SHARP SERVICE MANUAL

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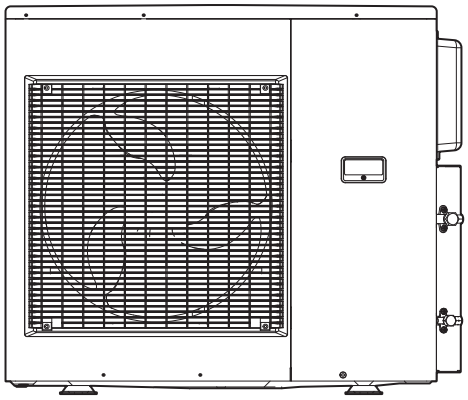

MULTI SPLIT TYPE
ROOM AIR CONDITIONERS

OUTDOOR UNIT

MODEL AE-X4M30PU

In the interests of user-safety (Required by safety regulations in some countries) the set should be restored to its original condition and only parts identical to those specified should be used

CONTENTS

SHARP CORPORATION

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SPECIFICATION

SPECIFICATION

ITEMS			MODEL	INDOOR UNIT	OUTDOOR UNIT
				AY-XPC07PU/09PU/12PU/15PU/18PU	AE-X4M30PU
Rated cooling capacity (Min. - Max.) ☆	9K&7K&7K&7K		Btu/h	29000 (12000 ~ 31000)	
Rated heating capacity (Min. - Max.) ☆	9K&7K&7K&7K		Btu/h	33000 (12000 ~ 37000)	
Moisture removal (at cooling) ☆			pints/h	1.7×3 & 2.1	
Electrical data					
Phase				Single	
Rated frequency			Hz	60	
Rated voltage			V	208/230	
Rated current ☆ (Min.-Max.)	Cool		A	13.6 (3.3 ~ 15.6) *	
	Heat		A	12.6 (3.7 ~ 14.3) *	
Rated input ☆ (Min.-Max.)	Cool		W	3080 (640 ~ 3530)	
	Heat		W	2860 (800 ~ 3250)	
Power factor☆	Cool		%	98 *	
	Heat		%	99 *	
Compressor	Type			Twin rotary	
	Model			SNB172FEKMT	
	Oil charge		type	FV50S	
			oz. (cc)	27.4 (700)	
Refrigerant system	Evaporator			Louver Fin and Grooved tube type	
	Condenser			Corrugate Fin and Grooved tube type	
	Control			Expansion valve	
	Refrigerant		type	R410A	
			oz. (g)	88.2 (2500)	
Noise level (at cooling)				High ／ Soft	53
	07PU		dB(A)	38 ／ 26	
	09PU			39 ／ 26	
	12PU			44 ／ 27	
	15PU			44 ／ 32	
	18PU			45 ／ 33	
Noise level (at heating)				High ／ Soft	55
	07PU		dB(A)	39 ／ 28	
	09PU			40 ／ 28	
	12PU			43 ／ 29	
	15PU			44 ／ 34	
	18PU			46 ／ 35	
Fan system					
Drive				Direct drive	
Air flow quantity (at cooling)				High / Soft	1802 (51)
	07PU		CFM (m^3/min)	332 / 198 (9.4 / 5.6)	
	09PU			343 / 198 (9.7 / 5.6)	
	12PU			382 / 216 (10.8 / 6.1)	
	15PU			466 / 307 (13.2 / 8.7)	
	18PU			477 / 311 (13.5 / 8.8)	
Air flow quantity (at heating)				High / Soft	1802 (51)
	07PU		CFM (m^3/min)	332 / 230 (9.4 / 6.5)	
	09PU			343 / 230 (9.7 / 6.5)	
	12PU			410 / 244 (11.6 / 6.9)	
	15PU			505 / 332 (14.3 / 9.4)	
	18PU			512 / 336 (14.5 / 9.5)	
Fan				Cross flow fan	Propeller fan

ITEMS \ MODEL			INDOOR UNIT	OUTDOOR UNIT
			AY-XPC07PU/09PU/12PU/15PU/18PU	AE-X4M30PU
Connections				
Refrigerant coupling			Flare type	
Refrigerant tube size (Gas line)	7K, 9K, 12K	inch (mm)	3/8 (9.52)	
	15K, 18K		1/2 (12.7)	
Refrigerant tube size (Liquid line)		inch (mm)	1/4 (6.35)	
Minimum ─ Maximum length (per unit)		ft (m)	10 - 82 (3 -25)	
Maximum length	2 units	ft (m)	164 (50)	
	3 or 4 units		230 (70)	
Maximum charge-less length		ft (m)	164 (50)	
Maximum height difference		ft (m)	49 (15)	
Additional charge		oz./ft (g/m)	0.16 (15)	
Drain pipe O.D.		inch (mm)	5/8 (16)	
Others				
Safety device			Compressor: Thermal protector	
			Fan motors: Thermal fuse	
			Fuse, Micro computer control, Pressure switch	
Air fillters			Polypropylene net (Washable)	
Net dimensions (Width x Height x Depth)	07PU , 09PU , 12PU	inch (mm)	36-7/32 x 11-13/32 x 9-7/16 (920 x 290 x 240)	35 x 31-1/2 x 12-19/32 (890 x 800 x 320)
	15PU , 18PU	inch (mm)	38 x 12-5/16 x 9-27/32 (965 x 313 x 250)	
Net weight	07PU , 09PU , 12PU	lb. (kg)	22 (10)	137 (62)
	15PU		28.7 (13)	
	18PU		29.8 (13.5)	

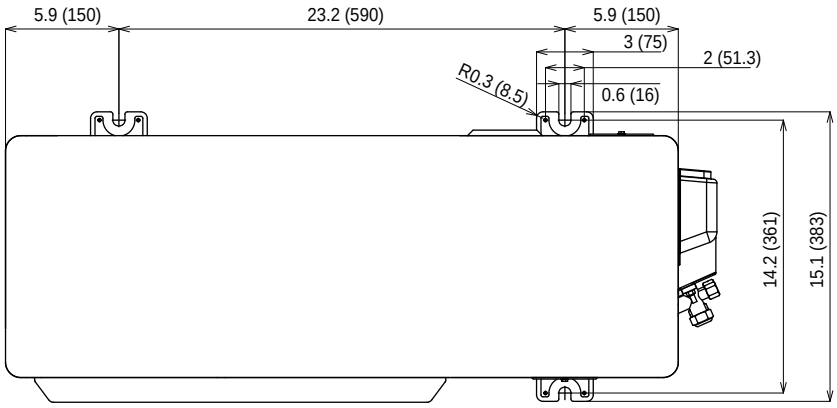
NOTE: Test conditions are based on AHRI 210/240. (Refrigerant piping length [per unit] : 25ft[7.6m])

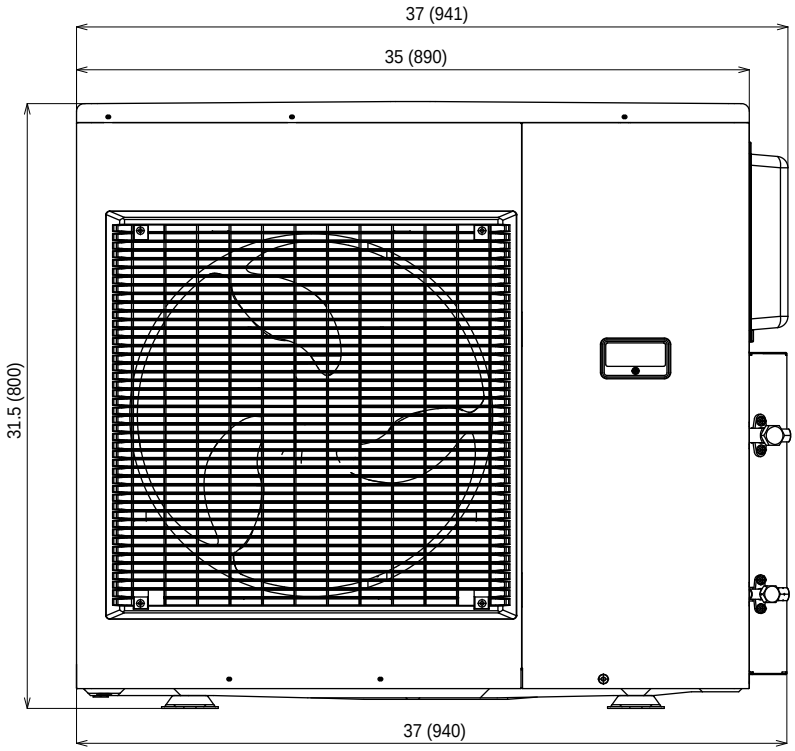
*** : Voltage is 230V**

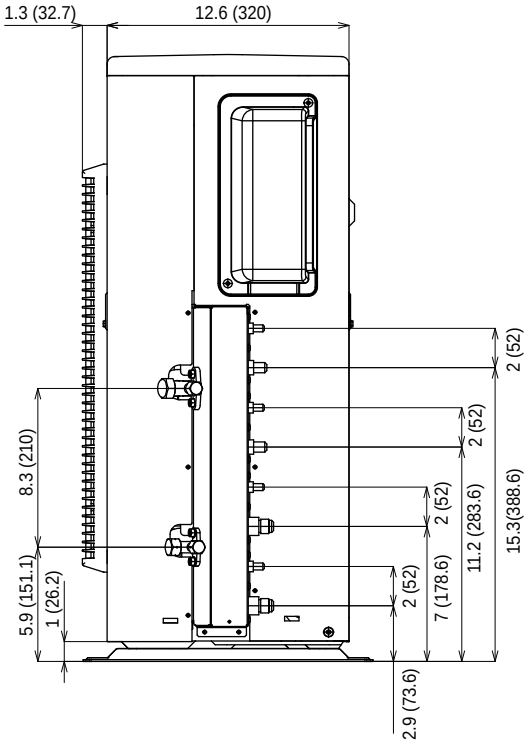
☆ : Representative connection

EXTERNAL DIMENSION

Length unit : inch (mm)







CAPACITY TABLE

COOLING CAPACITY TABLE

Operating Status	Indoor unit combination				Cooling capacity (Btu/h)					Power input (W) Rating (Min. - Max.)	Running curent (A) Rating (Min. - Max.)	
	A	B	C	D	A	B	C	D	Rating (Min - Max)		208V	230V
4-indoor unit operation	18	12	7	7	11,864	7,909	4,614	4,614	29,000 (12,000 - 31,000)	3,080 (640 - 3,530)	15.1 (3.7 - 17.2)	13.6 (3.3 - 15.6)
	18	9	9	9	11,600	5,800	5,800	5,800	29,000 (12,000 - 31,000)	3,080 (640 - 3,530)	15.1 (3.7 - 17.2)	13.6 (3.3 - 15.6)
	18	9	9	7	12,140	6,070	6,070	4,721	29,000 (12,000 - 31,000)	3,080 (640 - 3,530)	15.1 (3.7 - 17.2)	13.6 (3.3 - 15.6)
	18	9	7	7	12,732	6,366	4,951	4,951	29,000 (12,000 - 31,000)	3,080 (640 - 3,530)	15.1 (3.7 - 17.2)	13.6 (3.3 - 15.6)
	18	7	7	7	13,385	5,205	5,205	5,205	29,000 (12,000 - 31,000)	3,080 (640 - 3,530)	15.1 (3.7 - 17.2)	13.6 (3.3 - 15.6)
	15	15	7	7	9,886	9,886	4,614	4,614	29,000 (12,000 - 31,000)	3,080 (640 - 3,530)	15.1 (3.7 - 17.2)	13.6 (3.3 - 15.6)
	15	12	9	9	9,667	7,733	5,800	5,800	29,000 (12,000 - 31,000)	3,080 (640 - 3,530)	15.1 (3.7 - 17.2)	13.6 (3.3 - 15.6)
	15	12	9	7	10,116	8,093	6,070	4,721	29,000 (12,000 - 31,000)	3,080 (640 - 3,530)	15.1 (3.7 - 17.2)	13.6 (3.3 - 15.6)
	15	12	7	7	10,610	8,488	4,951	4,951	29,000 (12,000 - 31,000)	3,080 (640 - 3,530)	15.1 (3.7 - 17.2)	13.6 (3.3 - 15.6)
	15	9	9	9	10,357	6,214	6,214	6,214	29,000 (12,000 - 31,000)	3,080 (640 - 3,530)	15.1 (3.7 - 17.2)	13.6 (3.3 - 15.6)
	15	9	9	7	10,875	6,525	6,525	5,075	29,000 (12,000 - 31,000)	3,080 (640 - 3,530)	15.1 (3.7 - 17.2)	13.6 (3.3 - 15.6)
	15	9	7	7	11,447	6,868	5,342	5,342	29,000 (12,000 - 31,000)	3,080 (640 - 3,530)	15.1 (3.7 - 17.2)	13.6 (3.3 - 15.6)
	15	7	7	7	12,083	5,639	5,639	5,639	29,000 (12,000 - 31,000)	3,080 (640 - 3,530)	15.1 (3.7 - 17.2)	13.6 (3.3 - 15.6)
	12	12	12	9	7,733	7,733	7,733	5,800	29,000 (12,000 - 31,000)	3,080 (640 - 3,530)	15.1 (3.7 - 17.2)	13.6 (3.3 - 15.6)
	12	12	12	7	8,093	8,093	8,093	4,721	29,000 (12,000 - 31,000)	3,080 (640 - 3,530)	15.1 (3.7 - 17.2)	13.6 (3.3 - 15.6)
	12	12	9	9	8,286	8,286	6,214	6,214	29,000 (12,000 - 31,000)	3,080 (640 - 3,530)	15.1 (3.7 - 17.2)	13.6 (3.3 - 15.6)
	12	12	9	7	8,700	8,700	6,525	5,075	29,000 (12,000 - 31,000)	3,080 (640 - 3,530)	15.1 (3.7 - 17.2)	13.6 (3.3 - 15.6)
	12	12	7	7	9,158	9,158	5,342	5,342	29,000 (12,000 - 31,000)	3,080 (640 - 3,530)	15.1 (3.7 - 17.2)	13.6 (3.3 - 15.6)
	12	9	9	9	8,923	6,692	6,692	6,692	29,000 (12,000 - 31,000)	3,080 (640 - 3,530)	15.1 (3.7 - 17.2)	13.6 (3.3 - 15.6)
	12	9	9	7	9,405	7,054	7,054	5,486	29,000 (12,000 - 31,000)	3,080 (640 - 3,530)	15.1 (3.7 - 17.2)	13.6 (3.3 - 15.6)
	12	9	7	7	9,943	7,457	5,800	5,800	29,000 (12,000 - 31,000)	3,080 (640 - 3,530)	15.1 (3.7 - 17.2)	13.6 (3.3 - 15.6)
	12	7	7	7	10,545	6,152	6,152	6,152	29,000 (12,000 - 31,000)	3,080 (640 - 3,530)	15.1 (3.7 - 17.2)	13.6 (3.3 - 15.6)
	9	9	9	9	7,250	7,250	7,250	7,250	29,000 (12,000 - 31,000)	3,080 (640 - 3,530)	15.1 (3.7 - 17.2)	13.6 (3.3 - 15.6)
	9	9	9	7	7,676	7,676	7,676	5,971	29,000 (12,000 - 31,000)	3,080 (640 - 3,530)	15.1 (3.7 - 17.2)	13.6 (3.3 - 15.6)
	9	9	7	7	8,156	8,156	6,344	6,344	29,000 (12,000 - 31,000)	3,080 (640 - 3,530)	15.1 (3.7 - 17.2)	13.6 (3.3 - 15.6)
	9	7	7	7	8,700	6,767	6,767	6,767	29,000 (12,000 - 31,000)	3,080 (640 - 3,530)	15.1 (3.7 - 17.2)	13.6 (3.3 - 15.6)
	7	7	7	7	7,050	7,050	7,050	7,050	28,200 (12,000 - 30,400)	2,950 (640 - 3,330)	14.4 (3.7 - 16.2)	13.0 (3.3 - 14.7)
3-indoor unit operation	18	18	9	-	11,600	11,600	5,800	-	29,000 (12,000 - 31,000)	3,080 (620 - 3,530)	15.1 (3.6 17.2)	13.6 (3.2 - 15.6)
	18	18	7	-	12,140	12,140	4,721	-	29,000 (12,000 - 31,000)	3,080 (620 - 3,530)	15.1 (3.6 17.2)	13.6 (3.2 - 15.6)
	18	15	12	-	11,600	9,667	7,733	-	29,000 (12,000 - 31,000)	3,080 (620 - 3,530)	15.1 (3.4 - 16.9)	13.6 (3.1 - 15.3)
	18	15	9	-	12,429	10,357	6,214	-	29,000 (12,000 - 31,000)	3,080 (620 - 3,530)	15.1 (3.4 - 16.9)	13.6 (3.1 - 15.3)
	18	15	7	-	13,050	10,875	5,075	-	29,000 (12,000 - 31,000)	3,080 (620 - 3,530)	15.1 (3.4 - 16.9)	13.6 (3.1 - 15.3)
	18	12	12	-	11,743	7,829	7,829	-	27,400 (12,000 - 31,000)	2,980 (600 - 3,500)	14.6 (3.4 - 17.0)	13.2 (3.1 - 15.4)
	18	12	9	-	12,646	8,431	6,323	-	27,400 (12,000 - 31,000)	2,980 (600 - 3,500)	14.6 (3.4 - 17.0)	13.2 (3.1 - 15.4)
	18	12	7	*	13,330	8,886	5,184	*	27,400 (12,000 - 31,000)	2,980 (600 - 3,500)	14.6 (3.4 - 17.0)	13.2 (3.1 - 15.4)
	18	9	9	*	13,700	6,850	6,850	*	27,400 (12,000 - 31,000)	2,980 (600 - 3,500)	14.6 (3.4 - 17.0)	13.2 (3.1 - 15.4)
	18	9	7	*	14,506	7,253	5,641	*	27,400 (12,000 - 31,000)	2,980 (600 - 3,500)	14.6 (3.4 - 17.0)	13.2 (3.1 - 15.4)
	18	7	7	*	15,413	5,994	5,994	*	27,400 (12,000 - 31,000)	2,980 (600 - 3,500)	14.6 (3.4 - 17.0)	13.2 (3.1 - 15.4)
	15	15	12	-	10,357	10,357	8,286	-	29,000 (12,000 - 31,000)	3,080 (600 - 3,480)	15.1 (3.4 - 16.9)	13.6 (3.1 - 15.3)
	15	15	9	-	11,154	11,154	6,692	-	29,000 (12,000 - 31,000)	3,080 (600 - 3,480)	15.1 (3.4 - 16.9)	13.6 (3.1 - 15.3)
	15	15	7	*	11,757	11,757	5,486	*	29,000 (12,000 - 31,000)	3,080 (600 - 3,480)	15.1 (3.4 - 16.9)	13.6 (3.1 - 15.3)
	15	12	12	-	10,538	8,431	8,431	-	27,400 (12,000 - 31,000)	2,980 (600 - 3,500)	14.6 (3.4 - 17.0)	13.2 (3.1 - 15.4)
	15	12	9	*	11,417	9,133	6,850	*	27,400 (12,000 - 31,000)	2,980 (600 - 3,500)	14.6 (3.4 - 17.0)	13.2 (3.1 - 15.4)
	15	12	7	*	12,088	9,671	5,641	*	27,400 (12,000 - 31,000)	2,980 (600 - 3,500)	14.6 (3.4 - 17.0)	13.2 (3.1 - 15.4)
	15	9	9	*	12,455	7,473	7,473	*	27,400 (12,000 - 31,000)	2,980 (600 - 3,500)	14.6 (3.4 - 17.0)	13.2 (3.1 - 15.4)
	15	9	7	*	13,258	7,955	6,187	*	27,400 (12,000 - 31,000)	2,980 (600 - 3,500)	14.6 (3.4 - 17.0)	13.2 (3.1 - 15.4)
	15	7	7	*	14,172	6,614	6,614	*	27,400 (12,000 - 31,000)	2,980 (600 - 3,500)	14.6 (3.4 - 17.0)	13.2 (3.1 - 15.4)
	12	12	12	*	9,133	9,133	9,133	*	27,400 (10,600 - 29,200)	3,010 (600 - 3,440)	14.7 (3.4 - 16.8)	13.3 (3.1 - 15.2)
	12	12	9	*	9,964	9,964	7,473	*	27,400 (10,600 - 29,200)	2,990 (600 - 3,420)	14.6 (3.4 - 16.7)	13.2 (3.1 - 15.1)
	12	12	7	*	10,606	10,606	6,187	*	27,400 (10,600 - 29,200)	2,990 (600 - 3,420)	14.6 (3.4 - 16.7)	13.2 (3.1 - 15.1)
	12	9	9	*	10,960	8,220	8,220	*	27,400 (10,600 - 29,200)	2,990 (600 - 3,420)	14.6 (3.4 - 16.7)	13.2 (3.1 - 15.1)
	12	9	7	*	11,314	8,486	6,600	*	26,400 (10,600 - 28,800)	2,690 (600 - 3,310)	13.1 (3.4 - 16.1)	11.9 (3.1 - 14.6)
	12	7	7	*	11,631	6,785	6,785	*	25,200 (10,600 - 27,600)	2,410 (600 - 2,960)	11.8 (3.4 - 14.4)	10.6 (3.1 - 13.0)
	9	9	9	*	8,600	8,600	8,600	*	25,800 (10,600 - 28,200)	2,540 (600 - 3,120)	12.4 (3.4 - 15.2)	11.2 (3.1 - 13.8)
	9	9	7	*	8,856	8,856	6,888	*	24,600 (10,600 - 27,000)	2,270 (600 - 2,780)	11.1 (3.4 - 13.6)	10.0 (3.1 - 12.3)
	9	7	7	*	9,078	7,061	7,061	*	23,200 (10,600 - 25,600)	2,010 (600 - 2,460)	9.8 (3.4 - 12.0)	8.9 (3.1 - 10.9)
	7	7	7	*	7,267	7,267	7,267	*	21,800 (10,600 - 24,000)	1,770 (600 - 2,160)	8.6 (3.4 - 10.5)	7.8 (3.1 - 9.5)

