Haier

ENGINEERING DATA

Split Type Air Conditioner

For further improvement the information on the manual is subject to change without prior notice.

NO.: 0010540329

MODELS:

HSU-07CC03	HSU-07CD03	HSU-07CE03	HSU-07HC03	HSU-09CE03
HSU-07HD03	HSU-07HE03	HSU-09CA13	HSU-09CH03	HSU-09CF03
HSU-09CJ03	HSU-09CK03	HSU-09HH03	HSU-09HJ03	HSU-09HE03
HSU-09HK03	HSU-12CA03	HSU-12CA13	HSU-12CB03	HSU-09HF03
HSU-12CB13	HSU-12CC13	HSU-12CD13	HSU-12CE13	HSU-12CH03
HSU-12CF03	HSU-12CG03	HSU-12CI03	HSU-12HR03	HSU-12CL03
HSU-12CM03	HSU-12HA03	HSU-12HC13	HSU-12HD13	HSU-12CP03
HSU-12HI03	HSU-12HJ03	HSU-14C03	HSU-14C13	HSU-12CR03
HSU-14H13	HSU-16C13	HSU-16CC03	HSU-16CD03	HSU-12HN03
HSU-16HC03	HSU-16HD03	HSU-18HA13	HSU-12HP03	
HSU-18HC13	HSU-22CA13	HSU-22CB13		
HSU-22CC13	HSU-22HA13	HSU-22HC13		

HSU-09C03/R1 HSU-09CA03/R1 HSU-09H03/R1

HSU-12CA03/R1 HSU-12C03/R1 HSU-12H03/R1

AS092AMBAA+AU092ABBAA AS052AZMAA+AU052ACMAA

AS184ASMAA+AU184AFMAA AS128AVAAA+AU128ABAAA

AS188ATAAA+AU188AFAAA AS228ATAAA+AU228AFAAA

AS122AYBAA+AU122ABBAA

Content

FEATURES

Features

1.Comfortable: wide-angle airflow.

The vertical dual-flap and horizontal wide-angle louvers ensure the cool(warm) air reaches every corner of the room.

2.Durable and rustproof plastic panel.

Outdoor unit equipped with plastic casing is rust and corrosion-proof as well as weather-resistant.

3.Health air purifying

An air purifying filter with deodorizing and disinfecting functions keep the air clean and users healthy.

4.Quiet operation

Fan With Random-pitched Blades.

Random-pitched blades help reduce operating noise while maintaining a high airflow rate.

5.Energy efficient

The design of inner-grooved copper tube greatly increases the refrigerant contact area and the efficiency of cooling /heating functions.

6. Convenience

Auto restart and washable panel:

The grille can be removed easily and washed when necessary. Even if the power fails when the unit is operating,the unit will automatically return to the operating settings in use before the power failure when power is restored.

7. Wide variety of functions

24-Hour Timer:

24-hour Timer allows users to select the exact time they would like the air conditioner to turn on and to turn off. Timers on previous models operation based on the number of hours of desired operation.

Night-set models

When the air conditioner is operating on the timer-off circuit. The preset room temperature gradually rises (going down in heating) before the unit stops as shown delow. Users can sleep comfortably without sudden change in temperature.

Program "dry"

This function automatically reduces the level of humidity while maintaining the preset indoor temperature.

SPECIFICATIONS

Specifications:

Item \ Model				HSU-09C03/R1	HSU-09CA03/R1	HSU-09CA13
Cooling capacity			BTU/h	9000	9000	9000
Heating capacity			BTU/h	---------	----------	----------
Power supply			W	1PH, 220-230V~ , 50Hz	1PH, 220-230V~ , 50Hz	1PH ,220-230V~ , 60Hz
cooling	Power input		W	980	980	900
	Running current		A	4.8	4.6	4.3
	EER	BTU/(h•w)		9.18	9.18	10.0
heating	Power input		W	----------	----------	----------
	Running current		A	----------	----------	----------
	COP	BTU/(h • w)		----------	----------	----------
Sound level	Indoor unit		dB(A)	42/36/31(H/M/L)	39/37/30(H/M/L)	42/36/31(H/M/L)
	Outdoor unit		dB(A)	54	54	54
Packaging dimensions	Indoor unit		mm	840x250x360	865x272x330	840x250x360
	Outdoor unit		mm	920x340x613	920x340x613	920x340x613
weight	Indoor unit		kg	7.6/10.6(net /gross)	7.6/10.2(net/gross)	7.6/10.6(net/gross)
	Outdoor unit		kg	32/37(net/gross)	32/37(net/gross)	32/37(net/gross)
Compressor model				RE174VHAH	RE174VHAH	QXT-13(F)
Overload protector				Built-in	Built-in	MRA99149-9201
Running capacitor for comp.				25 μ F/450 VAC	25 μ F/450 VAC	17.5 μ F/450 VAC
Starting method				PSC	PSC	PSC
Refrigerant				R407C	R407C	R22
Refrigerant charge			g	800	850	850
Type of fan unit	Indoor unit			Cross flow fan	Cross flow fan	Cross flow fan
	Outdoor unit			Axial fan	Axial fan	Axial fan
Fan speed	Indoor unit		r/min	1310/1100/920(H/M/L)	1150/1100/920(H/M/L)	1260/1100/920(H/M/L)
	Outdoor unit		r/min	710	730	710
Air volume			m^3/h	500	500	500
Moisture removal			m^3/h	$1.5x10^{-3}$	$1.5x10^{-3}$	$1.5x10^{-3}$
Piping dimension	Liquid pipe		mm	Φ6.35	Φ6.35	Φ6.35
	Gas pipe		mm	Φ9.52	Φ9.52	Φ9.52
Piping connection				Flare nut	Flare nut	Flare nut

Specifications:

Item \ Model				HSU-07CC03 HSU-07CD03 HSU-07CE03	HSU-07HC03 HSU-07HD03 HSU-07HE03	AS052AZMAA AU052ACMAA
Cooling capacity			BTU/h	7000	7000	5000
Heating capacity			BTU/h	---------	8300	----------
Power supply				1PH 220-230V~ 50Hz	1PH 220-230V~ 50Hz	1PH 220-230V~ 50Hz
cooling	Power input		W	750	770	550
	Running current		A	3.5	3.6	2.6
	EER	BTU/(h • w)		9.33	9.09	9.09
heating	Power input		W	----------	720	----------
	Running current		A	----------	3.5	----------
	COP	BTU/(h • w)		----------	11.53	----------
Sound level	Indoor unit		dB(A)	39/37/30(H/M/L)	39/37/30(H/M/L)	39/37/30(H/M/L)
	Outdoor unit		dB(A)	43	43	42
Packaging dimensions	Indoor unit		mm	865x272x330	865x272x330	865x272x330
	Outdoor unit		mm	817x358x620	817x358x620	817x358x620
weight	Indoor unit		kg	7.2/10.2(net/gross)	7.2/10.2(net/gross)	7.2/10.2(net/gross)
	Outdoor unit		kg	31/36(net/gross)	32/37(net/gross)	31/36(net/gross)
Compressor model				KH134VLLC	KH134VLLC	KH104VLLC
Overload protector				BF690-KB	BF690-KB	
Running capacitor for comp.				17 μ F/450 VAC	17 μ F/450 VAC	15 μ F/450 VAC
Starting method				PSC	PSC	PSC
Refrigerant				R22	R22	R22
Refrigerant charge			g	720	750	650
Type of fan unit	Indoor unit			Cross flow fan	Cross flow fan	Cross flow fan
	Outdoor unit			Axial fan	Axial fan	Axial fan
Fan speed	Indoor unit		r/min	1150/1100/920(H/M/L)	1150/1100/920(H/M/L)	1150/1050/920(H/M/L)
	Outdoor unit		r/min	730	730	720
Air volume			m^3/h	500	500	500
Moisture removal			m^3/h	$1.5x10^{-3}$	$1.5x10^{-3}$	$1.0x10^{-3}$
Piping dimension	Liquid pipe		mm	Φ6.35	Φ6.35	Φ6.35
	Gas pipe		mm	Φ9.52	Φ9.52	Φ9.52
Piping connection				Flare nut	Flare nut	Flare nut

Specifications:

Item \ Model				HSU-09CH03 HSU-09CJ03 HSU-09CK03	HSU-09HH03 HSU-09HJ03 HSU-09HK03	HSU-09H03/R1 AS092AMBAA AU092ABBAA
Cooling capacity			BTU/h	9000	9000	9000
Heating capacity			BTU/h	---------	11000	11000
Power supply			W	1PH 220-230V~ 50Hz	1PH 220-230V~ 50Hz	1PH 220-230V~ 50Hz
cooling	Power input		W	10000	1000	980
	Running current		A	4.7	4.7	4.6
	EER	BTU/(h•w)		9.0	9.0	9.18
heating	Power input		W	----------	1100	980
	Running current		A	----------	5.2	4.4
	COP	BTU/(h • w)		----------	10.0	11.22
Sound level	Indoor unit		dB(A)	39/37/30(H/M/L)	39/37/30(H/M/L)	39/37/30(H/M/L)
	Outdoor unit		dB(A)	43	43	43
Packaging dimensions	Indoor unit		mm	865x272x330	865x272x330	865x272x330
	Outdoor unit		mm	817x358x620	817x358x620	817x358x620
weight	Indoor unit		kg	7.2/10.2(net/gross)	7.2/10.2(net/gross)	7.6/10.2(net/gross)
	Outdoor unit		kg	34/39(net/gross)	34/39(net/gross)	34/39(net/gross)
Compressor model				Rotorex QX-184C035	Rotorex QX-184C035	RE174VHAH
Overload protector				B250-145-241H	B250-145-241H	Built-in
Running capacitor for comp.				30 μ F/450 VAC	30 μ F/450 VAC	25 μ F/450 VAC
Starting method				PSC	PSC	PSC
Refrigerant				R22	R22	R407C
Refrigerant charge			g	800	830	880
Type of fan unit	Indoor unit			Cross flow fan	Cross flow fan	Cross flow fan
	Outdoor unit			Axial fan	Axial fan	Axial fan
Fan speed	Indoor unit		r/min	1260/1100/920(H/M/L)	1260/1100/920(H/M/L)	1150/1100/920(H/M/L)
	Outdoor unit		r/min	730	730	730
Air volume			m^3/h	500	500	500
Moisture removal			m^3/h	$1.5x10^{-3}$	$1.5x10^{-3}$	$1.5x10^{-3}$
Piping dimension	Liquid pipe		mm	Φ6.35	Φ6.35	Φ6.35
	Gas pipe		mm	Φ9.52	Φ9.52	Φ9.52
Piping connection				Flare nut	Flare nut	Flare nut

Specifications:

Item \ Model				HSU-12C03/R1	HSU-12CA03 HSU-12CM03 HSU-12CF03	HSU-12CA03/R1
Cooling capacity			BTU/h	12000	12000	12000
Heating capacity			BTU/h	---------	----------	----------
Power supply			------	1PH 220-230V~ 50Hz	1PH 220-230V~ 50Hz	1PH 220-230V~ 50Hz
cooling	Power input		W	1350	1250	1350
	Running current		A	6.8	6.0	6.8
	EER	BTU/(h • w)		8.89	9.6	8.89
heating	Power input		W	----------	----------	----------
	Running current		A	----------	----------	----------
	COP	BTU/(h • w)		----------	----------	----------
Sound level	Indoor unit		dB(A)	41/38/33(H/M/L)	41/38/33(H/M/L)	41/38/33(H/M/L)
	Outdoor unit		dB(A)	49	49	49
Packaging dimensions	Indoor unit		mm	950x250x360	998x266x318	998x266x318
	Outdoor unit		mm	920x340x613	920x340x613	920x340x613
weight	Indoor unit		kg	11/14(net/gross)	11/14(net/gross)	11/14(net/gross)
	Outdoor unit		kg	39/44(net/gross)	36/41(net/gross)	36/41(net/gross)
Compressor model				RE231VHAH	QXR-23(F)	RE231VHAH
Overload protector				Built-in	MRA99122-9201	Built-in
Running capacitor for comp.				30 μ F/450 VAC	30 μ F/450 VAC	30 μ F/450 VAC
Starting method				PSC	PSC	PSC
Refrigerant				R407C	R22	R407C
Refrigerant charge			g	1070	1070	1090
Type of fan unit	Indoor unit			Cross flow fan	Cross flow fan	Cross flow
	Outdoor unit			Axial fan	Axial fan	Axial fan
Fan speed	Indoor unit		r/min	1350/1100/1020(H/M/L)	1260/1100/920(H/M/L)	1260/1100/920(H/M/L)
	Outdoor unit		r/min	760	760	760
Air volume			m^3/h	700	700	700
Moisture removal			m^3/h	$1.5x10^{-3}$	$1.5x10^{-3}$	$1.5x10^{-3}$
Piping dimension	Liquid pipe		mm	Φ6.35	Φ6.35	Φ6.35
	Gas pipe		mm	Φ12.7	Φ12.7	Φ12.7
Piping connection				Flare nut	Flare nut	Flare nut

Specifications:

Item \ Model				HSU-12CA13	HSU-12CB13 HSU-12CE13	HSU-12CC13 HSU-12CD13
Cooling capacity			BTU/h	12000	12000	12000
Heating capacity			BTU/h	---------	----------	----------
Power supply			------	1PH ,220V~ , 60Hz	1PH ,220V~ , 60Hz	1PH ,220V~, 60Hz
cooling	Power input		W	1200	1260	1200
	Running current		A	5.8	6.2	6.1
	EER	BTU/(h•w)		10.0	9.52	10.0
heating	Power input		W	----------	----------	----------
	Running current		A	----------	----------	----------
	COP	BTU/(h • w)		----------	----------	----------
Sound level	Indoor unit		dB(A)	41/36/31(H/M/L)	41/38/33(H/M/L)	39/37/30(H/M/L)
	Outdoor unit		dB(A)	49	49	49
Packaging dimensions	Indoor unit		mm	950x250x360	998x266x318	865x272x330
	Outdoor unit		mm	920x340x613	920x340x613	920x340x613
weight	Indoor unit		kg	9.2/12.2(net/gross)	11/14(net/gross)	7.6/10.6(net/gross)
	Outdoor unit		kg	36/41(net/gross)	39/44(net/gross)	36/41(net/gross)
Compressor model				QXT-18(F)	QXT-18(F)	QXT-18(F)
Overload protector				MRA99122-9201	MRA99122-9201	MRA99122-9201
Running capacitor for comp.				20 μ F/450 VAC	20 μ F/450 VAC	20 μ F/450 VAC
Starting method				PSC	PSC	PSC
Refrigerant				R22	R22	R22
Refrigerant charge			g	1050	1120	1050
Type of fan unit	Indoor unit			Cross flow fan	Cross flow fan	Cross flow fan
	Outdoor unit			Axial fan	Axial fan	Axial fan
Fan speed	Indoor unit		r/min	1360/1100/920(H/M/L)	1260/1100/920(H/M/L)	1260/1100/920(H/M/L)
	Outdoor unit		r/min	760	760	760
Air volume			m^3/h	650	700	500
Moisture removal			m^3/h	$1.6x10^{-3}$	$1.5x10^{-3}$	$1.5x10^{-3}$
Piping dimension	Liquid pipe		mm	Φ6.35	Φ6.35	Φ6.35
	Gas pipe		mm	Φ12.7	Φ12.7	Φ12.7
Piping connection				Flare nut	Flare nut	Flare nut

Specifications:

Item \ Model				HSU-12H03/R1 AS122AYBAA AU122ABBAA	HSU-12CG03 HSU-12CI03 HSU-12CH03	HSU-12HA03 AS128AVAAA HSU-12HI03 AU128ABAAA HSU-12HJ03
Cooling capacity			BTU/h	12000	12000	12000
Heating capacity			BTU/h	14000	----------	13000
Power supply			------	1PH ,220-230V~ , 50Hz	1PH ,220-230V~ , 50Hz	1PH ,220-230V~, 50Hz
cooling	Power input		W	1350	1250	1250
	Running current		A	6.8	6.0	6.0
	EER	BTU/(h•w)		8.89	9.6	9.6
heating	Power input		W	1420	----------	1350
	Running current		A	7.0	----------	6.5
	COP	BTU/(h • w)		9.86	----------	9.63
Sound level	Indoor unit		dB(A)	41/38/33	39/32/26(H/M/L)	41/38/33
	Outdoor unit		dB(A)	49	47	49
Packaging dimensions	Indoor unit		mm	998x266x318	855x255x360	998x266x318
	Outdoor unit		mm	920x340x613	860x330x575	920x340x613
weight	Indoor unit		kg	11/14(net/gross)	11/13(net/gross)	11/14(net/gross)
	Outdoor unit		kg	39/44(net/gross)	34/37(net/gross)	39/44(net/gross)
Compressor model				RE231VHAH	QX-23D030	QXR-23(F)
Overload protector				Built-in	MRA99122-9201	MRA99122-9201
Running capacitor for comp.				30 μ F/450 VAC	30 μ F/450 VAC	30 μ F/450 VAC
Starting method				PSC	PSC	PSC
Refrigerant				R407C	R22	R22
Refrigerant charge			g	1150	1050	1120
Type of fan unit	Indoor unit			Cross flow fan	Cross flow fan	Cross flow fan
	Outdoor unit			Axial fan	Axial fan	Axial fan
Fan speed	Indoor unit		r/min	1260/1100/920(H/M/L)	1350/1100/920(H/M/L)	1260/1100/920(H/M/L)
	Outdoor unit		r/min	760	830	760
Air volume			m^3/h	700	600	700
Moisture removal			m^3/h	$1.5x10^{-3}$	$1.7x10^{-3}$	$1.5x10^{-3}$
Piping dimension	Liquid pipe		mm	Φ6.35	Φ6.35	Φ6.35
	Gas pipe		mm	Φ12.7	Φ12.7	Φ12.7
Piping connection				Flare nut	Flare nut	Flare nut

Specifications:

Item \ Model				HSU-12HC13 HSU-12HD13	HSU-14C03	HSU-14C13
Cooling capacity			BTU/h	12000	14000	14000
Heating capacity			BTU/h	---------	----------	----------
Power supply			------	1PH ,220-230V~ , 60Hz	1PH ,220-230V~ , 50Hz	1PH ,220-230V~, 60Hz
cooling	Power input		W	1250	1460	1550
	Running current		A	6.2	7.3	7.1
	EER	BTU/(h•w)		9.6	9.59	9.03
heating	Power input		W	----------	----------	----------
	Running current		A	----------	----------	----------
	COP	BTU/(h • w)		----------	----------	----------
Sound level	Indoor unit		dB(A)	39/37/30(H/M/L)	41/38/33	41/38/33
	Outdoor unit		dB(A)	49	49	49
Packaging dimensions	Indoor unit		mm	865x272x330	998x266x318	998x266x318
	Outdoor unit		mm	920x340x633	920x340x633	920x340x633
weight	Indoor unit		kg	7.6/10.6(net/gross)	11/14(net/gross)	11/14(net/gross)
	Outdoor unit		kg	39/44(net/gross)	40/45(net/gross)	40/45(net/gross)
Compressor model				QXT-18(F)	Rotorex QX-26D030	Rotorex QX-23yD030
Overload protector				MRA99122-9201	MRA-2704-9083	MRA-2704-9083
Running capacitor for comp.				20 μ F/450 VAC	35 μ F/450 VAC	35 μ F/450 VAC
Starting method				PSC	PSC	PSC
Refrigerant				R22	R22	R22
Refrigerant charge			g	1160	1300	1300
Type of fan unit	Indoor unit			Cross flow fan	Cross flow fan	Cross flow fan
	Outdoor unit			Axial fan	Axial fan	Axial fan
Fan speed	Indoor unit		r/min	1260/1100/920(H/M/L)	1260/1100/920(H/M/L)	1260/1100/920(H/M/L)
	Outdoor unit		r/min	760	800	800
Air volume			m^3/h	500	700	700
Moisture removal			m^3/h	$1.5x10^{-3}$	$1.5x10^{-3}$	$1.5x10^{-3}$
Piping dimension	Liquid pipe		mm	Φ6.35	Φ6.35	Φ6.35
	Gas pipe		mm	Φ12.7	Φ12.7	Φ12.7
Piping connection				Flare nut	Flare nut	Flare nut

Specifications:

Item \ Model				HSU-14H13	HSU-16C13	HSU-16CC03 HSU-16CD03
Cooling capacity			BTU/h	14000	16000	16000
Heating capacity			BTU/h	16000	----------	----------
Power supply			------	1PH 220-230V~ 60Hz	1PH 220-230V~ 60Hz	1PH 220-230V~ 50Hz
cooling	Power input		W	1550	1650	1600
	Running current		A	7.1	7.7	7.7
	EER	BTU/(h•w)		9.03	9.69	10.0
heating	Power input		W	1660	----------	----------
	Running current		A	7.8	----------	----------
	COP	BTU/(h • w)		9.63	----------	----------
Sound level	Indoor unit		dB(A)	41/38/33	41/38/33	41/38/33
	Outdoor unit		dB(A)	49	49	49
Packaging dimensions	Indoor unit		mm	998x266x318	998x266x318	998x266x318
	Outdoor unit		mm	920x340x633	920x340x633	920x340x633
weight	Indoor unit		kg	11/14(net/gross)	11/14(net/gross)	11/14(net/gross)
	Outdoor unit		kg	40/45(net/gross)	40/45(net/gross)	40/45(net/gross)
Compressor model				QX-23yD030	QX-23yD030	QX-26D030
Overload protector				MRA2752-9083	MRA2752-9083	MRA-2704
Running capacitor for comp.				35 μ F/450 VAC	35 μ F/450 VAC	35 μ F/450 VAC
Starting method				PSC	PSC	PSC
Refrigerant				R22	R22	R22
Refrigerant charge			g	1400	1300	1300
Type of fan unit	Indoor unit			Cross flow fan	Cross flow fan	Cross flow fan
	Outdoor unit			Axial fan	Axial fan	Axial fan
Fan speed	Indoor unit		r/min	1260/1100/920(H/M/L)	1260/1100/920(H/M/L)	1260/1100/920(H/M/L)
	Outdoor unit		r/min	800	800	800
Air volume			m^3/h	700	700	700
Moisture removal			m^3/h	$1.5x10^{-3}$	$1.5x10^{-3}$	$1.5x10^{-3}$
Piping dimension	Liquid pipe		mm	Φ6.35	Φ6.35	Φ6.35
	Gas pipe		mm	Φ12.7	Φ12.7	Φ12.7
Piping connection				Flare nut	Flare nut	Flare nut

Specifications:

Item \ Model				HSU-16HC03 HSU-16HD03	HSU-18HA13 HSU-18HC13
Cooling capacity			BTU/h	16000	18000
Heating capacity			BTU/h	16000	22000
Power supply			------	1PH 220-230V~ 50Hz	1PH, 220V~, 60Hz
cooling	Power input		W	1460	1970
	Running current		A	7.3	9.5
	EER	BTU/(h•w)		10.96	9.13
heating	Power input		W	1500	1980
	Running current		A	7.5	9.6
	COP	BTU/(h • w)		10.67	11.11
Sound level	Indoor unit		dB(A)	41/38/33(H/M/L)	45/42/37(H/M/L)
	Outdoor unit		dB(A)	49	52
Packaging dimensions	Indoor unit		mm	998x266x318	1192x306x427
	Outdoor unit		mm	920x340x633	920x340x613
weight	Indoor unit		kg	11/14(net/gross)	14/17(net/gross)
	Outdoor unit		kg	40/45(net/gross)	59/66(net/gross)
Compressor model				Rotorex QX-26D030	SHZ73LC2-U
Overload protector				MRA2704-9083	Built-in
Running capacitor for comp.				35 μ F/450 VAC	45 μ F/450 VAC
Starting method				PSC	PSC
Refrigerant				R22	R22
Refrigerant charge			g	1500	1800
Type of fan unit	Indoor unit			Cross flow fan	Cross flow fan
	Outdoor unit			Axial fan	Axial fan
Fan speed	Indoor unit		r/min	1260/1100/920(H/M/L)	1300/1100/920(H/M/L)
	Outdoor unit		r/min	800	820
Air volume			m^3/h	700	950
Moisture removal			m^3/h	$1.5x10^{-3}$	$2.0x10^{-3}$
Piping dimension	Liquid pipe		mm	Φ6.35	Φ6.35
	Gas pipe		mm	Φ12.7	Φ15.88
Piping connection				Flare nut	Flare nut

Specifications:

Item \ Model				HSU-22CA13 HSU-22CB13 HSU-22CC13	HSU-22HA13 HSU-22HC13	AS184ASMAA AU184AFMAA (HSU-18CB13)
Cooling capacity			BTU/h	22000	22000	18000
Heating capacity			BTU/h	----------	22500	----------
Power supply			------	1PH ,220-230V~ , 60Hz	1PH ,220-230V~ , 60Hz	1PH ,220-230V~, 60Hz
cooling	Power input		W	2050	2270	1920
	Running current		A	9.5	11.3	9.0
	EER	BTU/(h•w)		10.73	9.69	9.375
heating	Power input		W	----------	2290	----------
	Running current		A	----------	11.5	----------
	COP	BTU/(h • w)		----------	9.82	----------
Sound level	Indoor unit		dB(A)	45/42/37	45/42/37	45/42/37
	Outdoor unit		dB(A)	52	52	52
Packaging dimensions	Indoor unit		mm	1192x306x427	1192x306x427	1192x306x427
	Outdoor unit		mm	920x340x613	920x340x613	920x340x613
weight	Indoor unit		kg	14/17(net/gross)	14/17(net/gross)	14/17(net/gross)
	Outdoor unit		kg	58/68(net/gross)	59/66(net/gross)	58/65(net/gross)
Compressor model				SHZ73LC2-U	SHZ73LC2-U	SHZ73LC2-U
Overload protector				Built-in	Built-in	Built-in
Running capacitor for comp.				45 μ F/400 VAC	45 μ F/400 VAC	45 μ F/400 VAC
Starting method				PSC	PSC	PSC
Refrigerant				R22	R22	R22
Refrigerant charge			g	2000	1800	2000
Type of fan unit	Indoor unit			Cross flow fan	Cross flow fan	Cross flow fan
	Outdoor unit			Axial fan	Axial fan	Axial fan
Fan speed	Indoor unit		r/min	1300/1100/920(H/M/L)	1300/1100/920(H/M/L)	1300/1100/920(H/M/L)
	Outdoor unit		r/min	820	820	820
Air volume			m^3/h	900	950	900
Moisture removal			m^3/h	$2.2x10^{-3}$	$2.0x10^{-3}$	$2.0x10^{-3}$
Piping dimension	Liquid pipe		mm	Φ6.35	Φ6.35	Φ6.35
	Gas pipe		mm	Φ15.88	Φ15.88	Φ15.88
Piping connection				Flare nut	Flare nut	Flare nut

Specifications:

Item \ Model				AS228ASAAA AU228AFAAA (HSU-22HA04)	HSU-12CL03 HSU-12CP03 HSU-12CR03	HSU-12HN03 HSU-12HR03 HSU-12HP03
Cooling capacity			BTU/h	22000	12000	12000
Heating capacity			BTU/h	23000	----------	13500
Power supply			------	1PH , 240V , 50Hz	1PH 220-230V~ 50Hz	1PH 220-230V~ 50Hz
cooling	Power input		W	2100	1240	1280
	Running current		A	9.54	5.8	6.2
	EER	BTU/(h•w)		10.47	9.68	9.375
heating	Power input		W	2200	----------	1300
	Running current		A	10.5	----------	6.3
	COP	BTU/(h • w)		10.45	----------	10.38
Sound level	Indoor unit		dB(A)	45/42/37	44/40/36(H/M/L)	44/40/36/(H/M/L)
	Outdoor unit		dB(A)	52	53	53
Packaging dimensions	Indoor unit		mm	0092x306x427	998x266x318	998x266x318
	Outdoor unit		mm	920x340x613	876x364x638	876x364x638
weight	Indoor unit		kg	14/17(net/gross)	11/14(net/gross)	11/14(net/gross)
	Outdoor unit		kg	59/66(net/gross)	38/42(net/gross)	39/43(net/gross)
Compressor model				SHW33TC4-U	QXR-23C(F)	QX-24A(F)
Overload protector				Built-in		
Running capacitor for comp.				50 μ F/450 VAC	30 μ F/450 VAC	35 μ F/450 VAC
Starting method				PSC	PSC	PSC
Refrigerant				R22	R22	R22
Refrigerant charge			g	1850	1050	1150
Type of fan unit	Indoor unit			Cross flow fan	Cross flow fan	Cross flow fan
	Outdoor unit			Axial fan	Axial fan	Axial fan
Fan speed	Indoor unit		r/min	1300/1100/920(H/M/L)	1260/1100/920(H/M/L)	1260/1100/920(H/M/L)
	Outdoor unit		r/min	820	670	670
Air volume			m^3/h	950	700	700
Moisture removal			m^3/h	$2.0x10^{-3}$	$1.5x10^{-3}$	$1.5x10^{-3}$
Piping dimension	Liquid pipe		mm	Φ6.35	Φ6.35	Φ6.35
	Gas pipe		mm	Φ15.88	Φ12.7	Φ12.7
Piping connection				Flare nut	Flare nut	Flare nut

Specifications:

Item \ Model				AS188ATAAA AU188AFAAA (HSU-18HC04)		
Cooling capacity			BTU/h	18000		
Heating capacity			BTU/h	22000		
Power supply			------	1PH ,240V , 50Hz		
cooling	Power input		W	1980		
	Running current		A	9.03		
	EER	BTU/(h•w)		9.09		
heating	Power input		W	2180		
	Running current		A	10.0		
	COP	BTU/(h • w)		10.09		
Sound level	Indoor unit		dB(A)	45/42/37		
	Outdoor unit		dB(A)	52		
Packaging dimensions	Indoor unit		mm	1192x306x427		
	Outdoor unit		mm	920x340x613		
weight	Indoor unit		kg	14/17(net/gross)		
	Outdoor unit		kg	59/66(net/gross)		
Compressor model				SHW33TC4-U		
Overload protector						
Running capacitor for comp.				50 μ F/400 VAC		
Starting method				PSC		
Refrigerant				R22		
Refrigerant charge			g	1850		
Type of fan unit	Indoor unit			Cross flow fan		
	Outdoor unit			Axial fan		
Fan speed	Indoor unit		r/min	1300/1100/920(H/M/L)		
	Outdoor unit		r/min	820		
Air volume			m^3/h	950		
Moisture removal			m^3/h	$2.0x10^{-3}$		
Piping dimension	Liquid pipe		mm	Φ6.35		
	Gas pipe		mm	Φ15.88		
Piping connection				Flare nut		

FUNCTION SCHEDULE

FUNCTION SCHEDULE OF HAIER EXPORT AIR CONDITIONER

HSU-07CC03 HSU-07CD03 HSU-07CE03 HSU-07HC03 HSU-09CE03
HSU-07HD03 HSU-07HE03 HSU-09CA13 HSU-09CH03 HSU-09CF03
HSU-09CJ03 HSU-09CK03 HSU-09HH03 HSU-09HJ03 HSU-09HE03
HSU-09HK03 HSU-12CA03 HSU-12CA13 HSU-12CB03 HSU-09HF03
HSU-12CB13 HSU-12CC13 HSU-12CD13 HSU-12CE13 HSU-12CH03
HSU-12CF03 HSU-12CG03 HSU-12CI03 HSU-12HR03 HSU-12CL03
HSU-12CM03 HSU-12HA03 HSU-12HC13 HSU-12HD13 HSU-12CP03
HSU-12HI03 HSU-12HJ03 HSU-14C03 HSU-14C13 HSU-12CR03
HSU-14H13 HSU-16C13 HSU-16CC03 HSU-16CD03 HSU-12HN03
HSU-16HC03 HSU-16HD03 HSU-18HA13 HSU-12HP03
HSU-18HC13 HSU-22CA13 HSU-22CB13
HSU-22CC13 HSU-22HA13 HSU-22HC13
HSU-09C03/R1 HSU-09CA03/R1 HSU-09H03/R1
HSU-12CA03/R1 HSU-12C03/R1 HSU-12H03/R1
AS092AMBAA+AU092ABBAA AS052AZMAA+AU052ACMAA
AS184ASMAA+AU184AFMAA AS128AVAAA+AU128ABAAA
AS122AYBAA+AU122ABBAA
AS188ATAAA+AU188AFAAA AS228ATAAA+AU228AFAAA

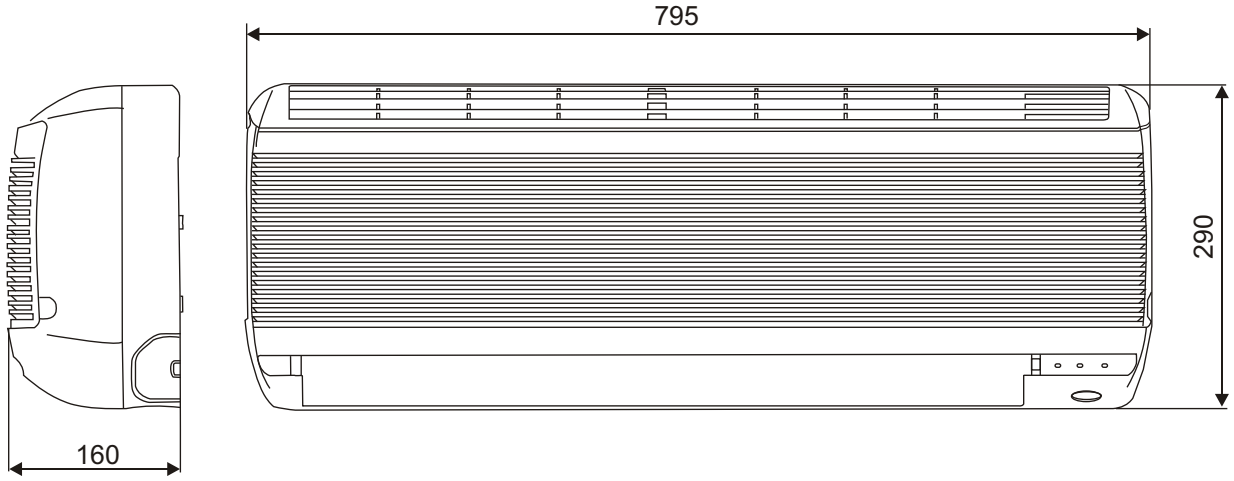
No.	Function	Description of function
1	Auto	Over 23℃ cooling and set 26℃, less 23℃ heating and set 23℃
2	Cooling	Set temperature 16℃-30℃
3	Drying	Set temperature 16℃-30℃
4	Heating (heat pump type)	Set temperature 16℃-30℃
5	Fan	Temperature can not be adjusted
6	Emergency run	Over 23℃ cooling and set 26℃, less 23℃ heating and set 23℃
7	Test run	Set force cooling
8	Anti-cold wind (heat pump type)	When temperature of the heating pipe coil is low. low fan speed or without airflow
9	Fan speed adjustment	Auto, high, middle,low four level fan speeds
10	Timer switch	24 hours timer on. timer off.on-off.off-on
11	Sleep run	Equal to 3 hours timer on, but temperature adjustment is more comfortable
12	High load protection (heat pump type)	When heating in high ambient temperature to protect compressor
13	Anti-freezing of the indoor unit	When heating in low ambient temperature to protect system
14	Defrosting run (heat pump type)	When heating in low ambient temperature to defrost for the outdoor unit in order to make the system have a better efficiency
15	Self trouble shooting	Check the system trouble and give an alarm
16	Over current protection (heat pump type)	When working in high power to protect system

NET DIMENSION FOR INDOOR UNIT

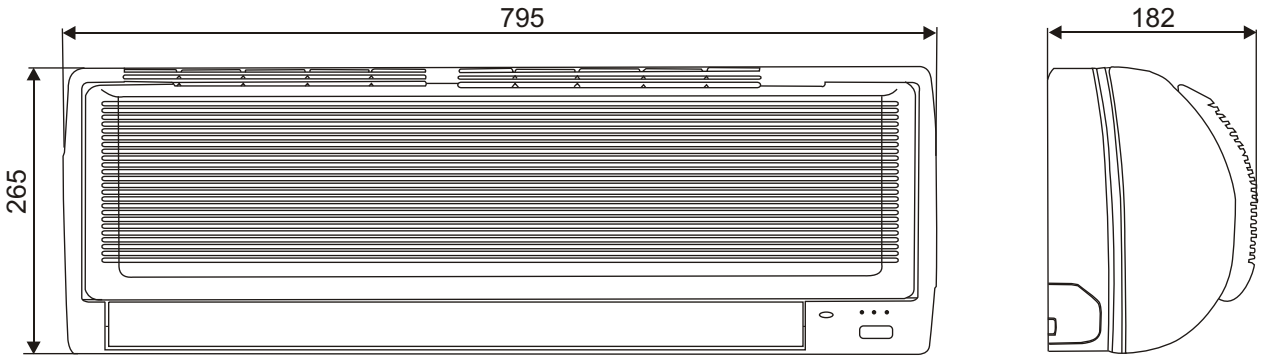
NET DIMENSIONS:

Indoor unit

MODELS: HSU-09C03/R1 HSU-09CA13



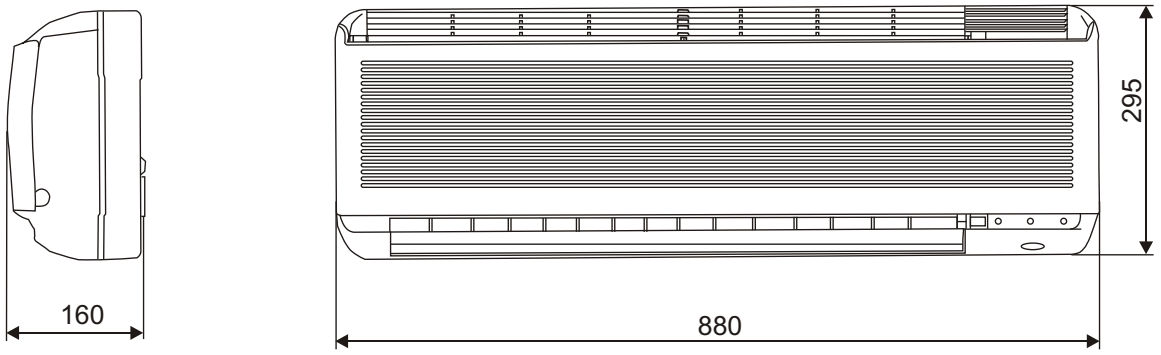
Indoor unit
Models: AS052AZMAA HSU-07CC03 HSU-07CD03 HSU-07CE03 HSU-07HC03 HSU-07HD03 HSU-07HE03 HSU-09CA03/R1 HSU-09CH03 HSU-09CJ03 HSU-09CK03 HSU-09H03/R1 HSU-09HH03 HSU-09HJ03 HSU-09HK03 HSU-12CC13 HSU-12CE13 HSU-12HR03 HSU-12HC13 HSU-12HD13 AS092AMBAA



