



Internal Use Only

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MULTI V[™] **PLUS** **II** System

Outdoor Unit **R410A**

SERVICE MANUAL R410A **(Exploded View)**

MODEL : ARUN Series

CAUTION

Before Servicing the unit, read the safety precautions in General SVC manual.
Only for authorized service personnel.

ARUN Series

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1. Specification

1.1 Heat Recovery(208/230V)

Heat Recovery(208/230V, 60Hz)

HP(Equivalent horsepower)			8	10	12	16
Ton			6.5	8.0	9.5	12.5
Model Name	Combination Unit		ARUB076BT2	ARUB096BT2	ARUB115BT2	ARUB154BT2
	Independent Unit		ARUB076BT2	ARUB096BT2	ARUB115BT2	ARUB076BT2 ARUB076BT2
Capacity	Cooling	kW	22.4	28.0	33.6	44.8
		kcal/h	19,300	24,100	28,900	38,500
		Btu/h	76,400	95,500	114,700	152,900
	Heating	kW	25.2	31.5	37.8	50.4
		kcal/h	21,700	27,100	32,500	43,300
		Btu/h	86,000	107,500	129,000	172,000
Input	Cooling	kW	6.20	7.8	10.8	12.40
	Heating	kW	7.00	8.8	11.1	14.00
Casing Color			Warm Gray	Warm Gray	Warm Gray	Warm Gray
Heat Exchanger			Gold fin	Gold fin	Gold fin	Gold fin
Compressor	Type		DC Scroll	DC Scroll	DC Scroll	DC Scroll
	Piston Displacement	cm ³ /rev	38.3 + 59.8	38.3 + 59.8	38.3 + 59.8	(38.3 + 59.8)x2
	Number of Revolution	R.P.M	3,600 + 3,500	3,600 + 3,500	3,600 + 3,500	(3,600 + 3,500)x2
	Motor Output x Number	W	(4,130 + 5,280)x1	(4,130 + 5,280)x1	(4,130 + 5,280)x1	(4,130 + 5,280)x2
	Starting Method		Direct On Line	Direct On Line	Direct On Line	Direct On Line
	Oil Type		FVC68D(PVE)	FVC68D(PVE)	FVC68D(PVE)	FVC68D(PVE)
	Oil Charge	cc	5,600	5,600	5,600	5,600x2
Fan	Type		Propeller fan	Propeller fan	Propeller fan	Propeller fan
	Motor Output x Number	W	350 x 2	350 x 2	350 x 2	350 x 4
	Air Flow Rate(High)	CMM	190	190	190	380
		cfm	6,700	6,700	6,700	13,400
	Drive		DC INVERTER	DC INVERTER	DC INVERTER	DC INVERTER
Discharge	Side / Top	TOP	TOP	TOP	TOP	
Pipe Connctions	Liquid(flare)	mm(inch)	9.52(3/8)	9.52(3/8)	12.7(1/2)	12.7(1/2)
	Suction Gas	mm(inch)	19.05(3/4)	22.2(7/8)	28.58(1 1/8)	28.58(1 1/8)
	Discharge Gas	mm(inch)	15.88(5/8)	19.05(3/4)	19.05(3/4)	22.2(7/8)
Dimensions (WxHxD)	mm		1,280x1,607x730	1,280x1,607x730	1,280x1,607x730	(1,280x1,607x730)x2
	inch		50-3/8 x 63-5/16 x 28-11/16	50-3/8 x 63-5/16 x 28-11/16	50-3/8 x 63-5/16 x 28-11/16	(50-3/8 x 63-5/16 x 28-11/16)x2
Net Weight	kg		285	285	285	285+285
	lbs		628	628	628	628+628
Communication Cable		mm ²	CVV-SB 1.25x2C	CVV-SB 1.25x2C	CVV-SB 1.25x2C	CVV-SB 1.25x2C
Refrigerant	Refrigerant name		R410A	R410A	R410A	R410A
	Control		EEV	EEV	EEV	EEV
Power Supply		Ø, V, Hz	3, 208/230, 60	3, 208/230, 60	3, 208/230, 60	3, 208/230, 60

Notes:

- Capacities are based on the following conditions:
 - Cooling * Indoor temp. 27°C[80.6°F]DB/ 19°C[66.2°F]WB
 - * Outdoor temp. 35°C[95°F]DB/ 24°C[75.2°F]WB
 - * Interconnecting Piping Length 7.5m(25ft)
 - * Level Difference of Zero
 - Heating * Indoor temp. 20°C[68°F]DB/ 15°C[59°F]WB
 - * Outdoor temp. 7°C[44.6°F]DB/ 6°C[42.8°F]WB
 - * Interconnecting Piping Length 7.5m(25ft)
 - * Level Difference of Zero

2. Capacities are net capacities

3. Due to our policy of innovation some specifications may be changed without prior notification

4. EEV : Electronic Expansion Valve

Conversion Formula

kcal/h= kW x 860
 Btu/h = kW x 3412
 cfm = m³/min x 35.3
 l/s = CMM x 1000/60

Specification

Heat Recovery(208/230V, 60Hz)