Operating Status	Indoor unit combination				Cooling capacity (Btu/h)					Power input (W) Rating (Min. - Max.)	Running curent (A) Rating (Min. - Max.)	
	A	B	C	D	A	B	C	D	Rating (Min - Max)		208V	230V
2-indoor unit operation	18	18	*	-	14,500	14,500	*	-	29,000 (11,500 - 30,200)	3,080 (630 - 3,480)	15.1 (3.6 - 16.9)	13.6 (3.3 - 15.3)
	18	15	*	-	15,818	13,182	*	-	29,000 (11,500 - 30,200)	3,080 (630 - 3,480)	15.1 (3.6 - 16.9)	13.6 (3.3 - 15.3)
	18	12	*	*	16,440	10,960	*	*	27,400 (10,000 - 28,800)	2,930 (630 - 3,320)	14.3 (3.6 - 16.2)	12.9 (3.3 - 14.6)
	18	9	*	*	17,600	8,800	*	*	26,400 (10,000 - 28,800)	2,640 (630 - 3,320)	12.9 (3.6 - 16.2)	11.7 (3.3 - 14.6)
	18	7	*	*	17,856	6,944	*	*	24,800 (10,000 - 28,800)	2,360 (630 - 3,320)	11.5 (3.6 - 16.2)	10.4 (3.3 - 14.6)
	15	15	*	*	13,700	13,700	*	*	27,400 (11,000 - 30,200)	3,070 (660 - 3,590)	15.0 (3.8 - 17.5)	13.6 (3.4 - 15.8)
	15	12	*	*	14,111	11,289	*	*	25,400 (9,900 - 27,400)	2,620 (580 - 3,300)	12.8 (3.3 - 16.1)	11.6 (3.0 - 14.5)
	15	9	*	*	14,625	8,775	*	*	23,400 (9,900 - 27,400)	2,230 (580 - 3,300)	10.9 (3.3 - 16.1)	9.8 (3.0 - 14.5)
	15	7	*	*	14,864	6,936	*	*	21,800 (9,900 - 26,400)	1,980 (580 - 3,020)	9.7 (3.3 - 14.7)	8.7 (3.0 - 13.3)
	12	12	*	*	11,100	11,100	*	*	22,200 (8,300 - 25,600)	2,240 (500 - 3,210)	10.9 (2.9 - 15.6)	9.9 (2.6 - 14.1)
	12	9	*	*	11,543	8,657	*	*	20,200 (8,300 - 24,400)	1,860 (500 - 2,810)	9.1 (2.9 - 13.7)	8.2 (2.6 - 12.4)
	12	7	*	*	11,747	6,853	*	*	18,600 (8,300 - 23,000)	1,630 (500 - 2,450)	7.9 (2.9 - 11.9)	7.2 (2.6 - 10.8)
	9	9	*	*	9,000	9,000	*	*	18,000 (8,300 - 22,200)	1,520 (500 - 2,270)	7.4 (2.9 - 11.1)	6.7 (2.6 - 10.0)
	9	7	*	*	9,225	7,175	*	*	16,400 (8,300 - 20,400)	1,300 (500 - 1,940)	6.3 (2.9 - 9.5)	5.7 (2.6 - 8.6)
	7	7	*	*	7,400	7,400	*	*	14,800 (8,300 - 18,400)	1,100 (500 - 1,620)	5.3 (2.9 - 7.9)	4.8 (2.6 - 7.2)
1-indoor unit operation	18	*	*	*	19,200	*	*	*	19,200 (7,200 - 21,000)	1,810 (500 - 2,190)	8.8 (2.9 - 10.7)	8.0 (2.6 - 9.7)
	15	*	*	*	16,200	*	*	*	16,200 (7,200 - 18,000)	1,440 (500 - 1,730)	7.0 (2.9 - 8.5)	6.3 (2.6 - 7.6)
	12	*	*	*	12,200	*	*	*	12,200 (5,800 - 13,200)	1,090 (420 - 1,280)	5.3 (2.4 - 6.3)	4.8 (2.2 - 5.7)
	9	*	*	*	9,700	*	*	*	9,700 (5,800 - 10,800)	790 (420 - 920)	3.8 (2.4 - 4.5)	3.5 (2.2 - 4.1)
	7	*	*	*	7,800	*	*	*	7,800 (5,800 - 9,000)	600 (420 - 700)	2.9 (2.4 - 3.4)	2.6 (2.2 - 3.1)

* When connected indoor unit is not in operation.

- When no unit is connected.

HEATING CAPACITY TABLE

Operating Status	Indoor unit combination				Heating capacity (Btu/h)					Power input (W) Rating (Min. - Max.)	Running curent (A) Rating (Min. - Max.)	
	A	B	C	D	A	B	C	D	Rating (Min - Max)		208V	230V
4-indoor unit operation	18	12	7	7	13,500	9,000	5,250	5,250	33,000 (12,000 - 37,000)	2,860 (800 - 3,250)	13.9 (4.1 - 15.8)	12.6 (3.7 - 14.3)
	18	9	9	9	13,200	6,600	6,600	6,600	33,000 (12,000 - 37,000)	2,860 (800 - 3,250)	13.9 (4.1 - 15.8)	12.6 (3.7 - 14.3)
	18	9	9	7	13,814	6,907	6,907	5,372	33,000 (12,000 - 37,000)	2,860 (800 - 3,250)	13.9 (4.1 - 15.8)	12.6 (3.7 - 14.3)
	18	9	7	7	14,488	7,244	5,634	5,634	33,000 (12,000 - 37,000)	2,860 (800 - 3,250)	13.9 (4.1 - 15.8)	12.6 (3.7 - 14.3)
	18	7	7	7	15,231	5,923	5,923	5,923	33,000 (12,000 - 37,000)	2,860 (800 - 3,250)	13.9 (4.1 - 15.8)	12.6 (3.7 - 14.3)
	15	15	7	7	11,250	11,250	5,250	5,250	33,000 (12,000 - 37,000)	2,860 (800 - 3,250)	13.9 (4.1 - 15.8)	12.6 (3.7 - 14.3)
	15	12	9	9	11,000	8,800	6,600	6,600	33,000 (12,000 - 37,000)	2,860 (800 - 3,250)	13.9 (4.1 - 15.8)	12.6 (3.7 - 14.3)
	15	12	9	7	11,512	9,209	6,907	5,372	33,000 (12,000 - 37,000)	2,860 (800 - 3,250)	13.9 (4.1 - 15.8)	12.6 (3.7 - 14.3)
	15	12	7	7	12,073	9,659	5,634	5,634	33,000 (12,000 - 37,000)	2,860 (800 - 3,250)	13.9 (4.1 - 15.8)	12.6 (3.7 - 14.3)
	15	9	9	9	11,786	7,071	7,071	7,071	33,000 (12,000 - 37,000)	2,860 (800 - 3,250)	13.9 (4.1 - 15.8)	12.6 (3.7 - 14.3)
	15	9	9	7	12,375	7,425	7,425	5,775	33,000 (12,000 - 37,000)	2,860 (800 - 3,250)	13.9 (4.1 - 15.8)	12.6 (3.7 - 14.3)
	15	9	7	7	13,026	7,816	6,079	6,079	33,000 (12,000 - 37,000)	2,860 (800 - 3,250)	13.9 (4.1 - 15.8)	12.6 (3.7 - 14.3)
	15	7	7	7	13,750	6,417	6,417	6,417	33,000 (12,000 - 37,000)	2,860 (800 - 3,250)	13.9 (4.1 - 15.8)	12.6 (3.7 - 14.3)
	12	12	12	9	8,800	8,800	8,800	6,600	33,000 (12,000 - 37,000)	2,860 (800 - 3,250)	13.9 (4.1 - 15.8)	12.6 (3.7 - 14.3)
	12	12	12	7	9,209	9,209	9,209	5,372	33,000 (12,000 - 37,000)	2,860 (800 - 3,250)	13.9 (4.1 - 15.8)	12.6 (3.7 - 14.3)
	12	12	9	9	9,429	9,429	7,071	7,071	33,000 (12,000 - 37,000)	2,860 (800 - 3,250)	13.9 (4.1 - 15.8)	12.6 (3.7 - 14.3)
	12	12	9	7	9,900	9,900	7,425	5,775	33,000 (12,000 - 37,000)	2,860 (800 - 3,250)	13.9 (4.1 - 15.8)	12.6 (3.7 - 14.3)
	12	12	7	7	10,421	10,421	6,079	6,079	33,000 (12,000 - 37,000)	2,860 (800 - 3,250)	13.9 (4.1 - 15.8)	12.6 (3.7 - 14.3)
	12	9	9	9	10,154	7,615	7,615	7,615	33,000 (12,000 - 37,000)	2,860 (800 - 3,250)	13.9 (4.1 - 15.8)	12.6 (3.7 - 14.3)
	12	9	9	7	10,703	8,027	8,027	6,243	33,000 (12,000 - 37,000)	2,860 (800 - 3,250)	13.9 (4.1 - 15.8)	12.6 (3.7 - 14.3)
	12	9	7	7	11,314	8,486	6,600	6,600	33,000 (12,000 - 37,000)	2,860 (800 - 3,250)	13.9 (4.1 - 15.8)	12.6 (3.7 - 14.3)
	12	7	7	7	12,000	7,000	7,000	7,000	33,000 (12,000 - 37,000)	2,860 (800 - 3,250)	13.9 (4.1 - 15.8)	12.6 (3.7 - 14.3)
	9	9	9	9	8,250	8,250	8,250	8,250	33,000 (12,000 - 37,000)	2,860 (800 - 3,250)	13.9 (4.1 - 15.8)	12.6 (3.7 - 14.3)
	9	9	9	7	8,735	8,735	8,735	6,794	33,000 (12,000 - 37,000)	2,860 (800 - 3,250)	13.9 (4.1 - 15.8)	12.6 (3.7 - 14.3)
	9	9	7	7	9,281	9,281	7,219	7,219	33,000 (12,000 - 37,000)	2,860 (800 - 3,250)	13.9 (4.1 - 15.8)	12.6 (3.7 - 14.3)
	9	7	7	7	9,900	7,700	7,700	7,700	33,000 (12,000 - 37,000)	2,860 (800 - 3,250)	13.9 (4.1 - 15.8)	12.6 (3.7 - 14.3)
	7	7	7	7	7,600	7,600	7,600	7,600	30,400 (12,000 - 34,000)	2,520 (800 - 2,950)	12.3 (4.1 - 14.4)	11.1 (3.7 - 13.0)

Operating Status	Indoor unit combination				Heating capacity (Btu/h)					Power input (W) Rating (Min. - Max.)	Running curent (A) Rating (Min. - Max.)	
	A	B	C	D	A	B	C	D	Rating (Min - Max)		208V	230V
3-indoor unit operation	18	18	9	-	13,200	13,200	6,600	-	33,000 (12,000 - 37,000)	2,780 (800 - 3,250)	13.6 (4.1 - 15.8)	12.3 (3.7 - 14.3)
	18	18	7	-	13,814	13,814	5,372	-	33,000 (12,000 - 37,000)	2,780 (800 - 3,250)	13.6 (4.1 - 15.8)	12.3 (3.7 - 14.3)
	18	15	12	-	13,200	11,000	8,800	-	33,000 (12,000 - 37,000)	2,780 (800 - 3,250)	13.6 (4.1 - 15.8)	12.3 (3.7 - 14.3)
	18	15	9	-	14,143	11,786	7,071	-	33,000 (12,000 - 37,000)	2,780 (800 - 3,250)	13.6 (4.1 - 15.8)	12.3 (3.7 - 14.3)
	18	15	7	-	14,850	12,375	5,775	-	33,000 (12,000 - 37,000)	2,780 (800 - 3,250)	13.6 (4.1 - 15.8)	12.3 (3.7 - 14.3)
	18	12	12	-	13,114	8,743	8,743	-	30,600 (12,000 - 33,400)	2,720 (780 - 3,150)	13.3 (4.0 - 15.3)	12.0 (3.6 - 13.9)
	18	12	9	-	14,123	9,415	7,062	-	30,600 (12,000 - 33,400)	2,720 (780 - 3,150)	13.3 (4.0 - 15.3)	12.0 (3.6 - 13.9)
	18	12	7	*	14,886	9,924	5,789	*	30,600 (12,000 - 33,400)	2,720 (780 - 3,150)	13.3 (4.0 - 15.3)	12.0 (3.6 - 13.9)
	18	9	9	*	15,300	7,650	7,650	*	30,600 (12,000 - 33,400)	2,720 (780 - 3,150)	13.3 (4.0 - 15.3)	12.0 (3.6 - 13.9)
	18	9	7	*	16,200	8,100	6,300	*	30,600 (12,000 - 33,400)	2,720 (780 - 3,150)	13.3 (4.0 - 15.3)	12.0 (3.6 - 13.9)
	18	7	7	*	17,213	6,694	6,694	*	30,600 (12,000 - 33,400)	2,720 (780 - 3,150)	13.3 (4.0 - 15.3)	12.0 (3.6 - 13.9)
	15	15	12	-	11,357	11,357	9,086	-	31,800 (12,000 - 34,200)	2,710 (800 - 3,170)	13.2 (4.1 - 15.4)	12.0 (3.7 - 14.0)
	15	15	9	-	12,231	12,231	7,338	-	31,800 (12,000 - 34,200)	2,710 (800 - 3,170)	13.2 (4.1 - 15.4)	12.0 (3.7 - 14.0)
	15	15	7	*	12,892	12,892	6,016	*	31,800 (12,000 - 34,200)	2,710 (800 - 3,170)	13.2 (4.1 - 15.4)	12.0 (3.7 - 14.0)
	15	12	12	-	11,769	9,415	9,415	-	30,600 (12,000 - 32,400)	2,750 (780 - 3,190)	13.4 (4.0 - 15.5)	12.1 (3.6 - 14.1)
	15	12	9	*	12,750	10,200	7,650	*	30,600 (12,000 - 32,400)	2,750 (780 - 3,190)	13.4 (4.0 - 15.5)	12.1 (3.6 - 14.1)
	15	12	7	*	13,500	10,800	6,300	*	30,600 (12,000 - 32,400)	2,750 (780 - 3,190)	13.4 (4.0 - 15.5)	12.1 (3.6 - 14.1)
	15	9	9	*	13,909	8,345	8,345	*	30,600 (12,000 - 32,400)	2,750 (780 - 3,190)	13.4 (4.0 - 15.5)	12.1 (3.6 - 14.1)
	15	9	7	*	14,806	8,884	6,910	*	30,600 (12,000 - 32,400)	2,750 (780 - 3,190)	13.4 (4.0 - 15.5)	12.1 (3.6 - 14.1)
	15	7	7	*	15,828	7,386	7,386	*	30,600 (12,000 - 32,400)	2,750 (780 - 3,190)	13.4 (4.0 - 15.5)	12.1 (3.6 - 14.1)
	12	12	12	*	10,200	10,200	10,200	*	30,600 (12,000 - 32,400)	2,940 (780 - 3,220)	14.3 (4.0 - 15.7)	13.0 (3.6 - 14.2)
	12	12	9	*	11,127	11,127	8,345	*	30,600 (12,000 - 32,400)	2,940 (780 - 3,240)	14.3 (4.0 - 15.8)	13.0 (3.6 - 14.3)
	12	12	7	*	11,845	11,845	6,910	*	30,600 (12,000 - 32,400)	2,940 (780 - 3,250)	14.3 (4.0 - 15.8)	13.0 (3.6 - 14.3)
	12	9	9	*	12,240	9,180	9,180	*	30,600 (12,000 - 32,400)	2,940 (780 - 3,270)	14.3 (4.0 - 15.9)	13.0 (3.6 - 14.4)
	12	9	7	*	13,114	9,836	7,650	*	30,600 (12,000 - 32,400)	2,940 (780 - 3,280)	14.3 (4.0 - 16.0)	13.0 (3.6 - 14.5)
	12	7	7	*	14,123	8,238	8,238	*	30,600 (12,000 - 32,400)	2,940 (780 - 3,290)	14.3 (4.0 - 16.0)	13.0 (3.6 - 14.5)
	9	9	9	*	10,200	10,200	10,200	*	30,600 (12,000 - 32,400)	2,940 (780 - 3,300)	14.3 (4.0 - 16.1)	13.0 (3.6 - 14.5)
	9	9	7	*	11,016	11,016	8,568	*	30,600 (12,000 - 32,400)	2,960 (780 - 3,310)	14.4 (4.0 - 16.1)	13.0 (3.6 - 14.6)
	9	7	7	*	11,191	8,704	8,704	*	28,600 (12,000 - 31,600)	2,530 (780 - 3,070)	12.3 (4.0 - 15.0)	11.2 (3.6 - 13.5)
	7	7	7	*	8,600	8,600	8,600	*	25,800 (12,000 - 29,200)	2,180 (780 - 2,620)	10.6 (4.0 - 12.8)	9.6 (3.6 - 11.6)
2-indoor unit operation	18	18	*	-	16,500	16,500	*	-	33,000 (12,000 - 35,600)	3,040 (850 - 3,570)	14.8 (4.4 - 17.4)	13.4 (3.9 - 15.7)
	18	15	*	-	18,000	15,000	*	-	33,000 (12,000 - 35,600)	3,040 (850 - 3,570)	14.8 (4.4 - 17.4)	13.4 (3.9 - 15.7)
	18	12	*	*	18,360	12,240	*	*	30,600 (12,000 - 31,200)	3,030 (780 - 3,320)	14.8 (4.0 - 16.2)	13.4 (3.6 - 14.6)
	18	9	*	*	20,400	10,200	*	*	30,600 (12,000 - 31,200)	3,030 (780 - 3,320)	14.8 (4.0 - 16.2)	13.4 (3.6 - 14.6)
	18	7	*	*	21,456	8,344	*	*	29,800 (12,000 - 31,200)	2,880 (780 - 3,320)	14.0 (4.0 - 16.2)	12.7 (3.6 - 14.6)
	15	15	*	*	15,700	15,700	*	*	31,400 (12,000 - 34,000)	2,970 (810 - 3,460)	14.5 (4.1 - 16.9)	13.1 (3.8 - 15.2)
	15	12	*	*	16,667	13,333	*	*	30,000 (11,600 - 31,200)	3,110 (780 - 3,490)	15.2 (4.0 - 17.0)	13.7 (3.6 - 15.4)
	15	9	*	*	17,750	10,650	*	*	28,400 (11,600 - 31,200)	2,840 (780 - 3,490)	13.8 (4.0 - 17.0)	12.5 (3.6 - 15.4)
	15	7	*	*	17,591	8,209	*	*	25,800 (11,600 - 31,200)	2,430 (780 - 3,490)	11.9 (4.0 - 17.0)	10.7 (3.6 - 15.4)
	12	12	*	*	14,000	14,000	*	*	28,000 (11,000 - 28,400)	3,040 (760 - 3,240)	14.8 (3.9 - 15.8)	13.4 (3.5 - 14.3)
	12	9	*	*	14,286	10,714	*	*	25,000 (11,000 - 28,400)	2,490 (760 - 3,240)	12.1 (3.9 - 15.8)	11.0 (3.5 - 14.3)
	12	7	*	*	14,400	8,400	*	*	22,800 (11,000 - 28,400)	2,140 (760 - 3,240)	10.4 (3.9 - 15.8)	9.4 (3.5 - 14.3)
	9	9	*	*	10,700	10,700	*	*	21,400 (11,000 - 28,400)	1,980 (770 - 3,240)	9.7 (3.9 - 15.8)	8.7 (3.6 - 14.3)
	9	7	*	*	10,688	8,313	*	*	19,000 (11,000 - 26,000)	1,650 (770 - 2,830)	8.1 (3.9 - 13.8)	7.3 (3.6 - 12.5)
	7	7	*	*	8,200	8,200	*	*	16,400 (11,000 - 22,800)	1,350 (770 - 2,300)	6.6 (3.9 - 11.2)	6.0 (3.6 - 10.2)
1-indoor unit operation	18	*	*	*	23,000	*	*	*	23,000 (11,000 - 25,000)	2,890 (880 - 2,990)	14.1 (4.5 - 14.6)	12.7 (4.1 - 13.2)
	15	*	*	*	19,000	*	*	*	19,000 (10,000 - 21,600)	2,250 (870 - 2,810)	11.0 (4.5 - 13.7)	9.9 (4.0 - 12.4)
	12	*	*	*	15,600	*	*	*	15,600 (8,600 - 17,000)	1,930 (850 - 2,340)	9.4 (4.4 - 11.4)	8.5 (3.9 - 10.3)
	9	*	*	*	11,400	*	*	*	11,400 (8,600 - 15,600)	1,230 (850 - 2,080)	6.0 (4.4 - 10.2)	5.5 (3.9 - 9.2)
	7	*	*	*	8,400	*	*	*	8,400 (8,600 - 12,000)	850 (850 - 1,370)	4.2 (4.4 - 6.7)	3.8 (3.9 - 6.1)