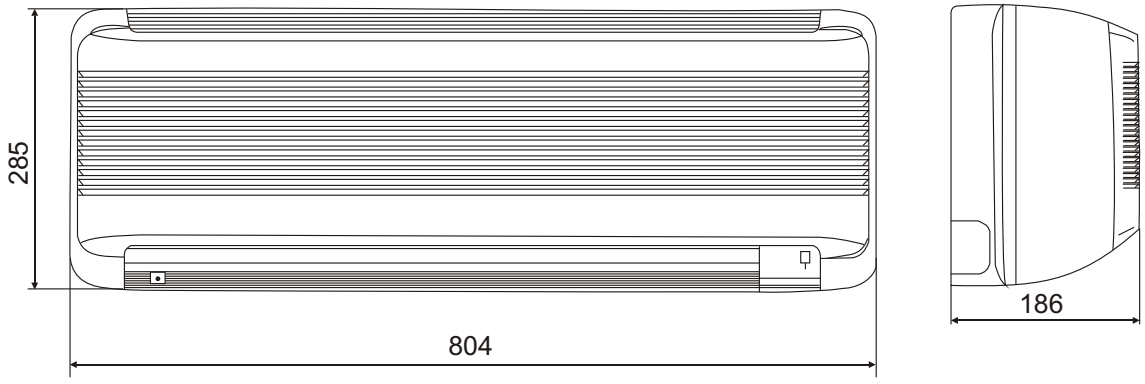
NET DIMENSION FOR INDOOR UNIT

NET DIMENSIONS:

MODELS: HSU-12CA13 HSU-12CB03 HSU-12CD13

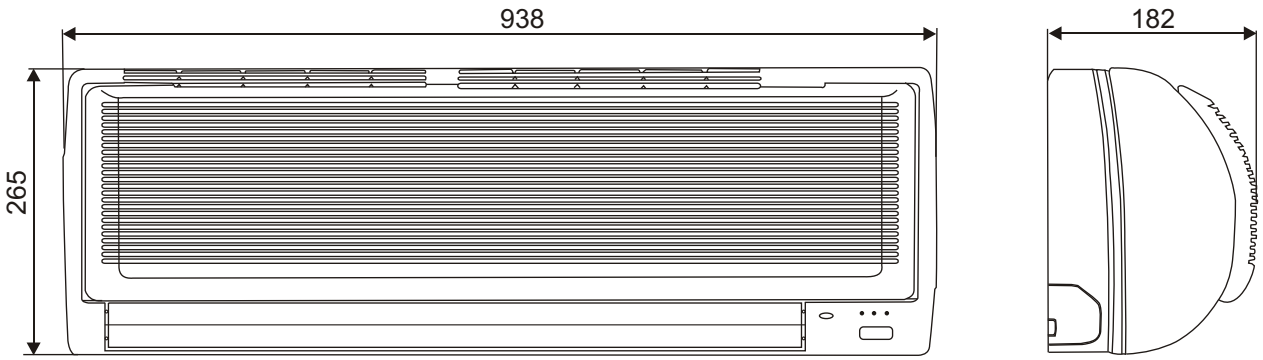


MODELS: HSU-12C03/R1 HSU-12CG03 HSU-12CK03 HSU-12CI03

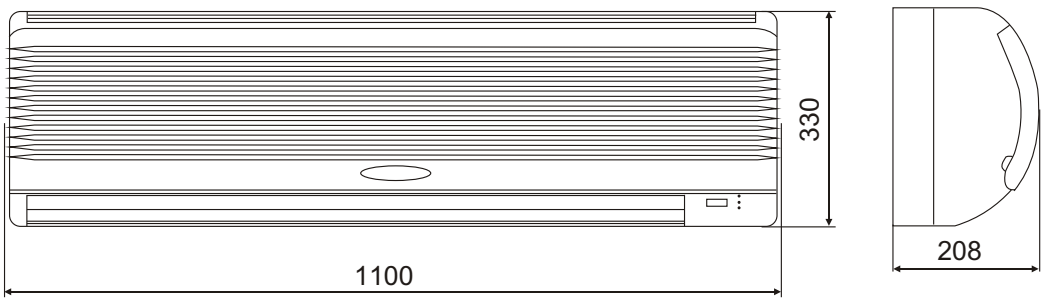


NET DIMENSION FOR INDOOR UNIT

MODELS:
HSU-12CA03 HSU-12CA03/R1 HSU-12CB13 HSU-12CF03 HSU-12CM03 HSU-12H03/R1 HSU-12HA03 HSU-12HI03 HSU-12HJ03 HSU-14C03 HSU-14C13 HSU-14H13 HSU-16C13 HSU-16CC03 HSU-16CD03 HSU-16HC03 HSU-16HD03 AS124AVMAA AS122AYBAA

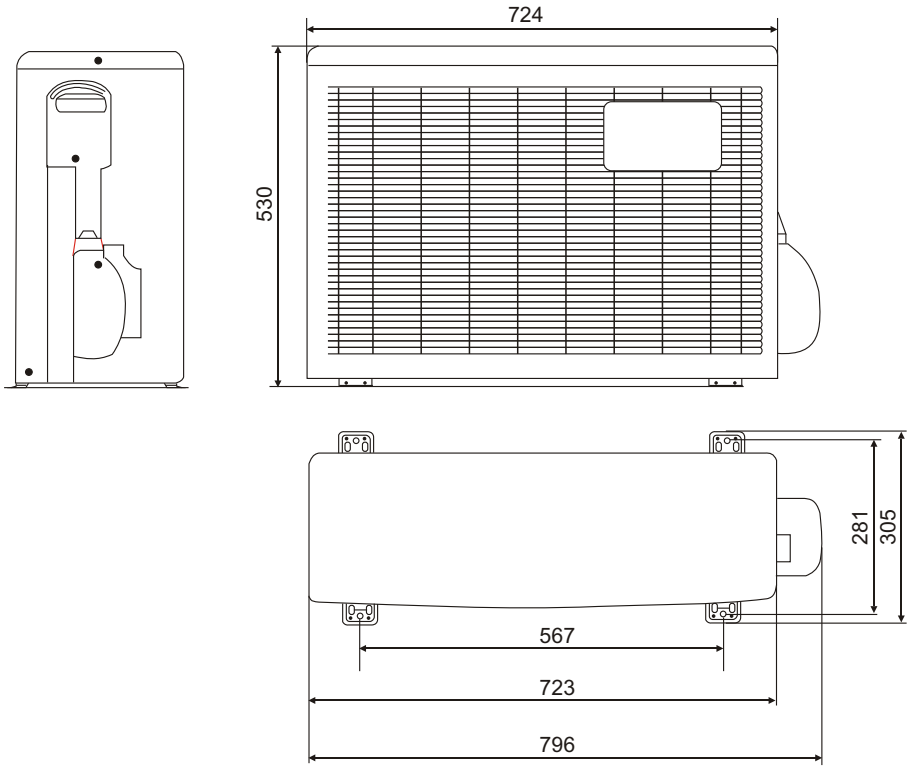


MODELS:
AS188ATAAA AS228ASAAA AS184ASMAA HSU-22HC13 HSU-22HA13 HSU-22CC13 HSU-22CB13 HSU-22CA13 HSU-18HC13 HSU-18HA13

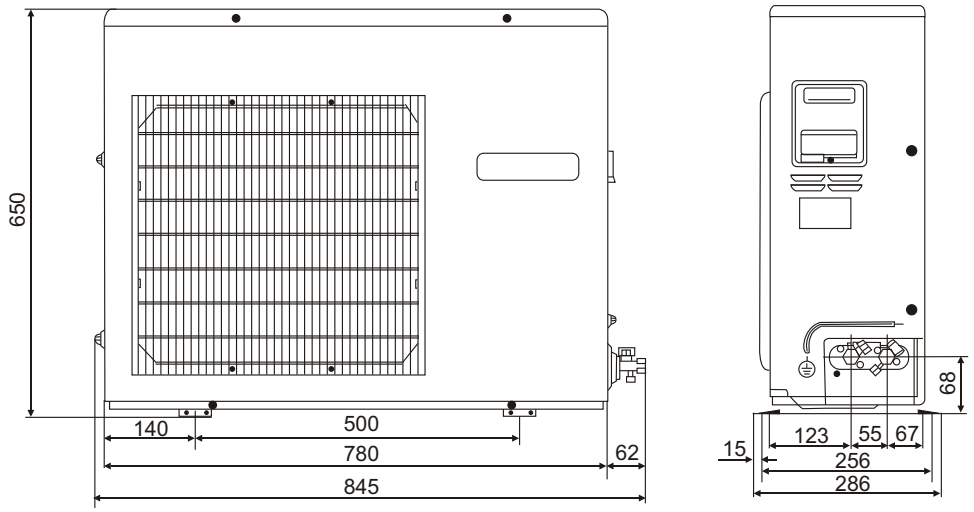


NET DIMENSION FOR OUTDOOR UNIT

Net dimensions for outdoor unit
MODELS: HSU-12CG03, HSU-12CI03



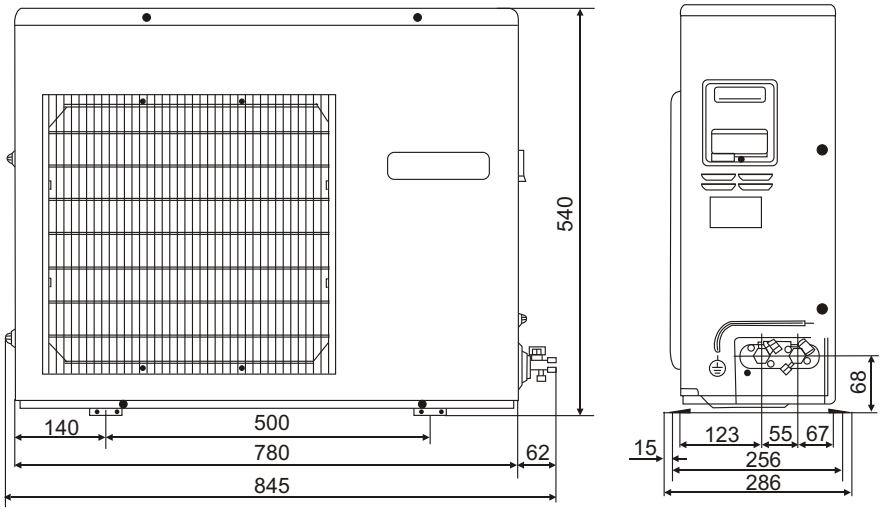
Net dimensions for outdoor unit
Models: HSU-14C03, HSU-14C13, HSU-14H13, HSU-16C13, HSU-16CC03, HSU-16CD03,, HSU-16HC03,HSU-16HD03



NET DIMENSION FOR OUTDOOR UNIT

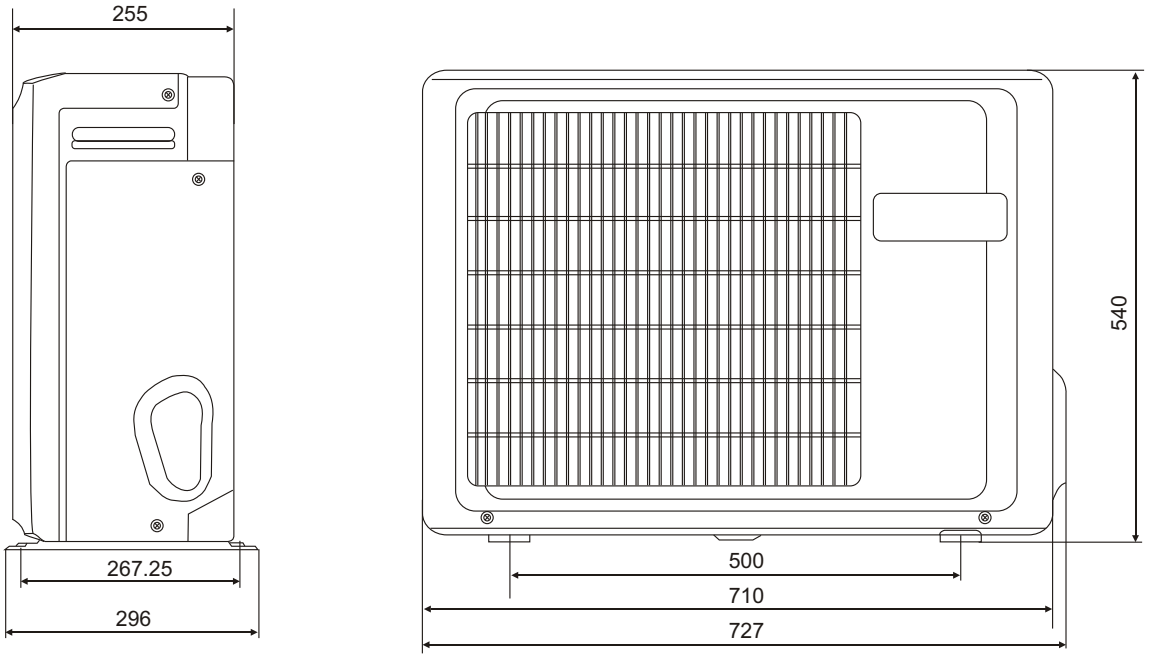
NET DIMENSIONS: FOR OUTDOOR UNIT

Models: HSU-09C03/R1, HSU-09CA03/R1, HSU-09CA13, HSU-09H03/R1, HSU-12C03/R1, HSU-12CA03, HAU-12CA03/R1, HSU-12CA13, HSU-12CB03, HSU-12CB13, HSU-12CC13, HSU-12CD13, HSU-12CE13, HSU-12CF03, HSU-12HR03, HSU-12CM03, HSU-12H03/R1, HSU-12HA03, HSU-12HC13, HSU-12HD13, HSU-12HI03, HSU-12HJ03, AU122ABBAA, AU128ABAAA, AU092ABBAA



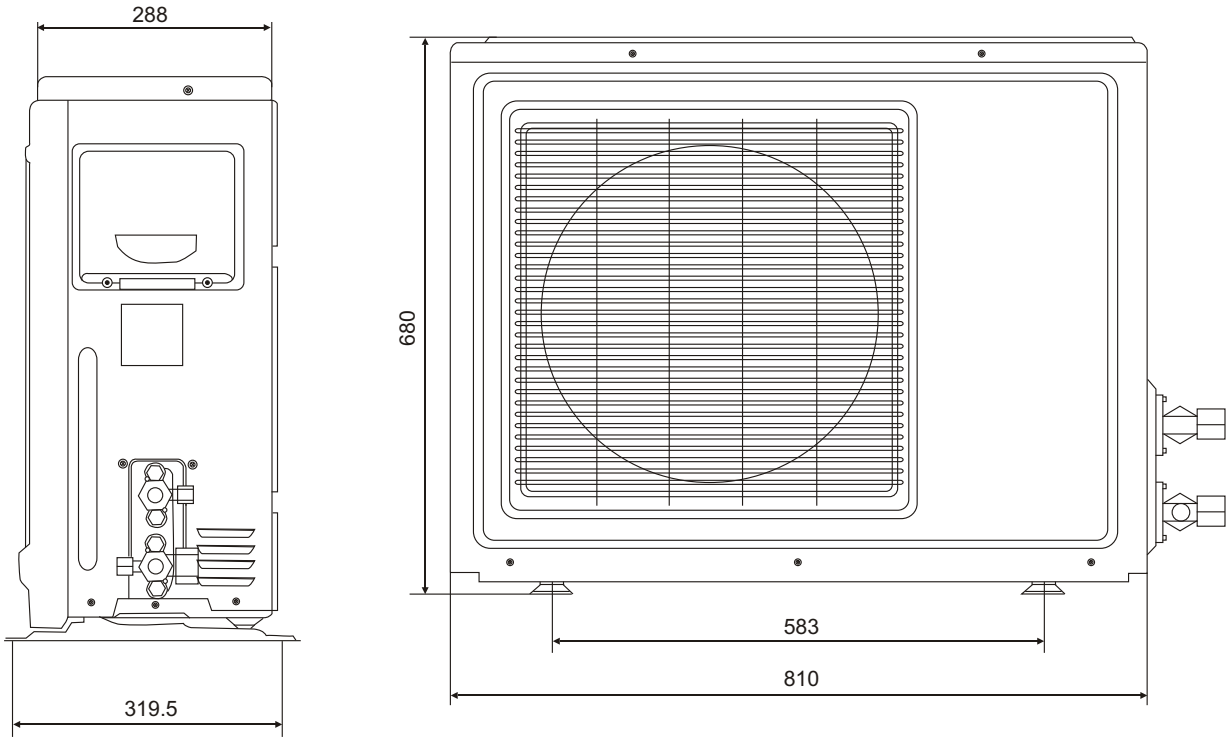
Net dimensions for outdoor unit:

Models: HSU-07CD03, HSU-07CC03, HSU-07CE03, HSU-07HC03 HSU-07HD03, HSU-07HE03, HSU-09CH03, HSU-09CJ03, HSU-09CK03, HSU-09HH03, HSU-09HJ03, HSU-09HK03, AU052ACMAA.

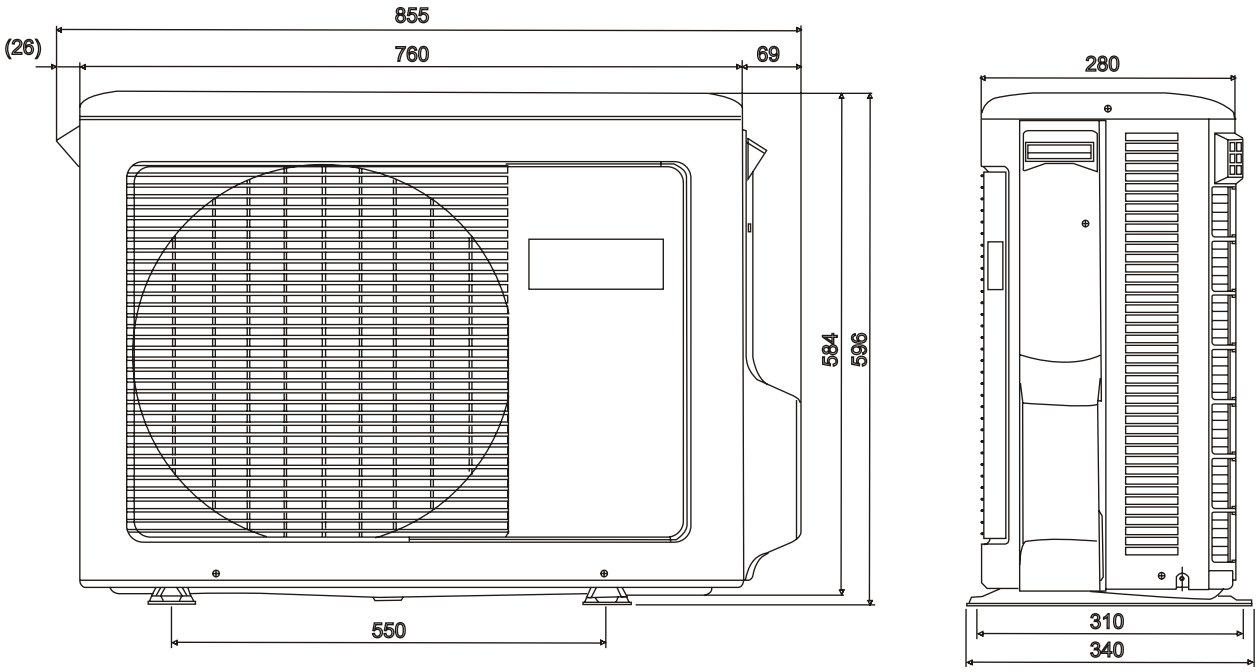


Net dimensions for outdoor unit

Models: HSU-18HA13, HSU-18HC13, , HSU-22CA13, HSU-22CB13, HSU-22CC13, HSU-22HA13, HSU-22HC13, AU184AFMAA, AU188AFMAA, AU228AFMAA.



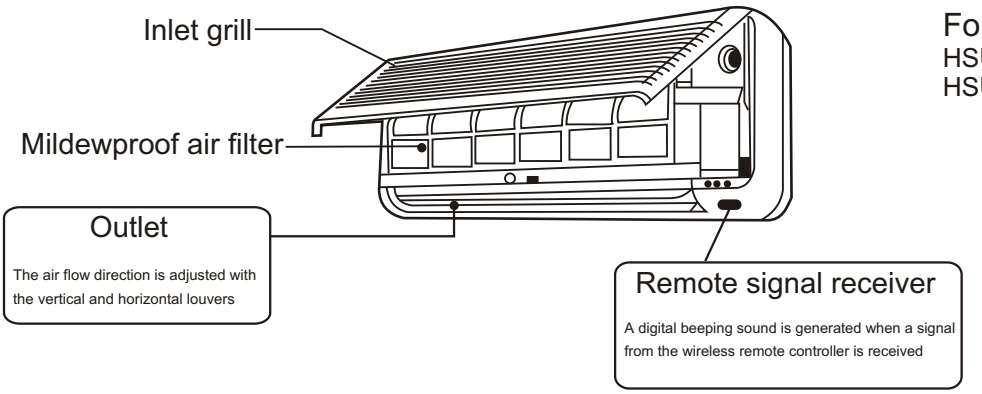
Models: HSU-12CL03 HSU-12CP03 HSU-12CR03 HSU-12HN03 HSU-12HR03 HSU-12HP03



PARTS AND FUNCTIONS

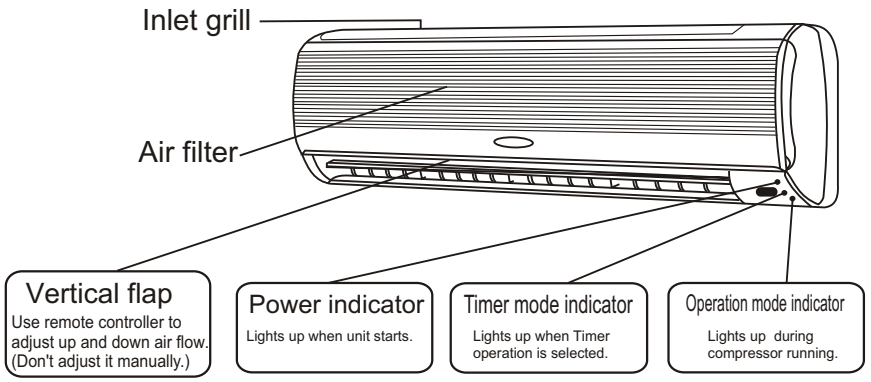
Parts and Functions

Indoor Unit

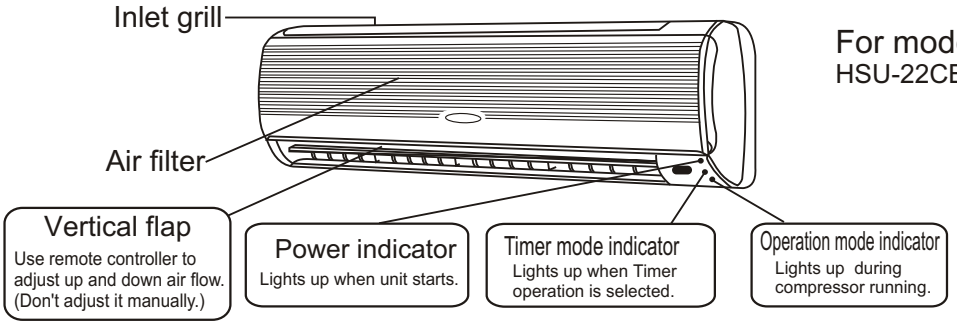


For models:
HSU-09CA13
HSU-12CA13

For multi-split type ,the power plug is on the outdoor unit.



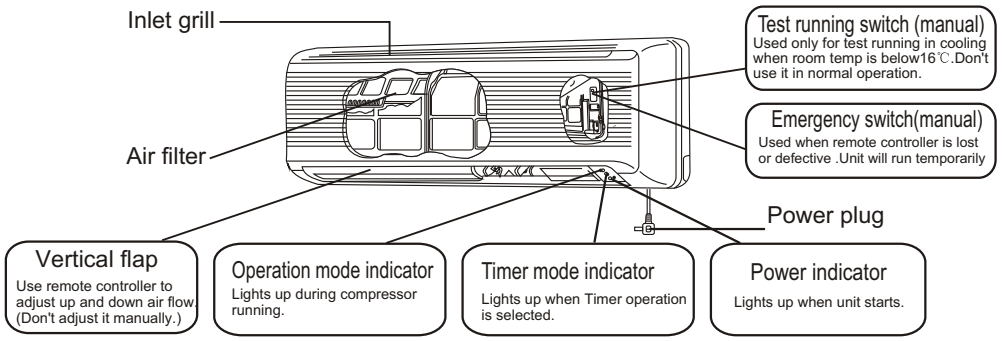
For models:
HSU-18HA13
HSU-22CA13
HSU-22HA13



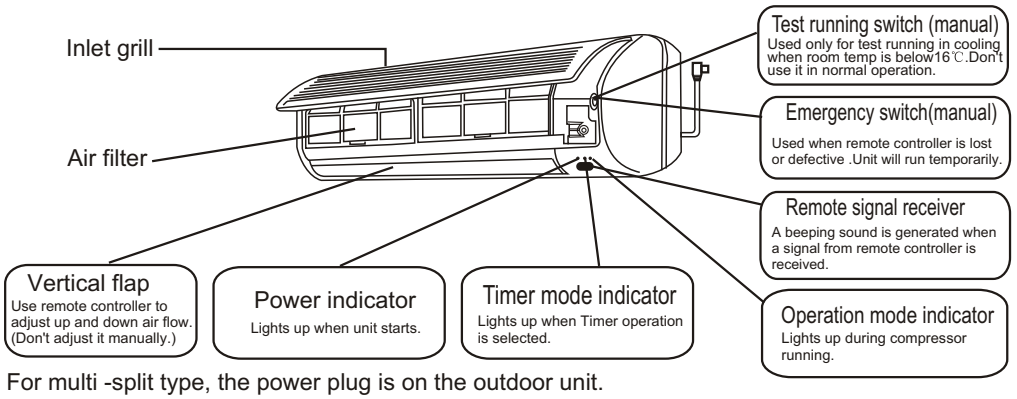
For models:
HSU-22CB13

Parts and Functions

Indoor Unit



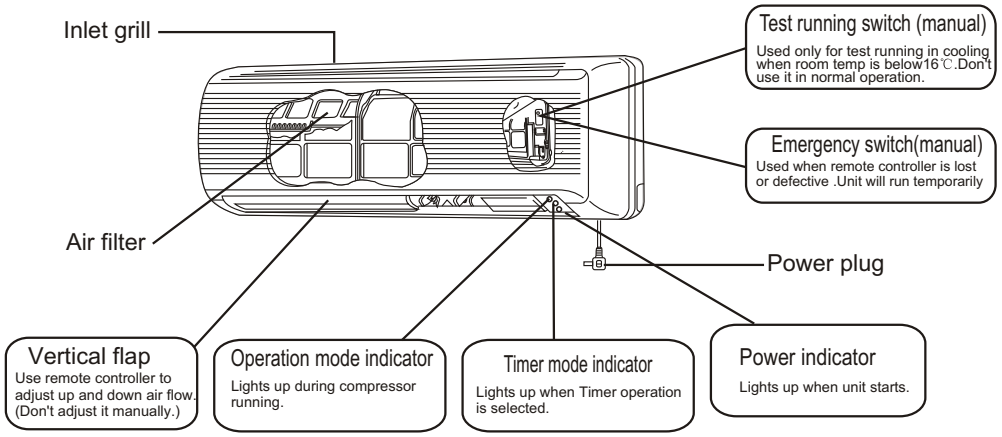
For models: HSU-12CG03



For multi -split type, the power plug is on the outdoor unit.

For models:

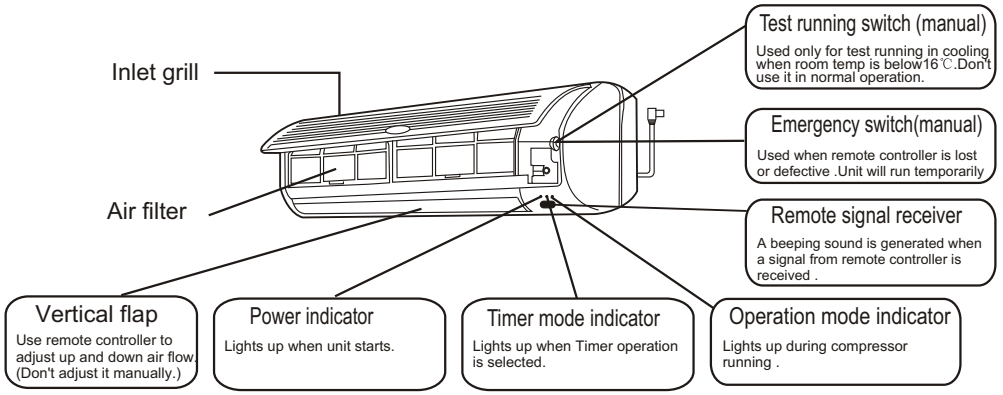
HSU-07CC03	HSU-12HR03	HSU-16HC03	HSU-14H13
HSU-07HC03	HSU-12HA03	HSU-12CC13	HSU-16C13
HSU-09HH03	HSU-14C03	HSU-12HC13	
HSU-12CA03	HSU-16CC03	HSU-14C13	AS052AZMAA



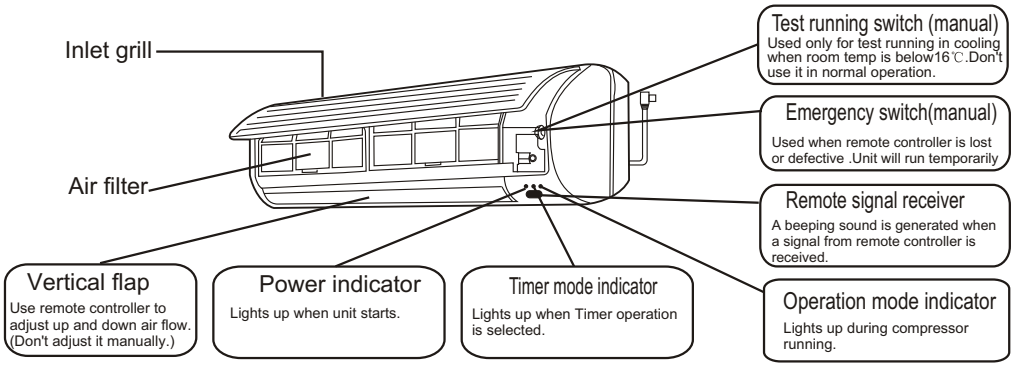
For models: HSU-12CI03

Parts and Functions

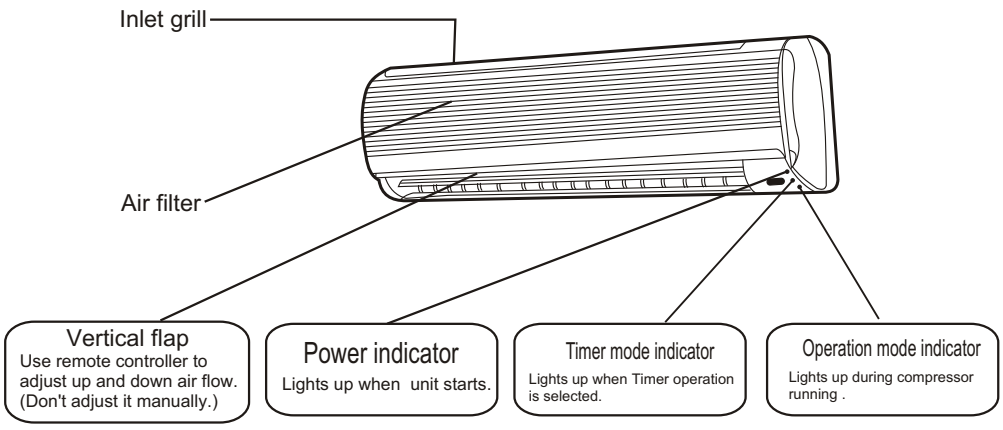
Indoor Unit



For models: HSU-07CD03 HSU-09CK03 HSU-12CF03 HSU-12CB13
HSU-07HD03 HSU-09HK03 HSU-12HI03



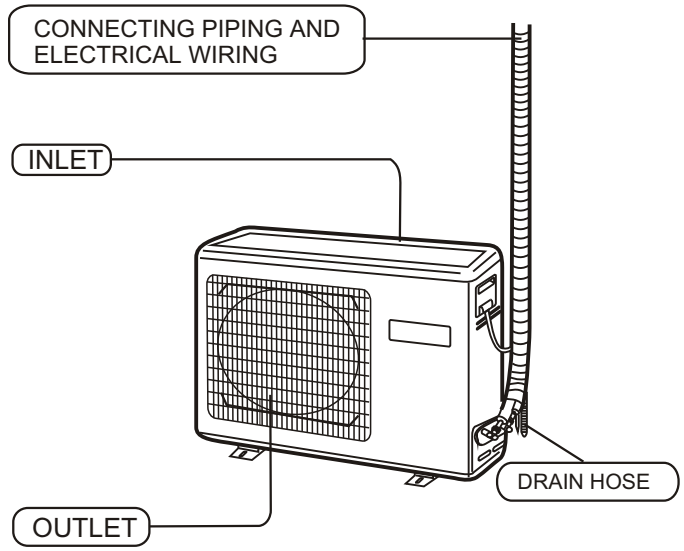
For models:
HSU-07CE03 HSU-09HJ03 HSU-12CM03 HSU-16CD03 HSU-12CD13
HSU-07HE03 HSU-12CK03 HSU-12HJ03 HSU-16HD03 HSU-12CE13



For models:
HSU-18HC13 HSU-22HC13 HSU-22CC13

Parts and Functions

Outdoor Unit



• Warm air comes out when cooling, cool air comes out when heating.

For models:

HSU-12CA03	HSU-09CA13
HSU-12CF03	HSU-12CA13
HSU-12HR03	HSU-12CB13
HSU-12CM03	HSU-12CC13
HSU-12HA03	HSU-12CD13
HSU-12HI03	HSU-12CE13
HSU-12HJ03	HSU-12HC13
HSU-14C03	HSU-12HD13
HSU-16CC03	HSU-14C13
HSU-16CD03	HSU-14H13
HSU-16HC03	HSU-16C13
HSU-16HD03	
AU128ABAAA	

The machine is adaptive in following situation

1.Applicable ambient temperature range:

Cooling	Indoor	Maximum: D.B/W.B Minimum: D.B/W.B	32℃/23℃ 18℃/14℃
	Outdoor	Maximum: D.B Minimum: D.B	43℃ 15℃
Heating	Indoor	Maximum: D.B Minimum: D.B	27℃ 15℃
	Outdoor	Maximum: D.B/W.B Minimum: D.B/W.B	24℃/18℃ -7℃/-8℃

2.If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similar qualified person.

3.The type of connecting wire is H05RN-F or H07RN-F.

4.If the fuse on PC board is broken please change it with the type of 50T.3.15A/250V.(for series 16,18,22)or 50F.2.5A/250V(for series 05, 07,09,10,11,12,14).

5.The distance between the indoor unit and the floor should be more than 1.8m.

6.The wiring method should be in line with the local wiring standard.

7.After installation ,the power plug should be easily reached.

8.The waste battery should be disposed properly.

9.The appliance is not intended for use by young children or infirm persons without supervision.

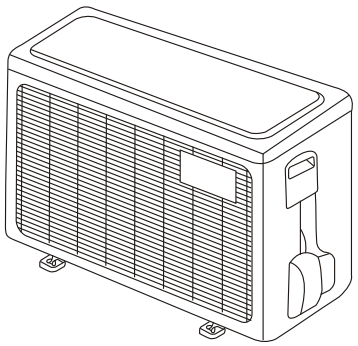
10.Young children should be supervised to ensure that they do not play with the appliance.

