

# *Airwell*

# Service Manual

## ***SAF Fixed RPM Series***

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Indoor Units	Outdoor Units
<b><i>SAF024</i></b>	<b><i>OU7-24Z</i></b>
<b><i>SAF045</i></b>	<b><i>OU10-47T</i></b>
	<b><i>GC 45</i></b>



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**REFRIGERANT**

**R22**

**R410A**

**COOLING ONLY**

**HEAT PUMP**

## LIST OF EFFECTIVE PAGES

**Note:** Changes in the pages are indicated by a "Revision#" in the footer of each effected page (when none indicates no changes in the relevant page). All pages in the following list represent effected/ non effected pages divided by chapters.

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\*\*Photos are not contractual.

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## 1. INTRODUCTION

### 1.1 General

The floor-standing air conditioner of **SAF** fixed RPM series has some strongpoint, such as modern outlook, excellent quality, amazing price. It comprise RC, RH, models, as follows:

- **SAF024 R410A**
- **SAF045 R410A**
- **SAF045 R22**

### 1.2 Main Features

The **SAF Fixed RPM** series benefits from the most advanced technological innovations, namely:

- LCD display
- Ionizer as an option
- Auxiliary PTC heater as an option.
- Automatic vertical louver
- Pre-charged system up to 10m for model 24 R410A
- Pre-charged system up to 15m for model 45 R410A
- Up to 50 Meter tubing length (in model 45) R22
- Scroll compressor (in model 45)
- Compact size of outdoor units.
- Easy installation and service.

### 1.3 Indoor Unit

The indoor unit is floor-standing type indoor unit, and can be easily fitted to many types of residential and commercials applications as restaurant, shops, reception room etc.

It includes:

- Coil with hydrophilic aluminum fins.
- Motorized air flap.
- Low sound level of the indoor fan

### 1.4 Control

The microprocessor indoor controller, and an infrared remote control, supplied as standard, provide complete operating function and programming. For further details please refer to the Owner's Manual, Appendix A.

### 1.5 Outdoor Unit

The outdoor units can be installed as floor or wall mounted units by using a wall supporting bracket. The metal sheets are protected by anti- corrosion paint work allowing long life resistance. All outdoor units are pre-charged. For further information please refer to the Product Data Sheet.

It includes :

- Compressor mounted in a soundproofed compartment .
- Axial fan.
- Outdoor coil with hydrophilic louver fins for RC units.
- Outlet air fan grill.
- Service valves" flare" type connection.
- Interconnecting wiring terminal block.

1.6      **Tubing Connections**

Flare type interconnecting tubing to be produced on site.  
For further details please refer to the Owner's Manual.

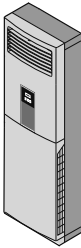
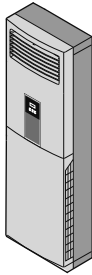
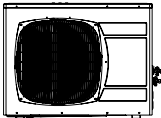
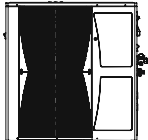
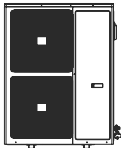
1.7      **Accessories**

Remote Control

1.8      **Inbox Documentation**

Each unit is supplied with its Owner's Manual.

1.9      **Matching Table**

<div>Indoor Unit</div> <div>Outdoor Unit</div>		SAF024	SAF045
			
OU7-24Z		✓	
OU10-47T			✓
GC 45 R22			✓

## 2. PRODUCT DATA SHEET

### 2.1 SAF024 / OU7-24Z R410A

Model Indoor Unit				SAF024		
Model Outdoor Unit				OU7-24Z		
Installation Method of Pipe				Flared		
Characteristics		Units	Cooling Only	Cooling	Heating	
Capacity <sup>(4)</sup>		Btu/hr	22690	22690	25080	
		kW	6.65	6.65	7.35	
Power input <sup>(4)</sup>		kW	2.37	2.37	2.29	
EER (Cooling) or COP(Heating) <sup>(4)</sup>		W/W	2.81	2.81	3.21	
Energy efficiency class			C	C	C	
Power supply		V	220-240			
		Ph	1			
		Hz	50			
Rated current		A	10.8	10.8	10.5	
Power factor			0.95	0.95	0.95	
Prated (IDU)		W	150			
Prated (IDU+ODU)		W	3500			
Starting current		A	66			
Circuit breaker rating		A	20			
INDOOR	Fan type & quantity			Centrifugal x 1		
	Fan speeds	H/M/L	RPM	470/430/380		
	Air flow <sup>(1)</sup>	H/M/L	m3/hr	1000/915/809		
	External static pressure	Min	Pa	0		
	Sound power level <sup>(2)</sup>	H/M/L	dB(A)	58/54/52		
	Sound pressure level <sup>(3)</sup>	H/M/L	dB(A)	48/44/42		
	Moisture removal		l/hr	2.4		
	Condensate drain tube I.D		mm	25		
	Dimensions	WxHxD	mm	480x1730x300		
	Net Weight		kg	36		
	Package dimensions	WxHxD	mm	572x1848x410		
	Packaged weight		kg	45		
	Units per pallet		units	4		
	Stacking height		units	4 levels		
OUTDOOR	Refrigerant control			Capillary tube		
	Compressor type,model			Rotary		
	Fan type & quantity			Axial x 1		
	Fan speeds	H	RPM	850		
	Air flow	H	m3/hr	3100		
	Sound power level	H	dB(A)		67	
	Sound pressure level <sup>(3)</sup>	H	dB(A)		58	
	Dimensions	WxHxD	mm	900x680x340		
	Net Weight		kg	78		
	Package dimensions	WxHxD	mm	985x730x435		
	Packaged weight		kg	82		
	Units per pallet		Units	6		
	Stacking height		units	2		
	Refrigerant type			R410A		
	Standard charge		kg(7.5m)	2.02kg		
	Additional charge			4m < Length < 10m: +0g; 10m < Length < 15m: +0g		
	Connections between units	Liquid line	In.(mm)	3/8"(9.53)		
		Suction line	In.(mm)	5/8"(15.88)		
		Max.tubing length	m.	Max.15		
Max.height difference		m.	Max.7			
Operation control type			Remote control			
Heating elements (Option)		kW	2.1			
Others						

<sup>(1)</sup> Airflow in ducted units;at nominal external static pressure.

<sup>(2)</sup> Sound power in ducted units is measured at air discharge.

<sup>(3)</sup> Sound pressure level measured at 1-meter distance from unit.

<sup>(4)</sup> Rating conditions in accordance to ISO 5151 and ISO 13253 (for ducted units).

<sup>(5)</sup> The declared value's tolerance is in accordance with Eurovent.

## 2.2 SAF045 / OU10-47T R410A

Model Indoor Unit				SAF045(FS)		
Model Outdoor Unit				OU10-47T R410A		
Installation method				FLARED		
Characteristics			Units	Cooling		Heating
Capacity <sup>(1)</sup>			Btu/hr	41970		47090
			kW	12.30		13.8
Power input <sup>(1)</sup>			kW	4.38		4.37
COP <sup>(1)</sup>			W/W	2.81		3.16
Energy efficiency class				C D		
Power supply			V/ Ph /Hz	400/3/50		
Rated current			A	3x8.6		3x8.6
Starting current			A	49		
Circuit breaker rating			A	3x20A		
INDOOR	Fan type & quantity			Centrifugal&1		
	Fan speeds	H/ M/ L	RPM	550	480	380
	Air flow (2)	H/ M/ L	m³/hr	1700	1500	1188
	External static pressure	Min-Max	Pa	N/A		
	Sound power level <sup>(3)</sup>	H/ M/ L	dB(A)	64	62	60
	Sound pressure level <sup>(4)</sup>	H/ M/ L	dB(A)	54	52	50
	Moisture removal		L/hr	4.5		
	Condensate drain tube I.D		mm	25		
	Dimensions	W/ H / D	mm	540	1776	415
	Weight		kg	52		
	Package dimensions	W/ H / D	mm	632	1893	535
	Packaged weight		kg	60		
	Units per pallet		Units	6		
	Stacking height		Units	2		
OUTDOOR	Refrigerant control			Capillary		
	Compressor type, model			Scroll		
	Fan type & quantity			Axial & 2		
	Fan speeds	H / L	RPM	1220		
	Air flow	H / L	m³/hr	4500		
	Sound power level	H / L	dB(A)	71		
	Sound pressure level <sup>(4)</sup>	H / L	dB(A)	64		
	Dimensions	W/ H / D	mm	900	970	340
	Weight		kg	91		
	Package dimensions	W/ H / D	mm	985	1020	435
	Packaged weight		kg	95		
	Units per pallet		Units	6		
	Stacking height		Units	2		
	Refrigerant type			R 410A		
	Refrigerant charges distance		kg/m	2,3/15		
	Additional charge per 1 meter		g/m	25		
	Connections between units	Liquid line	In.(mm)	3/8”(9.53)		
		Suction line	In.(mm)	3/4”(19.05)		
		Max. tubing length	m.	50		
		Max. height difference	m.	25		
Operation control type				LCD Remote Control		
Heating elements			kW			
Others				Crankcase heater (50W),3 Phase Protector		

(1) Rating conditions in accordance to ISO 5151 and ISO 13253 (for ducted units).

(2) Airflow in ducted units; at nominal external static pressure.

(3) Sound power in ducted units is measured at air discharge.

(4) Sound pressure level measured at 1-meter distance from unit.

## 2.3 SAF045 / GC 45 R22

Model Indoor Unit				SAF045				
Model Outdoor Unit				GC 45				
Installation Method of Pipe				Flared				
Characteristics			Units	Cooling Only	Cooling	Heating		
Capacity <sup>(4)</sup>			Btu/hr	43670	43670	52540		
			kW	12.80	12.80	15.40		
Power input <sup>(4)</sup>			kW	4.56	4.56	5.12		
EER (Cooling) or COP(Heating) <sup>(4)</sup>			W/W	2.81	2.81	3.01		
Energy efficiency class				C	C	D		
Power supply			V	400				
			Ph	3				
			Hz	50				
Rated current			A	8.1	8.1	9.1		
Power factor				0.85	0.85	0.85		
Prated (IDU)			W	160				
Prated (IDU+ODU)			W	6500				
Starting current			A	65.8				
Circuit breaker rating			A	3X20				
INDOOR	Fan type & quantity				Centrifugal x 1			
	Fan speeds		H/M/L	RPM	550/480/380			
	Air flow <sup>(1)</sup>		H/M/L	m3/hr	1700/1500/1188			
	External static pressure		Min	Pa	0			
	Sound power level <sup>(2)</sup>		H/M/L	dB(A)	64/62/60			
	Sound pressure level <sup>(3)</sup>		H/M/L	dB(A)	54/52/50			
	Moisture removal			l/hr	4.5			
	Condensate drain tube I.D			mm	25			
	Dimensions		WxHxD	mm	540x1776x415			
	Net Weight			kg	52			
	Package dimensions		WxHxD	mm	632x1893x535			
	Packaged weight			kg	60			
	Units per pallet			units	6			
	Stacking height			units	2 levels			
OUTDOOR	Refrigerant control				Capillary tube			
	Compressor type,model				Scroll,Dakin JT160BCBY1L			
	Fan type & quantity				Propeller(direct)x 2			
	Fan speeds		H	RPM	780			
	Air flow		H	m3/hr	4680			
	Sound power level		H	dB(A)		64		
	Sound pressure level <sup>(3)</sup>		H	dB(A)		56		
	Dimensions		WxHxD	mm	950x1260x412			
	Net Weight			kg	120			
	Package dimensions		WxHxD	mm	1100x1300x470			
	Packaged weight			kg	150			
	Units per pallet			Units	1			
	Stacking height			units	1			
	Refrigerant type				R22			
	Standard charge			kg(7.5m)	3.1kg			
	Additional charge				4m < Length < 7.5m: +0g; 7.5m < Length < 25m: +500g; 25m < Length < 38m: +980g; 38m<Length<50m: +1580g;			
	Connections between units	Liquid line		In.(mm)	3/8"(9.53)			
		Suction line		In.(mm)	3/4"(19.05)			
		Max.tubing length		m.	Max.50			
Max.height difference		m.	Max.20					
Operation control type				Remote control				
Heating elements (Option)				kW	2.1			
Others								

<sup>(1)</sup> Airflow in ducted units;at nominal external static pressure.

<sup>(2)</sup> Sound power in ducted units is measured at air discharge.

<sup>(3)</sup> Sound pressure level measured at 1-meter distance from unit.

<sup>(4)</sup> Rating conditions in accordance to ISO 5151 and ISO 13253 (for ducted units).

<sup>(5)</sup> The declared value's tolerance is in accordance with Eurovent.



### 3. RATING CONDITIONS

Standard conditions in accordance with ISO 5151, ISO 13253 (for ducted units) and EN 14511.

**Cooling:**

Indoor: 27°C DB 19°C WB

Outdoor: 35°C DB

**Heating:**

Indoor: 20°C DB

Outdoor: 7°C DB 6°C WB

#### 3.1 Operating Limits

##### R410A

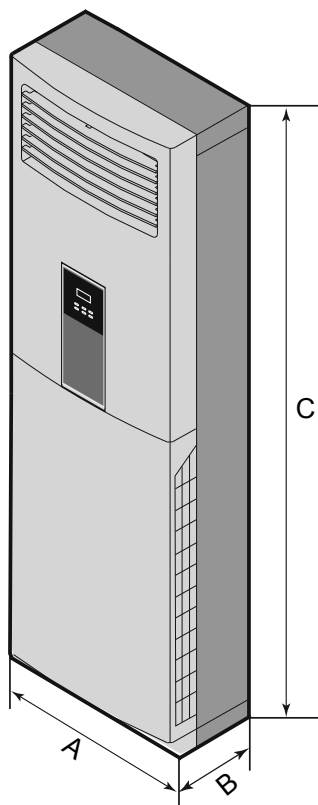
		Indoor	Outdoor
<b>Cooling</b>	Upper limit	32°C DB 23°C WB	46°C DB
	Lower limit	21°C DB 15°C WB	21°C DB
<b>Heating</b>	Upper limit	27°C DB	24°C DB 18°C WB
	Lower limit	10°C DB	-9°C DB -10°C WB
<b>Voltage</b>	1PH	198 – 264 V	

##### R22

		Indoor	Outdoor
<b>Cooling</b>	Upper limit	32°C DB 23°C WB	46°C DB
	Lower limit	21°C DB 15°C WB	21°C DB
<b>Heating</b>	Upper limit	27°C DB	24°C DB 18°C WB
	Lower limit	10°C DB	-5°C DB -6°C WB
<b>Voltage</b>	1PH	198 – 264 V	

