R410A
Refrigerant

TECHNICAL&SERVICE MANUAL V1.0

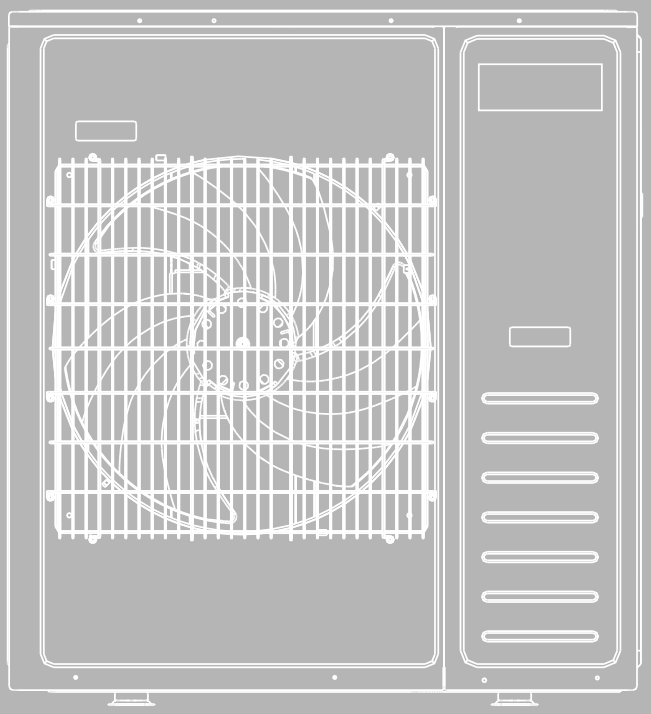
—MULTI-SPLIT TYPE AIR CONDITIONERS

Models:

<Outdoor Unit>

AMSCI4H4S24

AMSCI4H4S36



SAFETY SUMMARY

IMPORTANT NOTICE

- We pursue a policy of continuing improvement in design and performance of products. The right is therefore reserved to vary specifications without notice.
- We cannot anticipate every possible circumstance that might involve a potential hazard.
- This air conditioner is designed for standard air conditioning only. Do not use this air conditioner for other purposes such as drying clothes, refrigerating foods or for any other cooling or heating process. Do not let the air-out face animals or plants, it might have an adverse effect on it.
- The installer and system specialist shall secure safety against leakage according to local regulations or standards.
- Signal words (DANGER, WARNING and CAUTION) are used to identify levels of hazard seriousness. Definitions for identifying hazard levels are provided below with their respective signal words.

⚠DANGER : Immediate hazards which WILL result in severe personal injury or death.

⚠WARNING : Hazards or unsafe practices which COULD result in severe personal injury or death.

⚠CAUTION : Hazards or unsafe practices which COULD result in minor personal injury or product or property damage.

NOTE : Useful information for operation and/or maintenance.

- Installation should be performed by the dealer or another professional personnel. Improper installation may cause water leakage, electrical shock, or fire.

⚠DANGER

- Do not perform installation work, refrigerant piping work, drain piping and electrical wiring connection without referring to our installation manual. If the instructions are not followed, it may result in a water leakage, electric shock or a fire.
- Use refrigerant R410A in the refrigerant cycle.
- Do not pour water into the indoor or outdoor unit. These products are equipped with electrical parts. If poured, it will cause a serious electrical shock.
- Do not open the service cover or access panel for the indoor or outdoor units without turning OFF the main power supply.
- Do not touch or adjust safety devices inside the indoor or outdoor units. If these devices are touched or readjusted, it may cause a serious accident.
- Refrigerant leakage can cause difficulty with breathing due to insufficient air. Turn OFF the main switch, extinguish any naked flames and contact your service contractor, if refrigerant leakage occurs.
- Do perform air-tight test. Do not charge oxygen, acetylene or other flammable and poisonous gases into the refrigerant cycle when performing a leakage test or an air-tight test. These types of gases are extremely dangerous and can cause an explosion. It is recommended that nitrogen be used for this test.
- The installer and system specialist shall secure safety against refrigerant leakage according to local regulations or standards.
- Use an ELB (Electric Leakage Breaker). In the event of a fault, there is danger of an electric shock or a fire if it is not used.

⚠WARNING

- Do not use any sprays such as insecticide, lacquer, hair spray or other flammable gases within approximately one (1) meter from the system.

- If circuit breaker or fuse is often activated, stop the system and contact your service contractor.
- Check that the ground wire is securely connected. If the unit is not correctly grounded, it lead electric shock.Do not connect the ground wiring to gas piping, water piping, lightning conductor or ground wiring for telephone.
- Before performing any brazing work, check to ensure that there is no flammable material around When using refrigerant be sure to wear leather gloves to prevent cold injuries.
- Protect the wires, electrical parts, etc. from rats or other small animals. If not protected, rats may gnaw at unprotected parts and which may lead to a fire.
- Fix the cables securely. External forces on the terminals could lead to a fire.
- Install the air conditioner on a solid base that can support the unit weight. An inadequate base or incomplete installation may cause injury in the event the unit falls off the base. Incomplete connections or clamping may cause terminal overheating or fire.
- Make sure that the outdoor unit is not covered with snow or ice, before operation.

⚠CAUTION

- Do not step or put any material on the product.
- Do not put any foreign material on the unit or inside the unit.

NOTE

- It is recommended that the room be ventilated every 3 to 4 hours.
- The air conditioner may not work properly under the following circumstances.
  The power transformer provides the same power or power as the air conditioner.The electrical equipment is too close to the power supply of the air conditioner. With the sharp change of power consumption and switching action, the power supply of the air conditioner will generate a large induction surge voltage.

CHECKING PRODUCT RECEIVED

- Upon receiving this product, inspect it for any shipping damage. Claims for damage, either apparent or concealed, should be filed immediately with the shipping company.
- Check the model number, electrical characteristics (power supply, voltage and frequency) and accessories to determine if they are correct.
  The standard utilization of the unit shall be explained in these instructions.
  Therefore, the utilization of the unit other than those indicated in these instructions is not recommended.
  Please contact your local agent, as the occasion arises.

• ***The figures in this manual are based on the external view of a standard model. Consequently, the shape may differ from that of the air conditioner you have selected.***

Multi-Split Type Air Conditioner Service Manual

Table of Contents

1. General

1.1 Features

Features

- Twin Rotary DC Inverter Compressor

The twin rotary inverter compressor design reduces friction during operation for smoother rotation with less vibration, while also preventing leakage of refrigerant gas during compression. The result is a far quieter and more efficient air conditioner.

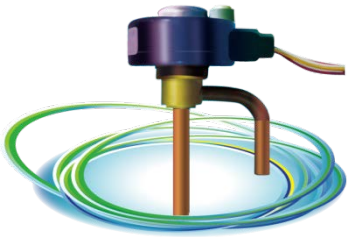
- 3-DC Inverter Technology

3-DC Inverter technology allows for extremely accurate control of compressor rotation speed, saving roughly 50% more energy than traditional air conditioners, Moreover, it guarantees and fan motor greatly reduce the loss owed to the typical owing dispersion of AC motors and more efficiently reaches the set temperature.

- Electronic Expansion Valve

Inside the outdoor unit is the electronic expansion valve, which regulates and optimizes the refrigerant quantity to all running indoor units.

- Self Recovery of Power Break



When the power supply is recovered after break, all preset are still effective and the air-conditioner can run according to the original setting.

1. GENERAL

- Comfortable temperature control

DC inverter power control uses its full capacity at startup to cool/warm quickly. As soon as the set temperature is reached, it carefully adjusts current frequency to prevent temperature fluctuation and energy loss.

- Long piping lengths for installation flexibility

The ample maximum piping length of 60 m permits more freedom in the placement of air conditioner units and enables you to optimise interior space.

- Variety Indoor & Outdoor Unit Type

The new line-up expands the range of layout options both indoors and outdoors.

More methods, more conveniently.

- Option Remote Controller

A variety of convenient controller systems permit individual control of settings such as temperature, airflow volume, and operation duration.

1. GENERAL

1.2 Product lineup

Outdoor Unit

Model(Btu/h) / Type	18K	24K	36K
Dual	○		
Trio		●	
Quattro			●

●--- available model
○--- in development

1.3 Nomenclature

1.4 Unit installation

With the DC inverter technology, one outdoor unit can be connected with 4 indoor units at most. The combination rate range is from 80% to 130%.

Model(Btu/h)	Max. Combined Quantity of Indoor Units
24K	3
36K	4

1.5 Working range

Power Supply

Working Voltage	198V ~ 253V
Voltage Imbalance	Within a 3% deviation from each voltage at the main terminal of outdoor unit
Starting Voltage	Higher than 85% of the Rated Voltage

Operating temperature range

This air conditioner is designed for the following outdoor operating temperatures.

Type	**Mode**	**Outdoor operating temperature**	
		maximum	**minimum**
Multi-Split Air Conditioner (Heat pump type)	Cooling Operation	115℉(46℃)	14℉(-10℃)
	Heating Operation	75℉(24℃)	-13℉(-25℃)

Storage condition:

Temperature -13~140℉ (-25~60℃)

Humidity 30%~80%

1.6 Product appearance

Outdoor Unit

Type	Capacity (Btu/h)	View
Trio	24K	
Quattro	36K	

2. SPECIFICATIONS

2. Specifications

Type(Free Match)				up to 3 indoor units	up to 4 indoor units
Model Name				AMSCI4H4S24	AMSCI4H4S36
Gas				R410A	R410A
Capacity	Cooling Capacity	95 ºF	Btu/h	24000	32000
	Heating Rated Capacity	47 ºF	Btu/h	24000	36000
		17 ºF	Btu/h	15400	22800
	Heating Maximum Capacity	17 ºF	Btu/h	26000	40000
		5 ºF	Btu/h	24000	36000
	Cooling	95 ºF	kW	/	/
			Btu/h	24000(8000~30200)	32000(12000~42000)
	Heating	47 ºF	kW	/	/
			Btu/h	24000(5200~37000)	36000(8000~52000)
Air flow			m3/h	4000	5000
			CFM	2353	2941
EER		95 ºF	Btu/（W•h）	12.5	12.5
COP		47 ºF	Btu/（W•h）	12.5	11.5
SEER			Btu/（W•h）	22	21
HSPF			Btu/（W•h）	11	11
Noise Level			dB(A) (Max)	59	59
Guaranteed Operating Range	Cooling		℉	14~114.8	14~114.8
			℃	-10~46	-10~46
	Heating		℉	-13~75.2	-13~75.2
			℃	-25~24	-25~24
Compressor model	Model			EATF250D22UMT	EATF400D64UMTA
	Brand			GMCC	GMCC
Electrical Data					
Power			V/Hz/f	208~230/60/1	208~230/60/1
Power input	Cooling	95 ºF	W	1920（420～2640）	2520(700~5000)
	Heating	47 ºF	W	1920（420～4020）	3060(600~6000)
Rated current	Cooling	95 ºF	A	8.7	11
	Heating	47 ºF	A	8.7	13
Dimension & Weight					
Net Dimension (WxHxD)			mm	950×840×340	950×1050×340
			inch	37-3/8x33x13-3/8	37-3/8x41-3/8x13-3/8
Net Weight			kg	72	85.5
			lbs	158.73	188.5
Package Dimension (WxHxD)			mm	1110×460×920	1110×460×1200
			inch	43-3/8x18-1/8x36-1/4	43-3/8x18-1/8x47-1/4
Gross Weight			kg	77	100
			lbs	169.76	220.5
Technical Information					
Piping	Diameter(Liquid)		mm	6.35	6.35
			inch	1/4	1/4
	Diameter(Gas)		mm	9.52	9.52
			inch	3/8	3/8
	Max Length(Each)		m	20	20
			ft	66	66
	Max Length(Total)		m	60	75
			ft	197	246
	Max Height		m	15	15
			ft	49	49
Upload refrigerant			g	2300	3000
			oz	81.13	105.82
Upload additional refrigerant			g/m	15g/m over 22.8m	15g/m over 30m
			oz/ft	0.161oz/ft over 75ft	0.161oz/ft over 98ft

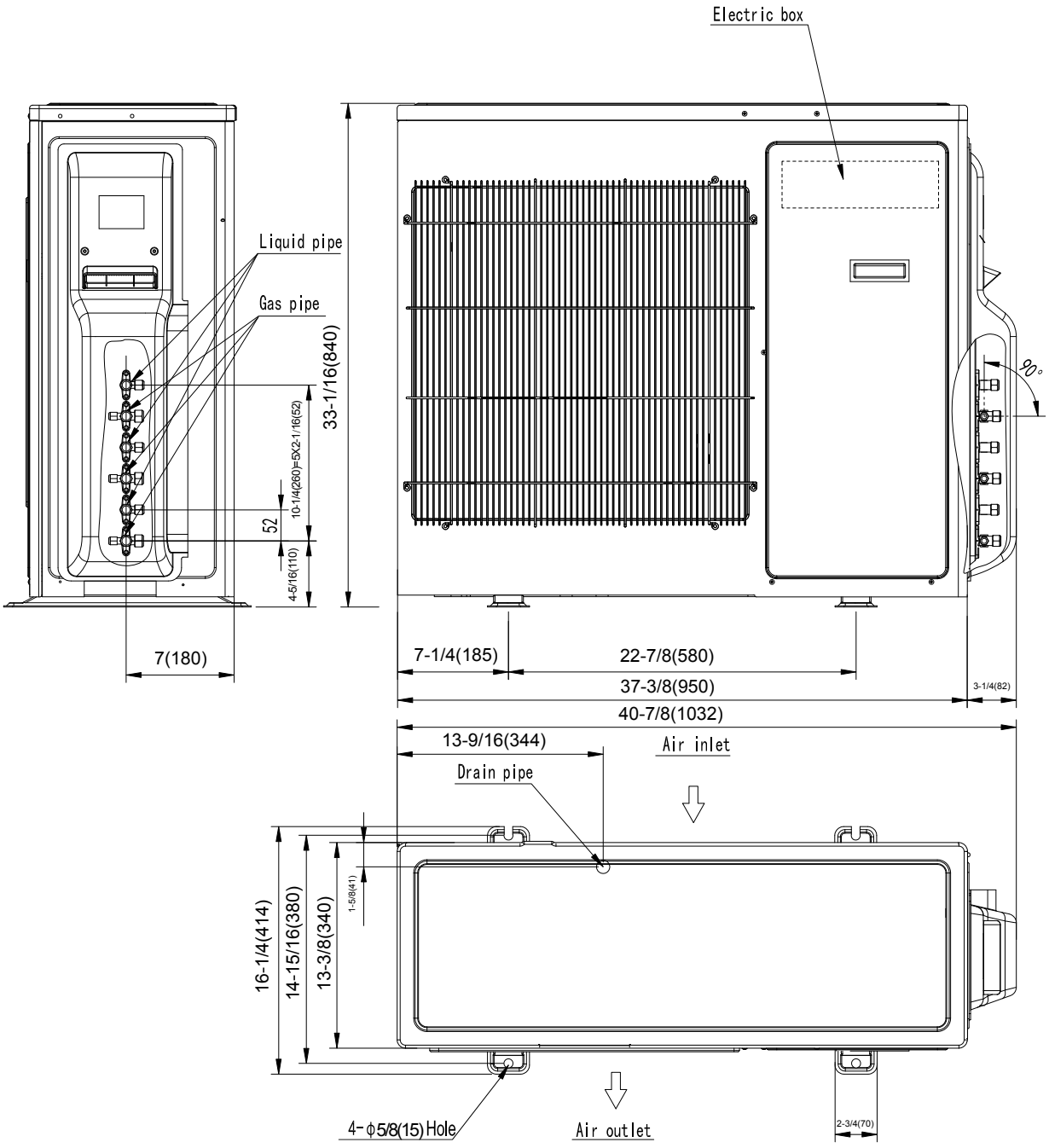
NOTE:

1. Test conditions：
   Cooling : Indoor: DB80℃/ WB 67ºF Outdoor: DB95℃/ WB75℉
   Heating: Indoor: DB70℃/ WB 60ºF Outdoor: DB47℃/ WB 43℉
2. The Sound Pressure Level is based on the following conditions:
   Outdoor unit：
   Measure the noise value of 3 points，the points are1 meter in front of the three sides of the unit surface (front/left/right)and height =1/2(unit height +1) meter from floor level, and calculate the weighted average of the noise.
3. The above data was measured in an anechoic chamber. Please take into consideration reflected sound of your specific application environment.
4. All specifications are subjected to change by the manufacturer without prior notice.