Parts and Functions

Outdoor Unit

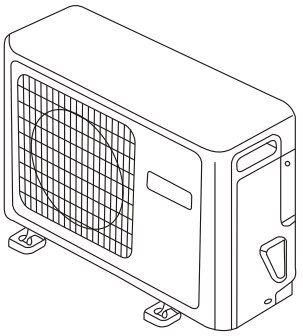
For models:

HSU-12CG03
HSU-12CI03



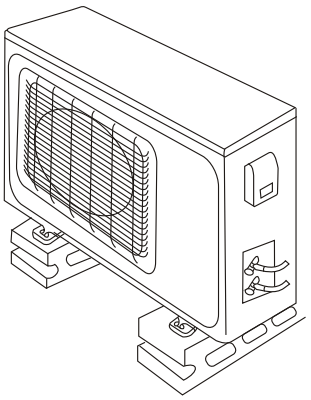
For models:

HSU-07CC03
HSU-07CD03
HSU-07CE03
HSU-07HC03
HSU-07HD03
HSU-07HE03
HSU-09CH03
HSU-09CJ03
HSU-09CK03
HSU-09HH03
HSU-09HJ03
HSU-09HK03
AU052ACMAA



For models:

HSU-18HA13
HSU-18HC13
HSU-22CA13
HSU-22CB13
HSU-22CC13
HSU-22HA13
HSU-22HC13

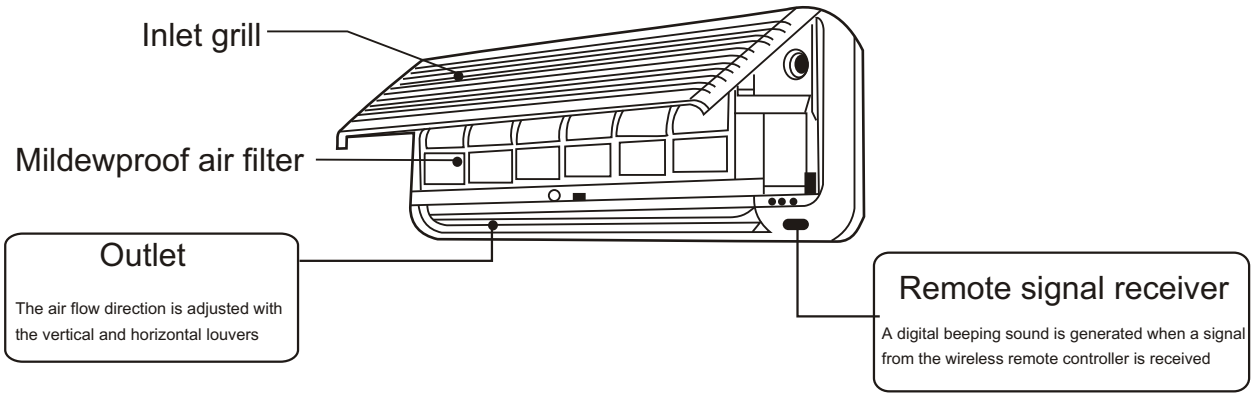


PARTS AND FUNCTIONS FOR CFC-FREE TYPE

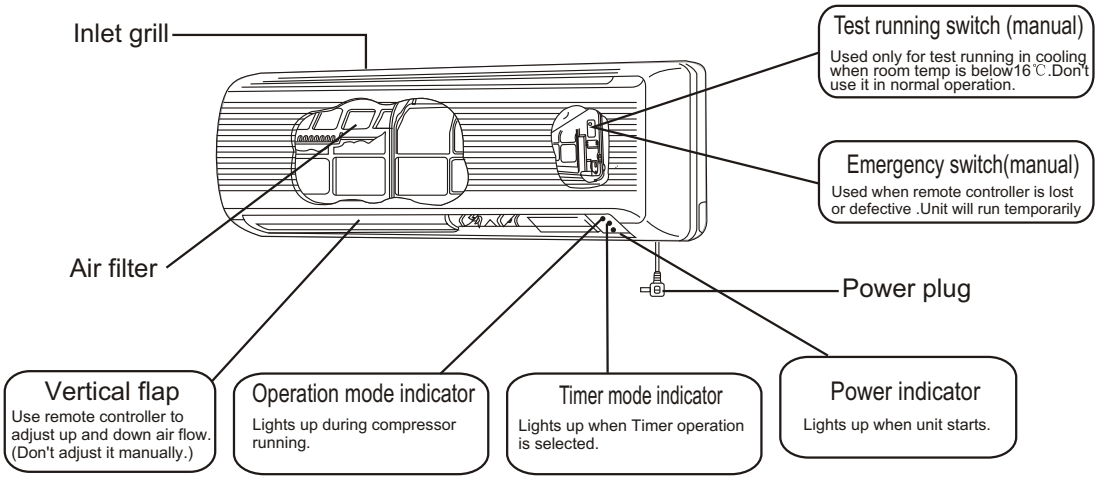
Parts and Functions

Indoor Unit

※ These models adept CFC free refrigerant R407C.



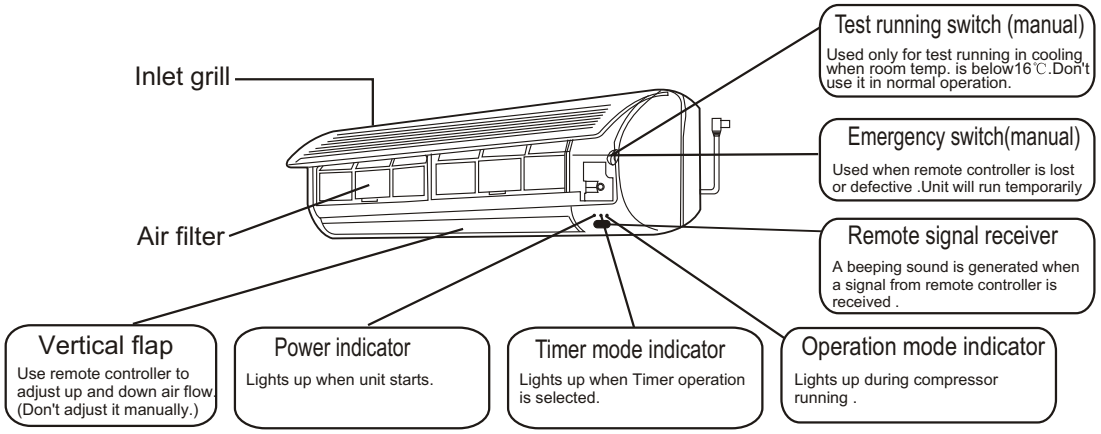
For models: HSU-09C03/R1



For models: HSU-12C03/R1

Parts and Functions

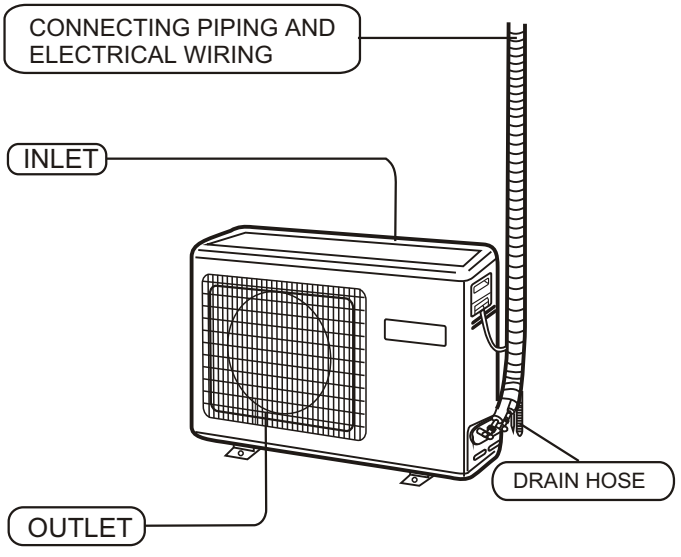
Indoor Unit



For models: HSU-09CA03/R1 HSU-12CA03/R1
HSU-09H03/R1 HSU-12H03/R1

Outdoor Unit

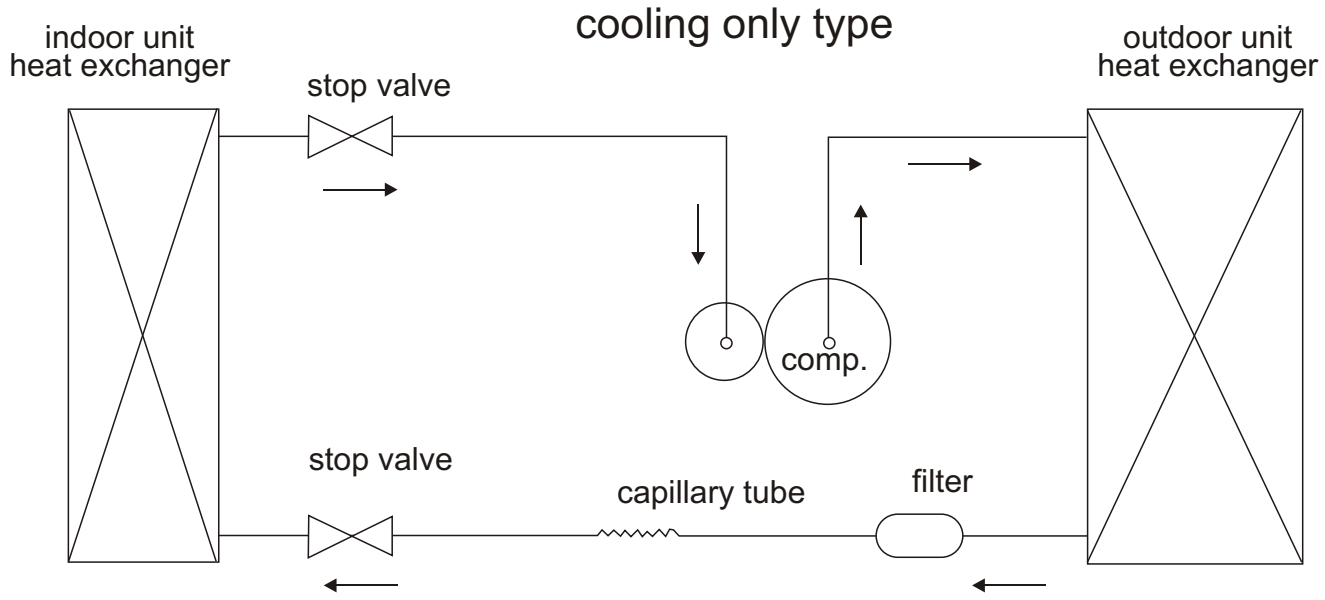
For models:
HSU-09C03/R1
HSU-09CA03/R1
HSU-09H03/R1
HSU-12C03/R1
HSU-12CA03/R1
HSU-12H03/R1

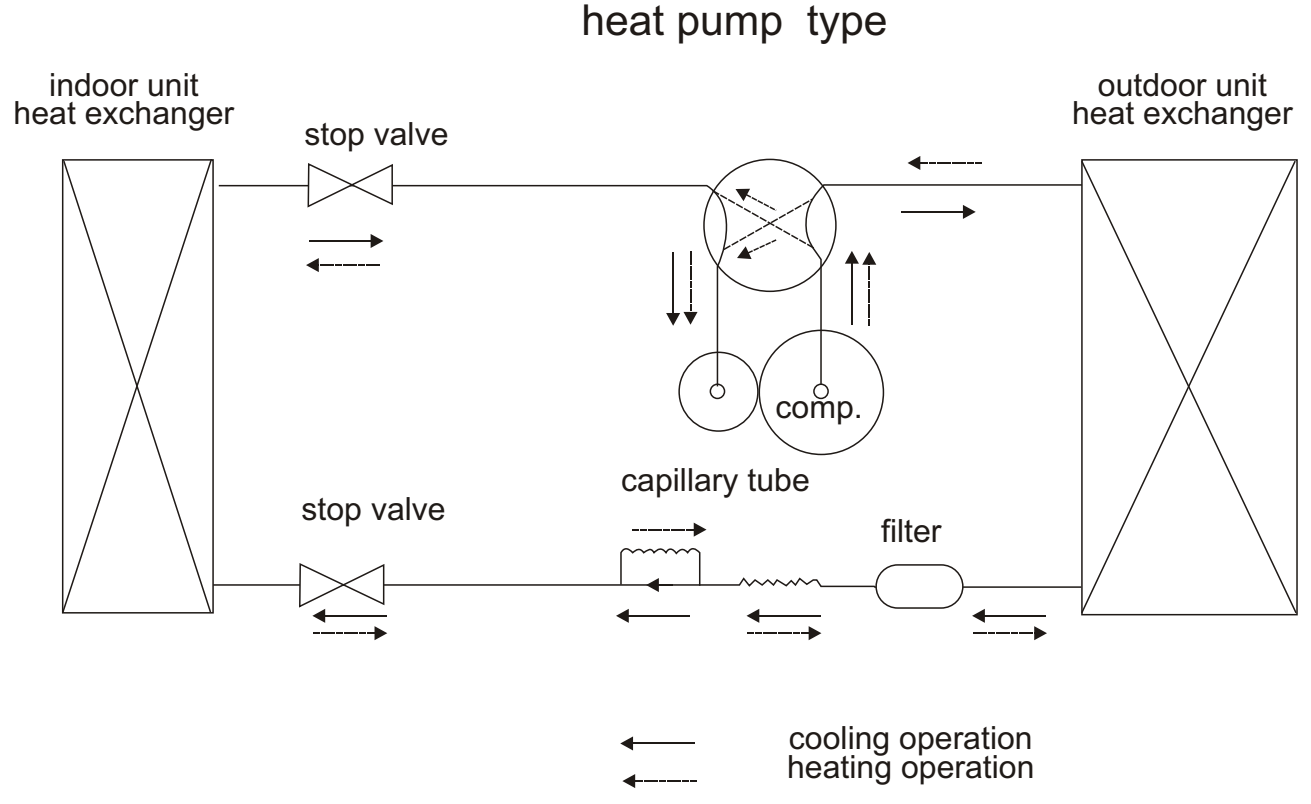


• Warm air comes out when cooling, cool air comes out when heating.

REFRIGERATING CYCLE DIAGRAM

Refrigerating cycle diagram





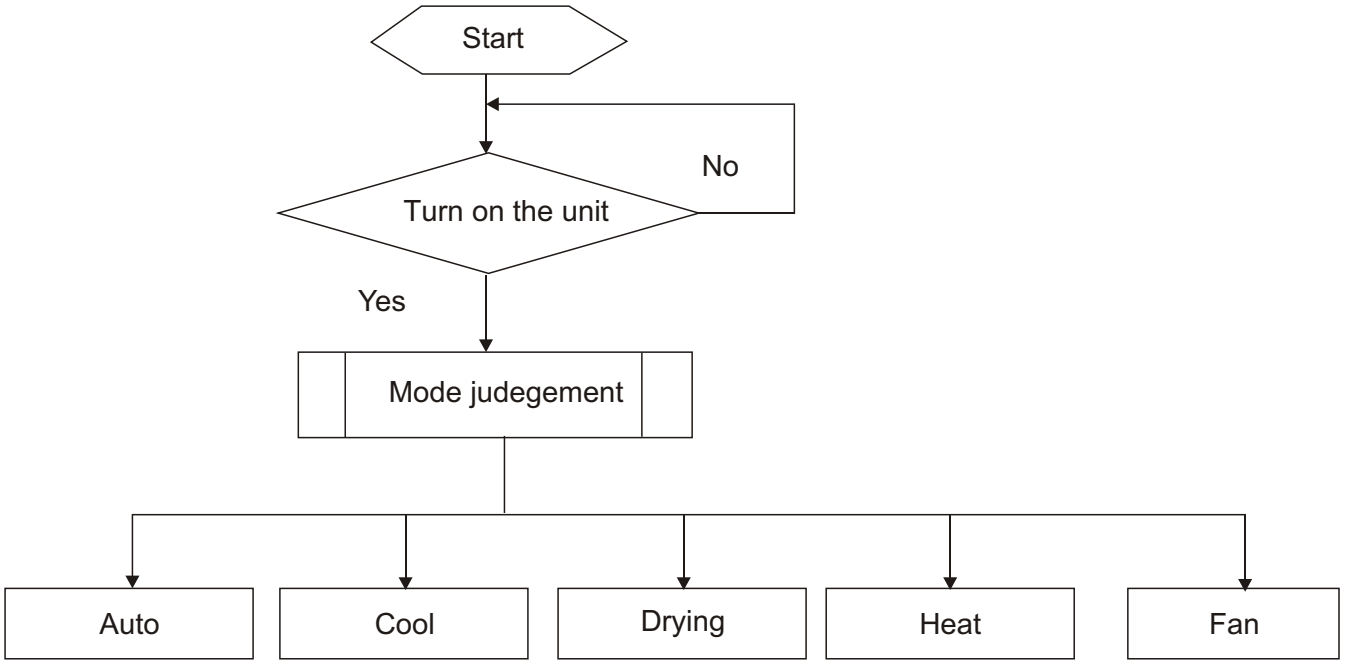
PROGRAM DIAGRAM

PROGRAM DIAGRAM

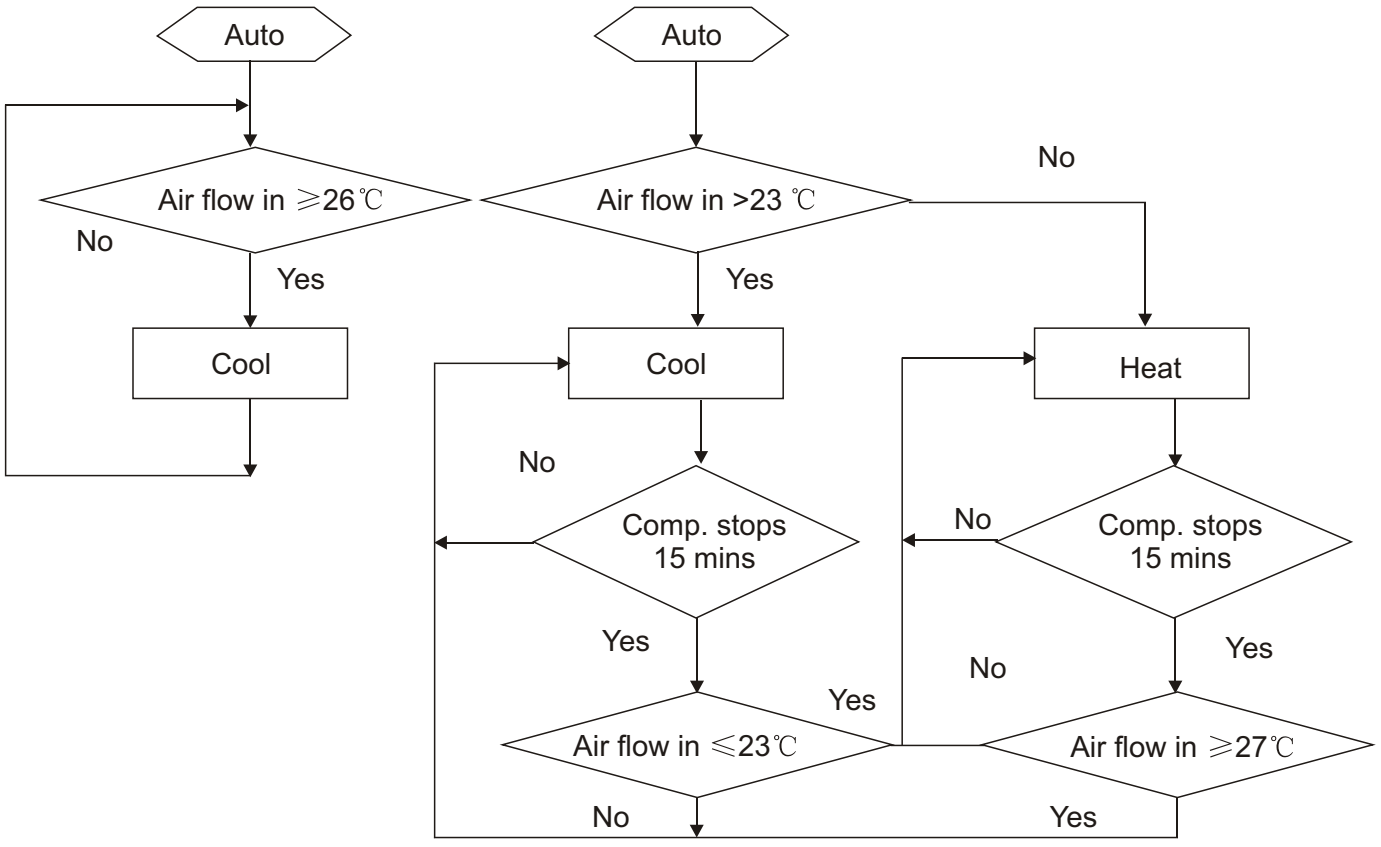
NO.	MACHINE MODEL	INDOOR PROGRAM DIAGRAM	OUTDOOR PROGRAM DIAGRAM
1	HSU-07CC03、HSU-07CD03、HSU-07CE03 、HSU-07HC03、HSU-07HD03 、 HSU-07HE03 、 HSU-09C03/R1、HSU-09CA03/R1、HSU-09CA13 、HSU-09CH03 、 HSU-09CJ03、 HSU-09CK03、HSU-09H03/R1 、HSU-09HH03 、HSU-09HJ03、HSU-09HK03、 HSU-12C03/R1、 HSU-12CA03 、 HSU-12CA03/R1、HSU-12CA13、HSU-12CB13、HSU-12CC13、HSU-12CD13、HSU-12CE13、HSU-12CF03 、HSU-12CG03、HSU-12CH03、HSU-12CI03、HSU-12HR03、HSU-12CM03、HSU-12H03/R1、HSU-12HA03、HSU-12HC13、HSU-12HD13、HSU-12HI03、HSU-12HJ03、HSU-14C03、HSU-14C13、HSU-14H13、HSU-16C13、HSU-16CC03、HSU-16CD03、 HSU-16HC03、 HSU-16HD03、 AS098AZMAA/AU098ACMAA、AS092AMBAA/AU092ABBAA、AS052AZMAA/AU052ACMAA AS122AYBAA/AU122ABBAA、AS128AVAAA/AU128ABAAA、HSU-18HA13、 HSU-18HC13、 、 HSU-22CA13、HSU-22CB13、 HSU-22CC13、 HSU-22HA13、HSU-22HC13、AS184ASMAA/AU184AFMAA、 /、AS188ASAAA/AU188AFAAA、 AS228ASAAA/AU228AFAAA、	PROGRAM	———

PROGRAM DIAGRAM

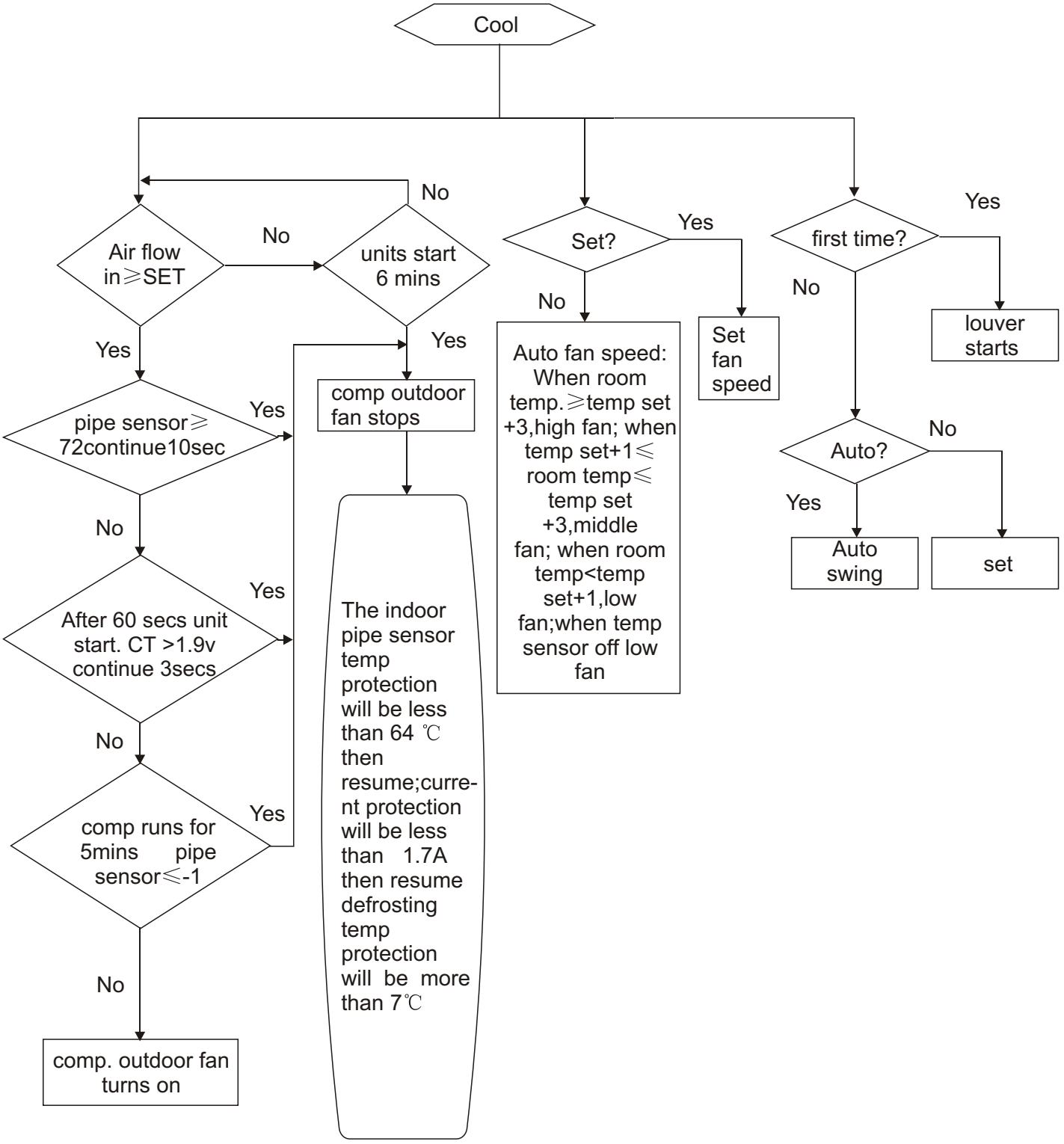
1.



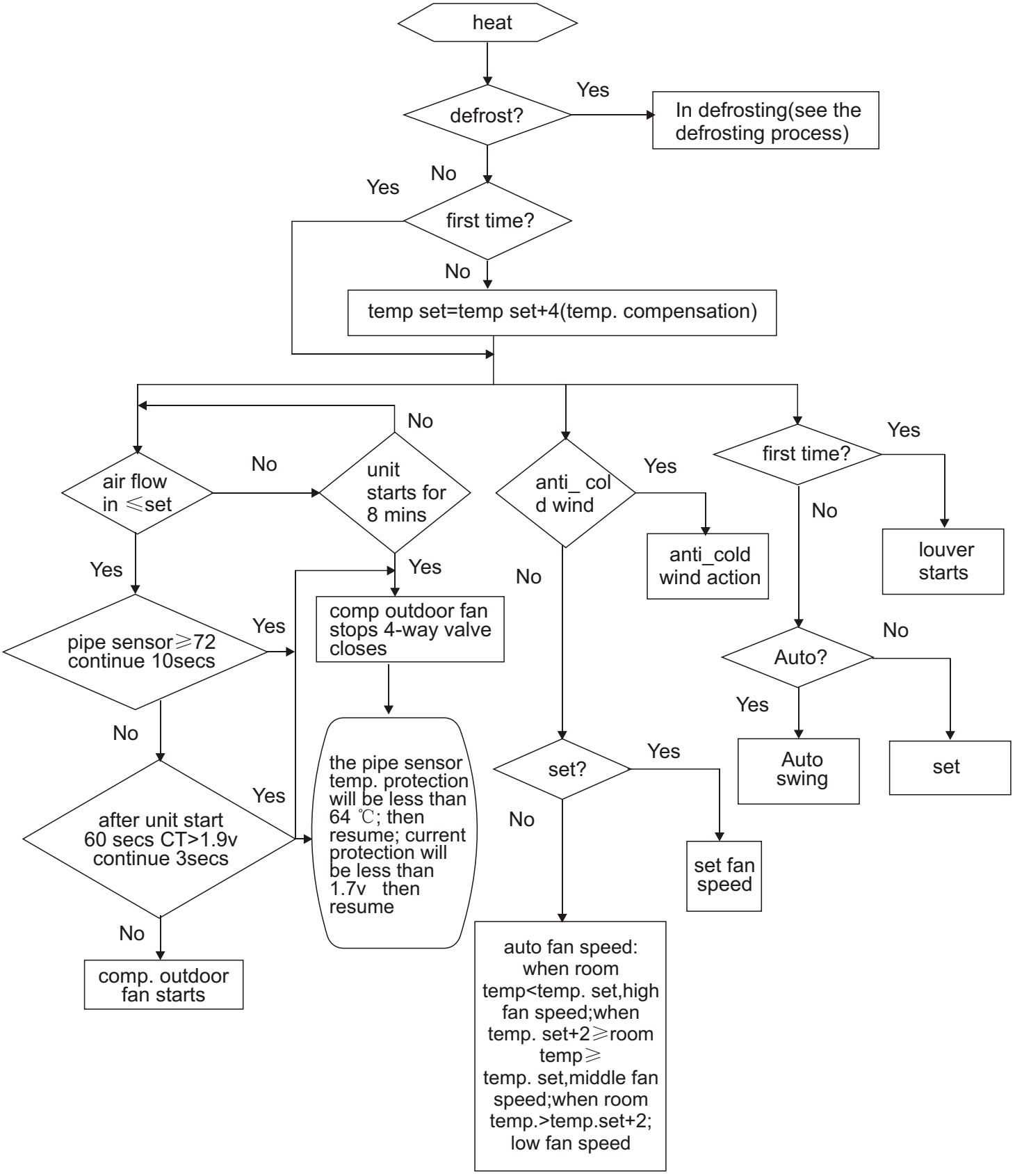
2.



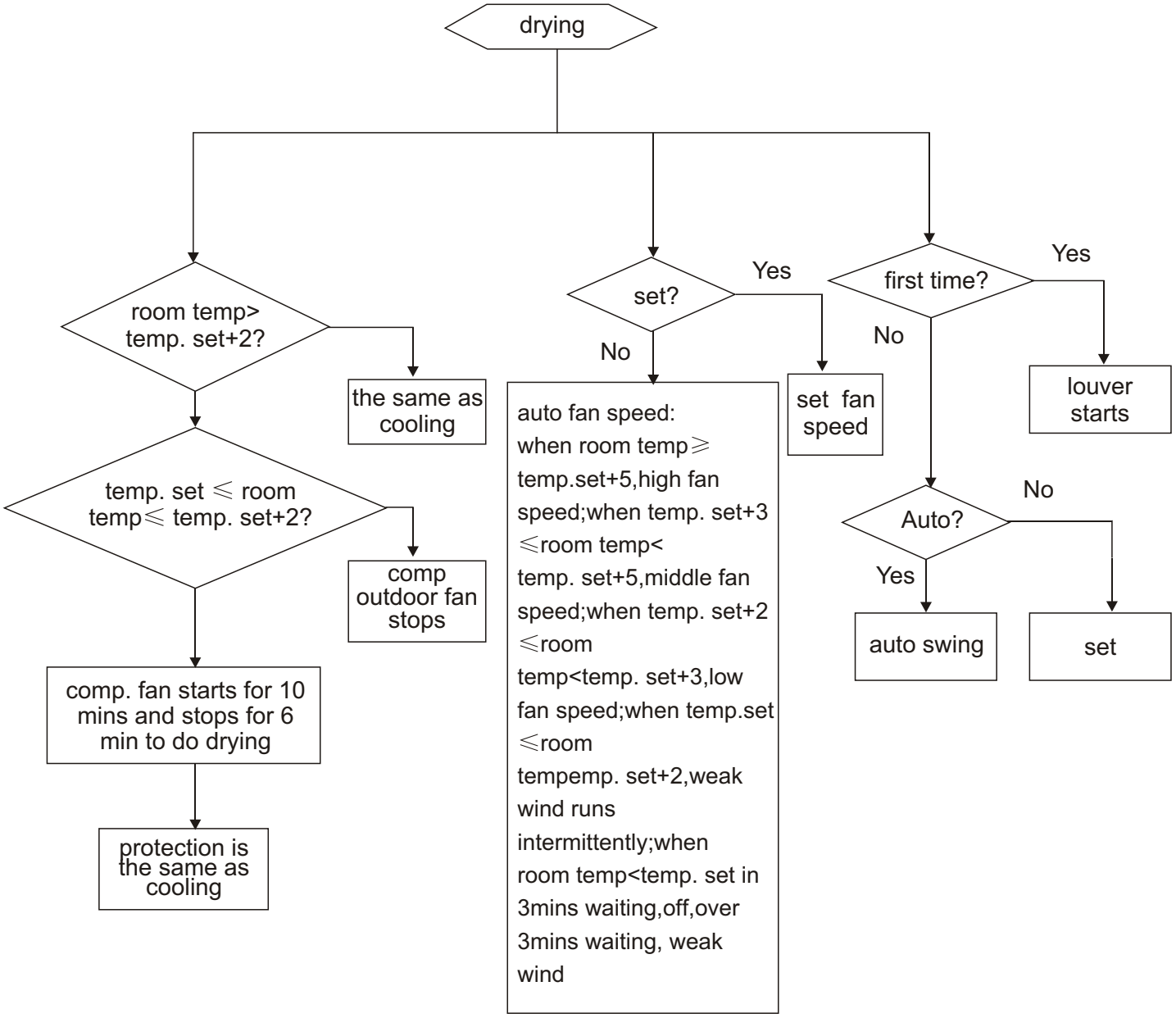
3.


Cool
Air flow in≥SET
No
units start 6 mins
No
Yes
Yes
pipe sensor≥ 72continue10sec
Yes
No
After 60 secs unit start. CT >1.9v continue 3secs
Yes
No
comp runs for 5mins pipe sensor≤-1
Yes
No
comp. outdoor fan turns on
comp outdoor fan stops
The indoor pipe sensor temp protection will be less than 64 ℃ then resume;curre-nt protection will be less than 1.7A then resume defrosting temp protection will be more than 7℃
Set?
Yes
No
Auto fan speed: When room temp.≥temp set +3,high fan; when temp set+1≤ room temp≤ temp set +3,middle fan; when room temp<temp set+1,low fan;when temp sensor off low fan
Set fan speed
first time?
Yes
No
louver starts
Auto?
No
Yes
Auto swing
set

4.

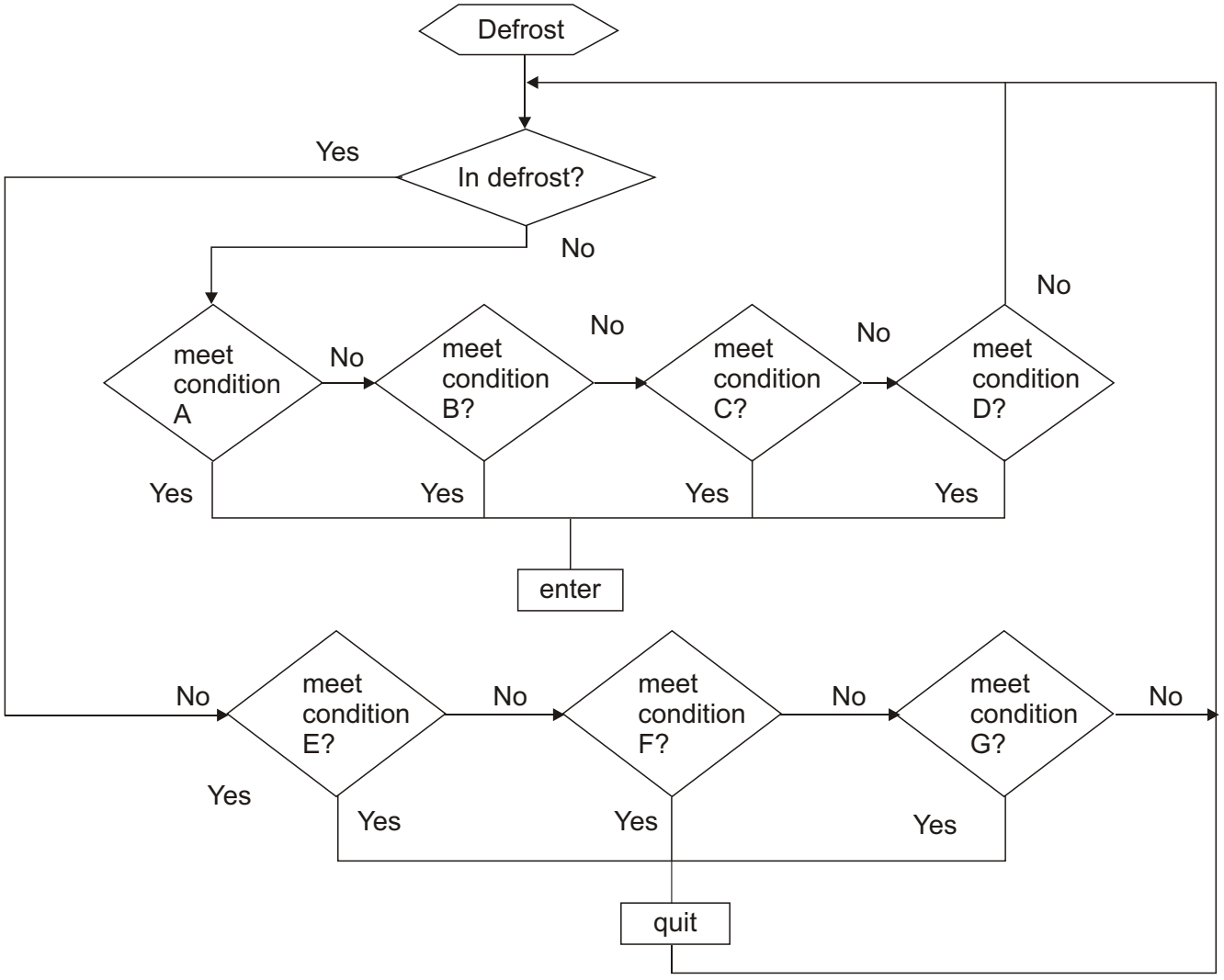

heat
defrost?
Yes
In defrosting(see the defrosting process)
No
Yes
first time?
No
temp set=temp set+4(temp. compensation)
No
air flow in ≤set
No
unit starts for 8 mins
Yes
Yes
pipe sensor≥72 continue 10secs
Yes
comp outdoor fan stops 4-way valve closes
No
Yes
after unit start 60 secs CT>1.9v continue 3secs
the pipe sensor temp. protection will be less than 64 ℃; then resume; current protection will be less than 1.7v then resume
No
comp. outdoor fan starts
anti_ col d wind
Yes
anti_cold wind action
No
set?
Yes
set fan speed
No
auto fan speed: when room temp<temp. set,high fan speed;when temp. set+2≥room temp≥ temp. set,middle fan speed;when room temp.>temp.set+2; low fan speed
first time?
Yes
louver starts
No
Auto?
No
set
Yes
Auto swing

5.



note:The fan speed setting, when temp. sensor off or the indoor fan motor runs intermittently, do not operate manually (compulsory auto run)

6.



Note 1:Condition of entering defrosting function

Condition A: Indoor unit in overload protection and external fan motor stops, when the external fan motor starts again and operates continuously over 10 mins., the comp. operates for accumulative 45 mins. and operates continuously for 20 mins., the temp. of indoor pipe coil is less than 42 degree.

Condition B: Indoor unit operates continuously for 20 mins., the temp. of indoor pipe coil lowers 1 degree every 6 mins.and continuously appears 3 times, the temp.of internal pipe coil is less than 42 degree, after the comp. starts for other 5 mins.

Condition C: The compressor operates over accumulative 3 hours, and the compressor operates continuously over 20 mins., the temp. of the indoor pipe coil is less than 42 degree.

Condition D: After the temp. difference of indoor pipe coil temp. and room temp. is less than 18 degree, the unit operates continuously for 5 mins., and the comp. operates for accumulative 45 mins. and operates continuously for 20 mins.

