the product.

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

Ventilate the product from time to time when operating it together with a stove, etc.

There is risk of fire or electric shock.

Turn the main power off when cleaning or maintaining the product.

There is risk of electric shock.

When the product is not be used for a long time, disconnect the power supply plug or turn off the breaker.

There is risk of product damage or failure, or unintended operation.

Take care to ensure that nobody could step on or fall onto the outdoor unit.

This could result in personal injury and product damage.

➤ CAUTION

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 of water leakage.

Do not install the product where the noise or hot air from the outdoor unit could damage the neighborhoods.

It may cause a problem for your neighbors.

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

Avoid personal injury.

Do not install the product where it will be exposed to sea wind (salt spray) directly.

It may cause corrosion on the product. Corrosion, particularly on the condenser and evaporator fins, could cause product malfunction or inefficient operation.

➤ Operational

Do not expose the skin directly to cool air for long periods of time. (Do not sit in the draft).

This could harm to your health.

Do not use the product for special purposes, such as preserving foods, works of art, etc. It is a consumer air conditioner, not a precision refrigerant system.

There is risk of damage or loss of property.

Do not block the inlet or outlet of air flow.

It may cause product failure.

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

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

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

There is risk of personal injury.

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

There is risk of personal injury and failure of product.

Always insert the filter securely. Clean the filter every two weeks or more often if necessary.

A dirty filter reduces the efficiency of the air conditioner and could cause product malfunction or damage.

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

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

Do not drink the water drained from the product.

It is not sanitary could cause serious health issues.

Use a firm stool or ladder when cleaning or maintaining the product.

Be careful and avoid personal injury.

Replace the all batteries in the remote control with new ones of the same type. Do not mix old and new batteries or different types of batteries.

There is risk of fire or explosion.

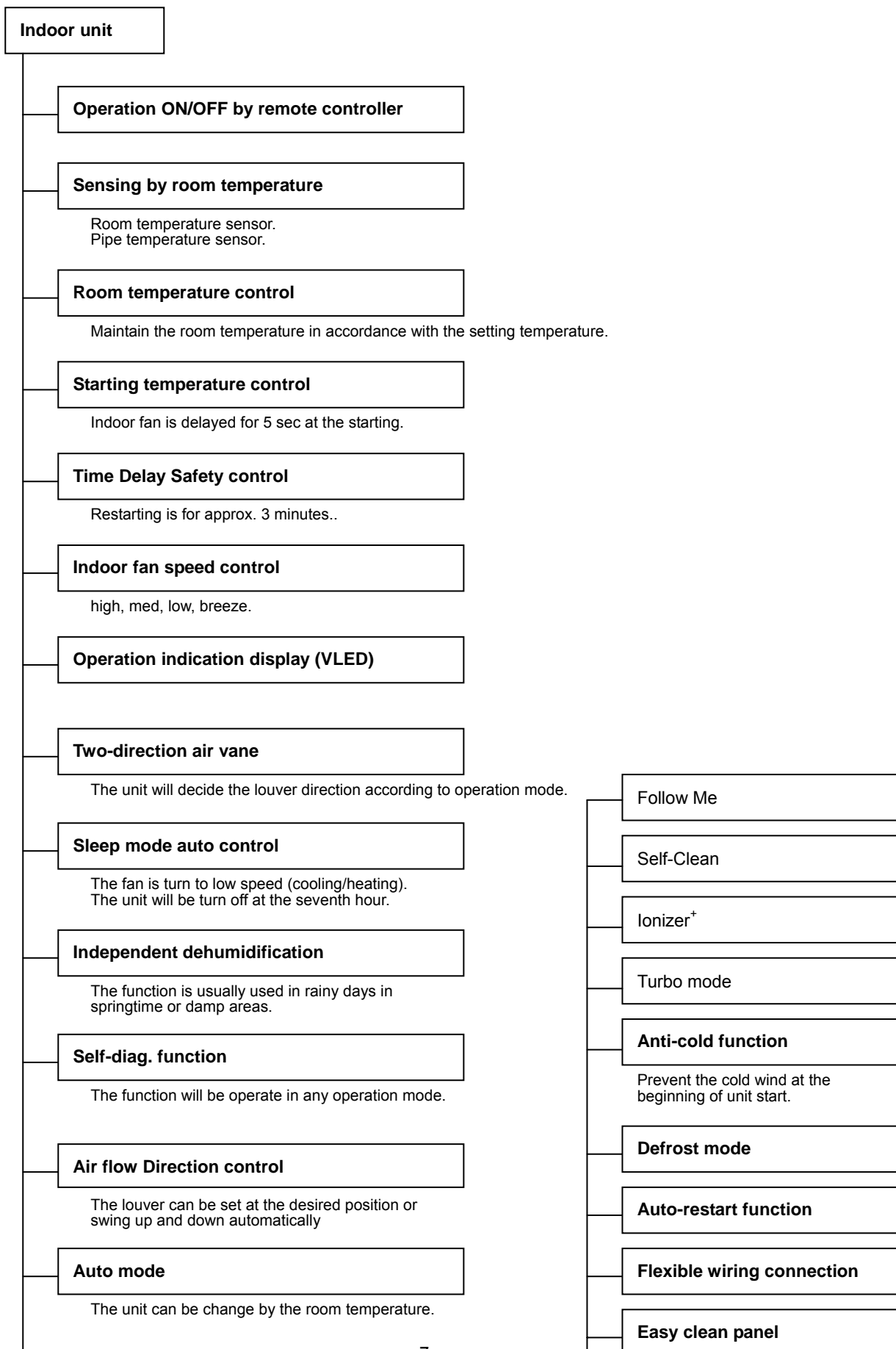
Do not recharge or disassemble the batteries. Do not dispose of batteries in a fire.

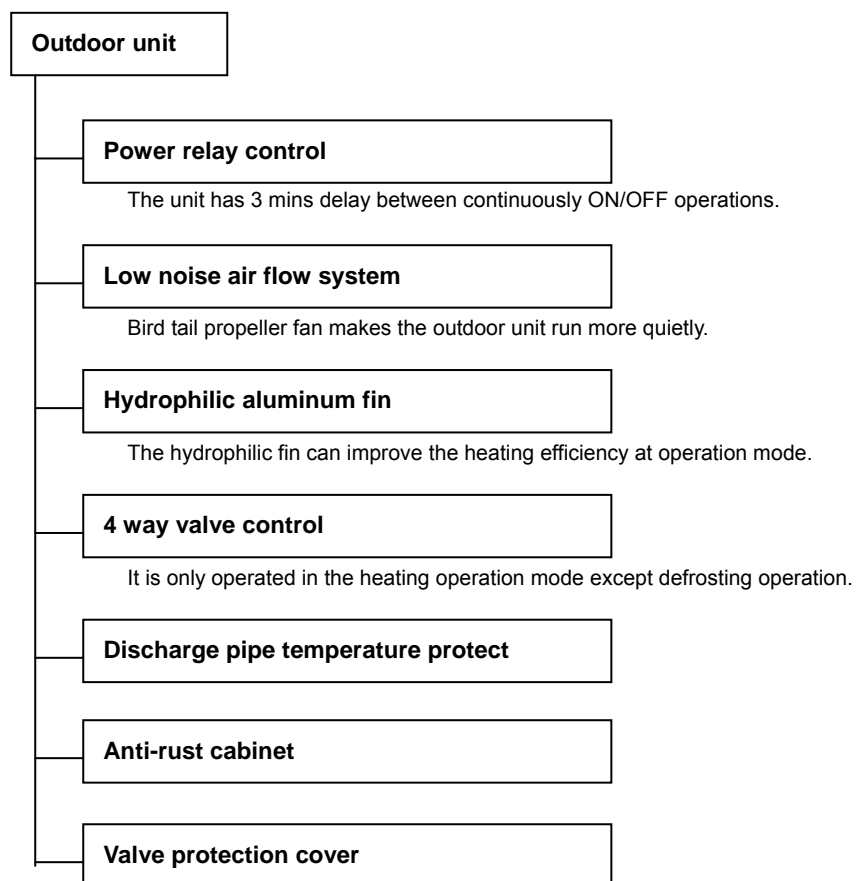
They may burn or explode.

If the liquid from the batteries gets onto your skin or clothes, wash it well with clean water. Do not use the remote if the batteries have leaked.

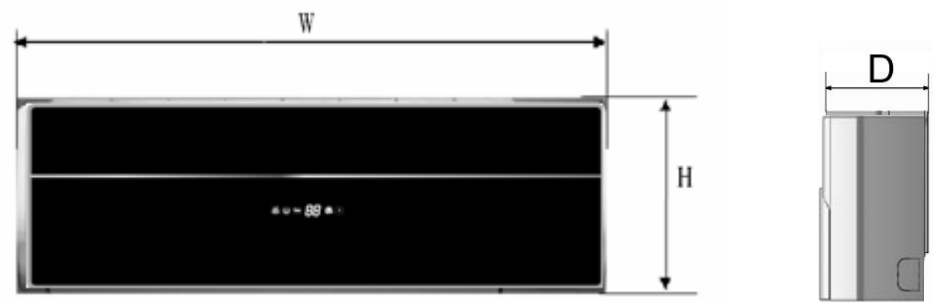
The chemical in batteries could cause burns or other health hazards.

1.3 Function



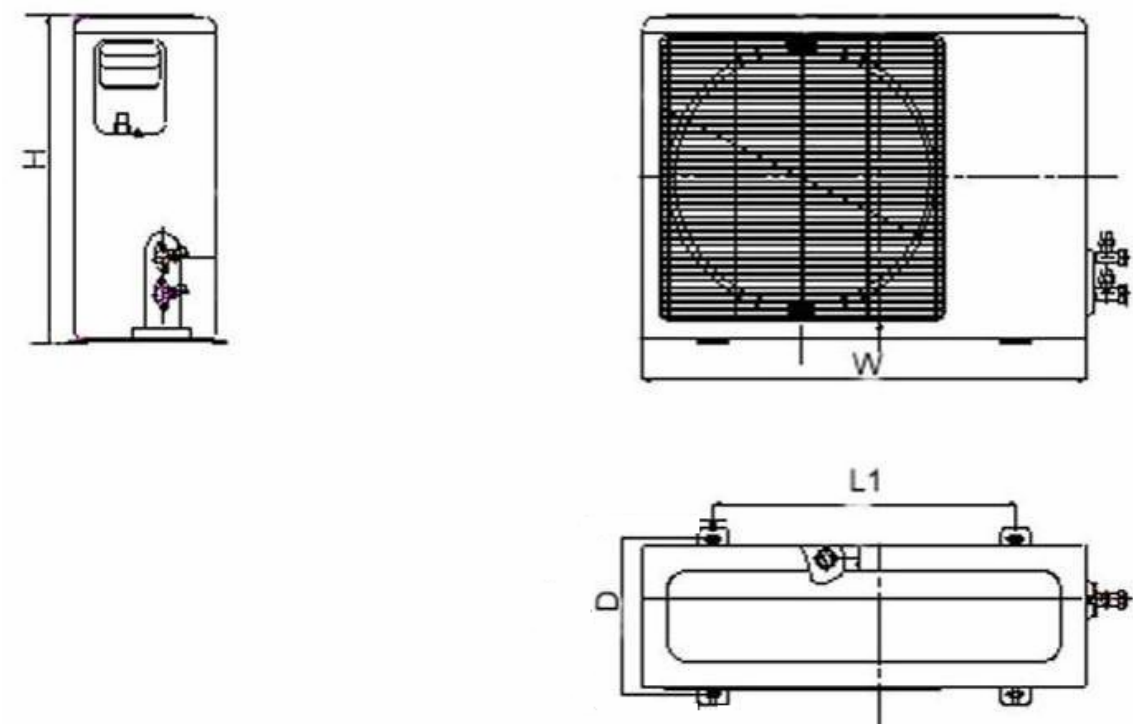


2 Dimension



Model \ Dimension	W	H	D
7K	850	275	160
9K	850	275	160
12K	900	285	160
18K	1022	295	185

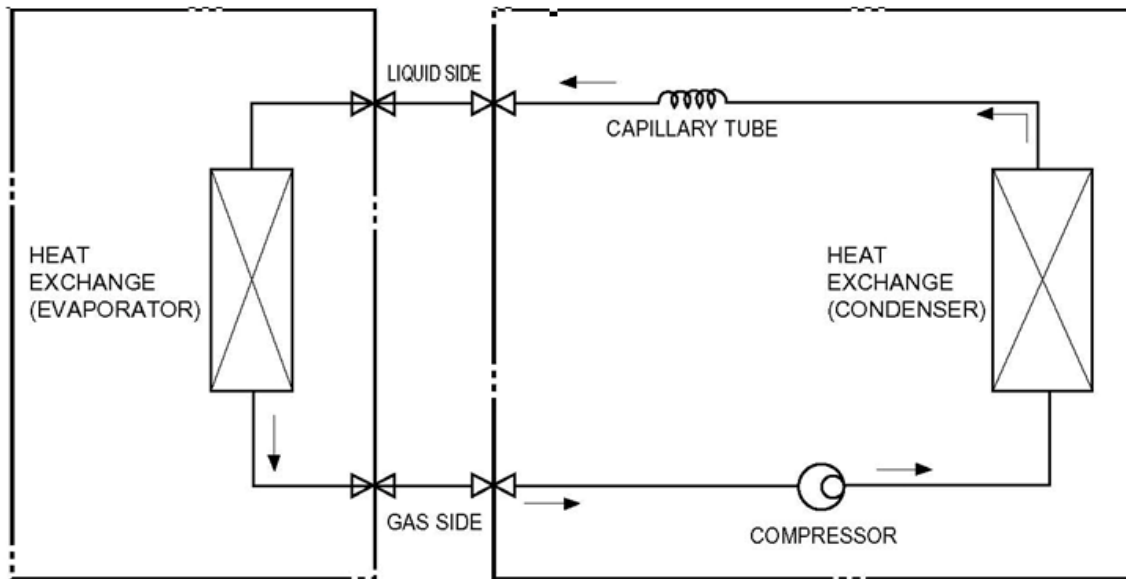
outdoor unit



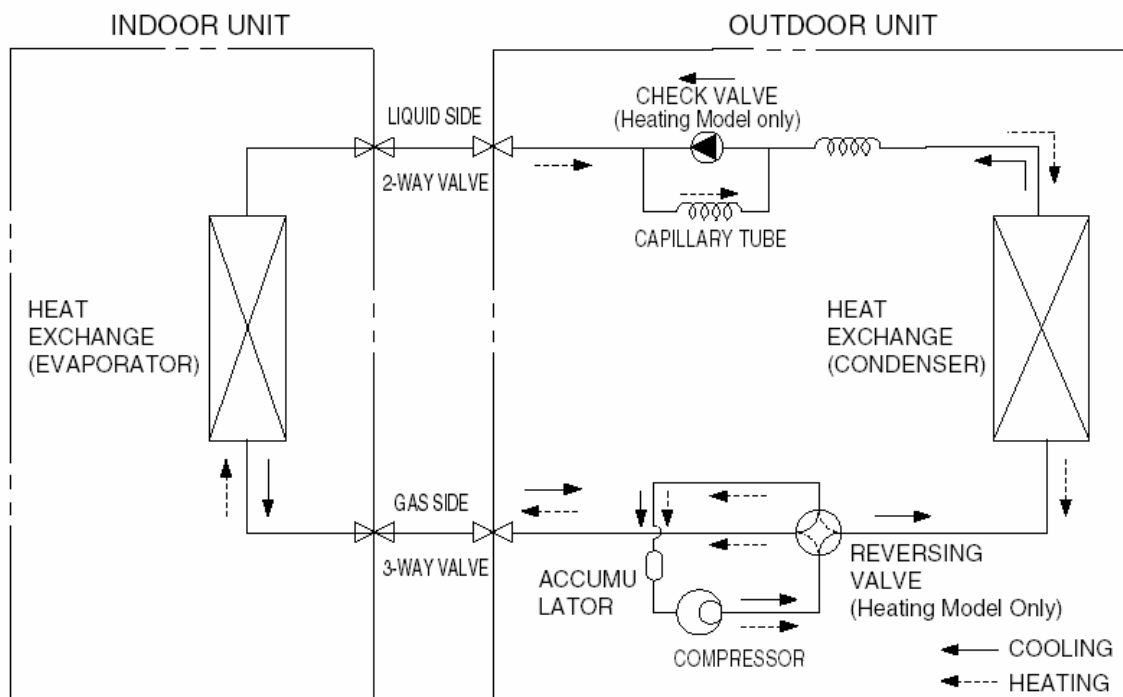
Model	W	H	D	L1
FSArt-70HF	780	540	276	549
FSArt-90HF	780	540	276	549
FSArt-120HF	760	590	285	530
FSArt-180HF	845	695	335	560

3 Refrigerant cycle diagram

➤ Cooling only



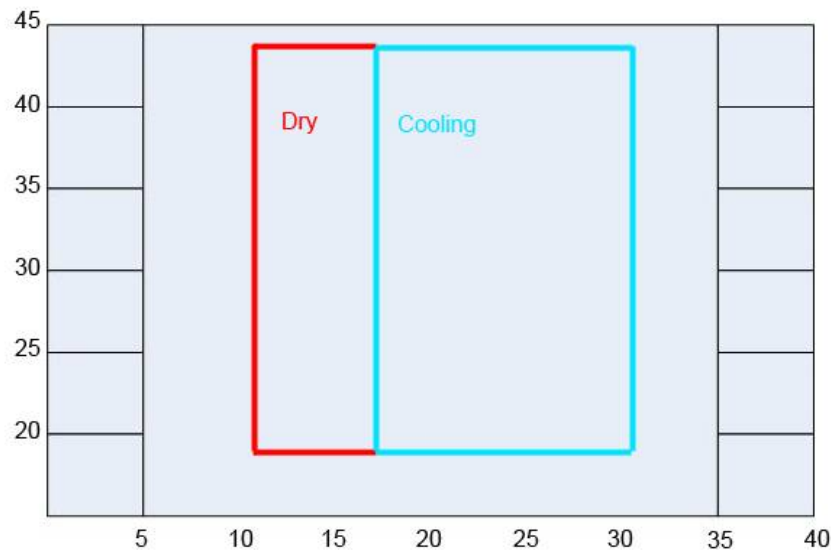
➤ Heat pump mode



4 Operation limits

Cooling operation

Outdoor unit air temp. °C DB

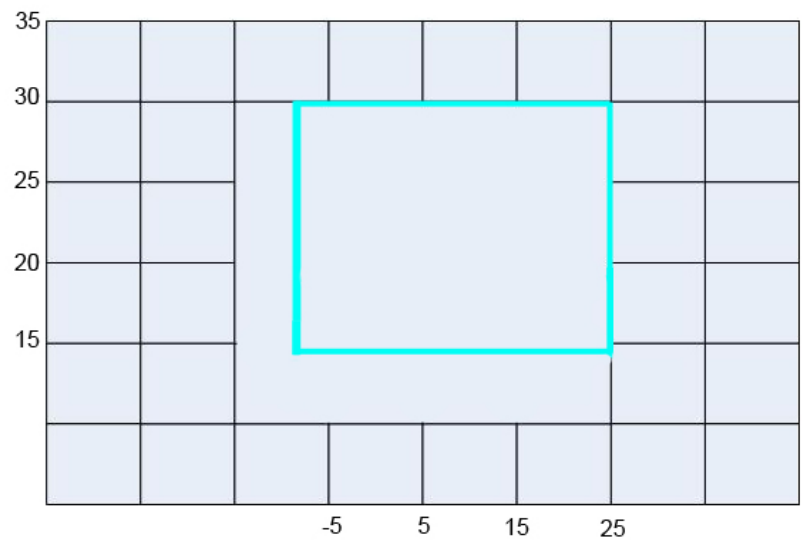


Indoor air temp. °C DB

Note: The chart is the result from the continuous operation under constant air temperature conditions. However, excludes the initial pull-down stage.