3.OUTLINES AND DIMENSIONS

3. Outlines and dimensions

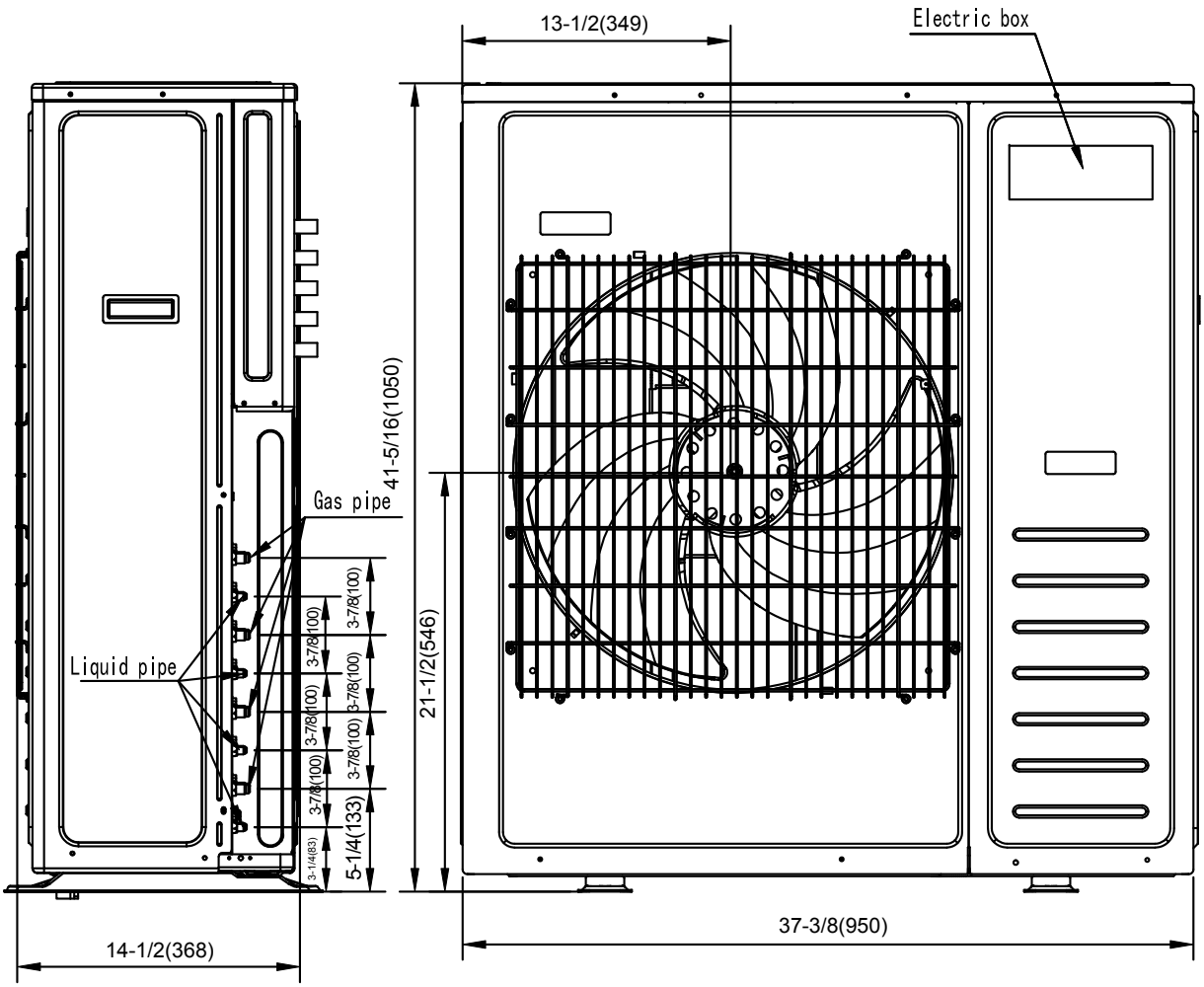
24K Unit:in.(mm)

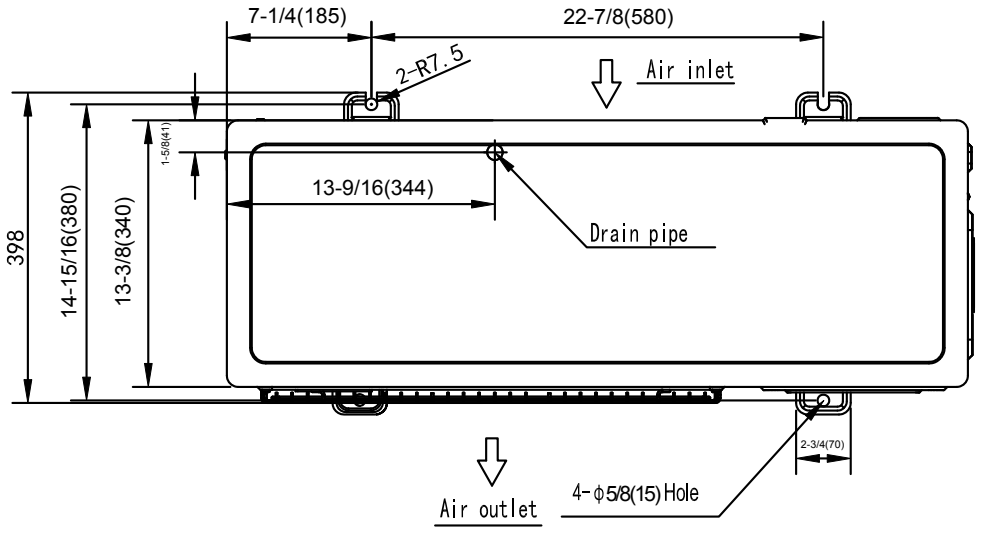


3.OUTLINES AND DIMENSIONS

36K

Unit:in.(mm)





4. ELECTRICAL DATA

4. Electrical data

	Power supply			Applicable voltage		ELB	
Outdoor unit	Voltage(V)	PH	Frequency (Hz)	Umin(V)	Umax(V)	Nominal Current(A)	Nominal Sensitive Current(mA)
24K	208/230	1	60	198	253	30	30
36K	208/230	1	60	198	253	40	30

NOTE:

1. The above compressor data is based on 100% capacity combination of indoor units at the rated operating frequency.
2. This data is based on the same conditions as the nominal heating and cooling capacities.
3. The compressor started by an inverter, resulting in extremely low starting current.

5. CAPACITIES AND SELECTION DATA

5. Capacities and selection data

5.1 Capacity characteristic charts

The following charts show the characteristics of outdoor unit capacity, which corresponds with the operating ambient temperature of outdoor unit.

Conditions:

① Pipe length / height difference : 5m / 0m

② Compressor at rated inverter frequency

③ Indoor fan speed at high fan speed

④ Capacity loss due to white frost and defrost operation is not included.

24K

COOLING CAPACITY (Btu/h)

Indoor temperature		Outdoor temperature ℉(℃) DB						
℉(℃) WB	℉(℃) DB	59(15)	68(20)	77(25)	86(30)	95(35)	104(40)	113(45)
60.8(16)	71.6(22)	19589	19589	19589	19828	20306	18634	17917
66.2(19)	80.6(27)	23173	23173	23412	23651	23890	21740	19112
71.6(22)	86(30)	25323	25562	25801	26040	26756	22695	20306

°F(℃) DB : Dry Bulb Temperature

°F(℃) WB : Wet Bulb Temperature

HEATING CAPACITY (Btu/h)

Outdoor temperature		Indoor temperature ℉(℃) DB				
℉(℃) WB	℉(℃) DB	60.8(16)	64.4(18)	68(20)	71.6(22)	78.8(26)
3.2(-16)	5(-15)	16723	16723	16381	16040	15699
12.2(-11)	14(-10)	18429	18429	18088	17747	17405
21.2(-6)	23(-5)	21501	21501	21159	20818	20477
30.2(-1)	32(0)	23890	23548	23207	22866	22524
42.8(6)	44.6(7)	24572	24572	24231	23890	23548
48.2(9)	50(10)	28668	28326	27985	27302	26961
57.2(14)	59(15)	29350	29009	28668	27985	27644

°F(℃) DB : Dry Bulb Temperature

°F(℃) WB : Wet Bulb Temperature

5. CAPACITIES AND SELECTION DATA

36K

COOLING CAPACITY (Btu/h)

Gbmmprck ncp_rspc		Msrbmmprck ncp_rspc i &N' B@						
i &N' U @	i &N' B@	37&3'	46&0. '	55&03'	64&1. '	73&13'	/. 2&2. '	/1&23'
60.8(16)	71.6(22)	25562	25562	25562	25869	26483	24299	23378
66.2(19)	80.6(27)	30237	30237	30545	30852	31739	28360	24948
71.6(22)	86(30)	33036	33343	33684	33991	34913	29623	26483

°F(℃) DB : Dry Bulb Temperature

°F(℃) WB : Wet Bulb Temperature

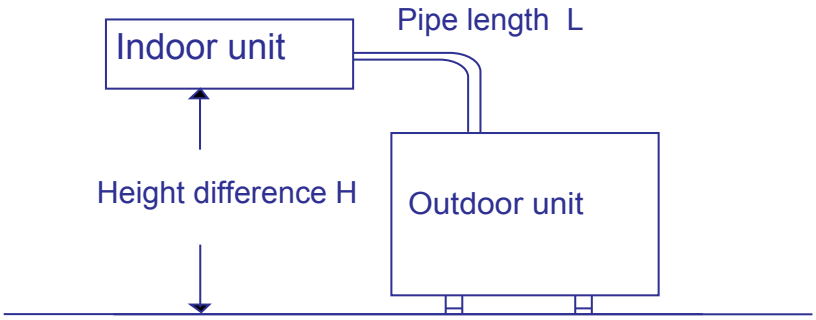
HEATING CAPACITY (Btu/h)

Msrbmmprck ncp_rspc		Gbmmprck ncp_rspc i &N' B@				
i &N' U @	i &N' B@	4. ,6&4'	42,2&6'	46&0. '	5/ ,4&00'	56,6&04'
3.2(-16)	5(-15)	24231	24231	23890	23548	23207
12.2(-11)	14(-10)	26620	26620	26279	25937	25596
21.2(-6)	23(-5)	31056	31056	30715	30374	30374
30.2(-1)	32(0)	34811	34469	33787	33445	33104
42.8(6)	44.6(7)	36176	35834	35152	34811	34811
48.2(9)	50(10)	41295	41295	40612	39930	39588
57.2(14)	59(15)	42319	41977	41636	40954	40612

°F(℃) DB : Dry Bulb Temperature

°F(℃) WB : Wet Bulb Temperature

5.2 Piping length correction factor



The correction factor is based on the equivalent piping length in meters (EL) and the height between outdoor and indoor units in meters (H).

H:

Height between indoor unit and outdoor unit (m).

• H>0: Position of outdoor unit is higher than position of indoor unit (m).

• H<0: Position of outdoor unit is lower than position of indoor unit (m).

L:

Actual one-way piping length between indoor unit and outdoor unit (m).

EL:

Equivalent one-way piping length between indoor unit and outdoor unit (m).

Gas Diameter (mm/inch)	9.52 (3/8')	12.7 (1/2')	15.88 (5/8')	19.05 (3/4')
90°Elbow	0.15	0.2	0.25	0.35

Cooling

EL / Model	25ft(7.5m)	32.8ft(10m)	49ft(15m)	66ft(20m)
24K/36K	1	0.95	0.90	0.85

Heating

EL / Model	25ft(7.5m)	32.8ft(10m)	49ft(15m)	66ft(20m)
24K/36K	1	0.95	0.90	0.85

5. CAPACITIES AND SELECTION DATA

The correction factor of height between indoor unit and outdoor unit

Height difference	16ft(5m)	32.8ft(10m)	49ft(15m)	66ft(20m)	82ft(25m)	98ft(30m)
Factor	1.0	0.95	0.88	0.8	0.75	0.7

To ensure correct unit selection, consider the farthest indoor unit.

NOTE:

1. Above data is assuming that the height difference between indoor unit and outdoor unit is 0m.
2. Be sure to minimize length of connection pipes to optimize performance. If the outdoor unit is installed higher or lower than the indoor unit, it is necessary to apply height correction factor additionally to length correction factor to calculate cooling/heating.
   If outdoor unit is higher, correction should be applied to cooling capacity, if outdoor unit is lower, correction should be applied to heating capacity.

5. CAPACITIES AND SELECTION DATA

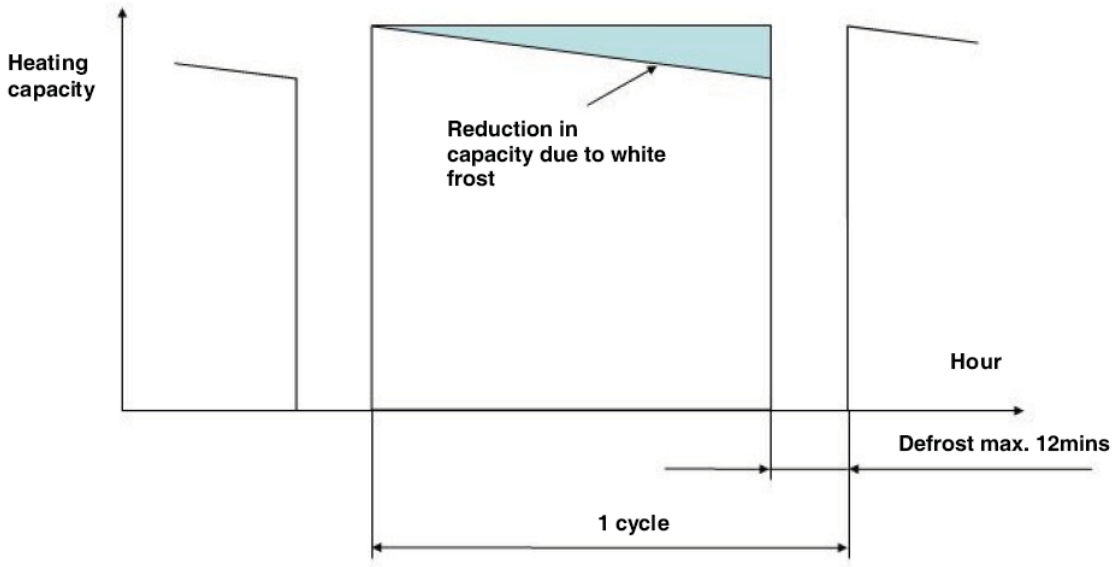
5.3 Correction factors according to defrosting operation

The heating capacity in the preceding paragraph, excludes the condition of the frost or the defrosting operation period. In consideration of the frost or the defrosting operation, the heating capacity is corrected by the equation below.

Corrected heating capacity = Defrost Correction factor x unit capacity

OUTDOOR TEMPERATURE [℉(℃)DB]	5(-15)	14(-10)	23(-5)	32(0)	44.6(7)	50(10)	59(15)
Correction factor(humidity rate 85% RH)	0.95	0.95	0.92	0.84	1.0	1.0	1.0

Correction Factor



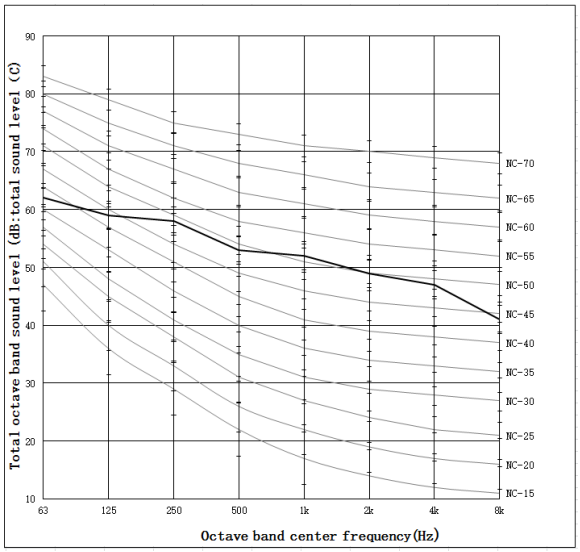
NOTE:

The correction factor is not valid for special conditions such as snowfall or operation in a transitional period.

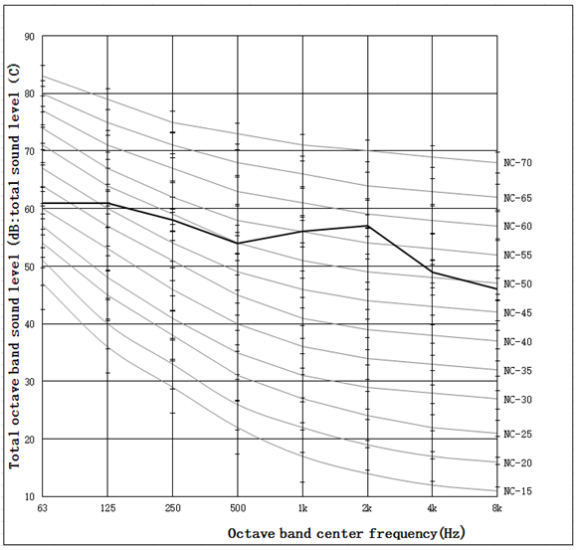
6.SOUND PRESSURE DATA

6. Sound pressure data

Model	24K
Test condition	3.28ft(1.0m) ahead of the unit; 3ft(0.92m) high from the bottom of the unit; 3.28ft(1.0m) high from the ground



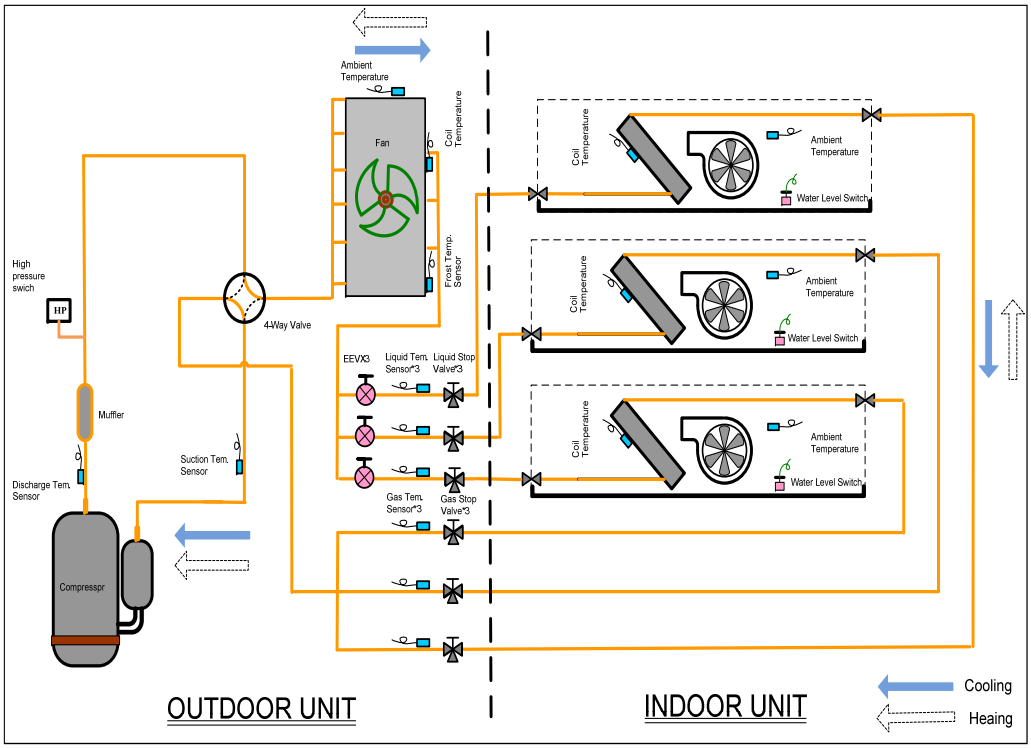
Model	36K
Test condition	3.28ft (1.0m) ahead of the unit; 1.79ft (0.546m) high from the bottom of the unit;3.28ft (1.0m) high from the ground