Note 2:Condition of quitting defrosting function:

Condition E: (without external temp. sensor) time of defrosting over 9 mins. (comp. on), or CT current over 1.074V.

Condition F:(with external temp. sensor)temp. of outdoor pipe coil over 12 degree or time of defrosting over 12 mins.(comp. on), or CT current over 1.074V.

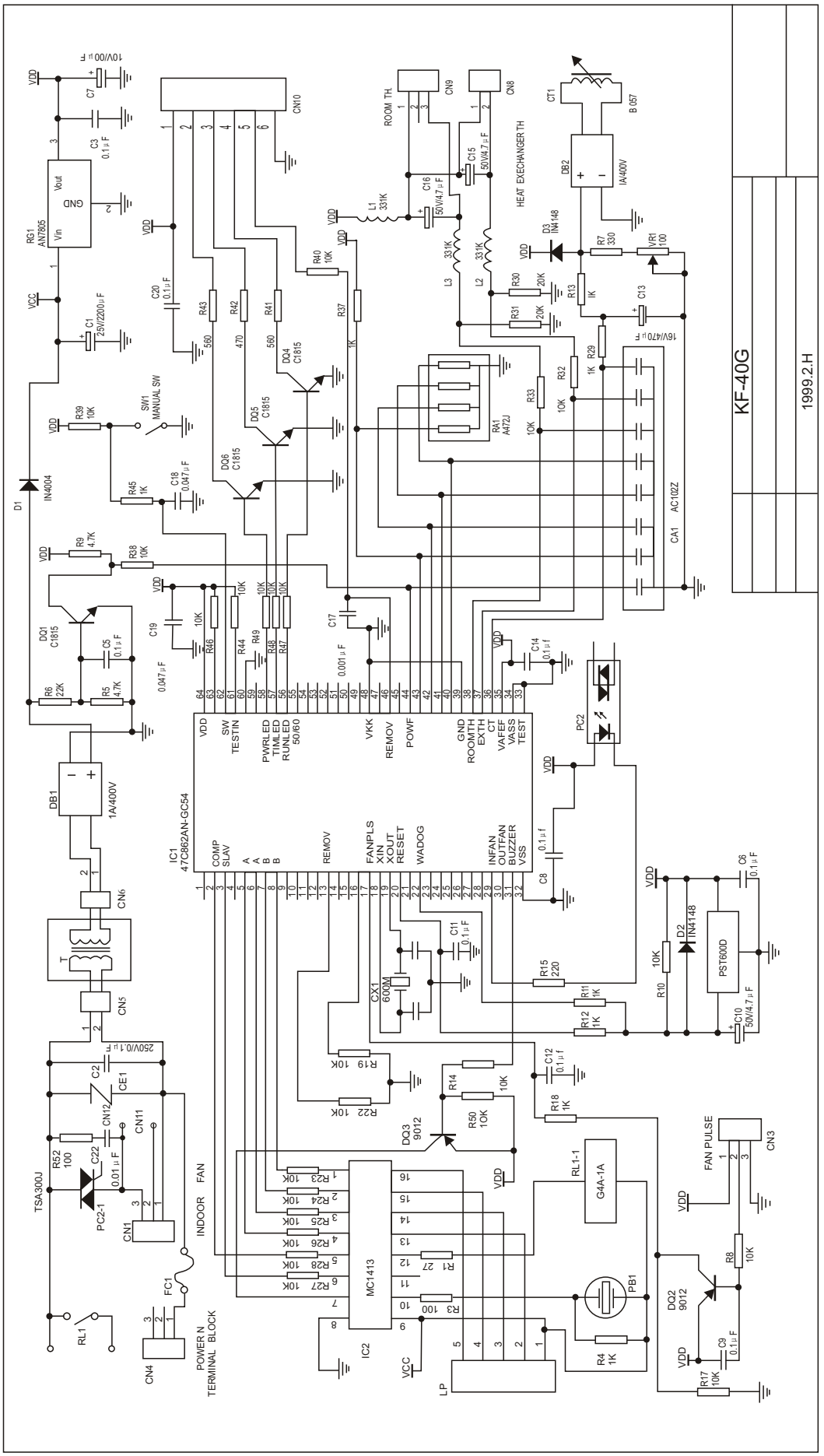
Condition G: during defrosting, after comp. start 60 seconds, the peak value of current stops quitting defrosting that over 1.9V.

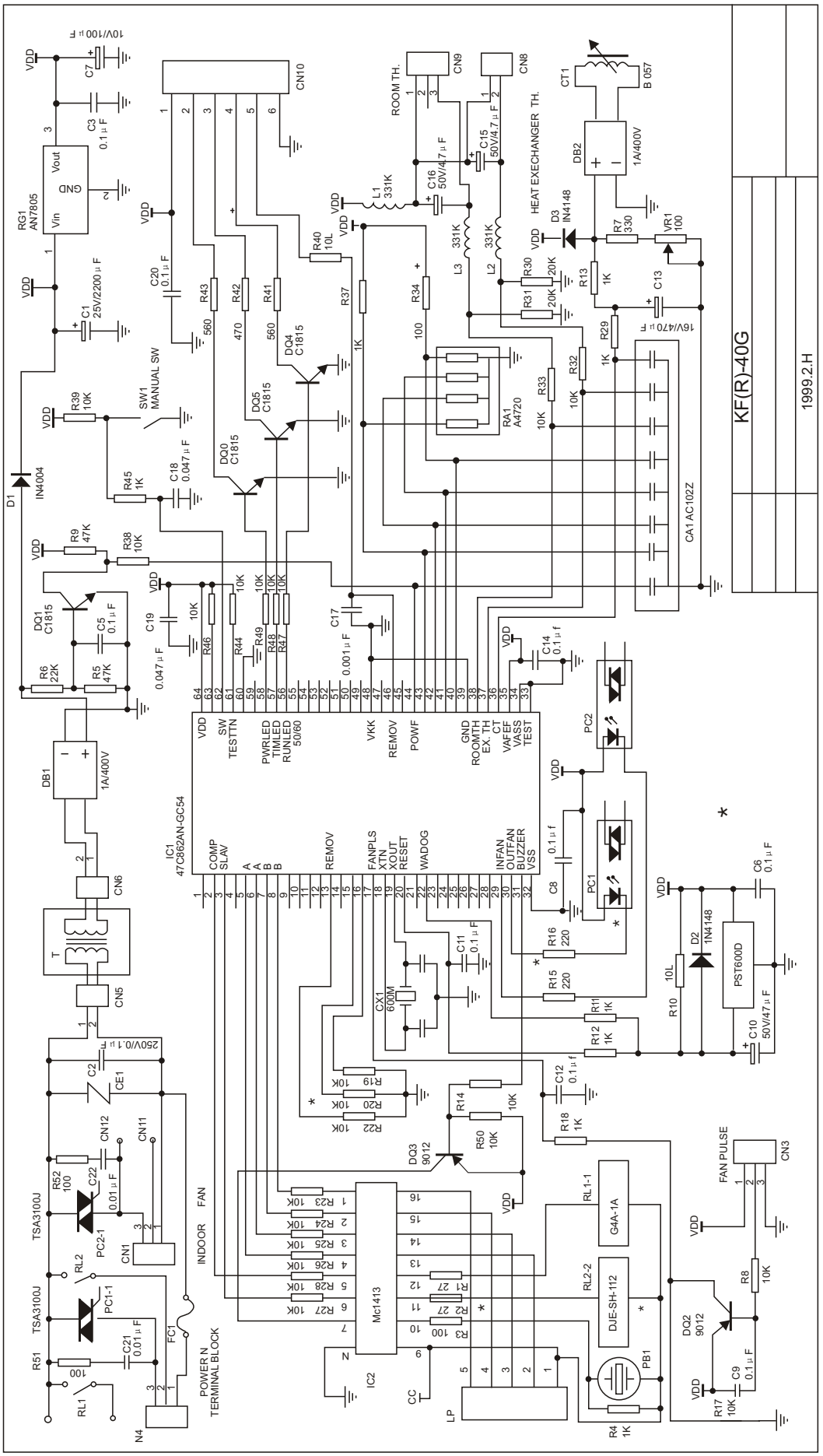
CIRCUIT DIAGRAM

CIRCUIT DIAGRAM

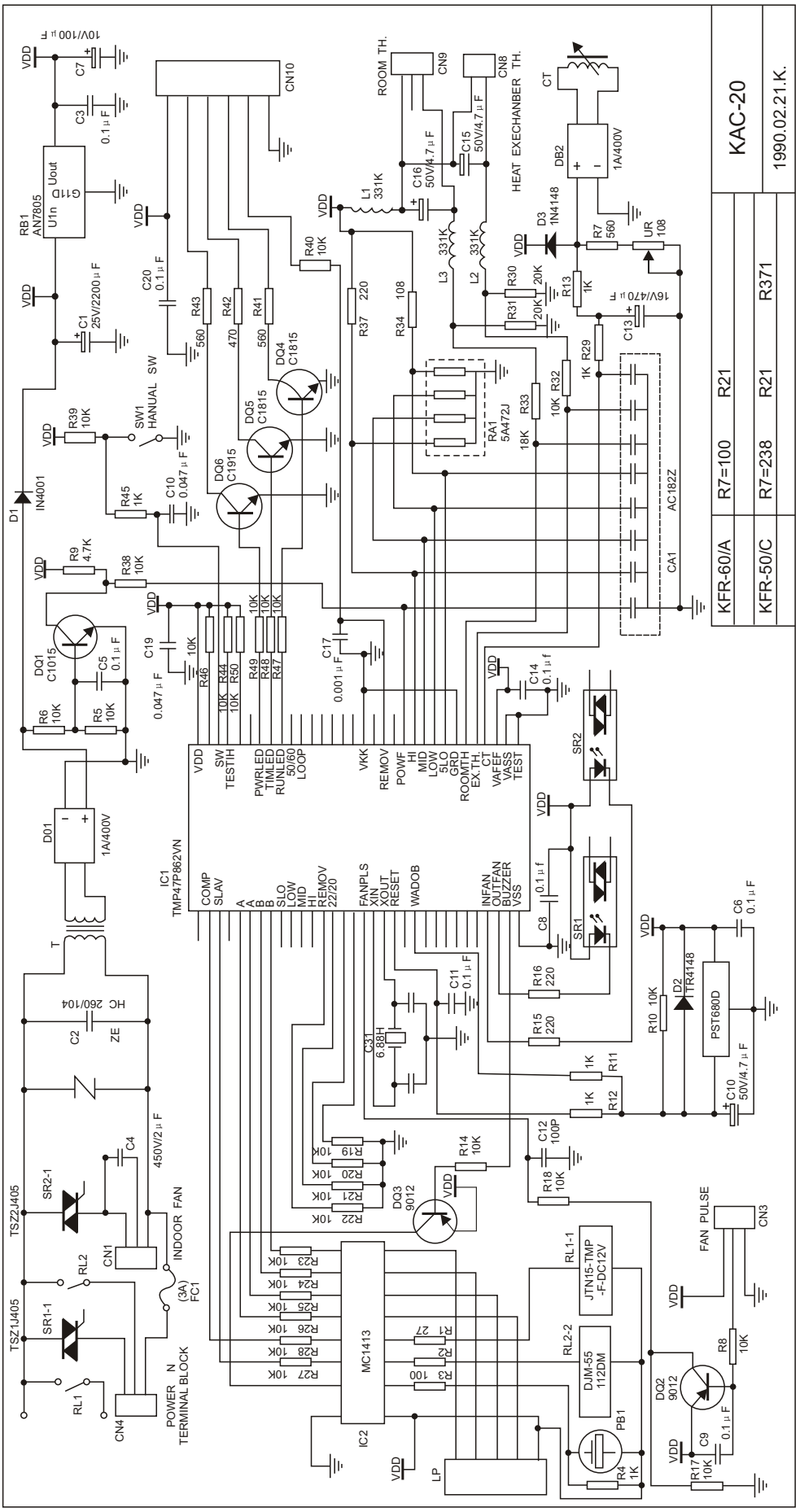
NO.	MACHINE MODEL	INDOOR CIRCUIT DIAGRAM	OUTDOOR CIRCUIT DIAGRAM
1	HSU-07CC03、HSU-07CD03、HSU-07CE03 、HSU-07HC03、HSU-07HD03 、 HSU-07HE03 、 HSU-09C03/R1、HSU-09CA03/R1、HSU-09CA13 、HSU-09CH03 、HSU-09CJ03、HSU-09CK03、HSU-09H03/R1 、HSU-09HH03 、HSU-09HJ03、HSU-09HK03、 HSU-12C03/R1、 HSU-12CA03 、 HSU-12CA03/R1、HSU-12CA13、HSU-12CB13、HSU-12CC13、HSU-12CD13、HSU-12CE13、HSU-12CF03 、HSU-12CG03、HSU-12CH03、HSU-12CI03、HSU-12HR03、HSU-12CM03、HSU-12H03/R1、HSU-12HA03、HSU-12HC13、HSU-12HD13、HSU-12HI03 、HSU-12HJ03、AS098AZMAA/AU098ACMAA、AS092AMBAA/AU092ABBAA 、AS052AZMAA/AU052ACMAA、AS122AYBAA/AU122ABBAA、AS128AVAAA/AU128ABAAA	PROGRAM 8	———
2	HSU-18HA13、HSU-18HC13、 、HSU-22CA13、HSU-22CB13、HSU-22CC13、HSU-22HA13、HSU-22HC13、AS184ASMAA/AU184AFMAA、/、AS188ASAAA/AU188AFAAA、AS228ASAAA/AU228AFAAA、	PROGRAM 11	———
3	HSU-14C03、 HSU-14C13、 HSU-14H13、 HSU-16C13、HSU-16CC03 、HSU-16CD03、 、HSU-16HC03、HSU-16HD03	PROGRAM 2 PROGRAM 2	———

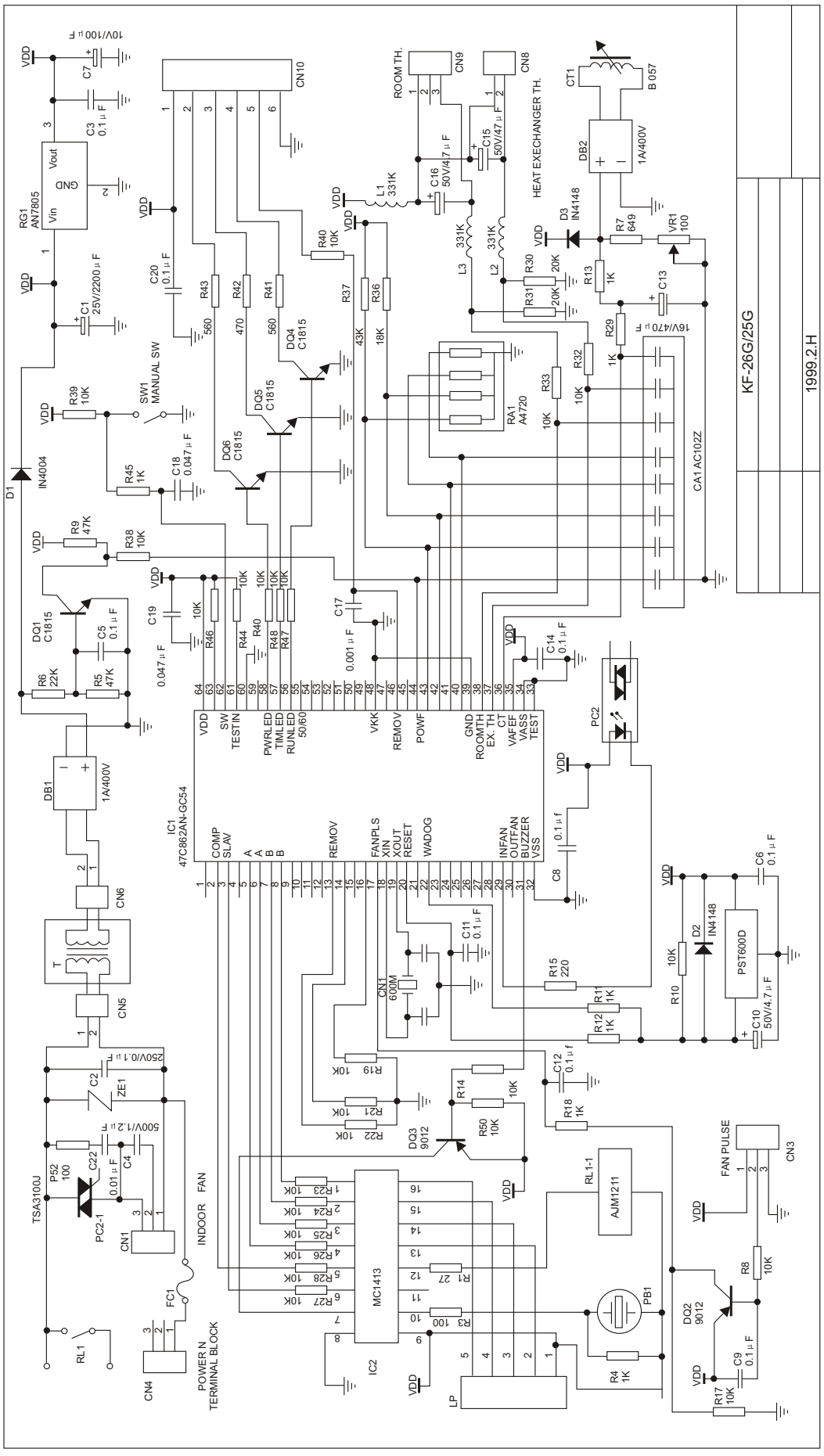
CIRCUIT DIAGRAM




KF(R)-40G
1999.2.H
IC1
47C862AN-GC54
Mc1413
CA1 AC102Z
RA1
A4720
RG1
AN7805
DB1
1A/400V
DB2
1A/400V
CT1
B 057
HEAT EXECHANGER TH.
ROOM TH.
SW1
MANUAL SW
D1
IN4004
D2
1N4148
D3
IN4148
PST600D
RL1-1
G4A-1A
RL2-2
DJE-SH-112
RL1
RL2
PC1
PC2
PC1-1
PC2-1
TSA3100J
CX1
600M
FC1
POWER N
TERMINAL BLOCK
INDOOR FAN
FAN PULSE
PB1
DQ0
C1815
DQ1
C1815
DQ2
9012
DQ3
9012
DQ4
C1815
DQ5
C1815
VDD
GND
Vout
Vin
COMP
SLAV
A
A
B
B
REMOV
FANPLS
XTN
XOUT
RESET
WADOG
INFAN
OUTFAN
BUZZER
VSS
SW
TESTTN
PWRLED
TIMLED
RUNLED
50/60
VKK
REMOV
POWF
GND
ROOMTH
EX. TH
VAFCT
VASS
TEST
CC
LP
N
T
CE1
CN1
CN2
CN3
CN4
CN5
CN6
CN8
CN9
CN10
CN11
CN12
C1 25V/2200μF
C2 250V/0.1μF
C3 0.1μF
C5 0.1μF
C6 0.1μF
C7 10V/100μF
C8 0.1μf
C9 0.1μF
C10 50V/47μF
C11 0.1μF
C12 0.1μf
C13 16V/470μF
C14 0.1μf
C15 50V/4.7μF
C16 50V/4.7μF
C17 0.001μF
C18 0.047μF
C19 0.047μF
C20 0.1μF
C21 0.01μF
C22 0.01μF
L1 331K
L2 331K
L3 331K
R4 1K
R5 47K
R6 22K
R7 330
R8 10K
R9 47K
R10 10L
R11 1K
R12 1K
R13 1K
R14 10K
R15 220
R16 220
R17 10K
R18 1K
R19 10K
R20 10K
R22 10K
R23 10K
R24 10K
R25 10K
R26 10K
R27 10K
R28 10K
R29 1K
R30 20K
R31 20K
R32 10K
R33 10K
R34 100
R37 1K
R38 10K
R39 10K
R40 10L
R41 560
R42 470
R43 560
R44 10K
R45 1K
R46 10K
R47 10K
R48 10K
R49 10K
R50 10K
R51 100
R52 100
R1 27
R2 27
R3 100
VR1 100
*

CIRCUIT DIAGRAM




KF-26G/25G
1999.2.H
IC1
47C862AN-GC54
IC2
MC1413
LP
CA1 AC102Z
RA1
A4720
RG1
AN7805
DB1
1A/400V
DB2
1A/400V
CT1
B 057
SW1
MANUAL SW
TSA3100J
PC2-1
PC2
RL1
AJM1211
RL1-1
PB1
FC1
INDOOR FAN
POWER N
TERMINAL BLOCK
ROOM TH.
HEAT EXECHANGER TH.
FAN PULSE
PST600D
VDD
GND
Vout
Vin
CN1
CN2
CN3
CN4
CN5
CN6
CN8
CN9
CN10
T
ZE1
D1
IN4004
D2
IN4148
D3
IN4148
DQ1
C1815
DQ2
9012
DQ3
9012
DQ4
C1815
DQ5
C1815
DQ6
C1815
VDD
SW
TESTIN
PWRLED
TIMLED
RUNLED
50/60
VKK
REMOV
POWF
GND
ROOMTH
EX. TH
CT
VAFEF
VASS
TEST
COMP
SLAV
A
A
B
B
REMOV
FANPLS
XIN
XOUT
RESET
WADOG
INFAN
OUTFAN
BUZZER
VSS
R1 27
R2 100
R3 10K
R4 1K
R5 47K
R6 22K
R7 649
R8 10K
R9 47K
R10 10K
R11 1K
R12 1K
R13 1K
R14 10K
R15 220
R17 10K
R18 1K
R19 10K
R21 10K
R22 10K
R23 10K
R24 10K
R25 10K
R26 10K
R27 10K
R28 10K
R29 1K
R30 20K
R31 20K
R32 1K
R33 10K
R36 18K
R37 43K
R38 10K
R39 10K
R40 10K
R41 560
R42 470
R43 560
R44 10K
R45 1K
R46 10K
R47 10K
R48 10K
R50 10K
L1 331K
L2 331K
L3 331K
C1 25V/2200μF
C2 250V/0.1μF
C3 0.1μF
C4 0.01μF
C5 0.1μF
C6 0.1μF
C7 10V/100μF
C8 0.1μf
C9 0.1μF
C10 50V/4.7μF
C11 0.1μF
C12 0.1μf
C13 16V/470μF
C14 0.1μF
C15 50V/47μF
C16 50V/47μF
C17 0.001μF
C18 0.047μF
C19 0.047μF
C20 0.1μF
C22 500V/1.2μF
P52 100
CN1 600M

KNOCK-DOWN DRAWINGS FOR INDOOR UNIT

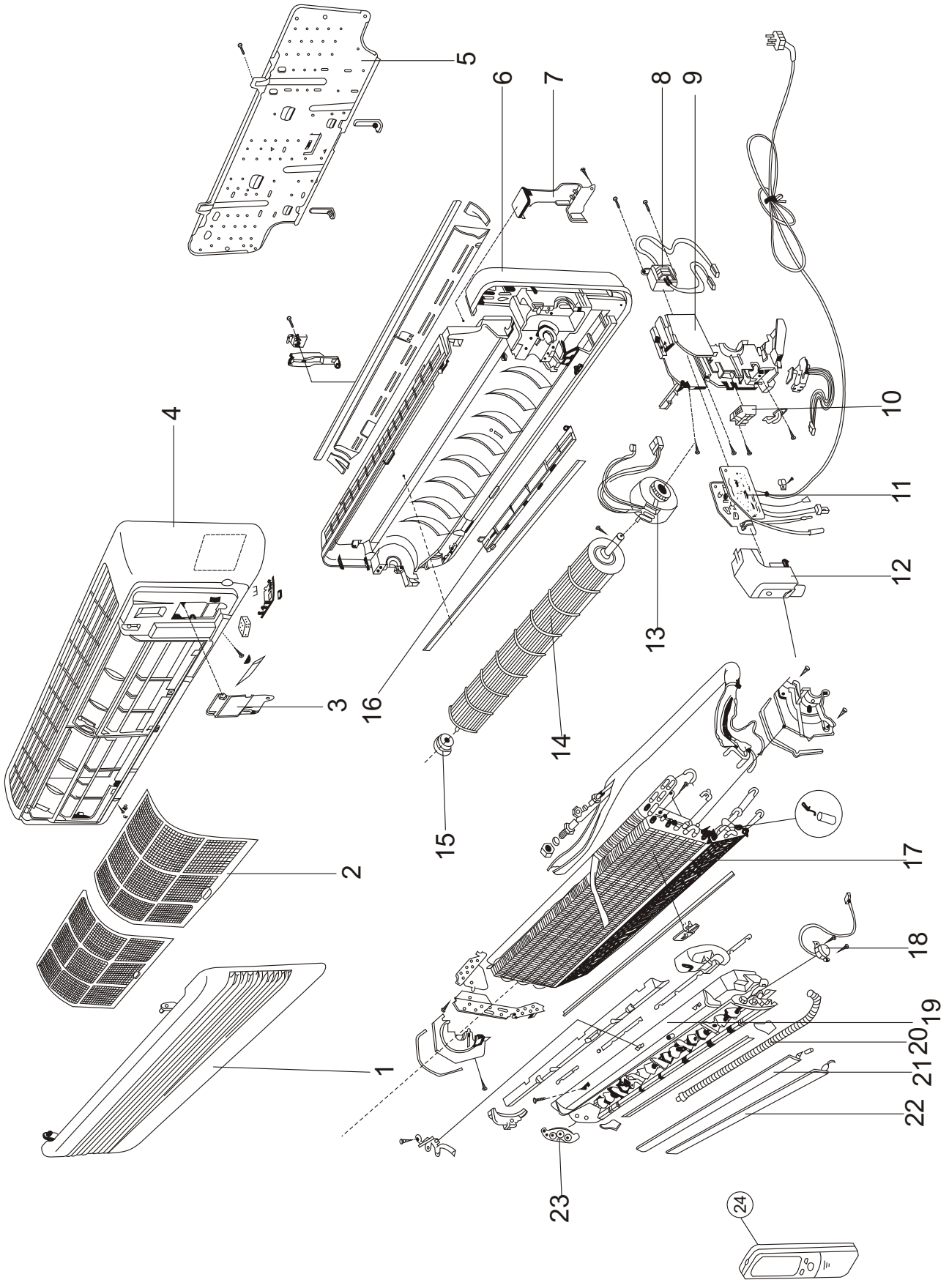
Knock-down drawings for indoor unit:
Models: HSU-12C03/R1, HSU-12CG03, HSU-12CI03

No.	Specialized No.	Parts name
1	①	Inlet grille
2	1431248A	Air filter
3	1433227	Service cover
4	1101045	Front panel
5	1301161	Mounting plate
6	1233073	Bottom frame
7	1433242	Piping support
8	3800065	Transformer
9	1233072	Electric box
10	4000026	Terminal block
11	②	PCB
12	1433234	Controller box cover
13	3000049	motor
14	0300028	Fan
15	0300029	bearing
16	1433243	Bottom plate
17	040005	Heat exchanger
18	3000031	Swing motor
19	1433230	Drain pan assy.
20	0990036	Drain hose
21	1433298	Horizontal flap
22	1433231	Horizontal flap
23	0100157	Gear assy.
24	③	Remote controller

①/②Specialized No.

NO.	HSU-12C03/R1	HSU-12CG03		HSU-12CI03
	common	common	restart	common
①	1233071	1233071	1233071	1231261
②	3300207	0600266	0010400260	0600266
③	3400078	3400078		3400078

KNOCK-DOWN DRAWINGS FOR INDOOR UNIT



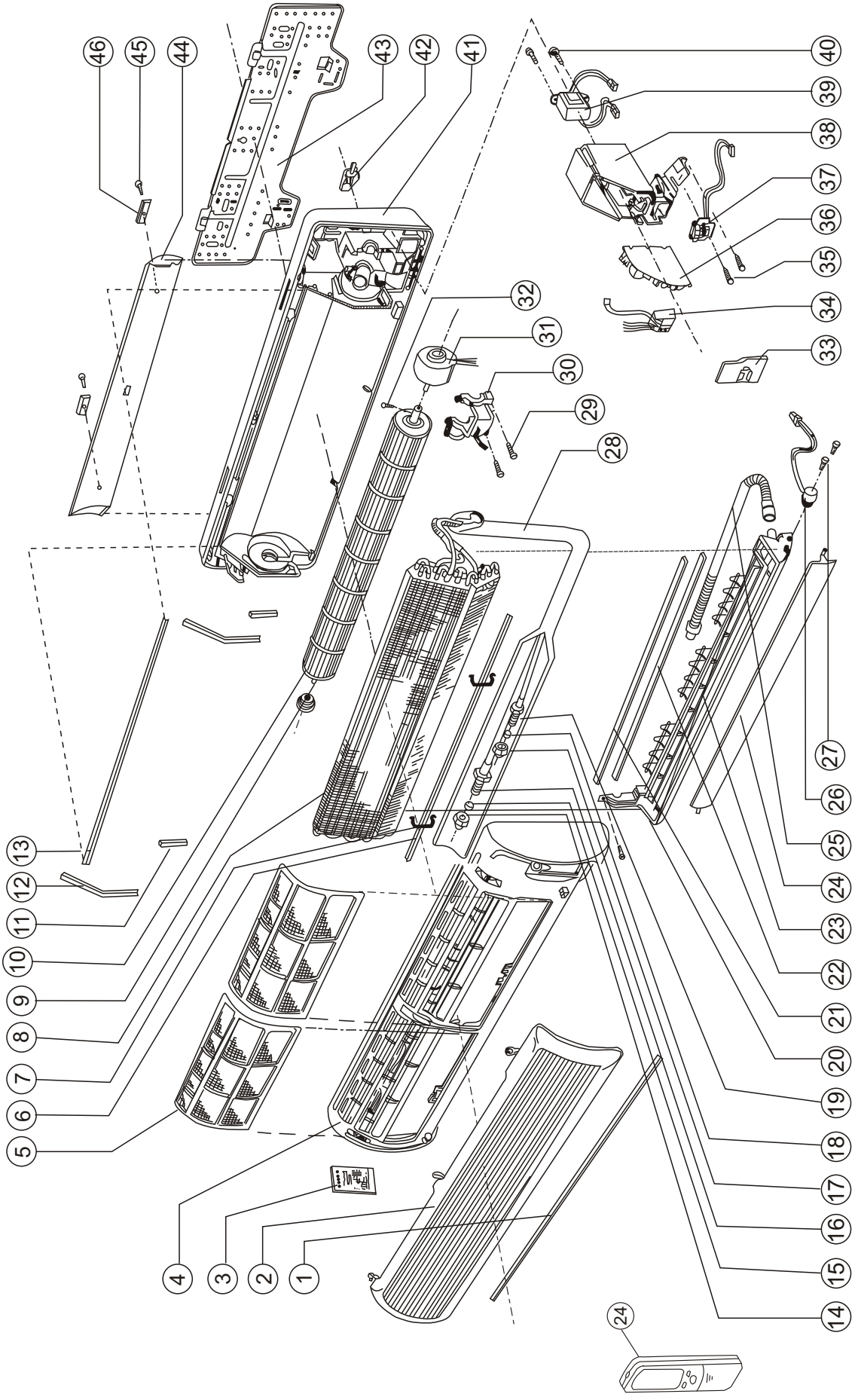
Knock-down drawings for indoor unit
Models: HSU-07CC03, HSU-07CD03, HSU-07CE03, HSU-07HC03, HSU-07HD03, HSU-07HE03, AS052AZMAA

No.	Specialized number	Name of the component	No.	Specialized number	Name of the component
1.	1734504A	Cushion	25	0900015	Drain hose
2.	①	Front grille	26	3000072	Swing motor
3.	----------	nameplate	27	5002026	Screw
4.	1232074	Front panel	28	1741513	Heat insulation tube
5.	2400076	Air filter	29	5002026	Screw
6.	2939026	Sealed cushion	30	1431366	Cover of the motor
7.	5703011	Spring clamp	31	3000051	Motor
8.	0400053	Heat exchanger	32	5002117	Screw
9.	0300050	Bearing	33	1431371	Service cover
10.	2335028	Fan	34	4000091	Terminal block
11.	1742533	Cushion	35	5002118	Screw
12.	1742826	Cushion	36	②	PC board
13.	1742827	Cushion	37	3900058	Receiver board
14.	5313004	Nut	38	1231076	Control box
15.	2912006	Dustproof cover	39	3800032	Transformer
16.	5213004	Connection	40	5002117	Screw
17.	5313003	Nut	41	1232078	Bottom plate
18.	2912007	Dustproof cover	42	1431368	Clamp
19.	5213003	Connection	43	1301216	Mounting plate
20.	5002118	Screw	44	1742827	Cushion
21.	1734521	Heat-insulation cushion	45	5002115	Screw
22.	1734522A	Heat-insulation cushion	46	1431365	Fixing plate
23.	1431254A	Drain pan	47	③	Remote controller
24.	1232077	Flap			

①\② specialized No.

No.	HSU-07CC03		HSU-07CE03		HSU-07HD03		AS052AZMAA
	common	Restart	common	Restart	common	Restart	common
①	1235075	1232075	1232304	1232304	1232303	1232303	1232075
②	0600306	0010400264	0600306	0010400264	3300269	0010400433	0600306
③	3400078		3400078		3400077		3400078
No.	HSU-07CD03		HSU-07HC03		HSU-07HE03		
	common	Restart	common	Restart	common	Restart	
①	1232303	1232303	1232075	1232075	1232304	1232304	
②	0600306	0010400264	3300269	0010400433	3300269	0010400433	
③	3400078		3400077		3400077		

KNOCK-DOWN DRAWINGS FOR INDOOR UNIT



Knock-down drawings for indoor unit
Models: HSU-09C03/R1 HSU-09CA13

No.	Specialized No.	Parts name	No.	Specialized No.	Parts name
1	1431024	Fixing plank	22	1734082	Cushion
2	5002116	Screw	23	1232007	Front panel
3	1734747	Cushion	24	①	Front grille
4	1301021	Mounting plate	25	-------	Wiring diagram
5	1232008	Bottom plate	26	0900083	Frame of the air purifying filter
6	1742063	Cushion	27	2436018	Air purifying filter
7	3000003	Motor	28	2239006A	Sealed strip
8	0300012	Fan	29	5703011	Spring clip
9	5002118	Screw	30	1742068	Cushion
10	3800002	Transformer	31	1742069	Cushion
11	1432025	Electric box	32	5313003	Nut
12	②	PCB	33	2912007	Dustproof cover
13	-------	Power cord	34	5213004	Piping connection
14	4000091	Terminal block	35	5313004	nut
15	0600007	Signal receiver	36	2912006	Dustproof cover
16	5002026	Screw	37	5213003	Piping connection
17	3000008	Swing motor	38	1734078	Heat insulation tube
18	1431028	Flap	39	0400007	Heat exchanger
19	1432033	Drain pan	40	1436026	Sensor support
20	0900011	Drain hose	41	0300005	Bearing
21	1436029	Louver link	42	5002021	screw
			43	③	Remote controller

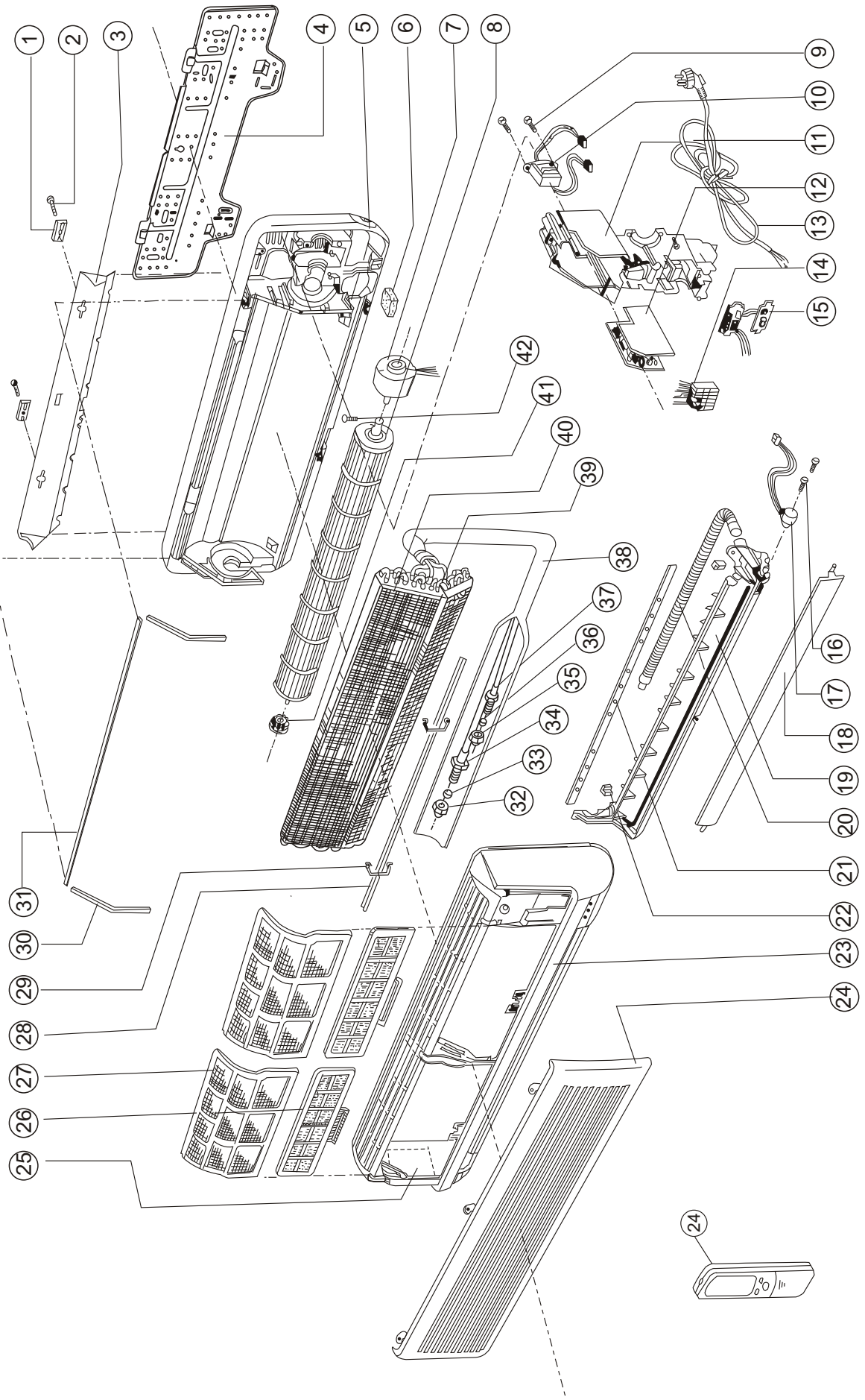
①/②specialized No.