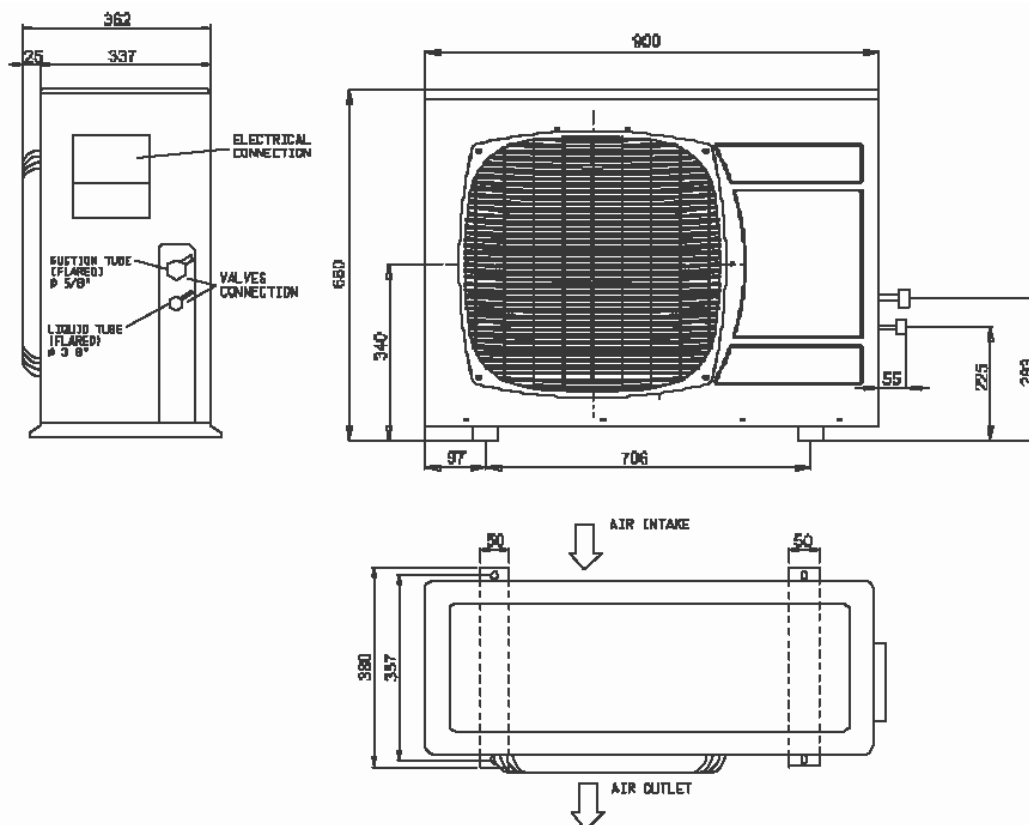
## 4. OUTLINE DIMENSIONS

### 4.1 Indoor Unit: SAF024, SAF045

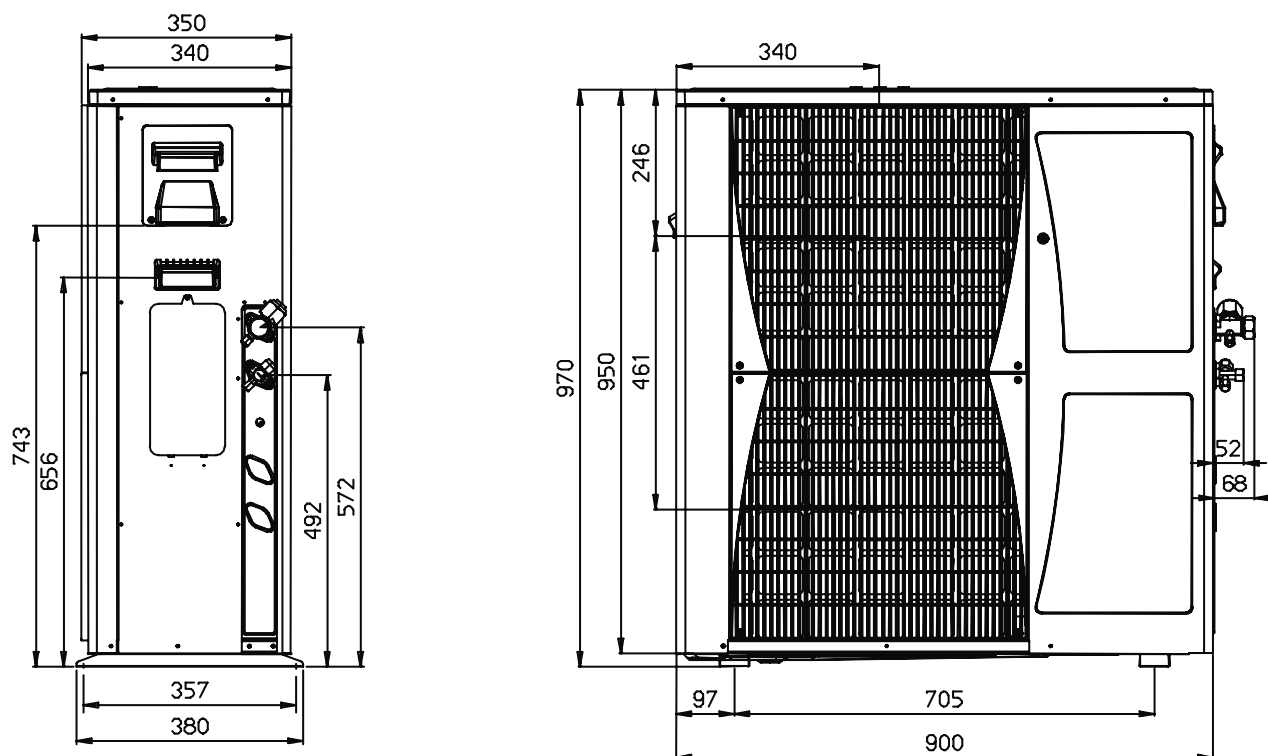


Model	A	B	C
SAF024	485 mm	300 mm	1730 mm
SAF045	545 mm	420 mm	1780 mm

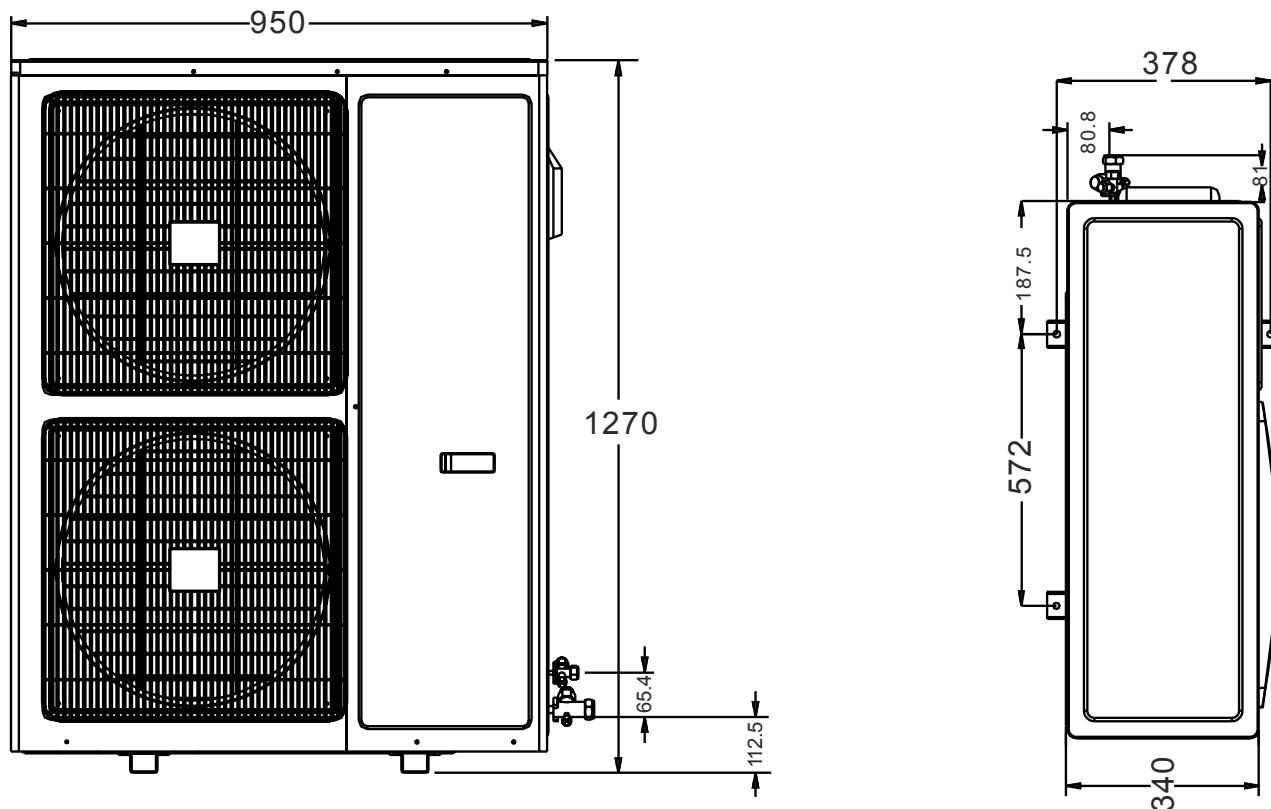
### 4.2 Outdoor Unit: OU7-24Z R410A



### 4.3 Outdoor Unit: OU10-47T R410A



### 4.4 Outdoor Unit: GC 45 R22



## 5. PERFORMANCE DATA

### 5.1 SAF024 / OU7-24 Z R410A

#### 5.1.1 Cooling Mode at 7.5m Tubing Connection.

230V : Indoor Fan at High Speed.

ENTERING AIR DB OD Coil(°C)	Data	ENTERING AIR WB/DB ID Coil(°C)				
		15/21	17/24	19/27	21/29	23/32
15 <sup>(1)</sup>	TC	7.01	7.26	7.43	7.61	7.72
	SC	4.88	5.09	5.28	5.42	5.52
	PI	1.68	1.68	1.69	1.69	1.70
20 <sup>(1)</sup>	TC	6.78	7.15	7.37	7.55	7.71
	SC	4.78	5.04	5.25	5.40	5.50
	PI	1.82	1.83	1.84	1.85	1.85
25	TC	6.42	6.93	7.28	7.50	7.69
	SC	4.66	4.94	5.21	5.36	5.46
	PI	1.97	1.99	2.00	2.01	2.03
30	TC	6.00	6.53	7.06	7.31	7.53
	SC	4.51	4.79	5.10	5.25	5.35
	PI	2.13	2.16	2.18	2.19	2.21
35	TC	5.56	6.03	6.65	6.98	7.31
	SC	4.29	4.60	4.98	5.12	5.22
	PI	2.29	2.33	2.37	2.39	2.40
40	TC	5.05	5.50	6.00	6.56	6.90
	SC	4.04	4.35	4.71	4.86	4.96
	PI	2.47	2.51	2.56	2.59	2.61
46	TC	4.38	4.79	5.27	5.82	6.27
	SC	3.72	3.99	4.30	4.45	4.54
	PI	2.70	2.74	2.81	2.85	2.88

#### LEGEND

TC	–	Total Cooling Capacity, kW
SC	–	Sensible Capacity, kW
PI	–	Power Input, kW
WB	–	Wet Bulb Temp., (°C)
DB	–	Dry Bulb Temp., (°C)
ID	–	Indoor
OD	–	Outdoor

(1) Marked area is below standard operating limits. For operating in low ambient conditions, Optional Accessories are needed.

### 5.1.2 Heating Mode at 7.5m Tubing Connection.

230V : Indoor Fan at High Speed.

ENTERING WB OD COIL(°C)	ENTERING AIR DB ID COIL(°C)					
	15		20		25	
	TH	PI	TH	PI	TH	PI
-10	3.86	1.83	3.71	1.95	3.56	2.05
-7	4.15	1.88	4.01	1.98	3.86	2.09
-2	4.41	1.90	4.26	2.02	4.12	2.13
2	5.37	1.99	5.15	2.12	4.92	2.24
6	7.57	2.14	7.35	2.29	7.09	2.43
10	8.23	2.26	8.01	2.42	7.79	2.58
15	8.89	2.36	8.67	2.54	8.45	2.70
20	9.37	2.43	9.15	2.63	8.89	2.84

#### LEGEND

- TH – Total Heating Capacity, kW
- PI – Power Input, kW
- WB – Wet Bulb Temp., (°C)
- DB – Dry Bulb Temp., (°C)
- ID – Indoor
- OD – Outdoor

### 5.1.3 Capacity Correction Factor Due to Tubing Length

#### Cooling

TOTAL TUBING LENGTH								
3m	7.5m	10m	15m	20m	25m	30m	40m	50m
1.02	1	0.981	0.966	---	---	---	---	---

\* Minimum recommended tubing length between indoor and outdoor units is 3m.

#### Heating

TOTAL TUBING LENGTH								
3m	7.5m	10m	15m	20m	25m	30m	40m	50m
1.05	1	0.99	0.983	---	---	---	---	---

\* Minimum recommended tubing length between indoor and outdoor units is 3m.

## 5.2 SAF045 / OU10-47T R410A

### 5.2.1 Cooling Mode at 7.5m Tubing Connection.

230V : Indoor Fan at High Speed.

ENTERING AIR DB OD Coil(°C)	Data	ENTERING AIR WB/DB ID Coil(°C)				
		15/21	17/24	19/27	21/29	23/32
15 <sup>(1)</sup>	TC	12.96	13.43	13.74	14.07	14.28
	SC	9.22	9.61	9.98	10.23	10.42
	PI	3.11	3.11	3.12	3.12	3.14
20 <sup>(1)</sup>	TC	12.54	13.22	13.64	13.96	14.26
	SC	9.03	9.52	9.92	10.21	10.39
	PI	3.37	3.38	3.39	3.41	3.42
25	TC	11.87	12.81	13.47	13.88	14.22
	SC	8.80	9.34	9.85	10.13	10.32
	PI	3.64	3.67	3.69	3.72	3.74
30	TC	11.10	12.08	13.05	13.52	13.92
	SC	8.52	9.06	9.63	9.91	10.10
	PI	3.93	3.99	4.02	4.05	4.09
35	TC	10.28	11.15	12.30	12.92	13.53
	SC	8.10	8.69	9.41	9.68	9.87
	PI	4.24	4.31	4.38	4.41	4.44
40	TC	9.34	10.17	11.10	12.14	12.76
	SC	7.64	8.22	8.90	9.18	9.37
	PI	4.57	4.64	4.72	4.78	4.83
46	TC	8.11	8.86	9.75	10.77	11.60
	SC	7.04	7.54	8.12	8.40	8.59
	PI	5.00	5.07	5.19	5.26	5.32

#### LEGEND

- TC – Total Cooling Capacity, kW
- SC – Sensible Capacity, kW
- PI – Power Input, kW
- WB – Wet Bulb Temp., (°C)
- DB – Dry Bulb Temp., (°C)
- ID – Indoor
- OD – Outdoor

(1) Marked area is below standard operating limits. For operating in low ambient conditions, Optional Accessories are needed.

### 5.2.2 Heating Mode at 7.5m Tubing Connection.

230V : Indoor Fan at High Speed.

ENTERING WB OD COIL(°C)	ENTERING AIR DB ID COIL(°C)					
	15		20		25	
	TH	PI	TH	PI	TH	PI
-10	7.25	3.50	6.97	3.72	6.69	3.91
-7	7.80	3.58	7.52	3.78	7.25	3.99
-2	8.28	3.63	8.00	3.85	7.73	4.06
2	10.07	3.80	9.66	4.04	9.25	4.28
6	14.21	4.09	13.80	4.37	13.32	4.64
10	15.46	4.31	15.04	4.61	14.63	4.93
15	16.70	4.50	16.28	4.85	15.87	5.16
20	17.60	4.63	17.18	5.03	16.70	5.42

\* the above chart includes the weighted deicing influence.

### LEGEND

TH – Total Heating Capacity, kW  
PI – Power Input, kW  
WB – Wet Bulb Temp., (°C)  
DB – Dry Bulb Temp., (°C)  
ID – Indoor  
OD – Outdoor

### 5.2.3 Capacity Correction Factor Due to Tubing Length

#### Cooling

TOTAL TUBING LENGTH								
3m	7.5m	10m	15m	20m	25m	30m	40m	50m
1.02	1	0.98	0.97	0.96	0.95	0.93	0.92	0.91

\* Minimum recommended tubing length between indoor and outdoor units is 3m.

#### Heating

TOTAL TUBING LENGTH								
3m	7.5m	10m	15m	20m	25m	30m	40m	50m
1.03	1	0.99	0.97	0.95	0.94	0.93	0.92	0.92

\* Minimum recommended tubing length between indoor and outdoor units is 3m.

### 5.3 SAF045 / GC 45 R22

#### 5.3.1 Cooling Mode at 7.5m Tubing Connection.

230V : Indoor Fan at High Speed.

Entering Air DB OD Coil (°C)	Data	Entering Air WB/DB ID Coil (°C)				
		15/21	17/24	19/27	21/29	23/32
15 <sup>(1)</sup>	TC	13.49	13.97	14.30	14.64	14.86
	SC	9.55	9.96	10.34	10.60	10.80
	PI	3.23	3.24	3.25	3.25	3.27
20 <sup>(1)</sup>	TC	13.05	13.76	14.19	14.53	14.84
	SC	9.36	9.87	10.28	10.57	10.77
	PI	3.51	3.52	3.53	3.55	3.56
25	TC	12.35	13.33	14.02	14.44	14.80
	SC	9.12	9.67	10.20	10.50	10.69
	PI	3.79	3.82	3.85	3.87	3.90
30	TC	11.55	12.58	13.59	14.07	14.49
	SC	8.83	9.39	9.98	10.27	10.47
	PI	4.09	4.15	4.19	4.22	4.26
35	TC	10.69	11.60	12.80	13.44	14.08
	SC	8.40	9.00	9.75	10.03	10.23
	PI	4.41	4.49	4.56	4.59	4.62
40	TC	9.72	10.59	11.55	12.63	13.28
	SC	7.92	8.52	9.22	9.52	9.71
	PI	4.76	4.83	4.92	4.98	5.03
46	TC	8.44	9.22	10.14	11.21	12.08
	SC	7.29	7.81	8.41	8.70	8.90
	PI	5.20	5.28	5.40	5.48	5.54

#### LEGEND

TC	–	Total Cooling Capacity, kW
SC	–	Sensible Capacity, kW
PI	–	Power Input, kW
WB	–	Wet Bulb Temp., (°C)
DB	–	Dry Bulb Temp., (°C)
ID	–	Indoor
OD	–	Outdoor

(1) Marked area is below standard operating limits. For operating in low ambient conditions, Optional Accessories are needed.



### 5.3.2 Heating Mode at 7.5m Tubing Connection.

230V : Indoor Fan at High Speed.

ENTERING WB OD COIL)° C)	ENTERING AIR DB ID COIL)° C)					
	15		20		25	
	TH	PI	TH	PI	TH	PI
-10	8.09	4.10	7.78	4.36	7.47	4.58
-7	8.70	4.20	8.39	4.43	8.09	4.67
-2	9.24	4.25	8.93	4.51	8.62	4.76
2	11.24	4.45	10.78	4.74	10.32	5.02
6	15.86	4.79	15.40	5.12	14.86	5.44
10	17.25	5.05	16.79	5.40	16.32	5.78
15	18.63	5.27	18.17	5.68	17.71	6.04
20	19.64	5.43	19.17	5.89	18.63	6.35

\* the above chart includes the weighted deicing influence.

#### LEGEND

TH – Total Heating Capacity, kW  
PI – Power Input, kW  
WB – Wet Bulb Temp., (°C)  
DB – Dry Bulb Temp., (°C)  
ID – Indoor  
OD – Outdoor

### 5.3.3 Capacity Correction Factor Due to Tubing Length

#### Cooling

TOTAL TUBING LENGTH								
3m	7.5m	10m	15m	20m	25m	30m	40m	50m
1.01	1	0.97	0.96	0.94	0.93	0.9	0.85	0.81

\* Minimum recommended tubing length between indoor and outdoor units is 3m.

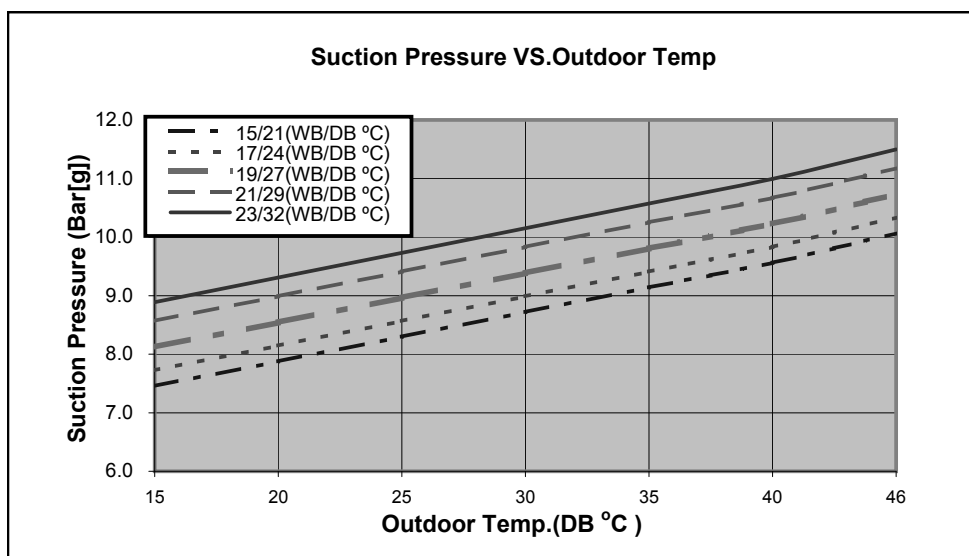
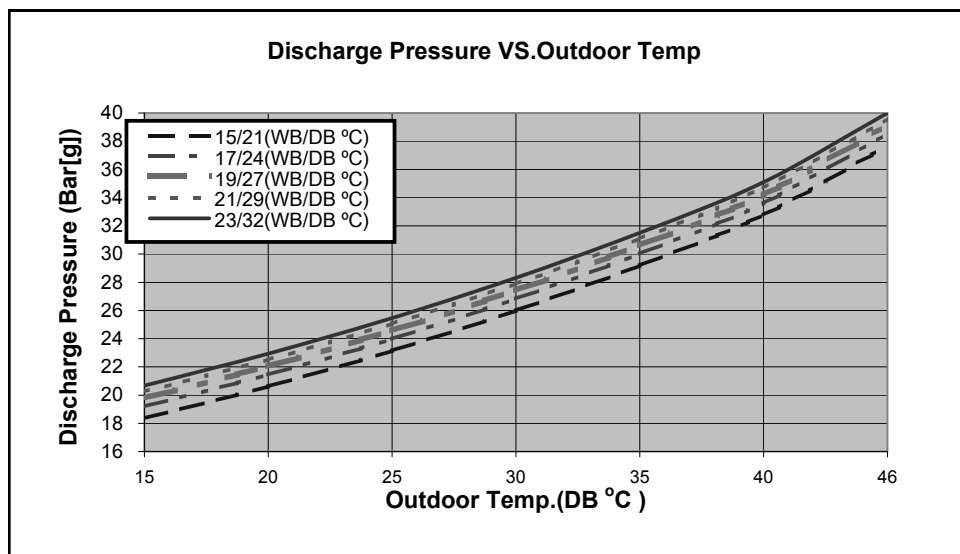
#### Heating

TOTAL TUBING LENGTH								
3m	7.5m	10m	15m	20m	25m	30m	40m	50m
1.02	1	0.99	0.98	0.97	0.97	0.95	0.93	0.92

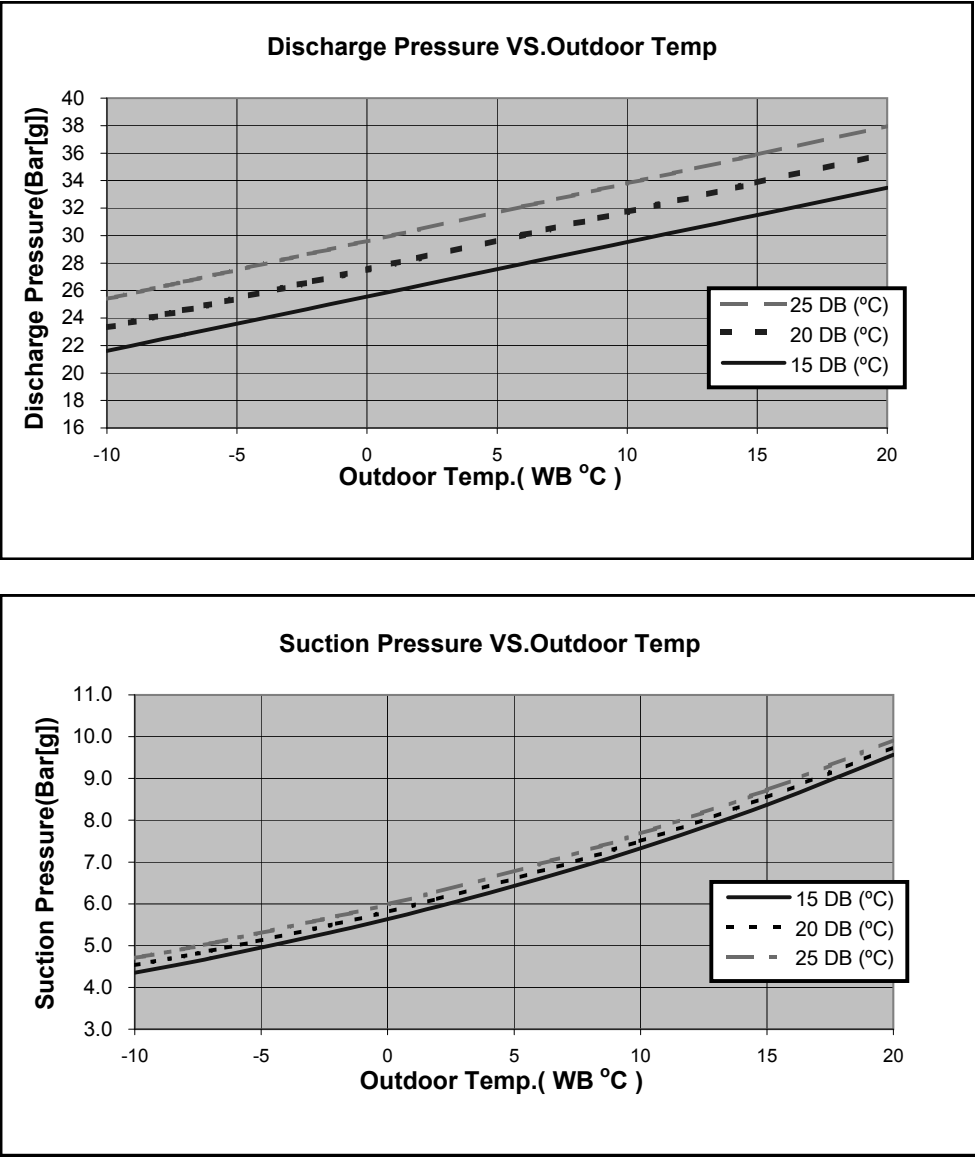
\* Minimum recommended tubing length between indoor and outdoor units is 3m.