HP(Equivalent horsepower)			18	20	22	24
Ton			14.5	16.0	17.5	19.0
Model Name	Combination Unit		ARUB173BT2	ARUB192BT2	ARUB211BT2	ARUB230BT2
		Independent Unit	ARUB096BT2 ARUB076BT2	ARUB096BT2 ARUB096BT2	ARUB115BT2 ARUB096BT2	ARUB115BT2 ARUB115BT2
Capacity	Cooling	kW	50.4	56.0	61.6	67.2
		kcal/h	43,300	48,200	53,000	57,800
		Btu/h	172,000	191,100	210,200	229,300
	Heating	kW	56.7	63.0	69.3	75.6
		kcal/h	48,800	54,200	59,600	65,000
		Btu/h	193,500	225,000	236,500	258,000
Input	Cooling	kW	14.00	15.60	18.60	21.60
	Heating	kW	15.80	17.60	19.90	22.20
Casing Color			Warm Gray	Warm Gray	Warm Gray	Warm Gray
Heat Exchanger			Gold fin	Gold fin	Gold fin	Gold fin
Compressor	Type		DC Scroll	DC Scroll	DC Scroll	DC Scroll
	Piston Displacement	cm ³ /rev	(38.3 + 59.8)x2	(38.3 + 59.8)x2	(38.3 + 59.8)x2	(38.3 + 59.8)x2
	Number of Revolution	R.P.M	(3,600+3,500)x2	(3,600+3,500)x2	(3,600+3,500)x2	(3,600+3,500)x2
	Motor Output x Number	W	(4,130 + 5,280)x2	(4,130 + 5,280)x2	(4,130 + 5,280)x2	(4,130 + 5,280)x2
	Starting Method		Direct On Line	Direct On Line	Direct On Line	Direct On Line
	Oil Type		FVC68D(PVE)	FVC68D(PVE)	FVC68D(PVE)	FVC68D(PVE)
	Oil Charge	cc	5,600x2	5,600x2	5,600x2	5,600x2
Fan	Type		Propeller fan	Propeller fan	Propeller fan	Propeller fan
	Motor Output x Number	W	350 x 4	350 x 4	350 x 4	350 x 4
	Air Flow Rate(High)	CMM	380	380	380	380
		cfm	13,400	13,400	13,400	13,400
	Drive		DC INVERTER	DC INVERTER	DC INVERTER	DC INVERTER
	Discharge	Side / Top	TOP	TOP	TOP	TOP
Pipe Connctions	Liquid(flare)	mm(inch)	15.88(5/8)	15.88(5/8)	15.88(5/8)	15.88(5/8)
	Suction Gas	mm(inch)	28.58(1 1/8)	28.58(1 1/8)	34.9(1 3/8)	34.9(1 3/8)
	Discharge Gas	mm(inch)	22.2(7/8)	22.2(7/8)	28.58(1 1/8)	28.58(1 1/8)
Dimensions (WxHxD)	mm		(1,280x1,607x730)x2	(1,280x1,607x730)x2	(1,280x1,607x730)x2	(1,280x1,607x730)x2
	inch		(50-3/8 x 63-5/16 x 28-11/16)x2	(50-3/8 x 63-5/16 x 28-11/16)x2	(50-3/8 x 63-5/16 x 28-11/16)x2	(50-3/8 x 63-5/16 x 28-11/16)x2
Net Weight	kg		285+285	285+285	285+285	285+285
	lbs		628+628	628+628	628+628	628+628
Communication Cable		mm ²	CVV-SB 1.25x2C	CVV-SB 1.25x2C	CVV-SB 1.25x2C	CVV-SB 1.25x2C
Refrigerant	Refrigerant name		R410A	R410A	R410A	R410A
	Control		EEV	EEV	EEV	EEV
Power Supply		Ø, V, Hz	3, 208/230, 60	3, 208/230, 60	3, 208/230, 60	3, 208/230, 60

Notes:

- Capacities are based on the following conditions:
 - Cooling * Indoor temp. 27°C[80.6°F]DB/ 19°C[66.2°F]WB
 - * Outdoor temp. 35°C[95°F]DB/ 24°C[75.2°F]WB
 - * Interconnecting Piping Length 7.5m(25ft)
 - * Level Difference of Zero
 - Heating * Indoor temp. 20°C[68°F]DB/ 15°C[59°F]WB
 - * Outdoor temp. 7°C[44.6°F]DB/ 6°C[42.8°F]WB
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- Capacities are net capacities
- Due to our policy of innovation some specifications may be changed without prior notification
- EEV : Electronic Expansion Valve

Conversion Formula

kcal/h= kW x 860
 Btu/h = kW x 3412
 cfm = m³/min x 35.3
 l/s = CMM x 1000/60

2. Functions

Category	Function	Single Unit	Series Unit
Reliability	Defrost/ Deicing	O	O
	High pressure switch	O	O
	Low pressure switch	O	O
	Phase protection	O	O
	Restart delay(3-minutes)	O	O
	Self diagnosis	O	O
	Soft start	O	O
	Trial operation	O	O
Convenience	Auto operation(Artificial intelligence)	O	O
	Auto restart operation	O	O
CAC network Function	Network Solution(LGAP)	O	O
	Power Distribution Indicator(PNU-D1S00)	O	O
Other	Thermistor	-	-

O : Applied X : Not applied - : No reation

Option : Model name & price are different according to options, and assembled in factory with main unit

Accessory : Installed at field, ordered and purchased separately by the corresponding model name, supplied with separated package.

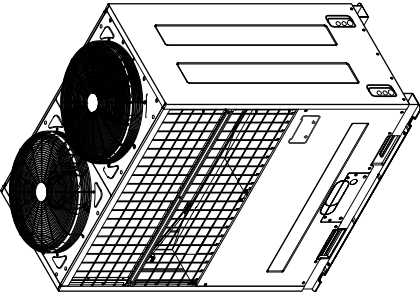
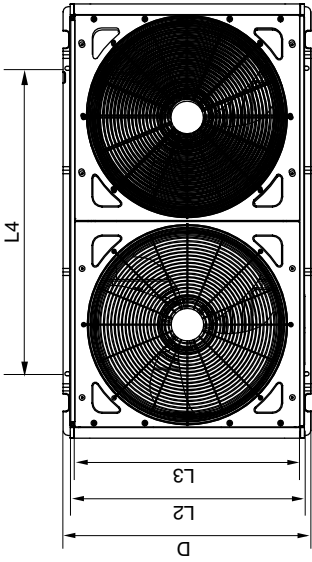
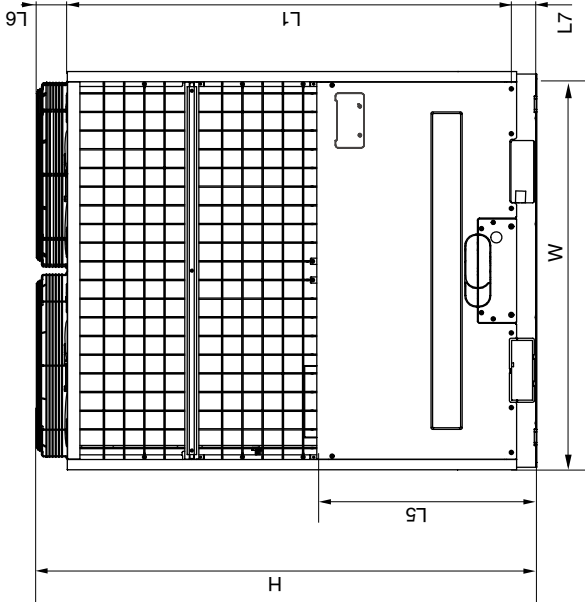
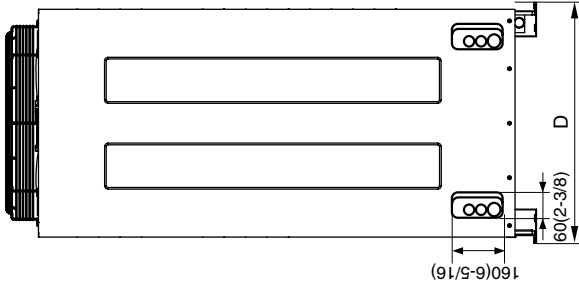