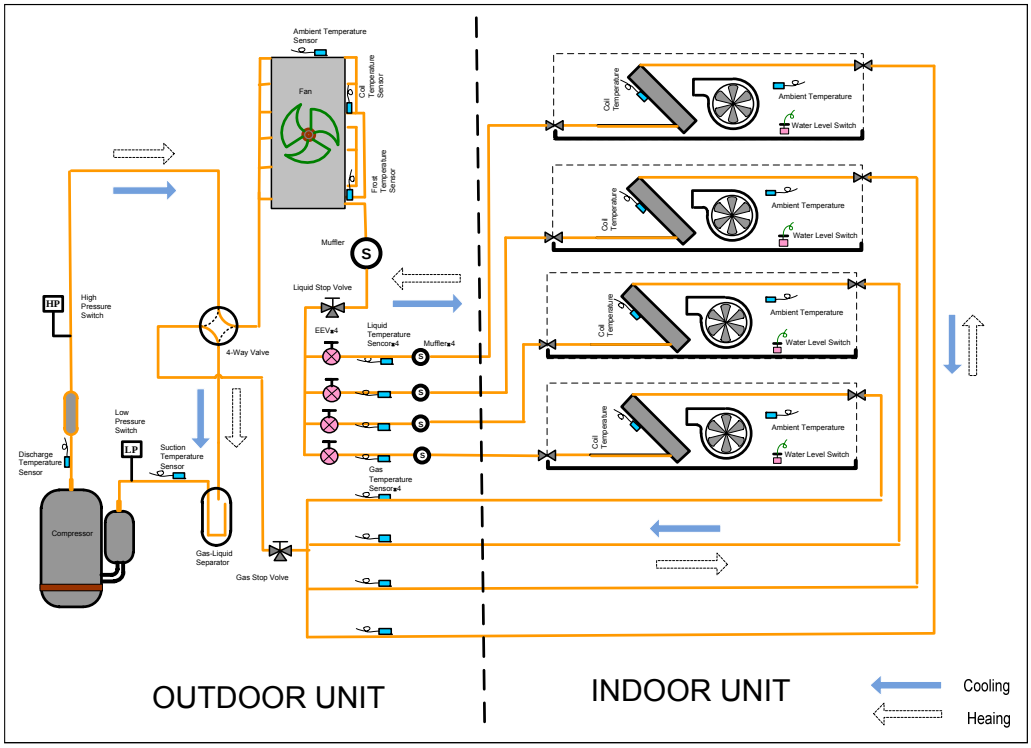
7. REFRIGERANT CYCLE

7. Refrigerant cycle

24K



36K

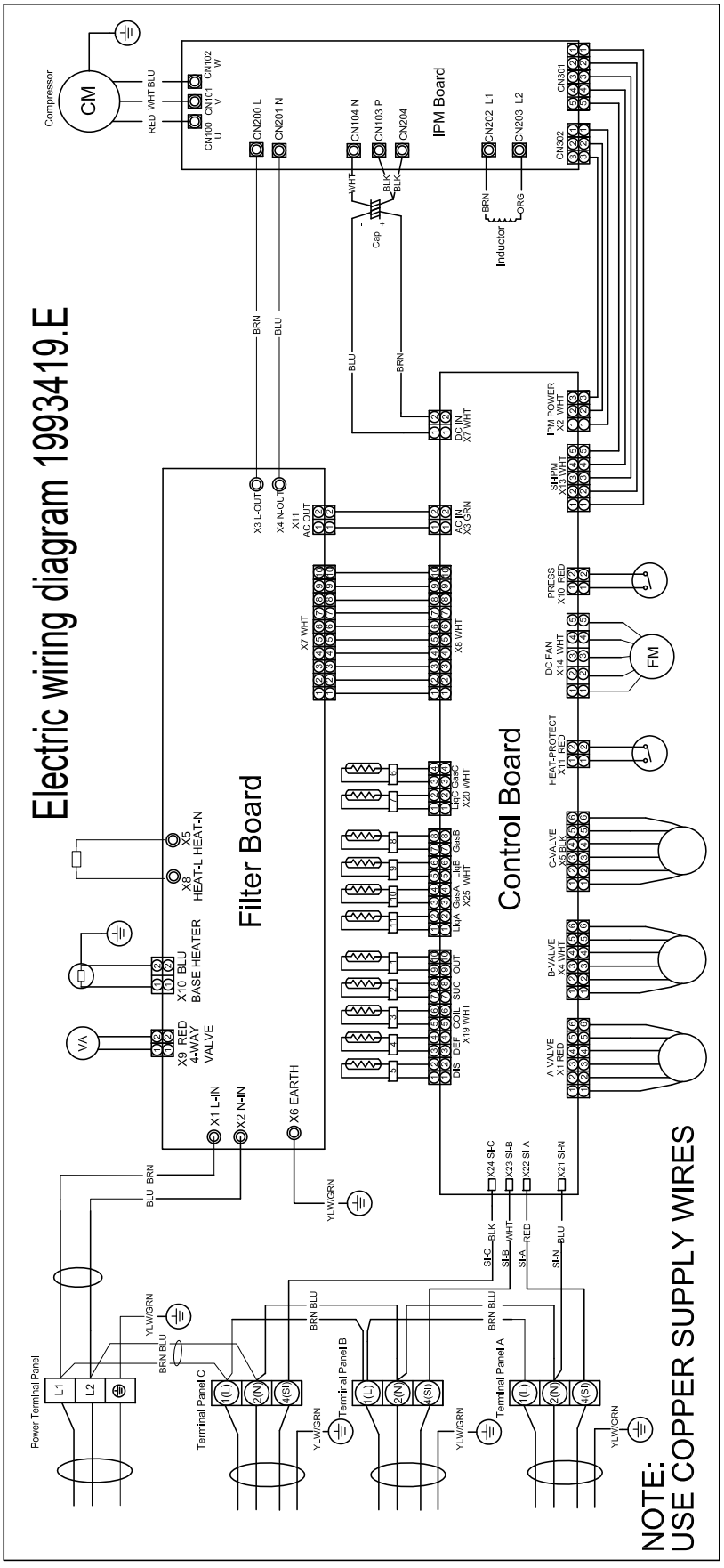


8. WIRING DIAGRAM

8. Wiring diagram

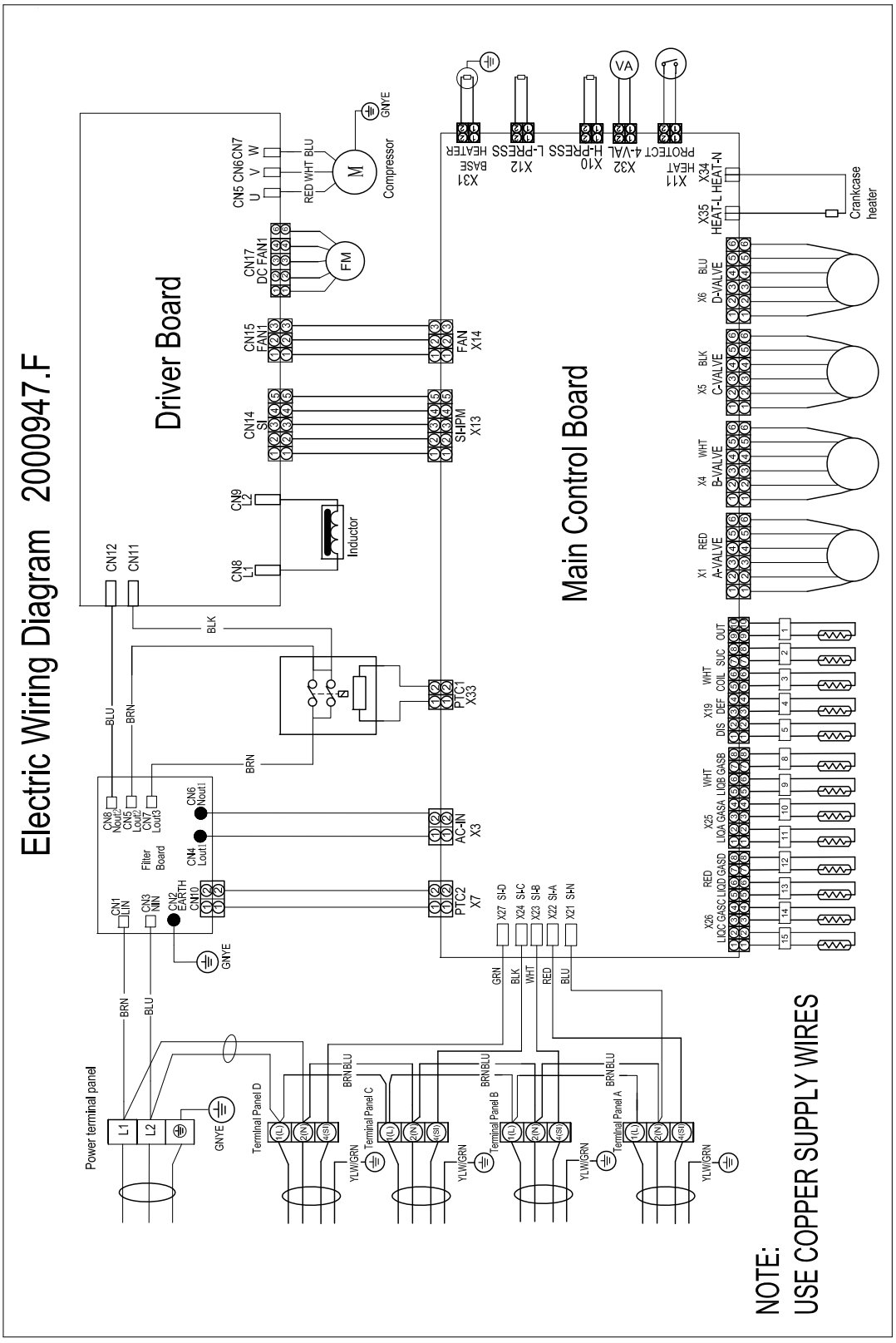
8.1 Electrical wiring diagram

24K



8. WIRING DIAGRAM

36K

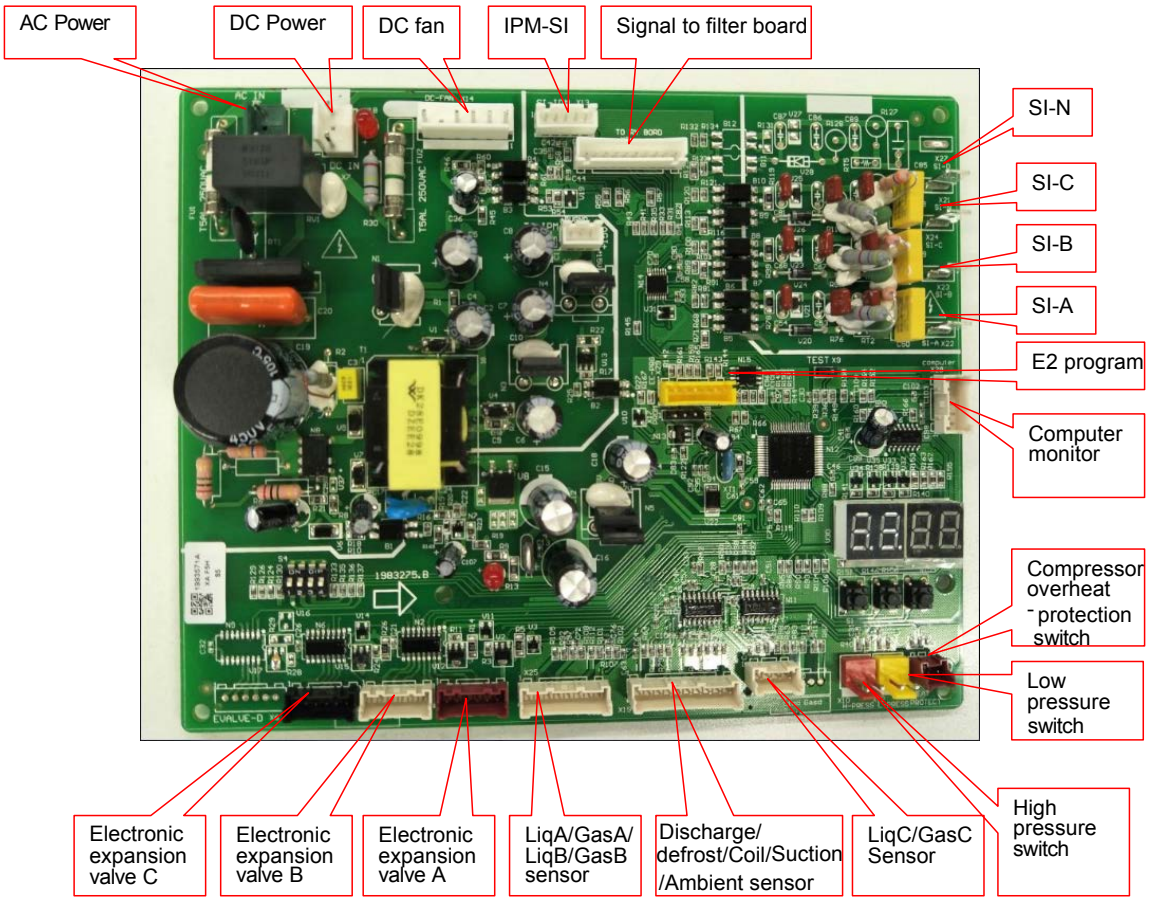


8. WIRING DIAGRAM

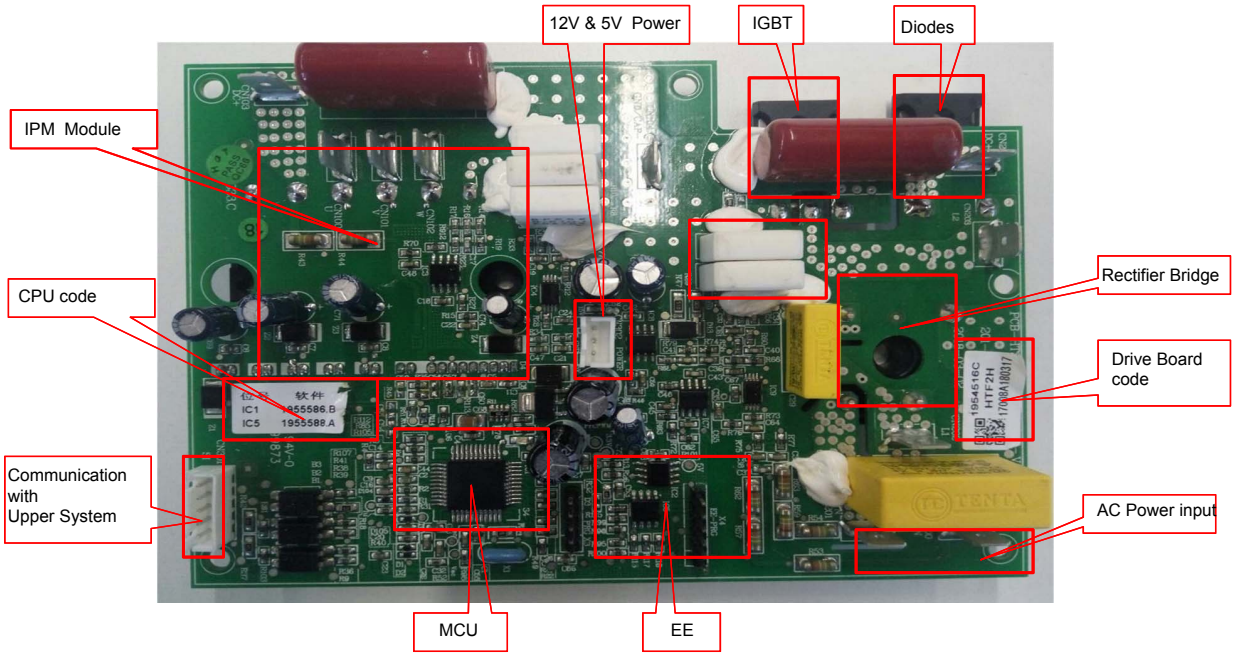
8.2 Control board picture

24K

Main control board



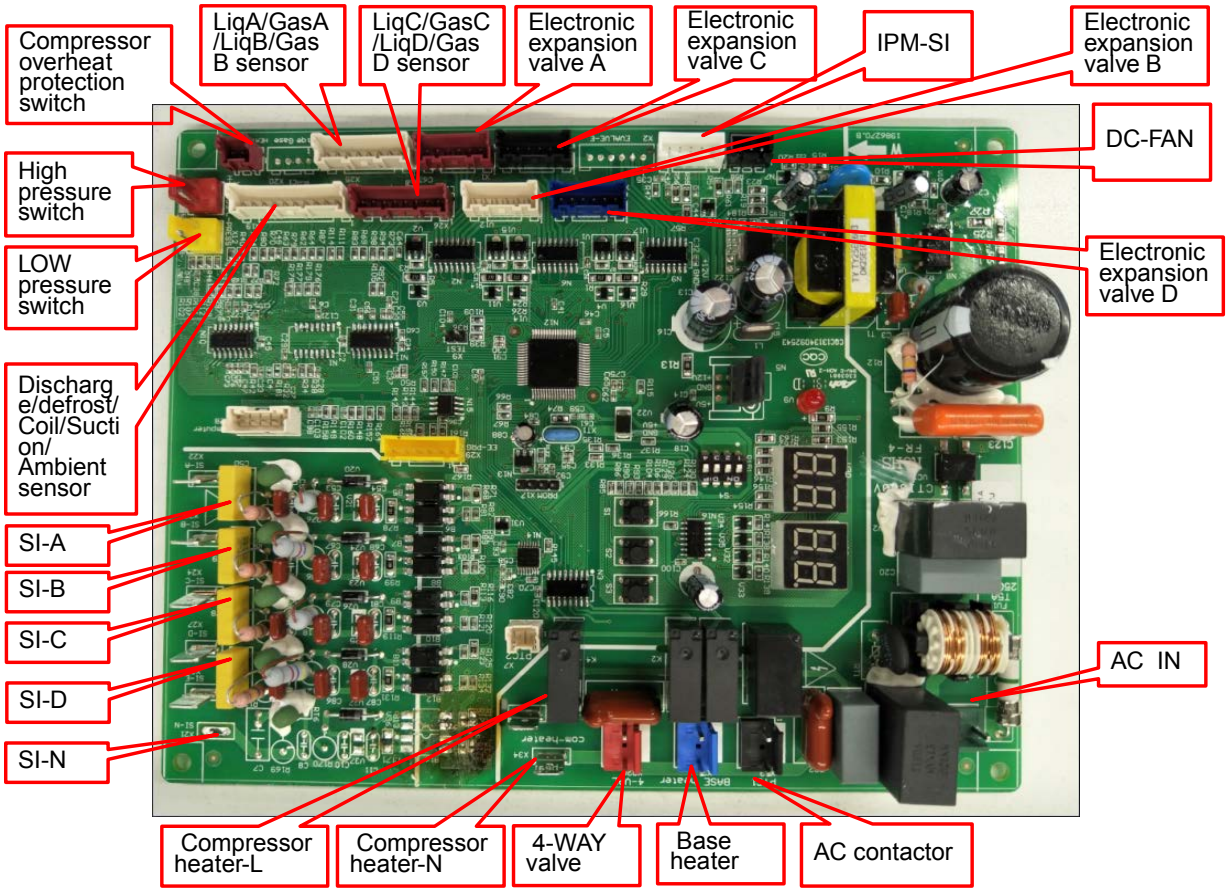
Drive board



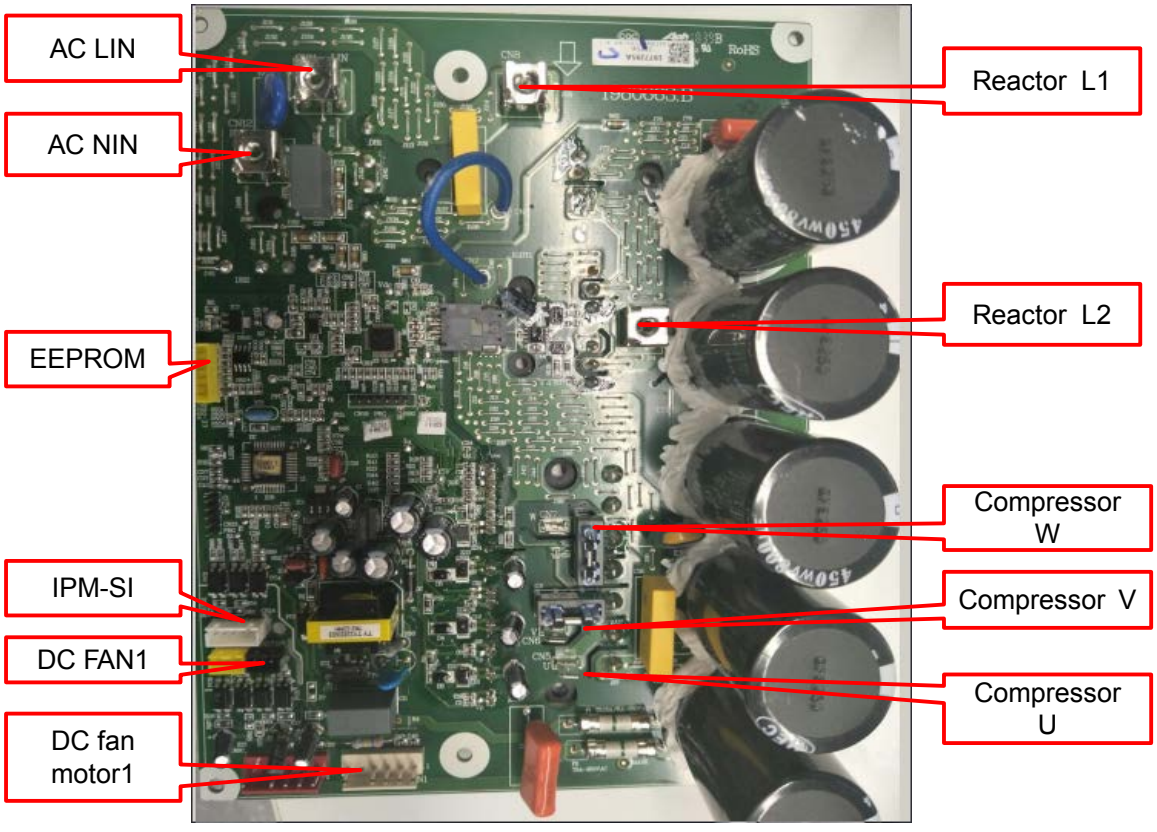
8. WIRING DIAGRAM

36K

Main control board



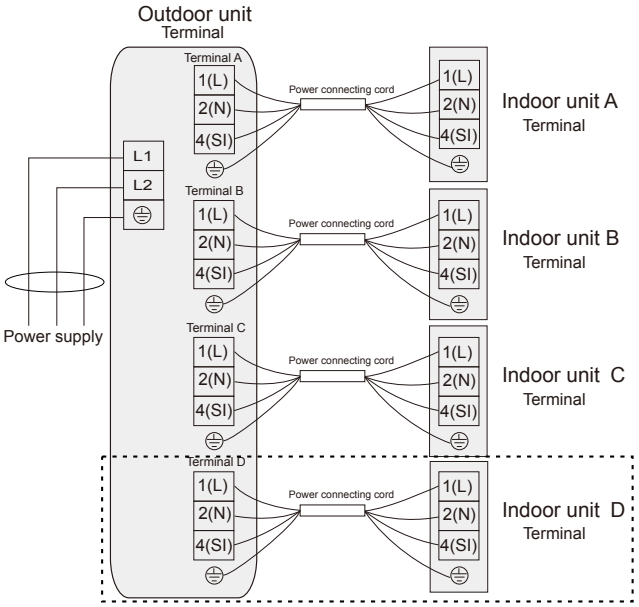
Drive board



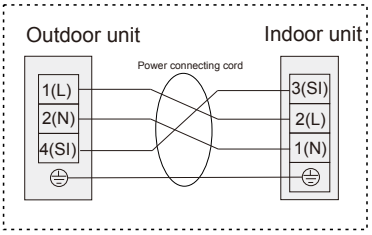
8. WIRING DIAGRAM

8.3 Common wiring

Electrical wiring diagram



Note: For some indoor units



Note:
Terminal in the circle is only valid for 36K model.

Recommend Wire Size

Electrical Data

Model Capacity	Power Supply	ELB		Power Source Cable Size	Transmitting Cable Size
		Nominal Current (A)	Nominal Sensitive Current (mA)		
24K	208/230V ~, 60Hz	30	30	12 AWG 2cable+Ground	16 AWG 3 cable+Ground
36K	208/230V ~, 60Hz	40	30	10 AWG 2cable+Ground	16 AWG 3 cable+Ground

Max. Running Current (A): REFER TO NAMEPLATE

- Use an ELB (Electric Leakage Breaker).
- Do not operate the system until all the check points have been cleared.

(A) Check to ensure that the insulation resistance is more than 2 Mega Ohm,by measuring the resistance between ground and the terminal of the electrical parts. If not, do not operate the system until the electrical leakage is found and repaired.

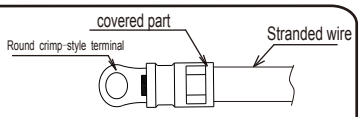
(B) Check to ensure that the stop valves of the outdoor unit are fully opened and then start the system.

8. WIRING DIAGRAM

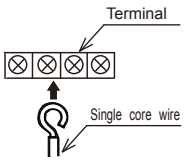
(1) Follow local codes and regulations when select field wires, and all the above are the minimum wire size.
(2) When transmitting cable length is more than 49-1/5 ft. (15 m), a larger wire size should be selected.
(3) Install main switch and ELB for each system separately. Select the high response type ELB that is acted within 0.1second.

<Attentions when Connect the power supply wiring>

1. When connecting the terminal block using stranded wire, make sure to use the round crimp-style terminal for connection to the power supply terminal block. Place the round crimp-style terminals on the wires up to the covered part and secure in place.



2. When connecting the terminal block using a single core wire, be sure to perform curing.



9. FIELD SETTING

9. Field Setting

9.1 DIP setting

Dip Switch Setting of Outdoor Unit

Mark of "■" indicates the position of dip switches.
Switch is valid when is ON.

Dip switch S4

Factory Setting	
Refrigerant Collection	
Manual Defrost	

Refrigerant collection function

By default setting is OFF.

OFF ----normal mode

ON----refrigerant collection mode

When the power is ON, the dial changed from OFF to ON, enters into refrigerant collection mode. During refrigerant recovery mode, system low pressure protect will not occurs, and compressor will stops after 5 minutes, and will turn to normal state when power on again.

Manual defrost function

By default setting is OFF.

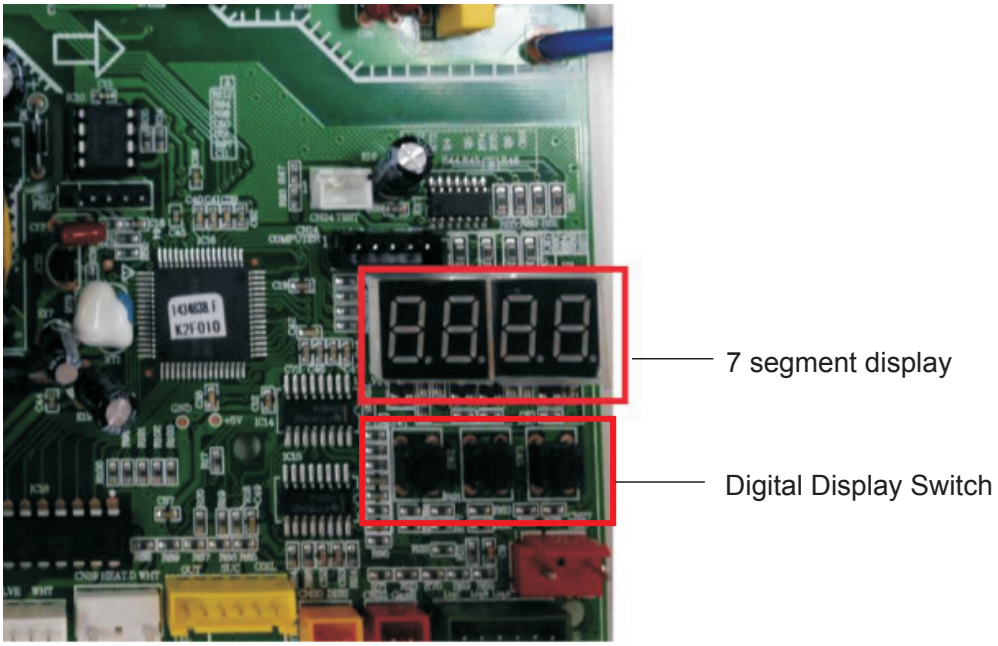
OFF ----normal mode