## 5.4 Pressure Curves: SAF024 / OU7-24 Z R410A

### 5.4.1 Cooling.

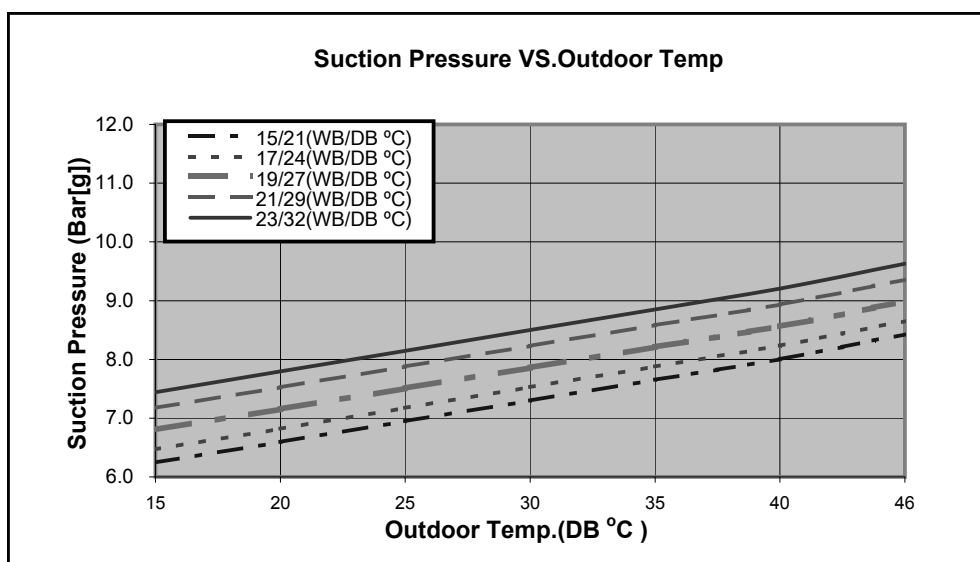
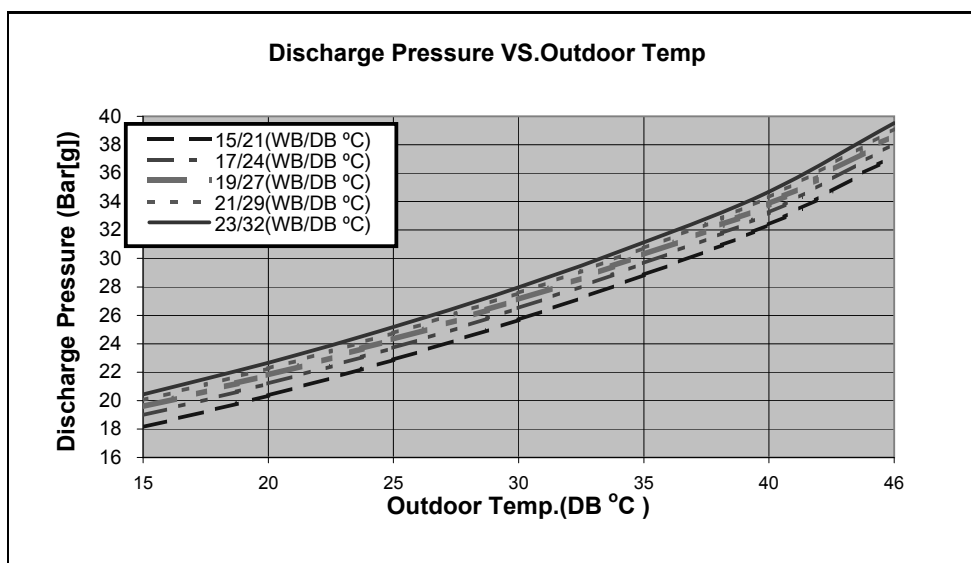


5.4.2 Heating.

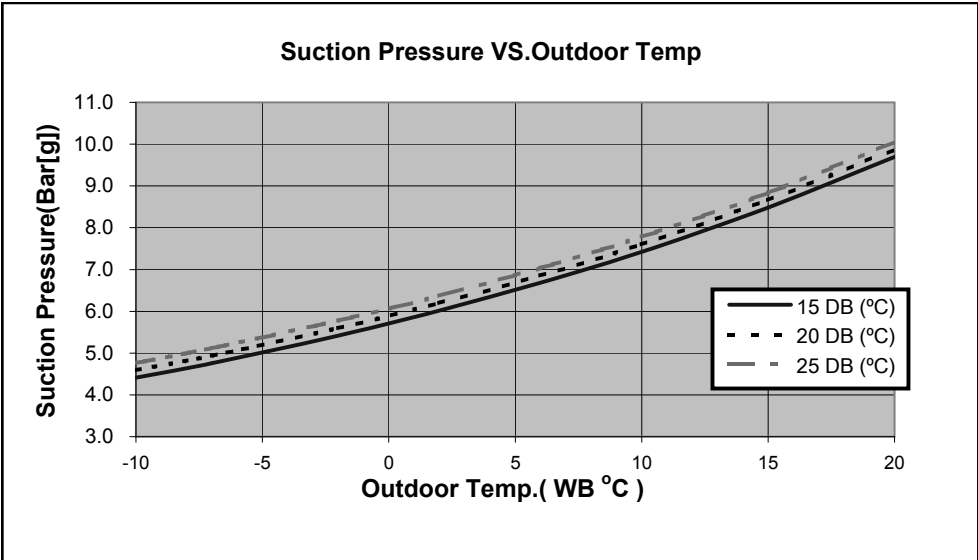
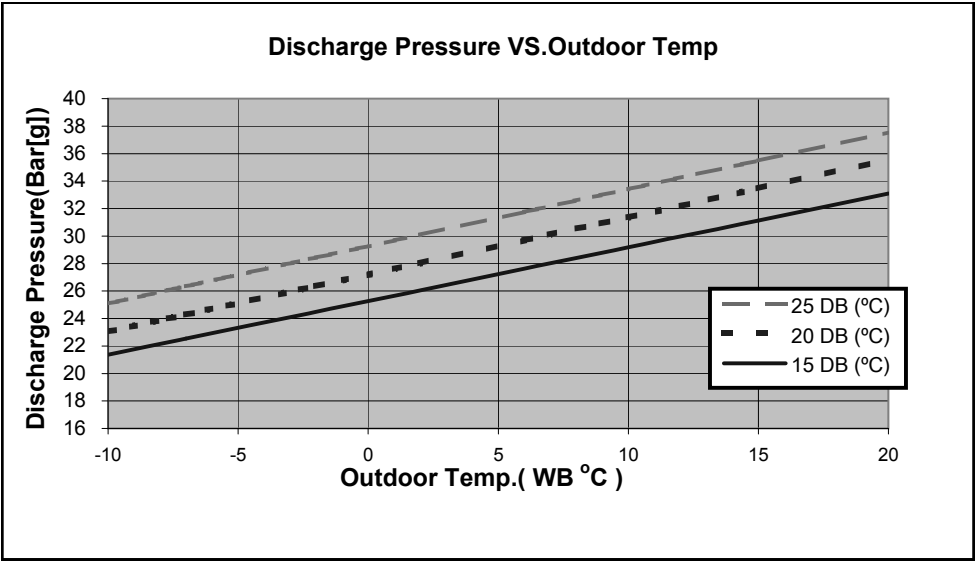


## 5.5 Pressure Curves: SAF045 / OU10-47T R410A

### 5.5.1 Cooling.

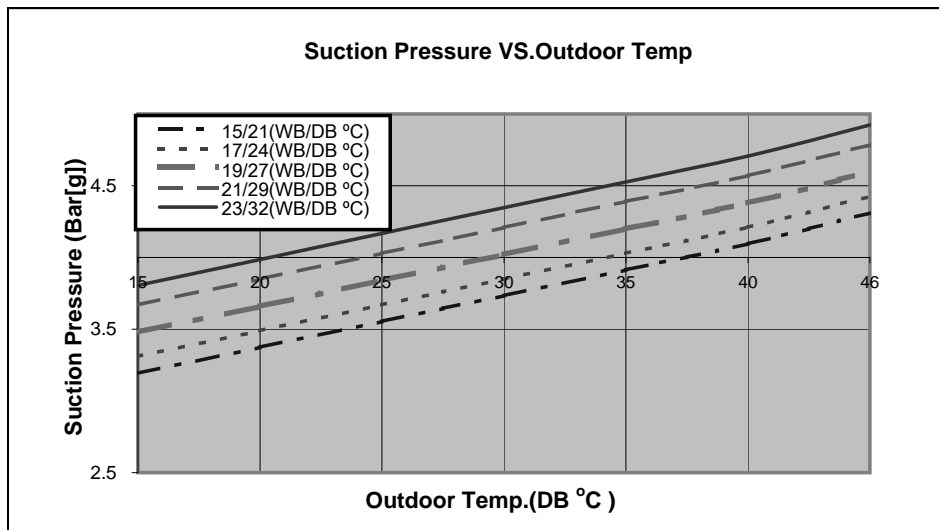
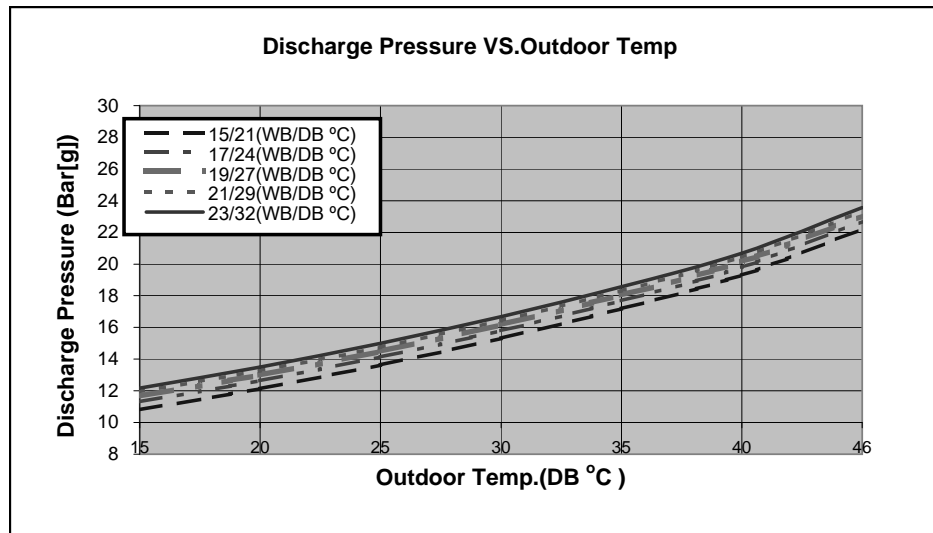


5.5.2 Heating.

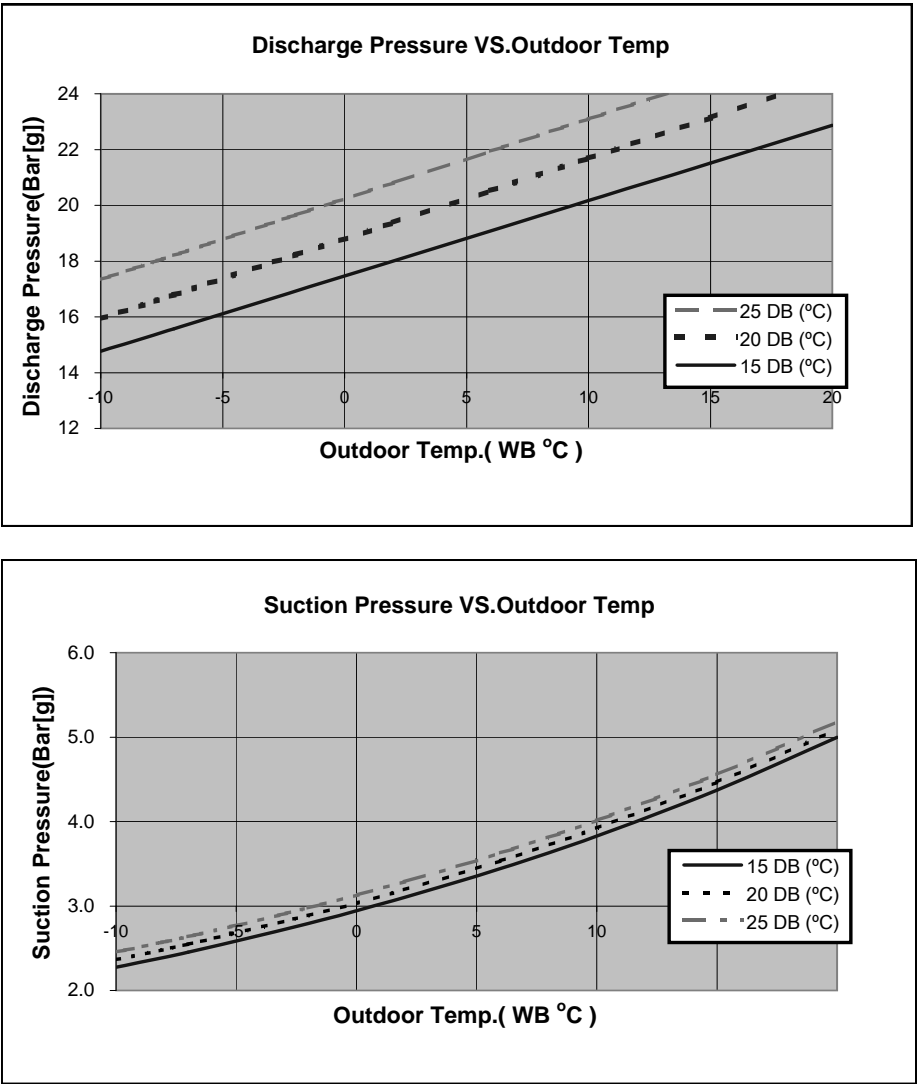


## 5.6 Pressure Curves: SAF045 / GC 45 R22

### 5.6.1 Cooling.



5.6.2 Heating.



## 6. SOUND LEVEL CHARACTERISTICS

### 6.1 Sound Pressure Level

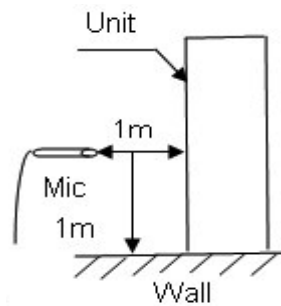
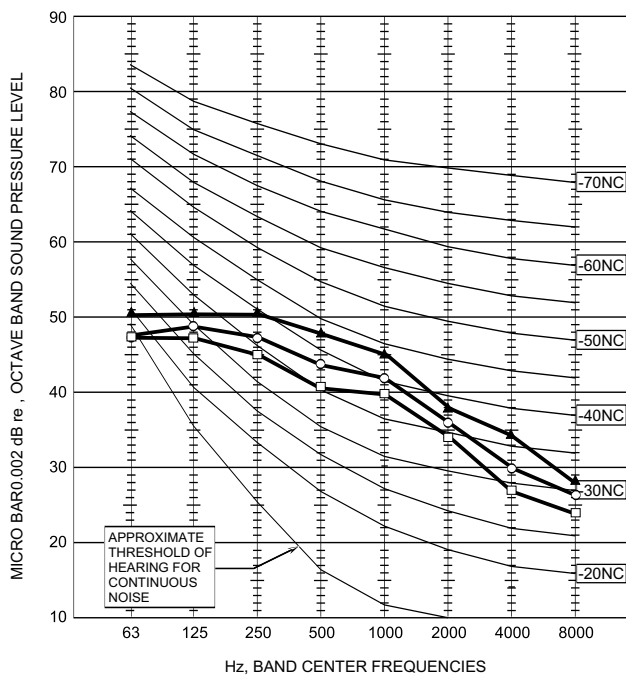


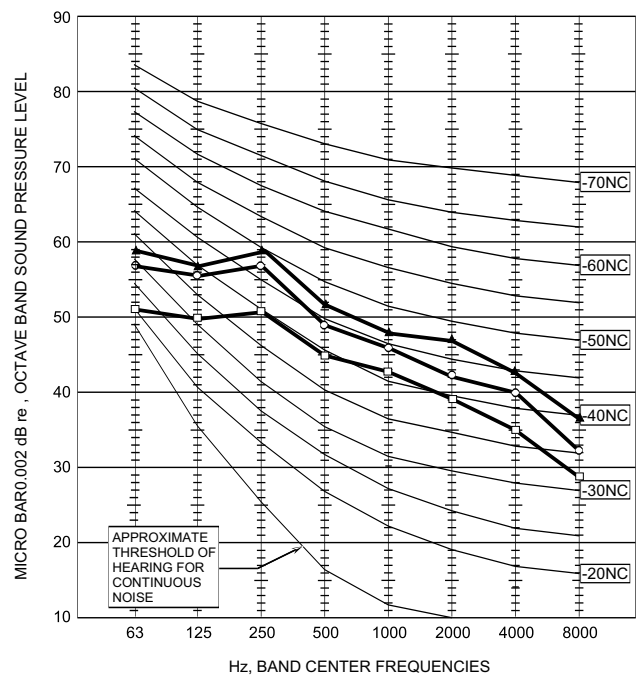
Figure 1

### 6.2 Sound Pressure Level Spectrum (Measured as Figure 1)

SAF024



SAF045



FAN SPEED	LINE
HI	—▲—
ME	—○—
LO	—□—



### 6.3 Outdoor units

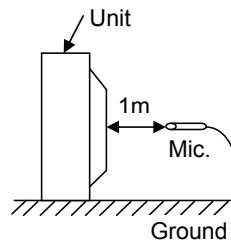
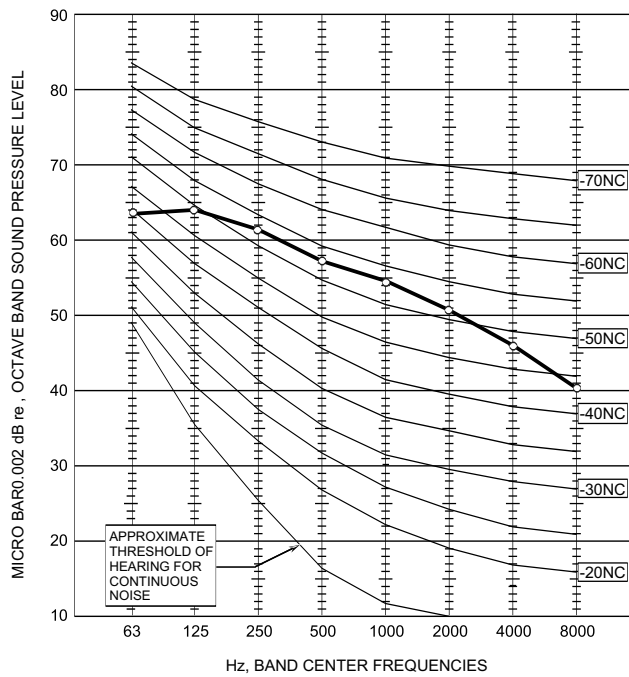