Category	Device	Super II
CAC Network	Network Solution(LGAP)	O
	Simple Central Controller	PQCSB101S0
	Function Controller	PQCSC101S0
	PC Central control Software	PQCSS513A0
	Deluxe Central Controller	PQCSW502A2
	Power Distribution Indicator(PDI)	PQNUD1S00
	CNU2(I-Gataway)	PQNFG14B0
	Dry contact(Outdoor Unit)	PRDSBM
	Dry contact(Indoor Unit)	PQDSB
	AC Smart	PQCSW320A0E
	ACP	PQCPA11A0E/B11A0E
	AC Manager	PQCSS520A0E
	LONWORKS Gateway (BNU-LW)	PQNFB16A1
	BACnet Gateway (BNU-BN)	PQNFB17B0
Program	LG MV	Option
Other	Y branch	Accessory
	Header branch	Accessory
	Air Guide	Accessory

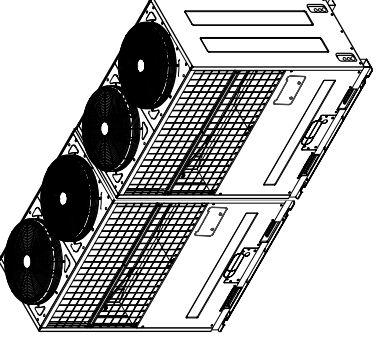
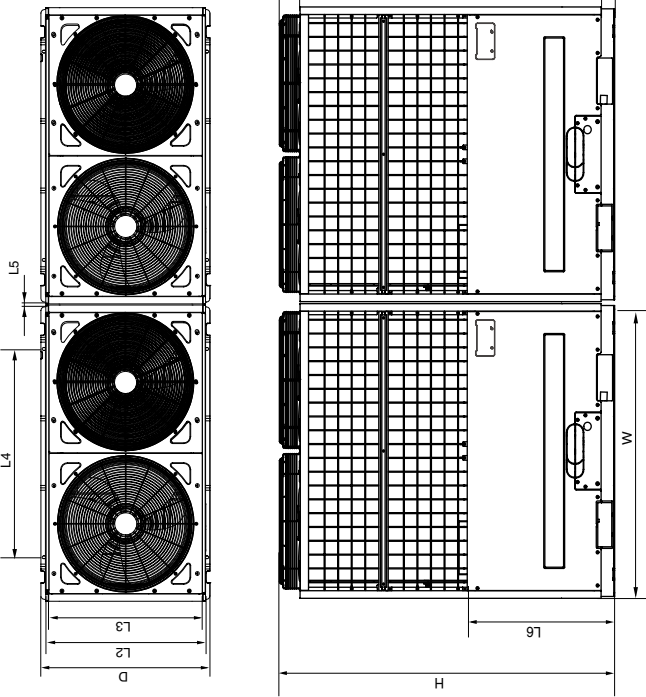
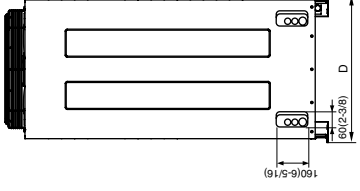
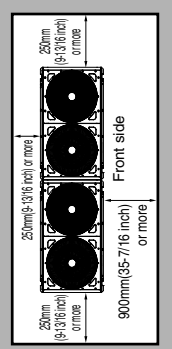
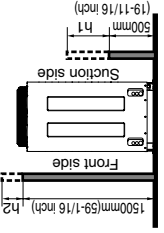
O : Applied X : Not applied - : No reation

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Accessory : Installed at field, ordered and purchased separately by the corresponding model name, supplied with separated package.

3. Dimensions

Outdoor Unit(208/230V) ARUB076BT2 ARUB096BT2 ARUB115BT2	[Unit: mm(inch)] <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 10%;">W</td><td style="width: 10%;">mm(inch)</td><td style="width: 80%;">1280(50-3/8)</td></tr> <tr><td>H</td><td>mm(inch)</td><td>1607(63-5/16)</td></tr> <tr><td>D</td><td>mm(inch)</td><td>730(28-11/16)</td></tr> <tr><td>L1</td><td>mm(inch)</td><td>1427(56-1/8)</td></tr> <tr><td>L2</td><td>mm(inch)</td><td>692(27-3/16)</td></tr> <tr><td>L3</td><td>mm(inch)</td><td>670(26-5/16)</td></tr> <tr><td>L4</td><td>mm(inch)</td><td>900(35-3/8)</td></tr> <tr><td>L5</td><td>mm(inch)</td><td>704(27-11/16)</td></tr> <tr><td>L6</td><td>mm(inch)</td><td>99(3-7/8)</td></tr> <tr><td>L7</td><td>mm(inch)</td><td>82(3-3/16)</td></tr> </table>	W	mm(inch)	1280(50-3/8)	H	mm(inch)	1607(63-5/16)	D	mm(inch)	730(28-11/16)	L1	mm(inch)	1427(56-1/8)	L2	mm(inch)	692(27-3/16)	L3	mm(inch)	670(26-5/16)	L4	mm(inch)	900(35-3/8)	L5	mm(inch)	704(27-11/16)	L6	mm(inch)	99(3-7/8)	L7	mm(inch)	82(3-3/16)	   
W	mm(inch)	1280(50-3/8)																														
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		 LG Electronics																														
		CHASSIS CODE: UW1																														

Outdoor Unit(208/230V)


ARUB154BT2
ARUB173BT2
ARUB192BT2
ARUB211BT2
ARUB230BT2

[Unit: mm(inch)]

W	mm (inch)
W	1280(50-3/8)
H	1607(63-5/16)
D	730(28-11/16)
L1	1427(56-1/8)
L2	692(27-3/16)
L3	670(26-5/16)
L4	900(35-3/8)
L5	10(3/8)
L6	704(27-11/16)
L7	99(3-7/8)
L8	82(3-3/16)

Notes:

1. Height of walls in case of pattern 1:
Front side: 1500mm(59-1/16 inch), Suction side: 500mm(19-11/16 inch)
2. If the above wall heights are exceeded, then h1/2 and h2/2 should be added to the front and suction side service spaces respectively as shown in the following figure.
3. When installing the units, the most appropriate pattern should be selected from those shown. In order to obtain the best fit in the space available, always bear in mind the need to leave enough room for a person to pass between units and wall and for the air to circulate freely. Your layout should take into account the possibility of short circuits.
4. The Units should be installed to leave sufficient space in front for the on site refrigerant piping work to be carried out comfortably.