* When connected indoor unit is not in operation.

- When no unit is connected.

ELECTRICAL PARTS

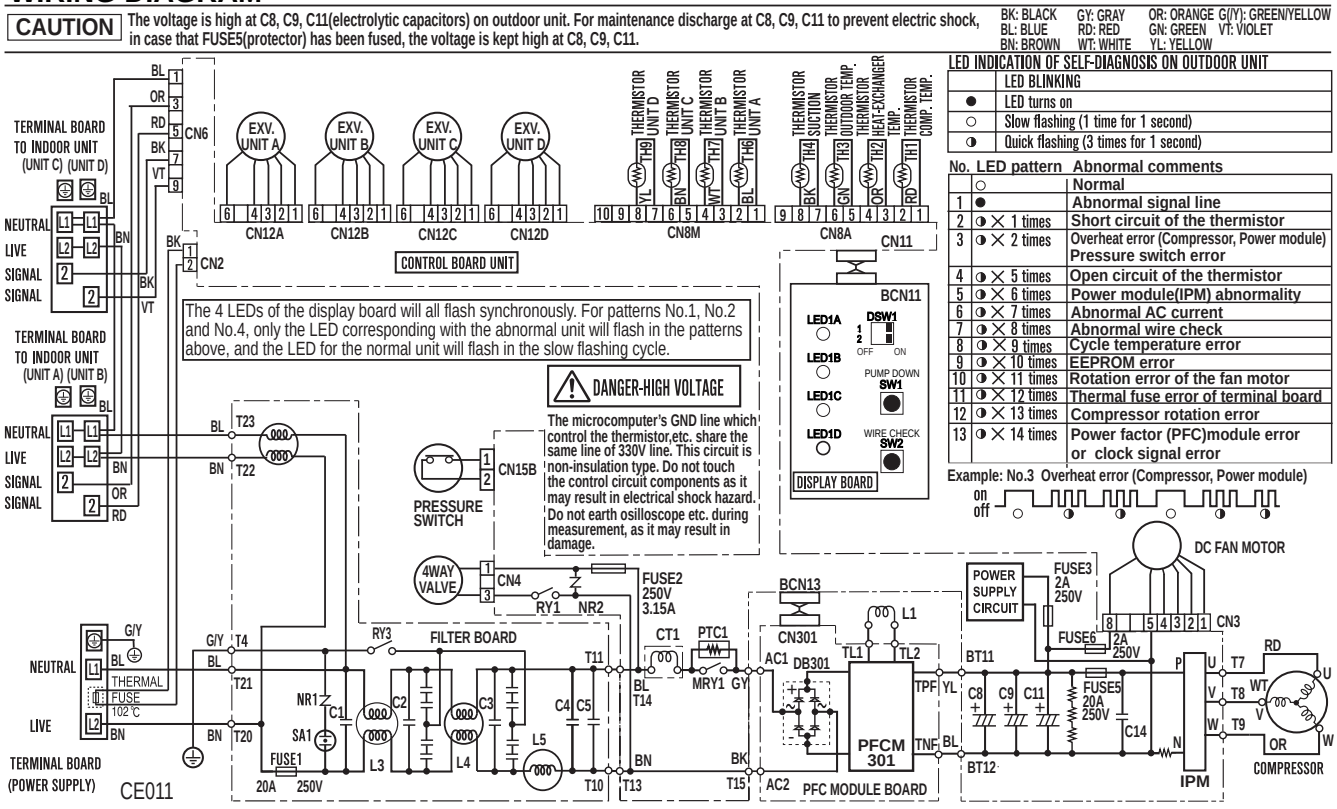
Fuse 1, 5	—	QFS-GA065JBZZ(20A,250V)
Fuse 2	—	QFS-GA062JBZZ(3.15A,250V)
Fuse 3, 6	—	QFS-GA063JBZZ(2A,250V)

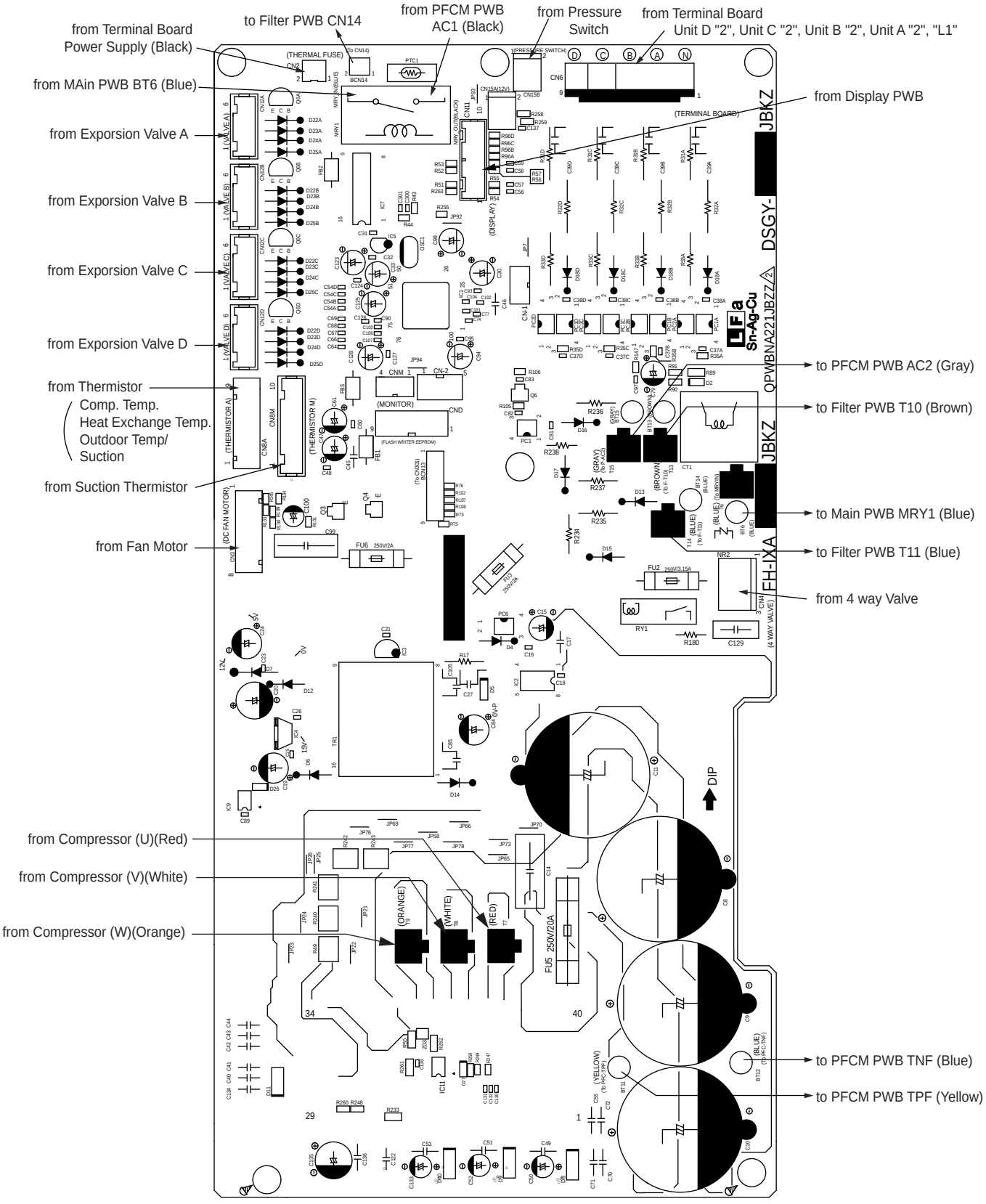
CYCLE PARTS

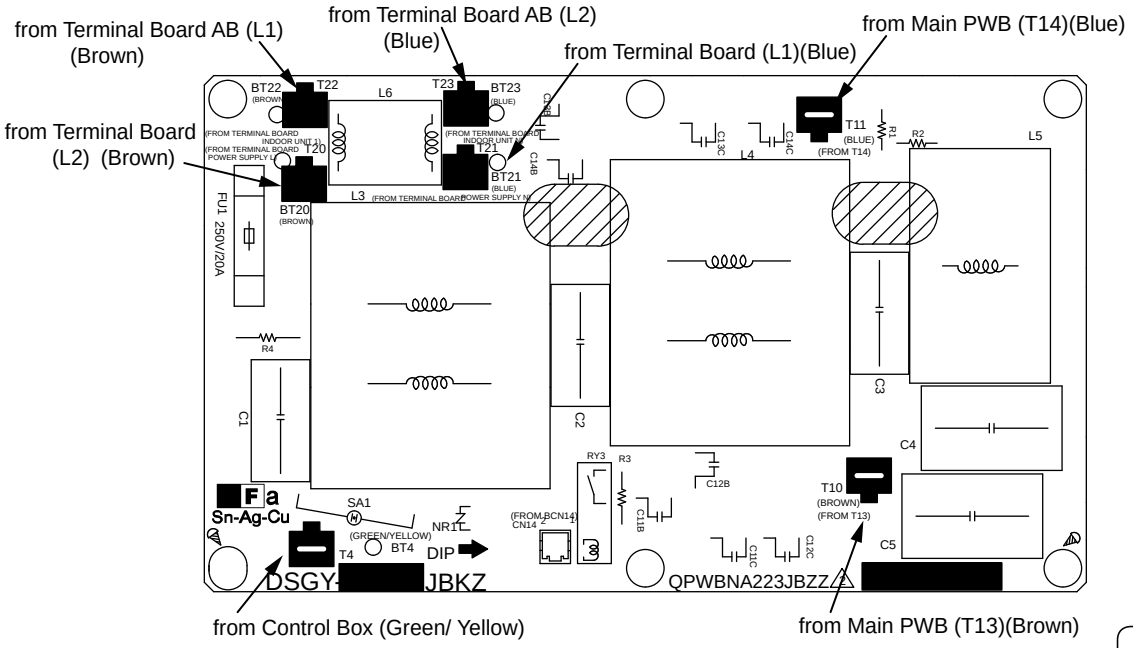
PARTS	MODEL	TYPE	PARTS CODE
Compressor	SNB172EFKMT	17.2cc DC TWIN ROTARY 1200W	PCMPRA718JBEZ
Fan motor	ARW8404SH	DC MOTOR 8Poles, 60W	CMOTLB541JBEZ
Refrigerant control	Expansion valve (Body)	Φ1.8	PVLVRA047JBEZ
	Expansion valve (Coil)	DC12V	RMOTSA050JBZZ
PRESSURE SWITCH	ACB-4UB65	OFF:4.5MPa / ON:3.5MPa	RBIM-A003JBEZ
Reverse Valve	(Body)	SHF-7H-34U-P	PVLVXA081JBEZ
	(Coil)	50/60Hz 220-240V	CCIL-A185JBKZ