NO.	HSU-09C03/R1	HSU-09CA13
①	1432022A	1432022A
②	0600034	0010400810
③	3400078	3400078

MODELS:HSU-12CA13

No.	Specialized No.	Parts name	No.	Specialized No.	Parts name
1	1432051	Fixing plank	22	1734082	Cushion
2	5002116	Screw	23	1232009	Front panel
3	1734747	Cushion	24	1432049A	Front grille
4	1301021	Mounting plate	25	-------	Wiring diagram
5	1232010	Bottom plate	26	1436882	Frame of the air purifying filter
6	1742063	Cushion	27	2400117	Air purifying filter
7	3000009	motor	28	2239014A	Sealed strip
8	0300010	Fan	29	5703011	Spring clip
9	5002118	Screw	30	1742068	Cushion
10	-------	Transformer	31	1742069	Cushion
11	1432052	Electric box	32	5313008	Nut
12	0010400822	PCB	33	2912008	Dustproof cover
13	-------	Power cord	34	5213003	Piping connection
14	4000091	Terminal block	35	5313003	nut
15	0600007	Signal receiver	36	2912007	Dustproof cover
16	5002026	Screw	37	5213005	Piping connection
17	3000008	Swing motor	38	1734078	Heat insulation tube
18	1431054/1431055	Flap	39	0400012	Heat exchanger
19	1432053	Drain pan	40	1436026	Sensor support
20	0900015	Drain hose	41	0300005	Bearing
21	1436029	Connecting rod	42	5002021	screw
			43	3400078	Remote controller

KNOCK-DOWN DRAWINGS FOR INDOOR UNIT



Knock-down drawings for indoor unit

Models: HSU-09CA03/R1,HSU-09CH03, HSU-09CJ03, HSU-09CK03, HSU-09H03/R1, HSU-09HH03,HSU-09HJ03,HSU-09HK03, HSU-12CC13,HSU-12CD13,HSU-12HC13,HSU-12HD13 AS092AMBAA

No.	Specialized No.	Name of the component	No.	Specialized number	Name of the component
1	①	Controller assy.	13	3000052	Motor
2	②	PCB(main controller)	14	2335028	Fan
3	3900058	PCB(receiver)	15	0300005	Bearing
4	1431372	Motor cover	16	0900107	Drain pan
5	3900059	Sensor	17	3000072	Swing motor
6	3800002	Transformer	18	1232077	Flap
7	4000091	Terminal block	19	0900015	Drain hose
8	--------	Electricity power cord	20	0400055	evaporator
9	0100944	Front panel assy.	21	2400060/2400061	Air filter
10	③	Front grille	22	1301236	Mounting plate
11	0100206	Rear case assy.	23	1431368	Piping support
12	1431371	Service cover	24	④	Remote controller

①/②/③ specialized No.

No.	HSU-09CA03/R1	HSU-09CH03		HSU-09CK03		HSU-09HH03	
	Common	restart	common	common	restart	restart	common
①	0600620	0010800418	0600620	0600620	0010800418	0010800419	0600621
②	0600306	0010400264	0600306	0600306	0010400264	0010400433	0600259
③	1232075	1232075	1232075	1232303	1232303	1232075	1232075

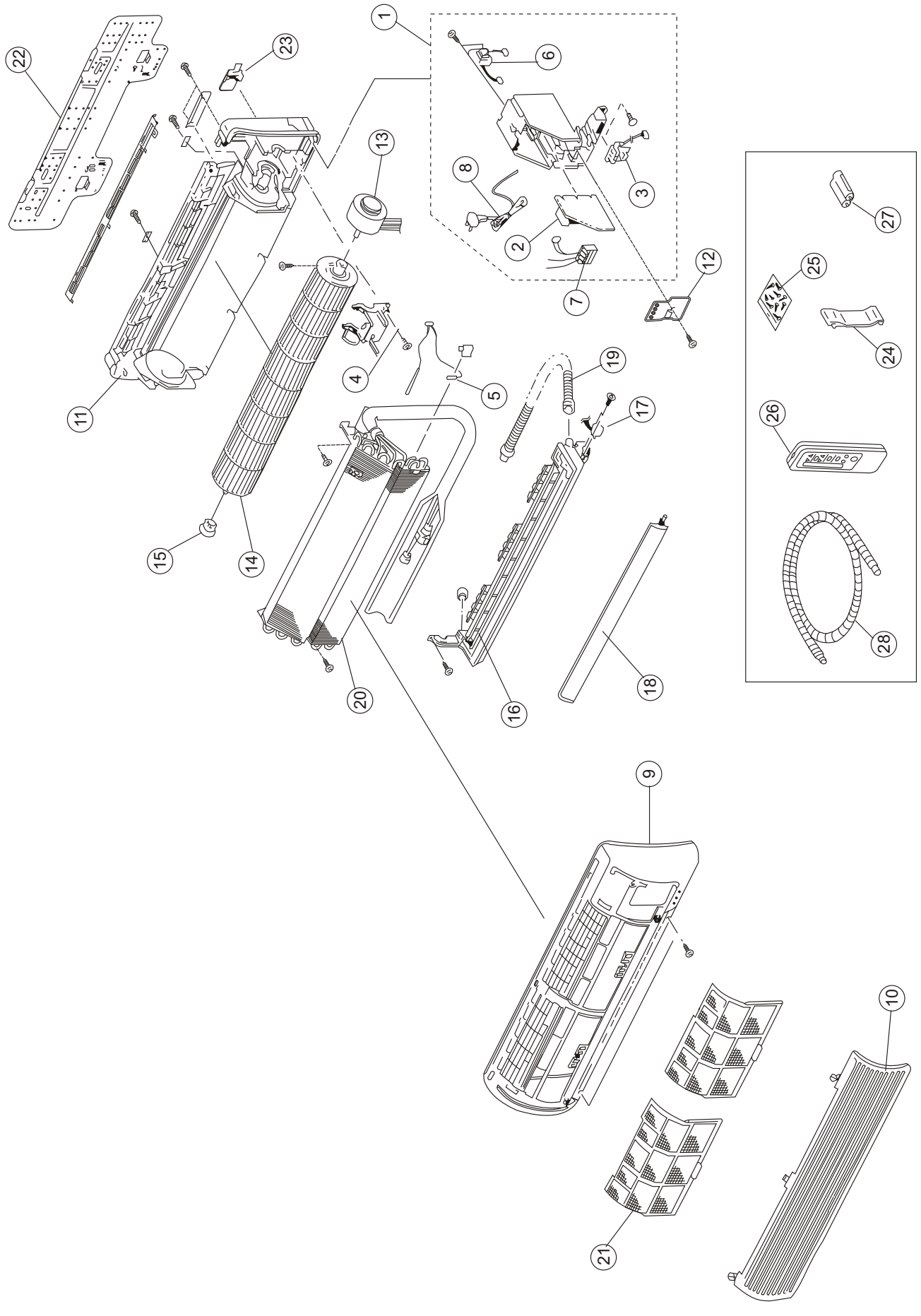
No.	HSU-09HK03		HSU-12CD13	HSU-12HC13	HSU-12HD13	AS092AMBAA	HSU-09H03/R1
	restart	common	common	common	common	common	common
①	0010800419	0600621	0600457	0600455	0600455	0600620	0600620
②	0010400433	0600259	3300167	3300168	3300168	0600306	0600306
③	1232303	1232303	1232304	1232075	1232304	1232304	1232304

No.	HSU-09CJ03		HSU-09HJ03		HSU-12CC13		
	restart	common	restart	common	common		
①	0010800419	0600621	0010800419	0600621	0600457		
②	0010400433	0600259	0010400433	0600259	3300167		
③	1232303	1232303	1232075	1232304	1232075		

No.	HSU-09CA03/R1	HSU-09CH03	HSU-09CK03	HSU-09HH03	HSU-09HK03	HSU-12CD13	HSU-12HC13
④	3400078	3400078	3400180	3400077	3400077	3400078	3400077

No.	HSU-12HD13	AS092AMBAA	HSU-09H03/R1	HSU-09CJ03	HSU-09HJ03	HSU-12CC13
④	3400077	3400077	3400077	3400180	3400179	3400078

KNOCK-DOWN DRAWINGS FOR INDOOR UNIT



Knock-down drawings for indoor unit
Models:
HSU-12CA03 HSU-12CA03/R1 HSU-12CB13 HSU-12CE13 HSU-12CF03 HSU-12CM03 HSU-12H03/R1 HSU-12HA03 HSU-12HJ03 HSU-12HI03 HSU-14C03 HSU-14C13 HSU-14H13 HSU-16C13 HSU-16CC03 HSU-16CD03 HSU-16HC03 HSU-16HD03 AS124AYMAA AS122AYBAA AS128AYAAA

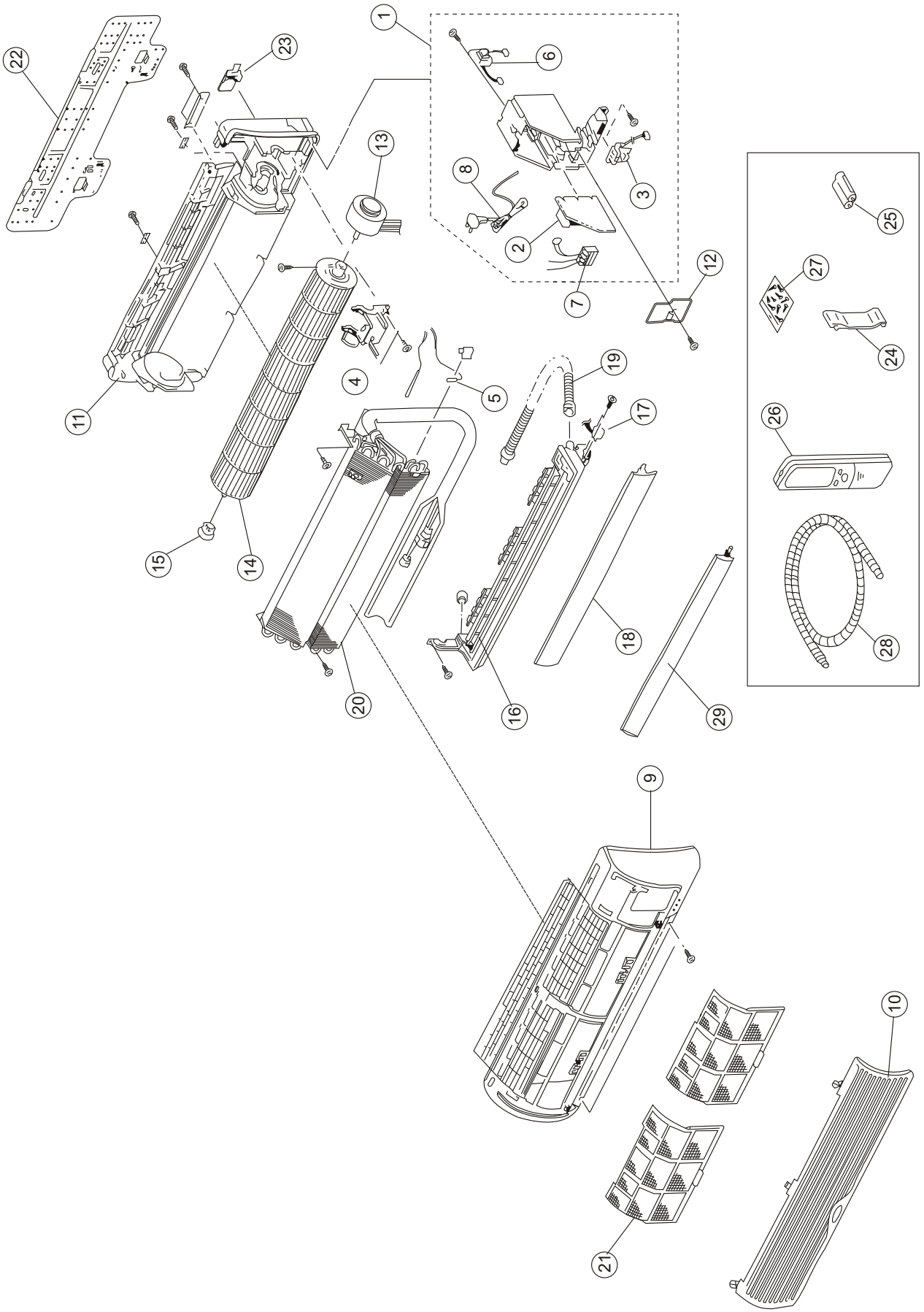
No.	Specialized No.	Parts name	No.	Specialized No.	Parts name
1	①	Controller assy.	13	3000088	Motor
2	②	PCB	14	0300038A	Fan
3	3900058	PCB(receiver)	15	0300005	Bearing
4	1431717	Motor cover	16	0900104	Drain pan
5	390003/390004	Sensor	17	3000008	Swing motor
6	3800032	Transformer	18	1231140	Flap
7	0400122	Terminal block	19	0900015	Drain hose
8	--------	Electricity power cord	20	0400128	Evaporator
9	1231134	Front panel	21	2400080	Air filter
10	③	Front grille	22	1301216	Mounting plate
11	0100276	Rear case assy.	23	1431368	Piping support
12	1431494	Service cover	24	1231139	flap
			25	④	Remote controller

①/②/③ specialized No.

No.	HSU-12CA03		HSU-12CB13 AS124AVMAA	HSU-12CE13	HSU-12CF03	HSU-12HA03	
	restart	common	common	common	common	common	restart
①	0010800420	0600469	0600469	0600469	0600469	0600698	0010800421
②	0010400435	0600312	0600321	0600312	0600312	3300338	0010400436
③	1231135	1231135	1231260	1231259	1231260	1231135	1231135
No.	HSU-12CM03		HSU-16HD03	AS124AYMAA	HSU-14C13	HSU-14C03	
	restart	common	common	common	common	common	restart
①	0010800420	0600469	0600637	0600469	0600469	0600469	0010800420
②	0010400435	0600312	0600208	0600312	0600312	0600312	0010400435
③	1231259	1231259	1231259	1231260	1231135	1231135	1231135
No.	HSU-12HJ03		HSU-16CC03	HSU-14H13		HSU-16HC03	
	common	restart	common	common	common	common	restart
①	0600698	0010800421	0600469	0600637	0600637	0600637	0010800432
②	3300338	0010400436	0600312	0600208	0600208	0600208	0010400445
③	1231259	1231259	1231135	1231135	1231135	1231135	1231135
No.	HSU-12HI03		HSU-12H03/R1 AS128AYBAA	HSU-16C13	HSU-12CA03/R1	HSU-16CD03	
	restart	common	common	common	common	common	Restart
①	0010800432	0600698	0600637	0600469	0600469	0600469	0010800420
②	0010400445	3300338	0600208	0600312	0600312	0600312	0010400435
③	1231260	1231260	1231135	1231135	1231135	1231259	1231259

No.	HSU-12CA03	HSU-12CB13	———	HSU-12CE13	HSU-12CF03	HSU-12HA03	HSU-12CM03	HSU-16HD03
④	3400078	3400180	———	3400078	3400078	3400077	3400078	3400077
No.	———	HSU-14C13	HSU-14C03	HSU-12HJ03	HSU-16CC03	HSU-14H13	HSU-16HC03	HSU-12HI03
④	———	3400078	3400078	3400077	3400078	3400077	3400077	3400077
No.	HSU-12H03/R1	AS128AYBAA	HSU-16C13	HSU-12CA03/R1	HSU-16CD03			
④	3400077	3400077	3400078	3400078	3400078			

KNOCK-DOWN DRAWINGS FOR INDOORUNIT



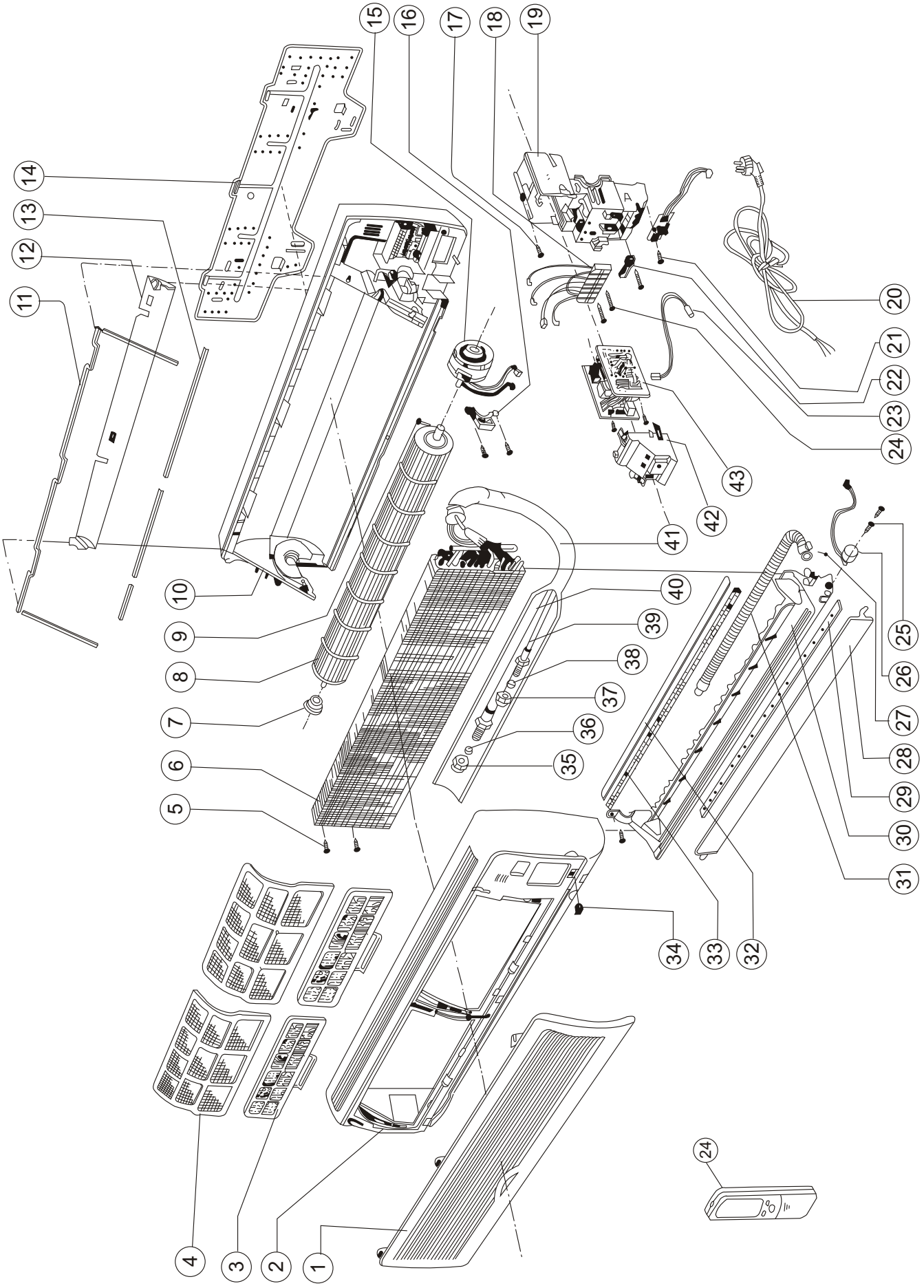
Knock-down drawings for indoor unit
Models: HSU-18HA13,HSU-18HC13, ,HSU-22CA13, HSU-22CB13, HSU-22CC13, HSU-22HA13, HSU-22HC13, , AS188ATAAA, AS228ASAAA

No.	Specialized number	Name of the component	No.	Specialized number	Name of the component
1	①	Front grille	23	3900004	Temperature sensor
2	1232119	Front panel	24	5002070	Screw
3	0900078	Air purifying filter	25	5002026	Screw
4	2400076	Air filter	26	3000071	Swing motor
5	5002013	Screw	27	5002030	Screw
6	0400065	Heat exchanger	28	1231126	Flap
7	2343037	Bearing	29	1734635	Cushion
8	2300034	Fan	30	1231115	Drain pan
9	5002021	Screw	31	0900049	Drain hose
10	1232116	Bottom plate	32	1733647	Cushion
11	1734630	Cushion	33	1733632	Cushion
12	1733639	Cushion	34	1443459	button
13	1734627	Cushion	35	5313001	Nut
14	1101075	Mounting plate	36	2912001	Dustproof cover
15	3000050	Motor	37	5313003	Nut
16	1431453	Motor cover	38	2912002	Dustproof cover
17	5002114	Screw	39	0500225	Suction pipe assy.
18	4000108	Terminal block	40	0500226	Discharge pipe assy.
19	1231123	Control box	41	1734631A	Heat insulation tube
20	--------	Power wire	42	1231125	Service cover
21	5002116	Screw	43	②	PC board
22	1231124	Wiring clamp	44	③	Remote controller

①/② Specialized No.

No.	HSU-18HA13	HSU-18HC13	HSU-22CA13	AS228ATAAA	HSU-22CB13
①	1231127	1232287	1231127	1231127	1232288
②	0010400440	0010400440	0010400438	0010400441	0010400438
③	3400077	3400077	3400078	3400049	3400078
No.	HSU-22CC13	HSU-22HA13	HSU-22HC13	AS188ATAAA	AS184ASMAA
①	1232287	1231127	1232287	1231127	1232288
②	0010400438	0010400440	0010400440	0010400440	0010400438
③	3400078	3400077	3400077	3400049	3400180

KNOCK-DOWN DRAWINGS FOR INDOORUNIT

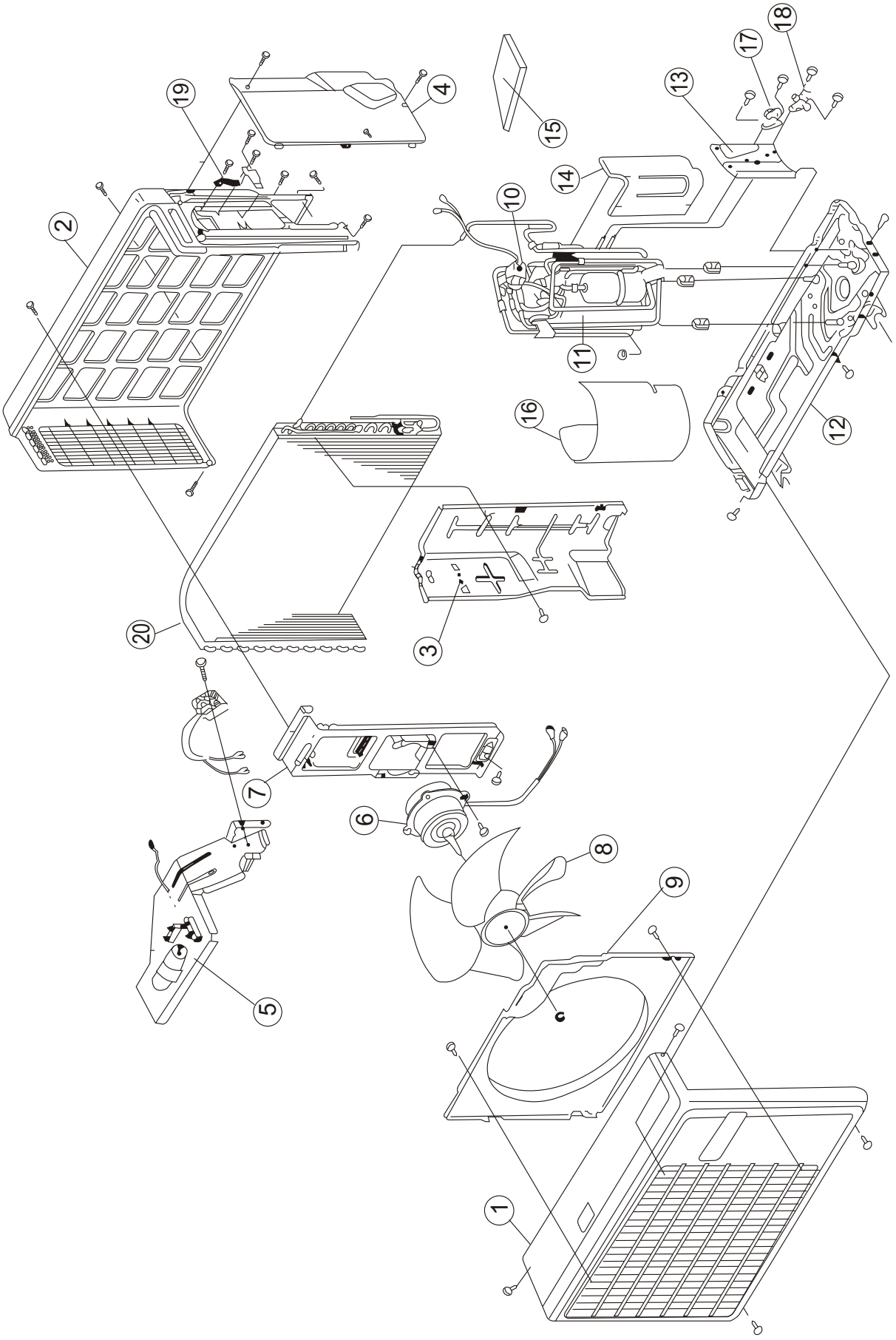


KNOCK-DOWN DRAWINGS FOR OUTDOOR UNIT

Knock-down drawings for outdoor unit:(07h series)
Models: HSU-07HC03 HSU-07HD03 HSU-07HE03 HSU-09HH03 HSU-09HK03 HSU-09HJ03

No.	Parts name	HSU-07HC03 HSU-07HD03 HSU-07HE03	HSU-09HH03 HSU-09HK03 HSU-09HJ03
1	Front panel	1436312	
2	Back frame	1436313	
3	Separating plate	1101210	
4	Side panel	1436314	
5	Electric box assy.	0600576	0600571
6	Motor	3000265	
7	Motor support	1301227	
8	Axial fan	2336029	
9	ring	1240103	
10	Pipe assy.	0500577	0500571
11	Compressor	2000187	2000186
12	Bottom plate assy.	0100213	
13	Valve set	1301296	
14	Sound insulation cushion	1762577A	
15	Sound insulation cushion	1762576A	
16	Sound insulation cushion	1762575A	
17	Stop valve	2500041	
18	Stop valve	2500042	
19	Earth terminal plate	1301828	
20	Heat exchanger	0400057	

KNOCK-DOWN DRAWINGS FOR OUTDOOR UNIT



Knock-down drawings for outdoor unit

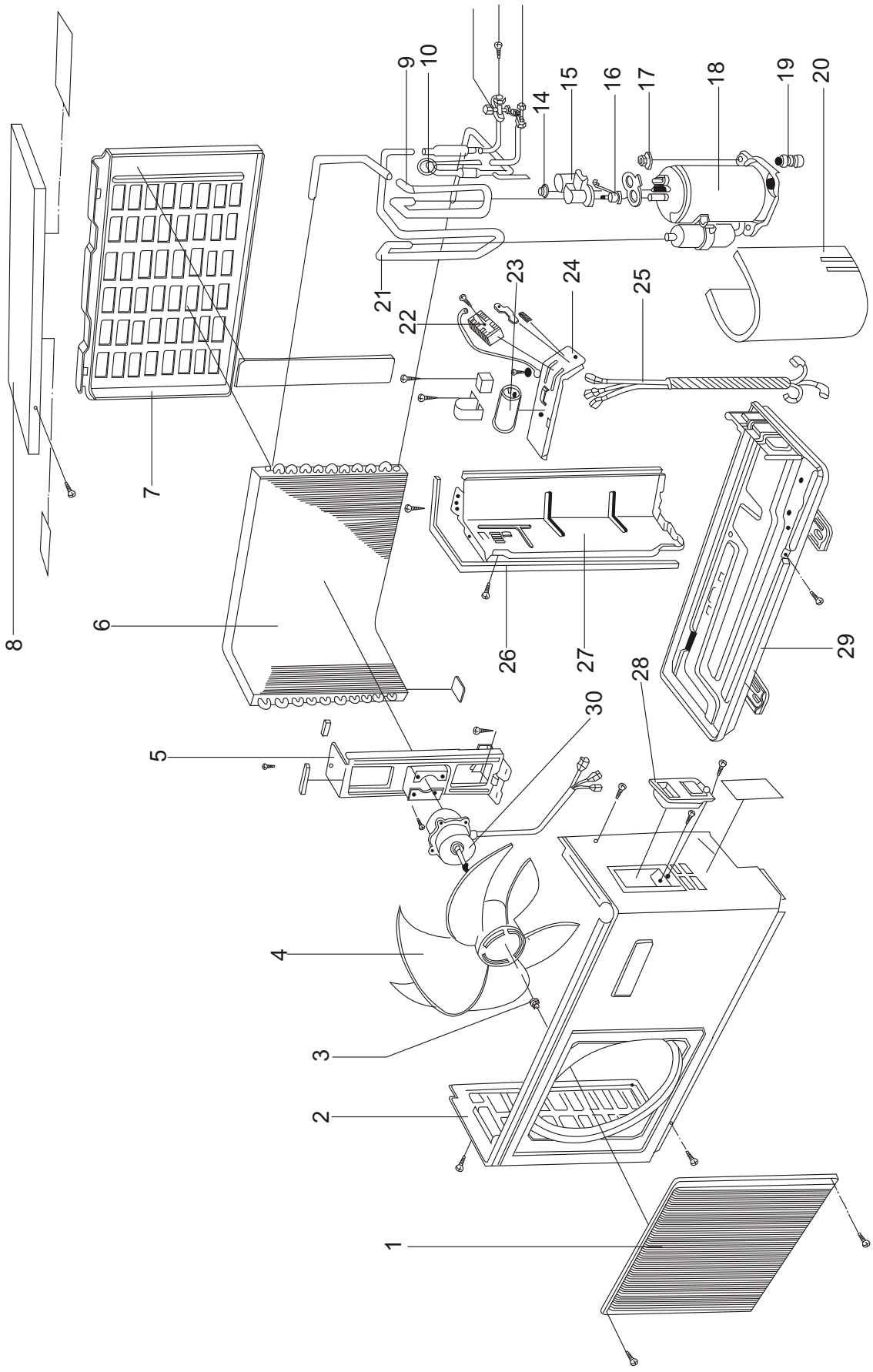
Models: HSU-12CC13, HSU-12CD13 , HSU-14C03, HSU-16CC03, HSU-16CD03, HSU-16C13, HSU-14C13

No.	Parts name	HSU-12CD13 HSU-12CC13	HSU-14C03	HSU-16CD03 HSU-16CC03	HSU-16C13	HSU-14C13
1	Front grille	1436043A	1436043A		1436043A	
2	Front panel	1101077	1101066		1101066	
3	Nut	5102021	5102021		5102021	
4	Fan	2331030A	2331030A		2331030A	
5	Motor support	1301031	1101068		1101068	
6	Heat exchanger	0400010	0400063		0400063	
7	Back grille	1101013	1101067		1101067	
8	Top panel	1101010	1101010		1101010	
9	Discharge pipe	2111147	21111043		21111043	
10	Capillary tube assy.	0500044	0500428		0500426	
11	Screw	5002001	5002001		5002001	
12	Stop valve	2500013	2500013		2500013	
13	Stop valve	2500012	2500019		2500019	
14	Nut	5102004	5102004		5102004	
15	Terminal cover	1440763	14401133		14401133	
16	Protector	3100009	3100117		3100093	
17	Nut	5102050	5002050		5002050	
18	Compress-or	2000029	2000077		20000126	
19	Rubber cushion	1734935	17561265		17561265	
20	Cushion	1762105	1762608		1762608	
21	Suction pipe	2111146	2111814 21111046		2111814/21111046	
22	Terminal block	4000092	4000092		4000092	
23	Capacitor for comp.	3600034	3600021		3600021	
24	Electric box	1301023	1301023		1301023	
25	Wires	4400389	4400324		4400324	
26	Cushion	1742109	1742109		1742109	
27	Separating plate	1301022	1301429		1301429	
28	Service cover	1436042	1436042		1436042	
29	Bottom plate assy.	0100029	0100406		0100406	
30	Motor	3000165	3000089		3000173	

Knock-down drawings for outdoor unit

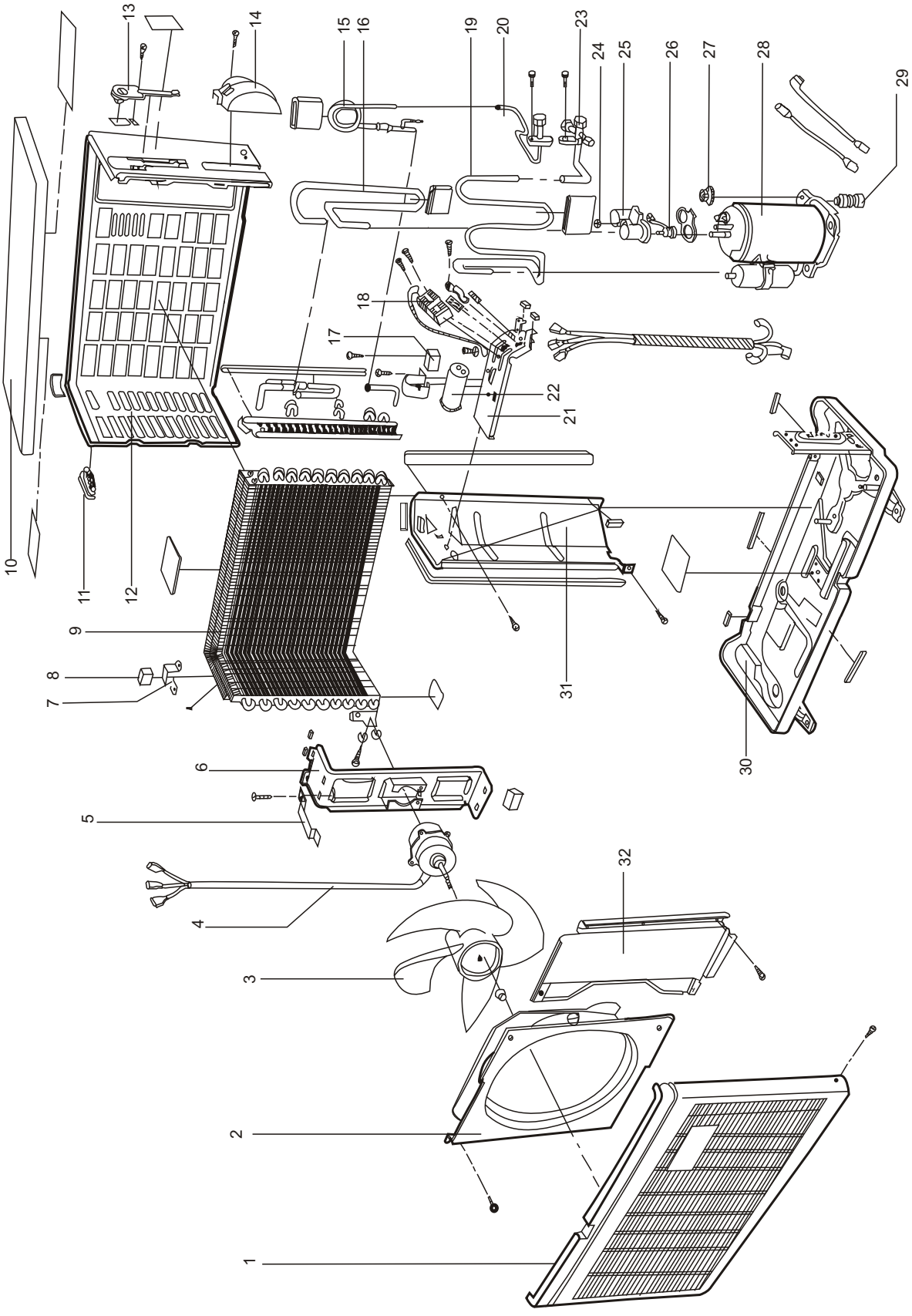
Models: HSU-09C03/R1, HSU-09CA03/R1, HSU-09CA13, HSU-12C03/R1, HSU-12CA03/R1, HSU-12CA03, HSU-12CF03, HSU-12CM03, HSU-12CA13, HSU-12CB13, HSU-12CE13

No.	Parts name	HSU-09C03/R1 HSU-09CA03/R1	HSU-09CA13	HSU-12C03/R1 HSU-12CA03/R1	HSU-12CA03 HSU-12CF03 HSU-12CM03	HSU-12CA13	HSU-12CB13 HSU-12CE13 AU124ABMBA
1	Front grille	1436043A		1436043A			
2	Front panel	1101077		1101077			
3	Nut	5102021		5102021			
4	Fan	2331030A		2331030A			
5	Motor support	1301027		1301031			
6	Heat exchanger	0400017		0400016			
7	Back grille	1101011		1101013			
8	Top panel	1101010		1101010			
9	Discharge pipe	21111188	21111149A	21111186	2111147		
10	Capillary tube assy.	0500491	0500046	0500490	0500044		
11	Screw	5002001	5002001	5002001	5002001		
12	Stop valve	2500112	2500020	2500110	2500013		
13	Stop valve	2500111	2500019	2500109	2500012		
14	Nut	5102004		5102004			
15	Terminal cover	14401116	1440763	1440116	1440763		
16	Protector	Built-in	3100037	Built in	3100009		
17	Nut	5102050	5102050	5102050	5102050		
18	Compress-or	2000120	2000028	2000121	2000006	2000029	
19	Rubber cushion	17521255	1734935	17521255	1734935		
20	Cushion	1762172	1762172	1762105	1762105		
21	Suction pipe	2111348	2111150	21111187	2111147		
22	Terminal block	4000092		4000092			
23	Capacitor for comp.	3600008	3600093	36000032		3600034	
24	Electric box	1301023		1301023			
25	Wires	4400389		4400389			
26	Cushion	1742109		1742109			
27	Separating plate	1301024		1301022			
28	Service cover	1436042		1436042			
29	Bottom plate assy.	0100021		0100029			
30	Motor	3000074	3000166	3000075		3000165	