LG Electronics

LG Electronics USA, HVAC Division
1000 Sylvan Avenue, Englewood Cliffs, NJ 07632
www.lgusa.com / www.lghvac.com

76, Seongsan-dong, Changwon City, Gyeongnam,
641-713, Korea
www.lgeaircon.com

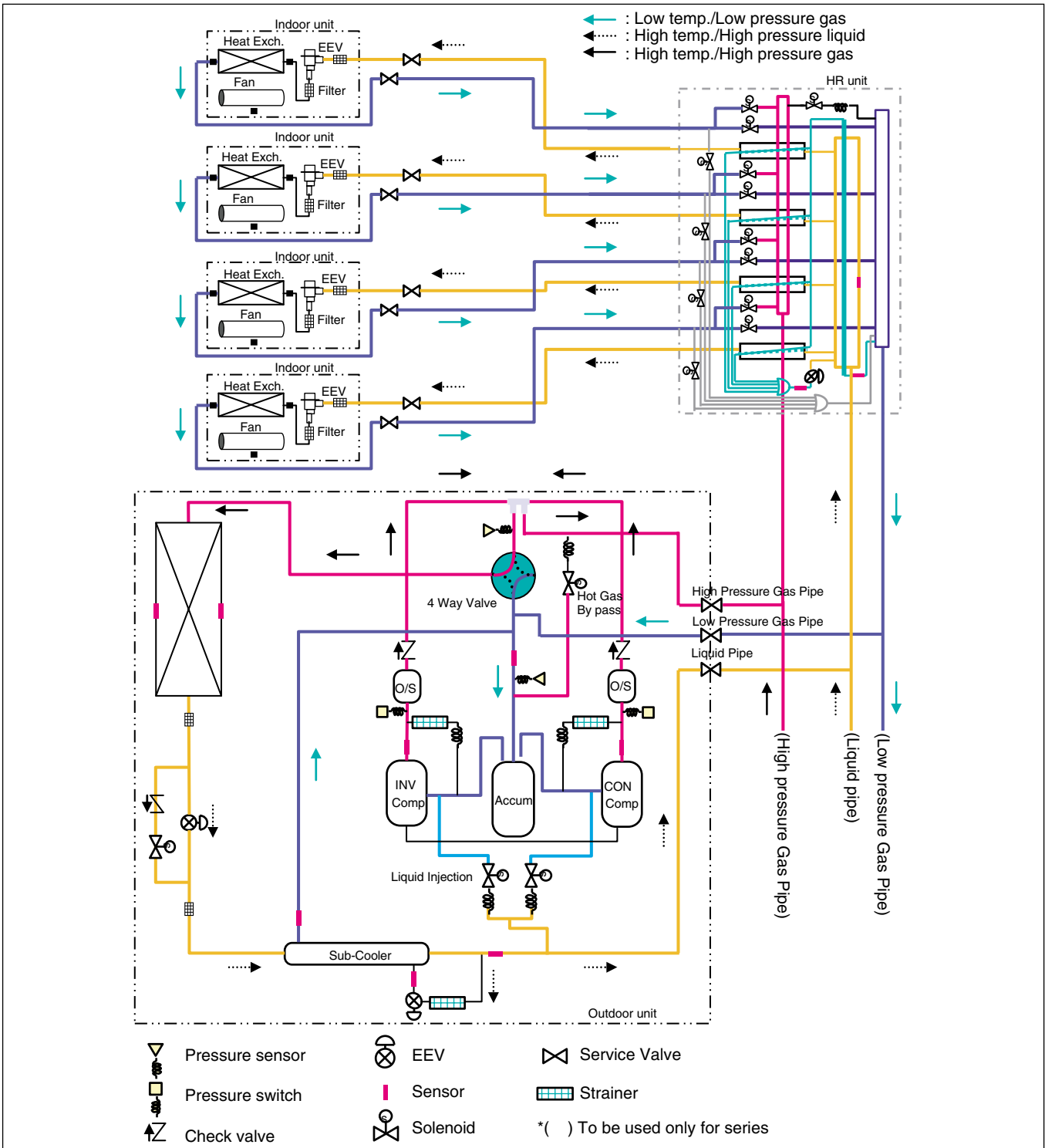
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4. Piping Diagrams