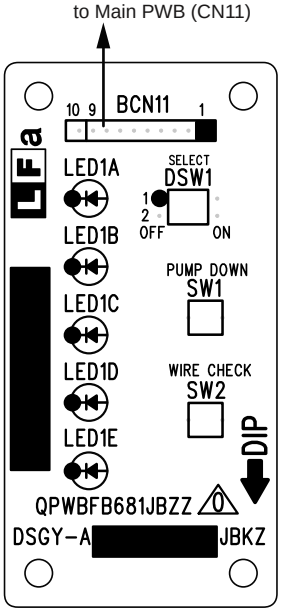
WIRING DIAGRAMS

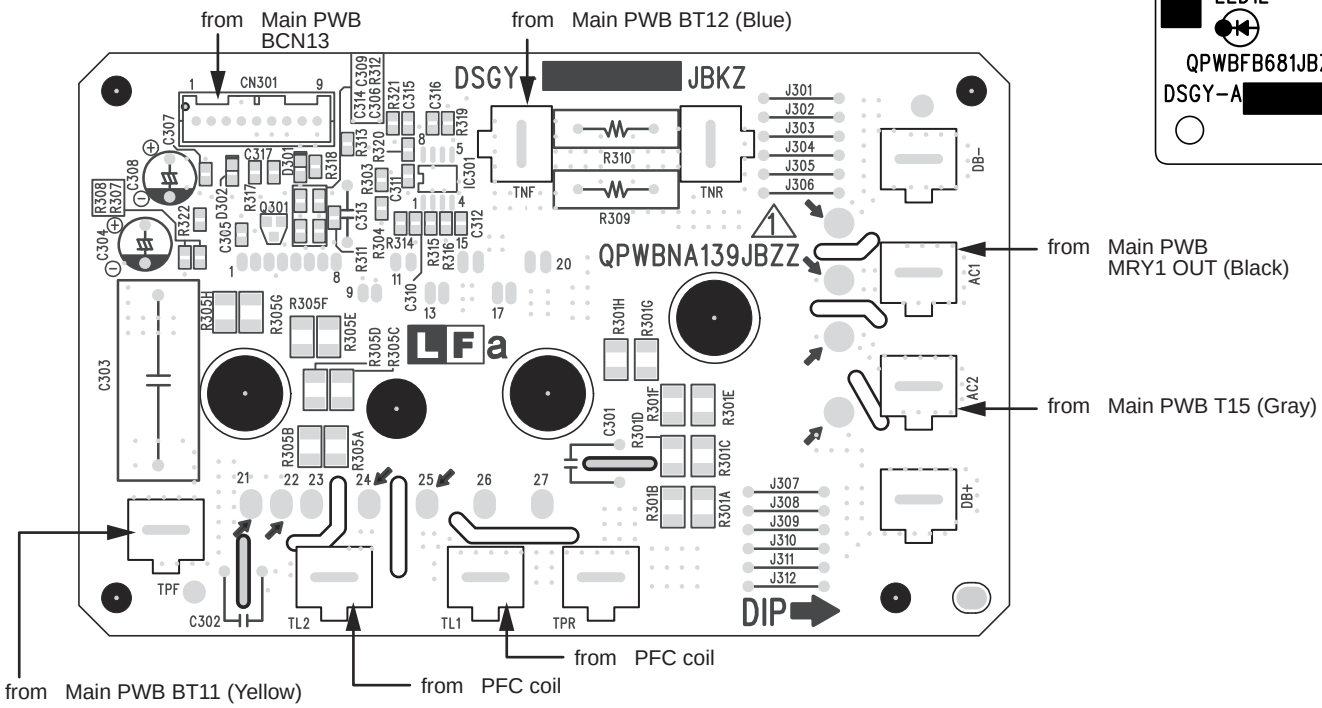
WIRING DIAGRAM

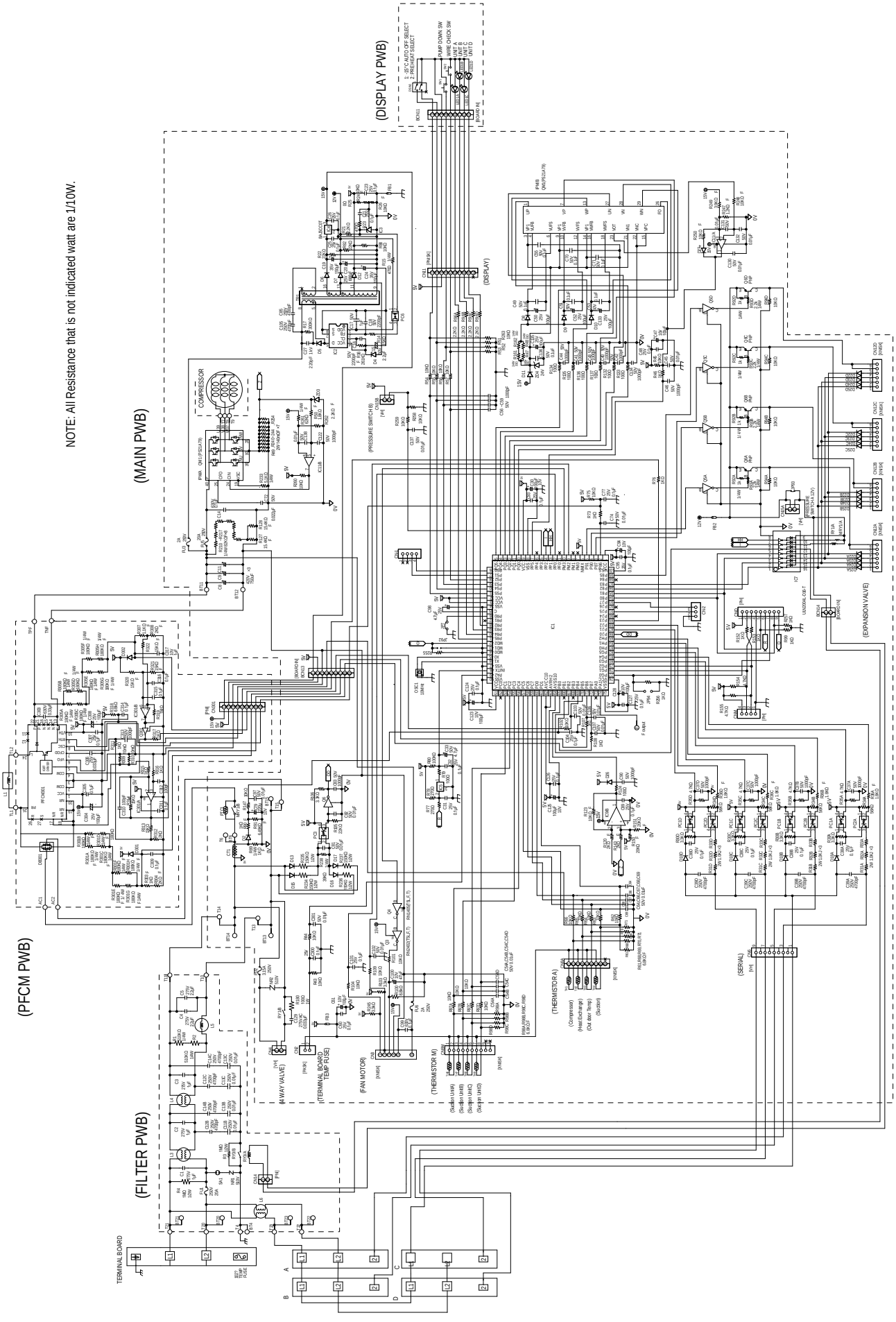






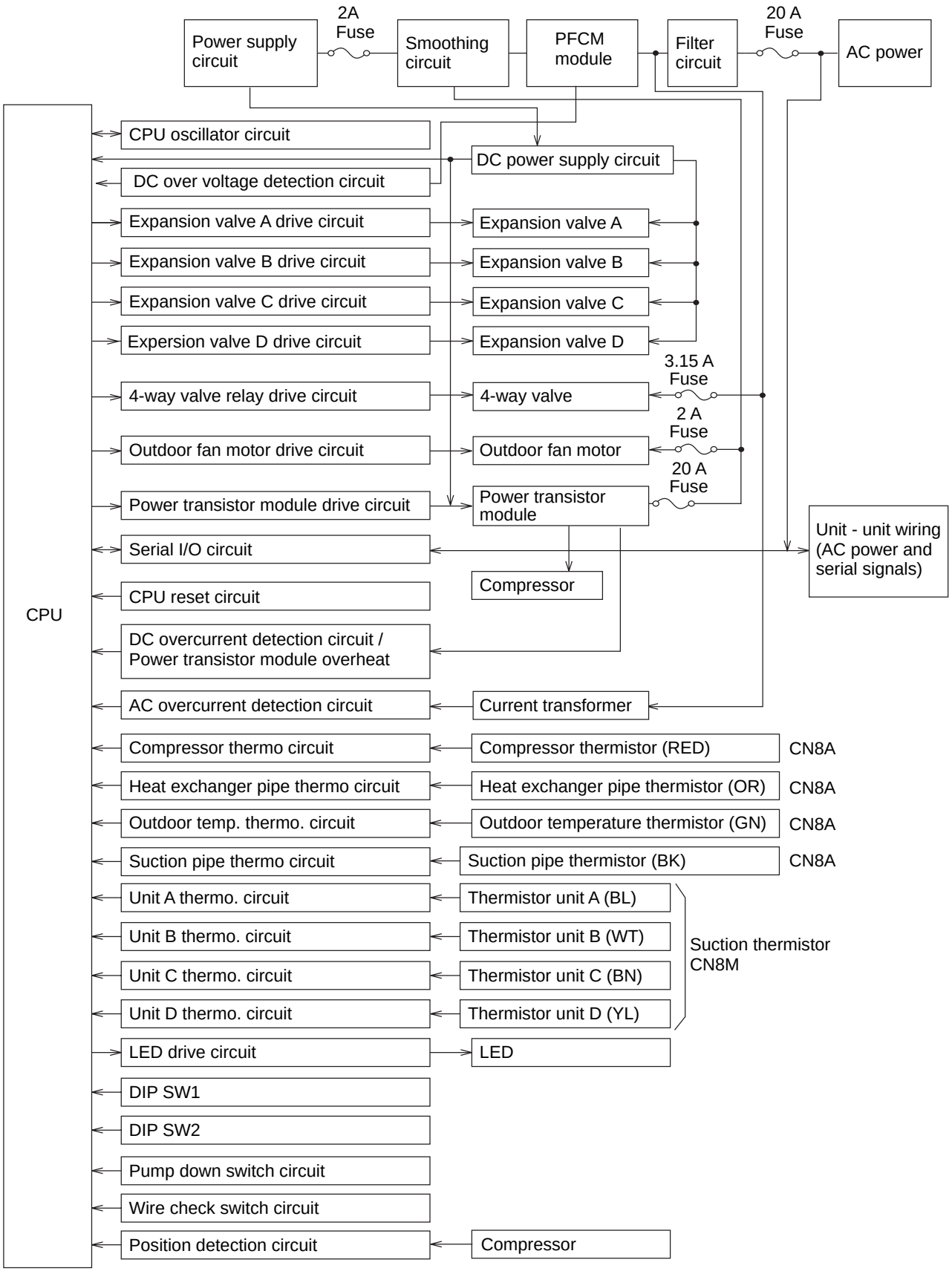






EXPLANATION OF CIRCUIT AND OPERATION

BLOCK DIAGRAM



FUNCTIONS

1. FREQUENCY CONTROL

1) AC current peak control

Cooling mode	Heating mode
17.6A	18.4A

2) Prevention control of outdoor heat exchanger overheating

If the temperature of the outdoor heat exchanger exceeds the overheating prevention line 1or 2 during cooling, the operating frequency is lowered by approximately 5 to 15Hz. After that, the frequency is lowered approximately 5Hz once every 60 seconds or approximately 15Hz once every 120 seconds. If the frequency is lowered to minimum frequency without the temperature of the outdoor heat exchanger decreasing and this condition lasts for 1 minute, the compressor will be stopped.

Overheating Prevention line 1	129.2°F (54°C)	Lower 5Hz once every 60 seconds
Overheating Prevention line 2	134.6°F (57°C)	Lower 15Hz once every 120 seconds

3) Prevention control of compressor overheating

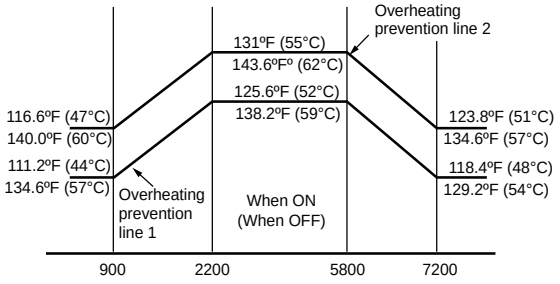
If the temperature of the compressor exceeds approximately 226.4°F (108°C), the operating frequency is lowered approximately 5Hz. After that, the frequency is lowered approximately 5Hz once every 60 seconds. When the compressor temperature drops below approximately 226.4°F (108°C), the frequency is raised approximately 5Hz once every 60 seconds, and normal operation is restored. If the frequency is lowered to minimum frequency without the temperature of the compressor decreasing, and this condition lasts for 1 minute, the compressor will be stopped.

4) Prevention control of indoor heat exchanger overheating

Two minutes after room several decrease If the temperature of any of indoor heat exchangers exceeds the overheating prevention line 1 or 2 during heating, the operating frequency is lowered to minimum frequency. When the temperature of all of indoor heat exchangers go below [the overheating prevention line 1 -45.5°F(-7.5°C)], the frequency is raised by approximately 5Hz once every 60 seconds, and normal operation is restored. If the condition that the frequency is minimum lasts for 2 minutes, the compressor will be stopped.

<When normal >

If the temperature of any of indoor heat exchangers exceeds the overheating prevention line 1 or 2 during heating, the operating frequency is lowered by approximately 5 to 15Hz. After that, the frequency is lowered approximately 5Hz once every 60 seconds or approximately 15Hz once every 90 seconds. When the temperature of all of indoor heat exchangers go below [the overheating prevention line 1 -45.5°F(-7.5°C)], the frequency is raised by approximately 5Hz once every 60 seconds, and normal operation is restored. If the condition that the frequency is minimum lasts for 2 minutes, the compressor will be stopped.



2. OVER CURRENT PROTECTION

DC over current detection, AC over current detection To protect against over current due to sudden change in load, the compressor is stopped if 25A DC is exceeded in the DC section. If the set value of AC current is exceeded in the AC section, the compressor is stopped. 90 seconds after the compressor has been stopped, another starting try will be made. Three retries are allowed. On the fourth retry, a complete stop request signal is sent to the indoor unit, and the outdoor unit will remain stopped until the indoor operation is stopped. DC over current is detected by the power module. AC over current is detected by CT1, on the outdoor PWB.

Cooling mode	Heating mode
18A	18A

3. COMPRESSOR PROTECTION CONTROL

If the temperature of the compressor exceeds 235.4°F (113°C), the compressor is stopped. In this case, the outdoor fan is not stopped until the temperature of compressor drops below 210.2°F (99°C). In 90 seconds after the compressor is stopped, if the temperature is below 194°F (90°C), another starting try will be made. Three retries are allowed. On the fourth retry, a complete stop request signal is sent to the indoor unit, and the outdoor unit will remain stopped until the indoor operation is stopped.

4. POWER TRANSISTOR MODULE PROTECTION

If the temperature of the chips in the power transistor module exceeds 212°F (100°C), the compressor is stopped. In this case, the outdoor fan is not stopped until the temperature of power module drops below 185°F (85°C). In 90 seconds after the compressor is stopped, if the temperature is below 185°F (85°C), another starting try will be made. Three retries are allowed. On the fourth retry, a complete stop request signal is sent to the indoor unit, and the outdoor unit will remain stopped until the indoor operation is stopped.

5. SERIAL SIGNALS

Serial signals consist of all 96-bit signals. If the condition as outdoor unit unable to receive a serial signal from the indoor unit continues for 30 seconds, it closes the expansion valve which corresponds to the room which can not be communicated. If all indoor units can not communicate with the outdoor unit, the compressor is stopped.

6. THERMISTOR OPEN OR SHORT

When compressor, heat exchanger, outdoor thermistor, suction thermistor (CN8A) are in OPEN or SHORT condition, even if they are in the condition which an operation signal is transmitted from indoors, the compressor will not start. If any suction thermistors (CN8M) become OPEN or SHORT resistance, the protective procedure will work only for the cycle corresponding to the malfunctioning suction thermistor.

7. MISWIRING CHECK

“Mis-wiring check” is conducted by detecting the indoor heat exchanger temp. For example, when the expansion valve for only room A is open, and the wiring is correct, the indoor heat exchanger temp for room A will reduce. If the wiring is incorrect, the indoor heat exchanger temp for a different room will reduce.

8. SAFETY TIME

When the unit is operated by the remote control after the breaker is turned on, the safety device of the compressor will work and the compressor will not operate for 90 seconds.

9. PUMP DOWN SWITCH

When the PUMP DOWN SWITCH (SW1) is pressed for 5 seconds or more, the total A/C system will start its PUMP DOWN automatically and the compressor frequency will be 40 Hz.

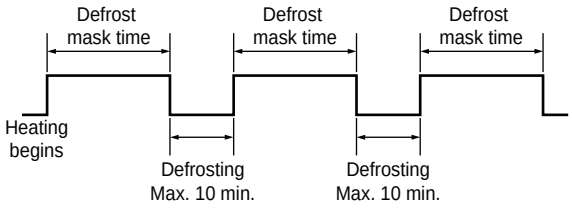
10. CONTROL OF COMPRESSOR AND EXPANSION VALVE

For 90 seconds after turning on the AC power, the compressor will not be activated even if indoor units request the compressor to do so. If the compressor receives a request from one or more indoor units after 90 seconds have passed, it will be turned on and the expansion valve corresponding to the requesting indoor unit will be opened. When the indoor unit of a room requests for the cooling operation to the outdoor unit and it runs responding to the request, requests for the heating can’t be accepted if the indoor units in other rooms send individual requests. If the indoor unit in another room sends a request for the heating operation, the operation lamp and timer lamp of the indoor unit in that room start flashing in turn to inform that the unit is in the standby mode. If the operation in one room is stopped while the indoor unit in another room is in the stand-by mode, the operation mode requested by the indoor unit which is now in the stand-by mode will be accepted. At this time, the compressor will be temporarily stopped to switch the four- way valve and restart after 90 seconds. During the cooling or dry operation, the expansion valve corresponding to the indoor unit that is not running is closed. Therefore, the refrigerant will not flow into those units. However,if the heating operation is in progress, it is possible that it flows into indoor units which are out of operation depending on the cycle conditions. As a result, the indoor exchanger may be heated up even if it is not activated. This is not abnormal. When the operations in all rooms are stopped, the compressor is off and the expansion valves in all rooms are fully opened.

11. DEFROST OPERATION

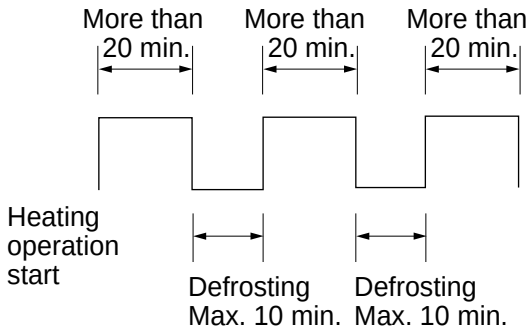
1) Overview

Defrosting begins during heating if the conditions for compressor operation time and outdoor heat exchanger temperature are met. When defrosting begins, the indoor and outdoor fans stop. Defrosting stops when the temperature of the outdoor heat exchanger goes above approximately 59°F (15°C) or defrosting time exceeds 10 minutes.



2) Defrosting

If the compressor operation time is more than 20 minutes in the heating mode and the outdoor air temperature and outdoor heat exchange temperature satisfy the defrosting conditions, the defrosting operation is started. When the defrosting operation is started, the indoor fan s tarts to run intermittently. When the outdoor heat exchanger temperature reaches approx. 59°F (15°C) or above or when the defrosting time exceeds 10 minutes, the defrosting operation is quit.



3) During defrosting

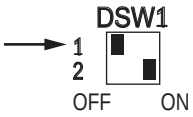
When defrosting begins, the compressor stops. Approximately 1 minutes later, the compressor reactivates in the refrigeration cycle, and the outdoor heat exchanger is defrosted. Each mode is as follows:
The outdoor fan is s topped.
The operating frequency is as shown in the table below.
The indoor fan is s topped.
All expansion valve are open. for 5 minutes 4800 rpm
ater that 4000 rpm

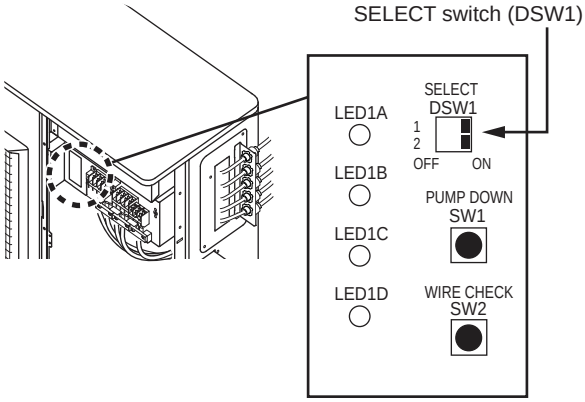
4) Defrost stop

When defrosting time exceeds 10 minutes When the temperature of the outdoor heat exchanger rises above approximately 59°F°C (15°C) Defrost stop is determined by either of the above conditions, and the compressor is s topped. At the same time, the outdoor fan go ON. The compressor is reactivated in the heating cycle 1 minutes after it was stopped, and normal control resumes.

12. 5°F(-15°C) AUTO STOP FUNCTION

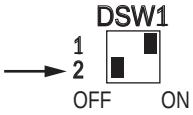
- During the heating operation, the unit will automatically stop when the outdoor temperature drops below 5°F(-15°C) to prevent the outdoor unit from the damage caused by the freezing of the drained water. The unit will stop its operation for 4 hour and then resume the operation when the outdoor temperature rises above 7°F(-13.9°C).
- To inactivate this function, slide the SELECT switch(DSW1) #1 to OFF side.





13. Preheat

When heating is stopped, applying a small amount of voltage to the compressor to make heating start more quickly.
The preheat function will active according to outdoor temperature and compressor temperature.
To inactivate this function, slide the SELECT switch (DSW1) #2 to OFF side.