Heating operation

Indoor air temp. °C DB



Outdoor unit air temp. °C DB

Note: The chart is the result from the continuous operation under constant air temperature conditions. However, excludes the initial pull-down stage.

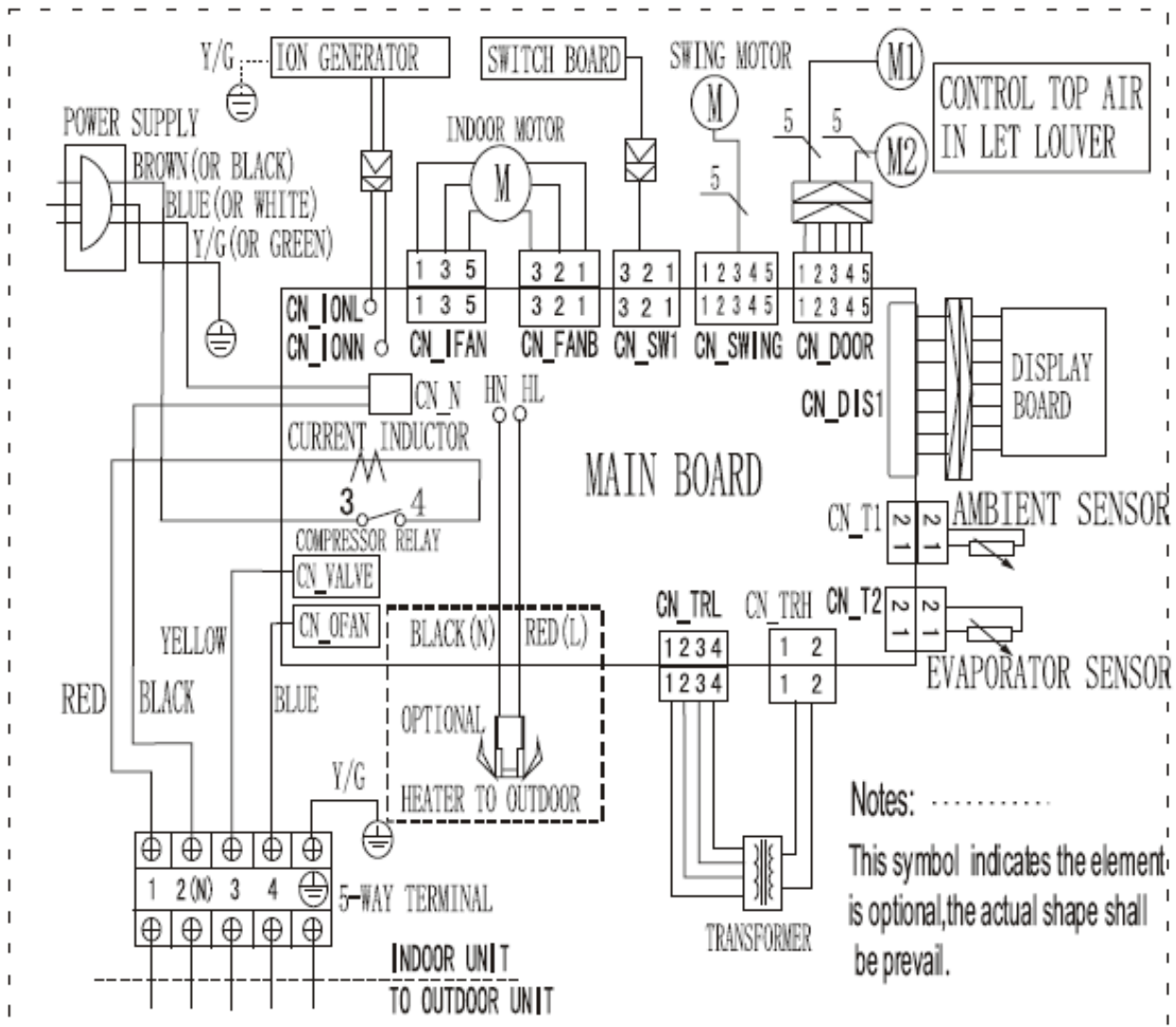
5 Wiring diagram

FSArt-70HF

FSArt-90HF

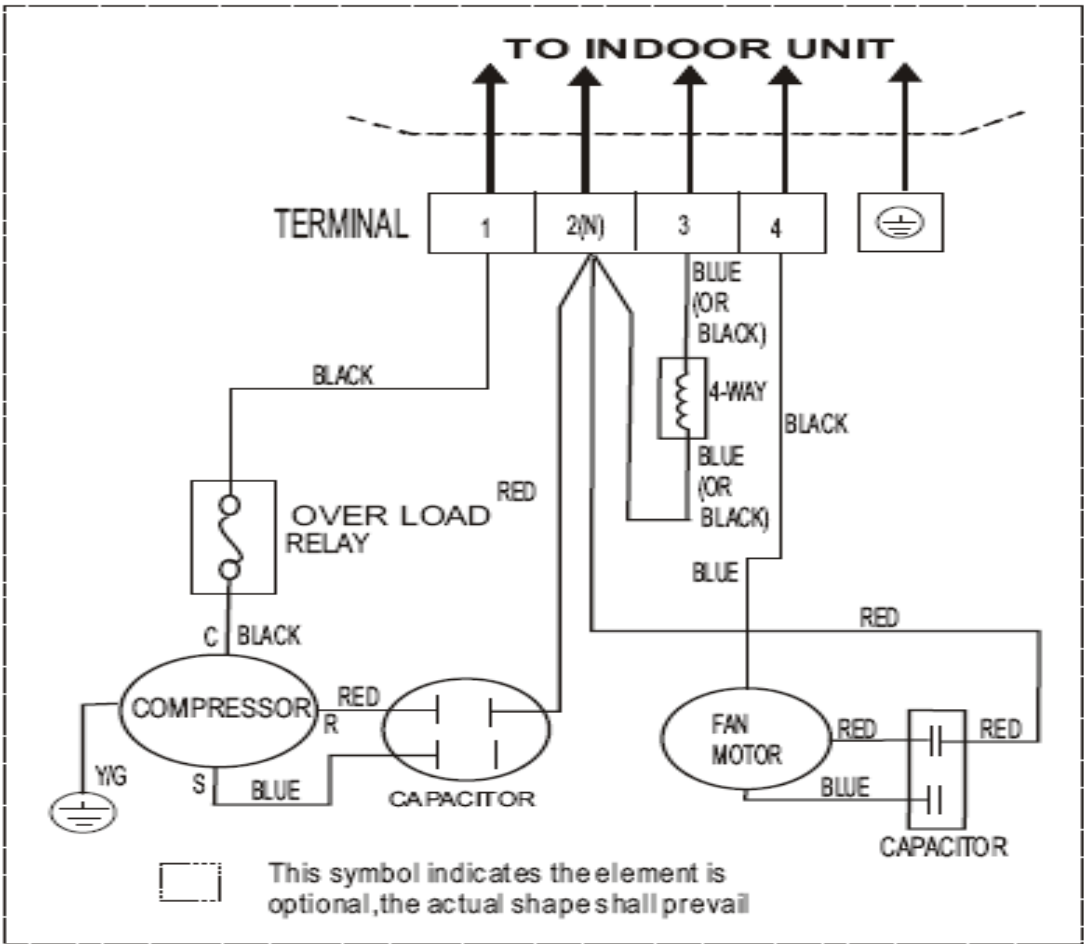
FSArt-120HF

Indoor unit:

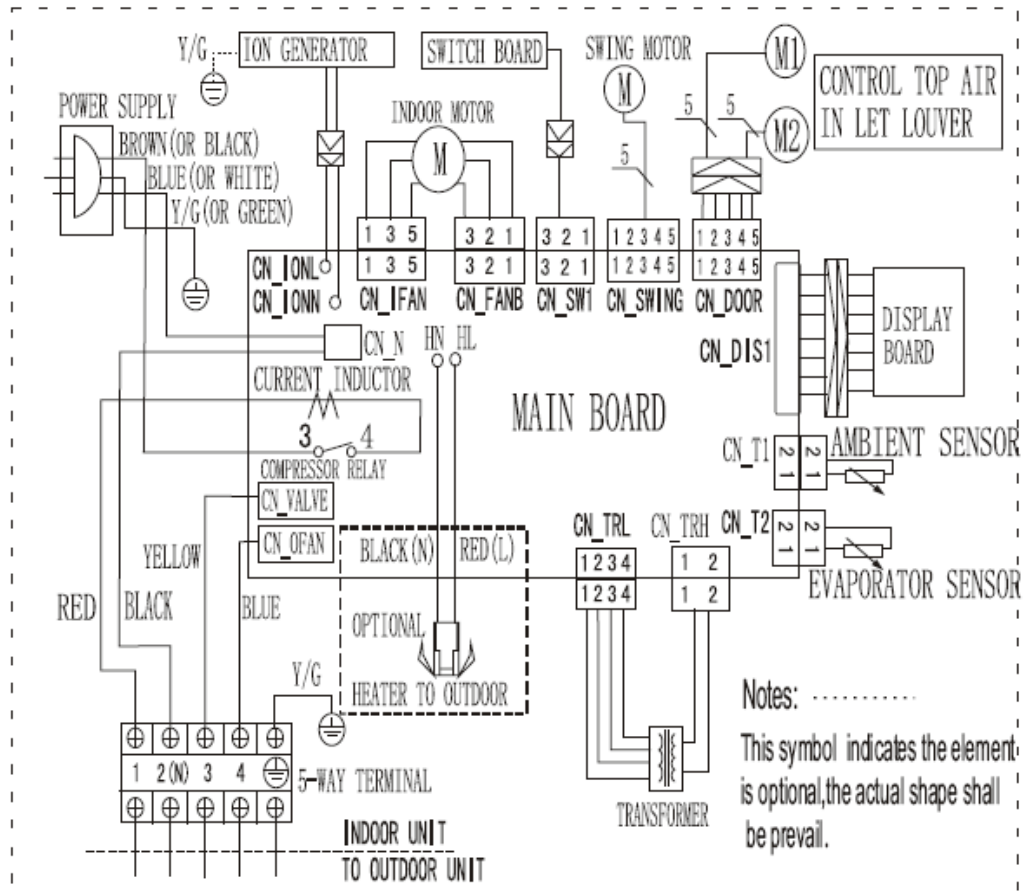


FSArt-70HF
FSArt-90HF
FSArt-120HF

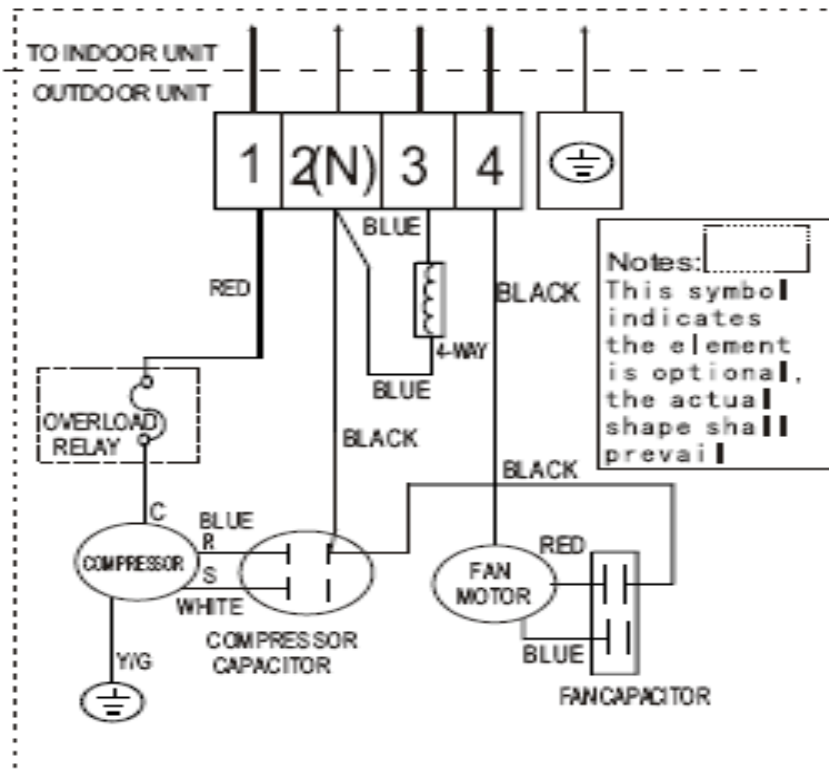
outdoor unit:



Indoor unit:



Outdoor unit:



6 Installation details

6.1 Wrench torque sheet for installation

Outside diameter		Torque
mm	inch	Kg.m
φ6.35	1/4	1.8
φ9.52	3/8	4.2
φ12.7	1/2	5.5

6.2 Connecting the cables

The power cord of connect should be selected according to the following specifications sheet.

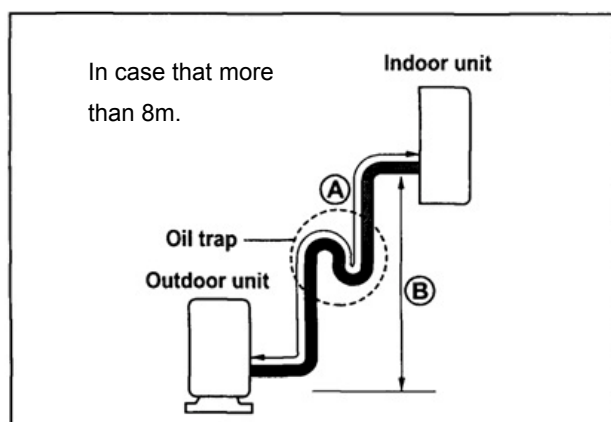
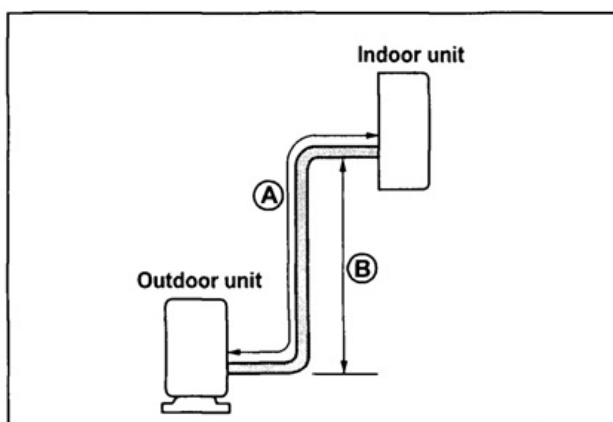
Unit	FSArt-70HF	FSArt-90HF	FSArt-120HF	FSArt-180HF
mm ²	3x1,5	3x1,5	3x1,5	3x2,5

Communication wire between the indoor and outdoor unit:

Unit	FSArt-70HF	FSArt-90HF	FSArt-120HF	FSArt-180HF
mm ²	5x1,5	5x1,5	5x1,5	5x2,5

6.3 Pipe length and the elevation

Capacity	Pipe size		Standard length	Max.	Max.	Additional
			(m)	Elevation	Elevation	refrigerant
Btu/h	GAS	LIQUID		B (m)	A (m)	(g/m)
7k~12K	3/8" (φ9.52)	1/4" (φ6.35)	5	8	20	30
	1/2" (φ12.7)	1/4" (φ6.35)	5	8	20	30
18K	1/2" (φ12.7)	1/4" (φ6.35)	5	10	25	30



Caution:

Capacity is base on standard length and maximum allowance length is base of reliability.

Oil trap should be install per 5-7 meters, but not definitely needed.

6.4 Air purging of the piping and indoor unit

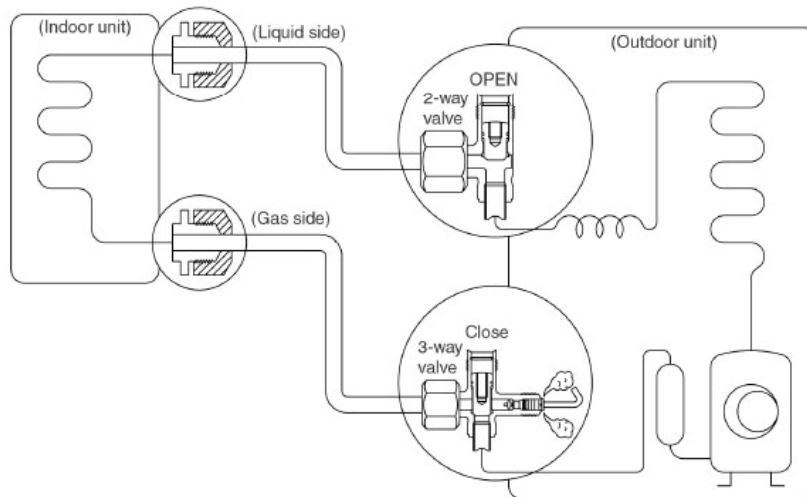
Required tools:

Hexagonal wrench; adjustable wrench; torque wrenches, wrench to hold the joints and gas leak detector.

Note:

The air in the indoor unit and in the piping must be purged. If air remains in the refrigeration piping, it will affect the compressor, reduce the cooling capacity, and could lead to a malfunction of unit.

Be sure, using a torque wrench to tighten the service port cap (after using the service port), so that it prevents the gas leakage from the refrigeration cycle.



Procedure :

1. Recheck the piping connections.
2. Open the valve stem of the 2-way valve counterclockwise approximately 90°, wait 10 seconds, and then set it to closed position.

Be sure to use a hexagonal wrench to operate the valve stem

3. Check for gas leakage.

Check the flare connection for gas leakage

4. Purge the air from the system.
5. Set the 2-way valve to the open position and remove the cap from the 3-way valve's service port.
6. Using the hexagonal wrench to press the valve core pin, discharge for three seconds and then wait for one minute.
7. Use torque wrench to tighten the service port cap to a torque of 1.8 kg.m. (18N.m)
8. Set the 3-way valve to the opened position.
9. Mounted the valve stem nuts to the 2-way and 3-way valves.
10. Check for gas leakage.
11. At this time, especially check for gas leakage from the 2-way and 3-way stem nuts, and from the service port.