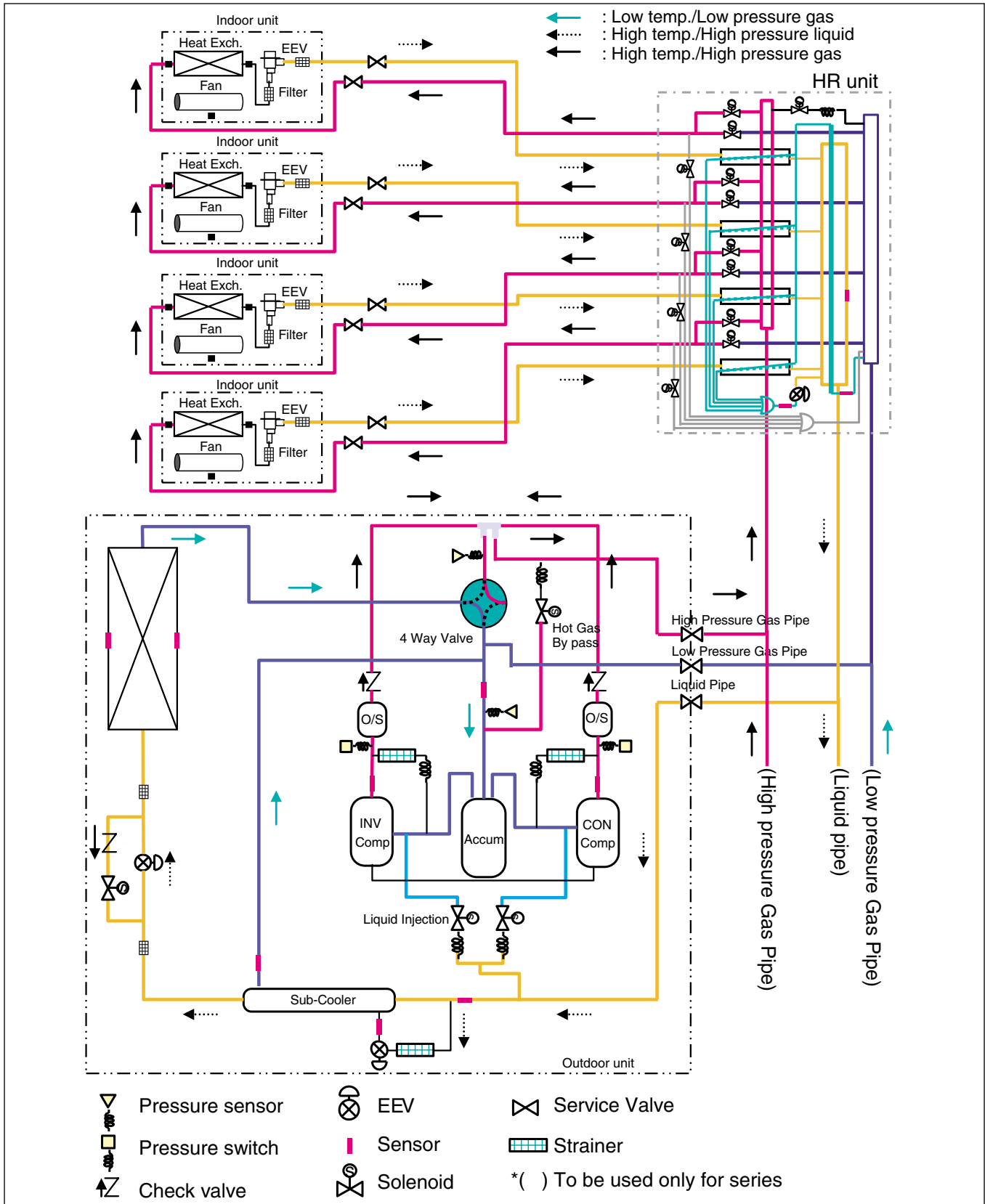
4.1 Heat Pump Model

4.1.1 ARUB076BT2, ARUB096BT2, ARUB115BT2

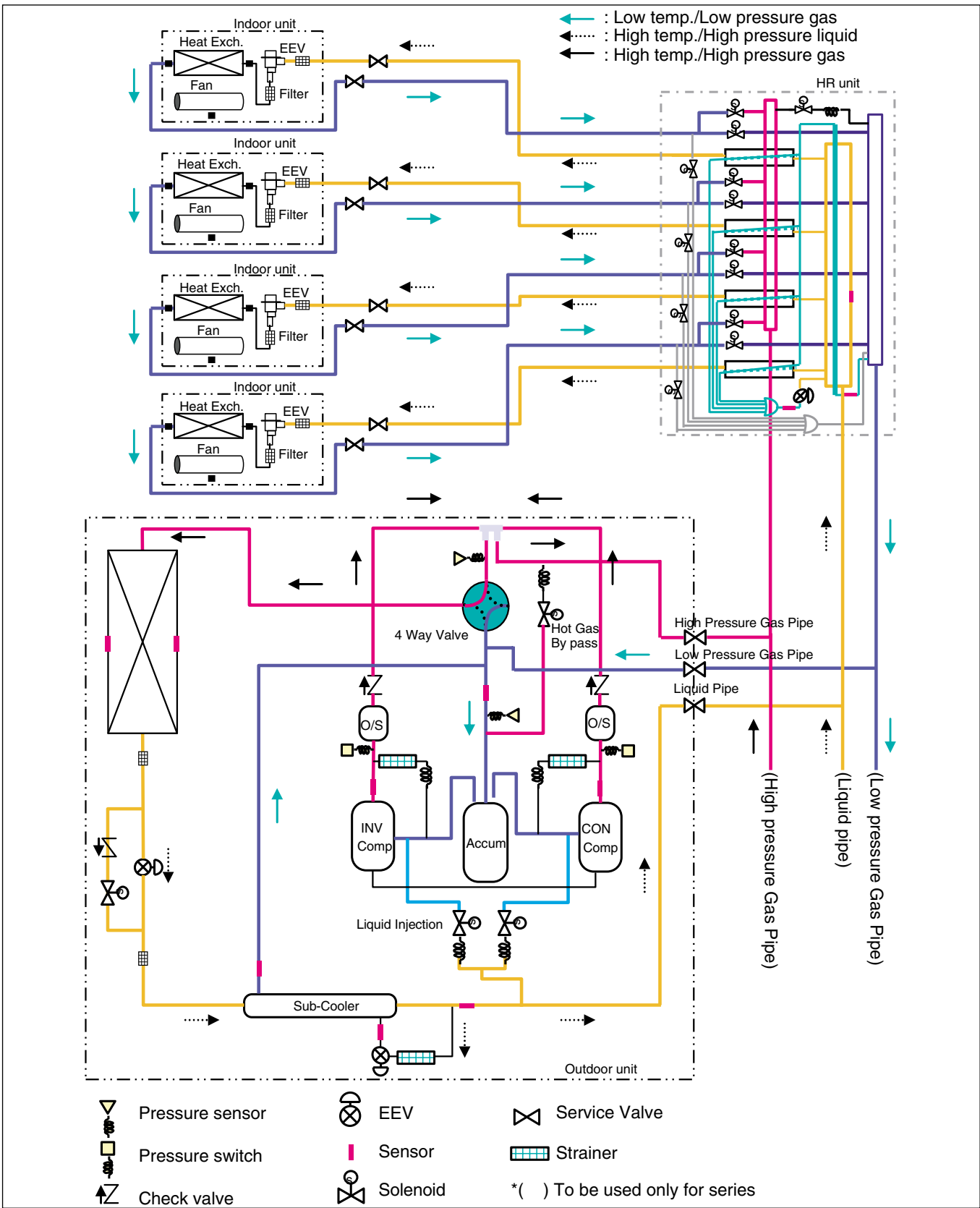
Cooling Operation