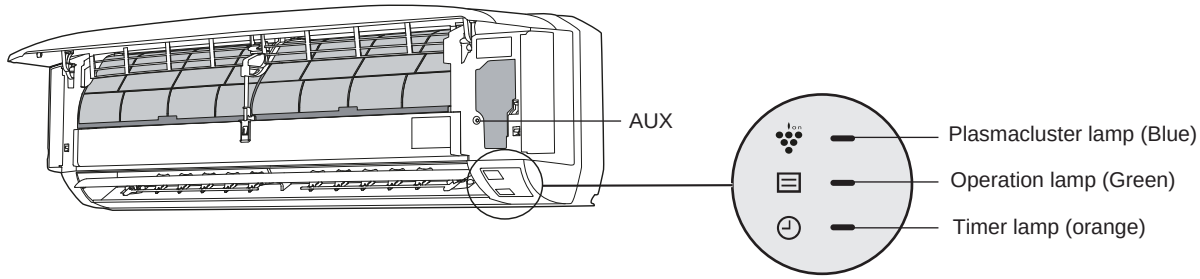
TROUBLE SHOOTING GUIDE

SELF-DIAGNOSIS FUNCTION

NOTE: WHEN TURN ON THE POWER SUPPLY AGAIN, WAIT MORE THAN 10 MINUTES AFTER TURN OFF TO PREVENT ELECTRIC SHOCK.

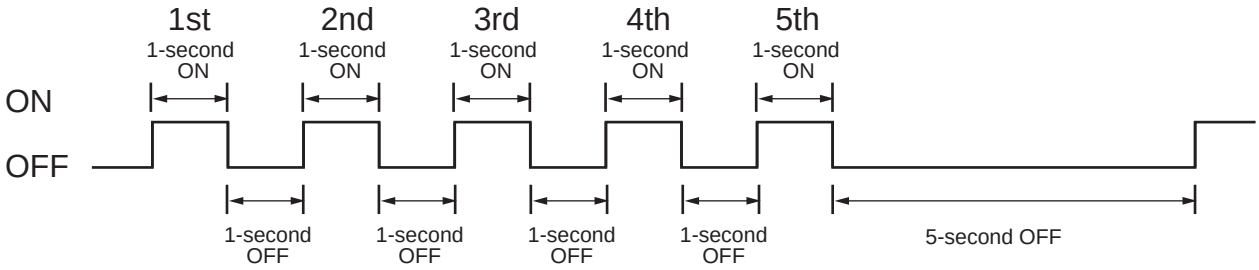
Indoor unit

- To display the self-diagnosis, hold down the AUX button for over 5 seconds on the indoor unit when the indoor unit is not operating.
- The operation lamp (green), timer lamp (orange) and Plasmacluster lamp (blue) flash to indicate the information of malfunction.
- If the power cord is unplugged or the circuit breaker is turned off, the self-diagnosis memory is lost.



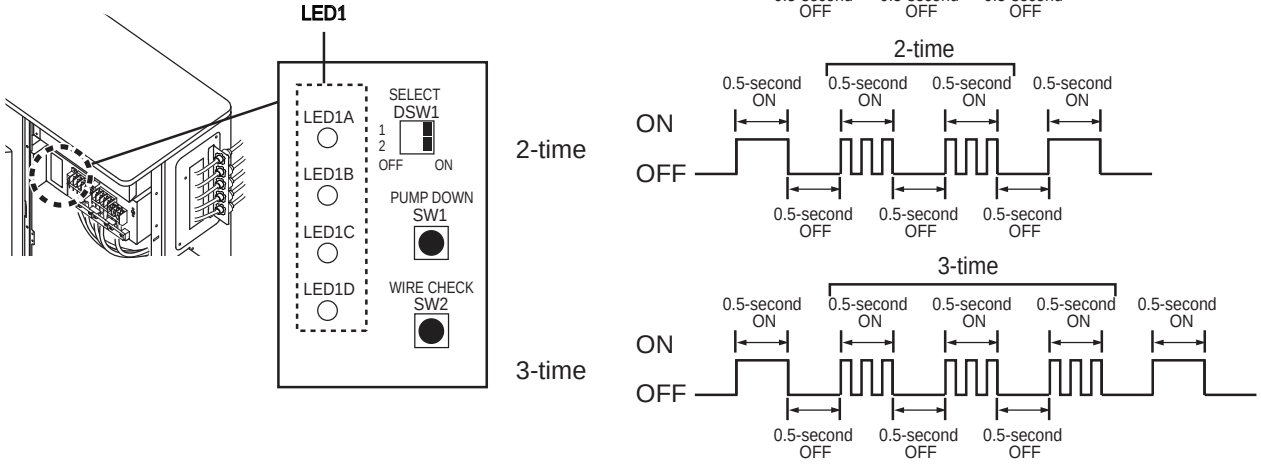
<Display of self-diagnosis result>

The operation lamp (green) and the Plasmacluster lamp (blue) flash in synchronization with the timer lamp (orange).
Timer lamp (1 cycle)



Outdoor unit

- The self-diagnosis is indicated the error information by flashing LED1 on the outdoor unit.
- The self-diagnosis of outdoor unit is displayed for about 3-10 minutes. Then, the LED1 returns to normal display.



<INDOOR UNIT> ○:1-second ON / 1-second OFF

Problem symptom	Outdoor unit indication (LED1)	Indoor unit →	Lamp	Malfunction No.* Main	Sub	Content of diagnosis Main	Sub	Check point	Action
Normal condition	Normal blinking	O O O O O	Timer (Orange)	0	0	Normal			
			Operation (green)						
			Plasmacluster (blue)						
Indoor and outdoor units do not operate.	1 time	O O O O O	Timer (Orange)	1	0	Outdoor unit thermistor short-circuit	Heat exchanger thermistor short circuit error	1) Measure the resistance of the outdoor unit thermistors. (TH2-4, 6-8: Approx. 4.4kΩ at 77°F(25°C)) 2) Check the lead wire of the outdoor unit thermistor for torn sheath and shortcircuit. 3) 1) 2):Normal	1) Replace the outdoor unit thermistor assembly. 2) Replace the outdoor unit thermistor assembly. 3) Replace the outdoor unit control PCB assembly.
			Operation (green)						
			Plasmacluster (blue)						
		O O O O O	Timer (Orange)		1		Outdoor temperature thermistor short circuit error		
			Operation (green)						
			Plasmacluster (blue)						
		O O O O O	Timer (Orange)		2		Suction thermistor short circuit error		
			Operation (green)						
			Plasmacluster (blue)						
		O O O O O	Timer (Orange)		3		Suction thermistor (for unit A, B, C, D) short circuit error		
			Operation (green)						
			Plasmacluster (blue)						
Indoor and outdoor units do not operate.	2 time	O O O O O	Timer (Orange)	2	0	Cycle temperature	Compressor high temperature error	1) Check the outdoor unit air outlet for blockage. 2) Check if the power supply voltage is AC 230V at full power. 3) Check the pipe connections for refrigerant leaks. 4) Measure resistance of the outdoor unit compressor thermistor. (TH1:Approx.50kΩ at 77°F(25°C)) 5) Check the expansion valve for proper operation.	1) Ensure unobstructed air flow from the outdoor unit air outlet. 2) Connect power supply of proper voltage. 3) Charge the specified amount of refrigerant. 4) Replace the outdoor unit compressor thermistor assembly. 5) Replace the expansion valve coil, expansion valve or outdoor unit control PCB assembly.
			Operation (green)						
			Plasmacluster (blue)						
Indoor unit operates. Outdoor unit does not operate temporarily		O O O O O	Timer (Orange)		1		Compressor discharge overheat.	(Temporary stop for cycle protection)	-
			Operation (green)						
			Plasmacluster (blue)						
		O O O O O	Timer (Orange)		2		Outdoor unit heat exchanger overheat.	(Temporary stop for cycle protection)	-
			Operation (green)						
			Plasmacluster (blue)						
		O O O O O	Timer (Orange)		3		Indoor unit heat exchanger overheat.	(Temporary stop for cycle protection)	-
			Operation (green)						
			Plasmacluster (blue)						
		O O O O O	Timer (Orange)		4		IPM high temperature error	Measure resistance of the heat-sink thermistor.	-
			Operation (green)						
			Plasmacluster (blue)						
Indoor and outdoor units do not operate.		O O O O O	Timer (Orange)		5		IPM high temperature error	Replace the outdoor unit control PCB assembly.	-
			Operation (green)						
			Plasmacluster (blue)						
		O O O O O	Timer (Orange)		7		High pressure error	Check pressure sensor	-
			Operation (green)						
			Plasmacluster (blue)						
Indoor and outdoor units do not operate.	3 time	O O O O O	Timer (Orange)	3	0	Temporary stop	Temporary stop due to low temperature of out door	(Temporary stop for cycle protection)	If the temperature of outdoor is not lower than 5°F(-15°C), check the outdoor temp. thermistor.
			Operation (green)						
			Plasmacluster (blue)						
Indoor and outdoor units do not operate.	5-time	O O O O O	Timer (Orange)	5	0	Outdoor unit thermistor open-circuit	Heat exchanger thermistor open circuit error	1) Check connector CN8A and CN8C of the outdoor unit thermistor for secure installation. 2) Measure resistance of outdoor thermistors TH1-4, 6-8. 3) Check the lead wires of thermistors TH1- 4, 6-8 on the outdoor unit control PCB for open-circuit. 4) 1) 2) 3):Normal	1) Correct the installation 2) Replace the outdoor unit thermistor assembly. 3) Replace the outdoor unit thermistor assembly. 4) Replace the outdoor unit control PWB assembly.
			Operation (green)						
			Plasmacluster (blue)						
		O O O O O	Timer (Orange)		1		Outdoor temperature thermistor open circuit error		
			Operation (green)						
			Plasmacluster (blue)						
		O O O O O	Timer (Orange)		2		Suction thermistor open circuit error		
			Operation (green)						
			Plasmacluster (blue)						
		O O O O O	Timer (Orange)		3		Suction thermistor (for unit A, B, C, D) open circuit error		
			Operation (green)						
			Plasmacluster (blue)						
		O O O O O	Timer (Orange)		4		Discharge thermistor open circuit error		
			Operation (green)						
			Plasmacluster (blue)						
		O O O O O	Timer (Orange)		5		Heat sink thermistor open circuit error		
			Operation (green)						
			Plasmacluster (blue)						

Problem symptom	Outdoor unit indication (LED1)	Indoor unit →	Lamp	Malfunction No.* Main	Malfunction No.* Sub	Content of diagnosis Main	Content of diagnosis Sub	Check point	Action
Indoor and outdoor units do not operate.	6-time	O O O O O	Timer (Orange)	6	0	Outdoor unit DC Current	DC over current error	Go to “DC Over Current Error (6-0 error)”.	
		O O	Operation (green)						
			Plasmacluster (blue)						
		O O O O O	Timer (Orange)		1		IPM pin level error	Check the IPM is attached correctly to the outdoor unit IPM PWB.	Replace the outdoor unit IPM PWB assembly.
		O O	Operation (green)						
		O	Plasmacluster (blue)						
Indoor and outdoor units do not operate.	7-time	O O O O O	Timer (Orange)	7	0	Outdoor unit AC Current	AC over current error	1) Ensure unobstructed air flow from the outdoor unit air outlet. 2) Check the outdoor unit fan motor.	1) Ensure unobstructed air flow from the outdoor unit air outlet. 2) Check the outdoor unit fan motor.
		O O O	Operation (green)						
			Plasmacluster (blue)						
		O O O O O	Timer (Orange)		1		AC current error when OFF	1) IPM continuity check	1) Replace the outdoor IPM PWB
		O O O	Operation (green)						
		O	Plasmacluster (blue)						
		O O O O O	Timer (Orange)		2		AC maximum current error	1) Ensure unobstructed air flow from the outdoor unit air outlet. 2) Check the outdoor unit fan motor.	1) Ensure unobstructed air flow from the outdoor unit air outlet. 2) Check the outdoor unit fan motor.
		O O O	Operation (green)						
		O	Plasmacluster (blue)						
		O O O O O	Timer (Orange)		3		AC current deficiency error	1) Replace the outdoor unit control PCB assembly. 2) Charge the specified amount of refrigerant. 3) Correct refrigerant clogs. (Stop valve, pipe, expansion valve)	1) Replace the outdoor unit control PCB assembly. 2) Charge the specified amount of refrigerant. 3) Correct refrigerant clogs. (Stop valve, pipe, expansion valve)
		O O O	Operation (green)						
		O O	Plasmacluster (blue)						
Indoor and outdoor units do not operate.	8-time	O O O O O	Timer (Orange)	8	0	Abnormal wire check	Abnormal wire check error	1) Check the expansion valve. (unit A - C) 2) Are four expansion valves connected by mistake. 3) Check the wiring between units.	1) Replace the outdoor control board assembly. 2) Reattach 3) Check the wiring between units.
		O	Operation (green)						
			Plasmacluster (blue)						
Indoor and outdoor units do not operate.	9-time	O O O O O	Timer (Orange)	9	4	Cycle temperature	4 way valve error or Gas leak error	1) Check the unit thermistor TH2 (exchange) and TH3 (pipe temperature) are installed in correct portions. 2) Check if the refrigerant volume is abnormally low. 3) Check the 4-way valve for proper operation.	1) Correct the installation. 2) Change the specified amount of refrigerant. 3) Replace the 4-way valve.
		O O	Operation (green)						
		O	Plasmacluster (blue)						
Indoor and outdoor units do not operate.	10-time	O O O O O	Timer (Orange)	10	2	EEPROM error	EEPROM (outdoor) data error	-	Replace the outdoor unit control PWB assembly.
		O O	Operation (green)						
		O	Plasmacluster (blue)						
Indoor and outdoor units do not operate.	11-time	O O O O O	Timer (Orange)	11	0	Outdoor unit DC fan	Outdoor unit DC fan rotation error	1) Check connector CN3 of the outdoor unit DC fan motor for secure installation. 2) Check the outdoor unit fan motor for proper rotation. 3) Check fuse FUSE5. 4) Outdoor unit control PWB	1) Correct the installation. 2) Replace the outdoor unit fan motor. 3) Replace the outdoor unit control PWB assembly. 4) Replace the outdoor unit control PWB assembly.
		O O	Operation (green)						
			Plasmacluster (blue)						
		O O O O O	Timer (Orange)		1		Outdoor unit DC fan drive IC error	1) Check if the fan IPM terminal resistance values are uniform. 2) Outdoor unit fan motor continuity check.	1) Replace the outdoor unit control PWB assembly. 2) Replace the outdoor unit fan.
		O O	Operation (green)						
		O	Plasmacluster (blue)						
		O O O O O	Timer (Orange)		2		Outdoor unit DC fan lock error	1) Check the outdoor unit fan motor for proper rotation. 2) 1): Normal	1) Replace the outdoor unit control PWB assembly. 2) Replace the outdoor unit fan.
		O O	Operation (green)						
		O	Plasmacluster (blue)						
		O O O O O	Timer (Orange)		3		Detection error of DC fan negative rotation before compressor is driven	(Temporary stop for DC fan circuit protection)	-
		O O	Operation (green)						
		O O	Plasmacluster (blue)						
		O O O O O	Timer (Orange)		4		Detection error of inverter current for DC fan	-	Replace the outdoor unit control PWB assembly.
		O O	Operation (green)						
		O	Plasmacluster (blue)						
		O O O O O	Timer (Orange)		5		Outdoor unit DC fan open connector error	1) Check connector CN3 of the outdoor unit DC fan motor for secure installation. 2) No abnormality found in above inspection 1).	1) Correct the installation. 2) Replace the outdoor unit control PWB assembly.
		O O	Operation (green)						
		O	Plasmacluster (blue)						

Problem symptom	Outdoor unit indication (LED1)	Indoor unit →					Lamp	Malfunction No.* Main	Malfunction No.* Sub	Content of diagnosis Main	Content of diagnosis Sub	Check point	Action
Indoor and outdoor units do not operate.	12-time	O	O	O	O	O	Timer (Orange)	12	0	Thermal fuse in terminal board	Thermal fuse error in terminal board (for power supply)	1) Check the thermal fuse in terminal board (for Power supply) 2) Check connector CN5 of the outdoor unit. 3) 1) 2): Normal	1) Replace terminal board for Power supply. 2) Correct the installation. 3) Replace the outdoor unit control PCB assembly.
			O	O			Operation (green)						
							Plasmacluster (blue)						
Indoor and outdoor units do not operate.	13-time	O	O	O	O	O	Timer (Orange)	13	0	DC compressor	Compressor startup error	1) Check the colors (red, white, orange) of the compressor cords for proper connection. (PWB side, compressor side) 2) Check if the IPM terminal resistance values are uniform. 3) Check if outdoor main relay (MRY1) turns on and voltage of both end of the condenser (C10) has become DC290-330V. 4) 1) 2) 3) : Normal	1) Correct the installation. (U: Red, V: White, W: Orange) 2) Replace the outdoor unit control PWB assembly. 3) Replace the outdoor unit control PWB assembly. 4) Replace the compressor.
			O	O		O	Operation (green)						
							Plasmacluster (blue)						
		O	O	O	O	O	Timer (Orange)		1		Compressor rotation error. (at120C energizing)		
			O	O		O	Operation (green)						
						O	Plasmacluster (blue)						
		O	O	O	O	O	Timer (Orange)		2		Compressor rotation error (at 180C energizing)		
			O	O		O	Operation (green)						
					O		Plasmacluster (blue)						
Indoor and outdoor units operate.		O	O	O	O	O	Timer (Orange)		3		Detection error of inverter current	Check the circuit of detection of inverter current.	Replace the outdoor unit control PWB assembly.
			O	O		O	Operation (green)						
					O	O	Plasmacluster (blue)						
Indoor and outdoor units do not operate.	14-time	O	O	O	O	O	Timer (Orange)	14	0	Outdoor unit Active filter	PFC Module over voltage error	1) Check the connector of PFCM for secure installation. 2) Check the AC power supply voltage for fluctuation. 3) 1),2) Normal	1) Correct the installation. 2) Connect stable power supply. 3) Replace the outdoor unit PFCM PWB or control PCB assembly.
			O	O	O		Operation (green)						
							Plasmacluster (blue)						
		O	O	O	O	O	Timer (Orange)		1		PFC Module clock error		
			O	O	O		Operation (green)						
						O	Plasmacluster (blue)						
		O	O	O	O	O	Timer (Orange)		2		PFC Module low voltage error		
			O	O	O		Operation (green)						
					O		Plasmacluster (blue)						
		O	O	O	O	O	Timer (Orange)		4		PFC Module error		
			O	O	O		Operation (green)						
				O			Plasmacluster (blue)						
Indoor unit operates. Outdoor unit does not operate.	Lighting or OFF	O	O	O	O	O	Timer (Orange)	17	0	Wiring between units	Serial opencircuit	1) Check the wires between units. 2) Check voltage between N and 1 the indoor/outdoor unit terminal boards. 3) Check the outdoor unit fuse. 4) Check 15-V,13-V and 5-V voltages on the PCB. Check resistance between IPM terminals. 5) Check pins No.5 and 8 of connector CN3 of the outdoor unit fan motor for shortcircuit. 6) Outdoor unit control PCB.	1) Connect stable power supply. Correct the wiring. 2) Replace the outdoor unit control PWB assembly. 3) Replace the fuse/outdoor unit control PWB assembly. 4) Replace the outdoor unit control PWB assembly. 5) Replace the outdoor unit fan motor. 6) Replace the outdoor unit control PWB.
		O				O	Operation (green)						
							Plasmacluster (blue)						
Indoor unit operates. Outdoor unit does not operate.	Lighting or OFF	O	O	O	O	O	Timer (Orange)	18	0	Wiring between units	Serial opencircuit	Check the wiring between units.	Correct the wiring.
		O			O		Operation (green)						
							Plasmacluster (blue)						
Indoor and outdoor units do not operate.		O	O	O	O	O	Timer (Orange		1			Check the wiring between units.	Correct the wiring.
		O			O		Operation (green)						
						O	Plasmacluster (blue)						
Indoor and outdoor units do not operate.	Normal blinking or OFF	O	O	O	O	O	Timer (Orange)	19	0	Indoor unit fan	Indoor unit fan error	1) Check the indoor fan motor for proper rotating operation. (Check fan lock.) 2) Check the lead wire of the indoor fan motor for open-circuit. 3) Check connector ofthe indoor unit fanmotor for secureinstallation. 4) 1) 2) 3): Normal	1) Replace the indoor fan motor. 2) Replace the indoor fan motor. 3) Correct the installation of the indoor fan motor connector. 4) Replace the indoorunit control PCB.
		O			O	O	Operation (green)						
							Plasmacluster (blue)						
Indoor and outdoor units do not operate.	Normal blinking or OFF	O	O	O	O	O	Timer (Orange)	20	0	Indoor unit control PCB	EEPROM data error	(EEPROM read data error)	Replace the indoor unit control PWB.
		O		O			Operation (green)						
							Plasmacluster (blue)						

***Remark**

The malfunction No. is calculated using the following way.