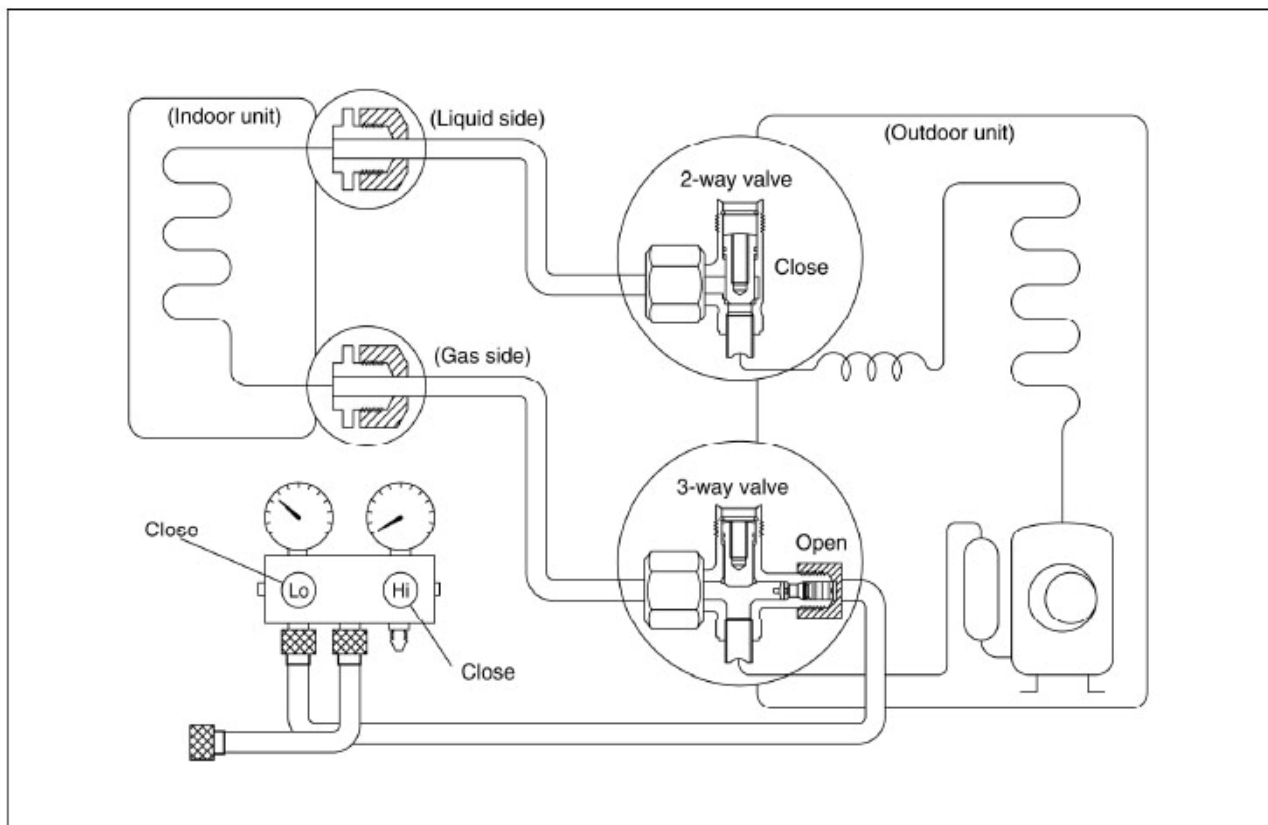
Caution:

If gas leakage is discovered in step (3) above, take the following measures.

If the leaks stop when the piping connections are tightened further, continue working from step (4).

If the gas leaks do not stop when the connections are retightened, repair the location of the leak, discharge all of the gas through the service port, and then recharge with the specified amount of gas from a gas cylinder.

6.5 Pumping down (Re-installation)



Procedure:

1. Confirm that both the 2-way and 3-way valves are set to the opened position.

Remove the valve stem caps and confirm that the valve stems are in the opened position.

Be sure to use a hexagonal wrench to operate the valve stems.

2. Operate the unit for 10 to 15 minutes.

3. Stop operation and wait for 3 minutes, then connect the charge set to the service port of the 3-way valve.

Connect the charge hose with the push pin to the gas service port.

4. Air purging of the charge hose.

Open the low-pressure valve on the charge set slightly to purge air from the charge hose.

5. Set the 2-way valve to the close position.

6. Operate the air conditioner at the cooling cycle and stop it when the gauge indicates 0.1MPa.

7. Immediately set the 3-way valve to the closed position.

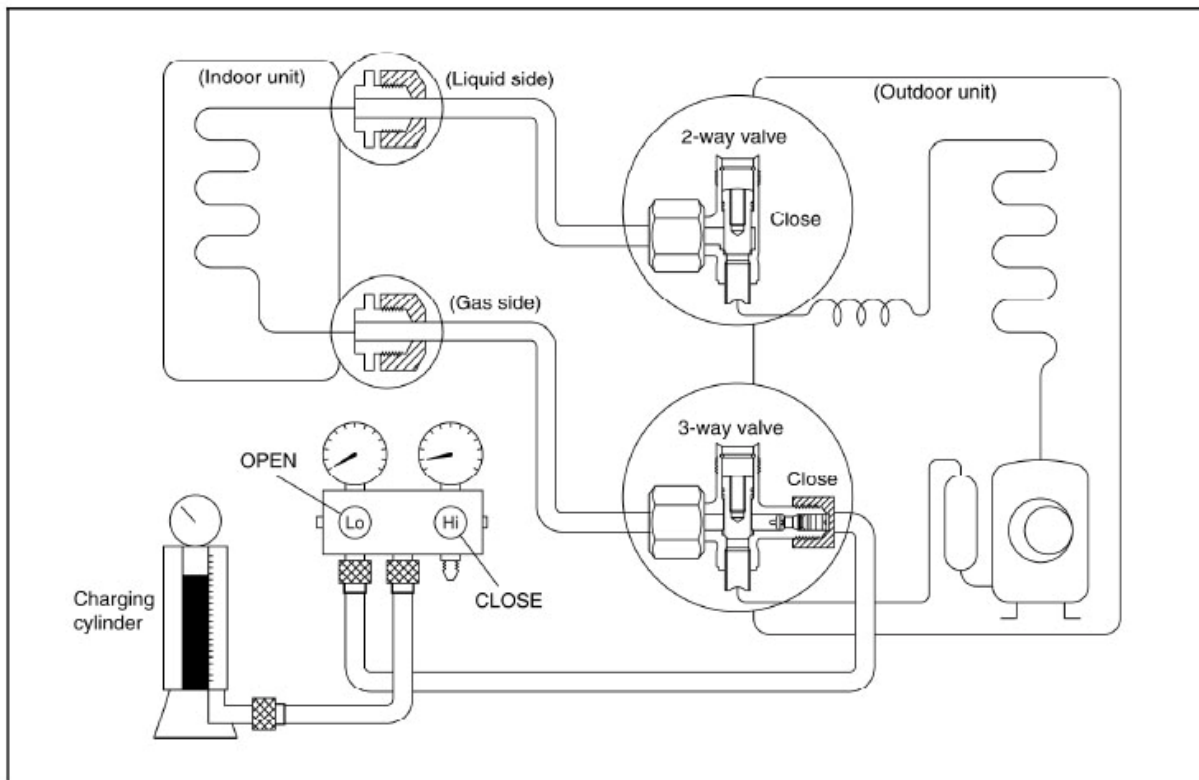
Do this quickly so that the gauge ends up indicating 0.3 to 0.5Mpa.

8. Disconnect the charge set, and amount the 2-way and 3-way valve's stem nuts and service port caps.

Use a torque wrench to tighten the service port cap to a torque of 1.8 kg.m.

Be sure to check for gas leakage.

6.6 Re-air purging (Re-installation)



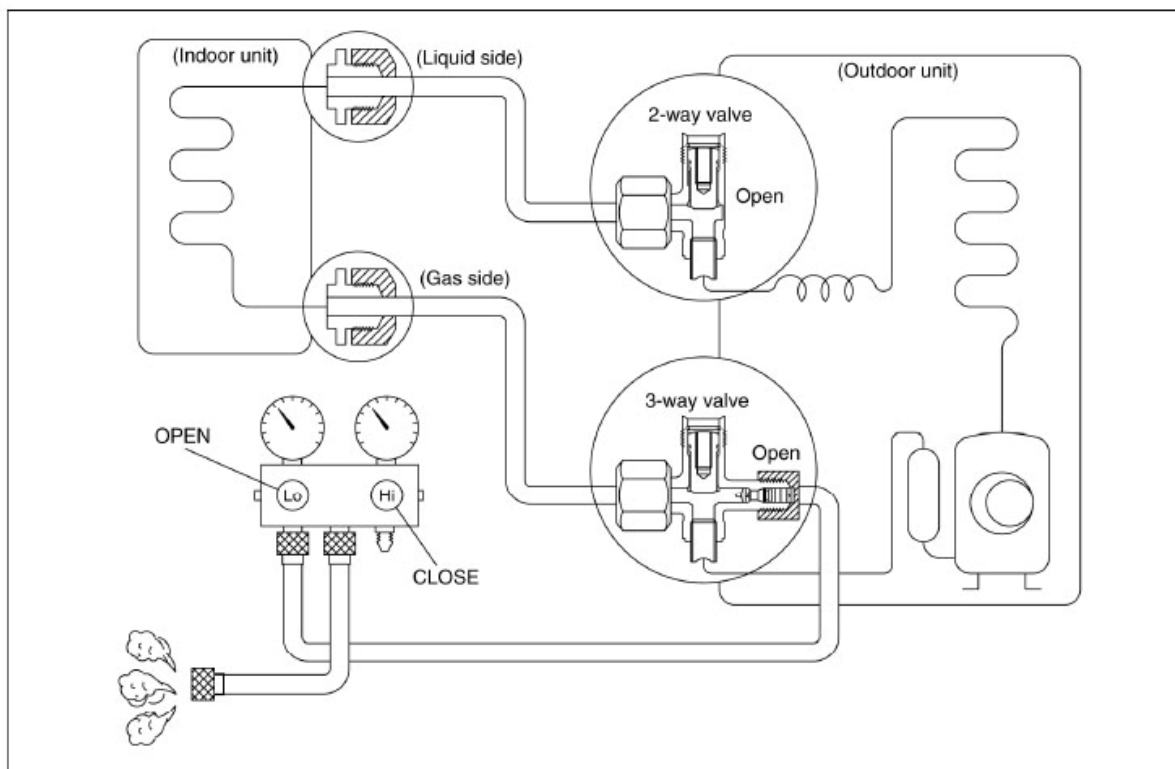
Procedure:

1. Confirm that both the 2-way and 3-way valves are set to the closed position.
2. Connect the charge set and a charging cylinder to the service port of the 3-way valve.
3. Leave the valve on the charging cylinder closed.
4. Air purging.
5. Open the valves on the charging cylinder and the charge set. Purge the air by loosening the flare nut on the 2-way valve approximately 45' for 3 seconds then closing it for 1 minutes; repeat 3 times.
6. After purging the air, use a torque wrench to tighten the flare nut to on the 2-way valve.
7. Check the gas leakage.
8. Check the flare connections for gas leakage.
9. Discharge the refrigerant.
10. Close the valve on the charging cylinder and discharge the refrigerant until the gauge indicate 0.3 to 0.5 Mpa.
11. Disconnect the charge set and the charging cylinder, and set the 2-way and 3-way valves to the open position.
12. Be sure to use a hexagonal wrench to operate the valve stems.
13. Mount the valve stems nuts and the service port cap.

Be sure to use a torque wrench to tighten the service port cap to a torque 18N.m.

Be sure to check the gas leakage.

6.7 Balance refrigerant of the 2-way, 3-way valves



Procedure:

1. Confirm that both the 2-way and 3-way valves are set to the open position.

2. Connect the charge set to the 3-way valve's service port.

Leave the valve on the charge set closed.

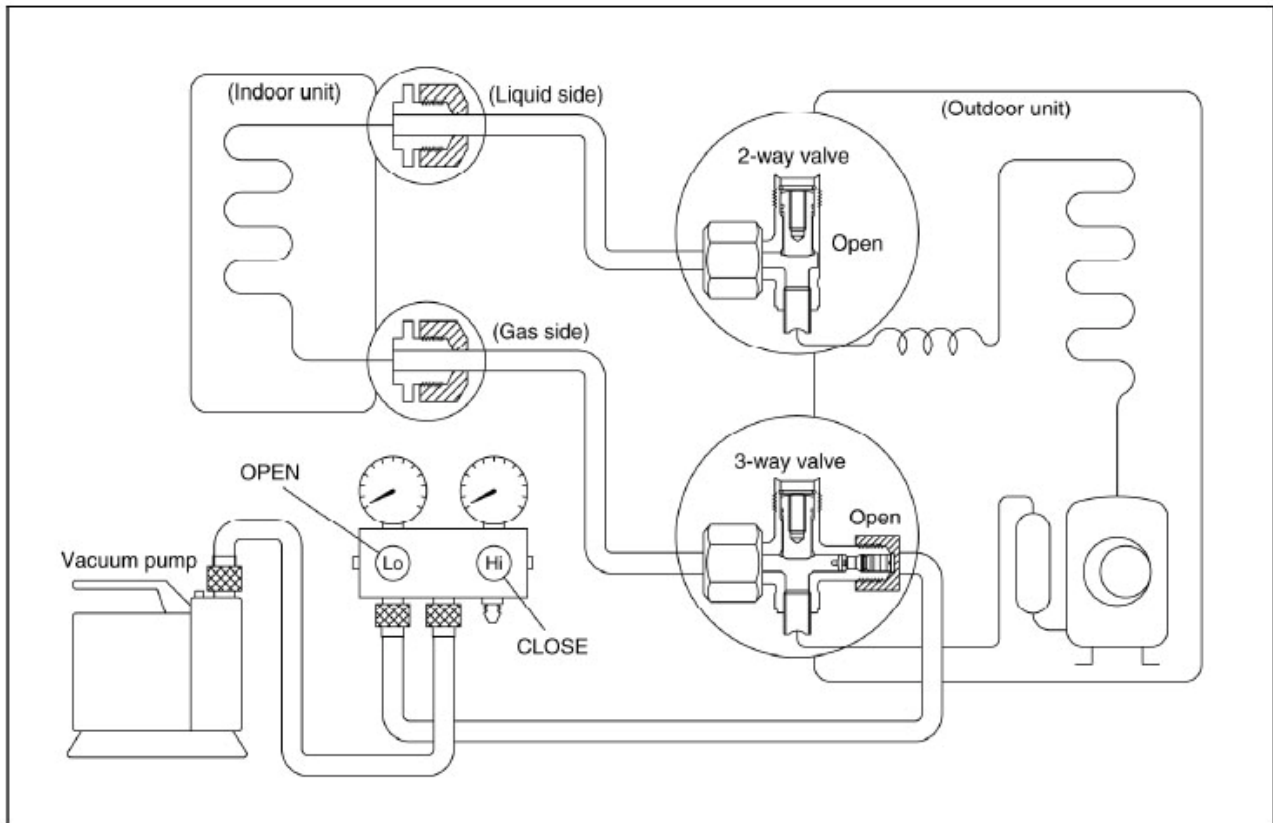
Connect the charge hose with the push pin to the service port.

3. Open the valves (Low side) on the charge set and discharge the refrigerant until the gauge indicates 0.05 to 0.1 Mpa.

If there is no air in the refrigeration cycle [the pressure when the air conditioner is not running is higher than 0.1Mpa, discharge the refrigerant until the gauge indicates 0.05 to 0.1 Mpa. If this is the case, it will not be necessary to apply a evacuation.

Discharge the refrigeration gradually; if it is discharged too suddenly, the refrigeration oil will be discharged.

6.8 Evacuation



Procedure:

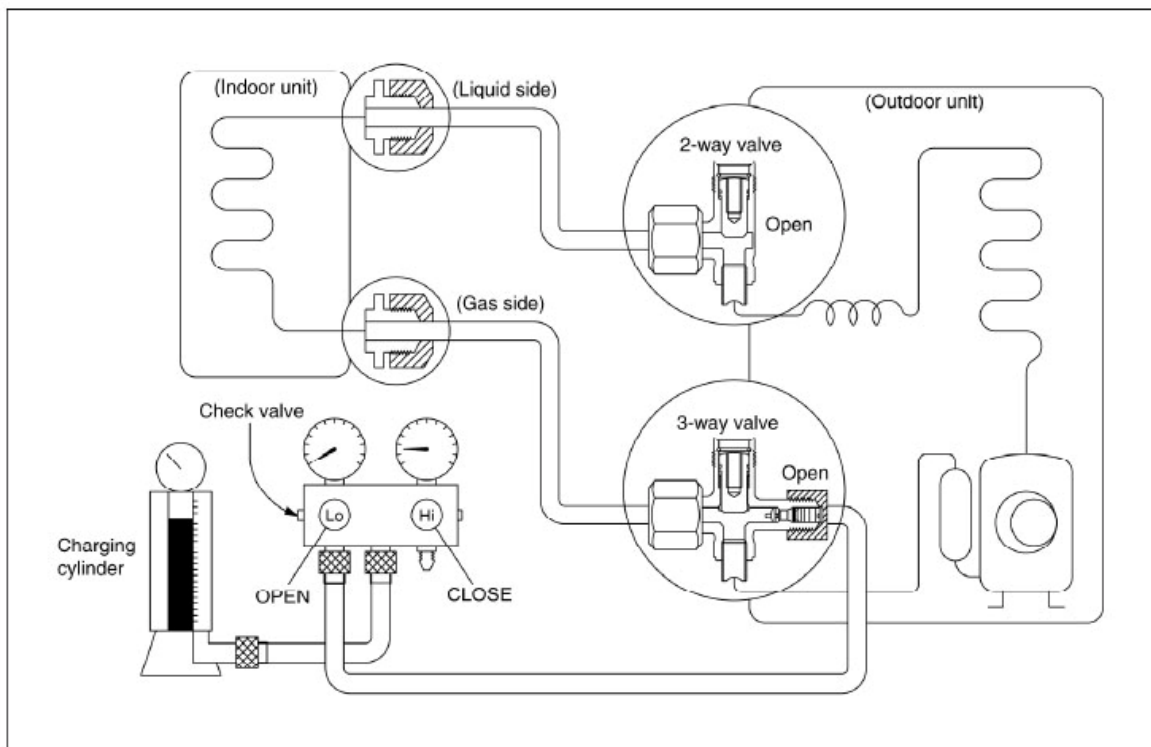
1. Connect the vacuum pump to the charge set's centre hose.
2. Evacuation for approximately one hour.