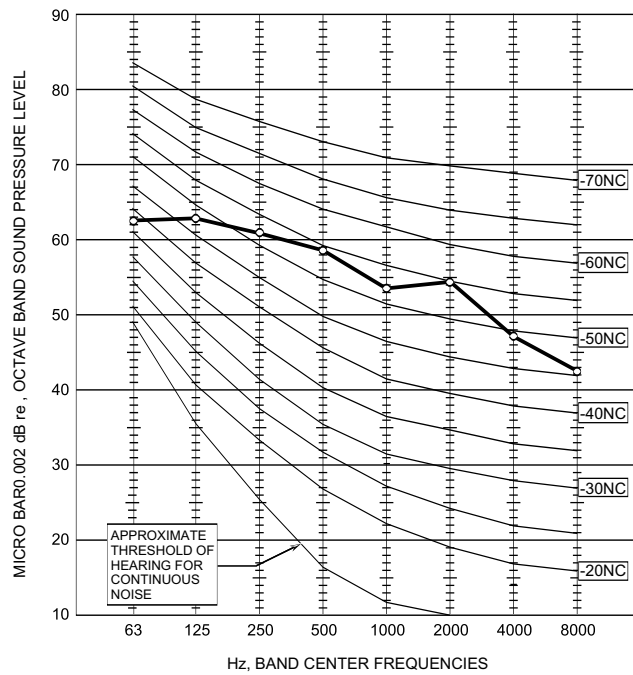
Figure 2

### 6.4 Sound Pressure Level Spectrum (Measured as Figure 2)

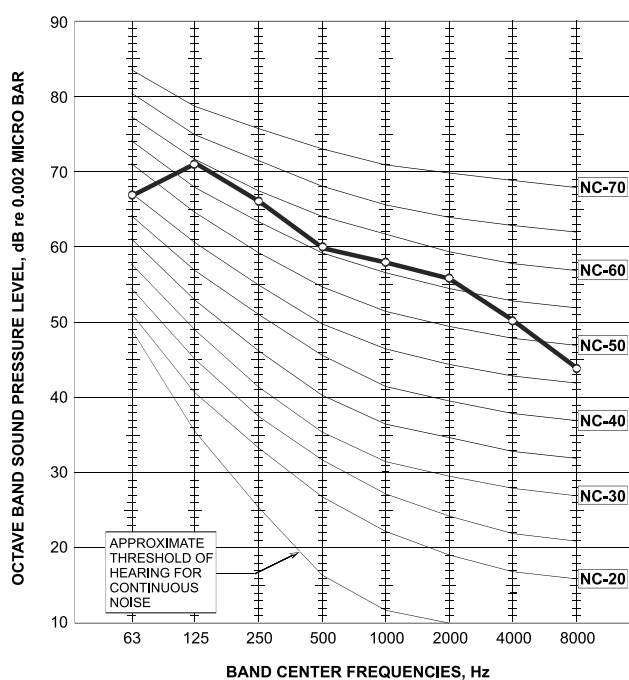
#### OU7-24 Z Cooling



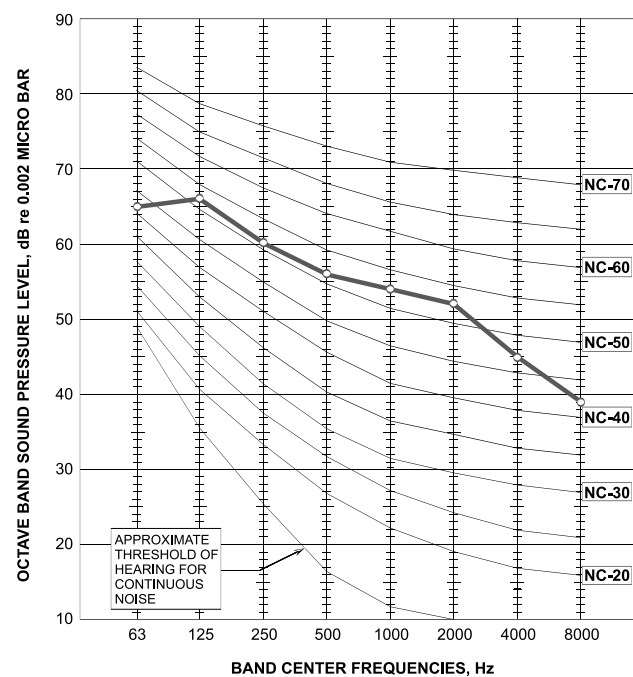
#### OU7-24 Z Heating



#### OU10-47T Cooling

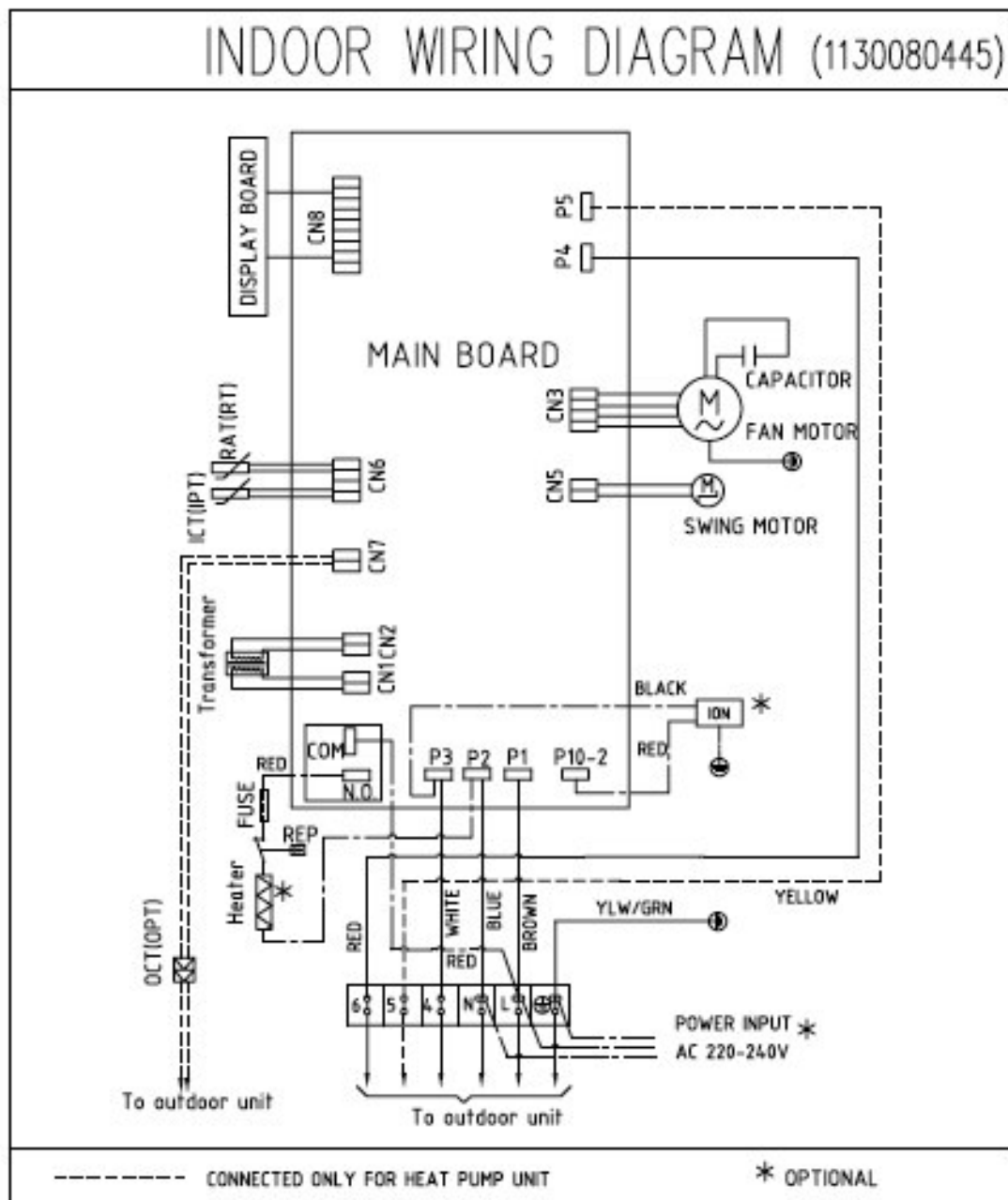


#### OU10-47T Heating

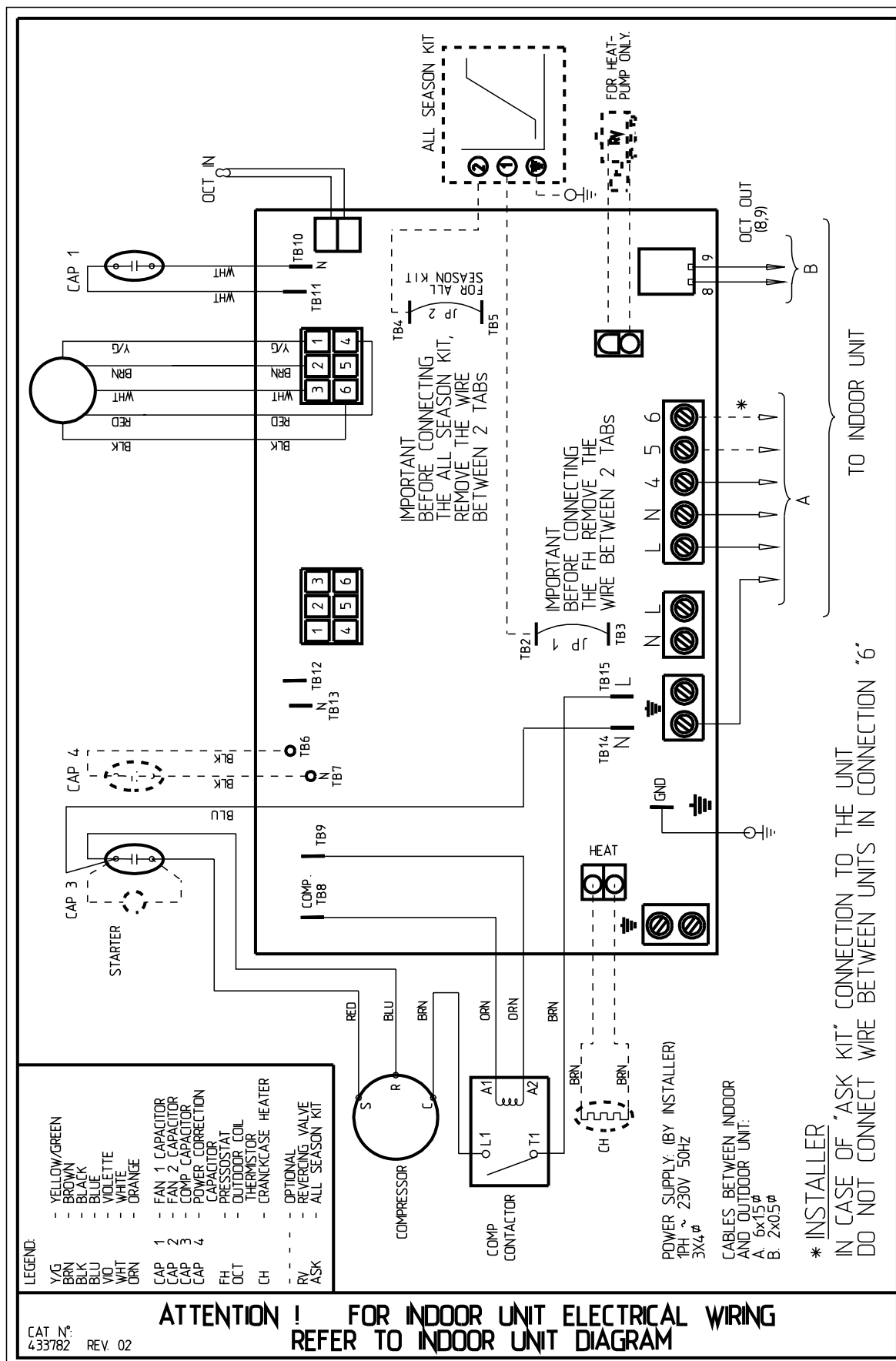


## 7. WIRING DIAGRAMS

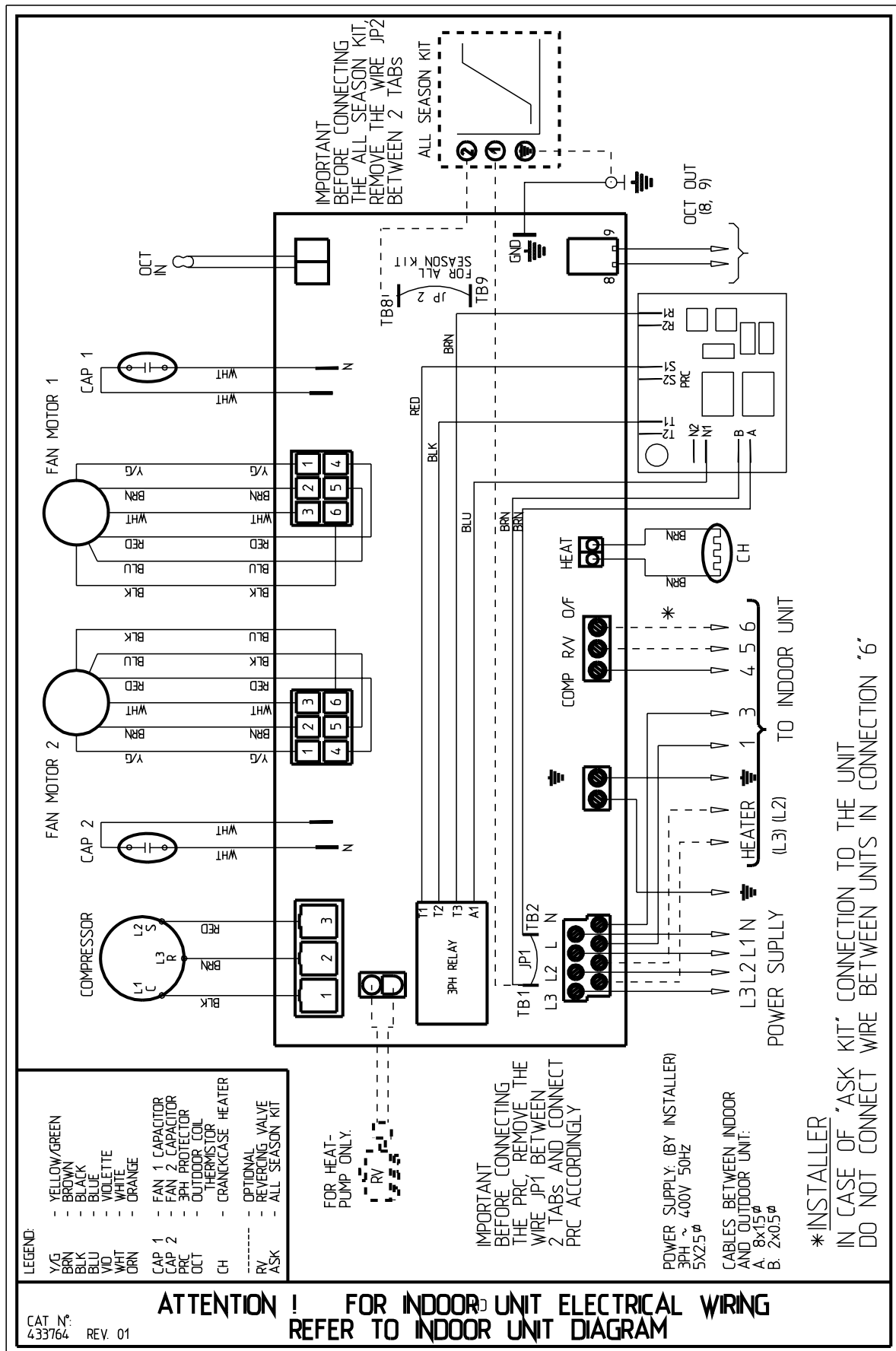
### 7.1 Indoor Units: SAF024, SAF045



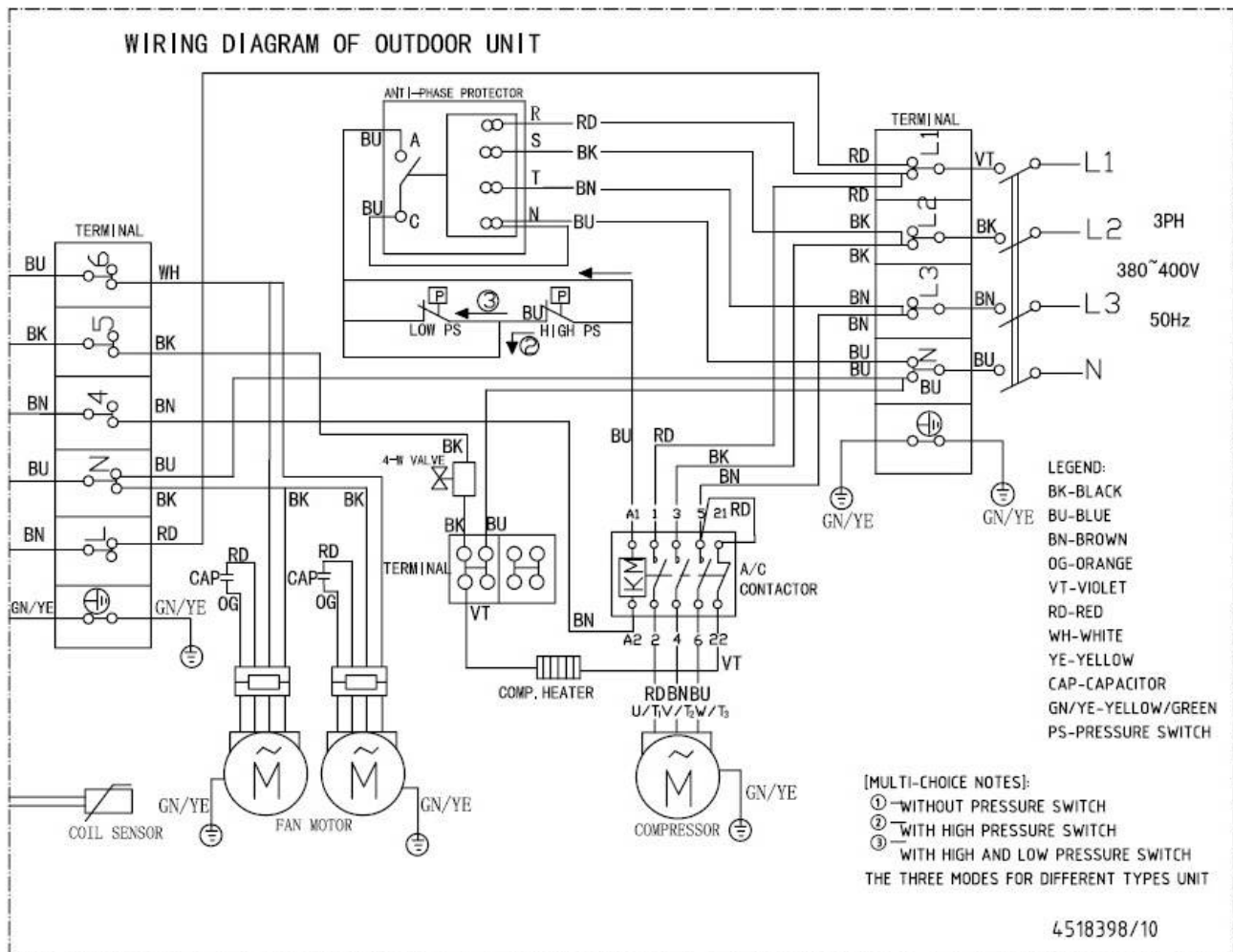
## 7.2 Indoor Unit: OU7-24 Z R410A



## 7.3 Indoor Unit: OU10-47T R410A

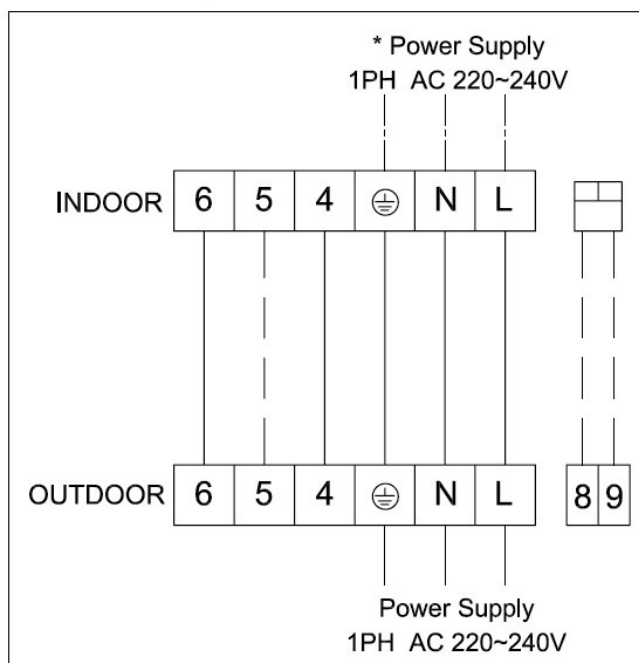


## 7.4 Outdoor Unit: GC 45 R22

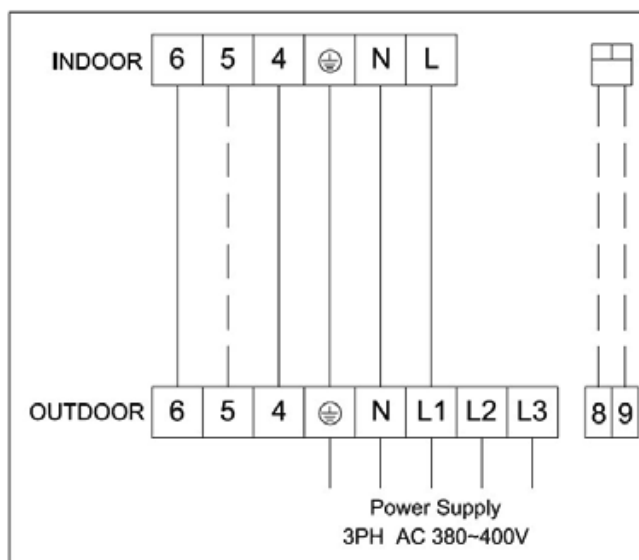


## 7.5 Connections between indoor unit and outdoor unit

### SAF 24



### SAF 45



- Note: 1. — — — — Connection only for heat pump model  
 2. \* Option, Power supply from outdoor or indoor unit

## 8. ELECTRICAL DATA

### 8.1 SAF024, SAF045

Model		024	045
Power supply from indoor unit	Power input cable	3 x 2.5 mm <sup>2</sup>	N/A
	Cable between Indoor and outdoor unit(ST model)	2 x 1.5 mm <sup>2</sup> (Terminal "4","6") 3 x 2.5 mm <sup>2</sup> (Terminal "L","N","⊕")	N/A
	Cable between indoor and outdoor unit(RC model)	3 x 1.5 mm <sup>2</sup> (Terminal "4","5","6") 3 x 2.5 mm <sup>2</sup> (Terminal "L","N","⊕")	N/A