1
2
3
4
5
6
7
8
9
10
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30

Knock-down drawings for outdoor unit
Models: HSU-12CG03 HSU-12CI03

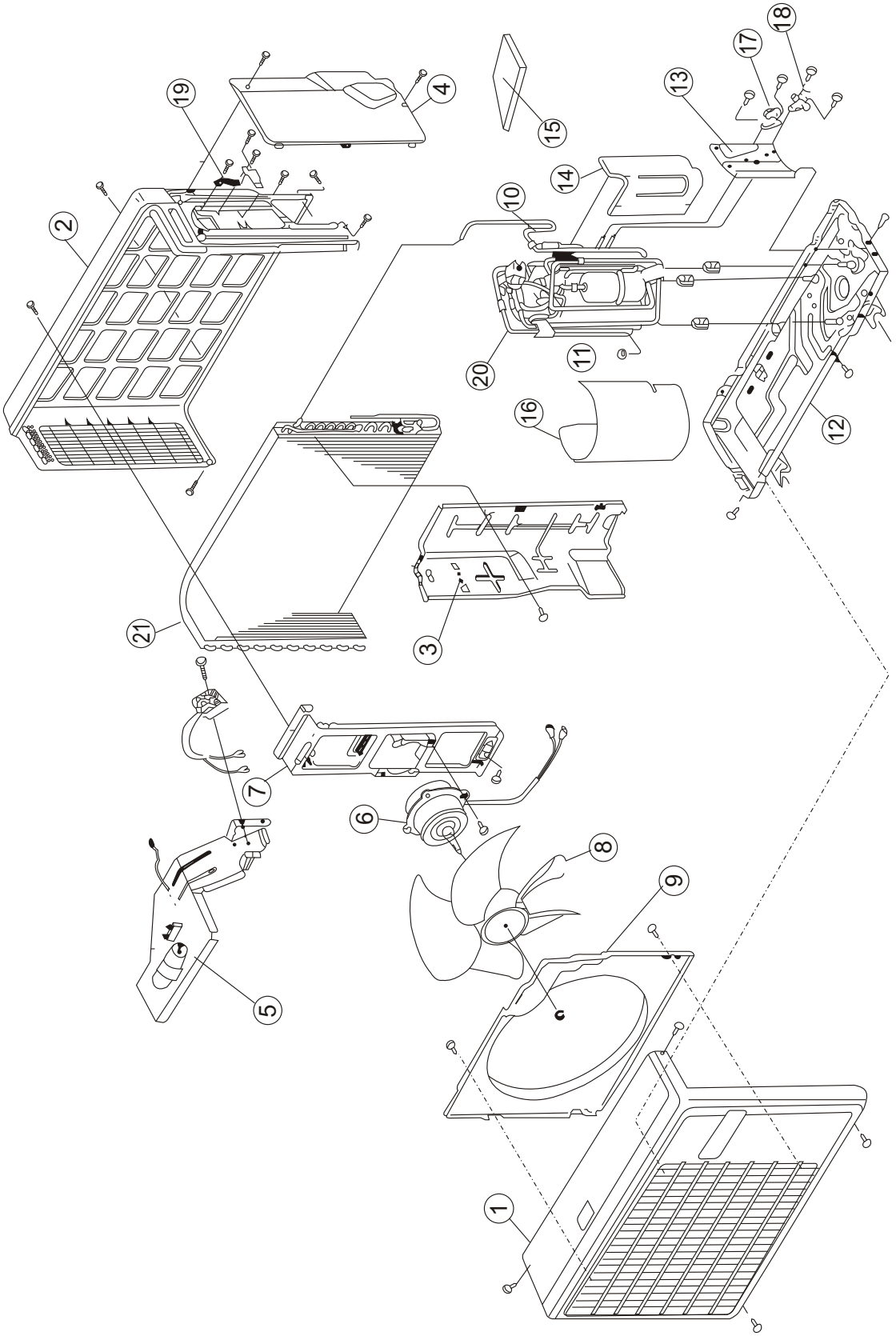
No.	Parts name	HSU-12CG03 HSU-12CI03
1	Front panel	1236089
2	Rings	1436258
3	Fan	0300031
4	Motor	3000032
5	bracket	1301164
6	Motor support	1301165
7	Clamp	1301033
8	Cushion	1734821
9	Heat exchanger	0400121
10	Top panel	1101047
11	Handle	1436182
12	Back grille	1101048
13	Service cover	1236090A
14	Side cover	1236091
15	Capillary tube	0500323
16	Discharge pipe	2111815
17	Capacitor for motor	360009B
18	Terminal block	400092
19	Suction pipe	2111814
20	Stop valve	2500051
21	Electric box	1101050
22	Capacitor for comp.	3600032
23	Stop valve	2500052
24	Nut	5102021
25	Terminal cover	14401133
26	Protector	3100093
27	Nut	5102050
28	Compressor	2000122
29	Rubber cushion	17561265
30	Bottom plate	0100937
31	Separating plate	1101049
32	Front plate	1101046


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32

Knock-down drawings for outdoor unit

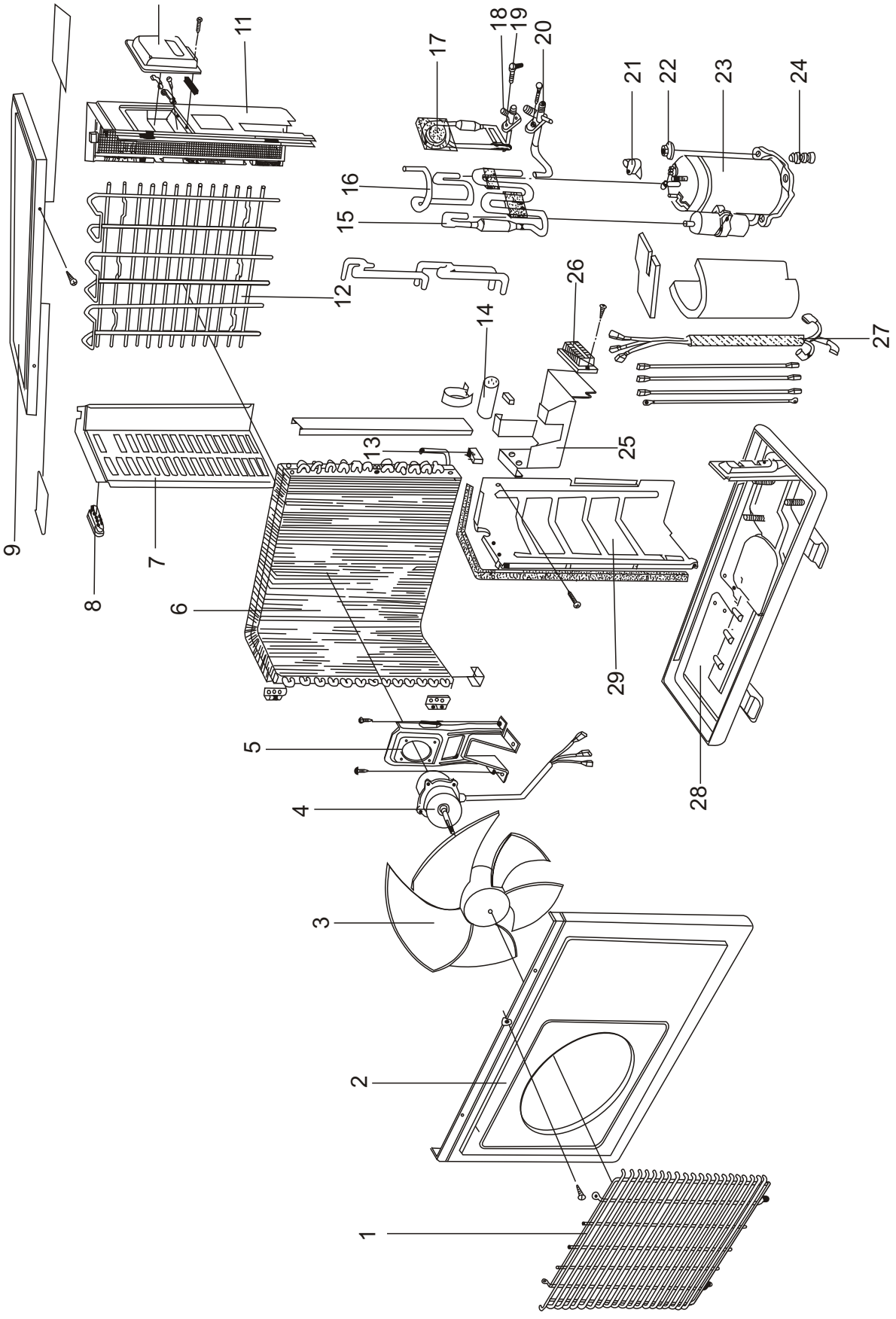
Models: HSU-07CC03,HSU-07CD03,HSU-07CE03,HSU-09CH03, HSU-09CK03, HSU-09CJ03,AU052ACMAA

No.	Parts name	HSU-07CC03 HSU-07CD03 HSU-07CE03	AU052ACMAA	HSU-09CH03 HSU-09CJ03 HSU-09CK03
1	Front panel	1436312		
2	Back frame	1436313		
3	Separating plate	1101210		
4	Side panel	1436314		
5	Electric box assy.	0600576	0600705	0600573
6	Motor	3000265		
7	Motor support	1301227		
8	Axial fan	2336029		
9	ring	1240103		
10	Suction pipe	21111408	21111408	21111406
11	Compressor	2000187	2000209	20000187
12	Bottom plate assy.	0100213		
13	Valve set	1301296		
14	Sound insulation cushion	1762577A		
15	Sound insulation cushion	1762576A		
16	Sound insulation cushion	1762575A		
17	Stop valve	2500041		
18	Stop valve	2500042		
19	Earth terminal plate	1301828		
20	Discharge pipe assy.	0500572	21111409	2111407
21	Heat exchanger	0400057		


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21

Knock-down drawings for outdoor unit
Models: , HSU-22CA13, HSU-22CB13, HSU-22CC13, AU184AFMAA,

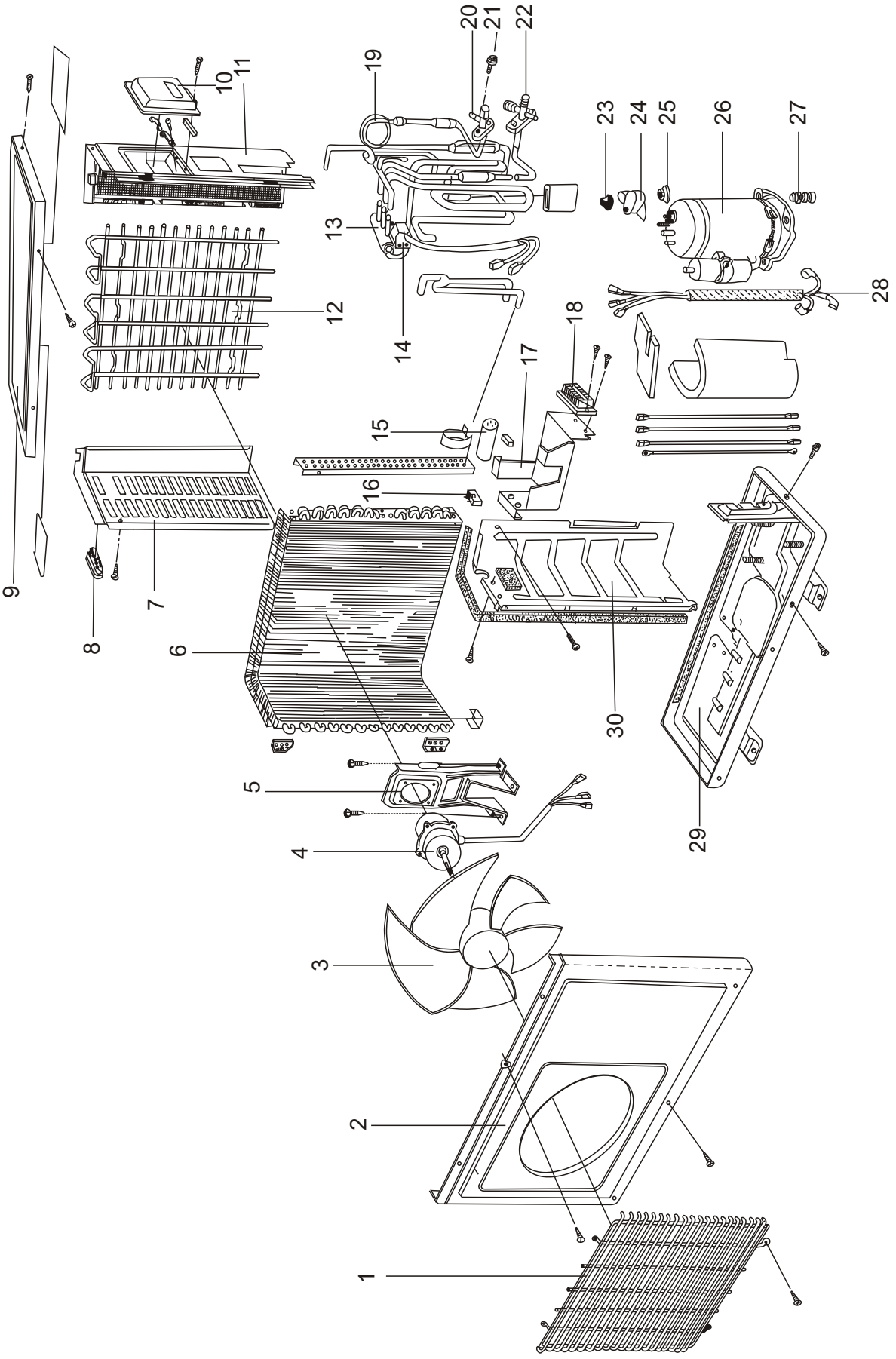
No.	Parts name	HSU-22CA13 HSU-22CB13 HSU-22CC13	AU184AFMAA
1	Front grille	1303126A	
2	Front panel	1101038	
3	Fan	2331024	
4	Motor	300001A	
5	Motor support	1301133	
6	Heat exchanger	0400130	
7	Side panel(L)	1101039	
8	Handle	1436182	
9	Top panel	1101040	
10	Service cover	1431175A	
11	Side panel(R)	1101041	
12	Back grille	1303128	
13	Capacitor for motor	3600098	
14	Capacitor for comp.	3600143	
15	Suction pipe assy.	0500270	
16	Discharge pipe	2111707	
17	Capillary tube assy.	0500279	
18	Stop valve	2500066	
19	Screw	5002075	
20	Stop valve	2500026	
21	Terminal cover	1440064	
22	Nut	5102050	
23	Compressor	2000116	
24	Rubber cushion	1752164	
25	Electric box	1301129A	
26	Terminal block	4000107	
27	Wires	4400509	
28	Bottom plate assy.	0100129	
29	Separating plate	1301130	


1
2
3
4
5
6
7
8
9
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29

Knock-down drawings for outdoor unit

Models: HSU-18HA13 HSU-18HC13 HSU-22HA13 HSU-22HC13, AU188AFAAA

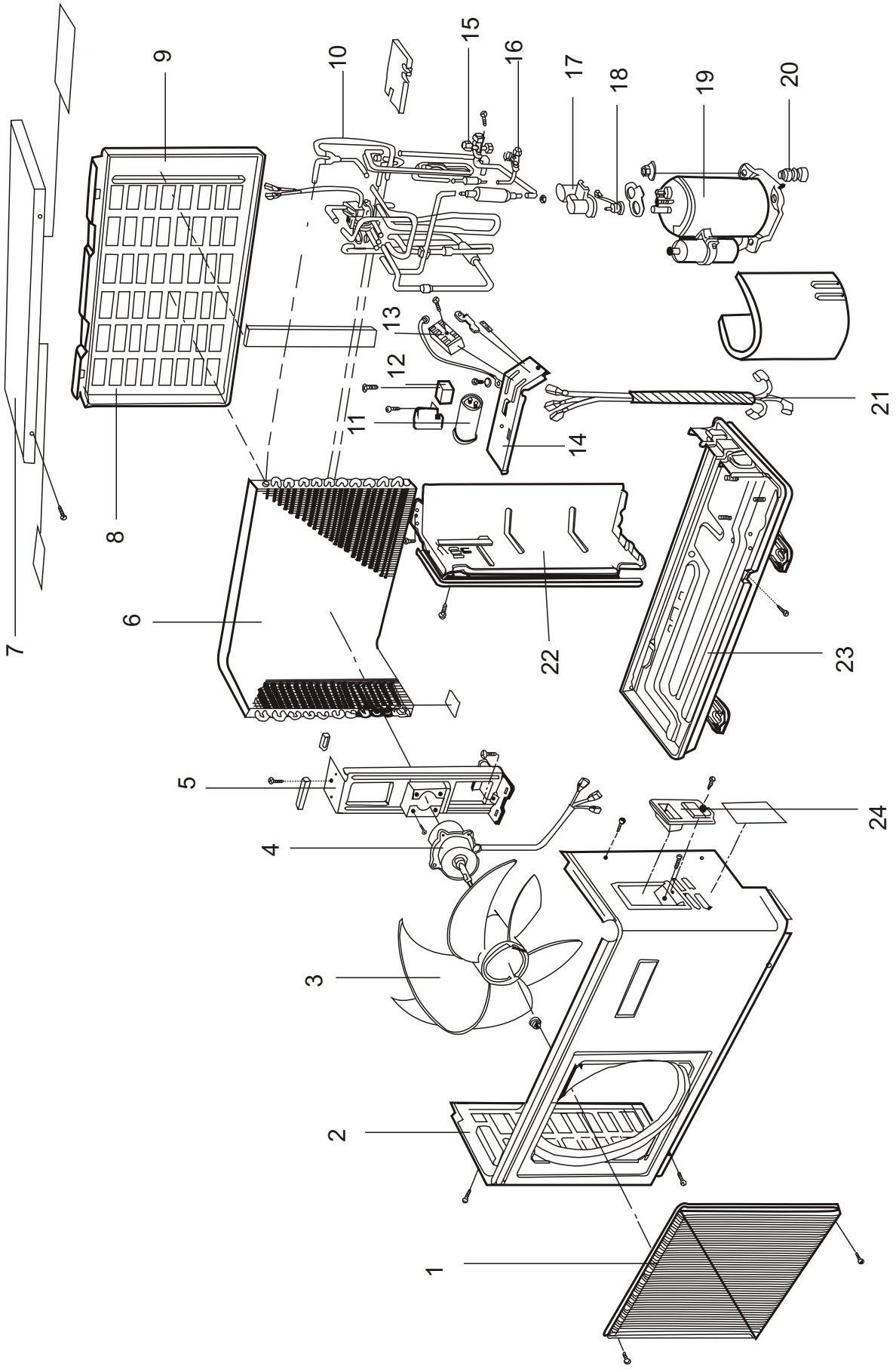
No.	Parts name	HSU-18HA13 HSU-18HC13	HSU-22HA13 HSU-22HC13	AU188AFAAA
1	Front grille	1303126A		
2	Front panel	1101038		
3	Fan	2331024		
4	Motor	3000001A		3000127
5	Motor support	1301133		
6	Heat exchanger	0400239		
7	Side panel(L)	1101039		
8	Handle	1436182		
9	Top panel	1101040		
10	Service cover	1431175A		
11	Side panel(R)	1101041		
12	Back grille	1303128		
13	4-way valve	2500015		
14	4-way valve coil	2500004		
15	Capacitor for comp.	3600143		3600030
16	Capacitor for motor	3600098		
17	Electric box	1301129A		
18	Terminal block	4000107		
19	Pipe assy.	0500690		0500099
20	Stop valve	2500025		
21	Screw	5002075		
22	Stop valve	2500026		
23	Nut	5102021		
24	Terminal cover	1440064		
25	Nut	5102050		
26	Compressor	2000116		2000148
27	Rubber cushion	1752164		
28	Wires	4400044		
29	Bottom plate assy.	0100129		
30	Separating plate	1301130		


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30

Knock-down drawings for outdoor unit

Models: HSU-09H03/R1, HSU-12H03/R1, HSU-12HA03, HSU-12HI03, HSU-12HJ03, HSU-12HC13, HSU-12HD13,HSU-16HC03, HSU-16HD03, , HSU-14H13, AU092ABBAA, AU122ABBAA

No.	Parts name	HSU-14H13	HSU-09H03/R1 AU092ABBAA	HSU-12H03/R1 AU122ABBAA	HSU- 12HA03 HSU-12HI03 HSU-12HJ03	HSU-12HC13 HSU-12HD13	HSU-16HC03 HSU-16HD03
1	Front grille	1436043A					
2	Front panel	1101066	1101077				1101066
3	Fan	2331030A					
4	Motor	3000173	3000074	3000075	3000075	3000165	300089
5	Bracket	1101068	1301027	1301031	1301031	1301031	1101068
6	Heat exchanger	0400063	0400008	0400193	0400009	0400009	0400063
7	Top panel	1101010					
8	Back grille	1101067	1101011	1101013	1101013	1101013	1101067
9	4-way valve coil	2500004	3800123	3800123	3800123	3800123	2500004
10	Pipe assy.	0500515	0500609	0500608	0500800	0500035	0500307
11	Capacitor for comp.	3600021	3600008	3600032	3600032	3600034	3600021
12	Capacitor for motor	3600007A	3600009B	3600009B	3600009B	3600009B	3600007A
13	Terminal block	4000092					
14	Electric box	1301023					
15	Stop valve	0012500013	2500113	2500110	0012500013	0012500013	0012500013
16	Stop valve	2500049	2500111	2500109	0012500012	0012500012	2500049
17	Terminal cover	14401133	14401116	14401116	1436042	1440763	14401133
18	Protector	3100093	-------	-------	3100009	3100009	3100117
19	Compressor	2000126	2000120	2000121	2000006	2000029	2000077
20	Rubber cushion	17561265	17521255	17521255	1734935	1734935	1734935
21	Wires	4400324	4400389	4400389	4400389	4400389	4400324
22	Separating plate	1301429	1301024	1301022	1301022	1301022	1301429
23	Bottom plate assy.	0100406	0100021	0100029	0100029	0100029	0100406


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

REMOTE CONTROLLER FUNCTIONS CONVERSION

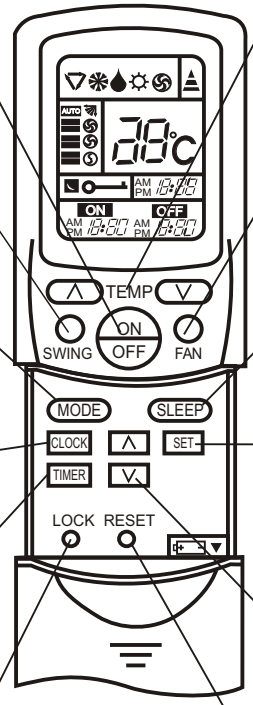
REMOTE CONTROLLER FUNCTION CONVERSION

HSU-07CC03、HSU-07CD03、HSU-07CE03、HSU-07HC03、HSU-07HD03、HSU-07HE03、 HSU-09C03/R1、HSU-09CE03、HSU-09CF03
HSU-09CA03/R1、HSU-09CA13、HSU-09CH03、HSU-09CJ03、HSU-09CK03、HSU-09H03/R1、HSU-09HH03、HSU-09HE03、HSU-09HF03
HSU-09HJ03、HSU-09HK03、HSU-12C03/R1、HSU-12CA03、HSU-12CA03/R1、 HSU-12CA13、 HSU-12CB13、HSU-12CB03、HSU-12CL03
HSU-12CC13、HSU-12CD13、HSU-12CE13、HSU-12CF03、HSU-12CG03、HSU-12CH03、HSU-12CI03、HSU-12HR03、HSU-12CP03、HSU-12CR03
HSU-12CM03、HSU-12H03/R1、HSU-12HA03、HSU-12HC13、HSU-12HD13、HSU-12HI03、HSU-12HJ03、 HSU-12HN03、HSU-12HP03、
HSU-14C03、HSU-14C13、HSU-14H13、HSU-16C13 、HSU-16CC03、 HSU-16CD03、、HSU-16HC03、HSU-16HD03、
HSU-18HA13、HSU-18HC13、 HSU-22CA13 、HSU-22CB13、HSU-22CC13、HSU-22HA13、HSU-22HC13、
AS092AMBAA/AU092ABBAA、 AS052AZMAA/AU052ACMAA、AS184ASMAA/AU184AFMAA、
AS122AYBAA/AU122ABBAA、 AS188ATAAA/AU188AFAAA、
AS228ATAAA/AU228AFAAA、AS128AVAAA/AU128ABAAA remote controller conversion as follows PROGRAM1-PROGRAM7.

Parts and Functions

Operation

Buttons and display of the remote controller.



Power ON/OFF

Used for unit start and stop.

SWING

Used to set auto fan direction.

MODE

Used to select AUTO run , COOL,DRY,HEAT and FAN operation.

CLOCK

Used to set correct time

TIMER

Used to select TIMER ON ,TIMER OFF, TIMER ON/OFF

LOCK

Used to lock buttons and LCD display.

TEMP.

Used to select your desired temp.

FAN

Used to select fan speed : LO.MED.HI.AUTO

SLEEP

Used to select sleep mode.

SET

Used to confirm Timer and Clock settings.

HOUR

Used to set clock and timer setting.

RESET

Used to reset the controller back to normal condition.

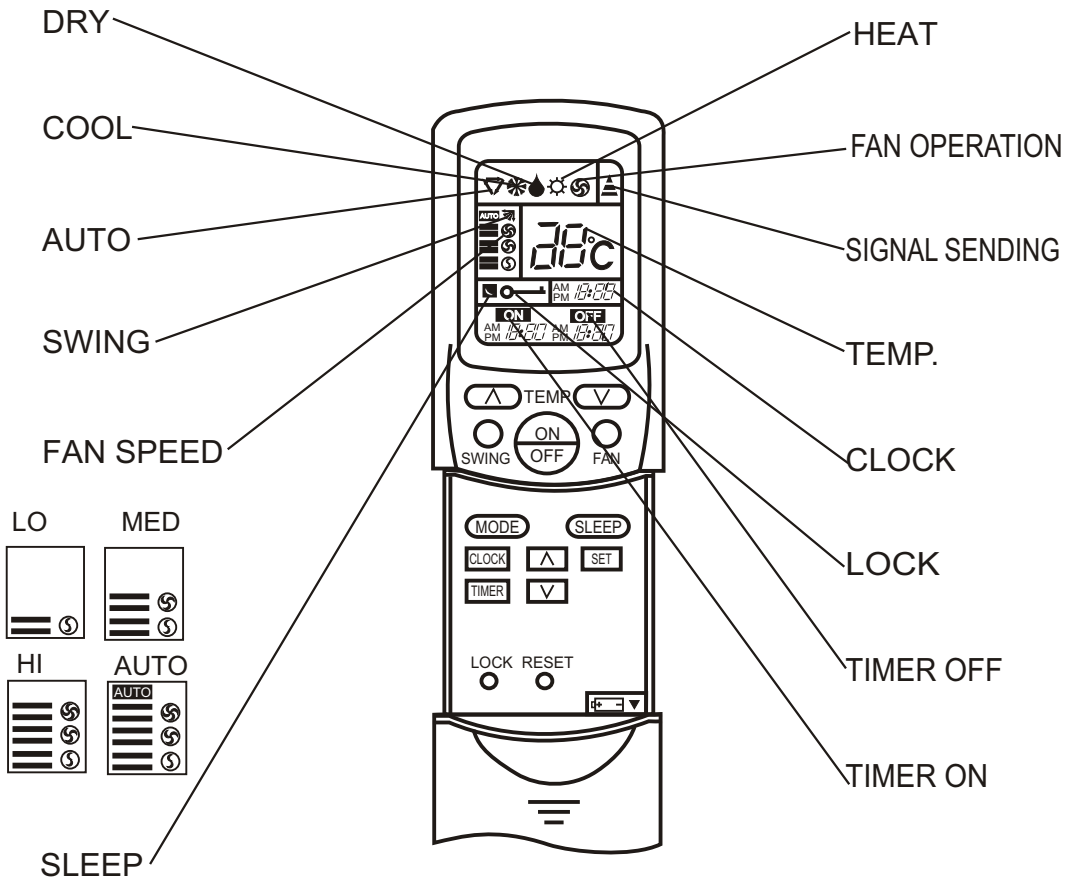
Cautions:
On cooling only unit ,heating mode is not available.
After replacing batteries ,press ON/OFF,and display becomes as follows:
Operation mode:AUTO,Temp:No
Timer mode:No,Fan speed :AUTO

Note:
The above information is the explanation of the displayed information therefore varies with those displayed in actual operation.

Parts and Functions

Operation

Buttons and display of the remote controller.



Clock set

When unit is started for the first time and after replacing batteries in remote controller. clock should be adjusted as follows:
Press CLOCK button ,"AM" or "PM" flashes.
Press △or▽to set correct time. Each press will increase or decrease 1min . If the button is kept depressed. time will change quickly.
After time setting is confirmed, press SET. "AM"and "PM" stop flashing. while clock starts working.

Hints

After replacing with new batteries ,remote controller will conduct self-check,displaying all information on LCD.Then ,it will become normal.

Operation

Auto run,Fan operation

Enjoy yourself by just a gentle press.

(1)Unit start

Press ON/OFF button,unit starts.

Previous operation status appears on display.

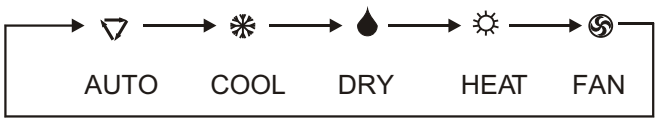
(Not Timer setting)

Power indicator on indoor unit lights up.

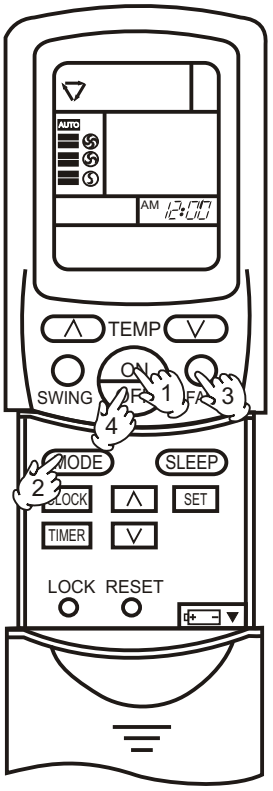
---

(2) Select operation mode

Press MODE button .For each press,operation mode changes as follows:



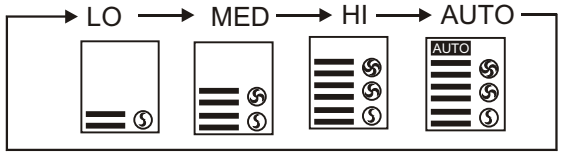
Unit will run in selected mode.
Stop display at "▽" AUTO or "✲" FAN.



---

(3)FAN

Press FAN button.For each press ,fan speed changes as follows:



Unit will run at selected fan speed.
Note:AUTO is not available in FAN mode.

---

(4)Unit stop

Press ON/OFF button.

Only time remains on LCD.

All indicators on indoor unit go out.

Vertical flap closed automatically.

Hints

Remote controller can memorize settings in each operation mode .To run it next time just select the operation mode and it will start with the previous setting.

No reselecting is needed.(TIMER ON/OFF needs reselecting)

Operation

COOL,HEAT and DRY operation

Recommendations:
- Use COOL in summer .
- Use HEAT in winter .
- Use DRY in spring,autumn and in damp climate

(1)Unit start

Press ON/OFF button,unit starts.

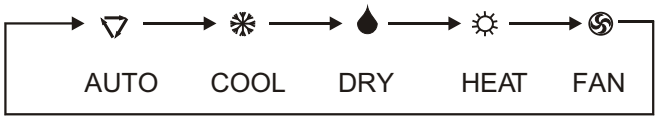
Previous operation status appears on display.(Not Timer setting)

Power indicator on indoor unit lights up.

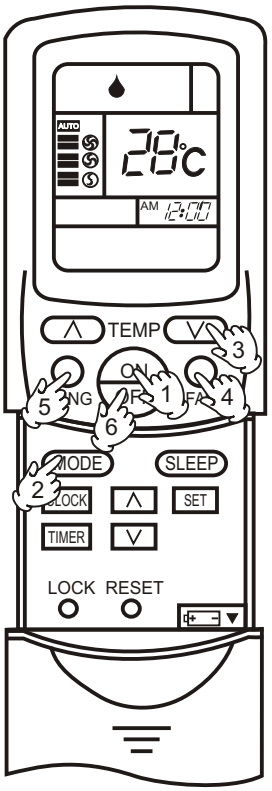
(2) Select operation mode

Press MODE button .For each press,

operation mode changes as follows:



Unit will run in operation mode displayed on LCD.Stop display at your desired mode.



(3)Select temp.setting

Press TEMP. button.

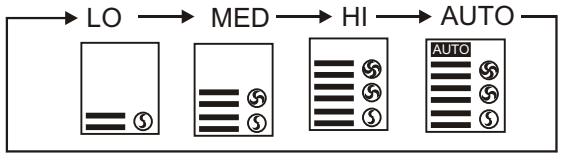
△ Every time the button is pressed,temp.setting increases 1℃

▽ Every time the button is pressed,temp .setting decreases 1℃

Unit will start running to reach the temp.setting on LCD.

(4) Fan speed selection

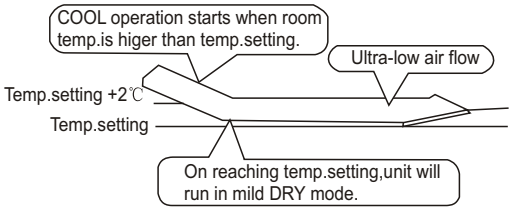
Press FAN button .For each press,fan speed changes as follows:



Unit runs at the speed displayed on LCD .

In HEAT mode, warm air will blow out after a short period of time due to cold-draft prevention function.

In DRY mode,when room temp. becomes 2℃ higher than temp. setting ,unit will run intermittently at LO speed regardless of FAN setting.



Hints

Remote controller can memorize each operation status.When starting it next time, just press ON/OFF button and unit will run in previous status.

Operation

TIMER operation

Set Clock correctly before starting Timer operation(refer to page 92)

You can let unit start or stop automatically at following times:Before you wake up in the morning,or get back from outside or after you fall asleep at night.

TIMER ON/OFF

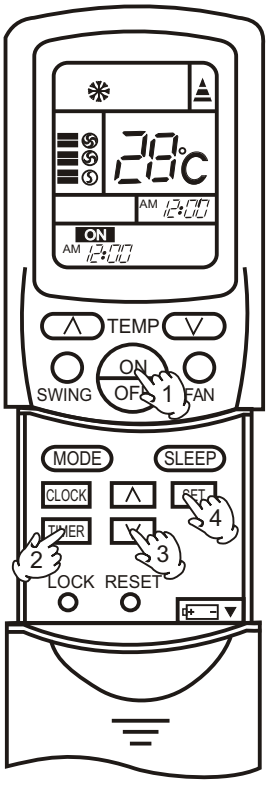
(1)After unit start,select your desired operation mode.
Operation mode will be displayed on LCD.
Power indicator on indoor unit lights up.

(2)TIMER mode selection

Press TIMER button to change TIMER mode.
Every time the button is pressed,display changes as follows:

→ ON → OFF → ON OFF → blank →
TIMER ON TIMER OFF TIMER ON-OFF

Select your desired TIMER mode(TIMER ON or TIMER OFF)ON or OFF will flash.



(3)Timer setting

Press HOUR△ / ▽ button.
△Every time the button is pressed,time increases 10 min.If button is kept pressed,time will change quickly.
▽Every time the button is pressed,time decreases 10 min.If button is kept pressed,time will change quickly.Time will be shown on LCD.It can be adjusted within 24 hours.

(4)Confirming your setting

After setting correct time,press SET button to confirm,"ON" or "OFF" stops flashing
Time displayed:Unit starts or stops at x hour x min.(TIMER ON orTIMER OFF).
Timer mode indicator on indoor unit lights up.

To cancel TIMER mode

Just press TIMER button several times until TIMER mode disappears.

Hints

After replacing batteries or a power failure happens,Time setting should be reset.
Remote controller possesses memory function,when use TIMER mode next time,just press SET button after mode selecting if timer setting is the same as previous one.

Operation

TIMER ON-OFF

(1)After unit start,select your desired operation mode

Operation mode will be displayed on LCD.

Power indicator on indoor unit lights up.

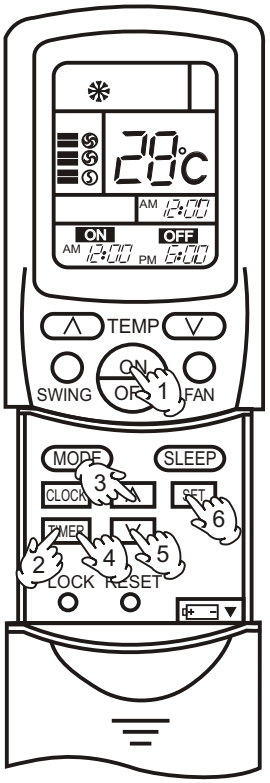
(2)Press TIMER button to change TIMER mode.

Every time the button is pressed,display changes as follows:

→ ON → OFF → ON ⏲ OFF → blank →

TIMER ON TIMER OFF TIMER ON-OFF

Select TIMER ON-OFF." ON" will flash.



(3)Time setting for TIMER ON

Press HOUR button.

△Every time the button is pressed,time increases 10min.If button is kept pressed ,time will change quickly.

▽Every time the button is pressed,time decreases 10min.If button is kept pressed ,time will change quickly.

Time will be shown on LCD.

It can be adjusted within 24 hours.

AM refers to morning and PM to afternoon.

(4)Time confirming for TIMER ON

After time setting,press TIMER button to confirm.

"ON" stops blinking, while "OFF" starts blinking.

Time displayed:Unit starts at x hour x min.

(5)Time confirming for TIMER OFF

Follow the same procedures in" Time setting for TIMER ON".

(6)Time setting for TIMER OFF

After time setting,press SET button to confirm," OFF" stops flashing.

Time displayed:Unit stops at x hour x min.

To cancel TIMER mode

- Just press TIMER button several times until TIMER mode disappears.
- According to the Time setting sequence of TIMER ON or TIMER OFF,either Start-Stop or Stop-Start can be achieved.