ON----defrost mode

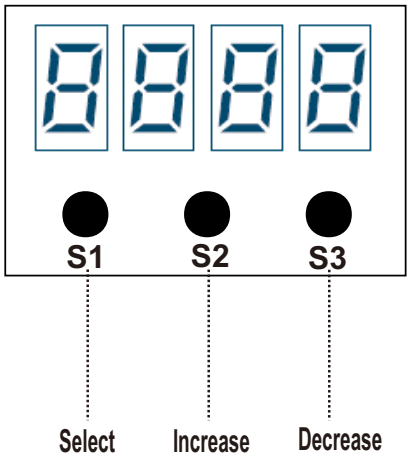
When the dial changed from OFF to ON, enters into defrost mode, and only valid once.

9.2 Running Parameter Query

Outdoor Running parameters can be checked by 7 segment display.



Outdoor control board



There are 3 buttons on the digital display board：

1) Select button: Select to display outdoor/indoor unit parameter.
   "P." -- Parameter of outdoor unit
   "A." -- Parameter of indoor unit A
   "b." -- Parameter of indoor unit B
   "C."-- Parameter of indoor unit C
   "d."-- Parameter of indoor unit D
   "E."-- Parameter of indoor unit E
2) INCREASE button：Each time it is pressed, the number rises by 1.
3) DECREASE button：Each time it is pressed, the number lowers by 1.

The parameter content will automatically displayed after the parameter code is selected for 3s.

Parameters can be checked as following table below.

Note：
(1) ●:Valid； ○: Invalid.
(2) The right is therefore reserved to EE changing without notice.

9. FIELD SETTING

Parameter	Descriptions	Dual	Trio	Quattro	1 by 5
P.0	Fault codes	●	●	●	●
P.1	Compressor actual frequency	●	●	●	●
P.2	Compressor driving frequency	●	●	●	●
P.4	Compressor target frequency	●	●	●	●
P.5	Compressor exhaust temperature	●	●	●	●
P.6	Outdoor suction Temperature	●	●	●	●
P.7	Outdoor ambient temperature	●	●	●	●
P.8	Outdoor coil temperature	●	●	●	●
P.9	Outdoor defrosting temperature	●	●	●	●
P.10	IPM module temperature	●	●	●	●
P.11	Outdoor capacity requirement	●	●	●	●
P.12	IPM fault codes	●	●	●	●
P.13	Outdoor DC Motor target speed	●	●	●	●
P.14	AC input current	●	●	●	●
P.15	AC input voltage	●	●	●	●
P.16	DC bus voltage	●	●	●	●
P.17	Compressor phase current	●	●	●	●
P.18	Frequency limit code	●	●	●	●
P.20	Target suction overheating	●	●	●	●
P.21	Target exhaust overheating	●	●	●	●
P.22	Actual suction overheating (heating)	●	●	●	●
P.23	Actual exhaust overheating (heating)	●	●	●	●
A.1	Unit A fault codes	●	●	●	●
A.2	Unit A valve actual opening	●	●	●	●
A.4	Unit A liquid pipe temperature	●	●	●	●
A.5	Unit A gas pipe temperature	●	●	●	●
A.6	Unit A coil temperature	●	●	●	●
A.7	Unit A ambient temperature	●	●	●	●
A.8	Unit A set temperature	●	●	●	●
A.9	Unit A capacity	●	●	●	●
A.10	Unit A set fan speed	●	●	●	●
A.11	Unit A actual suction overheating	●	●	●	●
B.1	Unit B fault codes	●	●	●	●
B.2	Unit B valve actual opening	●	●	●	●
B.4	Unit B liquid pipe temperature	●	●	●	●
B.5	Unit B gas pipe temperature	●	●	●	●
B.6	Unit B coil temperature	●	●	●	●
B.7	Unit B ambient temperature	●	●	●	●
B.8	Unit B set temperature	●	●	●	●
B.9	Unit B capacity	●	●	●	●
B.10	Unit B set fan speed	●	●	●	●
B.11	Unit B actual suction overheating	●	●	●	●
C.1	Unit C fault codes	○	●	●	●
C.2	Unit C valve actual opening	○	●	●	●
C.4	Unit C liquid pipe temperature	○	●	●	●
C.5	Unit C gas pipe temperature	○	●	●	●
C.6	Unit C coil temperature	○	●	●	●
C.7	Unit C ambient temperature	○	●	●	●
C.8	Unit C set temperature	○	●	●	●
C.9	Unit C capacity	○	●	●	●
C.10	Unit C set fan speed	○	●	●	●
C.11	Unit C actual suction overheating	○	●	●	●
D.1	Unit D fault codes	○	○	●	●
D.2	Unit D valve actual opening	○	○	●	●
D.4	Unit D liquid pipe temperature	○	○	●	●
D.5	Unit D gas pipe temperature	○	○	●	●
D.6	Unit D coil temperature	○	○	●	●
D.7	Unit D ambient temperature	○	○	●	●