Example)

Indoor unit lamp	→Lamp					Calculation	Main	Sub
	16	8	4	2	1			
Timer (orange)	O	O	O	O	O			
Operation (green)			O		O	4+1=5	5	
Plasmacluster (blue)				O		2		2

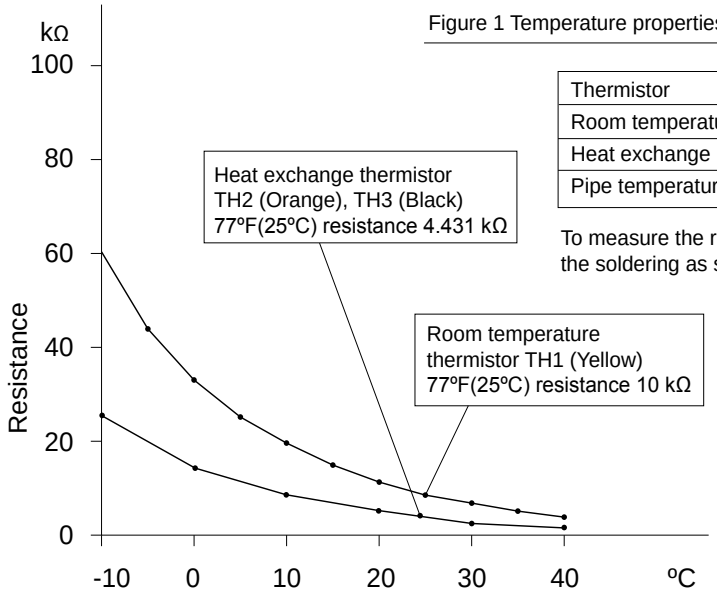
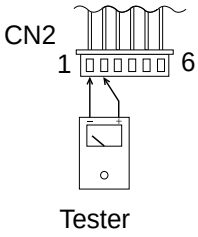


Figure 1 Temperature properties of indoor thermistors

Thermistor	Signal	Color
Room temperature	TH1	Yellow
Heat exchange	TH2	Orange
Pipe temperature	TH3	Black

To measure the resistance, first remove the soldering as shown at right.

Room temperature thermistor TH1 (CN2 ③ - ④)
Heat exchange thermistor TH2 (CN2 ① - ②)
Pipe temperature thermistor TH3 (CN2 ⑤ - ⑥)



CAUTION: When attaching or removing the board

When operating only the outdoor unit (cooling 40 Hz fixed mode) To make only the outdoor unit run in cooling mode, and apply a voltage of 230V AC to L1 and L2 on the terminal board and push the pump down switch (SW1). (Avoid operating the outdoor unit alone for long periods of time.)

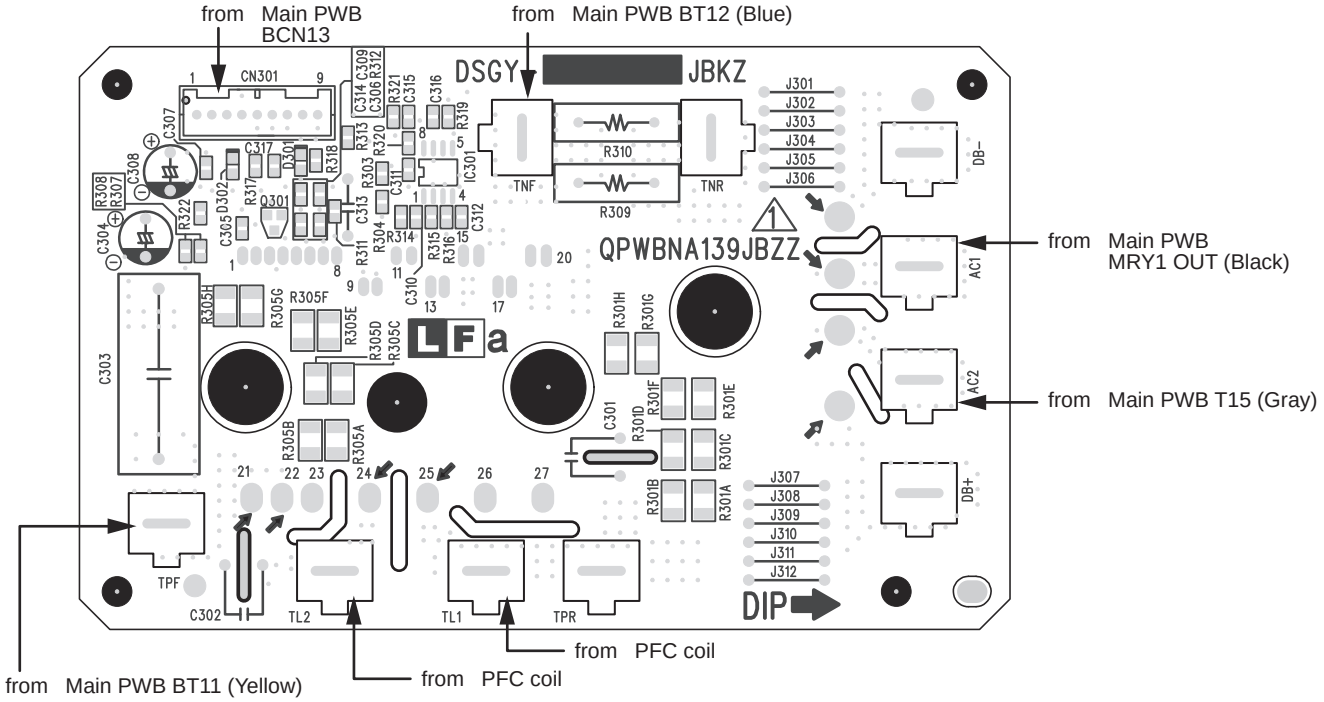
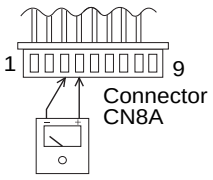
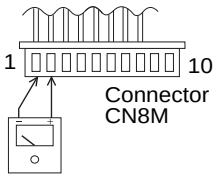
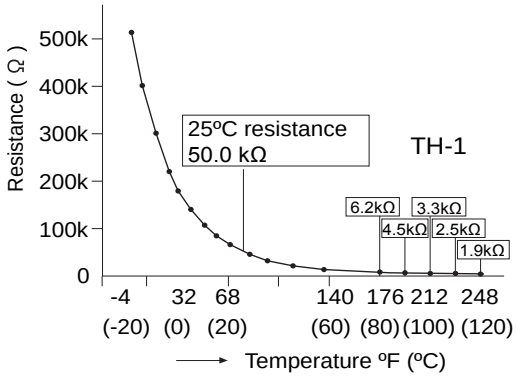


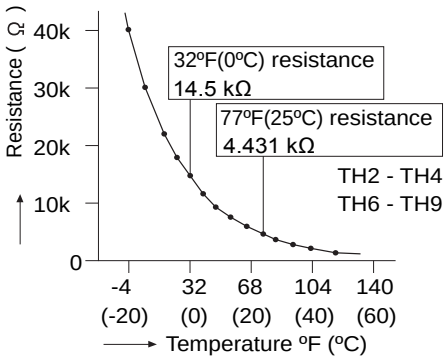
Figure 2 Temperature properties of outdoor thermistors

TH1 : Compressor thermistor (CN8A ① - ②)
TH2 : Heat exchanger pipe thermistor (CN8A ③ - ④)
TH3 : Outdoor temp. thermistor (CN8A ⑤ - ⑥)
TH4 : Suction thermistor (CN8A ⑦ - ⑧)
TH6 : Thermistor unit A (CN8M ① - ②)
TH7 : Thermistor unit B (CN8M ③ - ④)
TH8 : Thermistor unit C (CN8M ⑤ - ⑥)
TH9 : Thermistor unit D (CN8M ⑦ - ⑧)





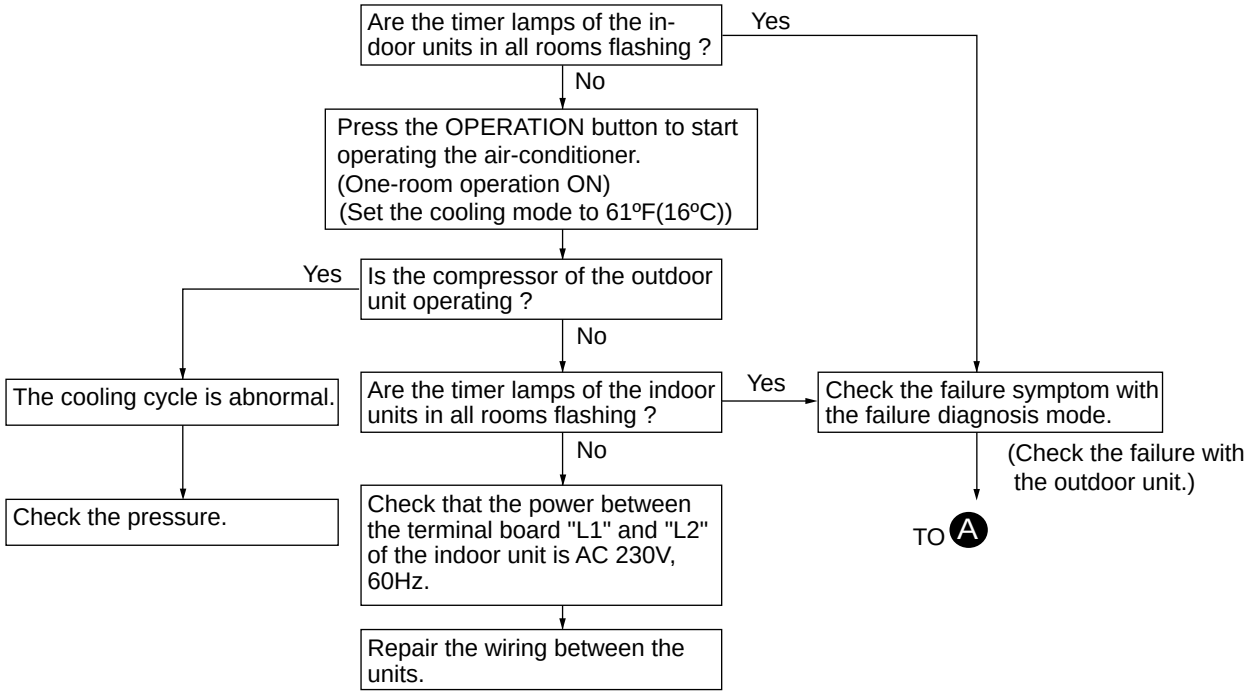


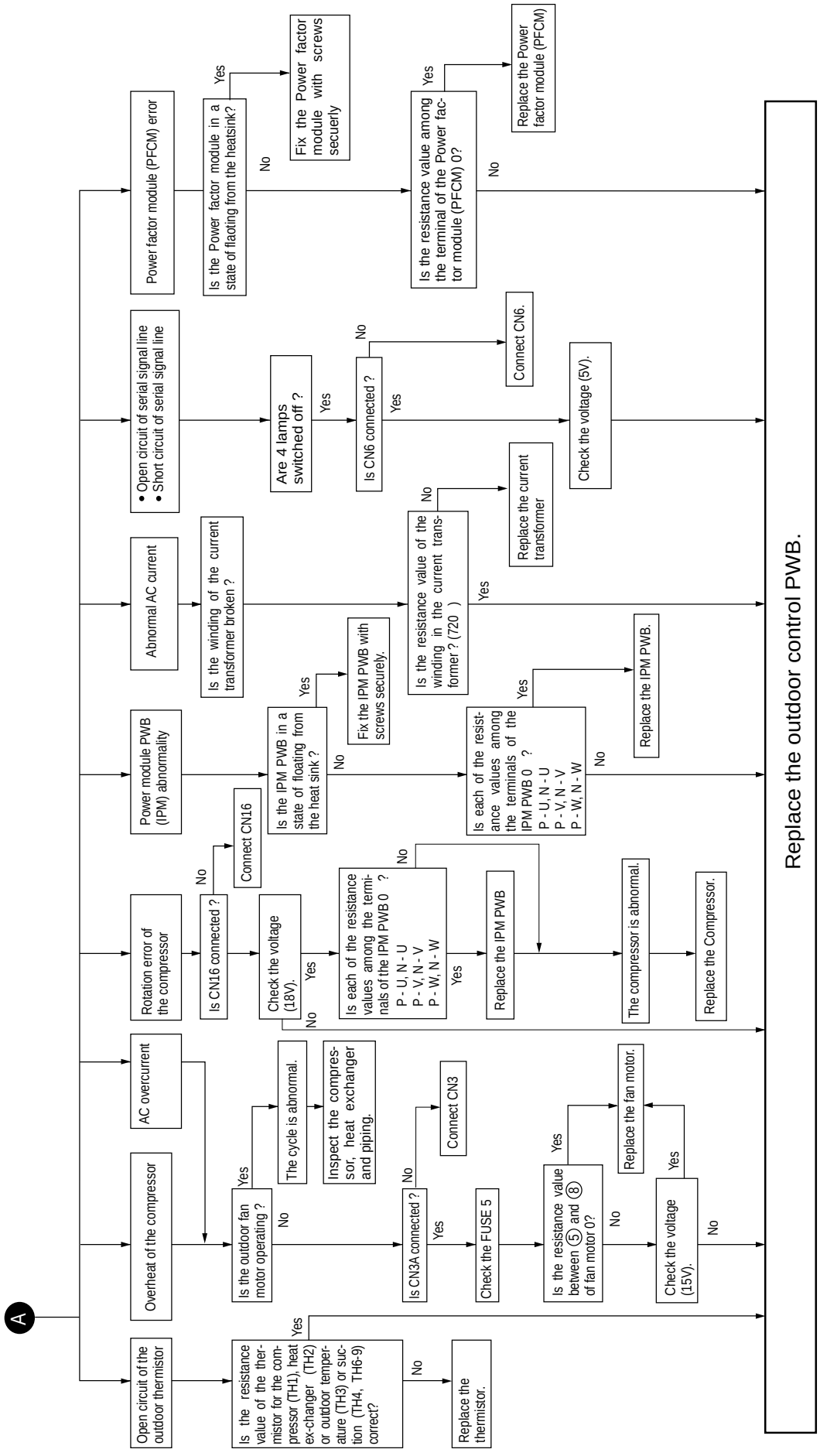


Thermistor	No.	Connector	Color	Connector pin
Compressor thermistor	TH1	CN8A	Red	No. 1 to 2
Heat exchanger pipe thermistor	TH2	CN8A	Orange	No. 3 to 4
Outdoor temp. thermistor	TH3	CN8A	Green	No. 5 to 6
Suction thermistor	TH4	CN8A	Black	No. 7 to 8
Thermistor unit A (suction)	TH6	CN8M	Blue	No. 1 to 2
Thermistor unit B (suction)	TH7	CN8M	White	No. 3 to 4
Thermistor unit C (suction)	TH8	CN8M	Brown	No. 5 to 6
Thermistor unit D (suction)	TH9	CN8M	Yellow	No. 7 to 8

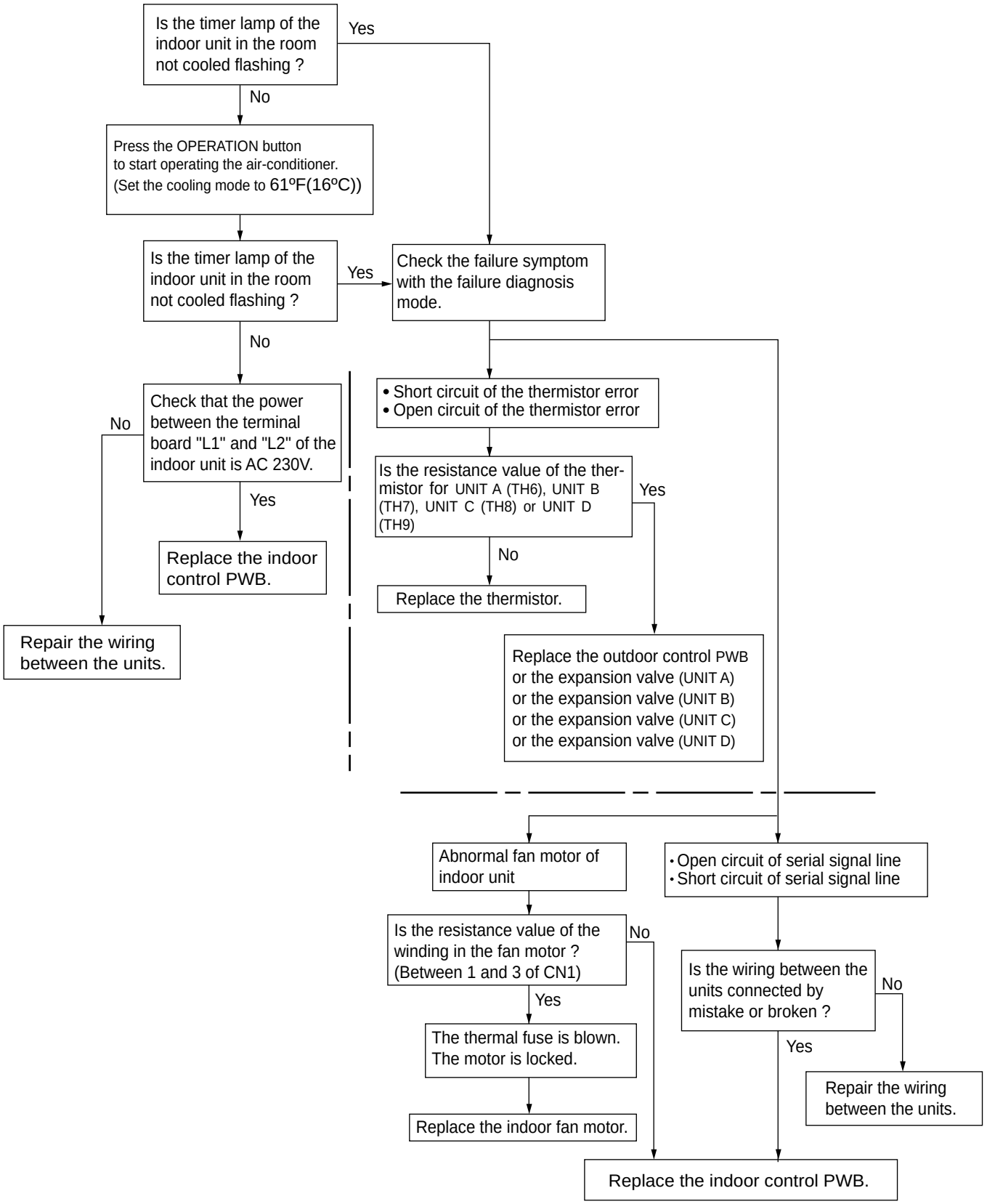
1. How to distinguish the defective parts