Operation

Comfortable SLEEP

Before going to bed at night,you can simply press the SLEEP button and unit will bring you a sound sleep in selected mode.

In COOL mode

One hour after SLEEP mode starts,temp.will become 1℃ higher than temp.setting.After running for another 1 hour,temp.rises by 1℃ further.Unit will run for 6 hours then stop automatically.Temp. is higher than temp. setting so that room temp.won't be too low for your sleeping.(As shown in Fig.1)

In HEAT mode

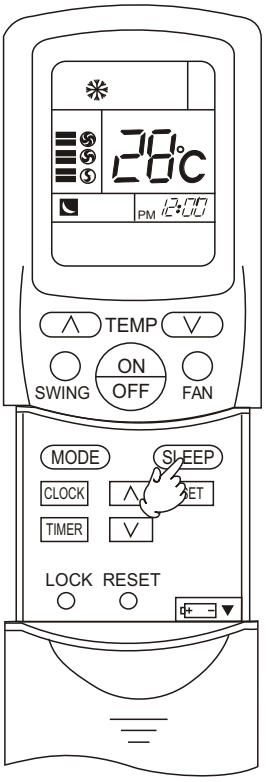
One hour after SLEEP mode starts,temp.will become 2℃ lower than temp.setting. After running for another 1 hour,temp.decreases by 2℃ further. Unit will run for 3 hours at this temp .then increases another 1℃ and stops automatically 3 hours later.Temp.is lower than temp.setting so that room temp. won't be too high for your sleeping.
(As shown in Fig.2)

Power Failure Resume Function

If the unit is started for the first time,the compressor will not start running unless 3 minutes have elapsed.When the power resumes after power failure,the unit will run automatically,the power indicator lights up, and 3 minutes later the compressor starts running with the indicator lighting up.

Note:

In AUTO mode,unit will run in SLEEP function according to operation mode.
In FAN mode,comfortable sleep is not available.



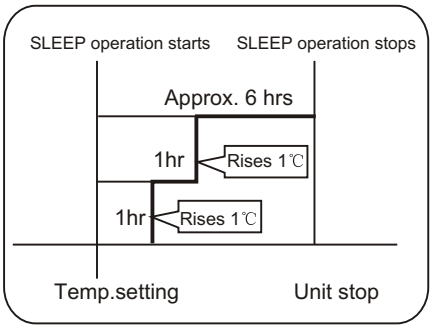


Fig.1

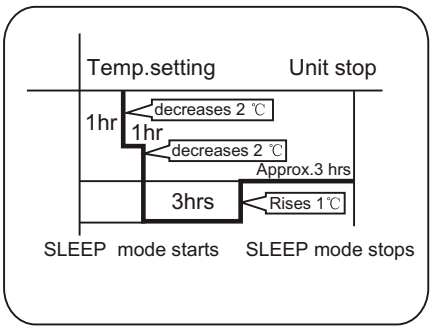


Fig.2

INSTALLATION AND ACCESSORY PARTS

Installation Manual of Room Air Conditioner

CE

- Read this manual before installation.
- Explain sufficiently the operating means to the user according to this manual.

Necessary Tools for Installation

1.Driver
2.Hacksaw
3.Hole core drill
4.Hexagon wrench(5mm)
5.Spanner(14,17,19 and 24mm)
6.Torque wrench (17mm,22mm,24mm)
7.Pipe cutter
8.F laring tool
9.Knife
10.Nipper
11.Gas leakage detector or soap-and-water solution
12.Measuring tape
13.Reamer
14.Refrigerant oil

Accessory parts

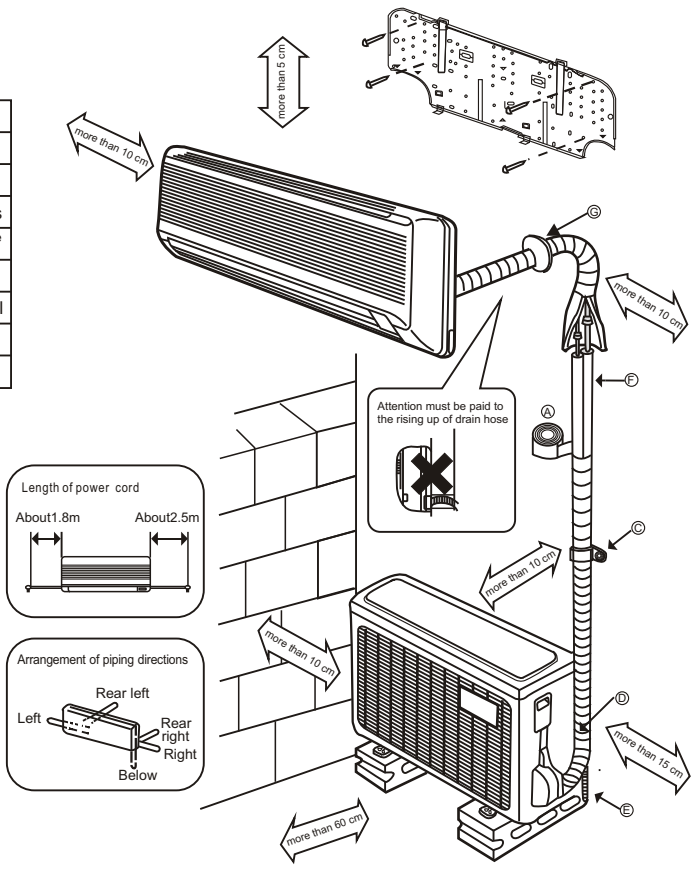
No.	Accessory parts	Number of articles
①	Remote controller	1
②	R-03 dry battery	2
③	Mounting plate	1
④	Drain hose	1
⑤	4X50 Steel nail,cement	8
⑥	Main pipes	1
⑦	ø4X25 Screw Plastic cap	6
⑧	Drain-elbow	1
⑨	Hexagon wrench	1
⑩	Cover	1
⑪	Cushion	4
⑫	Plastic clamp	1
⑬	Connecting cable	1
⑭	Pipe supporting plate	1

Drawing for the installation of indoor and outdoor units

The appearance is different by models.

Optional parts for piping

Mark	Parts name
Ⓐ	Non-adhesive tape
Ⓑ	Adhesive tape
Ⓒ	Saddle(L.S)with screws
Ⓓ	Connecting electric cable for indoor and outdoor
Ⓔ	Drain hose
Ⓕ	Heat insulating matenal
Ⓖ	Piping hole cover
Ⓗ	Putty

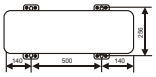


※The marks from Ⓐ to Ⓗ in the figure are the parts' numbers

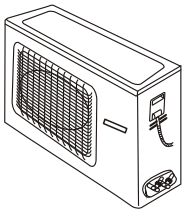
Note: On cool only unit,drain-elbow is not available.
For series 05,07,09,10,11,12,14,pipe supporting plate is available,except for HSU-12Cl03
For series 16,18,22 pipe supporting plate is not available For HSU-12H03(B) the remote controller is different from others .

INSTALLATION AND ACCESSORY PARTS

HSU-12CA03 HSU-14C03 HSU-12CA13 HSU-14H13
HSU-12CF03 HSU-16CC03 HSU-12CB13 HSU-16C13
AU128ABAAA HSU-16CD03 HSU-12CC13
HSU-12HA03 HSU-16HC03 HSU-12CD13
HSU-12HI03 HSU-16HD03 HSU-12CE13
HSU-12HJ03 HSU-09CA13 HSU-14C13

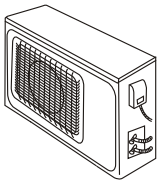


Floor fixing dimensions of the outdoor unit (Unit:mm)

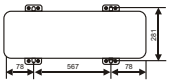


HSU-16HA13 HSU-22CC13
HSU-16HD13 HSU-22HA13
HSU-22CA13 HSU-22HD13
HSU-22CB13

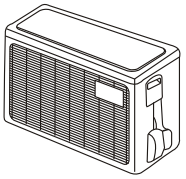
Floor fixing dimensions of the outdoor unit (Unit:mm)



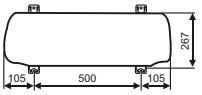
HSU-12CI03



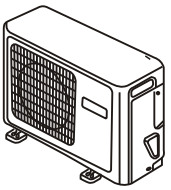
Floor fixing dimensions of the outdoor unit (Unit:mm)



HSU-07CC03 HSU-07HE03 HSU-09HJ03
HSU-07CD03 HSU-09CH03 HSU-09HD03
HSU-07CE03 HSU-09CJ03 AU052ACMAA
HSU-07HC03 HSU-09CK03
HSU-07HD03 HSU-09HH03



Floor fixing dimensions of the outdoor unit (Unit:mm)



Fixing of outdoor unit

- Fix the unit to concrete or block with bolts(∅10mm)and nuts firmly and horizontally.
- When fitting the unit to wall surface,roof or rooftop,fix a supporter surely with nails or wires in consideration of earthquake and strong wind.
- If vibration may affect the house,fix the unit by attaching a vibration-proof mat.

Indoor Unit Selection of Installation Place Outdoor Unit

- Place,robust not causing vibration,where the body can be supported sufficiently.
- Place ,not affected by heat or steam generated in the vicinity,where inlet and outlet of the unit are not disturbed.
- Place ,possible to drain easily,where piping can be connected with the outdoor unit .
- Place ,where cold air can be spread in a room entirely.
- Place,nearby a power receptacle,with enough space around.(Refer to drawings).
- Place where the distance of more than 1m from televisions,radios, wireless apparatuses and fluorescent lamps can be left.
- In case of fixing the remote controller on a wall,place where the indoor unit can receive signals when the fluorescent lamps in the room are lightened.
- Place ,which is less affected by rain or direct sunlight and is sufficiently ventilated.
- Place ,possible to bear the unit ,where vibration and noise are not increased.
- Place ,where discharged wind and noise do not cause a nuisance to the neighbors.
- Place,where a distance marked ⟺ is available as illustrated in the above figure.

Power Source

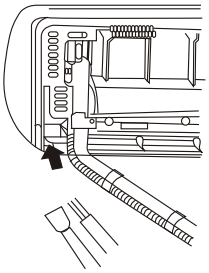
- Before inserting power plug into receptacle ,check the voltage without fail.The power source is the same as the corresponded name plate.
- Install an exclusive branch circuit of the power .
- A receptacle shall be set up in a distance where the power cord can be reached.Do not extend the cord by cutting it .

Selection of Pipe

- To this unit ,both liquid and gas pipes shall be insulated as they become low temperature in operation.
- Use optional parts for piping set or pipes covered with equivalent insulation material.
  Esp:For HSU-16HC03,HSU-16HD03,HSU-16CD03, HSU-16CC03,HSU-16C13, gas pipe diameter is also 12.7mm(1/2").

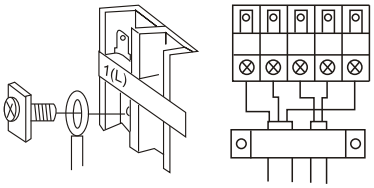
	For series 05, 07,09,10	For series 11,12,14	For series 16,18,22
Liquid pipe(Ø)	6.35mm(1/4")	6.35mm(1/4")	6.35mm(1/4")
Gas pipe(Ø)	9.52mm(3/8")	12.7mm(1/2")	15.88mm(5/8")

When connecting the cord before installing the indoor unit



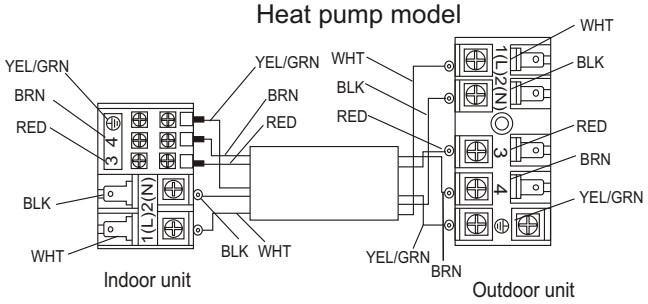
- Insert the cord from the back side of the unit,then pull it out on the front side.
- Loosen the screws and insert the cord ends fully into terminal block,then tighten the screws.
- Pull the cord slightly to make sure the cords have been properly inserted and tightened.
- After the cord connection,never fail to fasten the connected cord with the wiring cover.

Note:When connecting the cord,confirm the terminal number of indoor and outdoor units carefully.If wiring is not correct,proper operation can not be carried out and will cause defect.

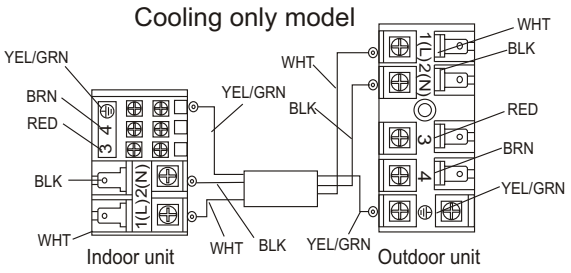


Series 07,09,10,11,12,14

Heat pump model



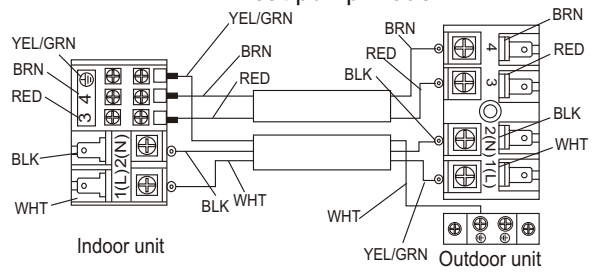
Cooling only model



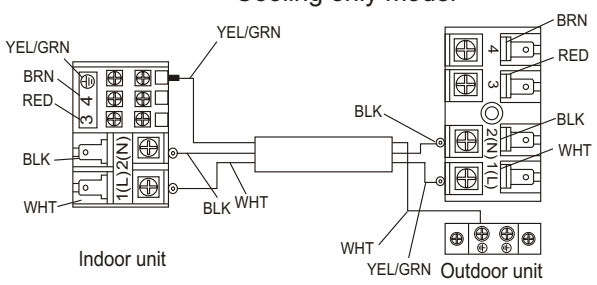
For HSU-16CC03,HSU-16CD03,HSU-16HC03,HSU-16HD03,HSU-16C13, the above two terminal wiring connection is also suitable.

For HSU-07CC03,HSU-07CD03,HSU-07CE03,HSU-07HC03,HSU-07HD03,HSU-07HE03, HSU-09CH03,HSU-09CJ03,HSU-09CK03,HSU-09HH03, HSU-09HJ03,HSU-09HK03, AS052AZMAA, AU052ACMAA

Heat pump model

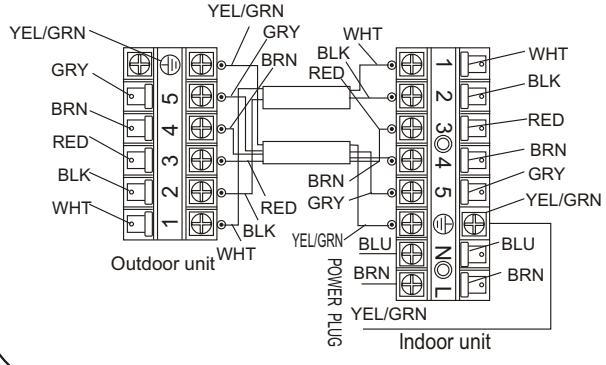


Cooling only model

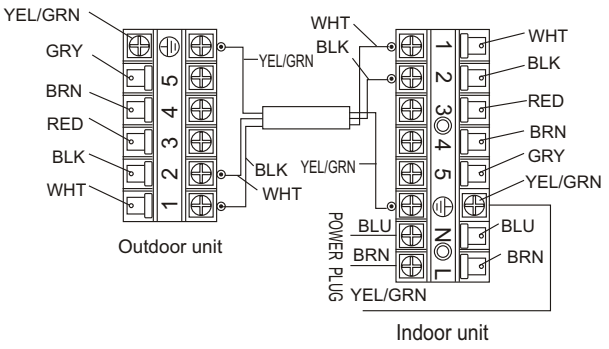


Series 16,18,22

Heat pump model



Cooling only model



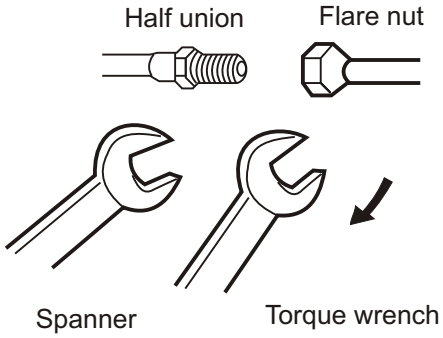
Outdoor Unit

1 Installation of Outdoor Unit

Install according to **Drawing for the installation of indoor and outdoor units**

2 Connection of Pipes

- Apply refrigerant oil on half union and flare nut.
- To bend a pipe,give the roundness as large as possible not to crush the pipe.
- Connecting the pipe of gas side first makes working easier.



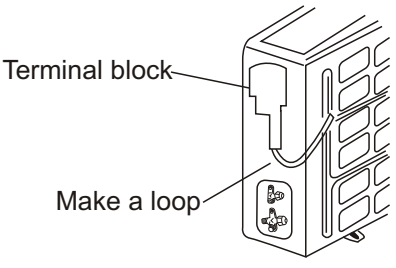
Forced fastening without careful centering may damage the threads and cause a leakage of gas.

Pipe Diameter(⌀)	Fastening Torque
Liquid Side 6.35mm(1/4")	18N.m
Gas Side 9.52mm(3/8")	42N.m
Gas Side 12.7mm(1/2")	50N.m
Gas Side 15.88mm(5/8")	60N.m

Be careful that foreign matters,such as wastes of sands,etc.shall not enter the pipe.

3 Connection

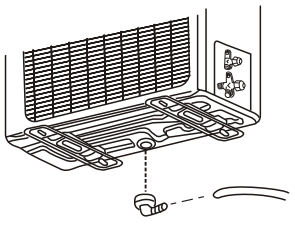
- Use the same method on indoor unit.Loosen the screws on terminal block and insert the plugs fully into terminal block,then tighten the screws.
- Insert the cable according to terminal number in the same manner as the indoor unit.
- If wiring is not correct,proper operation can not be carried out and controller may be damaged.
- Fix the cord with a clamp.



4 Attaching Drain-Elbow

- If the drain-elbow is used, please attach it as figure.

Note:Only for heat pump unit.

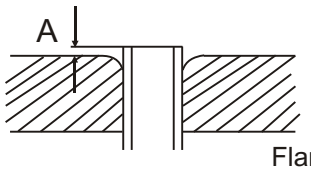


1 Power Source Installation

- The power source must be exclusively used for air conditioner.(Over 10A)
- In the case of installing an air conditioner in a moist place. please install an earth leakage breaker.
- For installation in other places,use a circuit breaker as far as possible.

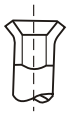
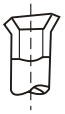
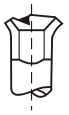
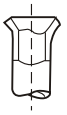
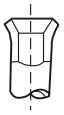
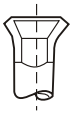
2 Cutting and Flaring Work of Piping

- Pipe cutting is carried out with a pipe cutter and burs must be removed.
- After inserting the flare nut,flaring work is carried out.



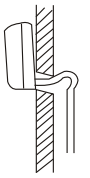
Flare tooling die

	Pipe diameterø	Size A (mm)
Liquid side	6.35mm(1/4")	0.8～1.5
Gas side	12.7mm(1/2") 15.88mm(5/8")	1.2～2.0
Gas side	9.52mm(3/8")	1.0～1.8

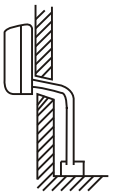
Correct	Incorrect				
					
	Lean	Damage of flare	Crack	Partial	Too outside

3 On Drainage

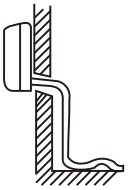
- Please install the drain hose so as to be downward slope without fail.
- Please don't do the drainage as shown below.



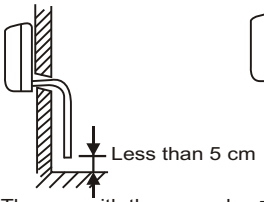
It becomes high midway.



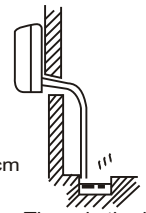
The end is immersed in water.



It waves.



The gap with the ground is too small.



There is the bad smell from a ditch.

- Please pour water in the drain pan of the indoor unit,and confirm that drainage is carried out surely to outdoor.
- In case that the attached drain hose is in a room,please apply heat insulation to it without fail.

Check for Installation and Test Run

- Please kindly explain to our customers how to operate through the instruction manual.

Check Items for Test Run

☐ Put check mark ✓ in boxes

☐ Gas leaks from pipe connecting?
☐ Heat insulation of pipe connecting?
☐ Are the connecting wirings of indoor and outdoor firmly inserted to the terminal block?
☐ Is the connecting wiring of indoor and outdoor firmly fixed?
☐ Is drainage securely carried out?
☐ Is the earth line securely connected?
☐ Is the indoor unit securely fixed?
☐ Is power source voltage abided by the code?
☐ Is there any noise?
☐ Is the lamp normally lightening?
☐ Are cooling and heating(when in heatpump)performed normally?
☐ Is the operation of room temperature regulator normal?

Indoor Unit

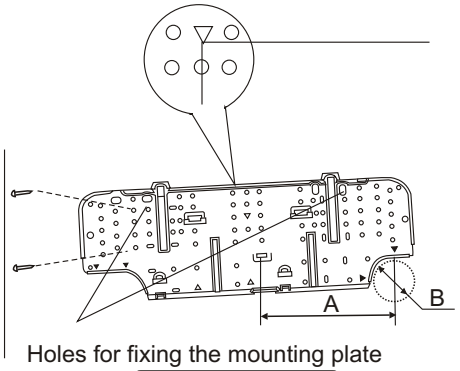
1 Fitting of the Mounting Plate and Positioning of the Wall Hole

When the mounting plate is first fixed

1 Carry out,based on the neighboring pillars or lintels, a proper leveling for the plate to be fixed against the wall,then temporarily fasten the plate with one steel nail.

2 Make sure once more the proper level of the plate,by hanging a thread with a weight from the central top of the plate,then fasten securely the plate with the attachment steel nail.

3 Find the wall hole location A using a measuring tape.



Holes for fixing the mounting plate

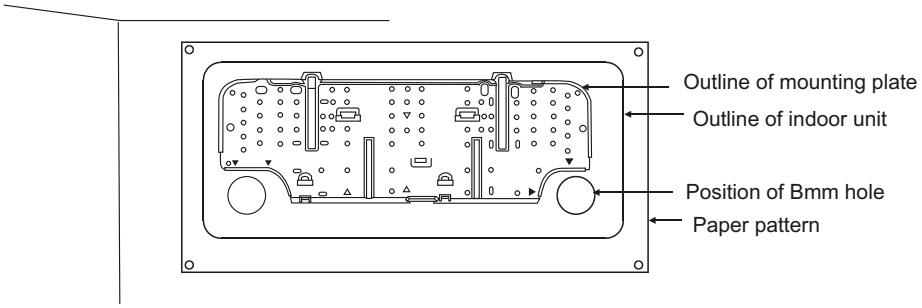
Fit the level line

	Amm	Bmm
HSU-09CA13	180	
HSU-12CA13	210	
HSU-12CG03 HSU-12CI03	160	
HSU-07CC03 HSU-12CA03 HSU-12CB13 HSU-07CD03 HSU-12CF03 HSU-12CC13 HSU-07CE03 HSU-12HR03 HSU-12CD13 HSU-07HC03 HSU-12CM03 AS052AZMAA HSU-07HD03 HSU-12HA03 HSU-12CE13 HSU-07HE03 HSU-12HI03 HSU-12HC13 HSU-09CH03 HSU-12HJ03 HSU-12HD13 HSU-09CJ03 HSU-14C03 HSU-14C13 HSU-09CK03 HSU-16CC03 HSU-14H13 HSU-09HH03 HSU-16CD03 HSU-16C13 HSU-09HJ03 HSU-16HC03 HSU-09HK03 HSU-16HD03	145	Ø 60
HSU-18HA13 HSU-22CC13 HSU-18HC13 HSU-22HA13 HSU-22CA13 HSU-22HC13 HSU-22CB13	150	Ø 70

When the paper pattern is used

1 Stick a paper pattern on the wall horizontally

2 Position by using the pattern then remove the pattern.

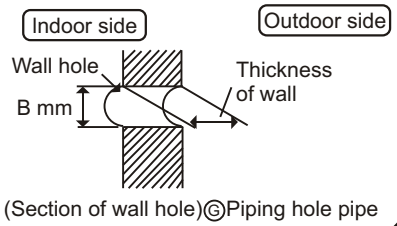


When the mounting plate is fixed to side bar and lintel

- Fix to side bar and lintel a mounting bar. Which is separately sold,and then fasten the plate to the fixed mounting bar.
- Refer to the previous article," When the mounting plate is first fixed ",for the position of wall hole.

2 Making a Hole on the Wall and Fitting the Piping Hole Cover

- Make a hole of 60mm in diameter, slightly descending to outside the wall.
- Install piping hole cover and seal it off with putty after installation.



(Section of wall hole)ⓒPiping hole pipe

3 Installation of the Indoor Unit

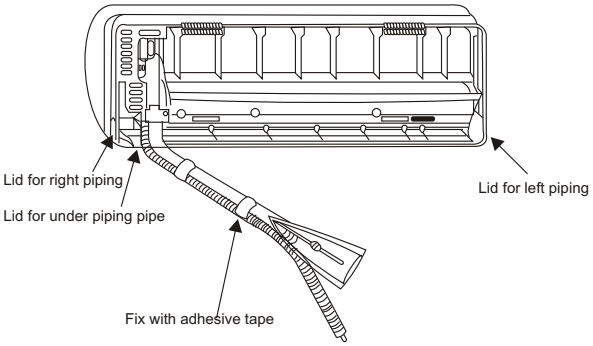
Drawing of pipe

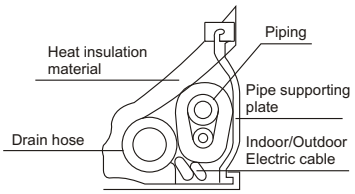
[Rear piping]

- Draw pipes and the drain hose,then fasten them with the adhesive tape.

[Left , Left-rear piping]

- In case of left side piping,cut away,with a nipper,the lid for left piping.
- In case of left-rear piping,bend the pipes according to the piping direction to the mark of hole for left-rear piping which is marked on heat insulation materials.
  1. Insert the drain hose into the dent of heat insulation materials of indoor unit.
  2. Insert the indoor/outdoor electric cord from backside of indoor unit,and pull it out on the front side,then connect them.
  3. Coat the flaring seal face with refrigerant oil and connect pipes.
     Cover the connection part with heat insulation materials closely,and make sure fixing with adhesive tape.





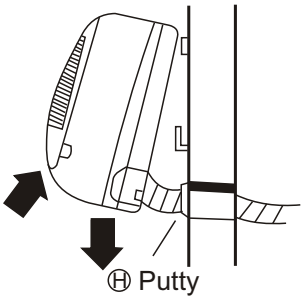
- Indoor/outdoor electric cord and drain hose must be bound with refrigerant piping by protecting tape.

[Other direction piping]

- Cut away,with a nipper,the lid for piping according to the piping direction and then bend the pipe according to the position of wall hole.When bending,be careful not to crash pipes.
- Connect beforehand the indoor/outdoor electric cable ,and then pull out the connected to the heat insulation of connecting part specially.

Fixing the indoor unit body

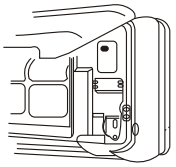
- Hang surely the unit body onto the upper notches of the mounting plate.Move the body from side to verify its secure fixing.
- In order to fix the body onto the mounting plate,hold up the body aslant from the underside and then put it down perpendicularly.



4 Connecting the indoor/Outdoor Electric Cable

Removing the wiring cover

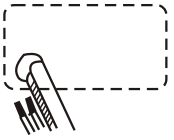
- Remove terminal cover at right bottom corner of indoor unit,then take off wiring cover by removing its screws.



When connecting the cable after installing the indoor unit

1.Insert from outside the room cord into left side of the wall hole, in which the pipe has already existed.

2.Pull out the cord on the front side,and connect the cable making a loop.



5 Purging Method

Push the air out of the indoor unit and piping as follows:

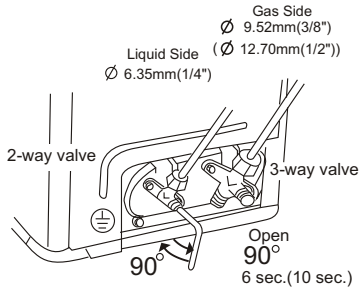
(1)Remove the valve cap on 2-way valve in outdoor unit.

(2)Loosen by 1/2 turn the flare nut of gas pipe, which is connected to 3-way valve.

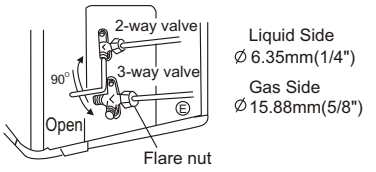
(3)Loosen 2-way valve by 90˚using hexagon wrench,and after approx. 6 sec tighten it up. Gas comes out through flare nut on wide pipe. If no gas is discharged, tighten flare nut with specified torque.

(4)Open 2-way and 3-way valves using specified torque.

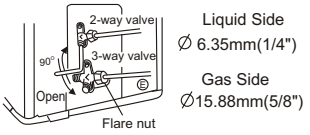
(5)Tighten the caps on the valves with specified torque.



HSU-12CA03 HSU-16CD03 HSU-14C13
HSU-12CF03 HSU-16HC03 HSU-14H13
HSU-12HR03 HSU-16HD03 HSU-14HA13
HSU-12CM03 HSU-09CA13 HSU-14HC13
HSU-12HA03 HSU-12CA13 HSU-16C13
HSU-12HI03 HSU-12CB13
HSU-12HJ03 HSU-12CC13 AU128ABAAA
HSU-14C03 HSU-12CD13
HSU-16CC03 HSU-12CE13

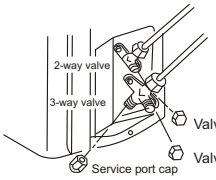


HSU-18HA13 HSU-22CC13
HSU-18HC13 HSU-22HA13
HSU-22CA13 HSU-22HC13
HSU-22CB13



HSU-12CG03
HSU-12CI03

	Tightening torque N.m
Valve rod	7-9
Valve cap	20-25



HSU-07CC03 HSU-09CH03
HSU-07CD03 HSU-09CJ03
HSU-07CE03 HSU-09CK03
HSU-07HC03 HSU-09HH03
HSU-07HD03 HSU-09HJ03
HSU-07HE03 HSU-09HK03
AU052ACMAA

- When connecting pipe exceeds 5 meters,16g refrigerant shall be added per exceeding meter.Charge according to the following list.

Piping length	5m	7m	10m
Additional amount	No need	32g	80g

- Note:When extending piping,air inside piping shall be removed by using external refrigerant gas,then discharge excess refrigerant by air purging.

Brand new outdoor unit is charged 50g more refrigerant than regulated weight.
Only for first installation,this extra 50g can be used to purge air in the pipes.

★ 1 During this procedure,50g refrigerant will be discharged in piping.
(This must be strictly controlled within 90˚and 6sec.)

INSTALLATION AND ACCESSORY PARTS FOR CFC-FREE TYPE

7465789
A

Installation Manual of Room Air Conditioner

• Read this manual before installation
• Explain sufficiently the operating means to the user according to this manual.

Necessary Tools for Installation

1.Driver
2.Hacksaw
3.Hole core drill
4.Hexagon wrench(5mm)
5.Spanner(14,17,19 and 24mm)
6.Torque wrench (17mm,22mm,24mm)
7.Pipe cutter
8.Flaring tool
9.Knife
10.Nipper
11.Gas leakage detector or soap-and-water solution
12.Measuring tape
13.Reamer
14.Refrigerant oil

Accessory parts

No.	Accessory parts	Number of articles
①	Remote controller	1
②	R-03 dry battery	2
③	Mounting plate	1
④	Drain hose	1
⑤	4X50 Steel nail,cement	8
⑥	Main pipes	1
⑦	ø4X25 Screw, Plastic cap	6
⑧	Drain-elbow	1
⑨	Hexagon wrench	1
⑩	Cover	1
⑪	Cushion	4
⑫	Plastic clamp	1
⑬	Connecting cable	1
⑭	Pipe supporting plate	1

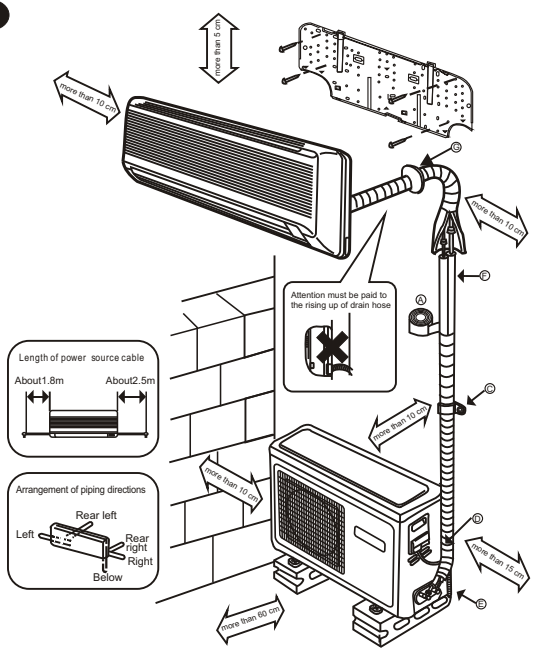
Note: On cool only unit,drain-elbow is not available.
For HSU-12C03/R1, pipe supporting plate is not available

Drawing for the installation of indoor and outdoor units

The appearance is different by models.
※ These models adopt CFC free refrigerant R407C

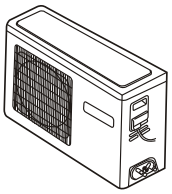
Optional parts for piping

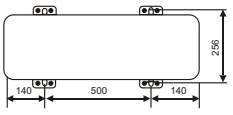
Mark	Parts name
Ⓐ	Non-adhesive tape
Ⓑ	Adhesive tape
Ⓒ	Saddle(L.S)with screws
Ⓓ	Connecting electric cable for indoor and outdoor
Ⓔ	Drain hose
Ⓕ	Heat insulation material
Ⓖ	Piping hole cover
Ⓗ	Putty



※The marks from Ⓐ to Ⓗ in the figure are the parts' numbers

HSU-09C03/R1
HSU-09H03/R1
HSU-12C03/R1
HSU-12H03/R1





Floor fixing dimensions of the outdoor unit (Unit:mm)

Fixing of outdoor unit

- Fix the unit to concrete or block with bolts(ø10mm)and nuts firmly and horizontally.
- When fitting the unit to wall surface, roof or rooftop fix a supporter surely with nails or wires in consideration of earthquake and strong wind.
- If vibration may affect the house,fix the unit by attaching a vibration-proof mat.

Selection of Installation Place

Indoor Unit

- Place,robust not causing vibration, where the body can be supported sufficiently.
- Place ,not affected by heat or steam generated in the vicinity,where inlet and outlet of the unit are not disturbed.
- Place ,possible to drain easily,where piping can be connected with the outdoor unit .
- Place ,where cold air can be spread in a room entirely.
- Place,nearby a power receptacle,with enough space around.(Refer to drawings).
- Place where the distance of more than Im from televisions, radios, wireless apparatuses and fluorescent lamps can be left.
- In the case of fixing the remote controller on a wall, place where the indoor unit can receive signals when the fluorescent lamps in the room are lightened.

Outdoor Unit

- Place ,which is less affected by rain or direct sunlight and is sufficiently ventilated.
- Place ,possible to bear the unit ,where vibration and noise are not increased.
- Place ,where discharged wind and noise do not cause a nuisance to the neighbors.
- Place,where a distance marked ⟺ is available as illustrated in the above figure.

Power Source

- Before inserting power plug into receptacle ,check the voltage without fail.The power source is the same as the corresponded name plate.
- Install an exclusive branch circuit of the power .
- A receptacle shall be set up in a distance where the power cable can be reached.Do not extend the cable by cutting it .

Selection of Pipe

- To this unit ,both liquid and gas pipes shall be insulated as they become low temperature in operation.
- Use optional parts for piping set or pipes covered with equivalent insulation material.

	For Series 09	For Series 12
Liquid pipe(ø)	6.35mm(1/4")	6.35mm(1/4")
Gas pipe(ø)	9.52mm(3/8")	12.7mm(1/2")

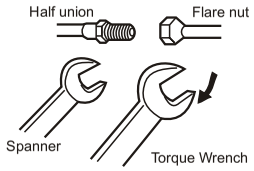
Outdoor Unit

1 Installation of Outdoor Unit

Install according to **Drawing for the installation of indoor and outdoor units**

2 Connection of Pipes

- Apply refrigerant oil on half union and flare nut.
- To bend a pipe,give the roundness as large as possible not to crush the pipe.
- Connecting the pipe of gas side first makes working easier.



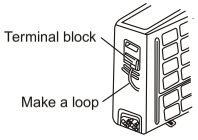
Forced fastening without careful centering may damage the threads and cause a leakage of gas.

Pipe Diameter(ø)	Fastening Torque
Liquid Side 6.35mm(1/4")	18N.m
Gas Side 9.52mm(3/8")	42N.m
Gas Side 12.7mm(1/2")	50N.m
Gas Side 15.88mm(5/8")	60N.m

Be careful that foreign matters,such as wastes of sands,etc. shall not enter the pipe.
The standard pipe length is 5m.If it is over 5m, the function of the unit will be affected.If the pipe has to be lengthened, the refrigerant should be entirely discharged; after vacunmizing charge the total refrigerant R407C once only, according to 16g/m.

3 Connection

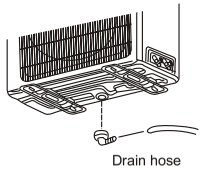
- Use the same method on indoor unit.Loosen the screws on terminal block and insert the plugs fully into terminal block,then tighten the screws.
- Insert the cable according to terminal number in the same manner as the indoor unit.
- If wiring is not correct,proper operation can not be carried out and controller may be damaged.
- Fix the cable with a damp.