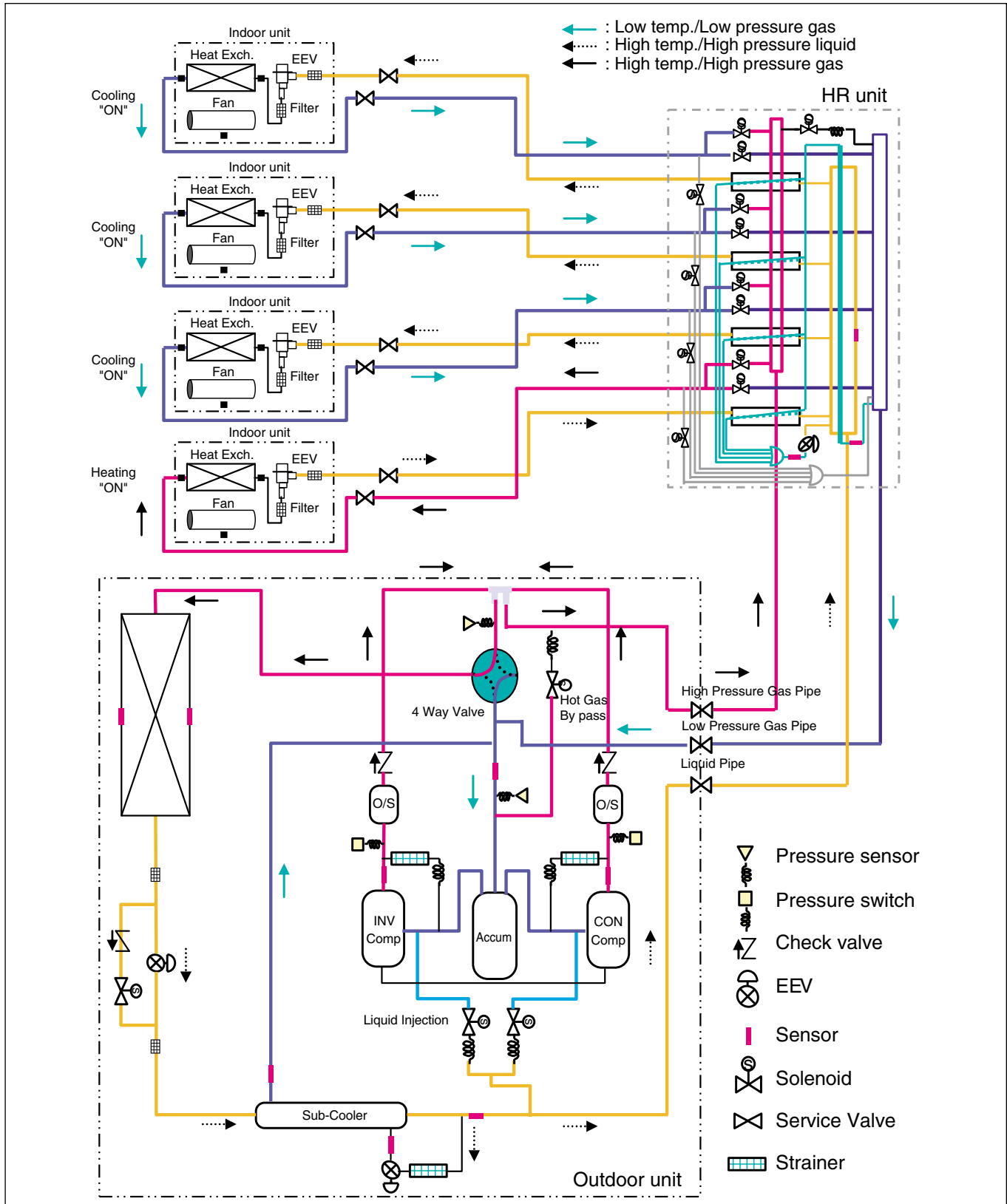
Heating Operation



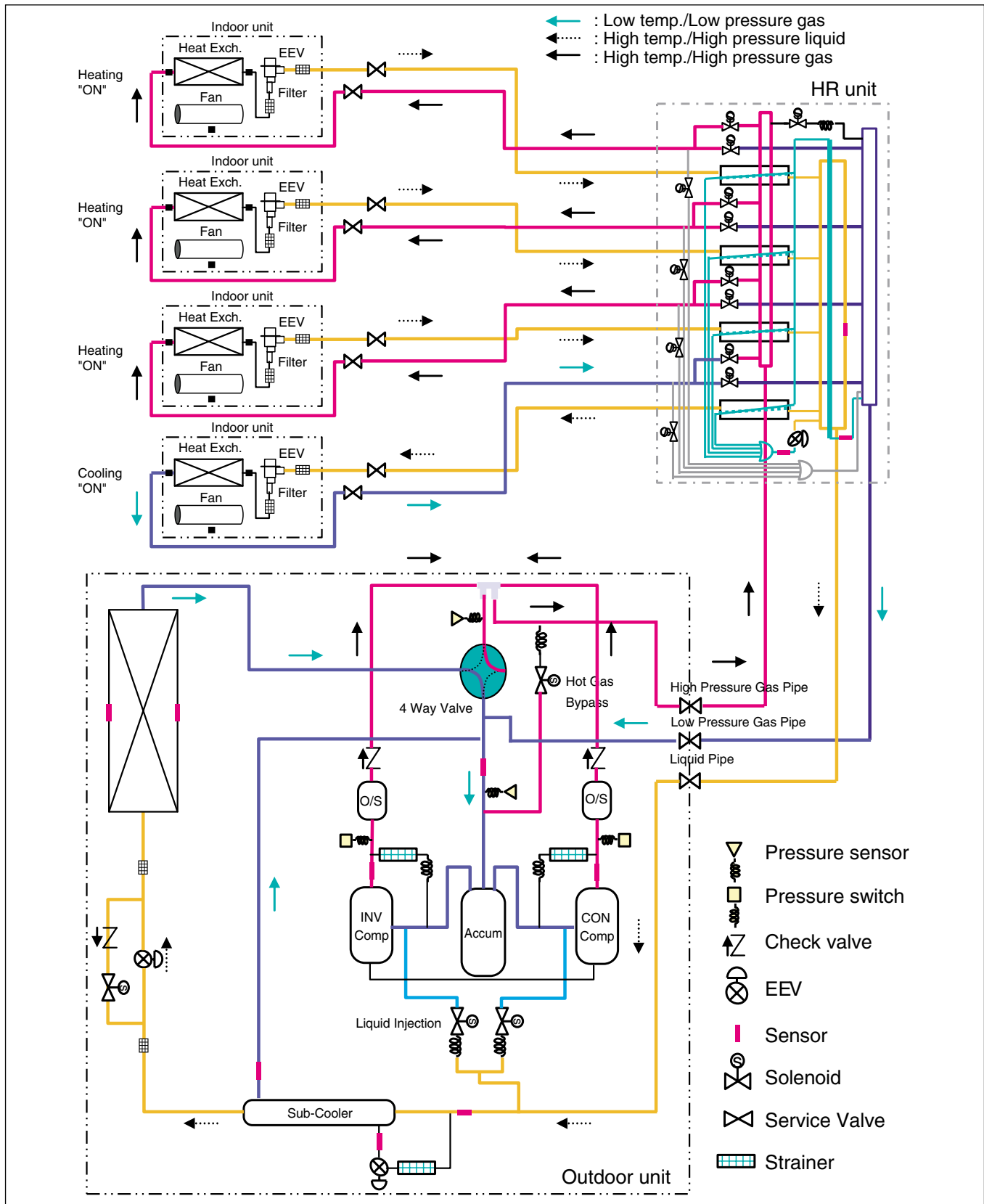
Oil Return/ Defrost Operation



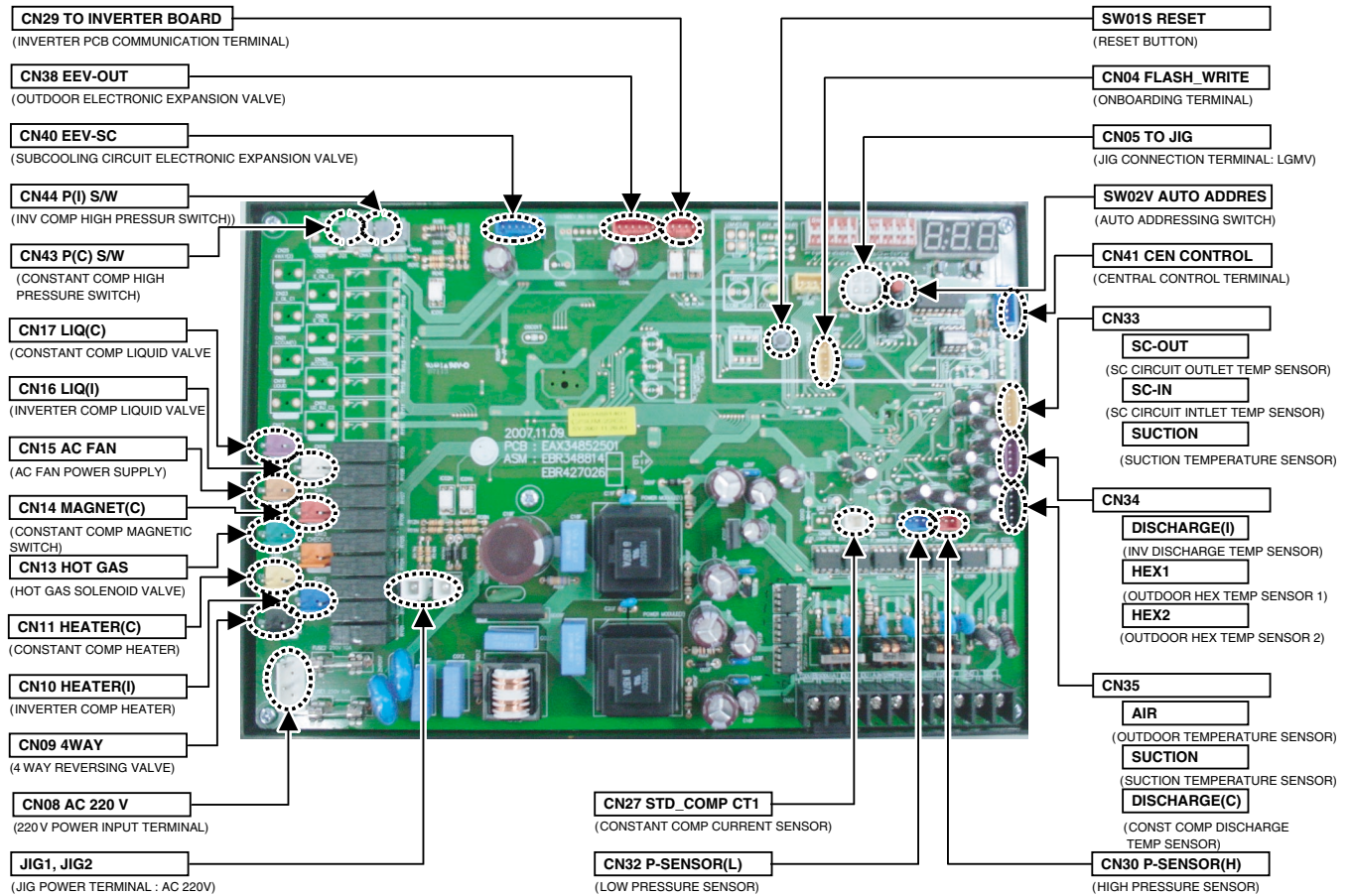
Simultaneous Operation Mode 1 (Cooling Based operation)



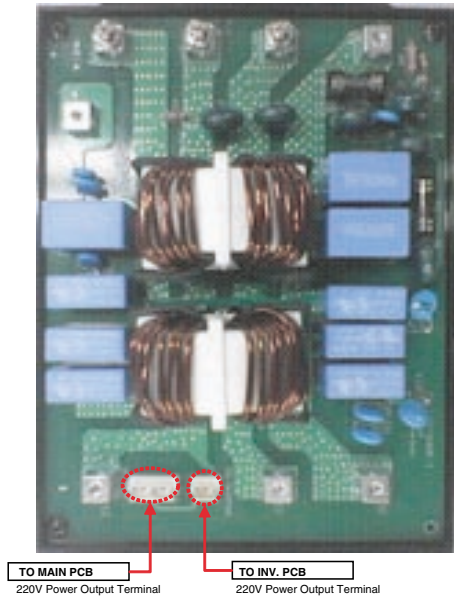
Simultaneous Operation Mode 2 (Heating Based operation)