Confirm that the gauge needle has moved toward -0.1 Mpa (-76 cmHg) [vacuum of 4 mmHg or less].

3. Close the valve (Low side) on the charge set, turn off the vacuum pump, and confirm that the gauge needle does not move (approximately 5 minutes after turning off the vacuum pump).
4. Disconnect the charge hose from the vacuum pump.

Vacuum pump oil, if the vacuum pump oil becomes dirty or depleted, replenish as needed.

6.9 Gas charging



Procedure:

1. Connect the charge hose to the charging cylinder.

Connect the charge hose which you disconnected from the vacuum pump to the valve at the bottom of the cylinder.

2. Purge the air from the charge hose.

Open the valve at the bottom of the cylinder and press the check valve on the charge set to purge the air (be careful of the liquid refrigerant).

3. Open the valves (Low side) on the charge set and charge the system with liquid refrigerant.

If the system cannot be charge with the specified amount of refrigerant, it can be charged with a little at a time (approximately 150g each time) while operating the air conditioner in the cooling cycle; however, one time is not sufficient, wait approximately 1 minute and then repeat the procedure.(pumping down-pin).

4. Immediately disconnect the charge hose from the 3-way valve's service port.

Stopping partway will allow the refrigerant to be discharged.

If the system has been charged with liquid refrigerant while operating the air conditioner, turn off the air conditioner before disconnecting the hose.

5. Mounted the valve stem caps and the service port

Use torque wrench to tighten the service port cap to a torque of 18N.m.

Be sure to check for gas leakage.

7 Electronic function

7.1 Electronic control working environment

Input voltage: 198~253V

Input power frequency: 50/60Hz

Ambient temperature: -7°C+43°C

Indoor fan normal working amp is less than 1A

Outdoor fan normal working amp is less than 1.5A

Four-way valve normal working amp is less than 1A

Swing motor: DC12V

Compressor: single-phase power supply. Its normal working amp is less than 15A

7.2 Proper symbols and their meaning

TA: Indoor ambient temperature

TE: Indoor evaporator temperature

TS: Setting temperature through the remote controller

I3sec: Self-protection amp of compressor, continue three seconds until turns off the compressor.

I5MIN: Self-protection amp of compressor, continue five minutes until turns off the compressor.

IFAN: Self-protection amp of outdoor fan/indoor fans when they change from higher wind to lower wind.

IRESTORE: Amp self-protection return value

THDEFROST: High wind, defrosting temperature difference

TMDEFROST: Middle wind, defrosting temperature difference

TLDEFROST: Low wind, defrosting temperature difference

TE1: Anti-cold wind, from Fan Off to Breeze temperature

TE2: Anti-cold wind, from Breeze to Setting Fan Speed temperature

TE3: Anti-cold wind, from Setting Fan Speed to Breeze temperature

TE4: Anti-cold wind, from Breeze to Fan Off temperature

TE5: Evaporator low temperature protection entering temperature

TE6: Evaporator low temperature protection restoring temperature

TE7: Evaporator high temperature protection, compressor off temperature

TE8: Evaporator high temperature protection, fan off temperature

TE9: Evaporator high temperature protection, restoring temperature

7.3 Function

Remote receiving
Testing and forced running
Position set for indoor unit wind vane
VLED displaying and alarm
Timer On or off
Protection for the compressor
Current protection
High temperature protection of indoor heat exchanger at heating mode
Auto defrosting and heating recovery at heating mode
Anti cold air at heating mode
Anti frozen at cooling mode
Auto restart
Self-Clean

7.4 Protection

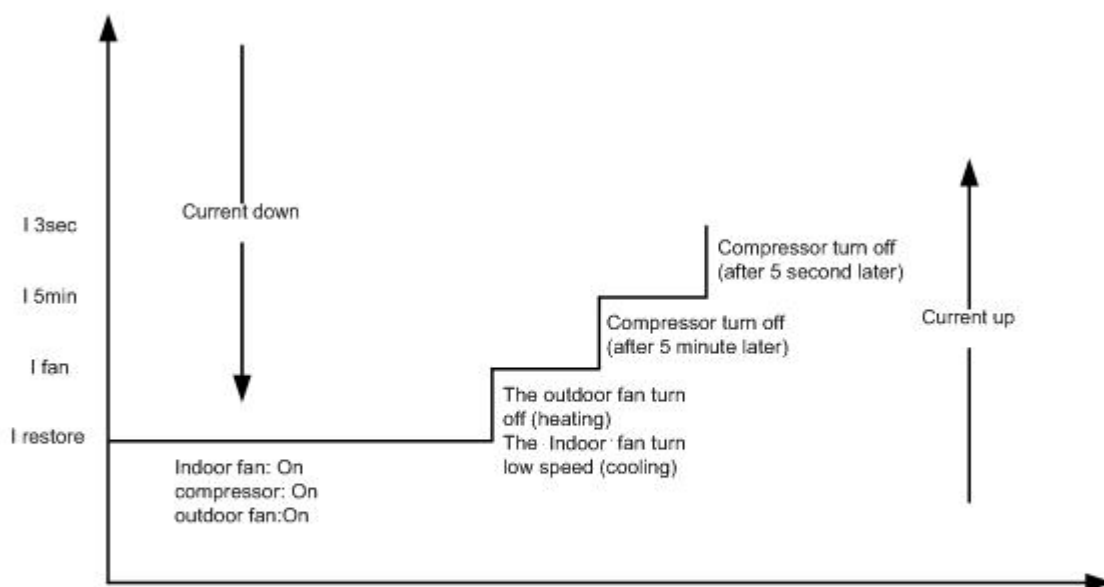
7.4.1 3 minutes delay at restart for compressor.

7.4.2 Sensor protection at open circuit and breaking disconnection

7.4.3 Fan Speed is out of control. When Indoor Fan Speed is too high(higher than High Fan+300RPM)or too low(lower than 400RPM), the unit stops and LED displays failure information and can't returns to normal operation automatically.

7.4.4 Cross Zero signal error warning. If there is no Cross Zero signals in 4 minutes, the unit stops and LED displays failure information and can't returns to normal operation automatically.

7.4.5 The current protection of the compressor



If compressor turns off for continuously 4 times due to current protection in 5 minutes from Compressor On, the unit stops and LCD displays failure information and can't returns to normal operation automatically.

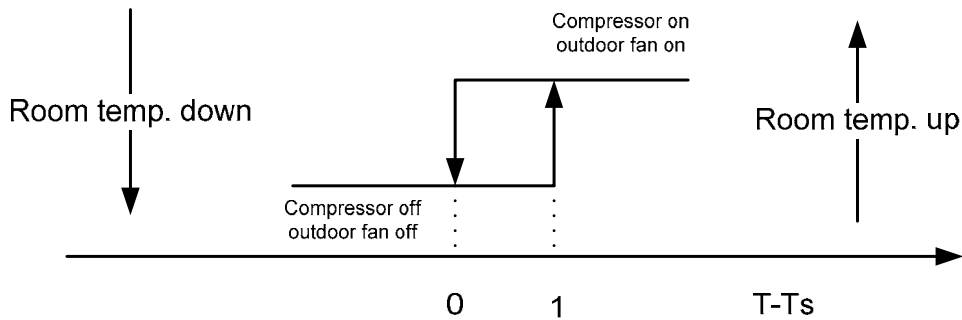
7.5 Fan only mode

Fan speed is high/mid/low/ Auto

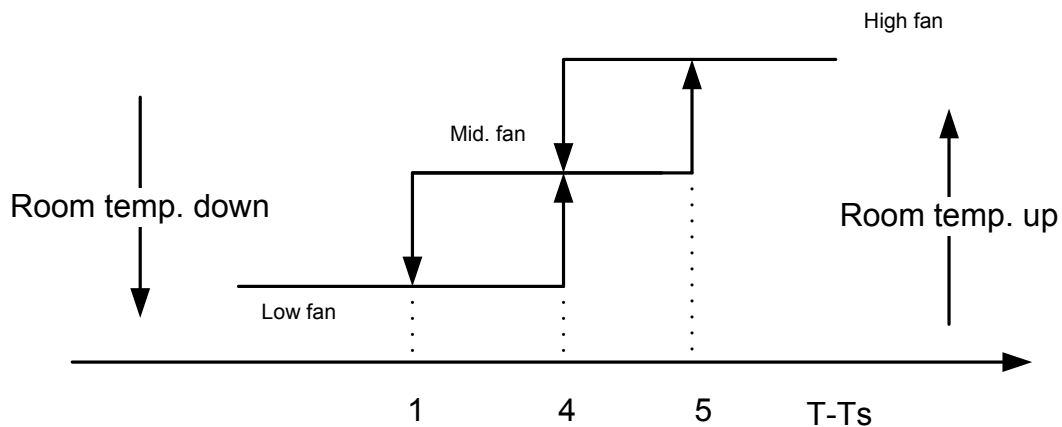
7.6 Cooling mode

The 4-way valve is closed at cooling mode.

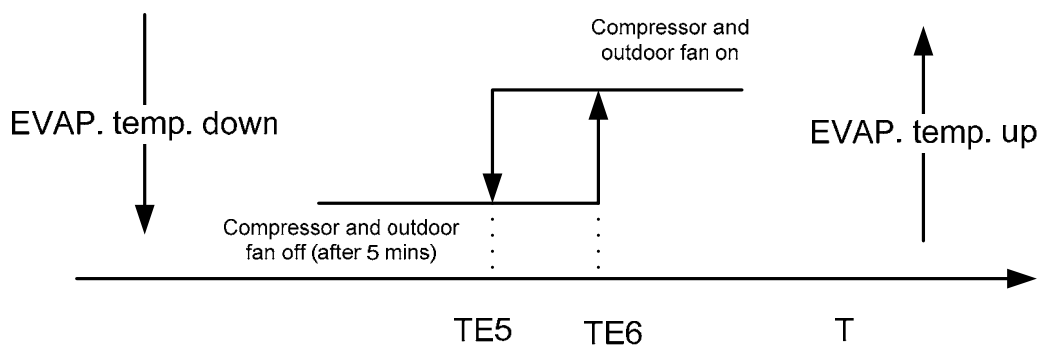
The action of the compressor and the outdoor fan:(T=indoor temperature)



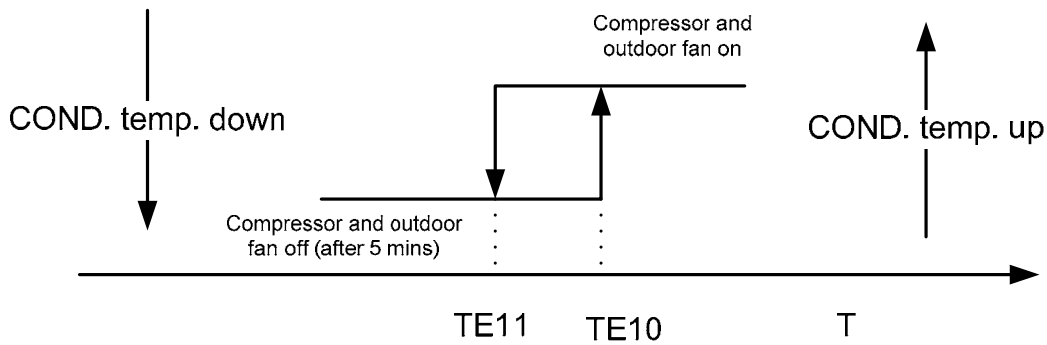
Auto fan at cooling mode:



Anti-freezing control to indoor evaporator at cooling mode (T: evaporator temp.)



Condenser high temperature protection (only for heat pump)



7.7 Dehumidifying mode

Indoor fan speed at low speed.

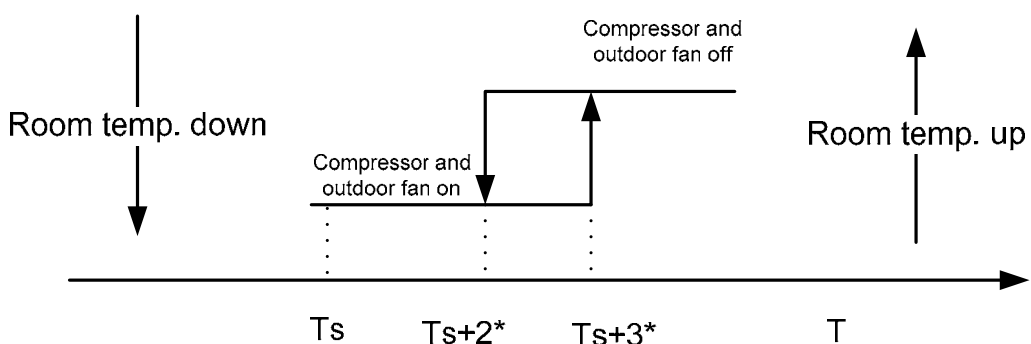
Protection is same as cooling mode.

7.8 Heating mode

7.8.1 Generally, the 4-way valve is open in heating mode, but it is closed in defrosting mode. 4-way valve must delay 2 minutes compared with compressor if the compressor changed into non-heating mode or turned off. 4-way valve doesn't delay in dehumidifying mode.

7.8.2 Generally, the outdoor fan is turned off with the on-off action of compressor in heating mode, except for the defrosting mode or the end of defrost.

7.8.3 Action of compressor and outdoor fan motor at heating mode: compressor must run for 7 minutes after starting and then judge temperature. Meanwhile other protections are still valid.

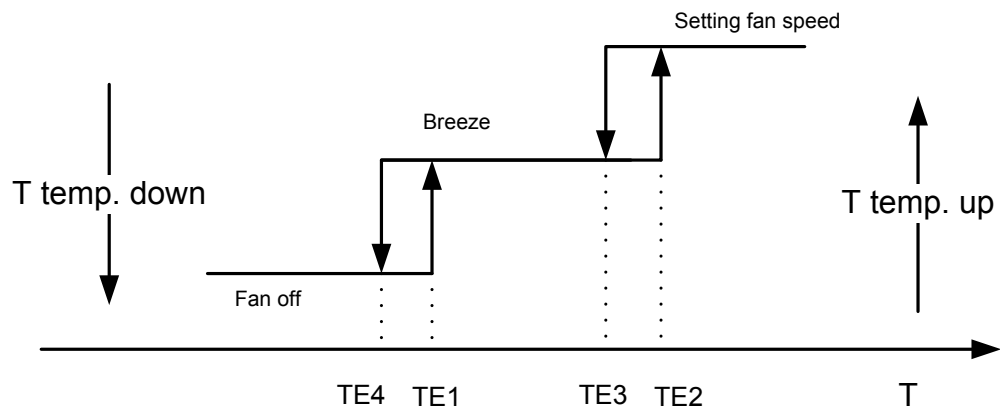


* This parameter can be changed from 0 to 3

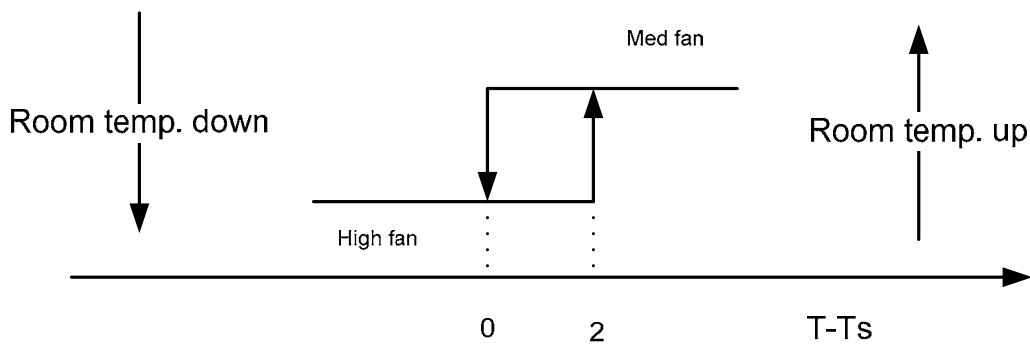
7.8.4 Indoor Fan actions at heating mode

Indoor Fan can be set at HIGH/MID/LOW/AUTO by using a remote controller, but Anti-cold wind function prevails.

Anti-cold wind control function at heating mode (T=indoor exchanger temp.)

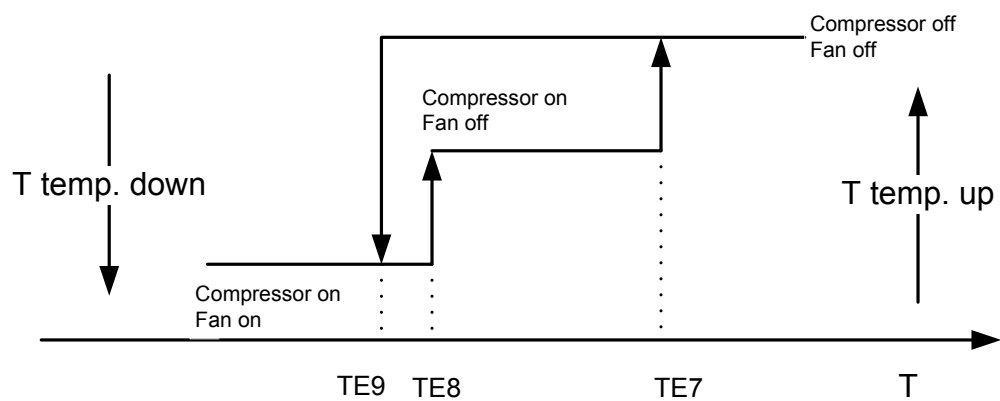


7.8.5 Auto wind at heating mode (T=indoor temp.)



7.8.6 Indoor evaporator high-temperature protection at heating mode

(T=indoor exchanger temp.)



The louver opens to Standard Angle ANGLHEAT when power is on for the first time

7.9 Defrosting mode(available for heating mode)

7.9.1 Defrosting condition:

Defrost starts when either of the following:

T3 lower than 0°C, lasts for more than 40 minutes, provided that the time period then the temperature is lower than -3°C consecutively reaches 3 minutes.

Calculate from the end of latest defrost, evaporator high temp. protection only closes outdoor fan with the compressor still running. Add up to 90 minutes.

7.9.2 Conditions of defrost ending:

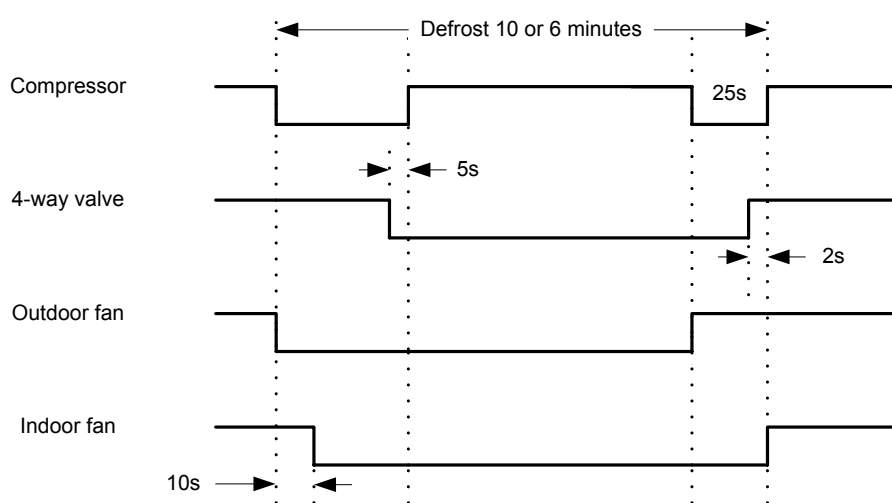
Defrosting ends when either of the following:

The time gets to 10 minutes.