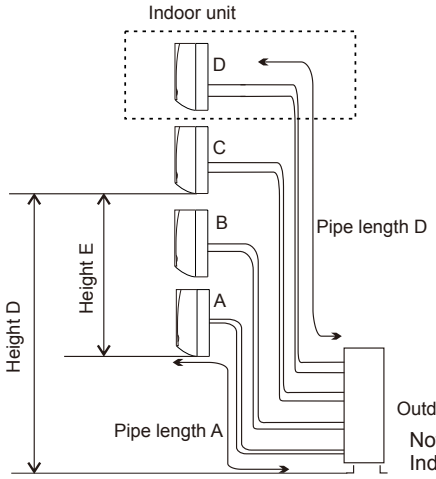
9. FIELD SETTING

Parameter	Descriptions	Dual	Trio	Quattro	1 by 5
D.8	Unit D set temperature	○	○	●	●
D.9	Unit D capacity	○	○	●	●
D.10	Unit D set fan speed	○	○	●	●
D.11	Unit D actual suction overheating	○	○	●	●
E.1	Unit E fault codes	○	○	○	●
E.2	Unit E valve actual opening	○	○	○	●
E.4	Unit E liquid pipe temperature	○	○	○	●
E.5	Unit E gas pipe temperature	○	○	○	●
E.6	Unit E coil temperature	○	○	○	●
E.7	Unit E ambient temperature	○	○	○	●
E.8	Unit E set temperature	○	○	○	●
E.9	Unit E capacity	○	○	○	●
E.10	Unit E set fan speed	○	○	○	●
E.11	Unit E actual suction overheating	○	○	○	●

10. PIPING WORK AND REFRIGERANT CHARGE

10. Piping work and refrigerant charge

10.1 MAX. length allowed



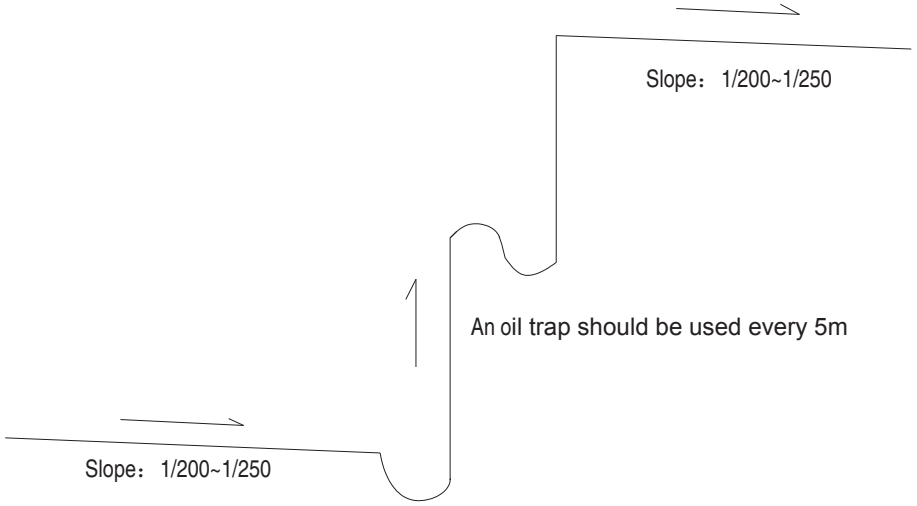
Model		24K	36K
Max. Length Between Indoor Unit and Outdoor Unit	ft./m	A≤65.6(20) B≤65.6(20) C≤65.6(20)	A≤65.6(20) B≤65.6(20) C≤65.6(20) D≤65.6(20)
Max. Length Between Indoor Unit and Outdoor Unit (Total)	ft./m	A+B+C≤ 197(60)	A+B+C+D≤ 246(75)
Max. Height Between Indoor Unit and Outdoor Unit	ft./m	D≤49(15)	D≤49(15)
Max. Height Between Indoor Units	ft./m	E≤25(7.5)	E≤25(7.5)

Note:
Indoor unit D in the circle is only valid for 36K model.

Refrigerant Additional Charge
The unit has been filled with refrigerant, but if L (total pipe length) exceeds standard length, additional refrigerant (R410A) change is required.
For 24K: Additional refrigerant charge=[L-74-4/5(22.8m)] × 0.807oz/5ft (15g/m)
For 36K: Additional refrigerant charge=[L-98-3/7(30m)] × 0.807oz/5ft (15g/m)

10.2 Oil trap

When the indoor unit is lower than outdoor unit and height is larger than 5m, an oil bend should be employed for every 5m.



10. PIPING WORK AND REFRIGERANT CHARGE

NOTE:

1. When the indoor unit is lower than outdoor unit for more than 5m, an oil bend should be employed on suction piping.

   To avoid storing too much oil in the oil bend ,the oil bend should be as short as possible.

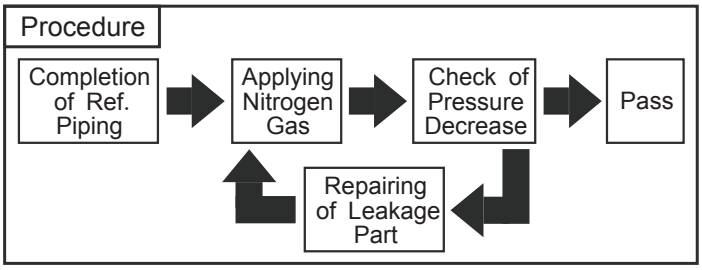
2. The horizontal piping should be slop down along the refrigerant flow direction, to bring the oil back to compressor, the slop is about 1/200 to1/250.

   In order to ensure cooling/heating performance better, the refrigerant piping should be as short and straight as possible.

10.3 Air tight test

Do use nitrogen when performing air-tight test.

Connect the gauge manifold using charging hoses with a nitrogen cylinder to the check joints of the liquid line and the gas line stop valves. Perform the air-tight test. Don't open the gas line stop valves. Apply nitrogen gas pressure of 550psig (3.8MPa).Check for any gas leakage at the flare nut connections, or brazed parts by gas leak detector or foaming agent. Gas pressure does not decrease is OK. After the air tight test, release nitrogen gas.



Air tight procedure

10. PIPING WORK AND REFRIGERANT CHARGE

10.4 Additional refrigerant charge

Although refrigerant has been charged into this unit, additional refrigerant charge is required according to piping length.

- The additional refrigerant precharge quantity should be determined and charged into the system according to the following procedure.
- Record the additional refrigerant quantity in order to facilitate maintenance and servicing activities.

Refrigerant charge before shipment (W0 (kg))

W0 is the outdoor unit refrigerant charge before shipment；

Xg is additional refrigerant outdoor unit needed to charge according to piping length during installation.

Model	Refrigerant precharged before shipment(W0(g))	Total refrigerant pipe length	
		0-75ft(22.8m)	over 75ft(22.8m)
24K	2300	0g	Xg = 0.807oz/5ft (15g/m) × [Total pipe length75ft(22.8m)]

Model	Refrigerant precharged before shipment(W0(g))	Total refrigerant pipe length	
		0-75ft(30m)	over 75ft(30m)
36K	3000g	0g	Xg = 0.807oz/5ft (15g/m)× [Total pipe length(m) -75ft(30m)]

11. CONTROL MODE

11. Control mode

1) Cooling Anti-freeze Protection

To prevent freezing caused by too low temperature of indoor evaporator, the air conditioner will implement real-time detection over the indoor coil temperature. If the indoor coil temperature is too low, the compressor will be prohibited from increasing the frequency or decrease the frequency even shut down automatically

2) Heating Overload Protection

To prevent system overload caused by excessive pressure in heating operation, the machine will implement real-time detection over the indoor fan-coil temperature:

If the indoor coil temperature grows higher, the compressor will be prohibited from increasing the frequency; If the temperature continues to rise, the compressor will decrease the frequency; If the indoor coil temperature is too high, the compressor will stop working immediately. The compressor then will reboot after the indoor coil temperature reduces.

3) Cooling Overload Protection

To prevent system overload due to excessive pressure during cooling operation, the machine will implement real-time detection over the outdoor condenser coil temperature: If the outdoor coil temperature grows higher, the compressor will be prohibited from increasing the frequency; If the temperature continues to rise, the compressor will decrease the frequency; If the outdoor fan-coil temperature is too high, then the compressor will stop working immediately. The compressor will reboot after the outdoor coil temperature reduces.

4) Discharge Temperature Protection

To prevent working conditions of compressor from deteriorating due to high discharge temperature, the machine will implement real-time detection over the discharge temperature.

If the discharge temperature grows higher, the compressor will be prohibited from increasing the frequency; if the temperature continues to rise, the compressor will decrease the frequency automatically; if the discharge temperature is too high, the compressor will stop working immediately. The compressor will then reboot when the discharge temperature returns to normal condition.

5) Oil-return Control

When the compressor continues to operate at low frequency, there will be an oil return. The compressor increases the frequency, and thus to return the oil in refrigerate system to the compressor.

6) Operation Mode

a. Mode Categori

Air conditioning mode is the operation mode set by users through remote controller, four modes are available: cooling, heating, dehumidification, as well as fan mode.

b. Mode conflict

The operating mode of outdoor unit is decided by the operating mode of the indoor unit firstly booted. Indoor unit subsequently booted will firstly determine whether it's own mode is conflict with the outdoor mode. If so, the indoor unit will automatically shut down after three beeps; If there is no conflict, the indoor unit will boot normally. The relationship of mode conflict is as follows:

Driven choice / Active mode	Cooling	Dehumidification	Heating	fan
Cooling	√	√	×	√
Dehumidification	√	√	×	√
Heating	×	×	√	×
Fan	√	√	×	√

√———Mode conflict will not happen

×———Mode conflict will happen

7) Outdoor four-way Valve Control

Four-way valve of the outdoor machine shuts down when cooling but starts when heating. The operation of heating defrosting refers to defrosting operation and, when the heating remote shutdown, the four-way valve disconnects in 50s when the compressor stops working.

8) Start-up Protection

To prevent compressor from restart frequently in the condition that system pressure has not been completely balanced, it can't be restarted within 3 minutes.

9) Pressure Protection

Pressure switch is normally kept open. When the pressure grows too high, the pressure switch will close and soft will enter pressure protection control. soft will automatically decrease the frequency. If the pressure is still unable to return to normal condition after decreasing frequency, compressor will stop and report the fault code of pressure protection.

12. SENSOR PARAMETER

12. Sensor parameter

1. THE PARAMETER OF OUTDOOR COMPRESSOR DISCHARGE TEMPERATURE SENSOR:（R_0=187.25K±6.3%；R_{100}=3.77K±2.5K；B0/100=3979K±1%）

T [°F]	T [℃]	Rmin [KΩ]	Rnom [KΩ]	Rmax [KΩ]	DR(MIN)%	DR(MAX)%
-22	-30	908.2603	985.5274	1065.1210	-7.84	7.47
-20	-29	855.3955	927.6043	1001.9150	-7.78	7.42
-18	-28	805.9244	873.4324	924.8368	-7.73	5.56
-17	-27	759.6097	822.7471	887.5944	-7.67	7.31
-15	-26	716.2320	775.3041	835.9165	-7.62	7.25
-13	-25	675.5881	730.8775	787.5529	-7.56	7.20
-11	-24	637.4902	689.2583	742.2720	-7.51	7.14
-9	-23	601.7645	650.2533	699.8601	-7.46	7.09
-8	-22	568.2499	613.6835	660.1191	-7.40	7.03
-6	-21	536.7970	579.3832	622.8658	-7.35	6.98
-4	-20	507.2676	547.1989	587.9307	-7.30	6.93
-2	-19	497.5332	516.9882	555.1565	-3.76	6.88
0	-18	453.4748	488.6192	524.3977	-7.19	6.82
1	-17	428.9819	461.9693	495.5191	-7.14	6.77
3	-16	405.9517	436.9251	486.3954	-7.09	10.17
5	-15	384.2888	413.3808	442.9105	-7.04	6.67
7	-14	363.9047	391.2386	418.9563	-6.99	6.62
9	-13	344.7169	370.4072	396.4325	-6.94	6.56
10	-12	326.6497	350.8019	375.2461	-6.88	6.51
12	-11	309.6286	332.3441	355.3104	-6.83	6.46
14	-10	293.5903	314.9620	336.5448	-6.79	6.41
16	-9	278.4719	298.5822	318.3744	-6.74	6.22
18	-8	264.2156	283.1464	302.2294	-6.69	6.31
19	-7	250.7678	268.5936	286.5448	-6.64	6.26
21	-6	238.0783	254.8686	271.7603	-6.59	6.22
23	-5	226.1003	241.9200	257.8193	-6.54	6.17
25	-4	214.7903	229.6997	244.6593	-6.49	6.11
27	-3	204.1073	218.1630	232.2612	-6.44	6.07
28	-2	194.0135	207.2681	220.5495	-6.39	6.02
30	-1	184.4732	196.9759	209.4913	-6.35	5.97
32	0	175.4533	187.2500	199.0468	-6.30	5.93
34	1	166.8952	178.0255	189.1529	-6.25	5.88
36	2	158.8023	169.3067	179.8058	-6.20	5.84
37	3	151.1467	161.0633	170.9724	-6.16	5.80
39	4	143.9026	153.2667	162.6216	-6.11	5.75
41	5	137.0455	145.8905	154.7246	-6.06	5.71
43	6	130.5528	138.9097	147.2544	-6.02	5.67
45	7	124.4033	132.3011	140.1856	-5.97	5.62
46	8	118.5769	126.0429	133.4946	-5.92	5.58
48	9	113.0550	120.1146	127.1591	-5.88	5.54
50	10	107.8202	114.4973	121.1586	-5.83	5.50
52	11	102.8560	109.1728	115.4734	-5.79	5.46
54	12	98.1470	104.1246	110.0855	-5.74	5.41
55	13	93.6787	99.3367	104.9778	-5.70	5.37
57	14	89.4378	94.7946	100.1342	-5.65	5.33
59	15	85.4114	90.4842	95.5398	-5.61	5.29
61	16	81.5875	86.3926	91.1805	-5.56	5.25
63	17	77.9551	82.5076	87.0430	-5.52	5.21
64	18	74.5034	78.8177	83.1150	-5.47	5.17

12. SENSOR PARAMETER

T [°F]	T [℃]	Rmin [KΩ]	Rnom [KΩ]	Rmax [KΩ]	DR(MIN)%	DR(MAX)%
66	19	71.2227	75.3122	79.3848	-5.43	5.13
68	20	68.1036	71.9808	75.8414	-5.39	5.09
70	21	65.1373	68.8141	72.4746	-5.34	5.05
72	22	62.3155	65.8032	69.2746	-5.30	5.01
73	23	59.6306	62.9395	66.2324	-5.26	4.97
75	24	57.0752	60.2152	63.3395	-5.21	4.93
77	25	54.6424	57.6227	60.5877	-5.17	4.89
79	26	52.3258	55.1551	57.9695	-5.13	4.85
81	27	50.1192	52.8058	55.4778	-5.09	4.82
82	28	48.0168	50.5684	53.1058	-5.05	4.78
84	29	46.0133	48.4371	50.8472	-5.00	4.74
86	30	44.1034	46.4046	48.6960	-4.96	4.71
88	31	42.2825	44.4711	46.6466	-4.92	4.66
90	32	40.5458	42.6261	44.6937	-4.88	4.63
91	33	38.8891	40.8668	42.8323	-4.84	4.59
93	34	37.3084	39.1890	41.0576	-4.80	4.55
95	35	35.7998	37.5883	39.3653	-4.76	4.51
97	36	34.3596	36.0609	37.7511	-4.72	4.48
99	37	32.9844	34.6030	36.2109	-4.68	4.44
100	38	31.6710	33.2113	34.7412	-4.64	4.40
102	39	30.4164	31.8823	33.3383	-4.60	4.37
104	40	29.2176	30.6130	31.9988	-4.56	4.33
106	41	28.0718	29.4004	30.7197	-4.52	4.29
108	42	26.9765	28.2417	29.4979	-4.48	4.26
109	43	25.9293	27.1342	28.3306	-4.44	4.22
111	44	24.9277	26.0755	27.2150	-4.40	4.19
113	45	23.9697	25.0632	26.1488	-4.36	4.15
115	46	23.0530	24.0950	25.1293	-4.32	4.12
117	47	22.1757	23.1688	24.1545	-4.29	4.08
118	48	21.3360	22.2826	23.2221	-4.25	4.05
120	49	20.5321	21.4345	22.3301	-4.21	4.01
122	50	19.7623	20.6226	21.4766	-4.17	3.98
124	51	19.0261	19.8468	20.6612	-4.14	3.94
126	52	18.3211	19.1040	19.8808	-4.10	3.91
127	53	17.6458	18.3926	19.1338	-4.06	3.87
129	54	16.9986	17.7113	18.4185	-4.02	3.84
131	55	16.3784	17.0537	17.7335	-3.96	3.83
133	56	15.7839	16.4332	17.0774	-3.95	3.77
135	57	15.2139	15.8338	16.4488	-3.92	3.74
136	58	14.6673	15.2592	15.8464	-3.88	3.71
138	59	14.1430	14.7083	15.2690	-3.84	3.67
140	60	13.6400	14.1799	14.7154	-3.81	3.64
142	61	13.1573	13.6730	14.1846	-3.77	3.61
144	62	12.6941	13.1868	13.6756	-3.74	3.57
145	63	12.2494	12.7202	13.1872	-3.70	3.54
147	64	11.8224	12.2723	12.7186	-3.67	3.51
149	65	11.4124	11.8424	12.2690	-3.63	3.48
151	66	11.0185	11.4295	11.8373	-3.60	3.45
153	67	10.6401	11.0331	11.4230	-3.56	3.41
154	68	10.2765	10.6522	11.0251	-3.53	3.38
156	69	9.9271	10.2863	10.6429	-3.49	3.35
158	70	9.5912	9.9348	10.2756	-3.46	3.32
160	71	9.2682	9.5968	9.9231	-3.42	3.29
162	72	8.9576	9.2720	9.5841	-3.39	3.26
163	73	8.6589	8.9597	9.2583	-3.36	3.23
165	74	8.3716	8.6594	8.9451	-3.32	3.19