1) When all rooms are not cooled

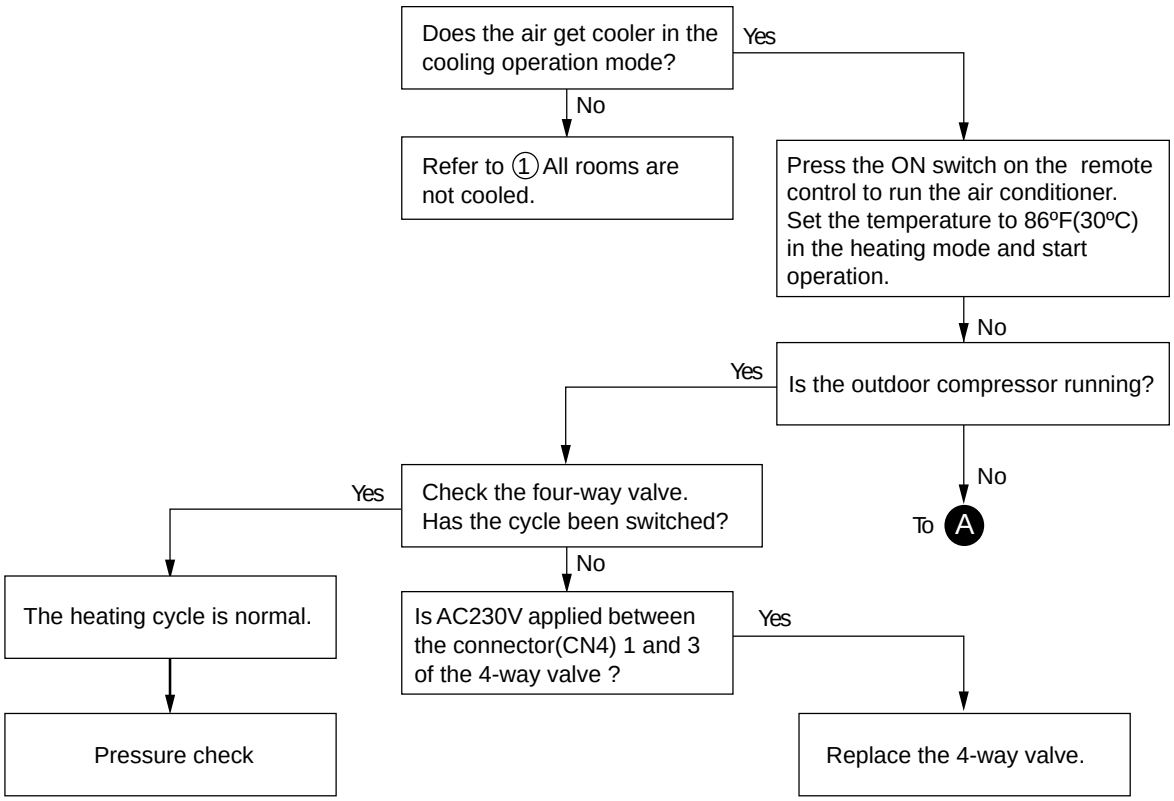




2) When one room is not cooled (other rooms are cooled)



3) When all rooms are not heated

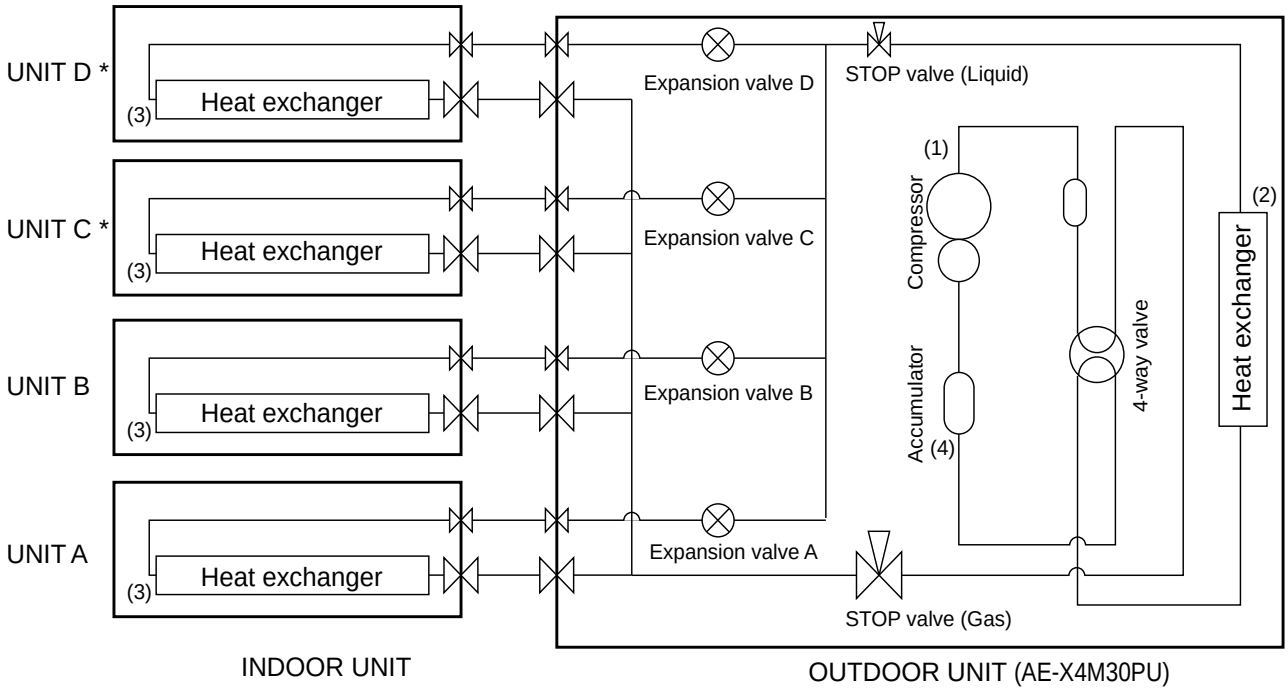


PROTECTIVE FUNCTIONS AND OPERATIONS

NO.	Function	Operation					
		Description	Detection time	Restart condition			
1	DC over current	Compressor is stopped if a current approximately 25A or more flows in the power transistor module.	During compressor operation	Automatically restarts after safety time (180 seconds)	4 times	Yes	Yes
2	AC over current	Lowers the operating frequency if the compressor AC current exceeds set value(19.3). Stops the compressor if the current exceeds at minimum frequency.	During compressor operation	Automatically restarts after safety time (180 seconds)	4 times	Yes	Yes
3	Compressor overheat prevention control	Lowers the operating frequency if the temperature of the compressor thermistor (TH1) rises above 226.4°F (108°C). Compressor is stopped if the thermistor stays above 226.4°F (108°C) for 2 minutes at minimum frequency.	During compressor operation	Automatically restarts after safety time (180 seconds)	No limit	No	No
4	Compressor high temperature error	Compressor is stopped if the compressor thermistor is above 235.4°F (113°C) (Or when TH1 shorts)	During compressor operation	Automatically restarts when thermistor (TH1) temperature falls below 210.2°F (99°C) (approximately 30 minutes)	4 times	Yes	Yes
5	Outdoor heat exchanger overheat prevention control	Lowers the operating frequency if the temperature of the outdoor heat exchanger rises above 134.6°F(57°C) during cooling. Stops the compressor if the temperature stays above 134.6°F (57°C) for 2 minutes at minimum frequency	During compressor operation	Automatically restarts after safety time (180 seconds)	No limit	No	No
6	Thermistor short	Compressor is stopped, if heat exchanger or outdoor thermistor shorts. Close the expansion valve of the corresponding room, if some suction thermistor shorts.	When the room is activated turns ON and the compressor starts.	Operation OFF	1 time	Yes	Yes
7	Thermistor open	Compressor is stopped, if compressor or heat exchanger or outdoor thermistor opens. Close the expansion valve of the corresponding room, if some suction thermistor shorts or opens.	When the room turns ON and the compressor starts.	Operation OFF	1 time	Yes	Yes
8	AC abnormal current	Compressor is stopped, if the operating frequency is above 70Hz and the compressor current is below 0.8A.	During compressor operation	Automatically re-starts after safety time.(180 sec.)	4 times	Yes	Yes
9	Serial signal error	INDOOR If open, while timer LED blinks, operation is continued. If short, operation is continued. OUTDOOR Loses the expansion valve of the corresponding room if the outdoor unit does not receive a serial signal from one or more indoor unit for 30 seconds. Compressor is stopped, if the out-door unit does not receive a serial signal from all indoor units.	During operation	Automatically re-starts as soon as the serial communication becomes possible.	No limit	Yes	Yes
10	Miswiring check error	Compressor is stopped, and miswiring check operation ends.	During miswiring operation	Miswiring check operation will not re-start automatically.	4 times	Yes	Yes
11	Indoor heat exchanger overheat prevention control	Lowers the operating frequency if the temperature of any of indoor heat exchanger rises high temperature during heating. Stops the compressor if the temperatures rays high for 2 minutes at minimum frequency.	During compressor operation	Automatically re-starts after safety time.(180 sec.)	No limit	No	No
12	Power factor module error	When a power factor module error input is detected.	During compressor operation	Automatically re-starts after safety time.(180 sec.)	4 times	Yes	Yes
13	DC Compressor rotation error	In the case that the feed back signal from the compressor is not input or abnormal.	During compressor operation	Automatically re-starts after safety time.(180 sec.)	8 times	Yes	Yes
14	IPM overheat prevention control. IPM high temperature error	Lowers the operating frequency if the temperature of IPM rises high temperature. Stops the compressor if the temperatures rays high for 2 minutes at minimum frequency.	During compressor operation	Automatically restarts after safety time.(180 sec.)	No limit	No	No

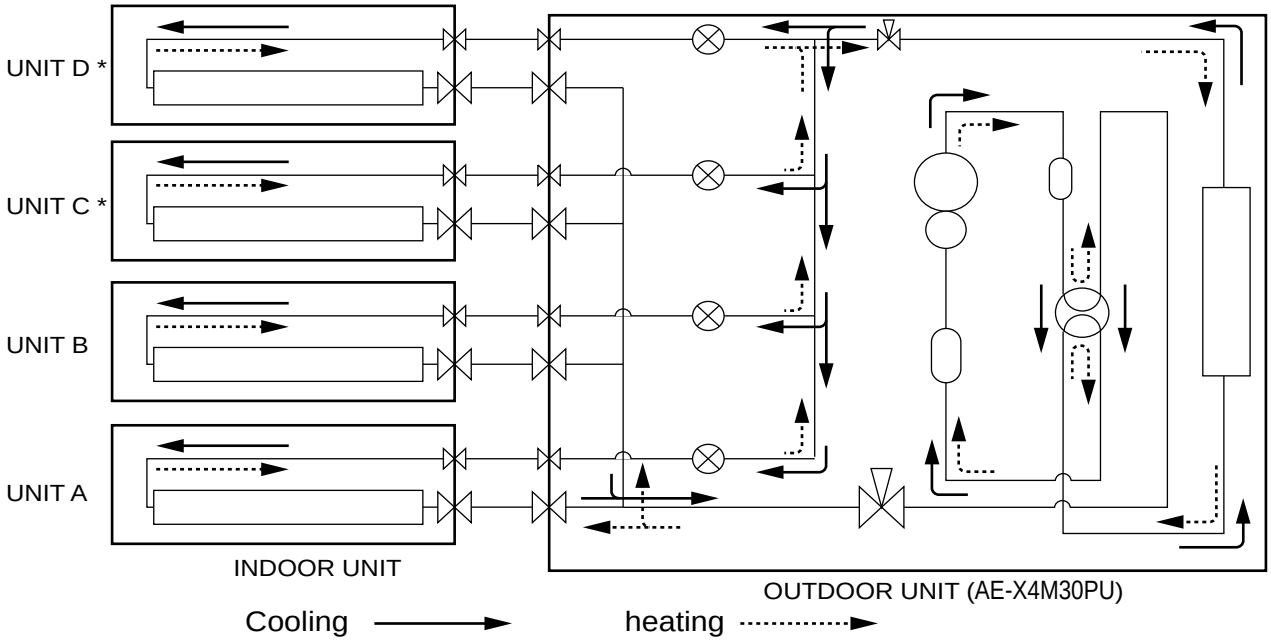
REFRIGERATION CYCLE

1. Refrigeration Cycle



* 15K, 18K can't be connected.

2. Flow of refrigerant



* 15K, 18K can't be connected.

3. Cycle temperature and pressure in stop valve

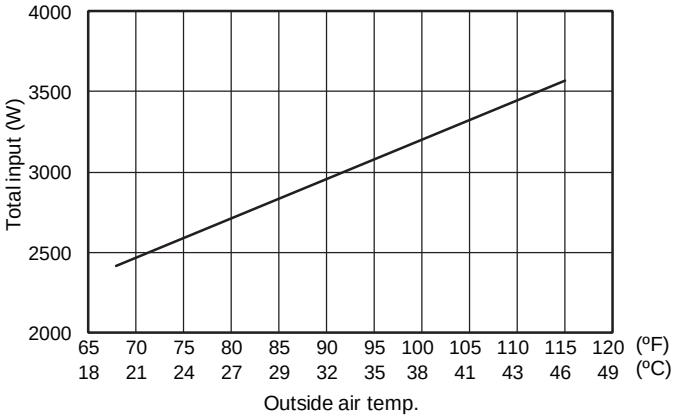
Running unit	No.	Operation Mode			
		Cool (Max)	Cool (Test run)	Heat (Max)	Heat (Test run)
AY-XPC09PU & AY-XPC07PU & AY-XPC07PU & AY-XPC07PU	(1)	186 ºF (85℃)	156 ºF (69℃)	158 ºF (70℃)	112 ºF (44℃)
	(2)	103 ºF (40℃)	100 ºF (38℃)	30 ºF (-1℃)	36 ºF (2℃)
	(3)	58 ºF (14℃)	62 ºF (16℃)	87 ºF (31℃)	79 ºF (26℃)
	(4)	64 ºF (18℃)	71 ºF (22℃)	32 ºF (0℃)	42 ºF (5℃)
	Stop valve pressure (gas side)	136 psig	164 psig	345 psig	253 psig
	Frequency	100Hz	58Hz	118Hz	50Hz
AY-XPC18PU (1 unit only on operation)	(1)	195 ºF (90℃)	167 ºF (75℃)	193 ºF (90℃)	157 ºF (70℃)
	(2)	99 ºF (37℃)	100 ºF (38℃)	39 ºF (4℃)	38 ºF (3℃)
	(3)	46 ºF (8℃)	53 ºF (12℃)	106 ºF (41℃)	90 ºF (32℃)
	(4)	53 ºF (12℃)	64 ºF (18℃)	35 ºF (2℃)	39 ºF (4℃)
	Stop valve pressure (gas side)	103 psig	132 psig	465 psig	355 psig
	Frequency	73Hz	41Hz	90Hz	59Hz
AY-XPC15PU (1 unit only on operation)	(1)	188 ºF (87℃)	165 ºF (74℃)	192 ºF (89℃)	155 ºF (69℃)
	(2)	99 ºF (37℃)	101 ºF (38℃)	39 ºF (4℃)	37 ºF (3℃)
	(3)	49 ºF (9℃)	55 ºF (13℃)	112 ºF (45℃)	91 ºF (33℃)
	(4)	56 ºF (14℃)	66 ºF (19℃)	36 ºF (2℃)	39 ºF (4℃)
	Stop valve pressure (gas side)	107 psig	134 psig	467 psig	349 psig
	Frequency	61Hz	34Hz	80Hz	49Hz
AY-XPC12PU (1 unit only on operation)	(1)	166 ºF (74℃)	149 ºF (65℃)	167 ºF (75℃)	124 ºF (51℃)
	(2)	95 ºF (35℃)	95 ºF (35℃)	38 ºF (3℃)	37 ºF (3℃)
	(3)	54 ºF (12℃)	59 ºF (15℃)	103 ºF (40℃)	78 ºF (25℃)
	(4)	56 ºF (14℃)	68 ºF (20℃)	38 ºF (3℃)	45 ºF (7℃)
	Stop valve pressure (gas side)	121 psig	149 psig	485 psig	326 psig
	Frequency	49Hz	27Hz	55Hz	40Hz
AY-XPC09PU (1 unit only on operation)	(1)	152 ºF (67℃)	145 ºF (63℃)	181 ºF (83℃)	135 ºF (57℃)
	(2)	95 ºF (35℃)	95 ºF (35℃)	35 ºF (2℃)	37 ºF (3℃)
	(3)	55 ºF (13℃)	60 ºF (15℃)	106 ºF (41℃)	78 ºF (25℃)
	(4)	59 ºF (15℃)	71 ºF (22℃)	45 ºF (7℃)	47 ºF (8℃)
	Stop valve pressure (gas side)	133 psig	157 psig	485 psig	346 psig
	Frequency	36Hz	20Hz	70Hz	40Hz
AY-XPC07PU (1 unit only on operation)	(1)	150 ºF (65℃)	133 ºF (56℃)	157 ºF (70℃)	141 ºF (61℃)
	(2)	95 ºF (35℃)	95 ºF (35℃)	37 ºF (3℃)	38 ºF (3℃)
	(3)	57 ºF (14℃)	61 ºF (16℃)	91 ºF (33℃)	82 ºF (28℃)
	(4)	67 ºF (20℃)	74 ºF (24℃)	46 ºF (8℃)	44 ºF (7℃)
	Stop valve pressure (gas side)	144 psig	162 psig	419 psig	352 psig
	Frequency	28Hz	17Hz	55Hz	40Hz

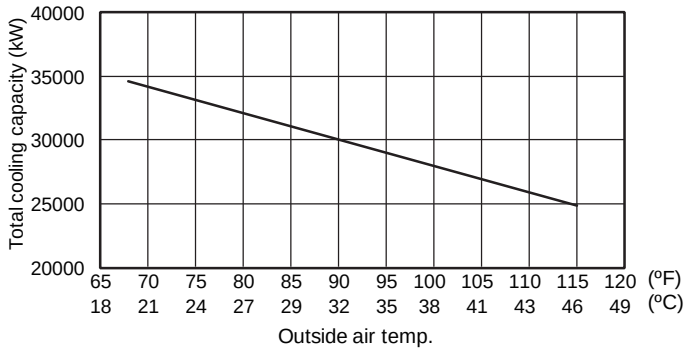
4. PERFORMANCE CURVES

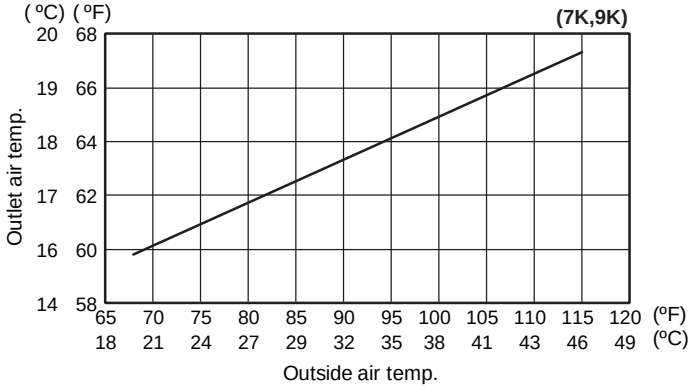
NOTE: Total Capacity and total input with 4 units (9k+7k+7k+7k) running.