T3>20°C.

The circulation is as following:

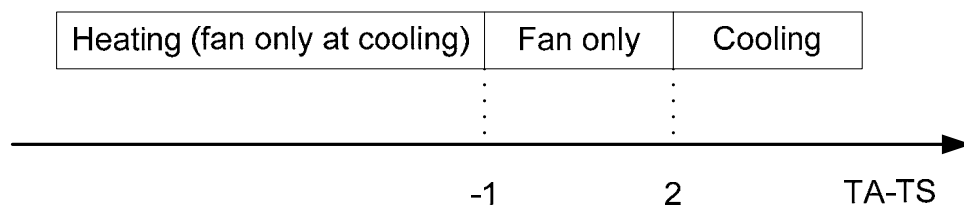
7.9.3 Defrosting Actions



Remark: when the evaporator pipe temperature sensor more than TE16, the indoor fan start to run.

7.10 Auto mode

7.10.1 The air conditioner automatically selects one of the following operation modes: cooling, heating or fan only according to the temperature difference between room temperature (TA) and set temperature (TS).



7.10.2 The indoor fan blows automatically in corresponding selected mode ;

7.10.3 The motion of indoor fan's blade should accord with the selected operation mode ;

7.10.4 One mode should be carried out for at least 15 minutes once selected. If the compressor cannot start for 15 minutes, reselect the operation mode according to the room temp. and set temp., or reselect when the set temp. varies

7.11 Force cooling function

7.11.1 Select forced cooling function with the forced cooling button or the switch

7.11.2 The compressor is unconditionally turned on, after 30 minutes cooling operation whose fan mode is set as low, the A/C operates at the DRY mode with a set temp. of 24°C

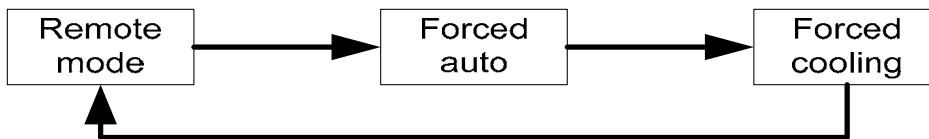
7.11.3 All protections of remote control cooling are available at forced cooling operation

7.11.4 Forced Auto function

Select forced auto function with the forced auto button or the switch.

In forced auto status the A/C operates at remote control mode with a set temp. of 24°C

Manual operation is controlled by touching buttons and divided into force cooling and forced auto mode. It transfer between these two modes by pressing the buttons, the cycling order of the button press is as below graph show to you.

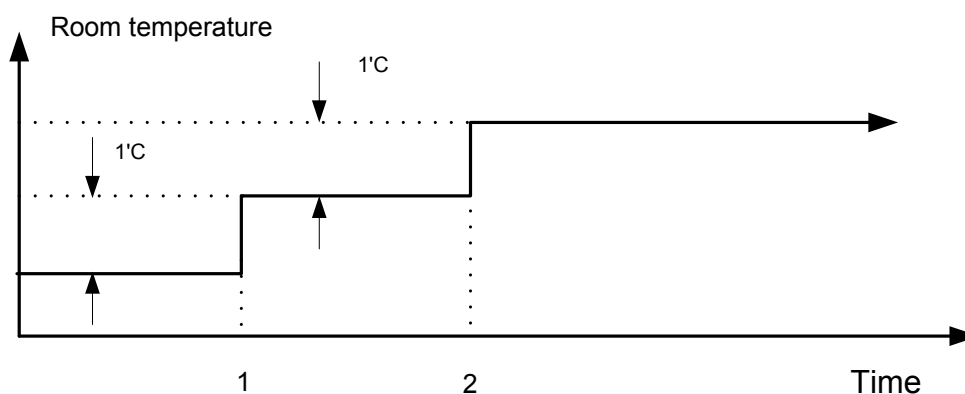


7.12 Sleep mode

7.12.1 The sleep function is available at cooling, heating or auto mode

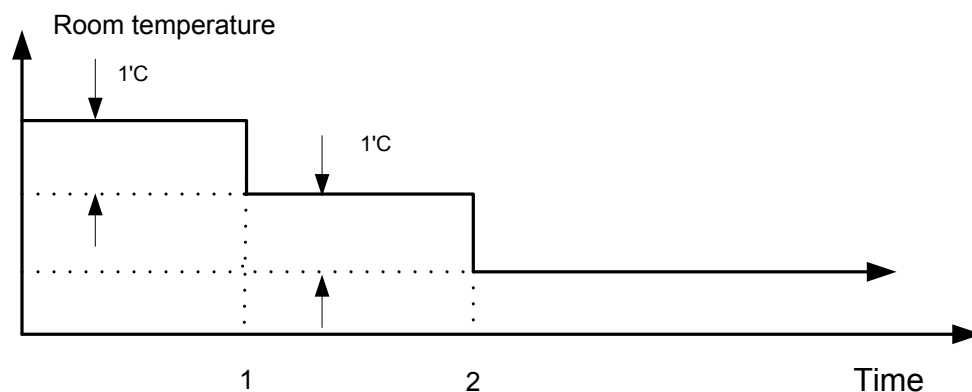
7.12.2 Cooling:

The set temperature rise 1°C per hour. Two hours later, the set temperature will maintain as a constant and the fan speed is kept at low speed.



7.12.3 Heating:

The set temperature decrease 1°C per hour. Two hours later, the set temperature will maintain as a constant and the air circulation is kept at low speed (Anti-cold function takes precedence over all).



7.12.4 Auto:

After an hour running under economic mode, the set temp will rise 1°C, if it is under cooling mode; the set temp will decrease 1°C, if it is under heating mode; the set temp will be changeless, if it is under fan-only mode; the condition will be the same after the air conditioner running under economic mode after 2 hours, and during the next time the set temp do not change. The total time is 7 hours, after 7 hours the unit stops.

7.13 Auto restart function

In case of a sudden power failure, this function automatically sets the unit to previous settings before the power failure when power returns.

7.14 Ionizer⁺ (air clean) function

7.14.1 Ionizer⁺ (air clean) function is effected when the unit is working and controlled by the remote controller.

7.14.2 This function is active when the unit received the signal from the remote controller first time and inactive when received the signal again. Repeat this circle when received signal again.

7.14.3 This function is working only when the indoor fan is working.

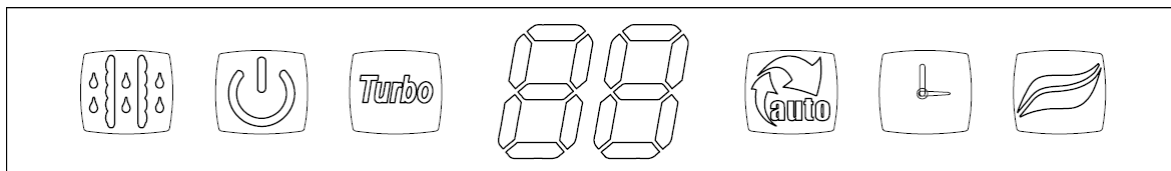
7.14.3 This function will not stop when the working mode changed, and be inactive when the unit shut down.

8 Model and Parameters

Model	FSArt-70HF	FSArt-90HF	FSArt-120HF	FSArt-180HF
I3SEC	7A	10.0A	12.0A	19.5A
I5MIN	6A	7.5A	8.5A	17A
IFAN	5A	6A	7.5A	15A
IRESTORE	4.5A	5A	6.5A	13A
IDEFROST	3.5A	4.5A	5.0A	8.5A
TE1	28°C	28°C	31°C	34°C
TE2	38°C	38°C	34°C	37°C
TE3	30°C	30°C	30°C	30°C
TE4	20°C	20°C	22°C	20°C
TE5	4°C	4°C	4°C	3°C
TE6	10°C	10°C	10°C	12°C
TE7	63°C	63°C	63°C	63°C
TE8	53°C	56°C	53°C	53°C
TE9	51°C	52°C	52°C	52°C
ANGLCOOL	181°	181°	175°	65°
ANGLHEAT	15°	15°	20°	80°
ANGLOFF	115°	115°	114°	0°
THDEFROST	14°C	15°C	14°C	17°C
TMDEFROST	16°C	17°C	15°C	18°C
TLDEFROST	17°C	19°C	16°C	19°C

9 Troubleshooting

9.1 VLED Display board



ON/OFF indicator



This indicator illuminates when the air conditioner is in operation.

PRE.-DEF. Indicator (For Cooling & Heating models only)



This indicator illuminates when the air conditioner starts defrosting automatically or when the warm air control feature is activated in heating mode.

Turbo indicator



This indicator illuminates when the air conditioner is in turbo operation.

TEMPERATURE indicator



Usually it displays the temperature settings. (It displays also the Error codes)

TIMER indicator



This indicator illuminates when TIMER is set ON/OFF.

Ionizer⁺ function indicator



This indicator illuminates when Ionizer function is on.

Auto Mode



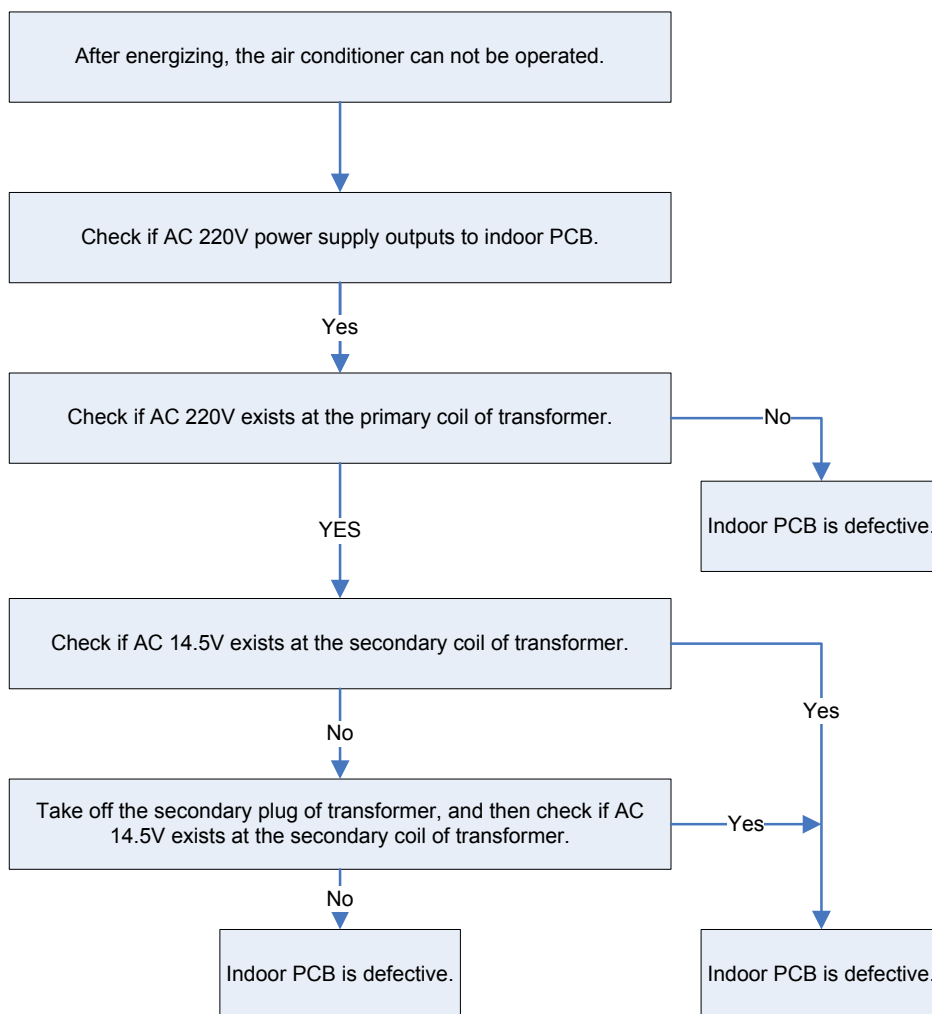
This indicator illuminates when the air conditioner is in Auto Mode.

9.2 Indoor Unit Error Display

Display	STATUS
E1	EEPROM error
E2	Zero-crossing examination error
E3	Fan speed beyond control
E4	Over current protection of the compressor occurs 4 times
E5	Open or short circuit of Room temperature sensor
E6	evaporator temperature sensor open or short circuit of

9.3 Diagnostic chart

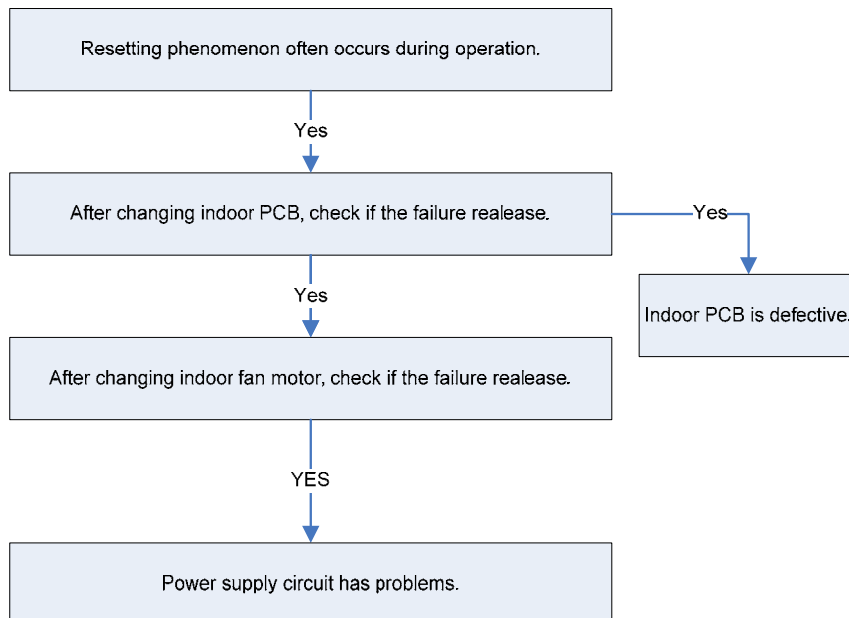
After energizing, no indicator is lighted and the air conditioner can't be operated.



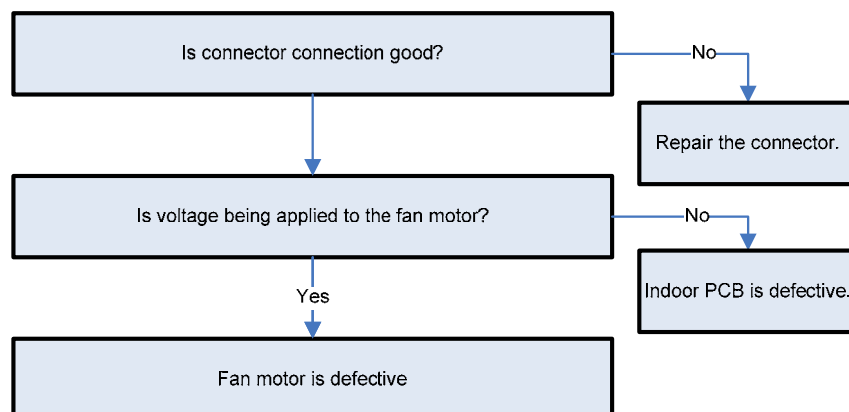
9.4 Resetting phenomenon often occurs during operation.

(That is automatically entering to the status when power is on.)

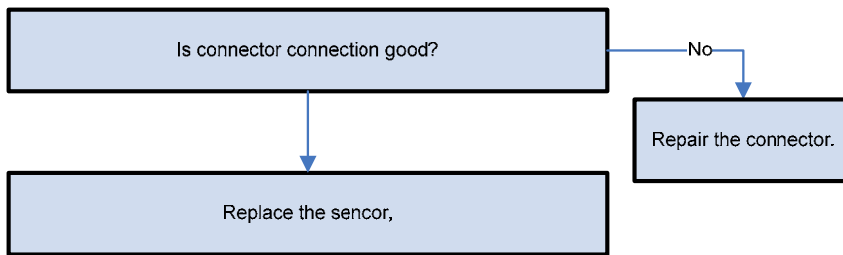
The reason is that the instantaneous voltage of main chip is less than 4.5V. Check according to the following procedure:



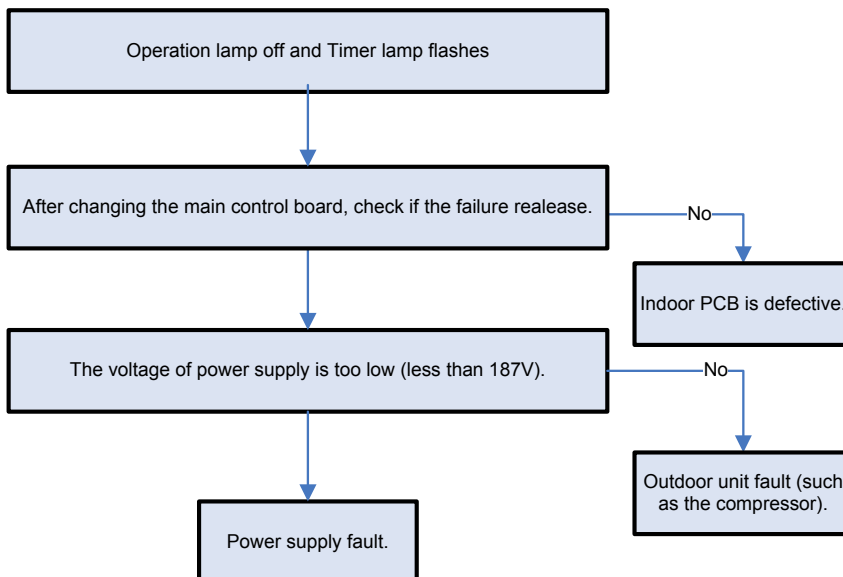
9.5 Operation lamp flashes and Timer lamp off.



9.6 Operation lamp flashes and Timer lamp on.



9.7 Operation lamp off and Timer lamp flashes



9.8 Operation lamp on and Timer lamp flashes

EEROM error, indoor PCB is defective.

9.9 Operation lamp flashes, Timer lamp flashes .

This is alarm signal when the main chip can't detect over-zero signal. When such failure occurs, the main control board must have fault.