Power supply from outdoor unit	Power input cable	3 x 2.5 mm <sup>2</sup>	5 x 2.5 mm <sup>2</sup>
	Cable between Indoor and outdoor unit(ST model)	2 x 1.5 mm <sup>2</sup> (Terminal "4","6") 3 x 2.0 mm <sup>2</sup> (Terminal "L","N","⊕")	2 x 1.5 mm <sup>2</sup> (Terminal "4","6") 3 x 2.0 mm <sup>2</sup> (Terminal "L","N","⊕")
	Cable between Indoor and outdoor unit(RC model)	3 x 1.5 mm <sup>2</sup> (Terminal "4","5","6") 3 x 2.0 mm <sup>2</sup> (Terminal "L","N","⊕")	3 x 1.5 mm <sup>2</sup> (Terminal "4","5","6") 3 x 2.0 mm <sup>2</sup> (Terminal "L","N","⊕")
Low voltage cable(OCT option)		2 x 0.5 mm <sup>2</sup>	

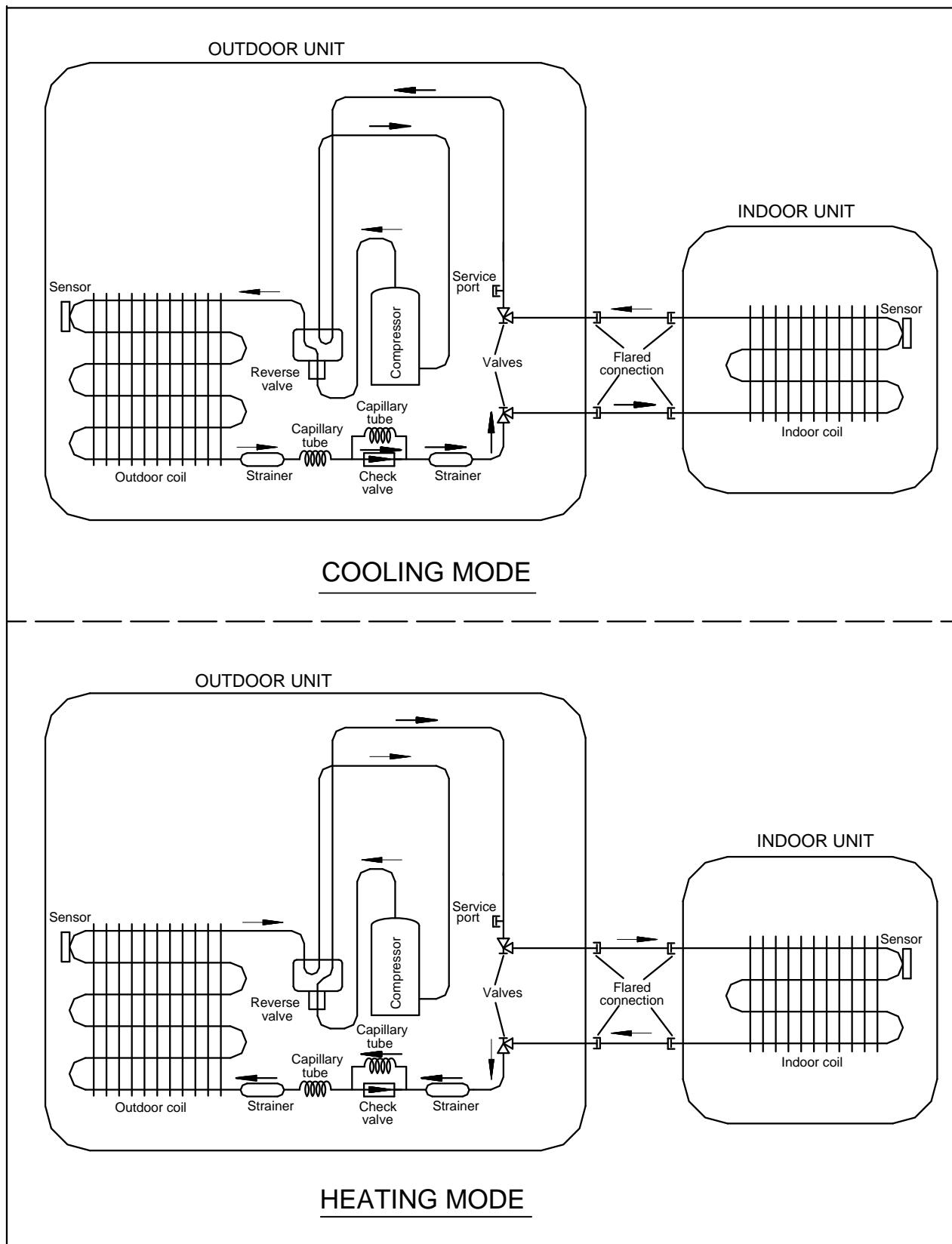
Note: RC model: Heating pump model

ST model: Cooling only model

Note: Power wiring cord should comply with local laws and electrical regulations requirements.

## 9. REFRIGERATION DIAGRAMS

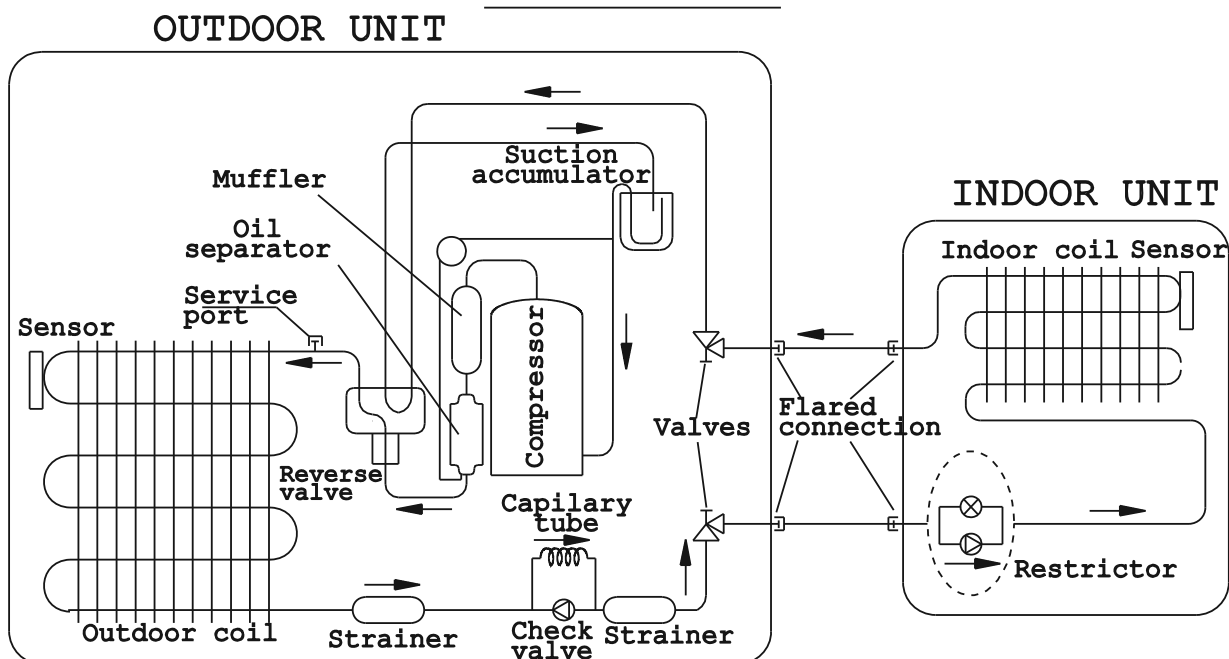
### 9.1 SAF024 / OU7-24Z R410A



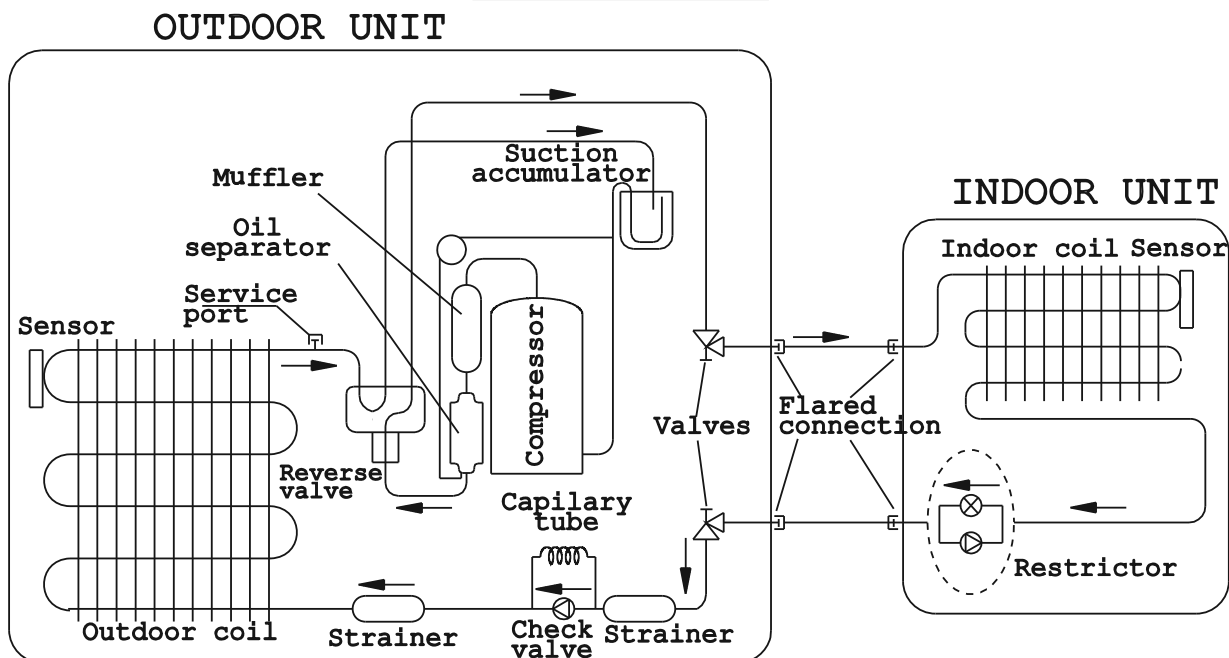


## 9.2 SAF045 / OU10-47T R410A

### COOLING MODE

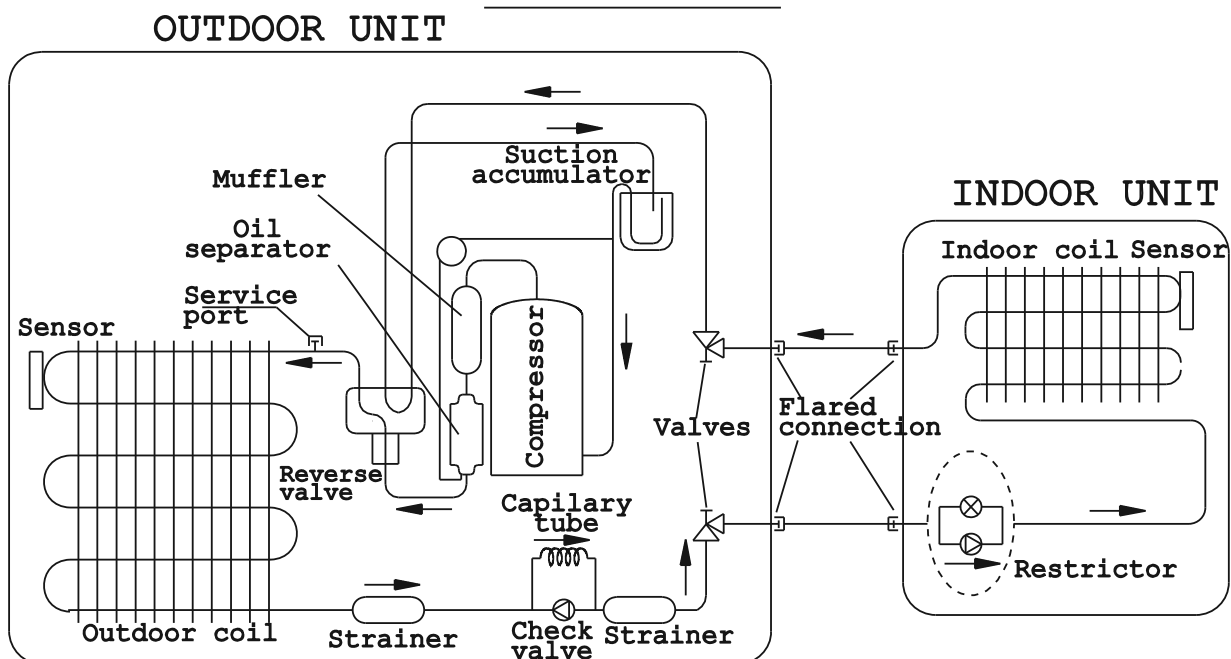


### HEATING MODE

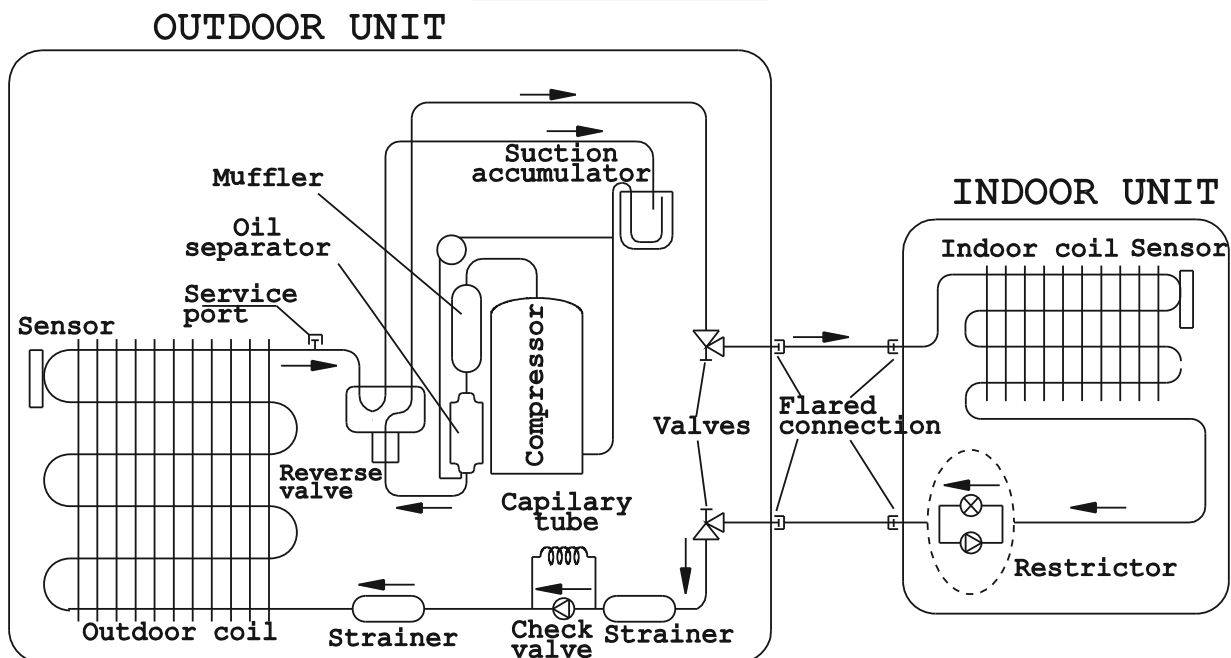


9.3 SAF045 / GC 45 R22

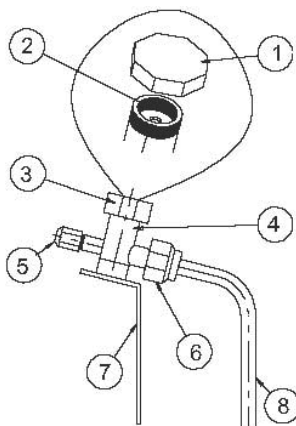
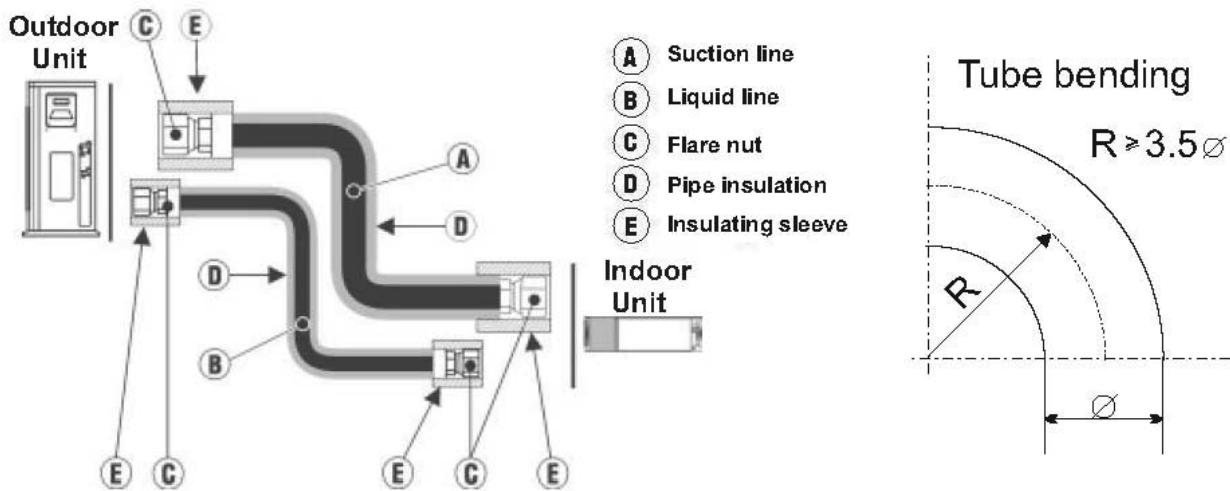
COOLING MODE