4 Attaching Drain-Elbow

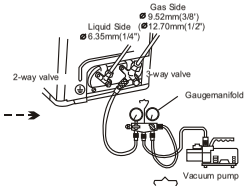
- If the drain-elbow is used please attach it as figure.

Note:Only for heat pump unit.

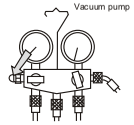


5 Purging Method:To use vacuum pump

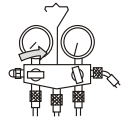
① Detach the service port's cap of 3-way valve, the valve rod's cap for 2-way valve and 3-way's, connect the service port into the projection of charge hose (low) for gaugemanifold, Then connect the projetion of charge hose(center) for gaugemanifold into vacuum pump.



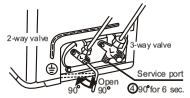
② Open the handle at low in gaugemanifold, operate vacuum pump. If the scale-moves of gause (low) reach vacuum condition in a moment, check① again.



③ Vacuumize for over 15min. And check the level gauge which should read -0.1 MPa (-76 cm Hg) at low pressure side. After the completion of vacuumizing, close the handle 'Lo' in gaugemanifold and stop the operation of the vacuum pump.
Check the condition of the scale and hold it for 1-2min. If the scale-moves back in spite of tightening, make flaring work again, the return to the beginning of ③



④ Open the valve rod for the 2-way valve to and angle of anticlockwise 90 degree.
After 6 seconds later, close the 2-way valve and male the inspection of gas leakage.

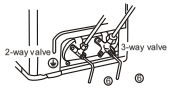


⑤ No gas leakage?

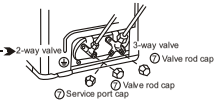
In case of gas leakage, tighten parts of pipe connection. If leakage stops, then proceed⑥steps.

If it does not stop gas leakage, discharge whole refrigerants from the service port. After flaring work again and vacuumize, fill up prescribed refrigerant from the gas cylinder.

⑥ Detach the charge hose from the service port, open 2-way valve and 3-way'.Turn the valve rod anticlockwise until hitting lightly.



⑦ To prevent the gas leakage, turn the service port's cap, the valve rod's cap for 2-way valve and 3-way's a lottle more than the point where the torque increases suddenly.



⑧ After attaching the each caps, check the gas leakage around the caps.

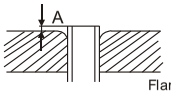
CAUTION:
If the refrigerant of the air conditioner leaks, it is necessary to make all the refrigerant out, then charge the liquid refrigerant into air conditioner according to the amount marked on the name plate.

1 Power Source Installation

- The power source must be exclusively used for air conditioner.(Over 10A)
- In the case of installing an air conditioner in a moist place,please install an earth leakage breaker.
- For installation in other places,use a circuit breaker as far as possible.

2 Cutting and Flaring Work of Piping

- Pipe cutting is carried out with a pipe cutter and burs must be removed.
- After inserting the flare nut,flaring work is carried out.

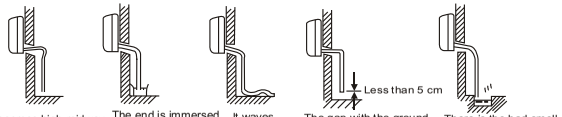


	Pipe diameterø	Size A (mm)
Liquid side	6.35mm(1/4")	0.8～1.5
Gas side	12.7mm(1/2")	1.2～2.0
Gas side	9.52mm(3/8")	1.0～1.8

Correct	Incorrect				
	Lean	Damage of flare	Crack	Partial	Too outside

3 On Drainage

- Please install the drain hose so as to be downward slope without fail.
- Please don't do the drainage as shown below.



- Please pour water in the drain pan of the indoor unit,and confirm that drainage is carried out surely to outdoor.
- In case that the attached drain hose is in a room,please apply heat insulation to it without fail.

Check for Installation and Test Run

- Please kindly explain to our customers how to operate through the instruction manual.

Check Items for Test Run

Put check mark ✓ in boxes

- ☐ Gas leak from pipe connecting
- ☐ Heat insulation of pipe connecting
- ☐ Are the connecting wirings of indoor and outdoor firmly inserted to the terminal block?
- ☐ Is the connecting wiring of indoor and outdoor firmly fixed?
- ☐ Is drainage securely carried out?
- ☐ Is the earth line securely connected?
- ☐ Is the indoor unit securely fixed?
- ☐ Is power source voltage abided by the code?
- ☐ Is there any noise?
- ☐ Is the lamp normally lighting?
- ☐ Are cooling and heating(When in heatpump)performed normally?
- ☐ Is the operation of room temperature regulator normal?

Indoor Unit

1 Fitting of the Mounting Plate and Positioning of the Wall Hole

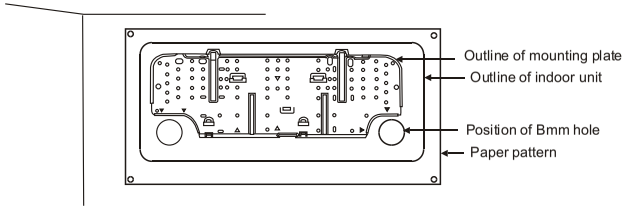
When the mounting plate is first fixed

1 Carry out,based on the neighboring pillars or lintels, a proper leveling for the plate to be fixed against the wall,then temporarily fasten the plate with one steel nail.
2 Make sure once more the proper level of the plate,by hanging a thread with a weight from the central top of the plate,then fasten securely the plate with the attachment steel nail.
3 Find the wall hole location A using a measuring tape.

	Amm	Bmm
HSU-09C03/R1	180	
HSU-09CA03/R1 HSU-09H03/R1 HSU-12CA03/R1 HSU-12H03/R1	145	⌀60
HSU-12C03/R1	160	

When the paper pattern is used

1 Stick a paper pattern on the wall horizontally
2 Position by using the pattern then remove the pattern.

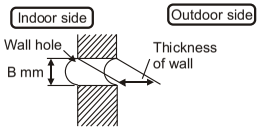


When the mounting plate is fixed to side bar and lintel

- Fix to side bar and lintel a mounting bar, Which is separately sold,and then fasten the plate to the fixed mounting bar.
- Refer to the previous article," When the mounting plate is first fixed ",for the position of wall hole.

2 Making a Hole on the Wall and Fitting the Piping Hole Cover

- Make a hole of 60mm in diameter, slightly descending to outside the wall
- Install piping hole cover and seal it off with putty after installation.



(Section of wall hole)ⓒPiping hole pipe

3 Installation of the Indoor Unit

Drawing of pipe

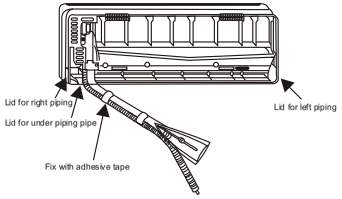
[Rear piping]

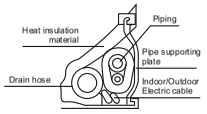
- Draw pipes and the drain hose,then fasten them with the adhesive tape.

[Left • Left-rear piping]

- In case of left side piping,cut away,with a nipper,the lid for left piping.
- In case of left-rear piping,bend the pipes according to the piping direction to the mark of hole for left-rear piping which is marked on heat insulation materials.

1. Insert the drain hose into the dent of heat insulation materials of indoor unit.
2. Insert the indoor/outdoor electric cable from backside of indoor unit,and pull it out on the front side,then connect them.
3. Coat the flaring seal face with refrigeration oil and connect pipes. Cover the connection part with heat insulation materials closely,and make sure fixing with adhesive tape.





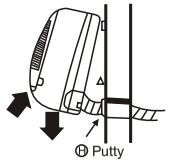
- Indoor/outdoor electric cable and drain hose must be bound with refrigerant piping by protecting tape.

[Other direction piping]

- Cut away,with a nipper,the lid for piping according to the piping direction and then bend the pipe according to the position of wall hole.When bending,be careful not to crash pipes.
- Connect beforehand the indoor/outdoor electric cable,and then pull out the connected to the heat insulation of connecting part specially.

Fixing the indoor unit body

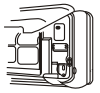
- Hang surely the unit body onto the upper notches of the mounting plate.Move the body from side to side to verify its secure fixing.
- In order to fix the body onto the mounting plate.hold up the body aslant from the underside and then put it down perpendicularly.



4 Connecting the Indoor/Outdoor Electric Cable

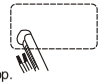
Removing the wiring cover

- Remove terminal cover at right bottom corner of indoor unit,then take off wiring cover by removing its screws.



When connecting the cable after installing the indoor unit

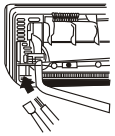
1.Insert from outside the room cable into left side of the wall hole, in which the pipe has already existed.
2.Pull out the cable on the front side,and connect the cable making a loop.

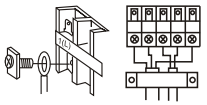


When connecting the cable before installing the indoor unit

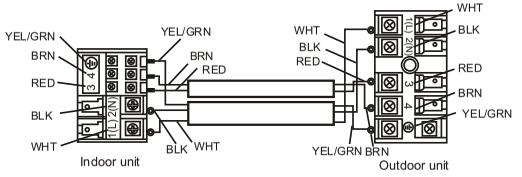
- Insert the cable from the back side of the unit,then pull it out on the front side.
- Loosen the screws and insert the cable ends fully into terminal block,then tighten the screws.
- Pull the cable slightly to make sure the cables have been properly inserted and tightened.
- After the cable connection,never fail to fasten the connected cable with the wiring cover.

Note:When connecting the cable,confirm the terminal number of indoor and outdoor units carefully.If wiring is not correct,proper operation can not be carried out and will cause defect.

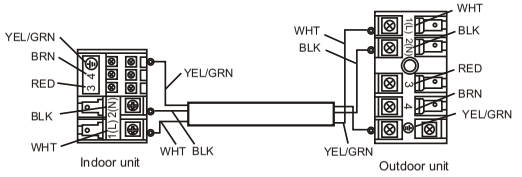




Heat pump model



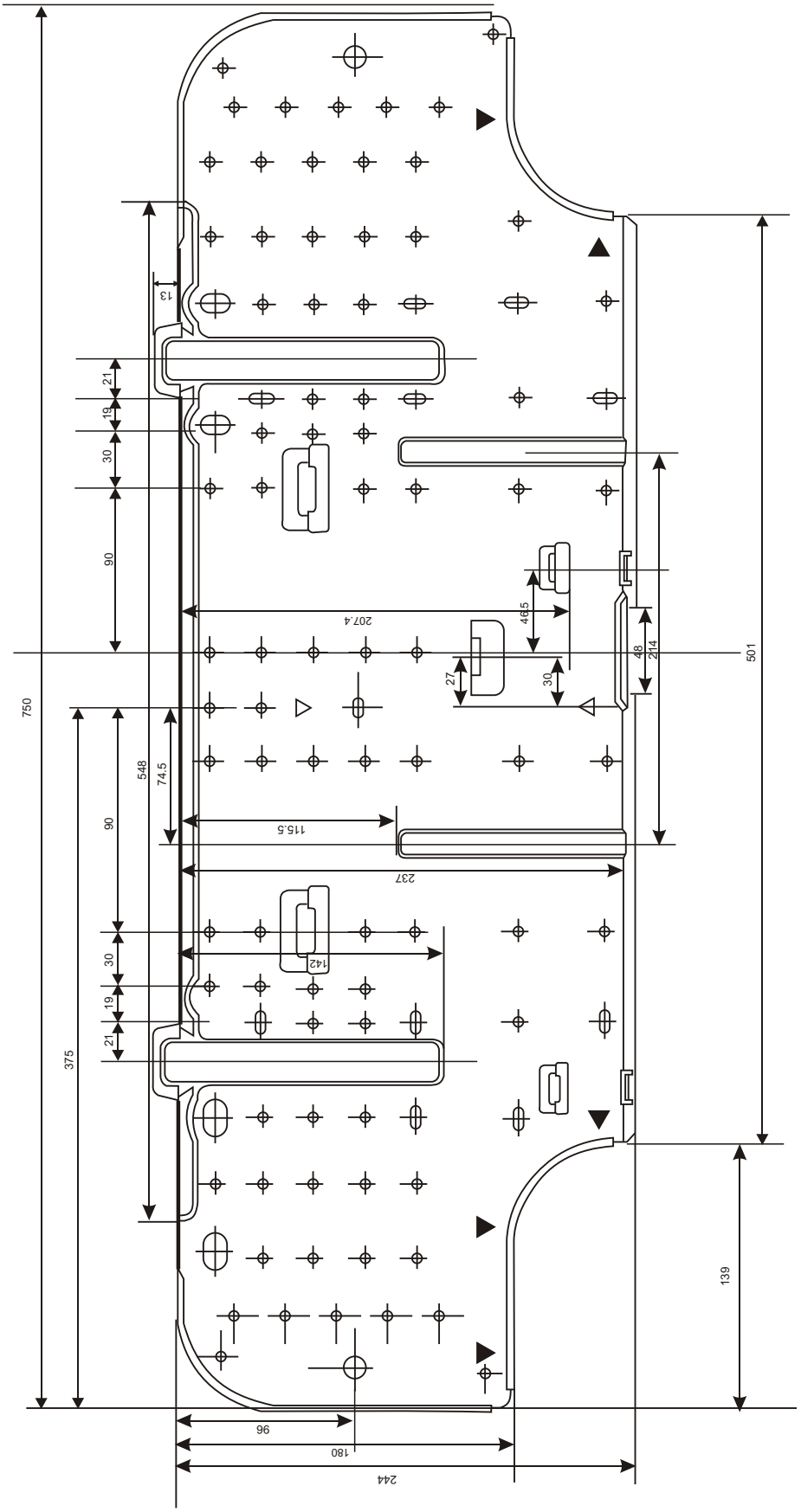
Cooling only model



HSU-12C03/R1

- Paper Pattern for Indoor Unit Installation
  Please use this sheet to site the unit

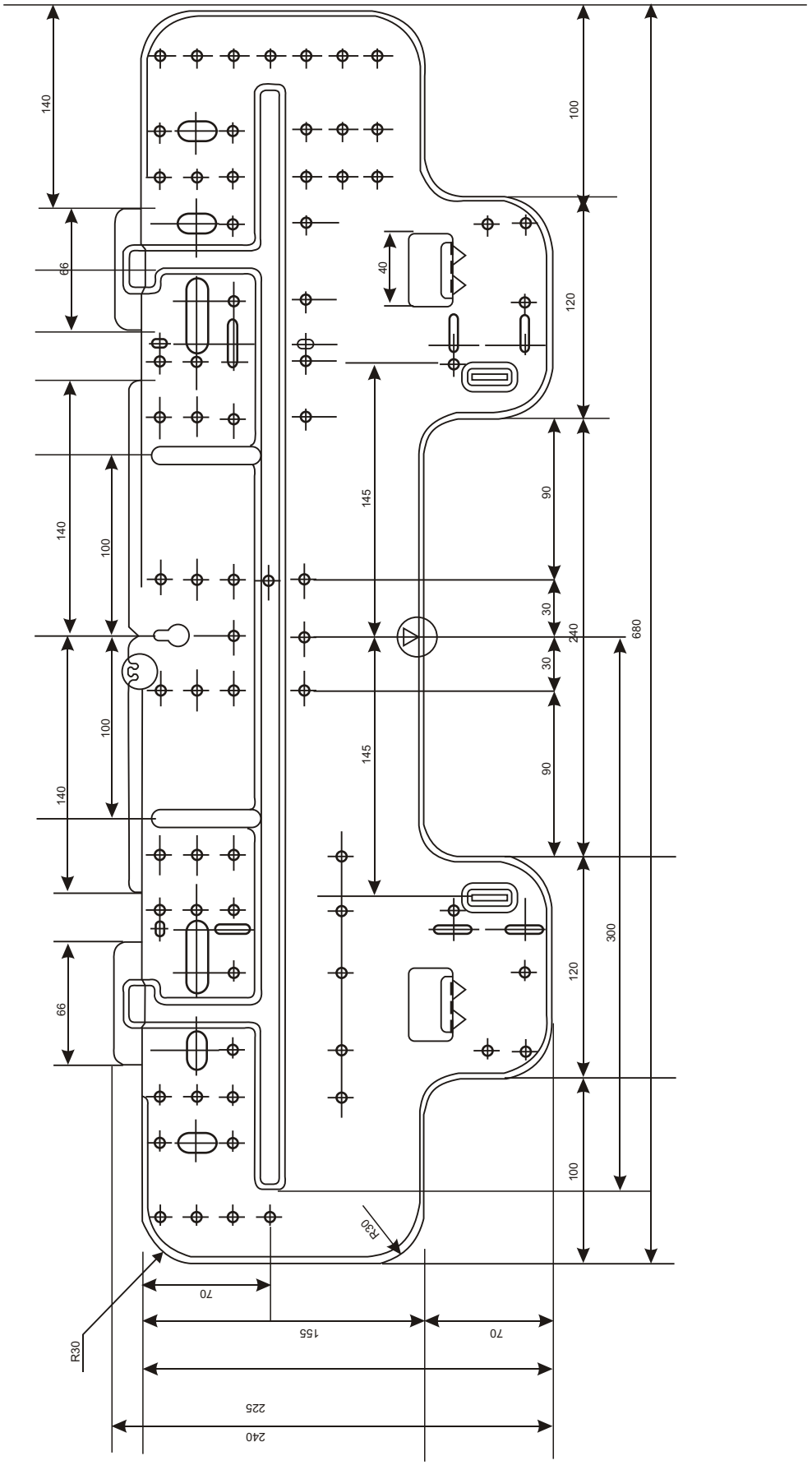
Leave at Least 50mm between the top of the unit and the ceiling



HSU-09CA03/R1 HSU-09H03/R1 HSU-12CA03/R1 HSU-12H03/R1

● Paper Pattern for Indoor Unit Installation
Please use this sheet to site the unit

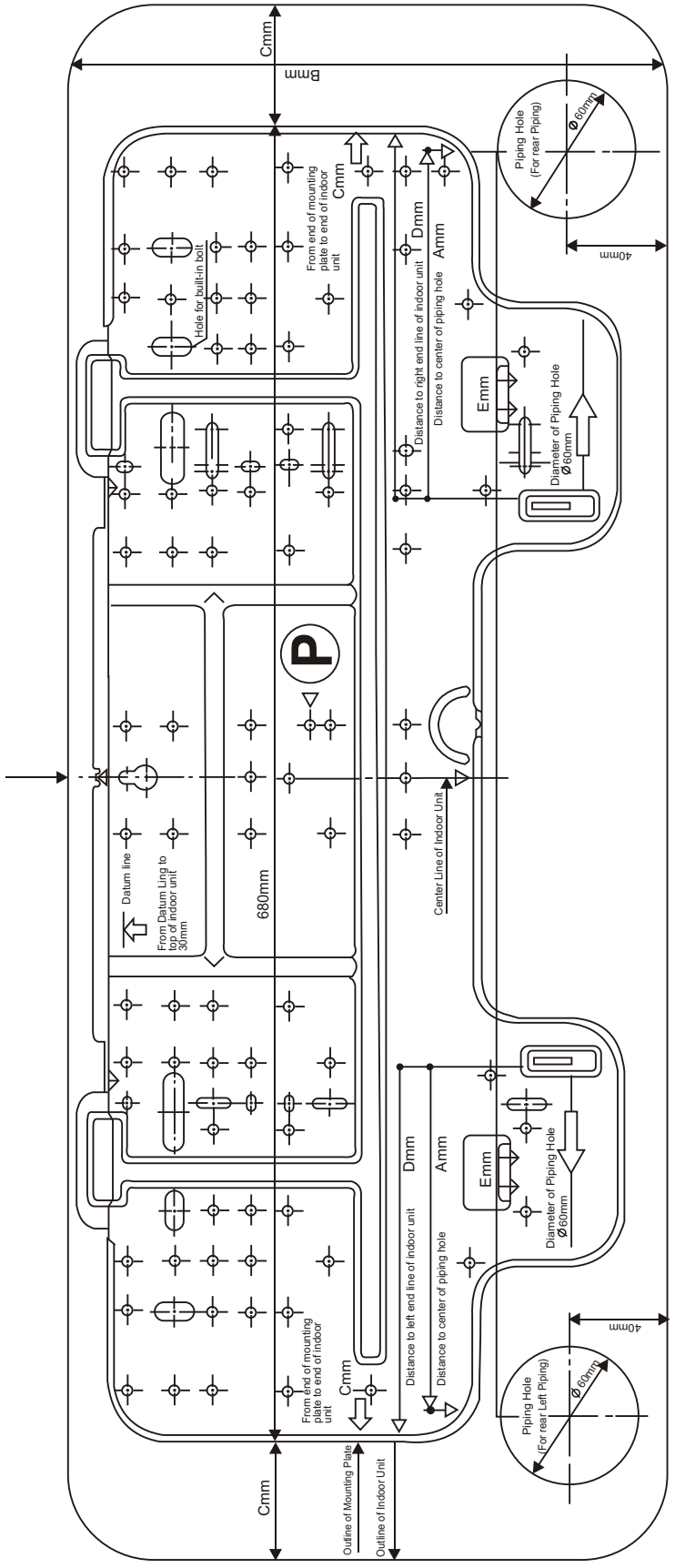
Leave at Least 50mm between the top of the unit and the ceiling



HSU-09C03/R1

- Paper Pattern for Indoor Unit Installation
  Please use this sheet to site the unit

Leave at Least 50mm between the top of the unit and the ceiling



Model	A	B	C	D	E
HSU-09C03/R1	180	290	57.5	210.5	355

MAINTENANCE AND SERVICE

Maintenance and service

1 Use properly:

(1) Set temperature properly
(2) Clean air filter every two weeks
(3) Shut door and windows during unit working .Preferably install a curtain.
(4) Use timer effectively to avoid idle operation.

2 Caution for operation:

(1) In DRY mode operation, the system perform the cooling operation until the room temperature reaches 2℃ above the setting temperature. After that it continues DRY mode operation intermittently with airflow at "LO"speed,regardless of the setting speed. Airflow from the system may be cold when the room temperature is low.
(2) Only after 3 minutes can unit be restarted in order to protect the unit.
(3) If the system continues cooling for a long period under high humidity, the outlet may accumulate water.
(4) If the room temperature can not be reach the setting temperature due to low ambient temperature, other heating devices should be added.
(5) After replacing the batteries for remote controller, the operating mode becomes as follow: operation mode “AUTO”, fan speed “AUTO” and timer “AM12:00”.
(6) Remote controller will memorize the timer setting previously selected. To select timer.
(7) After replacing batteries, preset time becomes as follows:
OFF:1 hour ON:6 hour reset if necessary
(8) Set the timer again if the power failure.
(9) Cut off the power supply if the unit will not be used for an extended period at time.
(10) Replace the fuse with the one that has the same specification as the original one. Never use larger fuse or thin copper wire instead.

3 The followings are not problems:

(1) Unit will not start immediately
unit will not restart until 3 minutes passed. This is for the protection of fuse.
(2) Noise is heard(no abnormal noise)
a. During unit operation or stop, a swing or gurgling sound in piping may be heard. It is more noticeable during 2-3 minutes of unit run (This is caused by refrigerant flowing in pipe.)
b. During unit operation a cracking noise may be heard, which is generated by the expanding or shrinking of the plastic components due to temperature changes.
(3) Smells are generated.
This is because the system circulates smells from the interior air such as the smell of the cigarettes, furniture etc.
(4) Mist or steams are blown out.
During “COOL” or “DRY” mode, indoor unit may blow out mist. This is due to the sudden cooling of indoor air.
(5) Does not work at all.
a. Is the electric plug inserted?
b. Is there a power failure?
c. Is fuse blown out due to abnormal voltage?
(6) Poor cooling
a. Is the air filter dirty?
b. Are there any obstacles in inlet or outlet?
c. Is temperature set currently?
d. If there are some doors and windows left open?
e. Is there any direct sunlight through the window during cooling operation.
f. If there are many heat sources or many people in the room during cooling operation.

(7) In heating starting operation, the outdoor unit starts but the indoor unit does not run. This is cold prevention function in heating operation. Only when the temperature of indoor unit can Reaches Certaindegree, it can start. (Normally this needs several minutes.)

4 maintenance:

(1)Do not pour water on indoor unit, electric or technical problems will occur.
(2)Be sure to pull out power plug before cleaning. Never pull the electric cable.
(3)Do not block the inlet or outlet.
(4)Do not use for other purpose, such as food preservation, animal breeding.
(5)Use soft cloth to clean unit casing, for serious stains. Use with water wiring the water out of the cloth before wiping. Wipe off the cleaners, as these will damage the coating. Also hot water over 40℃ may cause discoloring or deformation.
(6)Do not use water to clean remote controller, instead to wipe it with a place of dry cloth. Do not use glass cleaner or a chemical cloth.
(7)As heating exchenger of outdoor is exposed in open air, dust may accumulate a time goes by, which will reduce its performance. Clean it periodically with vacuum cleaner or water, but do not use steel brush.

5 service

10.5.1 Unit does not work
(1) Cause: power supply
Remedy :
Check the power receptacle if it is broken or poor contact , repair it.
Check the indoor or outdoor cable if wrongly connected (refer to wiring diagram),correct the wrong wring .
(2)Cause:Fuse blown out
Remedy:
Confirm if fuse is blown out . Replace the bad fuse, including the power supply fuse and fuse on control circuit.
(3)Cause:voltage too low
Remedy:
Voltage is 15% lower than the rating (1PH,187V).Find out the cause. If voltage is too low, voltage regulator is needed .
(4)Cause:improper temperature setting
Remedy:
Make sure if there are some loosen parts, and if sensor is moved out of place. Check the relevant contact. Using multimeter if there is poor contact. Refer to wiring diagram.
(5)Cause:starting relay fails
Remedy:
Normally the starting relay of voltage type is in normal close status. Check it with a multimeter, and replace it if it fails.
Overload protector should, under contact temperature, in contact status. Or it is detective and need be replaced.
(6)Cause:compressor burnt
Remedy:
Terminal R.S.C. represent run, start, and common terminal respectively.
The sin of resistance of starting winding and running winding equals the total winding.
Namely, Rst = Rcs +Rcr , measure with a multimeter, if there are short circuit, break, or ground leakage due to casing contact. Replace the compressor of the same specifications and brand.
(7)Cause compressor got stuck
Remedy:
If the winding of the compressor is ok, try to strike the compressor casing with either a rubber hammer keeps on and off.

6 Air conditioner keep on and off

(1)Cause: poor ventilation of condenser
Remedy:
Clean the dirt on the condenser, and remove the obstacles in front of the air outlet.
Settle the problem of the “air flow shout circuit” (outlet air goes directly back to air inlet).
(2)Cause:over charge of refrigerant
Remedy:
Discharge the excess refrigerant, as this will cause high pressure and frequent starts and stops.
(3)A big air conditioner in a small room
Remedy:
Fast cooling(or heating) will cause frequent stars and stops, which is not a problem.
(It will be ok by opening doors or enlarge room size)

7units run but not cool (or heat)

(1)Cause:insufficient refrigerant or leakage
Remedy:
Compressor runs for 20 minutes, but frost dose not cover half of the evaporator surface, this means insufficient refrigerant. Visually check if there is oil on leakage, as oil will flow out together with refrigerant. After fixing the leakage and pumping down, and refrigerant as the specifications.
(2)Cause:clogged refrigerant system
Remedy:
Confirm the problem by checking frost on evaporator of pressure readings. If the outlet of condenser is clogged, high pressure will rise, and the low pressure will reduce. Fixing the problem by blasting with the nitrogen gas.
(3)Cause:fan does not run or insufficient air volume.
Remedy:
First confirm the fan wiring is correctly mode. Then check if the capacitor is ok. Also check if fan motor is burnt. Replace them if fan motor or fan capacitor got burnt.
(4)Cause:air filter is seriously clogged
Remedy:
Clean the air filter. Be sure not to take the sensor on the evaporator out when remove the filter.
(5)Cause:poor ventilation on outdoor coil or airflow block.
Remedy:
Check if the space around the condenser is small. Better ventilation by removing obstacle to outdoor coil to improve airflow.
(6)Cause:4-way valve does not shift or fails to operate.
Remedy:
Energized the 4-way valve coil, if the slide does not move, replace it.
(7)Cause:indoor fan does not run at low speed.
Remedy:
Check the wiring to HI and LO speed of indoor fan if it is wrong.And also check the fan capacitor and silicon control to see if they are burned. Replace if necessary.
(8)Cause:there is non-condensable gas in system.
Remedy:
There will be temperature and pressure fluctuation (increases and decreases).
Replace refrigerant and conduct air purging.

8 overload protector trips due to high temperature of compressor.

(1)Cause:insufficient refrigerant or leakage causing high suction temp.
.Remedy:
Add refrigerant after leakage detecting.
(2)Cause: piping is too narrow and lengthy that the superheat temperature of suction gas gets too high.

Remedy:
Using piping correctly. Do not exceed the specified pipe length.
(3)Inner leakage of the 4 - way valve causing malfunction.
Remedy:
Check the 4 - way valve and replace it if it is defective.
(4)Clogged capillary tube causing high suction temperature.
Remedy :
Clean capillary tubes or replace it.
(5)Cause:clogged strainer , causing high suction temperature.
Remedy:
Replace: capillary tube assy
(6)Cause:high running current
Remedy:
After measuring the current with a clamp meter, check power supply voltage to find out the causes for abnormal power supply.
(7)Cause:overload because of too much Freon.
Remedy:
Discharge and suction pressure have rised to activate protector.
(8)Cause:compressor does not run properly, rotor got stuck.
Remedy:
Replace compressor after confirmation.
(9)Cause:OLP (protector relay) itself is detective.
Remedy:
Check the contact with a Multimeter, if it is closed when there is no overheat. in case it is not closed, replace with a new OLR.

9 water leakage on air conditioner:

(1)Cause:drain hose joint is not tight.
Remedy:
Fix the joint again and bind it tightly with tape.
(2)Cause:condense hose is bent or pressed.
Remedy:
Check the drain hose and arrange it correctly. Replace if broken.
(3)Cause:too much dirt in drain pan, clogging drain hose.
Remedy:
Clean the drain pan and drain hole.
(4)Cause:indoor unit is install titled
Remedy:
Correct its installation position.

10 the split unit does not make cooling run after installation:

(1)Cause:gas leakage during pipe connection.
Remedy:
Open the heat insulation for leakage's detect. Add refrigerant after fixing.
(2)Cause:there are damages or crashes to the gas and liquid pipe or indoor and outdoor unit connecting pipe.
Remedy:
Replaced the damaged part of piping , then charge refrigerant after pressure testing and pumping down.
(3)Cause:wrong wiring
Remedy:
Inspect the wiring according to the wiring diagram. Repair the control line if there is any problem.
(4)Cause:compressor burnt (because of wrong wiring) .

Fuse blown out.

Remedy:

Replace compressor or fuse.

11 NO sooner had the compressor started than stopped:

(1)Cause:protector activated due to overheats of comp.

Remedy:

Test the insulation resistance of the compressor (it is normal if over 2m OHM),other wise there might be short circuit. Check and settle the problem.

(2)Cause:high pressure is too high and low pressure is to low:

Remedy:

Analyze the reason for high pressure, or check if it is due to insufficient refrigerant, ga leakage , and semi-clogging.

(3)Cause:extra high running current on compressor:

Remedy:

Try to find out the cause for that: to much refrigerant or large voltage fluctuation.

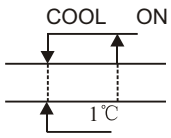
Settle these problems accordingly.

(4)Cause:ambient temperature too high:

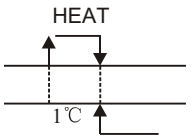
Remedy:

Put the outdoor unit in a distance from heat sources and to avoid sunlight.

10.12 outline temperature control (temperature difference of thermostat)



temp.Setting



Temp.Setting +3 ℃

Temp. ROOM TH detects diff. between air inlet temp, setting.

2.When thermistor wiring breaks or shorts circuit happens . Power indicator LED flashes during unit run (Flash frequency is 1Hz).

Thermistor specifications:

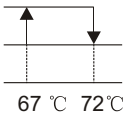
Room temperature thermistor		
Temp. (℃)	Resistance (kΩ)	AD input Voltage(v)
0	83	0.97
5	63	1.20
10	48	1.46
15	37	1.74
20	29	2.03
25	23	2.33
30	18	2.62

Room temperature thermistor		
Temp. (℃)	Resistance (kΩ)	AD input Voltage(v)
0	31	1.96
5	24	2.25
10	19	2.54
15	15	2.83
20	12	3.09
25	10	3.33
30	8	3.55

(3)Defrost operation

During HEAT operation, 4 - way valve is energized, when it is reenergize, defrost

operation will begin, indoor unit and outdoor unit fan stop, while comp. Is still running. After 10minutes, HEAT operation resumes with the 4 -way valve energized. Outdoor fan starts running, but the indoor fan does not work until evaporator warms up.
(4) Frost - prevention for evaporator during COOL and DEFROST operation . If indoor heat exchanger temp . Stays below 0 ℃ for 5 minutes , comp. And outdoor fan will stop.
(5) When comp. Stops only after 3 minutes can it be restarted.
(6) Computer detects the indoor unit temp. From its temp. Sensor , while the curent transformer (CT) monitors the comp. Current to protect it against overheat and over current. As a result the proper operation of the unit is ensured.
① Prevention against over current
when CT detects high current on compressor.It will first stop outdoor fan then resume the fan operation when current become normal. Should the current keeps rising, both the compressor and the outdoor fan will be stopped.
② prevention agaist overload in heat operation
During heat operation, if indoor unit temperature sensor detects high temperature, it will first stop the outdoor fan then resume the fan operation when the temperature becomes normal. If the temperature keeps rising, both the compressor and the outdoor fan will be stopped.
Comp. and outdoor fan operation.



Compressor and outdoor fan stop abnormally

Indoor heat exchanger temperature thermistor

(7) At compressor stop,4-way valve relevant to indoor unit which is last stopped, will contihue to run for 3 minutes before closing.
(8) Within 3 minutes, when power is initially turned on, solenoid valve is opened and compressor turned on.
(9) If there is an output signal from indoor unit, when outdoor unit id in 3 minutes Delay, compressor will not start because of the 3-minutes delay control circuit in outdoor unit.

12 inspection and maintenance of microcomputer control system. Because of the advance computer control box, inspection the electric problems becomes quiet easy.

12.1foudmental inspection and judgement

Refer to the component of the circuit board and the wiring diagram of the indoor and outdoor unit. As power flows to compressor, 4-way valve, outdoor and indoor fans, through normal open contacts relay RL1 and RL2, and SSR SR1 and SR2. When computer gives the run command, relay coil is energized, normal contacts close and the SSR get through.
Explanation to terminal block of indoor unit and outdoor unit:
WHT1:compressor control line.
BLK2:common line
RED3:4-way valve control line
BRN4:outdoor fan control line
(When checking, first make sure that the inter connect wire is correctly connected.)
(1) Measure if there were a voltage of 220V between 1 and 2, by using multimeter. In HEAT mode, there should be a 220V voltage between 1,4,3 and 2. Otherwise, compressor, 4-way valve, outdoor fan and parts are defective.
(2)Voltage of 220V between 1 and 2, but compressor does not run. Disconnect power supply and measure the resistance between 1 and 2, there should be some OHM, or the OLR on compressor trips. Please wait for few minutes, then try again. If there are some OHM, the complete unit will resume operation, this is because of the power failure during compressor run and attempting restart within 3 minutes.

(3)Heating operation is not available in winter
Normally we check the refrigerant system, indoor and outdoor fan operation in test mode (cooling mode). We switch the unit to heating mode to check if 4- way valve functions properly. If there is an output voltage at 3 and 2, the problem is with 4-way valve, or it is because of PCB.
12.2 Problems with components on PCB, the causes and remedies:
(1)Damaged components because of overcurrent , overvoltage, and short circuit.
Damaged due to over current: fuse
Damaged due to overvoltage : varistor and capacitor C2.
Damaged due to both: SSR SR1 (controls outdoor fan), relay RL1 (controls compressor), RL2(controls 4-way valve).
(When inter connect cable is connected reverse during unit installation, SR2 may be damaged.)
(2)When there is line breaking on thermistor and short circuit, power indicator LED will flash during operation (flash frequency is 1Hz)
Measure the thermistor with a voltmeter if there is a break and short circuit. Are the inductance L1, L2, L3 broken, also check if sensor bracket welding is broken or not.
(3)When power is turned on , neither remote control nor manual operation works, there is 5V volt on signal circuit board.
Probably it is because of crystal and ceramic capacitor C11 (earth capacitor on single board).
(4)Problem with indoor fan
Indoor fan keeps on and off when it is abnormal.
The indoor fan is controlled by computer, which detects the fan motor's pulse. If no pulse is found even after 10 seconds when power is turned on. Output voltage to indoor unit will be cut. If there is still no pulse after 30 seconds of unit standby, repeat the operation ten 10 seconds on and 30 seconds off. Please check the if the socket CN3 welding is OK, is there any pulse from motor.
In actual practice, maintenance, should be conducted with the inspection, judgement of electrical system, to make sure if controller is defective (visual inspection for damaged component, damaged wiring etc.) or it is because of the refrigerant cycle (defective part, clogging, insufficient freon etc.)
(5)Protection against over current:
When CT detects the current on compressor is too high, it will first stop fan and restar it when current become normal. But both compressor and outdoor fan will be stopped if current keeps rising.
① Poor ventilation for outdoor unit. (in cooling)
② Poor outlet air on outdoor unit (in heating)
③ Abnormal over load, such as ambient temperature etc.
④ Defective compressor
(measure the current with a clamp meter, if it is because the overcurent protection device has tripped).
(6)Overload protection in heating operation:
in heating operation, when heat exchanger temp, thermistor on indoor unit detects high temp., it will first stop outdoor fan. When temp. Becomes normal, the outdoor fan will resume running. But both comp. And outdoor fan will be shut down if the temp. Keeps rising.
Main causes:
① Clogged indoor air filter
② Poor air outlet on indoor unit
③ Is thermistor on heat exchanger normal?
④ Is inlet air temperature/ambient temperature abnormally high?
Reference:
If there is a cause other than the defective thermistor, it is likely that overcurent will occur prior to or after overload problem.