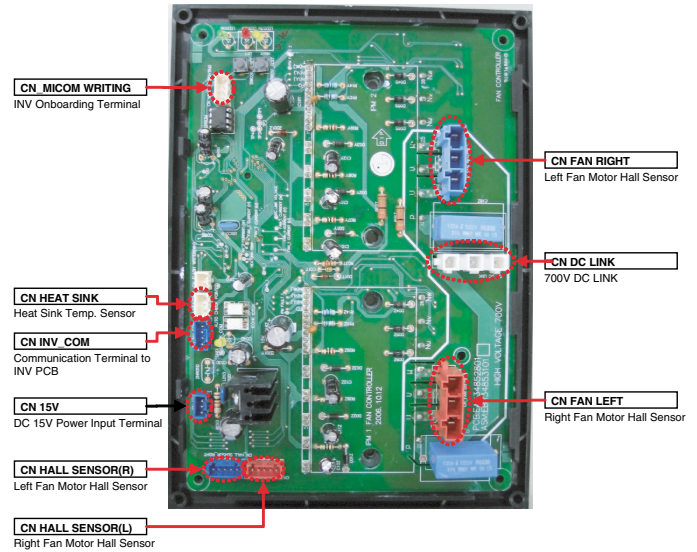
■ Main PCB



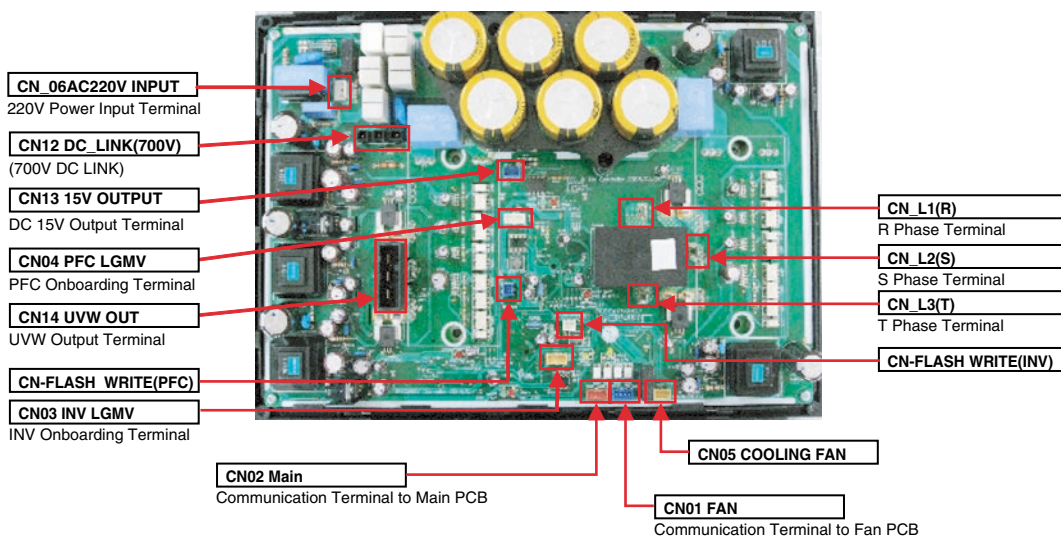
■ Noise Filter



■ FAN PCB(UW1)



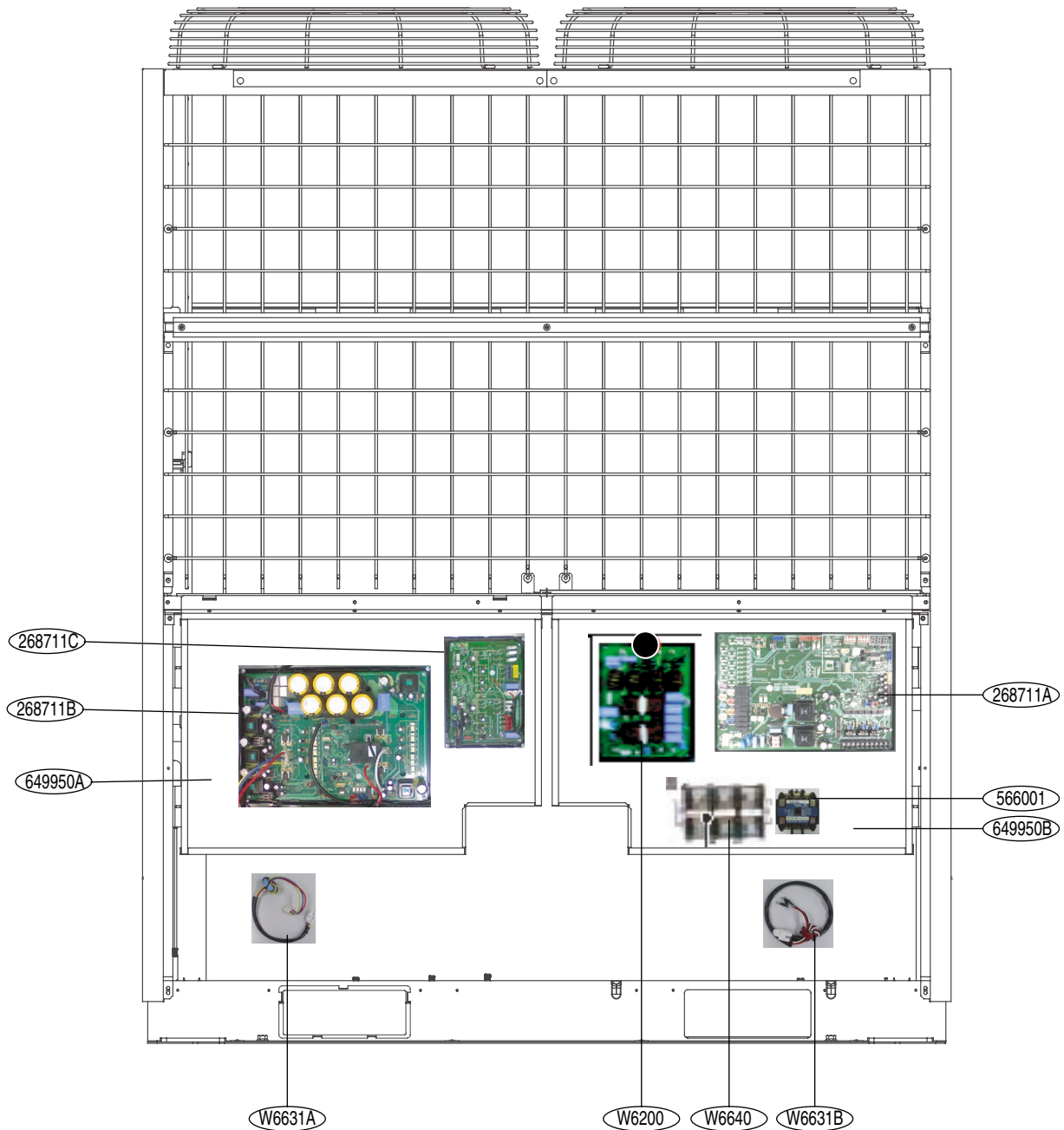
■ Inverter PCB (3Ø 208/230V)



6. Exploded View

Outdoor Unit

UW1 Chassis (208/230V, ARUB076BT2/096BT2/115BT2)





P/NO : MFL54555502

JUNE, 2008