12. SENSOR PARAMETER

T [°F]	T [℃]	Rmin [KΩ]	Rnom [KΩ]	Rmax [KΩ]	DR(MIN)%	DR(MAX)%
167	75	8.0951	8.3705	8.6440	-3.29	3.16
169	76	7.8290	8.0926	8.3544	-3.26	3.13
171	77	7.5730	7.8252	8.0758	-3.22	3.10
172	78	7.3264	7.5679	7.8078	-3.19	3.07
174	79	7.0891	7.3202	7.5499	-3.16	3.04
176	80	6.8605	7.0818	7.3018	-3.12	3.01
178	81	6.6403	6.8522	7.0629	-3.09	2.98
180	82	6.4282	6.6311	6.8329	-3.06	2.95
181	83	6.2239	6.4182	6.6115	-3.03	2.92
183	84	6.0269	6.2131	6.3982	-3.00	2.89
185	85	5.8371	6.0154	6.1928	-2.96	2.86
187	86	5.6542	5.8249	5.9949	-2.93	2.84
189	87	5.4777	5.6413	5.8042	-2.90	2.81
190	88	5.3076	5.4644	5.6205	-2.87	2.78
192	89	5.1435	5.2937	5.4433	-2.84	2.75
194	90	4.9853	5.1292	5.2726	-2.81	2.72
196	91	4.8326	4.9705	5.1079	-2.77	2.69
198	92	4.6852	4.8174	4.9492	-2.74	2.66
199	93	4.5430	4.6697	4.7960	-2.71	2.63
201	94	4.4058	4.5272	4.6483	-2.68	2.61
203	95	4.2733	4.3896	4.5058	-2.65	2.58
205	96	4.1453	4.2568	4.3683	-2.62	2.55
207	97	4.0218	4.1287	4.2355	-2.59	2.52
208	98	3.9024	4.0049	4.1074	-2.56	2.50
210	99	3.7872	3.8854	3.9837	-2.53	2.47
212	100	3.6758	3.7700	3.8643	-2.50	2.44
214	101	3.5661	3.6585	3.7512	-2.53	2.47
216	102	3.4601	3.5509	3.6419	-2.56	2.50
217	103	3.3577	3.4468	3.5362	-2.59	2.53
219	104	3.2588	3.3463	3.4341	-2.61	2.56
221	105	3.1632	3.2491	3.3353	-2.64	2.58
223	106	3.0708	3.1551	3.2398	-2.67	2.61
225	107	2.9816	3.0643	3.1475	-2.70	2.64
226	108	2.8953	2.9765	3.0582	-2.73	2.67
228	109	2.8118	2.8915	2.9717	-2.76	2.70
230	110	2.7311	2.8093	2.8881	-2.78	2.73
232	111	2.6531	2.7299	2.8072	-2.81	2.75
234	112	2.5776	2.6530	2.7289	-2.84	2.78
235	113	2.5046	2.5785	2.6531	-2.87	2.81
237	114	2.4340	2.5065	2.5798	-2.89	2.84
239	115	2.3656	2.4368	2.5087	-2.92	2.87
241	116	2.2995	2.3693	2.4400	-2.95	2.90
243	117	2.2354	2.3040	2.3733	-2.98	2.92
244	118	2.1734	2.2407	2.3088	-3.00	2.95
246	119	2.1134	2.1795	2.2463	-3.03	2.97
248	120	2.0553	2.1201	2.1858	-3.06	3.01
250	121	1.9991	2.0626	2.1271	-3.08	3.03
252	122	1.9446	2.0070	2.0702	-3.11	3.05
253	123	1.8918	1.9530	2.0151	-3.13	3.08
255	124	1.8406	1.9007	1.9617	-3.16	3.11
257	125	1.7911	1.8500	1.9099	-3.18	3.14
259	126	1.7430	1.8009	1.8597	-3.22	3.16
261	127	1.6965	1.7533	1.8110	-3.24	3.19
262	128	1.6514	1.7071	1.7638	-3.26	3.21
264	129	1.6076	1.6623	1.7180	-3.29	3.24
266	130	1.5652	1.6189	1.6736	-3.32	3.27

12. SENSOR PARAMETER

2. THE PARAMETER OF THE OTHER SENSOR IN INDOOR AND OUTDOOR UNIT：

（R_0=15K±2%；B0/100=3450K±2%）

T [°F]	T [℃]	Rmin [KΩ]	Rnom [KΩ]	Rmax [KΩ]	DR(MIN)%	DR(MAX)%
-22	-30	60.78	64.77	68.99	-6.16	6.12
-20	-29	57.75	61.36	65.16	-5.88	5.83
-18	-28	54.89	58.15	61.58	-5.61	5.57
-17	-27	52.19	55.14	58.23	-5.35	5.31
-15	-26	49.63	52.30	55.08	-5.11	5.05
-13	-25	47.21	49.62	52.13	-4.86	4.81
-11	-24	44.92	47.10	49.37	-4.63	4.60
-9	-23	42.76	44.73	46.78	-4.40	4.38
-8	-22	40.71	42.49	44.34	-4.19	4.17
-6	-21	38.77	40.38	42.05	-3.99	3.97
-4	-20	36.93	38.39	39.90	-3.80	3.78
-2	-19	35.18	36.51	37.87	-3.64	3.59
0	-18	33.53	34.74	35.97	-3.48	3.42
1	-17	31.96	33.06	34.17	-3.33	3.25
3	-16	30.48	31.47	32.49	-3.15	3.14
5	-15	29.07	29.97	30.89	-3.00	2.98
7	-14	27.73	28.56	29.39	-2.91	2.82
9	-13	26.46	27.22	27.98	-2.79	2.72
10	-12	25.26	25.95	26.64	-2.66	2.59
12	-11	24.11	24.75	25.38	-2.59	2.48
14	-10	23.03	23.61	24.19	-2.46	2.40
16	-9	21.99	22.53	23.06	-2.40	2.30
18	-8	21.01	21.51	22.00	-2.32	2.23
19	-7	20.08	20.54	20.99	-2.24	2.14
21	-6	19.19	19.62	20.04	-2.19	2.10
23	-5	18.35	18.74	19.14	-2.08	2.09
25	-4	17.55	17.92	18.29	-2.06	2.02
27	-3	16.78	17.13	17.48	-2.04	2.00
28	-2	16.06	16.38	16.71	-1.95	1.97
30	-1	15.36	15.67	15.98	-1.98	1.94
32	0	14.70	15.00	15.29	-2.00	1.90
34	1	14.08	14.36	14.64	-1.95	1.91
36	2	13.48	13.75	14.02	-1.96	1.93
37	3	12.91	13.17	13.43	-1.97	1.94
39	4	12.36	12.62	12.87	-2.06	1.94
41	5	11.85	12.09	12.34	-1.99	2.03
43	6	11.35	11.59	11.83	-2.07	2.03
45	7	10.88	11.11	11.35	-2.07	2.11
46	8	10.43	10.66	10.89	-2.16	2.11
48	9	9.999	10.230	10.450	-2.26	2.11
50	10	9.590	9.816	10.040	-2.30	2.23
52	11	9.199	9.422	9.647	-2.37	2.33
54	12	8.826	9.047	9.269	-2.44	2.40
55	13	8.470	8.689	8.910	-2.52	2.48
57	14	8.129	8.347	8.567	-2.61	2.57
59	15	7.804	8.021	8.240	-2.71	2.66
61	16	7.493	7.709	7.928	-2.80	2.76
63	17	7.196	7.412	7.630	-2.91	2.86
64	18	6.912	7.127	7.346	-3.02	2.98
66	19	6.640	6.855	7.074	-3.14	3.10
68	20	6.381	6.595	6.815	-3.24	3.23
70	21	6.132	6.347	6.567	-3.39	3.35
72	22	5.894	6.109	6.330	-3.52	3.49

12. SENSOR PARAMETER

T [°F]	T [°C]	Rmin [KΩ]	Rnom [KΩ]	Rmax [KΩ]	DR(MIN)%	DR(MAX)%
73	23	5.667	5.882	6.103	-3.66	3.62
75	24	5.449	5.664	5.886	-3.80	3.77
77	25	5.240	5.456	5.678	-3.96	3.91
79	26	5.048	5.260	5.478	-4.03	3.98
81	27	4.864	5.072	5.286	-4.10	4.05
82	28	4.687	4.891	5.101	-4.17	4.12
84	29	4.517	4.717	4.924	-4.24	4.20
86	30	4.355	4.550	4.753	-4.29	4.27
88	31	4.198	4.390	4.589	-4.37	4.34
90	32	4.048	4.236	4.431	-4.44	4.40
91	33	3.904	4.089	4.280	-4.52	4.46
93	34	3.766	3.946	4.134	-4.56	4.55
95	35	3.663	3.810	3.994	-3.86	4.61
97	36	3.506	3.679	3.859	-4.70	4.66
99	37	3.383	3.552	3.729	-4.76	4.75
100	38	3.265	3.431	3.604	-4.84	4.80
102	39	3.152	3.314	3.484	-4.89	4.88
104	40	3.043	3.202	3.368	-4.97	4.93
106	41	2.938	3.094	3.257	-5.04	5.00
108	42	2.838	2.990	3.149	-5.08	5.05
109	43	2.741	2.890	3.046	-5.16	5.12
111	44	2.648	2.793	2.946	-5.19	5.19
113	45	2.558	2.701	2.850	-5.29	5.23
115	46	2.472	2.611	2.758	-5.32	5.33
117	47	2.389	2.525	2.669	-5.39	5.40
118	48	2.309	2.443	2.583	-5.49	5.42
120	49	2.232	2.363	2.500	-5.54	5.48
122	50	2.158	2.286	2.421	-5.60	5.58
124	51	2.087	2.212	2.344	-5.65	5.63
126	52	2.018	2.140	2.269	-5.70	5.69
127	53	1.952	2.072	2.198	-5.79	5.73
129	54	1.888	2.005	2.129	-5.84	5.82
131	55	1.827	1.941	2.062	-5.87	5.87
133	56	1.767	1.880	1.998	-6.01	5.91
135	57	1.710	1.820	1.936	-6.04	5.99
136	58	1.655	1.763	1.876	-6.13	6.02
138	59	1.602	1.707	1.818	-6.15	6.11
140	60	1.551	1.654	1.762	-6.23	6.13
142	61	1.502	1.602	1.709	-6.24	6.26
144	62	1.452	1.553	1.657	-6.50	6.28
145	63	1.409	1.505	1.606	-6.38	6.29
147	64	1.364	1.458	1.558	-6.45	6.42
149	65	1.322	1.413	1.511	-6.44	6.49
151	66	1.280	1.370	1.466	-6.57	6.55
153	67	1.241	1.328	1.422	-6.55	6.61
154	68	1.202	1.288	1.379	-6.68	6.60
156	69	1.165	1.249	1.339	-6.73	6.72
158	70	1.129	1.211	1.299	-6.77	6.77
160	71	1.095	1.175	1.261	-6.81	6.82
162	72	1.061	1.140	1.224	-6.93	6.86
163	73	1.029	1.106	1.188	-6.96	6.90
165	74	0.9977	1.073	1.153	-7.02	6.94
167	75	0.9676	1.041	1.120	-7.05	7.05
169	76	0.9385	1.011	1.088	-7.17	7.08
171	77	0.9104	0.9810	1.056	-7.20	7.10
172	78	0.8833	0.9523	1.026	-7.25	7.18

12. SENSOR PARAMETER

T [°F]	T [℃]	Rmin [KΩ]	Rnom [KΩ]	Rmax [KΩ]	DR(MIN)%	DR(MAX)%
174	79	0.8570	0.9246	0.9971	-7.31	7.27
176	80	0.8316	0.8977	0.9687	-7.36	7.33
178	81	0.8071	0.8717	0.9412	-7.41	7.38
180	82	0.7834	0.8466	0.9146	-7.47	7.43
181	83	0.7604	0.8223	0.8888	-7.53	7.48
183	84	0.7382	0.7987	0.8639	-7.57	7.55
185	85	0.7167	0.7759	0.8397	-7.63	7.60
187	86	0.6958	0.7537	0.8161	-7.68	7.65
189	87	0.6755	0.7322	0.7933	-7.74	7.70
190	88	0.6560	0.7114	0.7712	-7.79	7.75
192	89	0.6371	0.6913	0.7498	-7.84	7.80
194	90	0.6188	0.6718	0.7291	-7.89	7.86
196	91	0.6011	0.6530	0.7051	-7.95	7.39
198	92	0.5840	0.6348	0.6897	-8.00	7.96
199	93	0.5674	0.6171	0.6709	-8.05	8.02
201	94	0.5514	0.6000	0.6527	-8.10	8.07
203	95	0.5359	0.5835	0.6350	-8.16	8.11
205	96	0.5209	0.5675	0.6179	-8.21	8.16
207	97	0.5064	0.5519	0.6014	-8.24	8.23
208	98	0.4923	0.5369	0.5853	-8.31	8.27
210	99	0.4787	0.5224	0.5698	-8.37	8.32
212	100	0.4655	0.5083	0.5547	-8.42	8.36
214	101	0.4528	0.4946	0.5401	-8.45	8.42
216	102	0.4404	0.4814	0.5259	-8.52	8.46
217	103	0.4284	0.4685	0.5121	-8.56	8.51
219	104	0.4168	0.4561	0.4988	-8.62	8.56
221	105	0.4056	0.4440	0.4859	-8.65	8.62
223	106	0.3947	0.4323	0.4733	-8.70	8.66
225	107	0.3841	0.4210	0.4611	-8.76	8.70
226	108	0.3739	0.4100	0.4493	-8.80	8.75
228	109	0.3640	0.3993	0.4379	-8.84	8.81
230	110	0.3544	0.3890	0.4267	-8.89	8.84
232	111	0.3450	0.3789	0.4159	-8.95	8.90
234	112	0.3360	0.3692	0.4055	-8.99	8.95
235	113	0.3272	0.3597	0.3953	-9.04	9.01
237	114	0.3187	0.3505	0.3854	-9.07	9.06
239	115	0.3104	0.3416	0.3758	-9.13	9.10
241	116	0.3024	0.3330	0.3665	-9.19	9.14
243	117	0.2947	0.3246	0.3574	-9.21	9.18
244	118	0.2871	0.3164	0.3468	-9.26	8.77
246	119	0.2798	0.3085	0.3401	-9.30	9.29
248	120	0.2727	0.3008	0.33	-9.34	9.34

13. TROUBLESHOOTING

13. Troubleshooting

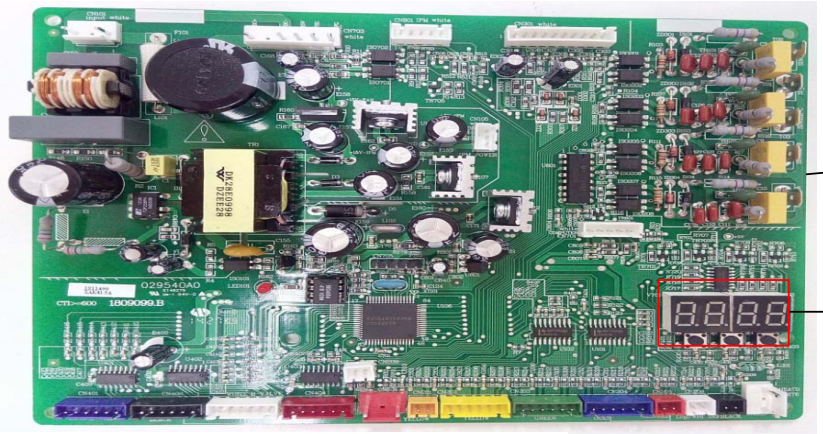
13.1 Trouble guide

When the air conditioner failure occurs, the fault code will displays on control board.

HOW TO CHECK FAULT CODES

Main control failure

Fault code will display on 7 segment display on outdoor control board.

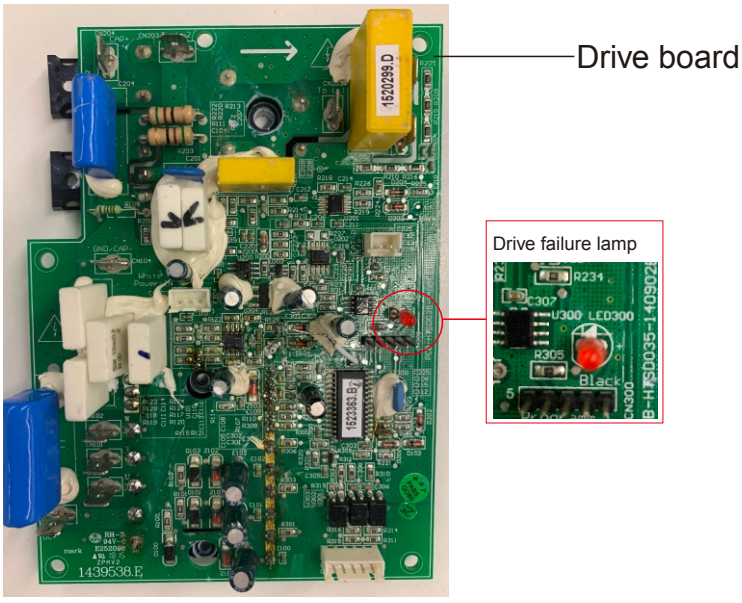


E shows failure occur	Display ERROR Code

Drive fault code display

The lamp of drive board flash shows failure occur.

The drive failure lamp flicking times shows the failure code.



The drive failure lamp flicking times shows the failure code.

13. TROUBLESHOOTING

13.2 Fault codes

The following is the fault code table of outdoor.