HEATING MODE



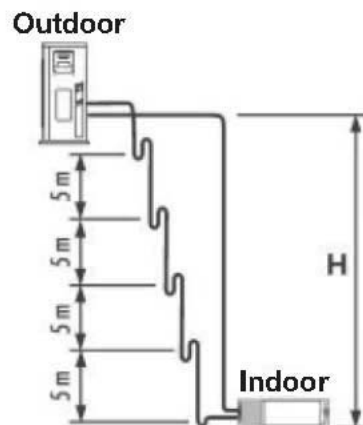
# 10. TUBING CONNECTIONS



TUBE (Inch)	1/4"	3/8"	1/2"	5/8"	3/4"
TORQUE (Nm)					
Flare Nuts	11-13	40-45	60-65	70-75	80-85
Valve Cap	13-20	13-20	18-25	18-25	40-50
Service Port Cap	11-13	11-13	11-13	11-13	11-13

1. Valve Protection Cap-end
2. Refrigerant Valve Port (use Allen wrench to open/close)
3. Valve Protection Cap
4. Refrigerant Valve
5. Service Port Cap
6. Flare Nut
7. Unit Back Side
8. Copper Tube

When the outdoor unit is installed above the indoor unit an oil trap is required every 5m along the suction line at the lowest point of the riser. Incase the indoor unit is installed above the outdoor, no trap is required.



## 11. CONTROL SYSTEM

### 11.1 SAFETY CONTROL

#### 11.1.1 Time delay safety control

a. 3 minutes delay for compressor—the compressor is ceased for 3 minutes to balance the pressure in the refrigeration cycle in order to protect the compressor.

b. 2 minutes delay for 4-way valve—The 4-way valve is ceased for 2 minutes to prevent the refrigerant-gas abnormal noise when the HEATING operation is OFF or switch to the other operation mode.

#### 11.1.2 Indoor pipe temperature sensor frost prevention control

When the indoor pipe temperature sensor reads 0°C or below for 5 minutes, the indoor pipe temperature sensor frost prevention control starts. The compressor and outdoor fan stop and the indoor fan operates at high speed for 3 minutes. After that, if the indoor pipe temperature sensor reads less than 5°C this control prolonged until the indoor pipe temperature sensor reads 5°C or more.

#### 11.1.3 High temperature protection control

During HEATING operation, the outdoor fan motor and compressor are controlled by the indoor pipe temperature to prevent the high temperature of compressor.

Outdoor fan OFF: when the indoor pipe temperature is  $\geq 53^{\circ}\text{C}$  Outdoor fan ON: when the indoor pipe temperature is  $\leq 48^{\circ}\text{C}$  Compressor OFF: when the indoor pipe temperature is  $\geq 62^{\circ}\text{C}$  Compressor ON: when the indoor pipe temperature is  $\leq 48^{\circ}\text{C}$

### 11.2 “I Feel” Model Operation

#### 11.2.1 When the “I Feel” mode is selected,

the operation mode and initial set temperature are determined by the initial room temperature at start-up of the operation except to turn off the air conditioner and operates it again.

#### 11.2.2 If the mode is change to “I Feel” mode form other mode,

the “I Feel” mode doesn’t operate until compressor stop for more than 3 minutes

Mode	Initial room temperature	Initial set temperature
COOLING	26°C or more	24°C
DRY	20°C to 25 °C	18°C
HEATING for Heat Pump Type FAN for Cooling Only Type	Less than 20°C	23°C

In the “I Feel” mode, when the controller receives the up or down single of temperature, the set temperature can adjust by 1°C upper or lower. The biggest you can adjust by 2°C upper or lower.

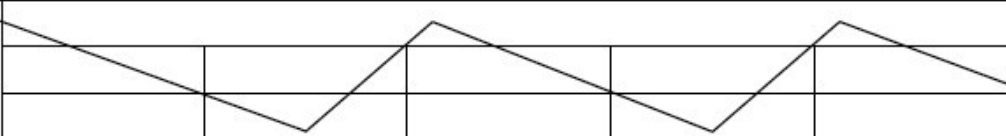
### 11.3 “COOLING” Mode Operation

#### 11.3.1 When the COOLING mode is selected without setting temperature,

the system will set the set temperature at 26°C automatically with the AUTO FAN speed.

#### 11.3.2 When selecting the COOLING mode operation,

the system will operate according to the setting by the remote controller and the operation is as following:

Room Temp.					
Set TEMP. +1°C					
Set TEMP. -1°C					
Time	More than 2 min	More than 2 min	More than 2 min	More than 2 min	More than 2 min
Indoor Fan	Set Speed	Set Speed	Set Speed	Set Speed	Set Speed
Compressor	ON	OFF	ON	OFF	ON
Outdoor Fan	ON	OFF	ON	OFF	ON

## 11.4 “DRY” Mode Operation

**1.4.1** The system for DRY operation used the same refrigerant circle as the cooling circle.

**12.4.2** When the system operates in DRY mode,

at first it operates in cooling mode at 16°C or 18°C for 3 minutes. And then, the system operates in cooling mode with low speed that regards the temperature of the room temperature sensor reads decrease 2°C as the set temperature. During the course of this, the fan speed set operation is failing but the vane motor can be controlled.

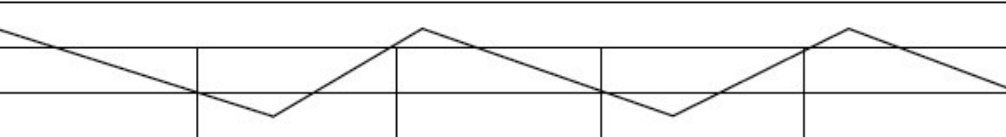
## 11.5 “HEATING” Mode Operation (Only available for Heat Pump)

**11.5.1** When the HEATING mode is selected without setting temperature,

the system will set the temperature at 23°C automatically with the AUTO FAN speed.

**11.5.2** When selecting the HEATING mode operation,

the system will operate according to the setting by the remote controller and the operation is as following:

Set Temp. +1°C					
Set Temp. -1°C					
Room Temp.					
Time	More than 2 min	More than 2 min	More than 2 min	More than 2 min	More than 2 min
Compressor	ON	OFF	ON	OFF	ON
Outdoor fan	ON	OFF	ON	OFF	ON

**11.5.3** In HEATING mode,

the indoor fan motor speed is controlled by Cold Air Prevention Control.

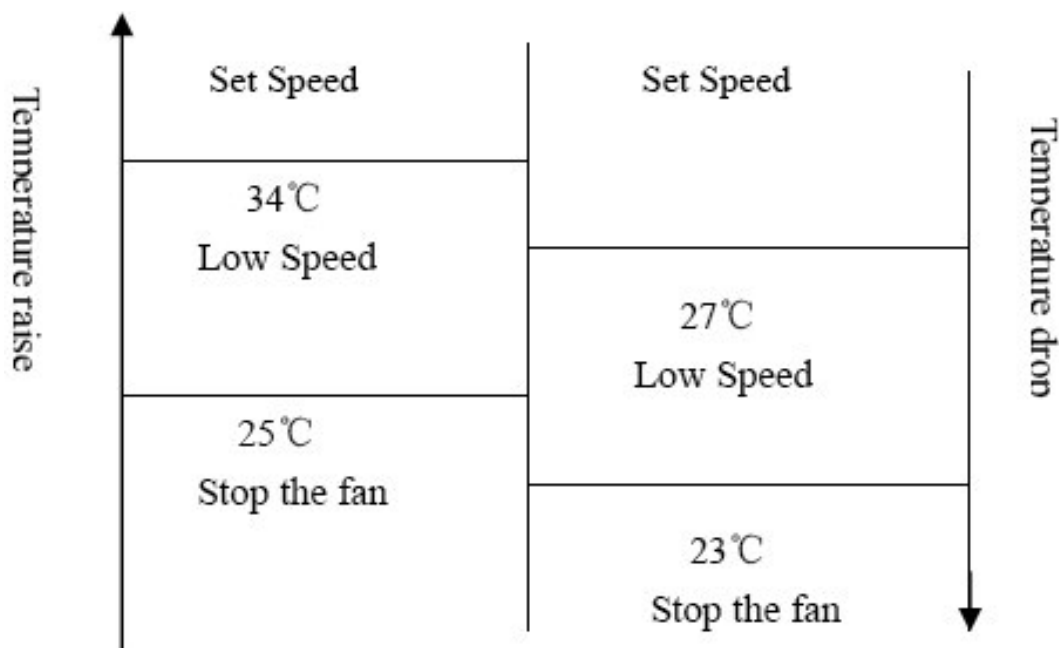
### 11.5.4 Cold Air Prevention Control

a. The function is intend to prevent cold air from being discharged when the heating operation starts or when defrosting.

b. The indoor fan speed will be controlled as following.

c. The vane angle is at the angle C(100°) .

d. During the heating operation, if the compressor stops that it will adjust the indoor fan speed, after 30 seconds to stop the fan.



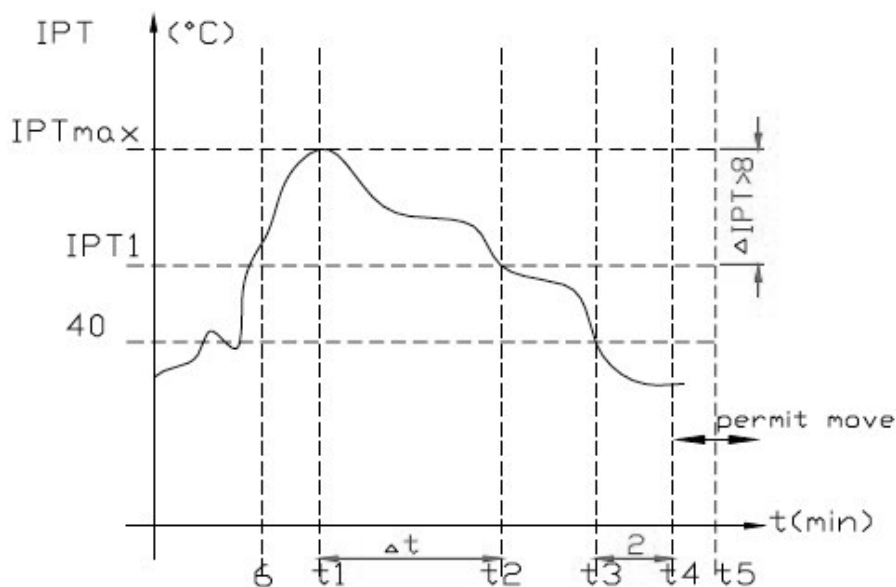
### 11.5.5 Defrost

Defrosting of the outdoor heat exchange is controlled by the microprocessor with detection by the indoor pipe temperature sensor.

Defrost control type is according to the JC on the PCB whether is connected.

1. When the JC is connect on the PCB

When one of the conditions of A, Band C is satisfy, the defrosting operation stars.



In the condition A, it must satisfy the condition a),b) and c) then into defrosting operation.

- $IPT1$  satisfy  $IPT1 = IPT_{MAX} - \Delta IPT (8^{\circ}C)$
- $t5 \geq 50$  minutes (the compressor cumulative operation time  $\geq 50$  minutes,  $t5$  is permitted move and lower than  $t1$  too).
- $IPT < 40^{\circ}C$ , and keep 2 minutes.

According to the condition A enter the defrosting operation, the first defrosting operation time is 8minutes; After defrosting operation one cycle, and then judge and regulate the defrosting operation time.

- B. After the compressor cumulative operation time exceeds 120 minutes and the temperature of the IPT is less than  $35^{\circ}\text{C}$  for 2 minutes. When the defrosting operation time on this condition exceeds 8 minutes, it will terminate.
- C. After the compressor operation continuously for 20 minutes and the IPT is less than  $23^{\circ}\text{C}$  or from the last time of defrosting operation is 50 minutes or more intervals. When the defrosting operation time on this condition exceeds 10 minutes, it will terminal.

## 2. When the JC isn't connected on the PCB

When the conditions of a) or b) is satisfy, the defrosting operation starts.

a) Have the outdoor sensor on the outdoor unit: Under the heating operation, the compressor cumulative operation time exceeds 50 minutes and the temperature of the outdoor pipe temperature sensor reads lower than  $-4^{\circ}\text{C}$

b) No the outdoor on the outdoor unit: Under the heating operation, the compressor cumulative operation time exceeds 50 minutes, if the indoor pipe temperature sensor reads lower than  $40^{\circ}\text{C}$  continuously for 2 minutes.

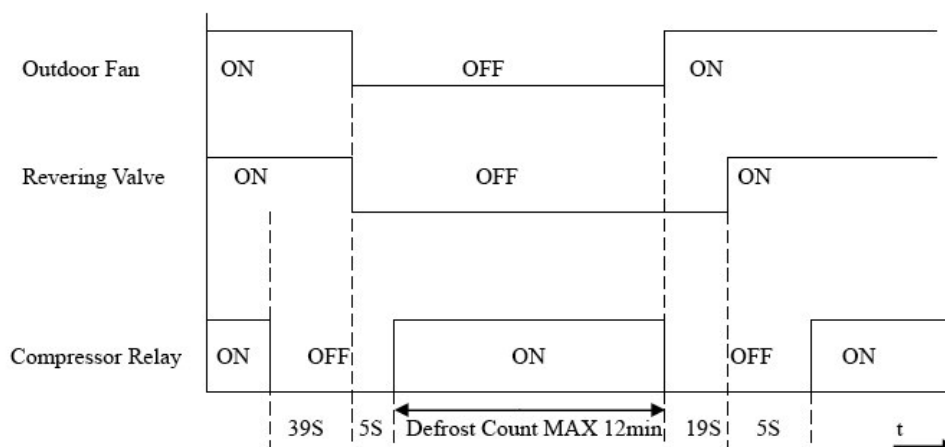
## 3. Defrost terminating conditions

When the condition c) or d) is satisfy, the defrosting operation will terminal.

c) The outdoor defrost sensor reads  $15^{\circ}\text{C}$  or more.

d) The defrosting time exceeds 10 minutes.

### ● Defrosting time chart



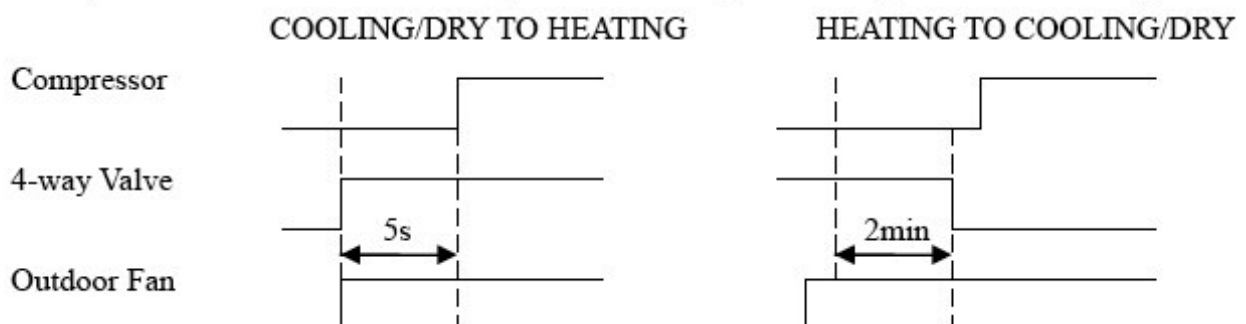
## 11.6 “FAN” mode operation

The indoor fan motor always turns on at the set speed and the vane motor turns on at the set fettle.

## 11.7 4-way valve control

HEATING ON  
COOLING/DRY OFF

The 4-way valve reverses for 5 seconds right before start-up of the compressor as following chart:



## 11.8 “SLEEP” mode

When the SLEEP button is pressed, the SLEEP mode is selected as following:

1. The indoor fan speed is set at the low speed, the power lamp and the sleep lamp is on, the temperature off after 5 minutes.
2. When selecting COOLING/DRY operation with SLEEP mode, the set temperature will be raised by 1°C 1 hour later and 2°C 2 hour later.
3. When selecting HEATING operation with SLEEP mode, the set temperature will be dropped by 1°C 1 hour later and 2°C 2 hour later.
4. After the system operates in SLEEP mode for 8 hours, it will stop automatically.

## 11.9 Fan motor control

### (1) Rotational frequency feedback control

The indoor fan motor is equipped with a rotational frequency sensor, and outputs signal to the microprocessor to feedback the rotational frequency. Comparing the current rotational frequency with the target rotational frequency, the microprocessor adjusts fan motor electric to make the current rotational frequency close to the target rotational frequency. With this control, when the fan speed is switched, the rotational frequency changes smoothly.

- (2) When the rotational frequency feedback signal has not output for 5 seconds (or when the microprocessor can't detect the signal for 5 seconds), the fan motor is regarded locked-up. Then the electric current to the fan motor is shut off. 10 second later, the electric current is applied to the fan motor again. During the fan motor lock-up, the POWER indicator lamp flashes on and off 6 times/cycle or E6 to show the fan motor abnormality.

## 11.10 Auto fan speed control

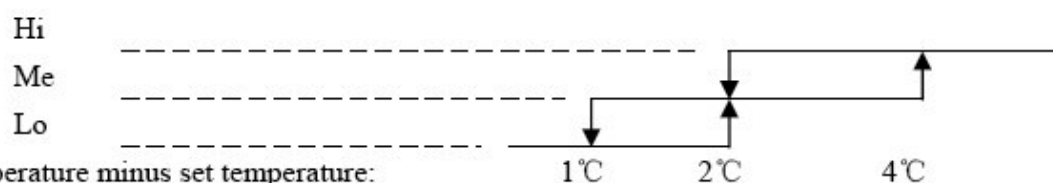
### 11.10.1 When the auto fan speed is selected,

the indoor fan motor speed is automatically controlled by the room temperature and the set temperature.