Characteristic of temperature sensor

Temp.°C	Resistance KΩ	Temp.°C	Resistance KΩ	Temp.°C	Resistance KΩ
-10	62.2756	17	14.6181	44	4.3874
-9	58.7079	18	13.918	45	4.2126
-8	56.3694	19	13.2631	46	4.0459
-7	52.2438	20	12.6431	47	3.8867
-6	49.3161	21	12.0561	48	3.7348
-5	46.5725	22	11.5	49	3.5896
-4	44	23	10.9731	50	3.451
-3	41.5878	24	10.4736	51	3.3185
-2	39.8239	25	10	52	3.1918
-1	37.1988	26	9.5507	53	3.0707
0	35.2024	27	9.1245	54	2.959
1	33.3269	28	8.7198	55	2.8442
2	31.5635	29	8.3357	56	2.7382
3	29.9058	30	7.9708	57	2.6368
4	28.3459	31	7.6241	58	2.5397
5	26.8778	32	7.2946	59	2.4468
6	25.4954	33	6.9814	60	2.3577
7	24.1932	34	6.6835	61	2.2725
8	22.5662	35	6.4002	62	2.1907
9	21.8094	36	6.1306	63	2.1124
10	20.7184	37	5.8736	64	2.0373
11	19.6891	38	5.6296	65	1.9653
12	18.7177	39	5.3969	66	1.8963
13	17.8005	40	5.1752	67	1.83
14	16.9341	41	4.9639	68	1.7665
15	16.1156	42	4.7625	69	1.7055
16	15.3418	43	4.5705	70	1.6469

10 Disassembly of parts – Indoor unit

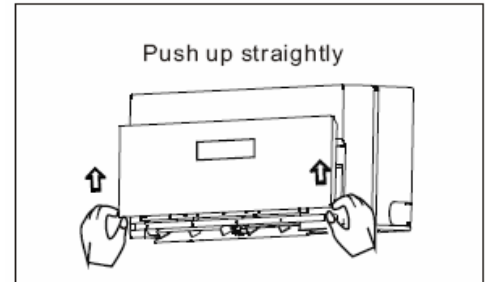
Warning:

Disconnect the unit from power supply before investigating any faults.

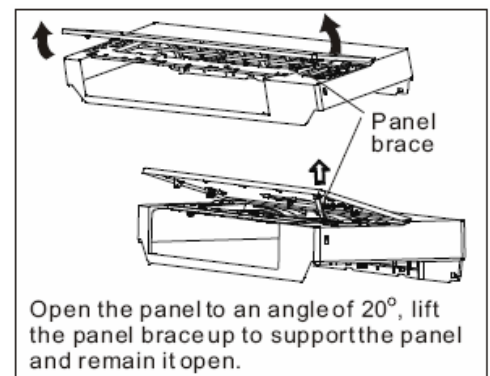
Be sure the power is set to "OFF".

10.1 To remove the Grille from the Chassis.

1. Push the front panel up straightly, then lift it upward to an angle of about 20°, do not force to open it more larger.



2. Use the panel brace to support the front panel and remain it open as shown in the picture.

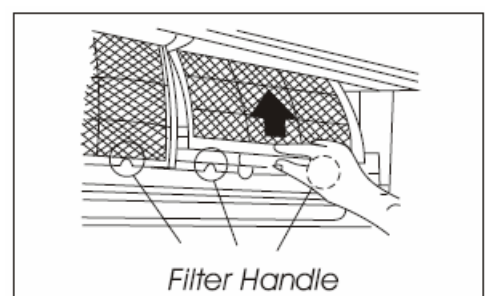


4. Open the lock then the front panel can unrig.

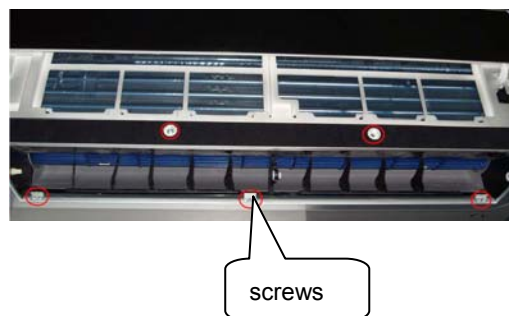


lock

5. Remove the AIR FILTER from the indoor unit.



6. Remove the chassis from the grille
Remove the 5 securing screws.

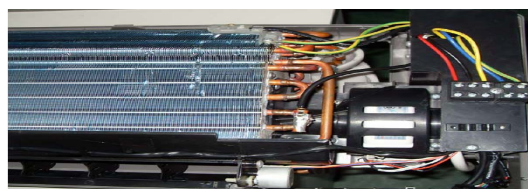


To remove the Grille, pull the lower left and right side of the grille toward you (slightly tilted) and lift it straight upward.



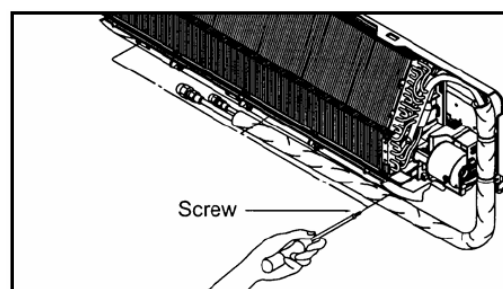
10.2 To remove Control Box.

Remove 5 securing screws.
Pull the control box out from the chassis carefully.



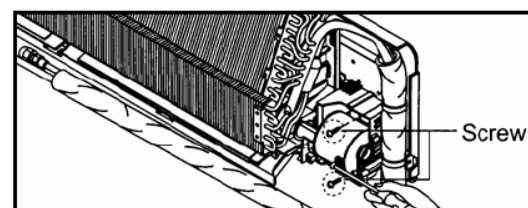
To remove the Discharge Grille.

Remove the 3 securing screws.
Pressing the right side of the discharge grille downward slightly, unhook the discharge grille.
Pull the discharge grille out from the chassis carefully.



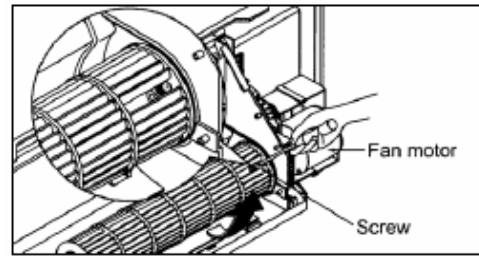
10.4 To remove the Evaporator.

Remove 3 screws securing the evaporator
(2ea at left, 1 ea. at right).
Remove the 2 screws securing the evaporator clamp.

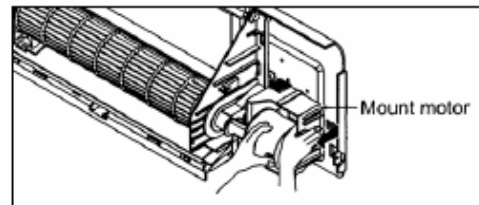
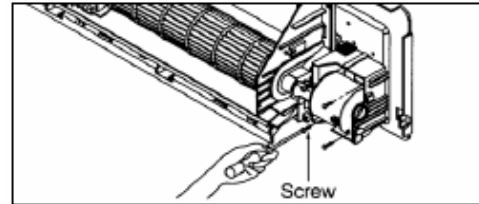


10.5 To remove the Fan motor.

Loosen the screw securing the cross-flow fan to the fan motor (do not remove).



Loosen the screw securing the motor mount

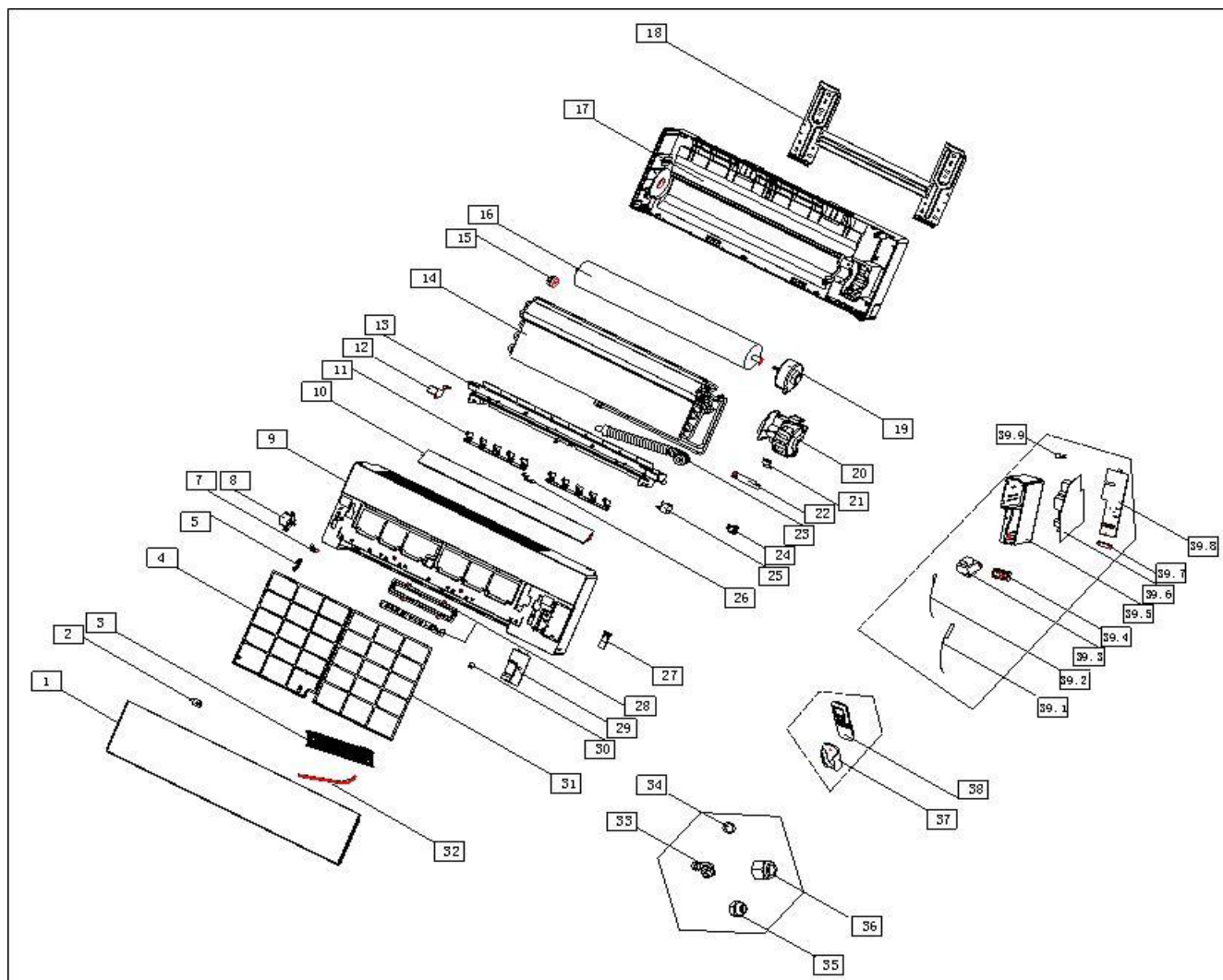


11 Specification data

Model			FSArt-70HF	FSArt-90HF
Power supply		Ph-V-Hz	220-240V~,50HZ	220-240V~,50HZ
Cooling	Capacity	W	2050	2640
	Input	W	640	820
	Rated current	A	2,8	3,6
	EER	W/W	3,21	3,22
Heating	Capacity	W	2350	2950
	Input	W	650	810
	Rated current	A	2,9	3,5
	COP	W/W	3,62	3,64
Moisture Removal		L/h	0,8	1,0
Max. input consumption		W	900	1200
Max. Current		A	5	6,5
Starting current		A	15	21,7
Compressor	Model		PA82X1C-4DZDE	PA108X1C-4DZDE
	Type		ROTARY	Rotary
	Brand		TOSHIBA	Toshiba
	Capacity	W	2000	2600
	Input	W	660	885
	Rated current(RLA)	A	3,04	4.00
	Locked rotor Amp(LRA)	A	15	21,7
	Thermal protector		B135-135-241E / MRA13408-9087	B160-135-241E
	Capacitor	uF	25uF/440-450V	25uF/440-450V
	Refrigerant oil	ml	ESTER OIL VG74 / 350	ESTER OIL VG74 / 350
Indoor fan motor	Model		RPG13G	RPG13G
	Brand		Welling	Welling
	Input	W	33	33
	Capacitor	uF	1.2uF/450V	1.2uF/450V
	Speed(hi/mi/lo)	r/min	1100/980/820	1200/1050/850
Indoor coil	a.Number of rows		1/2/2	1/2/2
	b.Tube pitch(a)x row pitch(b)	mm	21x13.37	21x13.37
	c.Fin spacing	mm	1.2/1.4/1.4	1.2/1.4/1.4
	d.Fin type (code)		Hydrophilic aluminium	Hydrophilic aluminium
	e.Tube outside dia.and type	mm	φ7 INNEGROOVE TUBE	φ7 INNEGROOVE TUBE
	f.Coil length x height x width	mm	613x126x13.37+627x63x26.74 +609x126x26.74	613x126x13.37+627x63x26.74 +609x126x26.74
	g.Number of circuits		2	2
Indoor air flow (Hi/Mi/Lo)		m3/h	450/400/350	500/430/370
Indoor noise level (Hi/Mi/Lo)		dB(A)	33/30/27	38/35/32
Indoor unit	Dimension (W*H*D)	mm	850x275x160	850x275x160
	Packing (W*H*D)	mm	940x365x250	940x365x250
	Net/Gross weight	Kg	8.5/10.5	8.5/10.5
Outdoor fan motor	Model		YDK24-6F	YDK24-6F
	Brand		Welling	Welling
	Input	W	56	56
	Capacitor	uF	2.5uF/450V	2.5uF/450V
	Speed	r/min	800	800
Outdoor coil	a.Number of rows		1	1.5
	b.Tube pitch(a)x row pitch(b)	mm	21x13.37	21x13.37
	c.Fin spacing	mm	1,4	1.5
	d.Fin type (code)		Hydrophilic aluminium	Hydrophilic aluminium
	e.Tube outside dia.and type	mm	φ7, innergroove tube	φ7, innergroove tube
	f.Coil length x height x width	mm	755x504x13.37	(755+474)x504x13.37
	g.Number of circuits		2	4
Outdoor air flow		m3/h	1900	1900
Outdoor noise level		dB(A)	52	52
Outdoor unit	Dimension(W*H*D)	mm	780x540x250	780x540x250
	Packing (W*H*D)	mm	910x575x335	910x575x335
	Net/Gross weight	Kg	24.5/26.5	27.5/29.5
Refrigerant type		g	R410A/750g	R410A/860g
Design pressure		MPa	4,2	4,2
Refrigerant piping	Liquid side/ Gas side	mm	φ6.35/φ9.53	φ6.37/φ9.53
	Max. refrigerant pipe length	m	20	20
	Max. difference in level	m	8	8
Thermostat type			Electronic control	Electronic Control
Operation temp		°C	17-30	17-30
Ambient temp cool/heat		°C	18 ~ -45 / -7 ~ 24	18 ~ -45 / -7 ~ 24

Model			FSArt-120HF	FSArt-180HF
Power supply		Ph-V-Hz	220-240V~,50HZ	220-240V~,50HZ
Cooling	Capacity	W	3500	5300
	Input	W	1090	1700
	Rated current	A	4,8	7.5
	EER	W/W	3,21	3,12
Heating	Capacity	W	3650	5300
	Input	W	1015	1540
	Rated current	A	4,5	6,7
	COP	W/W	3,6	3,44
Moisture Removal		L/h	1,2	1,7
Max. input consumption		W	1500	2400
Max. Current		A	8	12
Starting current		A	26	34,5
Compressor	Model		PA140X2C-4FT	PA200X2CS-4KU1
	Type		Rotary	Rotary
	Brand		TOSHIBA	TOSHIBA
	Capacity	W	3405	4960
	Input	W	1145	1670
	Rated current(RLA)	A	5,3	7,8
	Locked rotor Amp(LRA)	A	29,9	34,5
	Thermal protector		UP3RE0596-T56	UP3QE0391-T39
	Capacitor	uF	35uF/370V	45uF/370V
	Refrigerant oil	ml	ESTER OIL VG74 /480	ESTER OIL VG74 / 750
Indoor fan motor	Model		RPG20D	RPG28D
	Brand		Welling	Welling
	Input	W	38	51,5
	Capacitor	uF	1.5uF/450V	1.5uF/450V
	Speed(hi/mi/lo)	r/min	1290/1000/900	1250/1100/1000
Indoor coil	a.Number of rows		2/1	2
	b.Tube pitch(a)x row pitch(b)	mm	21x13.37	21x13.37
	c.Fin spacing	mm	1.4/1.2	1.3
	d.Fin type (code)		Hydrophilic aluminium	Hydrophilic aluminium
	e.Tube outside dia.and type	mm	φ7 INNEGROOVE TUBE	φ7 INNEGROOVE TUBE
	f.Coil length x height x width	mm	676x(210+126)x(26.74+13.37)	804X336X26.74
	g.Number of circuits		2	4
Indoor air flow (Hi/Mi/Lo)		m3/h	600/500/400	800/710/600
Indoor noise level (Hi/Mi/Lo)		dB(A)	40/36/33	41/38/35
Indoor unit	Dimension (W*H*D)	mm	900x285x160	1022x295x185
	Packing (W*H*D)	mm	990x375x250	1105x385x275
	Net/Gross weight	Kg	10/12	12.5/15.5
Outdoor fan motor	Model		YDK36-6	YDK53-6C
	Brand		Welling	Welling
	Input	W	68	142
	Capacitor	uF	2.5uF/450V	3uF/450V
	Speed	r/min	900	800
Outdoor coil	a.Number of rows		2	2
	b.Tube pitch(a)x row pitch(b)	mm	21x13.37	21x13.37
	c.Fin spacing	mm	1,4	1.4
	d.Fin type (code)		Hydrophilic aluminium	Hydrophilic aluminium
	e.Tube outside dia.and type	mm	φ7 INNEGROOVE TUBE	φ7 INNEGROOVE TUBE
	f.Coil length x height x width	mm	653x546x26.74	785x651x26.74
	g.Number of circuits		4	4
Outdoor air flow		m3/h	1800	2700
Outdoor noise level		dB(A)	54	56
Outdoor unit	Dimension(W*H*D)	mm	760x590x285	845x695x335
	Packing (W*H*D)	mm	887x655x355	965x755x395
	Net/Gross weight	Kg	36.5/38.5	45/49
Refrigerant type		g	R410A/1070g	R410A/1450g
Design pressure		MPa	4,2	4,2
Refrigerant piping	Liquid side/ Gas side	mm	φ6.35/φ12.7	φ6.35/φ12.7
	Max. refrigerant pipe length	m	20	25
	Max. difference in level	m	8	10
Thermostat type			Electronic Control	Electronic Control
Operation temp		°C	17-30	17-30
Ambient temp cool/heat		°C	18 ~ -45 / -7 ~ 24	18 ~ -45 / -7 ~ 24