Sheet 1 Outdoor Fault Code

Fault code	Fault Description	Possible Reason of Abnormality	How to Deal With	REMARKS
1	Outdoor ambient temperature sensor fault	1.The outdoor ambient temperature sensor connect loose; 2.The outdoor ambient temperature sensor is failure; 3.The sampling circuit is failure	1.Reconnect the outdoor ambient temperature sensor; 2.Replace the outdoor ambient temperature sensor components; 3.Replace the outdoor control board components.	
2	Outdoor coil temperature sensor fault	1.The outdoor coil temperature sensor connect loose; 2.The outdoor coil temperature sensor is failure; 3.The sampling circuit is failure	1.Reconnect the outdoor coil temperature sensor; 2.Replace the outdoor coil temperature sensor components; 3.Replace the outdoor control board components.	
3	The unit over-current turn off fault	1. Control board current sampling circuit is failure; 2. The current is over high because of the supply voltage is too low 3. The compressor is blocked 4. Overload in cooling mode 5. Overload in heating mode	1. Replace the electrical control board components; 2. Normally protection 3. Replace the compressor 4. Please see the Note 3 5. Please see the Note 4	
4	EEprom Data error	1.EE components is failure; 2.EE components control circuit failure; 3.EE components insert incorrect	1.Replace the EE components; 2.Replace the outdoor control board components; 3.Reassembly the EE components.	
5	Cooling freezing protection (the indoor coil temperature is too low) or heating overload (indoor coil temperature is too high)	1.The indoor unit can not blow air normally; 2.The room temperature is too low in cooling mode or the room temperature is too high in heating; 3.The filter is dirty; 4.The duct resistance is too high to result in low air flow; 5.The setting fan speed is too low; 6. The indoor unit is not standard installed, air inlet is too near with air outlet .	1.Check the indoor fan, indoor fan motor and evaporator whether normally; 2. Normally protection; 3.Clean the filter; 4.Check the volume control valve, duct length etc.; 5.Set the speed with high speed; 6.Reinstall the indoor unit refer to the user manual to change the distance between the indoor unit and the wall or ceiling.	
7	The communication fault between the indoor unit and outdoor unit	1.The connection cable connect wrong between the indoor unit and outdoor unit; 2.The communication cable connect loose; 3.The communication cable is fault; 4.The indoor control board is fault; 5.The outdoor control board is fault; 6.Communication circuit fuse open; 7.The specification of communication cable is incorrect.	1.Reconnect the connection cable refer to the wiring diagram; 2.Reconnect the communication cable; 3.Replace the communication cable; 4.Replace the indoor control board; 5.Replace the outdoor control board; 6.Check the communication circuit, adjust the DIP switch and the short-circuit fuse. 7.Choose suitable communication cable refer to the user manual	

13. TROUBLESHOOTING

Fault code	Fault Description	Possible Reason of Abnormality	How to Deal With	REMARKS
12	voltage absent phase	Three-phase power is abnormal; The outdoor wiring connect wrong; The outdoor control board is failure.	1. Normally protection 2. Check the wiring connection refer to the wiring diagram; 3. Replace the outdoor control board	Application of three-phase power supply models
13	Compressor overheat protector device	1. The wiring of the overload protector connect loose. 2. The overload protector is failure . 3. The refrigerant is not enough; 4. The installation pipe is too long than normal, but not add the enough refrigerant; 5. The expansion valve is failure; 6. The outdoor control board is failure	1. Reconnect the wiring of the overload protector; 2. Replace the overload protector; 3. Check the welding point of the unit to confirm whether it is leakage, and then recharge the refrigerant; 4. Add the refrigerant; 5. Replace expansion valve; 6. Replace the outdoor control board.	
14	the high pressure switch operate or the unit turn off for high pressure protection	1.The wiring of the high pressure protector connect loose; 2.The high pressure protector is failure; 3.The outdoor control board is abnormal; 4. Overload in cooling; 5. Overload in heating.	1.Reconnect the wiring the high pressure protector; 2. Replace the high pressure protector; 3. Replace the outdoor control board; 4. Please refer to the Note 3; 5. Please refer to the Note 4.	Applied to models with high pressure switch or pressure sensor
15	the low pressure switch protection or the unit turn off for low pressure protection	1. The wiring of the low pressure switch connect loose; 2. The low pressure switch is failure; 3.The refrigerant is not enough; 4.The expansion valve failure in heating mode; 5.The outdoor control board is abnormal.	1. Reconnect the wiring of the low pressure switch; 2. Replace the low pressure switch; 3.Check the welding point to confirm whether the unit is leakage, and then add some refrigerant; 4. Replace the expansion valve; 5. Replace the outdoor control board.	Applied to models with low pressure switch or pressure sensor
16	overload protection in cooling mode	System overload	Please refer to the Note 3.	
17	Discharge temperature sensor fault	1.The wiring of the discharge temperature sensor connect loose; 2.The discharge temperature sensor is failure; 3.The sampling circuit is abnormal.	1.Reconnect the wiring of the discharge temperature sensor; 2.Replace the discharge temperature sensor; 3.Replace the outdoor control board.	
18	AC voltage is abnormal	1.The AC voltage>275V or <160V. 2.The AC voltage of sampling circuit on the driver board is abnormally	1. Normally protection, please check the supply power; 2. Replace the driver board.	
19	Suction temperature sensor fault	1.The wiring of the suction temperature sensor connect loose; 2. The suction temperature sensor is failure; 3. The sampling circuit is abnormally	1.Reconnect the wiring of the suction temperature sensor; 2.Replace the suction temperature sensor; 3.Replace the outdoor control board.	
22	The defrosting sensor fault	1.The wiring of the defrosting sensor connect loose; 2.The defrosting sensor is failure; 3.The sampling circuit is abnormally	1. Reconnect the wiring of the defrosting sensor; 2. Replace the defrosting sensor; 3. Replace the outdoor control board.	
23	Expansion valve A tube (thin) sensor fault	1. The wiring of the sensor for the expansion valve A(thin tube) connect loose; 2. The sensor for the expansion A(thin tube) is failure; 3. The sampling circuit is abnormally	1. Reconnect the wiring of the sensor for the expansion valve A (thin tube); 2. Replace the sensor for the expansion valve A (thin tube); 3. Replace the outdoor control board.	

13. TROUBLESHOOTING

Fault code	Fault Description	Possible Reason of Abnormality	How to Deal With	Remarks
24	Expansion valve B (thin)tube sensor fault	1. The wiring of the sensor for the expansion valve B (thin tube) connect loose; 2.The sensor for the expansion valve B(thin tube) is failure; 3.The sampling circuit is abnormally	1. Reconnect the wiring of the sensor for the expansion valve B(thin tube); 2.Replace the sensor for the expansion valve B(thin tube); 3. Replace the outdoor control board.	
25	Expansion valve C (thin)tube sensor fault	1. The wiring of the sensor for the expansion valve C(thin tube) connect loose; 2.The sensor of the expansion valve C (thin tube) is failure; 3.The sampling circuit is abnormally	1. Reconnect the wiring of the sensor for the expansion valve C(thin tube); 2. Replace the sensor for the expansion valve C(thin tube); 3. Replace the outdoor control board.	
26	Expansion valve D (thin)tube sensor fault	1.The wiring of the sensor for the expansion valve D(thin tube) connect loose; 2.The sensor of the expansion valve D (thin tube) is failure; 3.The sampling circuit is abnormally	1. Reconnect the wiring of the sensor for the expansion valve D(thin tube); 2. Replace the sensor for the expansion valve D (thin tube); 3. Replace the outdoor control board.	
27	Expansion valve A (thick tube) sensor fault	1. The wiring of the sensor for the expansion valve A (thick tube) connect loose; 2.The sensor of the expansion valve A (thick tube) is failure; 3.The sampling circuit is abnormally	1. Reconnect the wiring of the sensor for the expansion valve A (thick tube); 2. Replace the sensor for the expansion valve A (thick tube); 3. Replace the outdoor control board.	
28	Expansion valve B (thick tube) sensor fault	1. The wiring of the sensor for the expansion valve B (thick tube) connect loose; 2. The sensor of the expansion valve B (thick tube) is failure; 3. The sampling circuit is abnormally	1. Reconnect the wiring of the sensor for the expansion valve B(thick tube); 2. Replace the sensor for the expansion valve B (thick tube); 3. Replace the outdoor control board.	
29	Expansion valve C (thick tube) sensor fault	1. The wiring of the sensor for the expansion valve B(thick tube) connect loose; 2. The sensor of the expansion valve C (thick tube) is failure; 3. The sampling circuit is abnormally	1. Reconnect the wiring of the sensor for the expansion valve B (thick tube); 2. Replace the sensor for the expansion valve C (thick tube); 3. Replace the outdoor control board.	
30	Expansion valve D (thick tube) sensor fault	1. The wiring of the sensor for the expansion valve B(thick tube) connect loose; 2.The sensor of the expansion valve D (thick tube) is failure; 3. The sampling circuit is abnormally	1. Reconnect the wiring of the sensor for the expansion valve B (thick tube); 2. Replace the sensor for the expansion valve D (thick tube); 3. Replace the outdoor control board.	
45	IPM fault	There are many reasons for this failure, If you need further analysis, fault code of the driver board is needed by watching the driver board fault led. Analysis can be further to know why and how to operate. Specific see table 5, table 6.	See attached "analysis of the driving board fault".	

13. TROUBLESHOOTING

Fault code	Fault Description	Possible Reason of Abnormality	How to Deal With	REMARKS
46	IPM and control board communication fault	1.The cable between the control board and the driver board connect loose; 2.The cable between the control board and the driver board is failure; 3.The driver board is failure ; 4.The control board is failure.	1.Reconnect the cable between the control board and the driver board; 2.Replace the communication cable between the control board and the driver board; 3.Replace the driver board; 4.Replace the control board.	
47	Discharge temperature too high fault	1. The refrigerant of the unit is not enough; 2.The refrigerant of the unit is not enough due to add the length of the installation pipe 3.Throttling service is failure; 4.The outdoor ambient temperature is too high	1.Check the welding point to confirm whether the unit has exist leakage point, and then add some refrigerant. 2.Add some refrigerant refer to the installation user manual; 3.Replace the throttling service (such as capillary, expansion valve) 4. Normally protection.	
48	the outdoor DC fan motor fault (upper fan motor)	1.The wiring of the up DC fan motor connect loose; 2. The cord of the up DC fan motor is failure; 3.The up DC fan motor is failure; 4. The drive circuit of the up DC fan motor is failure; 5. The outdoor fan has been blocked.	1.Reconnect the wiring of the up DC fan motor; 2.Replace the up DC fan motor; 3. Replace the up DC fan motor; 4.Replace the driver board of the fan motor; 5. Check the outdoor fan and ensure the outdoor fan can run normally.	
49	the outdoor DC fan motor fault (down fan motor)	1.The wiring of the down DC fan motor connect loose; 2.The cord of the down DC fan motor is failure; 3. The down DC fan motor is failure; 4. The drive circuit of the down DC fan motor is failure; 5. The outdoor fan has been blocked.	1. Reconnect the wiring of the down DC fan motor; 2. Replace the down DC fan motor; 3. Replace the down DC fan motor; 4. Replace the driver board of the fan motor; 5. Check the outdoor fan and ensure the outdoor fan can run normally.	
91	The unit turn off due to the IPM board over heating fault	1.The outdoor ambient is too high; 2.The speed of the out fan motor is too low if the fan motor is AC fan motor; 3.The outdoor unit has been installed without standard; 4.The supply power is too low.	1. Normally protection; 2. Check the fan capacitor, and replace the fan capacitor if it is failure; 3. Reinstalled the outdoor unit refer to the installation user manual; 4.Normally protection.	
96	the refrigerant of the unit is not enough fault	The refrigerant of the unit is not enough	Discharge the refrigerant and charge the refrigerant refer to the rating label	
97	4-way valve commutation failure fault	1.The wiring of the 4-way valve coil connect loose; 2.The 4-way valve coil is failure; 3.The 4-way valve is failure; 4.The driver board of the 4-way valve is failure	1. Reconnect the wiring of the 4-way valve; 2. Replace the 4-way valve coil; 3. Replace the 4-way valve; 4.Replace the driver board of the 4-way valve.	

13. TROUBLESHOOTING

NOTE 1:

If the indoor unit can not turn on or the indoor unit turn off itself after 30s, at the same time the unit do not display the fault code, please check the fire and the socket of the control board.

Note 2:

If the indoor unit display the 75,76,77,78 fault code after you turn on the unit, please check the TEST seat of the indoor control board or the TEST detection circuit whether exists short circuit.

Note 3:Overload in cooling mode

	overload in cooling mode	
sr.	The root cause	Corrective measure
1	The refrigerant is excessive	Discharge the refrigerant, and recharge the refrigerant refer to the rating label
2	The outdoor ambient temperature is too high	Please use within allowable temperature range
3	The air outlet and air inlet of the outdoor unit is short-circuit	Adjust the installation of the outdoor unit refer to the user manual
4	The outdoor heat exchanger is dirty, such as condenser	Clean the heat exchanger of the outdoor unit, such as condenser
5	The speed of the outdoor fan motor is too low	Check the outdoor fan motor and fan capacitor
6	The outdoor fan is broken or the outdoor fan is blocked	Check the outdoor fan
7	The air inlet and outlet has been blocked	Remove the blocked thing
8	The expansion valve or the capillary is failure	Replace the expansion valve or the capillary

Note 4:Over load in heating mode

	Overload in heating mode	
sr.	The root cause	Corrective measure
1	The refrigerant is excessive	Discharge the refrigerant, and recharge the refrigerant refer to the rating label
2	The indoor ambient temperature is too high	Please use within allowable temperature range
3	The air outlet and air inlet of the indoor unit is short-circuit	Adjust the installation of the indoor unit refer to the user manual
4	The indoor filter is dirty	Clean the indoor filter
5	The speed of the indoor fan motor is too low	Check the indoor fan motor and fan capacitor
6	The indoor fan is broken or the outdoor fan is blocked	Check the indoor fan
7	The air inlet and outlet has been blocked	Remove the blocked thing
8	The expansion valve or the capillary is failure	Replace the expansion valve or the capillary

13. TROUBLESHOOTING

Sheet 5 Drive Fault code

Fault code	Fault Description	Possible Reason of Abnormality	How to Deal With
1	Q axis current detection, step out of failure	1. compressor wire connect not well; 2. Bad driver board components; 3. Compressor start load is too large; 4.Compressor demagnetization; 5.Compressor oil shortage, serious wear of crankshaft.; 6.The compressor insulation fault	1. Check compressor wire; 2. Change driver board ; 3. Turn on the machine after pressure balance again; 4. Change Compressor; 5. Change the Compressor; 6. Change the Compressor.
2	Phase current detection, out of step	1.Compressor voltage default phase; 2.Bad driver board components; 3.The compressor insulation fault	1.Check compressor wire connection; 2.Change the driver board; 3.Change the Compressor.
3	Initialization, phase current imbalance	Bad driver board components.	Change driver board .
4	Speed estimation, step out of failure	1.Bad driver board components; 2.Compressor shaft clamping; 3.The compressor insulation fault.	1.Change driver board ; 2.Change the Compressor ; 3.Change the Compressor .
5	IPM FO output fault	1.System overload or current overload. 2.Driver board fault; 3. Compressor oil shortage,serious wear of crankshaft; 4.The compressor insulation fault.	1.Check the air-conditioner system; 2.Change the driver board; 3.Change the Compressor; 4. Change the Compressor.
6	Communication between driver board and control board fault	1.Communication wire connect not well; 2.Driver board fault; 3.Control board fault;	1.Check compressor wire connect. 2.Change the driver board; 3.Change the control board ;
7	AC voltage,overload voltage	1.Supply voltage input too high or too low; 2.Driver board fault;	1.Check power supply; 2.Change the driver board;
8	DC voltage,overload voltage	1.Supply voltage input too high ; 2.Driver board fault;	1.Check power supply; 2.Change the driver board;
9	AC voltage imbalance	Driver board fault;	Change the driver board;
10	The PFC current detection circuit fault before compressor is ON	Bad driver board components;	Change the driver board
11	AC voltage supply in outrange	1.Power supply abnormal, power frequency out of range; 2.Driver board fault;	1.Check the system; 2.Change the driver board;
12	Products of single-phase PFC over-current, FO output low level	1.System overload, current too large; 2.Driver board fault; 3.PFC fault.	1.Check the system; 2.Change the driver board; 3.Change PFC.
	Inverter over current (3-phase power supply air conditioners)	1.System overload, current too large; 2.Driver board fault; 3.Compressor oil shortage, serious wear of crankshaft; 4.The compressor insulation fault.	1.Check the system; 2.Change the driver board; 3.Change the Compressor; 4.Change the Compressor.
13	Inverter over current	1.System overload, current too large; 2.Driver board fault; 3.Compressor oil shortage,serious wear of crankshaft; 4.The compressor insulation fault.	1.Check the system; 2.Change the driver board; 3.Change the Compressor; 4.Change the Compressor.
14	PFC over current(single-phase air-conditioner)	1.System overload, current too large; 2.Driver board fault; 3.PFC fault.	1.Check the system; 2.Change the driver board; 3.Change PFC.
	Phase imbalance or phase lacks or the instantaneous power failure (only for 3-phase power supply air conditioners)	1.3-Phase voltage imbalance; 2.The 3-phase power supply phase lost; 3.Power supply wiring wrong; 4.Driver board fault.	1,Check the power supply; 2.Check the power supply; 3.Check the power supply wiring connect; 4.Change the driver board.
15	The instantaneous power failure detection	1.The power supply is not stable ; 2.The instantaneous power failure ; 3.Driver board fault;	1.Check the power supply. 2.Not fault. 3.Change the driver board;

13. TROUBLESHOOTING

Fault code	Fault Description	Possible Reason of Abnormality	How to Deal With
16	DC voltage is too low	1.Voltage input too low ; 2.Driver board fault.	1.Check the power supply. 2.Change the driver board.
18	Driver board read EE data error	1.EEPROM has no data or data error; 2.EEPROM circuit fault.	1,Change EEPROM component; 2,Change the driver board.
19	PFC chip receive data fault	Abnormal communication loop	Change the drive board.
20	PFC soft start abnormal	Abnormal PFC drive loop	Change the drive board.
21	The compressor drive chip could not receive data from PFC chip.	Communication loop fault.	Change the drive board.