### 11.10.2 In COOLING mode,

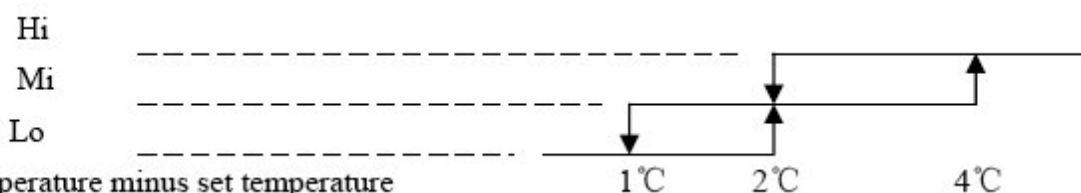
the indoor fan motor operates as following:

Fan Speed



### 11.10.3 In HEATING mode, the indoor fan motor operates as following:

Fan Speed



## 11.11 Auto vane operation control

### 11.11.1 Vane motor drive

The unit is equipped with a stepping motor for the vane. The rotating direction, speed, and angle of the motor are controlled by pulse signal transmitted from indoor microprocessor.



### 11.11.2 Positioning

The vane is once pressed to the cane stopper below to confirm the standard position and then set to the desired angle. The positioning is decided as follows:

- a. When the ON/OFF button is pressed.
- b. When the vane control is change from AUTO to MANUAL.
- c. When the SWING is finished.
- d. When the test run starts.
- e. When the power supply turns ON.

### 11.11.3 The auto vane changes as follows by pressing the VANE CONTROL button.

### 11.11.4 VANE AUTO mode

In vane auto mode, the microprocessor automatically determines the vane angle and operation to make the optimum room-temperature distribution.

### 11.11.5 SWING mode

When presses the SWING button, the vane swings.

## 11.12 TIMER Operation

### 11.12.1 To activate the air conditioner at the desire time,

follow the procedure specified below(the remote control and air conditioner are switched off):

- a. Press the TIMER button
- b. Select the desired mode by pressing the mode button.
- c. Select the desired temperature by pressing the UP/DOWN button (only possible when the 'cool' or 'heat' mode is selected).
- d. Select the ventilator speed (low, medium or high) or automatic mode (only possible when the feel, COOL or HEAT mode is selected) by pressing the Fan button. The ventilator always operates in the auto mode when the dry mode is selected.
- e. Select swing or no swing by pressing the SWING button
- f. Press the TIMER button ('h' flashes ).
- g. Use the UP/DOWN button to select the time at which the air conditioner must activate (between 0 and 10 hours can be set at every half hour-between 10 and 24 hours can be set at every hour).
- h. Press the TIME button ('h' stops flashing) and the preset time appears in the display.
- i. Press the TIME button again to delete the selected data from the memory.

**Note:** if no buttons are pressed during the programming of the timer function, thee remote control will switch off automatically after 10 seconds.

### 11.12.2 To switch the air conditioner off at the desired time,

follow the procedure specified below (the remote control and air conditioner are switched off):

- a. Press the timer button.
- b. Use the UP/DOWN button to select the time at witch.

## 11.13 Emergency Operation

When the EMERGENCY operation switch is pressed once, COOLING mode is selected and if in 3 seconds the emergency operation switch is pressed again, mode is selected. Then pressed once again, the unit is switch off.

When the remote controller is missing, has failed or the batteries run down, press the EMERGENCY operation switch on the front of the indoor unit. The unit will start. The first 30 minutes of operation will be the test run operation. The operation is for servicing. The indoor fan runs at high speed and the system is in continuous operation.

The thermostat is ON and timer is reset to normal.

After 30 minutes of test run operation the system shifts to AUTO COOLING/Heating mode, and the indoor fan runs in automatic speed. The operation continues until the EMERGENCY operation switch is pressed or a button on the remote controller is pressed, the normal operation will start.

**Note:** Do not press the EMERGENCY operation switch during normal operation.

## 11.14 AUTO RESTART Function (Option)

### 11.14.1 When the indoor unit is controlled with the remote controller,

the operation mode, set temperature, and the fan speed are memorized by the indoor electric control PCB. The AUTO RESTART function sets to work the moment power has restored after power failure. Then, the unit will restart automatically.

### 11.14.2 How to set the AUTO RESTART function.

- Press the emergency switch and power supply to the PCB following, keep 10seconds and the buzzer will beep three times. The AUTO-RESTART is set.
- Do the operation again, the buzzer will beep four times and the AUTO-RESTART function is cancelled.

## 11.15 Electron lock function

Press the fan button for 5 seconds, the buzzer beep one sound. The all button is invalidation for operate the air conditioner except the remote controller.

## 11.16 Failure Display and handling

### 11.16.1 Failure Display

When the controller is failure, the buzzer will voice long for three times, and displays the failure from the failure lamp.

### 11.16.2 Failure Code

If there is the digital pipe that display the failure code for digital pipe, or display for the fan lamp.

Type of failure	The lamp flash	Display of digital pipe
The failure of room temperature sensor		E1
The failure of indoor pipe temperature sensor		E2
Outdoor unit protected		E5

### 12.16.3 Failure Handling

a. When the room temperature sensor or the indoor pipe temperature sensor is failure, the system will be shut off, the compressor will be OFF, and the outdoor fan and the indoor fan will be OFF. The system doesn't receive the signal of remoter controller except the signal of shut off it. When the failure disappeared, the controller can operate in normal mode. Before this, presses the "ON/OFF" to start the system, and it will operate in COOLING or HEATING for 30minutes, and follows shut off. During this, it displays the failure and the protection is failing. You must be given the electric again to operate it. In the failure, you can operate the fan mode.

b. When the outdoor protects in the COOLING or DRY, the outdoor unit stops, the indoor fan operates in set speed; and in the HEATING, the outdoor unit stops, the indoor fan operates in cold air prevention control. The system doesn't receive the signal of remoter controller except the signal of shut off it. When the system check the voltage is 220V and the delay control is finished, it operates at normal again.

c. When the indoor fan motor is failure, the compressor is stopped, the outdoor fan and indoor fan is stopped and display the failure. The system doesn't receive the signal of remoter controller except the signal of shut off it.

**11.16.4 Display of the control**

In the display board the lamp from left is the POWER lamp (Red), the SLEEP lamp (Yellow), the TIMER lamp (Yellow), the RUN lamp (Green)

**11.16.5 When gives the control electric,**  
the buzzer voices a long for 0.3 second per cycle.

**12.17 Control logic for the heater**

The control logic for the heater is as follows:

Condition to Cut in:

If all following conditions are satisfied, the heater can operate:

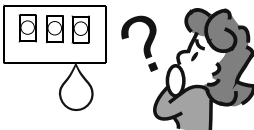
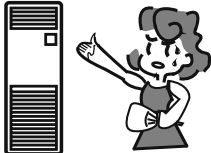
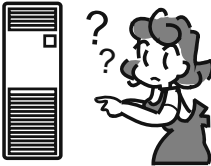
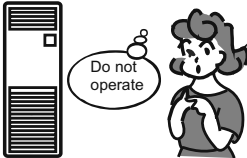
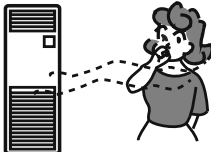

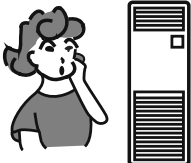
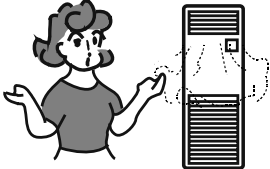
1. The running time for the compressor exceeds 10 seconds.
2. The normal running time for the IDU Fan exceeds 15 seconds.
3. Not available in deicing mode.
4. Exceed 30 seconds without heater operation.
5.  $ST-RT \geq 3^{\circ}\text{C}$
6.  $RT < 22^{\circ}\text{C}$
7.  $ICT \leq 43^{\circ}\text{C}$

Condition to Cut off

If any following condition is satisfied, the heater will be off power:

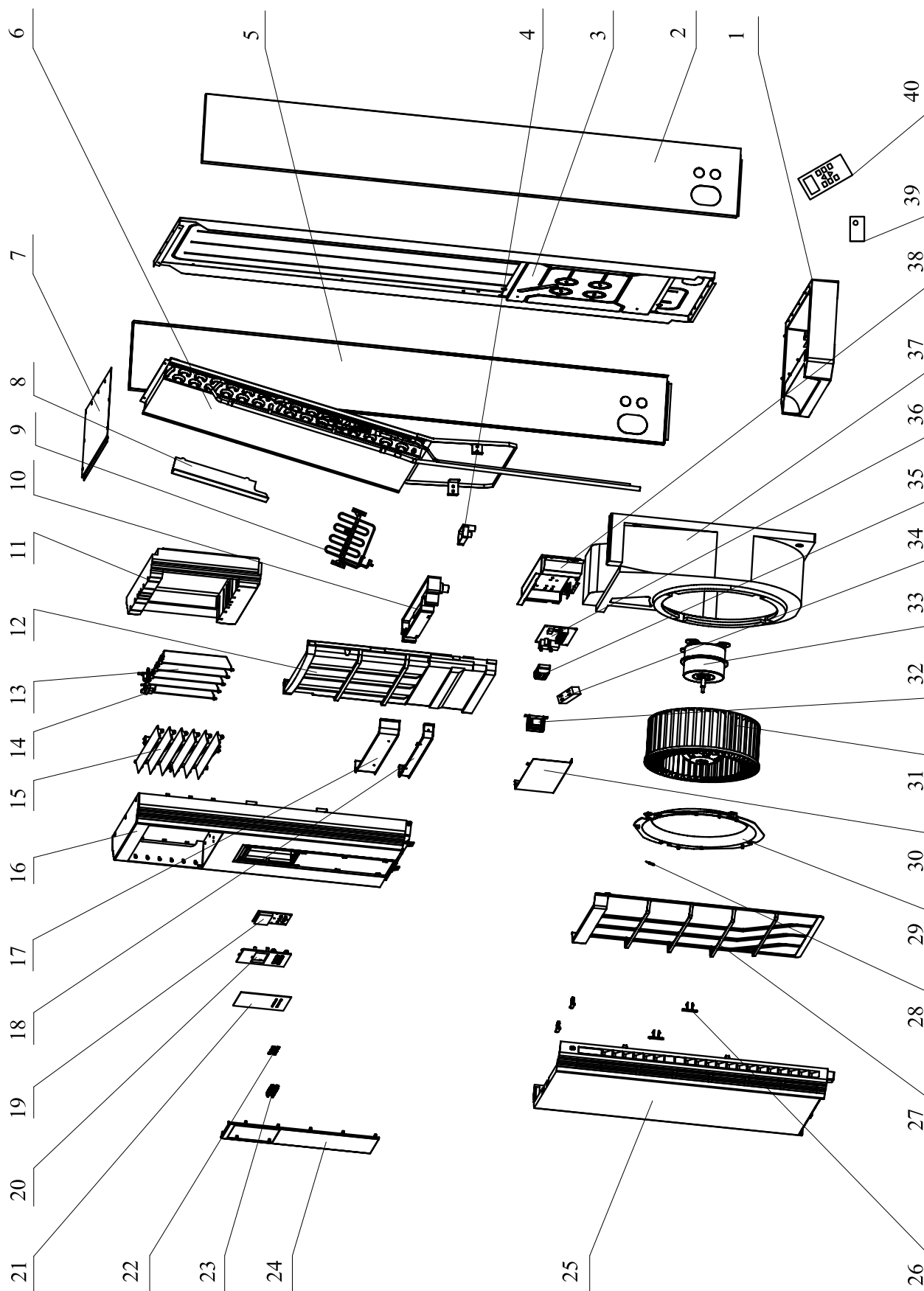
1. The compressor is power off.
2.  $RT \geq 24^{\circ}\text{C}$
3.  $ICT \geq 48^{\circ}\text{C}$
4. The IDU Fan is not running
5. Entering into sleep mode.

## 12. TROUBLESHOOTING

Trouble	Analysis
<p>Does not run</p> 	<ul style="list-style-type: none"> <li>• If the protector trips or fuse is blown.</li> <li>• If the leakage breaker trips.</li> <li>• If the plug loosened.</li> <li>• Sometimes it stops working to protect the appliance.</li> </ul>
<p>Not cool or warm enough</p> 	<ul style="list-style-type: none"> <li>• Is the air filter dirty?</li> <li>• Are the intakes and outlets of the air conditioner blocked?</li> <li>• Is the temperature set properly?</li> </ul>
<p>Ineffective control</p> 	<ul style="list-style-type: none"> <li>• If strong interference (from excessive static electricity discharge, power supply voltage abnormality) presents, sometimes operation will be affected. In this case, switch off the breaker and switch on it again 2~3 seconds later.</li> </ul>
<p>Does not operate immediately</p> 	<ul style="list-style-type: none"> <li>• Shifting to other modes during operation, wait 3 minutes to start.</li> </ul>
<p>Peculiar odor</p> 	<ul style="list-style-type: none"> <li>• Odor may come from sources such as furniture or cigarette and blown out by the unit.</li> </ul>
<p>A sound of running-water</p> 	<ul style="list-style-type: none"> <li>• Caused by the flow of refrigerant inside the air conditioner, not a failure.</li> </ul>
<p>A "pi-pa" sound can be heard</p> 	<ul style="list-style-type: none"> <li>• Caused by the expansion or contraction of the internal components due to temperature changes. That is not a failure.</li> </ul>
<p>Blow mist from the outlet</p> 	<ul style="list-style-type: none"> <li>• Room air is cooled down by the cold air blown out from the unit and mist thus form during "COOLING" or "DRY" mode when humidity is too high inside.</li> </ul>

# 13. EXPLODED VIEWS & SPARE PARTS LISTS

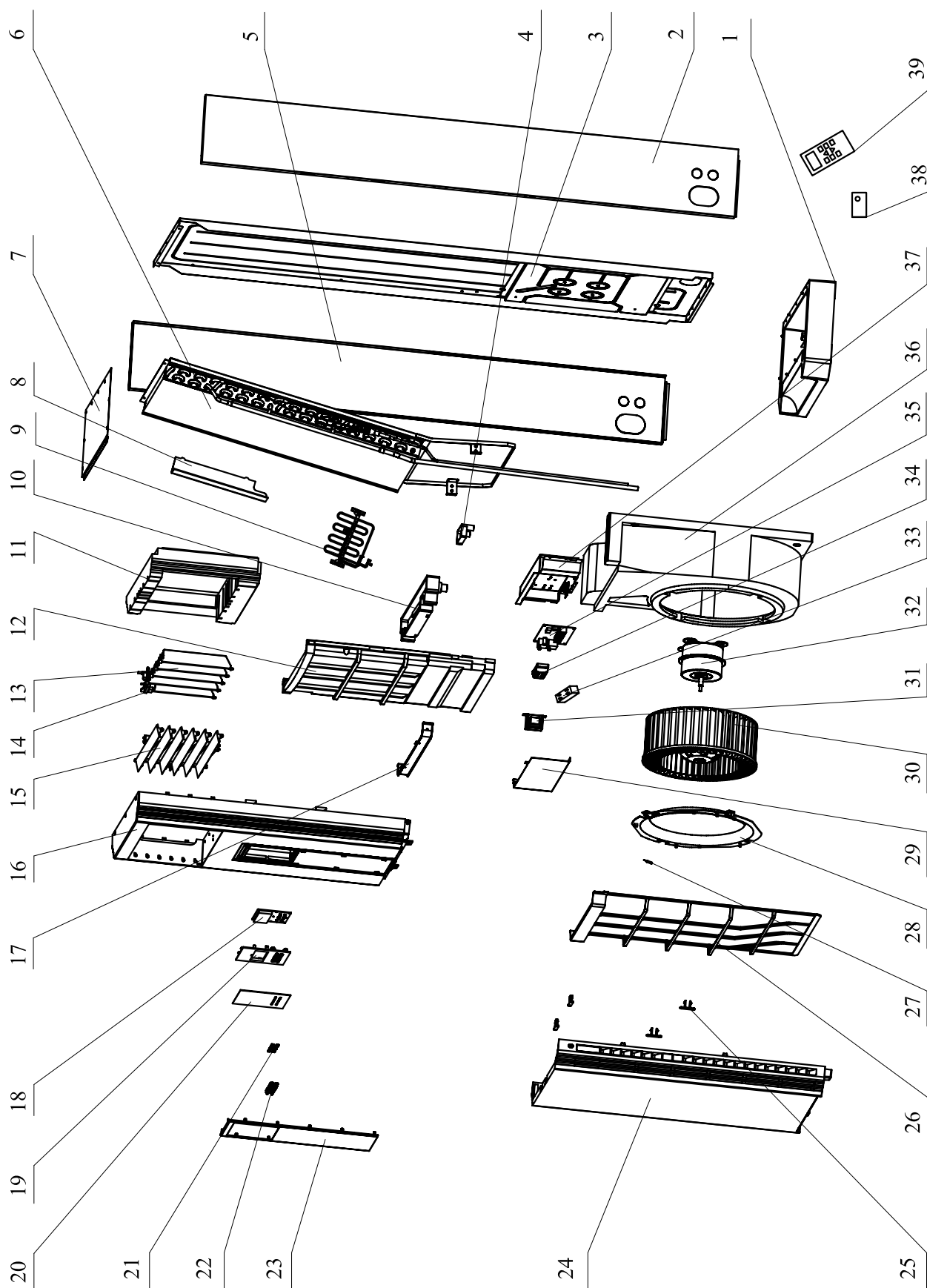
## 13.1 Indoor Unit: SAF024



**13.2 Indoor Unit: SAF024**

No.	Items	Description	Quantity
1	1070710042	Inside Base	1
2	1210520504	Right Plate	1
3	1210710130	Back Plate	1
4	1200710102	Rubber Water Drainage	1
5	1210520503	Left Plate	1
6	1300710366	Evaporator	1
7	1210520113	Top Plate	1
8	1071200043	Pipe Cover	1
9	1090020038	Heater(Optional)	1
10	1150520103	Water Drainage	1
11	1150720004	Out Blow Casing Foam	1
12	1150720005	Heat insulation board	1
13	1070520106	Vertical Vane	1
14	1170010008	Synchronization Motor	1
15	1070520530	Horizontal Vane	1
16	1300710361	Up Panel(AIRWELL)	1
16	1300710373	Up Panel(ELECTRA)	1
17	1080520103	Middle Supporter	1
18	1080710302	Heat insulation board Cover	1
19	1090520136	Display PCB	1
20	1070710422	Display PCB Supporter	1
21	1070710014	Display PCB Cover	1
22	1070710424	Spring	1
23	1070710423	Button	1
24	1020710010	Ornamental Board	1
25	1300710364	Down panel	1
26	1070520149	FastEner	1
27	1070520147	Air Filter	1
28	1170230025	Indoor Sensor	1
29	1074060115	Lead Flow Circle	1
30	1080520106	Inside Electrical Box Cover	1
31	1070010008	Centrifugal Fan	1
32	1170240002	Transformer	1
33	1170050002	Indoor Motor	1
34	1170100056	Fan Motor Capacitor	1
35	1170200079	Terminal	1
36	1090710148	Main PCB(With heater)	1
36	1090710713	Main PCB(Without heater)	1
37	1070520318	Volute Casing	1
38	1080520105	Inside Electrical Box	1
39	1070210005	Anions Generator(Optional)	1
40	1090050450	Remote Controller(AIRWELL)	1
40	1090050452	Remote Controller(ELECTRA)	1