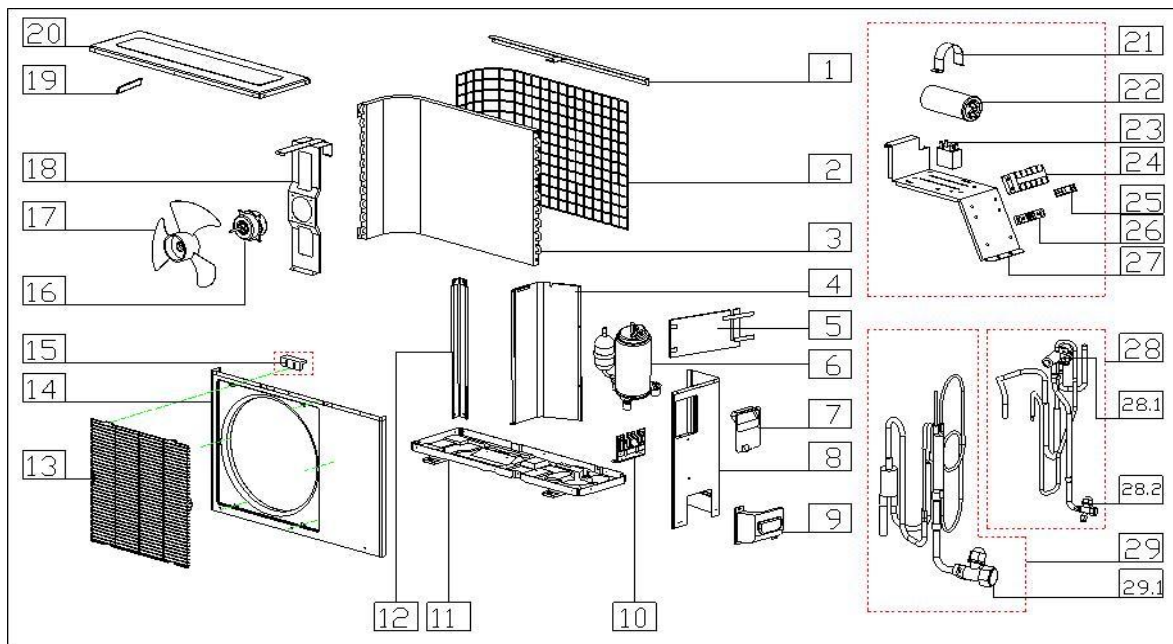
FSArt-70HF indoor unit



No.	Part Name	Quantity	BOM Code
1	Right cover for panel	1	201132390386
	panel	1	P0000358137
2	panel bolt	2	P0000356796
3	Air cleaner	1	201130100212
	Air cleaner holder	1	201130100217
4	Left air filter	1	201132390378
5	driven swing connector	2	201132390381
7	initiative swing connector	2	P0000356900
8	Louver motor	1	202400200054
	Louver motor cover	2	P0000356895
9	panel frame	1	P0000356888
	cover for panel	1	201132390384
10	Vertical airflow louver	1	201132390380
11	Horizontal airflow grille	10	P0000357288
	Grille holder	2	P0000357289
12	Ion engender	1	202319900051
13	Air out frame	1	P0000357287
14	Evaporator	1	201532390063
15	Bearing holder	1	202730100201

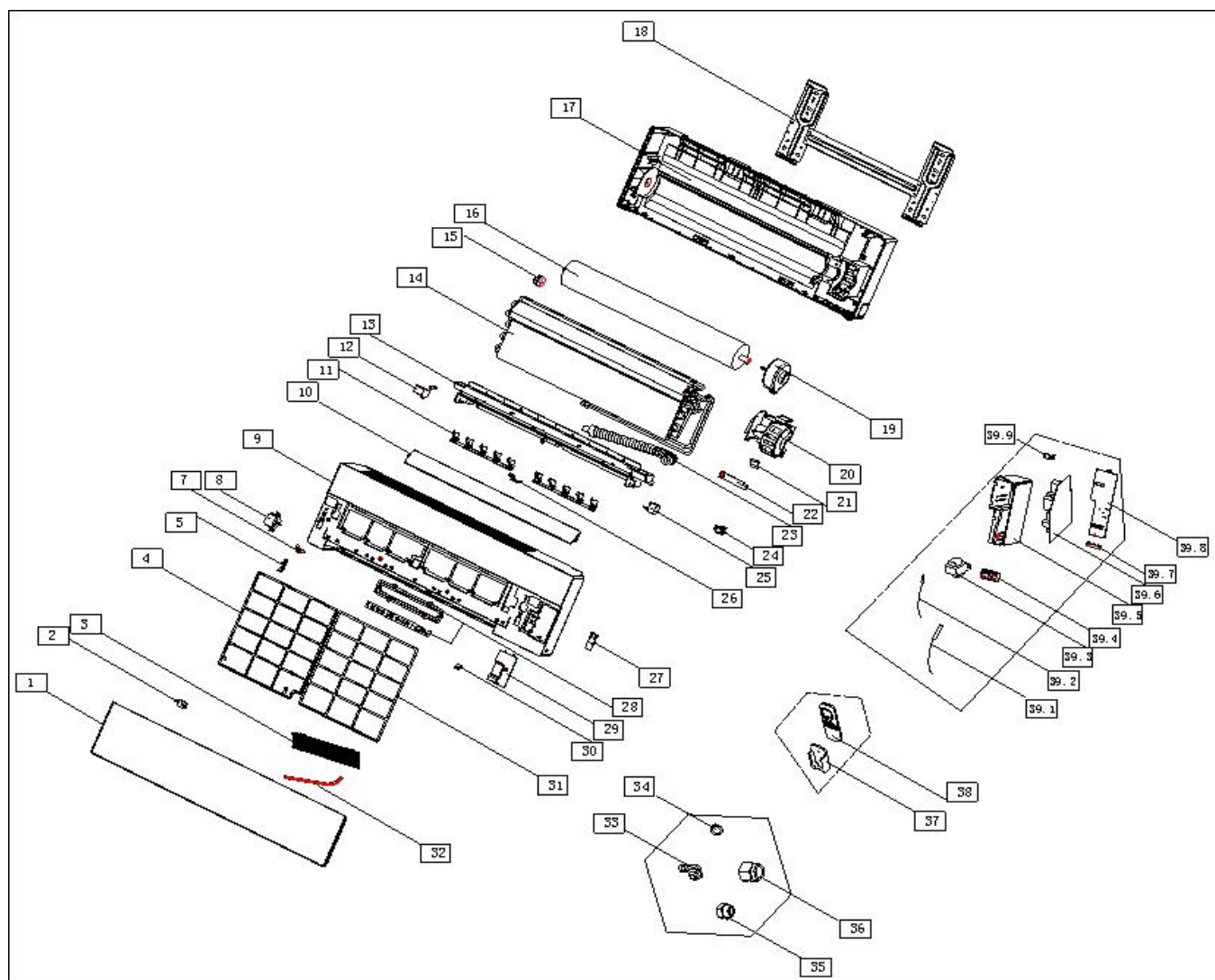
16	Cross flow fan	1	201100200118
17	Chassis	1	201132390357
18	Installation plate	1	201230390006
19	fan motor	1	202400300152
20	Motor cover	1	201132390375
21	Baffle of temperature induction	1	201130490002
22	Connecting pipe clamp	1	201132390373
23	Drain Hose	1	201130000011
24	lash-up switch cover	1	201132390387
25	stepping motor	1	202400200006
	axis	1	201131390149
26	Horizontal louver bolt	1	201132390376
	Holder	2	P0000357290
		1	201102010015
27	panel 's Mandril	1	201132390379
28	Display board enclosure	1	201132890167
	Display board	1	202300700539
29	Window cover for repairing	1	201132390374
30	Screw cap	3	201132390372
31	Right air filter	1	201132390377
32	panel shackles	1	201232390016
33	connector for watering	1	201101020011
34	seal	1	202720090001
35	Copper nut	1	201600320000
36	Copper nut	1	201600320001
37	Holder,remote controller	1	201155060529
38	Remote controller	1	203355090362
39	Electric control assy	1	203332190283
39,1	Pipe Temp sensor	1	202301300080
39,2	Indoor temp sensor	1	202432390005
39,3	transformer	1	202300900138
39,4	terminal	1	202301450119
39,5	Electronic control box	1	201132390370
39,6	Chip	1	201300731469
	Main control board	1	201332190214
39,7	Wire Clip	1	201130100209
39,8	E-part box cover	1	201132390371
39,9	Wire clamp	1	201135210303

FSArt-70HF outdoor unit



No.	Part Name	Quantity	BOM code
1	Support Board	1	201237400055
2	Rear net	1	201135250202
3	condenser coil assembly	1	201537490000
4	partition plate assembly	1	2012374G0008
5	sound-proof material	1	202135120404
6	rotary compressor	1	201400620280
7	Big handle	1	201135000005
8	Right clapboard	1	20123769G001
9	Water collector	1	201135290005
10	valve plate	1	201235000018
11	base pan assembly	1	20123739G011
12	Left supporter	1	201237400054
13	Front net	1	201235100023
14	front panel	1	2012374G0005
15	Clamp for front net	6	201135110801
16	asynchronism motor(iron)	1	202400400465
17	axial flow fan	1	201100300502
18	motor mounting bracket assembly	1	201237400048
19	Small handle	1	201150290006
20	top cover assembly	1	2012374G0024
21	clip, capacitor	1	201200100005
22	Capacitor,Compressor	1	202401000410
23	wires capacitor	1	202401190019
24	terminal	1	202301450130
25	Wire Clamp	1	201219900001
26	insulation plate	1	201135000004
27	outdoor terminal plate	1	201235000034
28	4-way valve assembly	1	201637190277
28,1	4-Ways valve	1	201600690010
28,2	gas valve	1	201600720094
29	liquid valve assembly	1	201637190275
29,1	liquid valve	1	201600740522

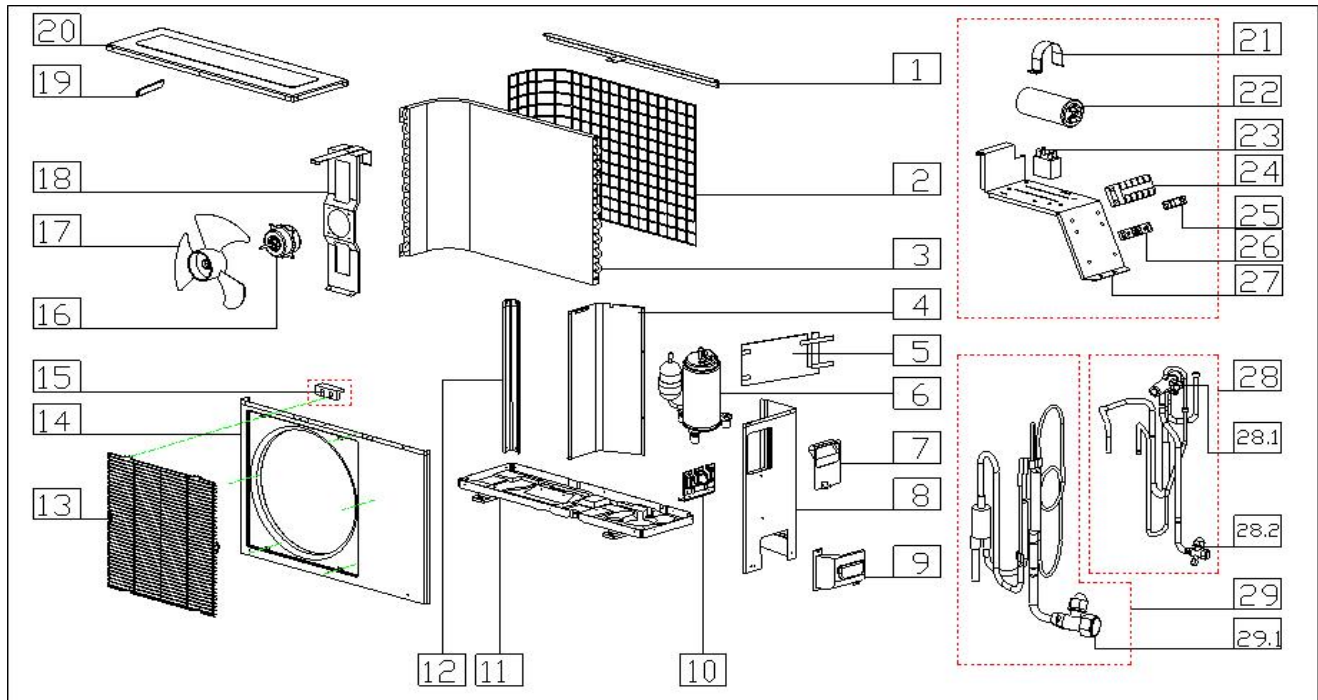
FSArt-90HF indoor unit



No.	Part Name	Quantity	BOM Code
1	Right cover for panel	1	201132390386
	panel	1	P0000358137
2	panel bolt	2	P0000356796
3	Air cleaner	1	201130100212
	Air cleaner holder	1	201130100217
4	Left air filter	1	201132390378
5	driven swing connector	2	201132390381
7	initiative swing connector	2	P0000356900
8	Louver motor	1	202400200054
	Louver motor cover	2	P0000356895
9	panel frame	1	P0000356888
	cover for panel	1	201132390384
10	Vertical airflow louver	1	201132390380
11	Horizontal airflow grille	10	P0000357288
	Grille holder	2	P0000357289
12	Ion engender	1	202319900051
13	Air out frame	1	P0000357287
14	Evaporator	1	201532390063
15	Bearing holder	1	202730100201
16	Cross flow fan	1	201100200118
17	Chassis	1	201132390357

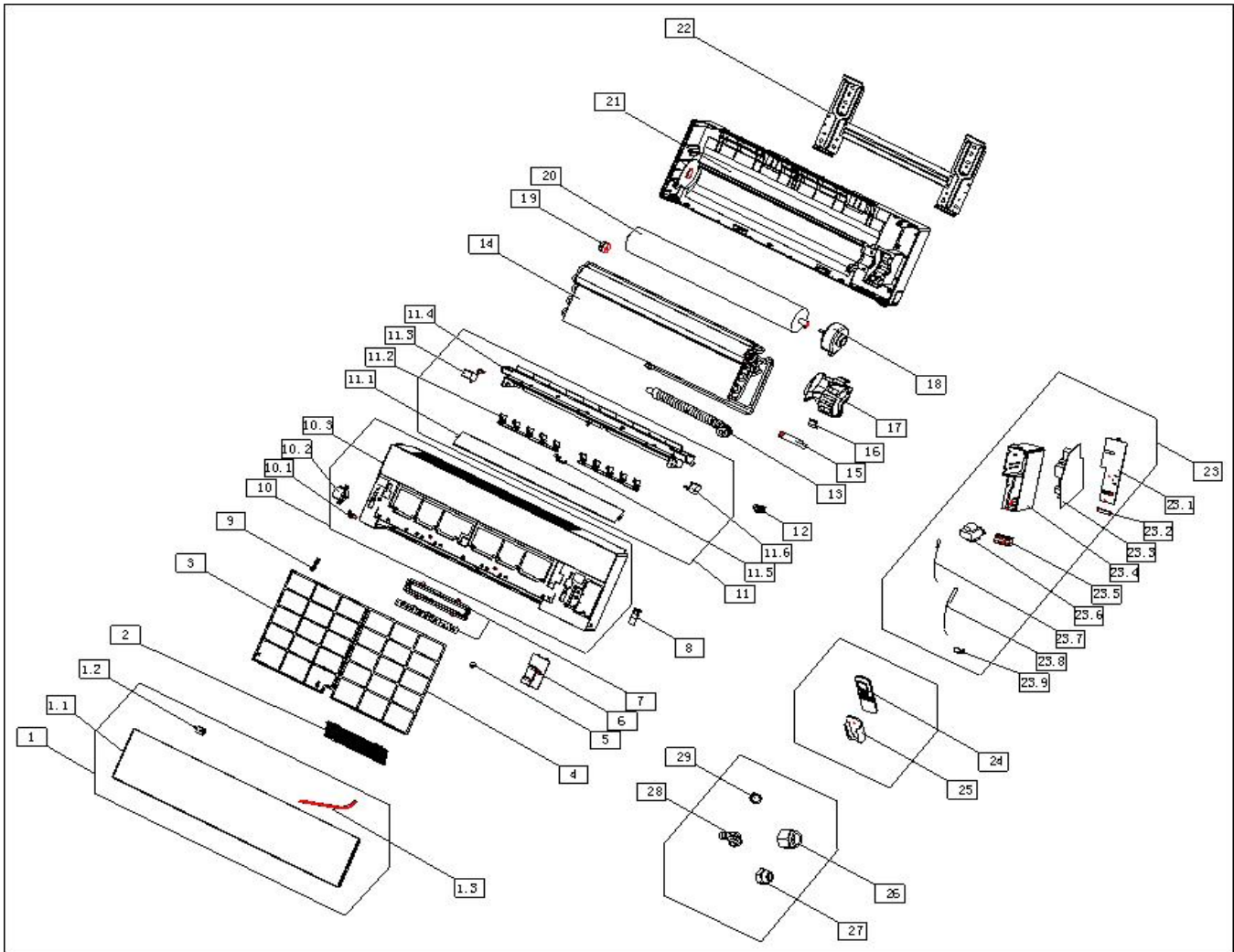
18	Installation plate	1	201230390006
19	fan motor	1	202400300152
20	Motor cover	1	201132390375
21	Baffle of temperature induction	1	201130490002
22	Connecting pipe clamp	1	201132390373
23	Drain Hose	1	201130000011
24	lash-up switch cover	1	201132390387
25	stepping motor	1	202400200006
	axis	1	201131390149
26	Horizontal louver bolt	1	201132390376
	Holder	2	P0000357290
		1	201102010015
27	panel 's Mandril	1	201132390379
28	Display board enclosure	1	201132890167
	Display board	1	202300700539
29	Window cover for repairing	1	201132390374
30	Screw cap	3	201132390372
31	Right air filter	1	201132390377
32	panel shackles	1	201232390016
33	connector for watering	1	201101020011
34	seal	1	202720090001
35	Copper nut	1	201600320000
36	Copper nut	1	201600320001
37	Holder,remote controller	1	201155060529
38	Remote controller	1	203355090362
39	Electric control assy	1	203332190283
39,1	Pipe Temp sensor	1	202301300080
39,2	Indoor temp sensor	1	202432390005
39,3	transformer	1	202300900138
39,4	terminal	1	202301450119
39,5	Electronic control box	1	201132390370
39,6	Chip	1	201300731468
	Main control board	1	201332190214
39,7	Wire Clip	1	201130100209
39,8	E-part box cover	1	201132390371
39,9	Wire clamp	1	201135210303