14.CHECKING COMPONENTS

14.Checking components

14.1 Check refrigerant system

TEST SYSTEM FLOW

Conditions: ① Compressor is running.

② The air condition should be installed in good ventilation.

Tool: Pressure Gauge

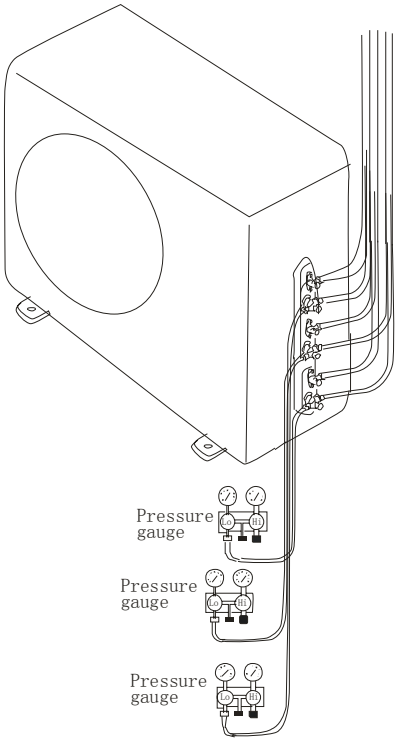
Technique: ① see ② feel ③ test

SEE ----- Tube defrost.

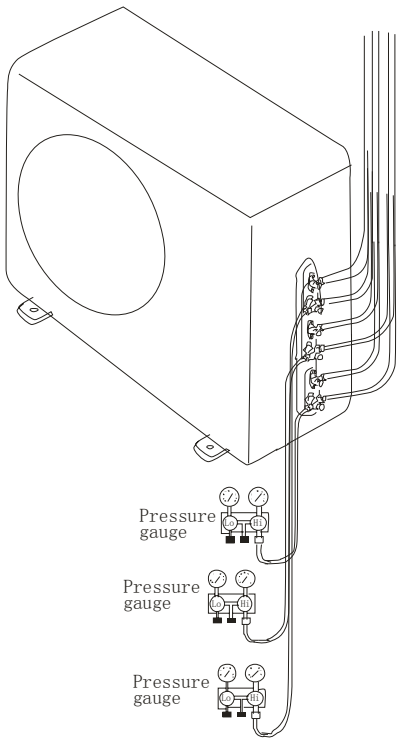
FEEL ----- The difference between tube's temperature.

TEST ----- Test pressure.

cooling run

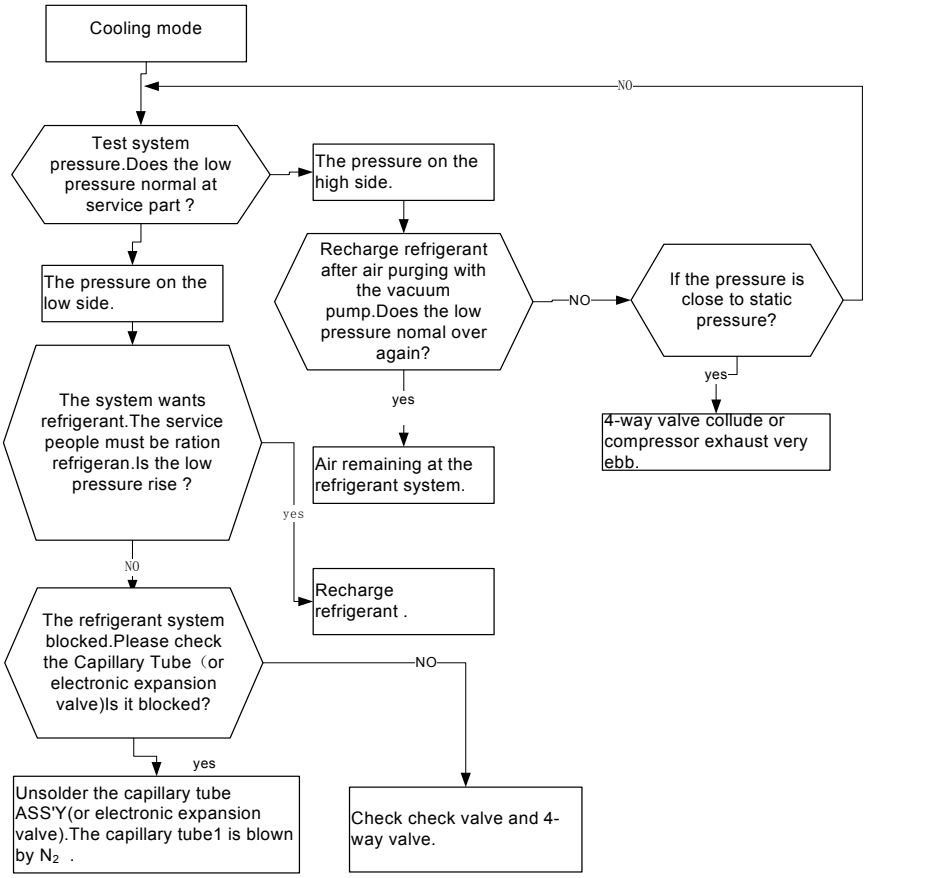


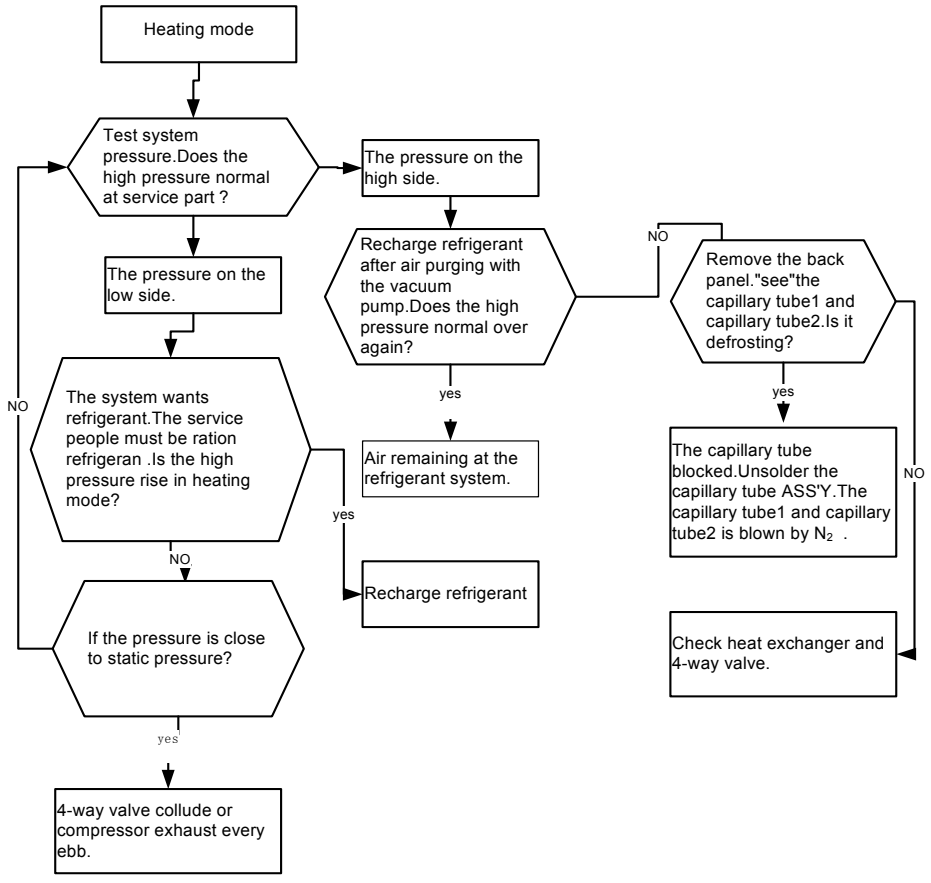
heating run



14.CHECKING COMPONENTS

Test system flow





14.CHECKING COMPONENTS

14.2 Check parts unit

1. Fan motor

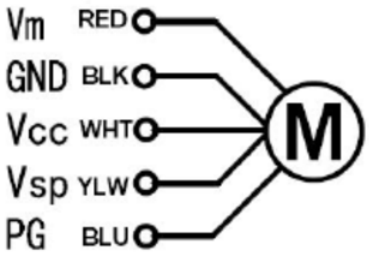
DC motor

24K

MODEL:SIC-71FW-D8121-136K

36K

MODEL:SIC-81FW-F1138-1



2. Compressor

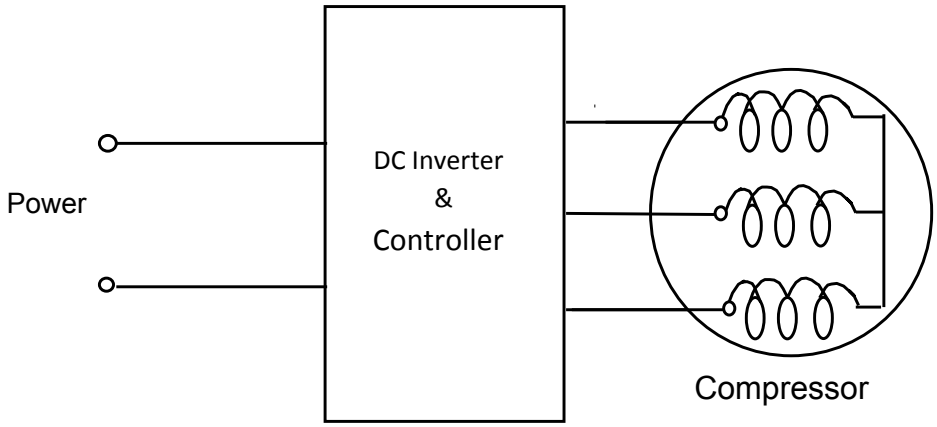
COMPRESSOR EXAMINE AND REPAIR

24K

Model: EATF250D22UMT

36K

Model: EATF400D64UMTA



14.CHECKING COMPONENTS

Test in resistance.

TOOL: Multimeter.

Test the resistance of the winding. The compressor is fault if the resistance of winding 0(short circuit)or∞（open circuit）

Familiar error:

1)Compressor motor lock.

2)Discharge pressure value approaches static pressure value .

3)Compressor motor winding abnormality.

Notes：

1) Don't put a compressor on its side or turn over.

2) Please assembly the compressor in your air conditioner rapidly after removing the plugs. Don't place the comp. In air for along time.

3) Avoiding compressor running in reverse caused by connecting electrical wire incorrectly.

4) Warning! In case AC voltage is impressed to compressor, the compressor performance will below because of its rotor magnetic force decreasing.

4. Inductance

Familiar error:

1) Sound abnormality

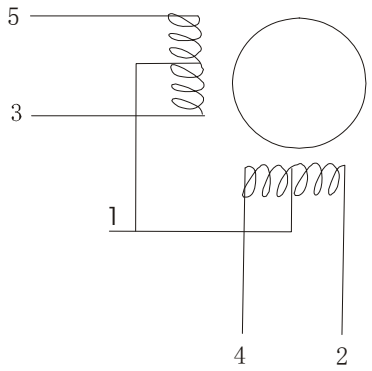
2) Insulation resistance disqualification.

5. Step motor

Test in resistance.

TOOL: Multimeter.

Test the resistance of winding. The stepper motor is fault if the resistance of winding 0(short circuit)or∞（open circuit）.



14.CHECKING COMPONENTS

6. FUSE

Checking continuity of fuse on PCB ASS'Y.

Remove the PCB ASS'Y from the electrical component box. Then pull out the fuse from the PCB ASS'Y (Fig.1)

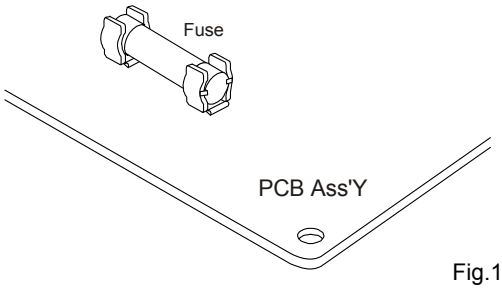


Fig.1

2) Check for continuity by a multimeter as shown in Fig.2.

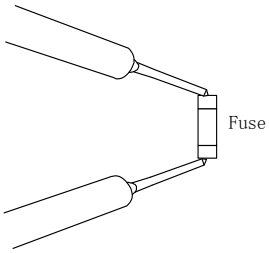


Fig.2

7.CAPACITOR

1) Remove the lead wires from the capacitor terminals, and then place a probe on the capacitor terminals as shown in Fig.3.

2) Observe the deflection of the pointer, setting the resistance measuring range of the multimeter to the maximum value.

3) The capacitor is "good" if the pointer bounces to a great extent and then gradually returns to its original position.

4) The range of deflection and deflection time differ according to the capacity of the capacitor.

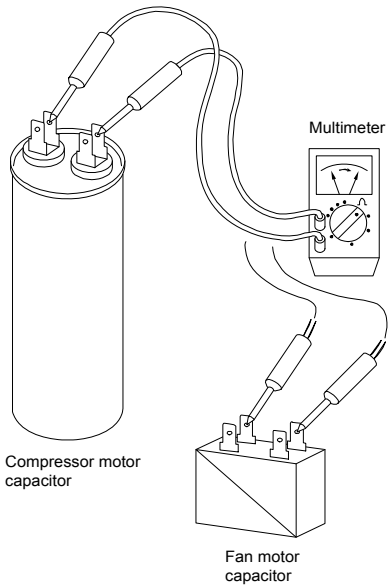


Fig.3

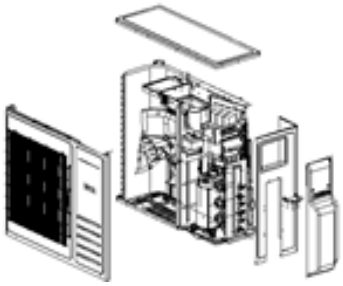
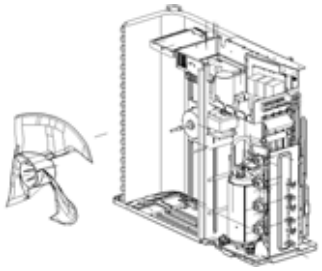
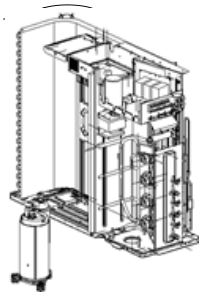
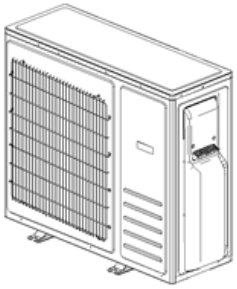
15. Disassembly and assembly for compressor and motor

The special tools for compressor & motor disassembly and assembly：

	Tool
1	Hexagon Screwdriver 
2	Hexagon Socket 

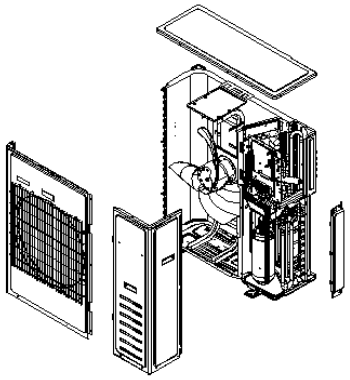
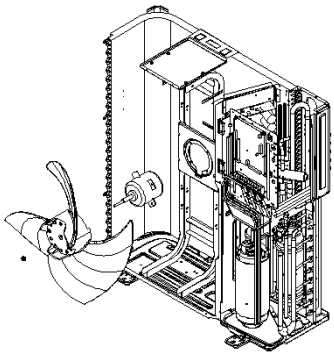
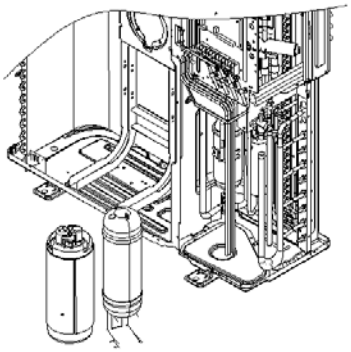
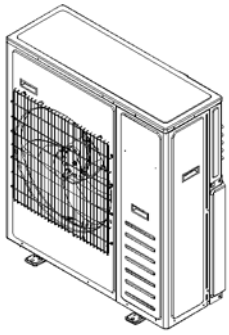
Outdoor unit

24K

Important: Before disassembly and assembly, make sure that the power to the system has been disconnected and verified as voltage free.		
Step	**Illustration**	**Handling Instruction**
1.Remove external casing		1. Remove the top cover, handle and valve cover; 2. Remove the outer case and right side plate.
2.Remove motor		1. Remove the blade nut and then remove the blade; 2. Remove the motor from motor supporter
3.Remove compressor		1. Reclaim the refrigerant from the entire system. 2. Unsolder the 4-way valve piping assy from compressor; 3. Remove the compressor mounting bolts; 4. Carefully remove the compressor from chassis.
4. Assemble unit		Assemble the unit in the reverse order of disassembly.

15. DISASSEMBLY AND ASSEMBLY FOR COMPRESSOR AND MOTOR

36K

Important: Before disassembly and assembly, make sure that the power to the system has been disconnected and verified as voltage free.		
Step	Illustration	Handling Instruction
1. Remove external casing		1. Remove the top cover, handle and valve cover; 2. Remove the outer case and right side plate.
2. Remove motor		1. Remove the blade nut and then remove the blade; 2. Remove the motor from motor supporter
3. Remove compressor		1. Reclaim the refrigerant From the entire system. 2. Unsolder the 4-way valve piping assy from compressor. 3. Remove the compressor mounting bolts. 4. Carefully remove the compressor from chassis.
4. Assemble unit		Assemble the unit in the reverse order of disassembly.

Product improvement, specifications and appearance in this manual are subject to change without prior notice.