### 13.3 Indoor Unit: SAF045



**13.4 Indoor Unit: SAF045**

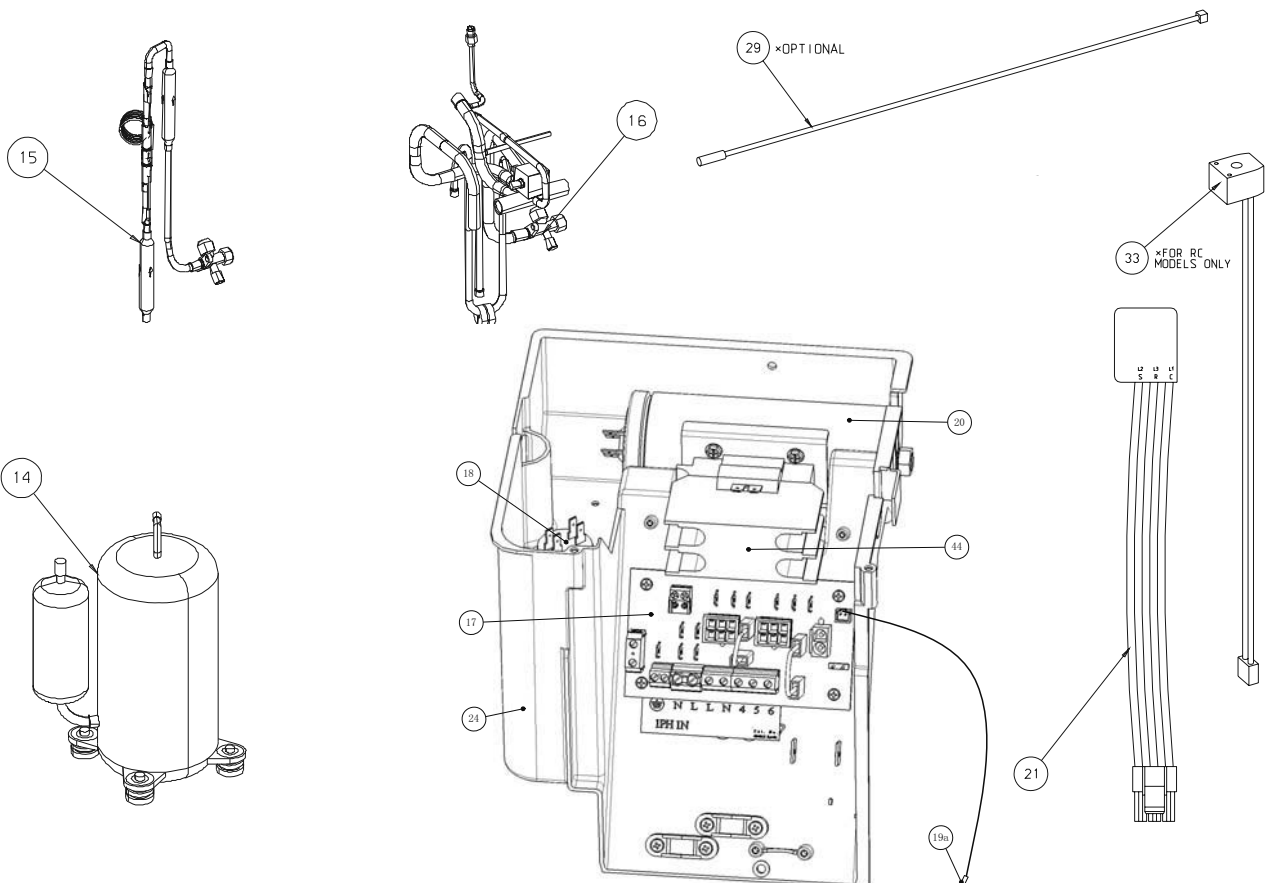
No.	Items	Description	Quantity
1	1301200262	Inside Base	1
2	1081200126	Right Plate	1
3	1081200103	Back Plate	1
4	1204090101	Rubber Water Drainage	1
5	1081200127	Left Plate	1
6	1110050960	Evaporator	1
7	1301200261	Top Plate	1
8	1071200043	Pipe Cover	1
9	1090020038	Heater(Optional)	1
10	1154090101	Water Drainage	1
11	1151200001	Out Blow Casing Foam	1
12	1214090113	Heat insulation board	1
13	1071200014	Vertical Vane	1
14	1170010008	Synchronization Motor	1
15	1071200073	Horizontal Vane	1
16	1301200259	Up Panel(AIRWELL)	1
16	1301200272	Up Panel(ELECTRA)	1
17	1084090101	Middle Supporter	1
18	1090520136	Display PCB	1
19	1070710422	Display PCB Supporter	1
20	1070710416	Display PCB Cover	1
21	1070710424	Spring	1
22	1070710423	Button	1
23	1020710010	Ornamental Board	1
24	1071200069	Down panel	1
25	1070520149	Fastener	1
26	1070300003	Air Filter	1
27	1170230025	Indoor Sensor	1
28	1074090102	Lead Flow Circle	1
29	1084090113	Inside Electrical Box Cover	1
30	1070010004	Centrifugal Fan	1
31	1170240002	Transformer	1
32	1170030010	Indoor Motor	1
33	1170100057	Fan Motor Capacitor	1
34	1170200079	Terminal	1
35	1090710148	Main PCB (With heater)	1
35	1090710173	Main PCB (Without heater)	1
36	1154090102	Volute Casing	1
37	1084090112	Inside Electrical Box	1
38	1070210005	Anions Generator(Optional)	1
39	1090050450	Remote Controller(AIRWELL)	1
39	1090010452	Remote Controller(ELECTRA)	1



This exploded view diagram illustrates the internal components of the LG LW18170HR air conditioner. The diagram shows the main indoor unit body, the evaporator coil assembly, the condenser coil assembly, the compressor, and the fan motor. Key components are numbered for identification:

- 1: Top panel
- 2: Filter
- 3: Filter
- 4: Fan motor
- 5: Fan blade
- 6: Base plate
- 7: Evaporator coil
- 8: Evaporator coil
- 9: Evaporator coil
- 10: Evaporator coil
- 11: Evaporator coil
- 12: Evaporator coil
- 13: Evaporator coil
- 14: Evaporator coil
- 15: Evaporator coil
- 16: Evaporator coil
- 17: Evaporator coil
- 18: Evaporator coil
- 19: Evaporator coil
- 20: Evaporator coil
- 21: Evaporator coil
- 22: Evaporator coil
- 23: Evaporator coil
- 24: Evaporator coil

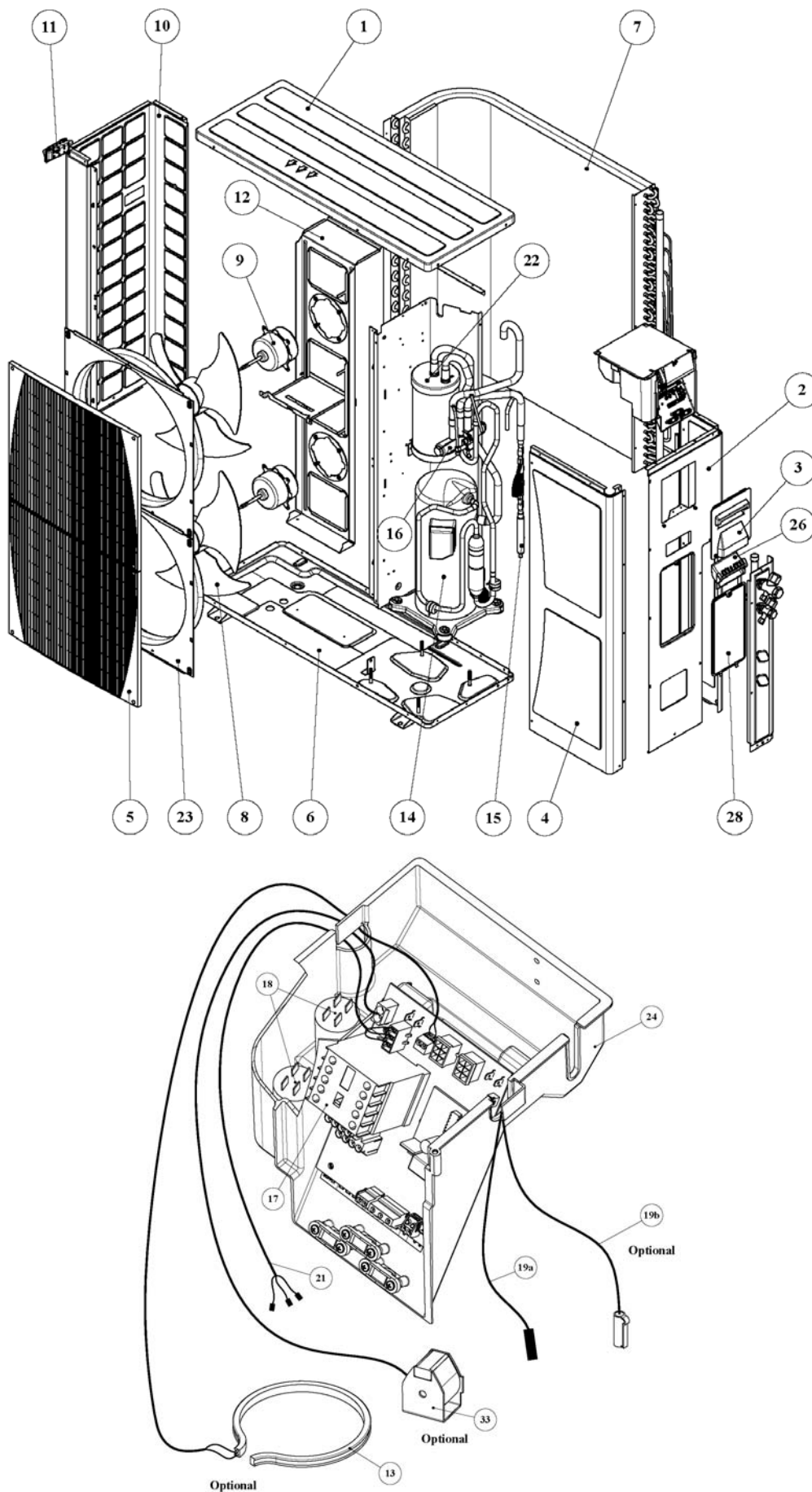
\*Optional



### 13.6 Outdoor Unit: OU7-24 Z

No.	Item	Description	Quant
1	437045	LARGE UPPER COVER CUE	1
2	433280	SIDE PANEL OU7-24 R410A	1
3	436357	SMALL ELECTRICAL COVER	1
4	439329	COVERAIR COLLECTOR	1
5	437091	OU SQUARE FAN GUARD	1
6	433722	NEW BASE ASSY OU7-24C EXPORT R410A	1
7	433285	COIL OU7-24 HDR	1
8	4529604	AXIAL FAN D493*143	1
9	434211	REPLACE BY SP000000MOTOR+BRACKET	1
10	433281	SIDE GUADRO OU7-24 R410A	1
11	436358	TRANSPORT HANDLE CUE	1
12	439342	MOTOR SUPPORT OU7	1
14	438795	COMPRESSOR GP270PAA	1
15	433934	CAPILLARY HEATING ASSY OU7-24 R410A	1
16	433660	TUBING ASSY OU7-24Z R410A	1
17	413496	BOARD TPHN 5F (RoHS)	1
18	442007	CAPACITOR 6uF 400V P1/P2	1
19a	434716	THERMISTOR L1050 (for coil)	1
20	442038	CAPACITOR 50mF 400V P1/P2	1
21	437627	COMPRESOR WIRING TPHN-5F	1
24	437229	ELECTRICAL BOX TPHN	1
33	442520	VALVE COIL L700 MOLEX-DUMAN	1
44	192207	CONTACTOR 230V, 40A	1

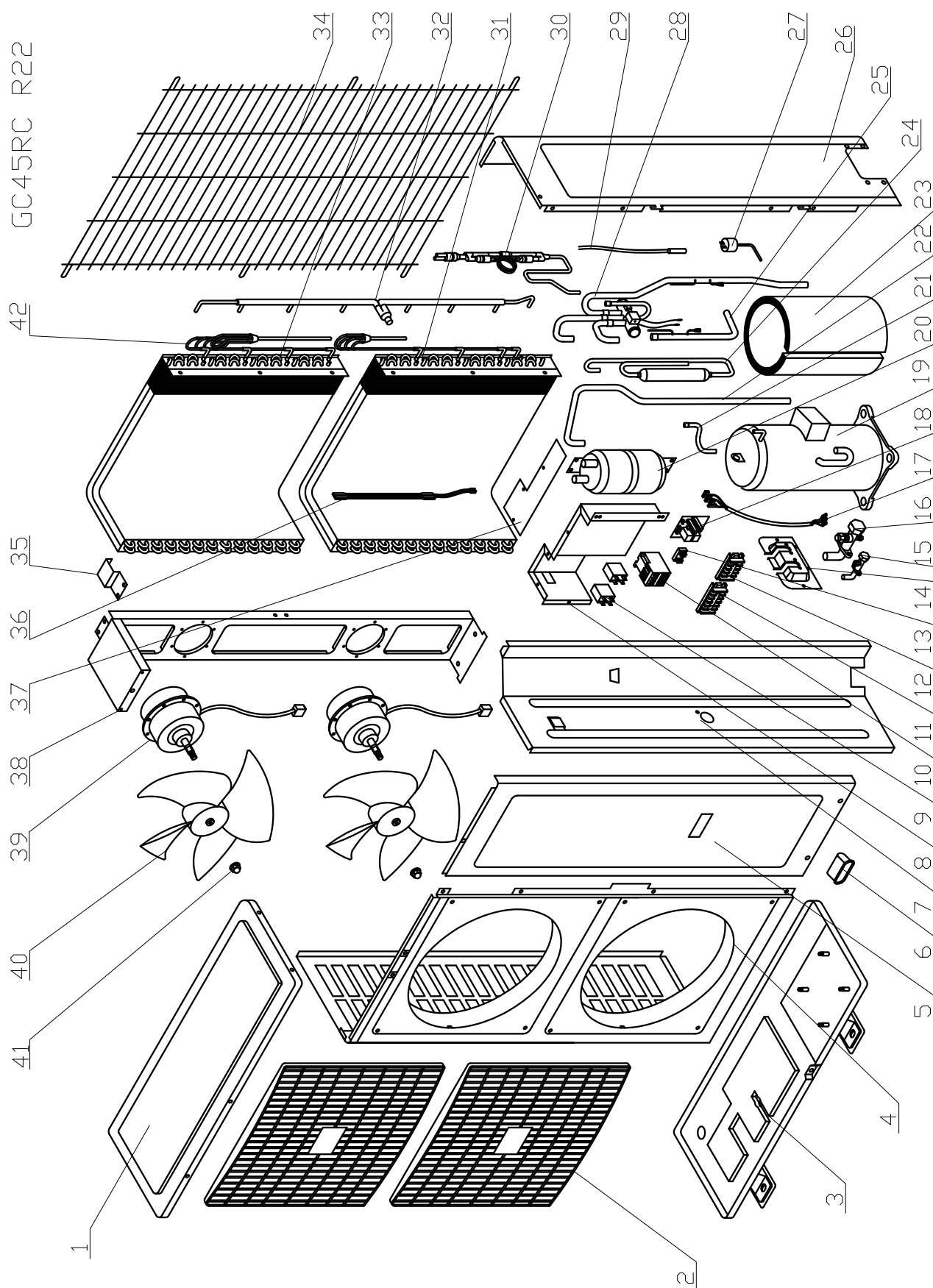
### 13.7 Outdoor Unit: OU10-47T



**13.8 Outdoor Unit: OU10-47T**

SP No.	Item	Description	Quantity
1	437045	UPPER COVER EL13 OU LARGE	1
2	417221	Side panel N OU10	1
3	436357	SMALL ELECTRICAL COVER OU	1
4	456714	FRONT PANEL OU10	1
5	439662	GRILLE OU10	2
6	439833	NEW BASE ASSY OU EXPORT	1
7	442712	COIL OU10-47 GR HDR 2R NEW R41	1
8	439650	AXIAL FAN D400*112 (COMMON)	2
9	439651	MOTOR 70W,3S,OU10-50	2
10	417223	Side net panel N OU10	1
11	436358	OU LEADING HANDLE	1
12	439657	MOTOR SUPPORT OU10	1
12b	414226	Motor support flange OU-10	1
12c	414229	Motor support clamp bracket OU	1
13	190443	HEATER CRANKCASE MITSUBISHI CO	1
14	438824	COMPRESSOR ZP54KSE-TFM	1
15	441107	CAPILLARY ASSY OU10-47Z	1
16	438957	Tubing Assembly OU10-47 EXPORT	1
17	438886	BOARD TPHN 3F/3G	1
18	434549	SERVICE VALVE ASSY 3/4F 3 WAY	1
18	442017	CAPACITOR 3mF 450V P1/P2	2
19a	434716	THERMISTOR+CAP WTH CONNECTOR L	1
19b	402741	THERMISTOR WTH CONNECTOR L1250	1
21	445320	COMPRESSOR WIRING WITHOUT PLUG	1
22	402284	SUCTION ACCUMULATOR 5" x 3/4"	1
23	439661	AIR OUTLET RING OU10	2
24	437229	ELECTRICAL BOX TPHN	1
26	436352	RAISING HANDLE OU10	1
28	439656	SIDE COVER OU-8/10	1
31	402165	TYPHOON BOX COVER	1
33	442466	VALVE COIL L700 MOLEX-SANHUA	1
65	416910	CABLE HOLDER	4

# 13.9 Outdoor Unit: GC 45 R22



**13.10 Outdoor Unit: GC 45 R22**

No.	Part No.	Description	Quantity
1	4517832	TOP COVER PAINT ASSY	1
2	4517144	FAN COVER PP+UV/GRILL A	2
3	4520871	BASE PLATE PAINT ASSY.	1
4	4522238	LEFT FRONT PANEL PAINTED ASSY.	1
5	4517834	RIGHT FRONT PANEL PAINT ASSY	1
6	4517772	LITTLE HANDLE	1
7	4521345	DIVIDING PLATE	1
8	4526128	SUPPORT FOR CONTROLLER PANEL	1
9	455000102	DOUBLE PATCH CAPACITOR FOR FAN MOTOR 3UF (CBB61S	2
10	4517782	AC CONTACTOR EB25 OR D2501N	1
11	4517006	TERMINAL BLOCK OF CABLE	1
12	4517308	TERMINAL BLOCK OF POWER SUPPLY	1
13	4517048	TERMINAL BLOCK OF NUETRAL	1
14	4517833	VALVE BASE PAINT ASSY	1
15	4517535	HIGH PRESSURE STOP VALAE	1
16	4517536	LOW PRESSURE STOP VALVE	1
17	4518602	COMPRESSOR CABLE	1
18	467470001	MIX AND MISSING PHASE DEVICE	1
19	4517743	COMPRESSOR ASSY JT160BCBY1L	1
20	4521286	ACCUMULATOR	1
21	4520854	DISCHARGE TUBE1 (12.7*0.7)	1
23	4517783	COMPR. JACKET	1
23	4518782	TOP COVER INSULATION FOR COMP	1
22	4520846	SUCTION TUBE 2 (19.05*1)	1
24	4520863	OIL SEPARATOR WELDING ASSY.	1
25	4520884	CONDENSING TUBE 2(WITH ACCESSORIES)	1
26	4525814	RIGHT-BACK PLATE PAINTED ASSY.	1
27	4519751	PRESSURE SWITCH(3.0MPA OFF/2.4MPA ON)	1
28	4520850	4-WAY VALVE WELDING ASSY.	1
29	4516429	OUT SENSOR BLACK	1
30	4521113	SINGLE-WAY AND FILTER WELDING ASSY.	1
31	C66037900	CONDENSER ASSY/LOWER/GC48	1
32	C65063600	MANIFOLD WELDING ASSY	1
33	4517576	CONDENSOR ASSEMBLY (UP)	1
34	4524731	BACK GRILLE PAINT ASSY	1
35	4525909	CONNECT PANEL ASSY	1
36	4517767	COMPR. SUB HEATER	1
38	4519199	MOTOR KICKSTAND	1
39	4517740R	MOTOR YYK60B-6	2
40	4517004	AXIAL FAN D=450MM	2
41	4523141	HEXAGON LOCKED NUT M10	2
42	C66038000	DISTRIBUTING CAPILLARY ASSY	1

# APPENDIX A

## INSTALLATION AND OPERATION MANUAL

- ▶ **INSTALLATION & OPERATION MANUAL SAF024**
- ▶ **INSTALLATION & OPERATION MANUAL SAF045**