FSArt-90HF outdoor unit



No.	Part Name	Quantity	BOM code
1	Support Board	1	201237400055
2	Rear net	1	201135250202
3	condenser coil assembly	1	201535290368
4	partition plate assembly	1	2012374G0008
5	sound-proof material	1	202135120404
6	rotary compressor	1	201400620520
7	Big handle	1	201135000005
8	Right clapboard	1	20123769G001
9	Water collector	1	201135290005
10	valve plate	1	201235000018
11	base pan assembly	1	2012374G0014
12	Left supporter	1	201237400054
13	Front net	1	201235100023
14	front panel	1	2012374G0005
15	Clamp for front net	6	201135110801
16	asynchronism motor(iron)	1	202400400465
17	axial flow fan	1	201100300502
18	motor mounting bracket assembly	1	201237400051
19	Small handle	1	201150290006
20	top cover assembly	1	2012374G0024
21	clip, capacitor	1	201200100005
22	Capacitor,Compressor	1	202401000410
23	wires capacitor	1	202401190019
24	terminal	1	202301450130
25	Wire Clamp	1	201219900001
26	insulation plate	1	201135000004
27	outdoor terminal plate	1	201235000034
28	4-way valve assembly	1	201637390474
28,1	4-Ways valve	1	201600600118
28,2	gas valve	1	201600720094
29	liquid valve assembly	1	201637390478
29,1	liquid valve	1	201600740522

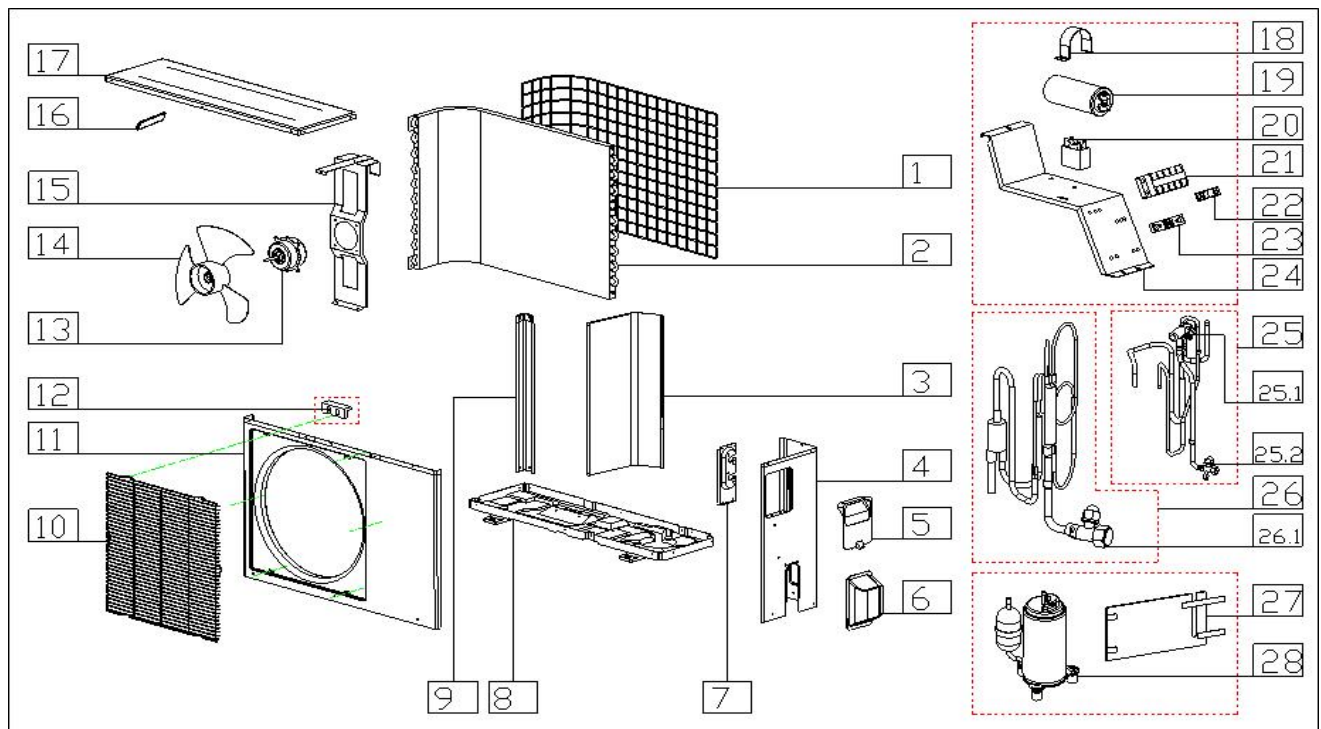
FSArt-120HF indoor unit



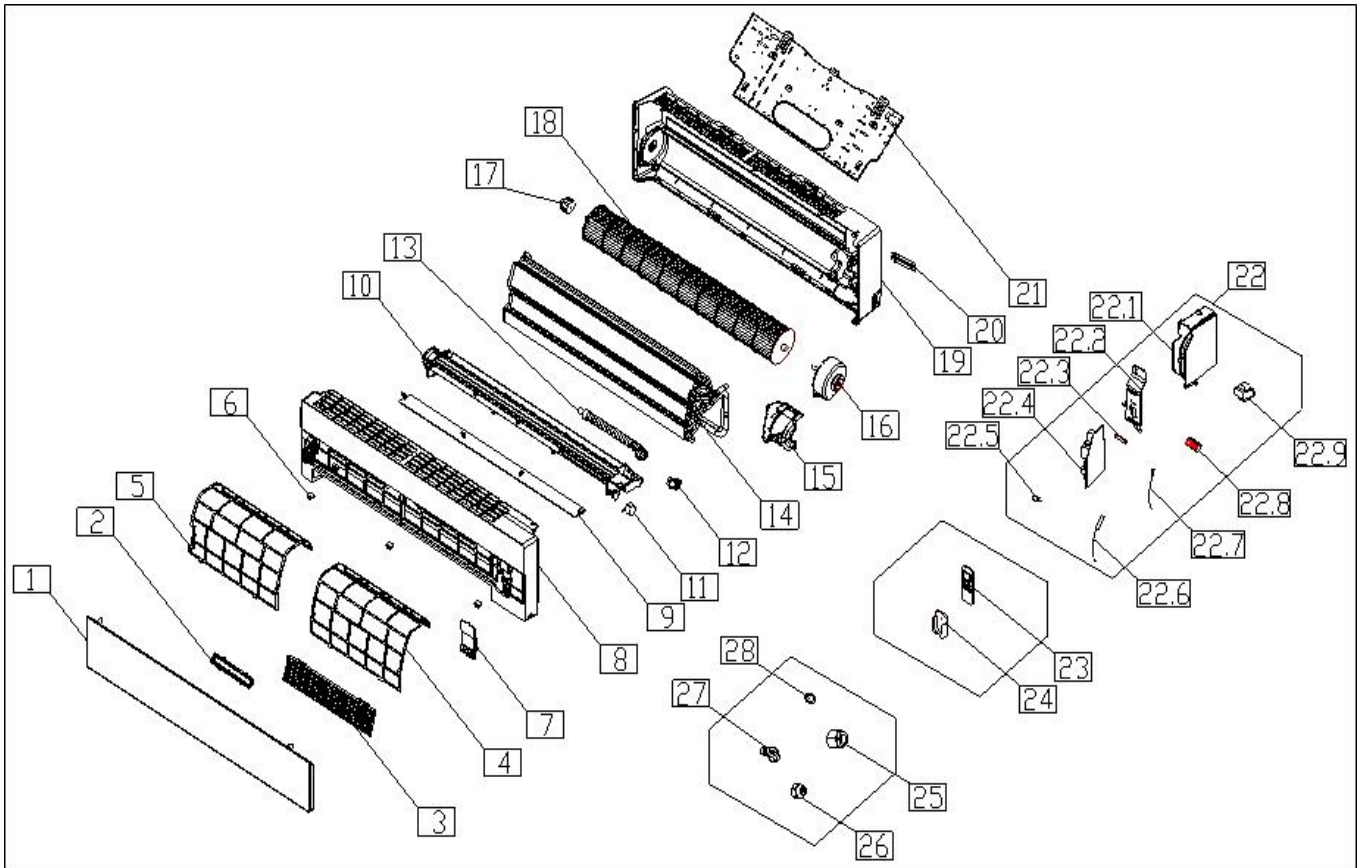
No.	Part Name	Quantity	BOM Code
1	panel assembly	1	201132590304
1,1	panel	1	P0000350947
1,2	panel bolt	2	P0000350949
1,3	panel shackles	1	201232590012
2	Air cleaner	1	201130100212
	Air cleaner holder	1	201130100217
3	Left air filter	1	201132590297
4	Right air filter	1	201132590296
5	Screw cap	3	201132590303
6	Window cover for repairing	1	201132590298
7	Display board enclosure	1	203332890126
8	panel 's Mandril	1	201132590292
9	driven swing connector	2	201132590300
10	panel frame	1	201132590301
10,1	initiative swing connector	2	P0000354085
10,2	Louver motor	1	202400200054
	Louver motor cover	2	201132590289
10,3	panel frame	1	P0000354080

11	Air out frame assembly	1	201132590306
11,1	Vertical airflow louver	1	201132590295
11,2	Horizontal airflow grille	10	P0000349541
	Grille holder	2	P0000349544
11,3	Ion engender	1	202319900051
11,4	Air out frame	1	P0000350724
11,5	Horizontal louver bolt	1	201132590294
	Holder	2	201133190032
		1	201102010015
11,6	stepping motor	1	202400200006
	axis	1	201131390149
12	lash-up switch cover	1	201132590293
13	Drain Hose	1	201132390410
14	Evaporator	1	201532590045
15	Connecting pipe clamp	1	201232500001
16	Baffle of temperature induction	1	201130490002
17	Motor cover	1	201132590299
18	fan motor	1	202400300215
19	Bearing holder	1	202730100201
20	Cross flow fan	1	201100200120
21	Chassis	1	201132590305
22	Installation plate	1	201232390012
23	Electric control assy	1	203332590254
23,8	E-part box cover	1	201132390371
23,7	Wire Clip	1	201130100209
23,6	Chip	1	201300731484
	Main control board	1	201332590176
23,5	Electronic control box	1	201132390370
23,4	terminal	1	202301450119
23,3	transformer	1	202300900138
23,2	Indoor temp sensor	1	202432390005
23,1	Pipe Temp sensor	1	202301300080
23,9	Wire clamp	1	201135210303
24	Remote controller	1	203355090362
25	Holder,remote controller	1	201155060529
26	Copper nut	1	201600320000
27	Copper nut	1	201600320002
28	connector for watering	1	201101020011
29	seal	1	202732200001

FSArt-120HF outdoor unit



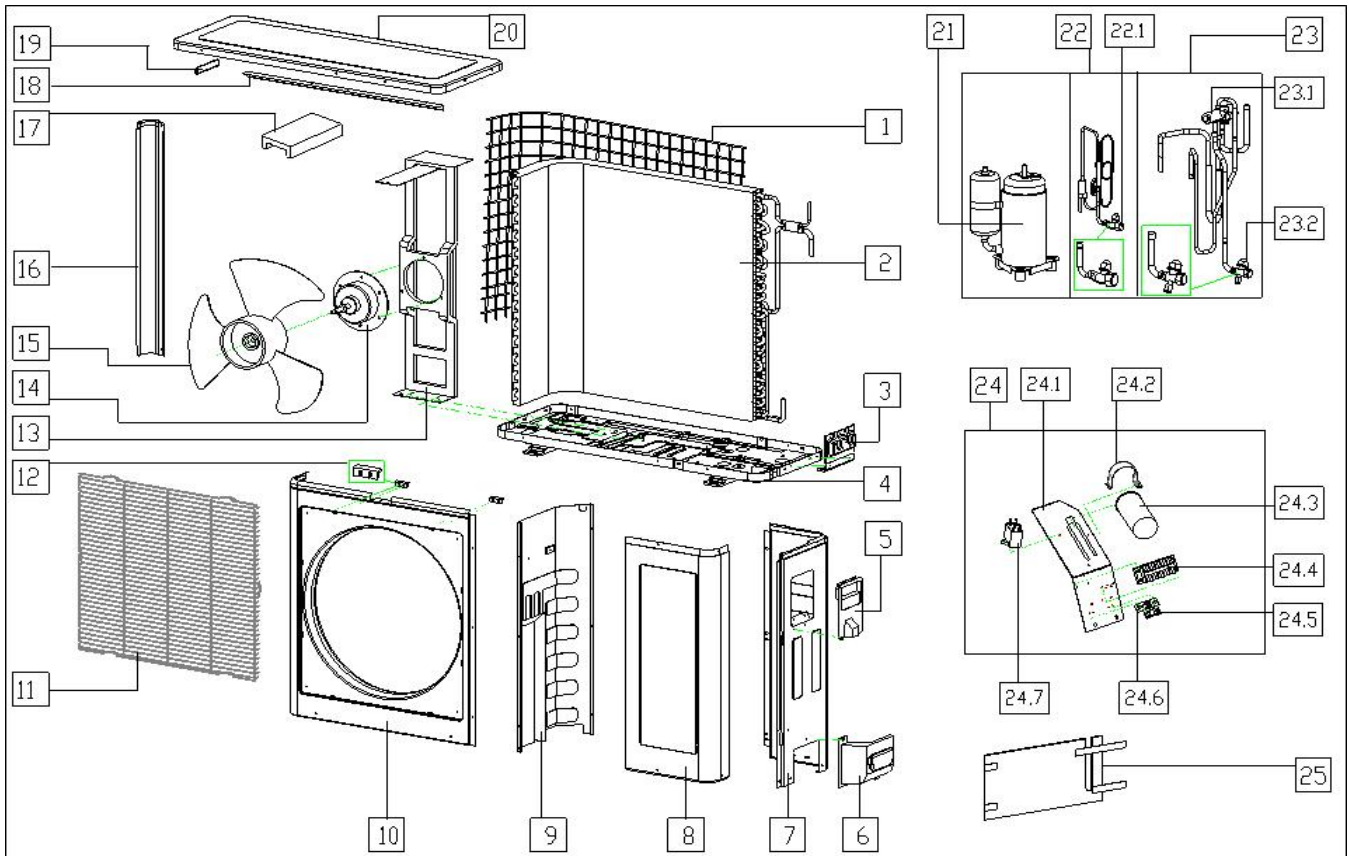
No.	Part Name	Quantity	BOM code
1	Rear net	1	2011374G0003
2	condenser coil assembly	1	201537590058
3	partition plate assembly	1	201237400033
4	Right clapboard	1	201245240051
5	Big handle	1	201135000005
6	Water collector	1	201135270201
7	valve plate	1	201235120614
8	base pan assembly	1	201237400061
9	Left supporter	1	200737400028
10	Front net	1	201235290030
11	front panel	1	201237400029
12	Clamp for front net	6	201135110801
13	asynchronism motor(iron)	1	202400400723
14	axial flow fan	1	201100300502
15	motor mounting bracket assembly	1	201237400053
16	small handle	1	201150290006
17	top cover assembly	1	201237400031
18	clip, capacitor	1	201200100002
19	Capacitor,Compressor	1	202401000610
20	wires capacitor	1	202401190019
21	terminal	1	202301450130
22	Wire Clamp	1	201219900001
23	insulation plate	1	201135000004
24	outdoor terminal plate	1	201235270261
25	4-way valve assembly	1	201637590383
25,1	4-Ways valve	1	201600690010
25,2	gas valve	1	201600720195
26	Low Pressure Valve Ass'y	1	201637590381
26,1	Low Pressure Valve	1	201600740523
27	sound-proof material	1	202145100302
28	rotary compressor	1	201400620080



No.	Part Name	Quantity	BOM Code
1	Front panel	1	201132890178
2	Display board assy	1	203332890143
3	Air cleaner holder	1	201130100217
	Air cleaner	1	201130100212
4	Right air filter	1	201132890173
5	Left air filter	1	201132890174
6	Screw cap	3	201132890172
7	Window cover for repairing	1	201132890168
8	Panel frame assy	1	201132890170
9		1	201132890176
10	Air out frame assy	1	201132890177
11	Louver motor	1	202400200006
12	lash-up switch cover	1	201132890169
13	Drain hose	1	201130000011
14	Evaporator,assy	1	201532890029
15	Motor cover	1	201132890175
16	Motor	1	202400300415
17	Bearing holder	1	202730100201
18	Cross flow fan	1	201100200107
19	chassis	1	201132890180
20	Connecting pipe clamp	1	201232800001
21	Installation plate	1	201232790008
22	Electronic control box,indoor unit	1	203332890116
22,1	E-Parts box	1	201132890148
22,2	E-Parts box's cover	1	201132890147
22,3	Wire clamp	1	201130400042

22,4	Main control board	1	201332890053
22,5	Wire Clip	1	201135210303
22,6	Indoor temp sensor	1	202432390005
22,7	Evaporator temp sensor	1	202301300080
22,8	Wire joint, 5p	1	202301450119
22,9	Transformer	1	202300900138
23	Remote Controller	1	203355090362
24	Holder,remote controller	1	201155060529
25	Copper nut, TLM-A01	1	201600320000
26	Copper nut, TLM-C03	1	201600320002
27	connector for watering	1	201101020011
28	seal	1	202732200001

FSArt-180HF outdoor



No.	Part Name	Quantity	BOM code
1	Rear net	1	201145500008
2	condenser coil assembly	1	201537990000
3	valve plate	1	201235000018
4	base pan assembly	1	201248100080
5	Big handle	1	201145500003
6	Water collector	1	201135290005
7	Right clapboard	1	201237890012
8	Front right clapboard assembly	1	201248100077
9	partition plate assembly	1	201238090014
10	front panel	1	20124810G002
11	Front net	1	201235390011
12	Clamp for front net	8	201135110801
13	motor mounting bracket assembly	1	201248100074
14	asynchronism motor(iron)	1	202400410643
15	axial flow fan	1	201145500002
16	Left supporter	1	201248100070
17	Foam, Motor Holder	1	202245500001
18	Support board for motor holder	1	201248100076
19	Small handle	1	201150290006
20	top cover assembly	1	201248100072
21	rotary compressor	1	201400620160
22	liquid valve assembly	1	201637890283
22,1	Liquid valve	1	201600740522
23	Low Pressure Valve Ass'y	1	201637890280
23,1	4-Ways valve	1	201600690011

23,2	Gas pipe valve	1	201600720194
24	electrical box assembly	1	203335390021
24,1	Installation board for E-parts	1	201245500039
24,2	clip, capacitor	1	201200100002
24,3	capacitor, compressor	1	202401090055
24,4	Wire joint	1	202301450114
24,5	plate, wire	1	201245400027
24,6	Washer for wire joint	1	201135000004
24,7	Fan motor capacitor	1	202401100353
25	sound-proof material	1	202135270014