At Cooling

(Running frequency: 90HZ)

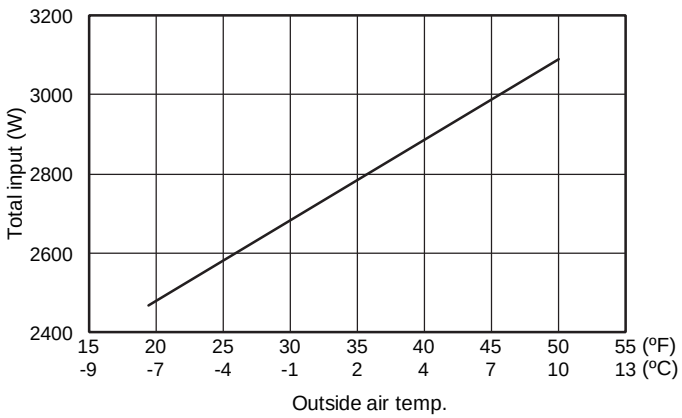


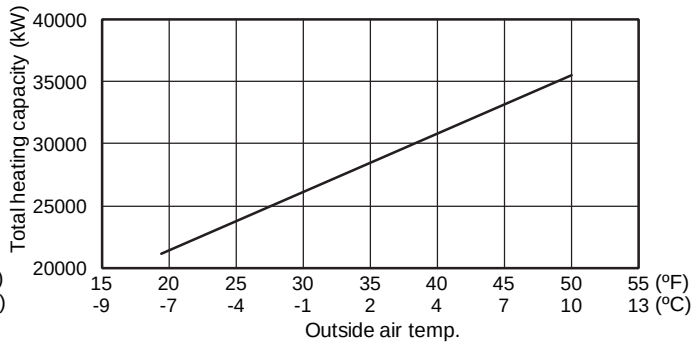


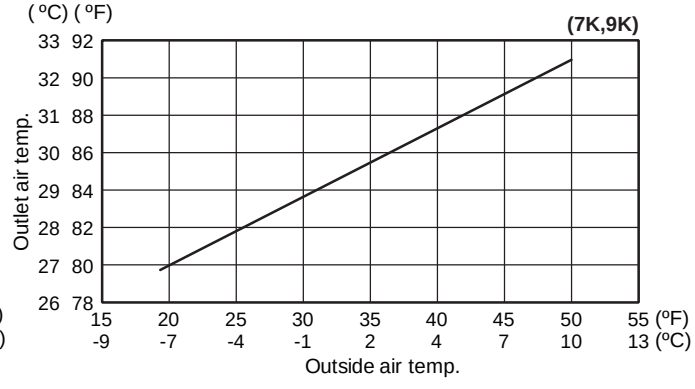


At Heating

(Running frequency: 108HZ)





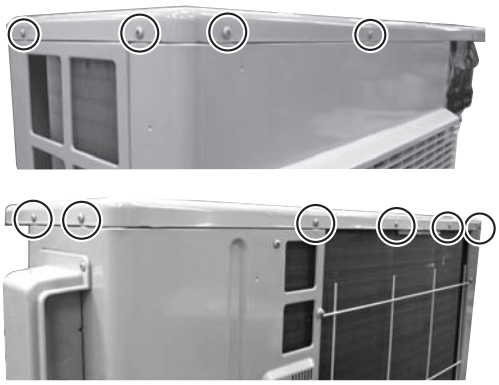


DISASSEMBLING PROCEDURE

PROCEDURE

1. Remove the five (5) screws fixing the front panel R.

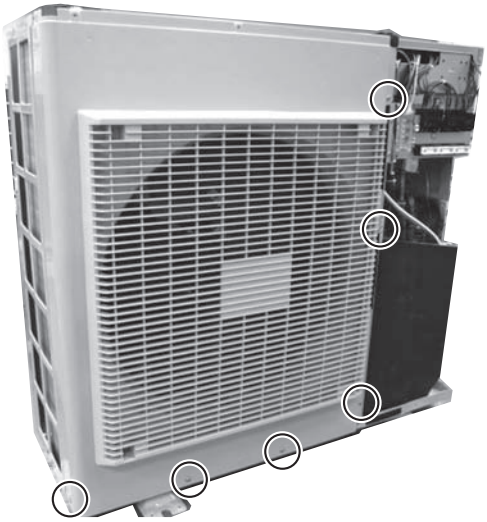
2. Remove the ten (10) screws fixing the top cover.



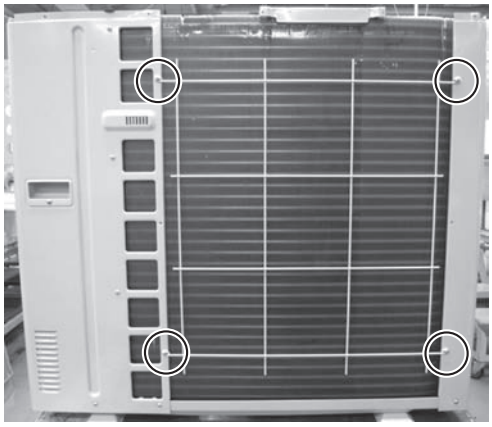
3. Remove the two (2) screws fixing the side cover.

4. Remove the one (1) screw fixing the cable cover.

5. Remove the six (6) screws fixing the front panel L.

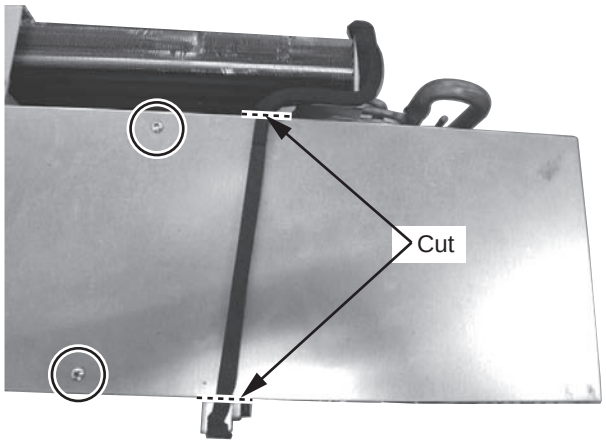


6. Remove the four (4) screws fixing the rear guard.

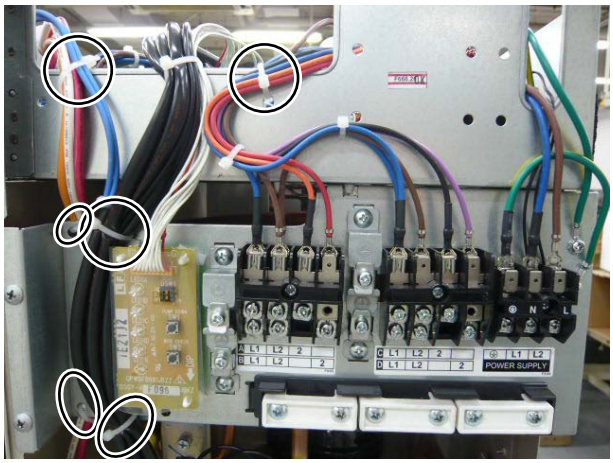


7. Remove the eleven (11) screws fixing the side cabinet R.

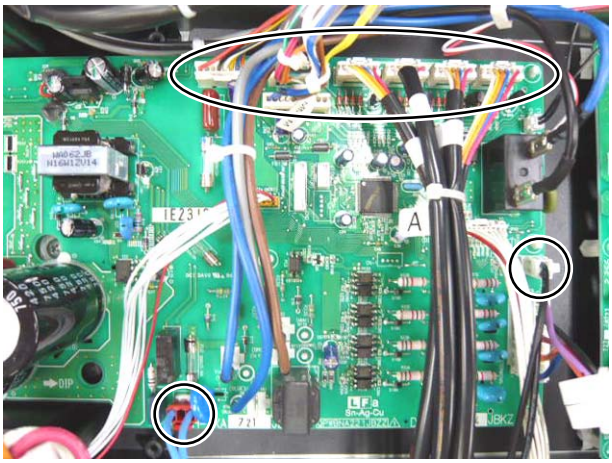
8. Cut the insulators. (2 points)
9. Remove the two (2) screws fixing the control box cover.



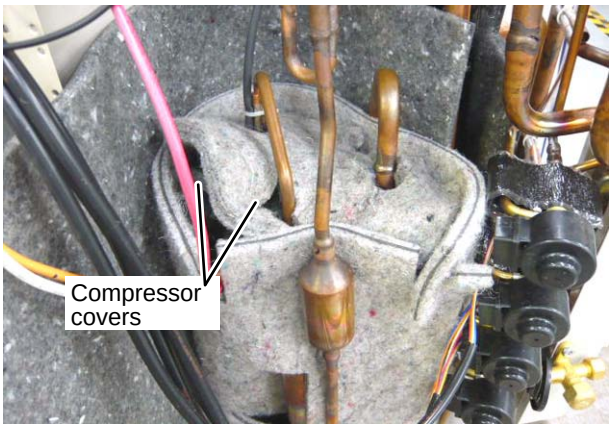
10. Cut the six (6) fixing bands.



11. Disconnect the nine (9) connectors.

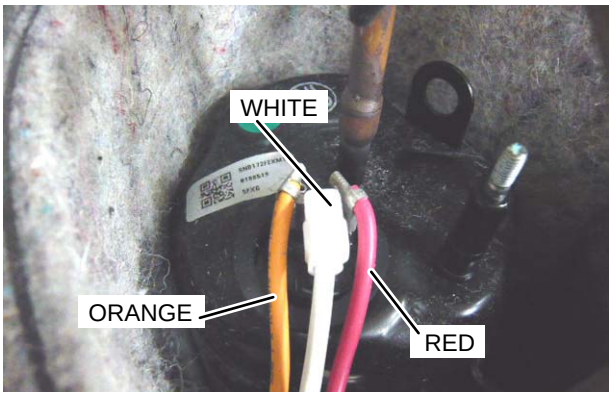


12. Remove the two (2) compressor covers.

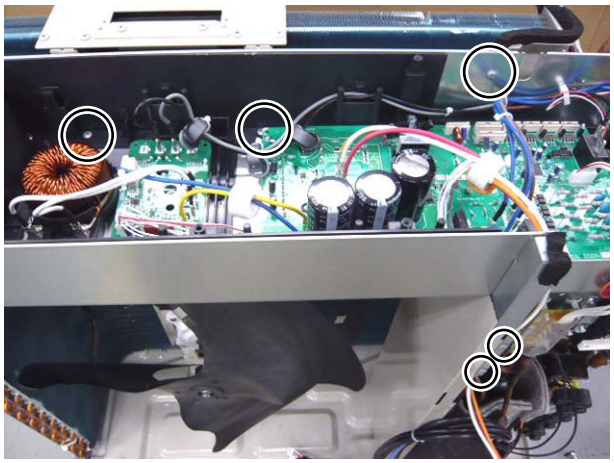


13. Remove the one (1) nut fixing the terminal cover.

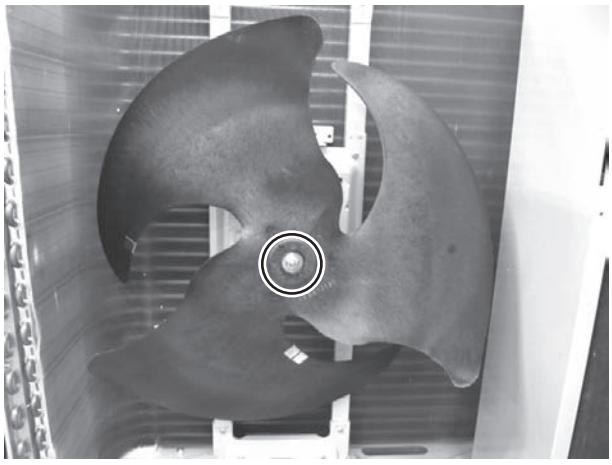
14. Disconnect the three (3) terminals.



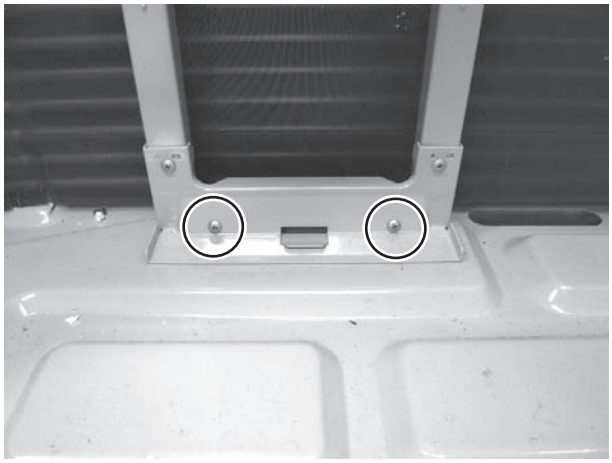
15. Remove the five (5) screws fixing the control box assembly.



16. Remove the one (1) nut fixing the propeller fan.

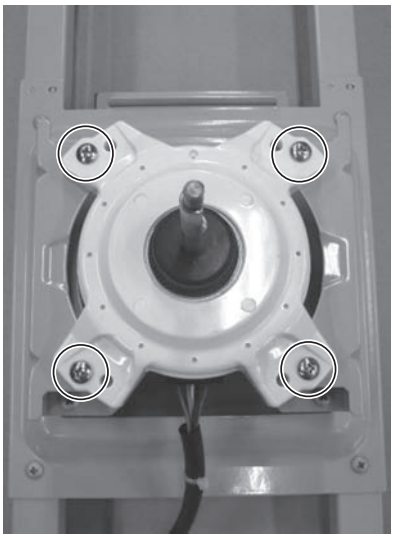


17. Remove the two (2) screws fixing the motor angle.

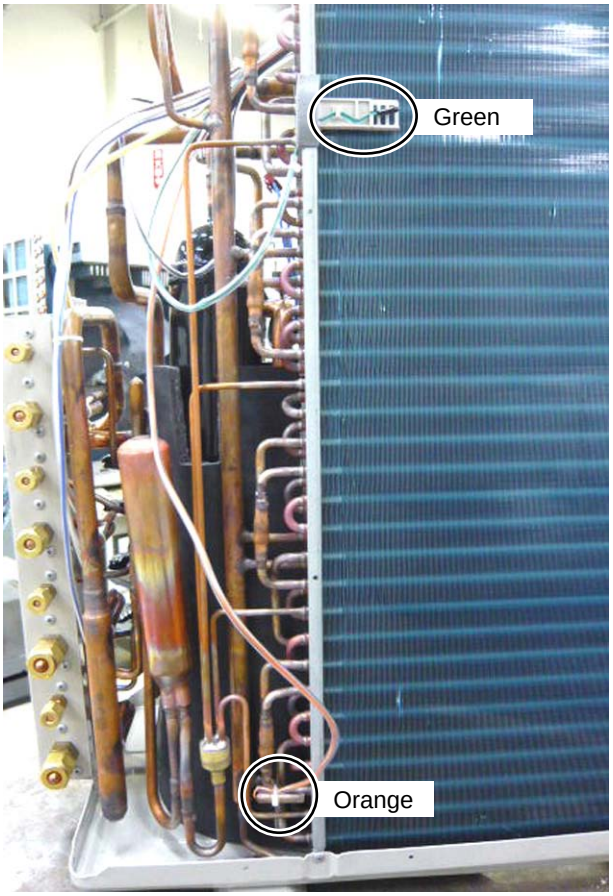


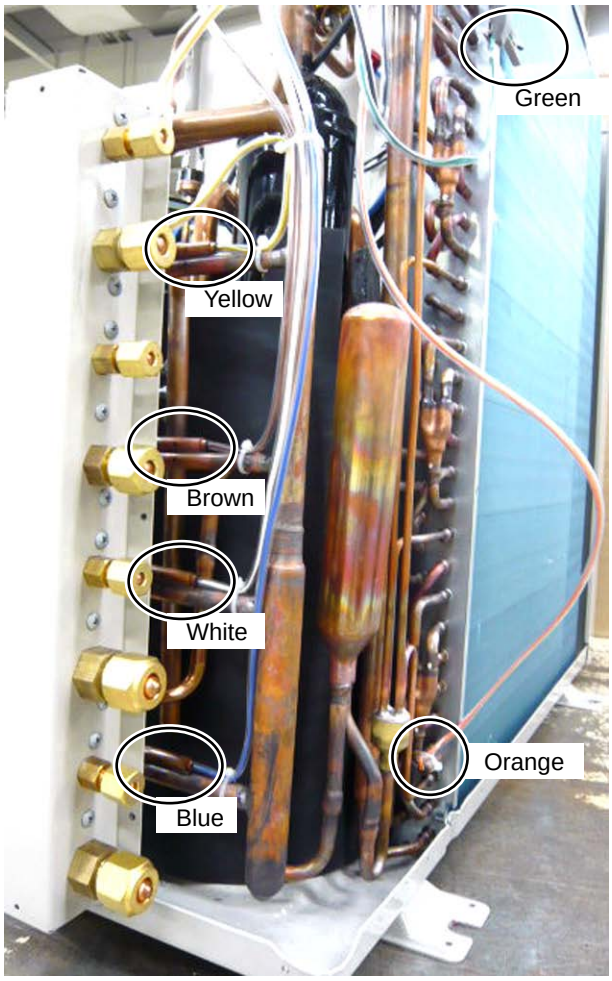
18. Cut the two (2) fixing bands.

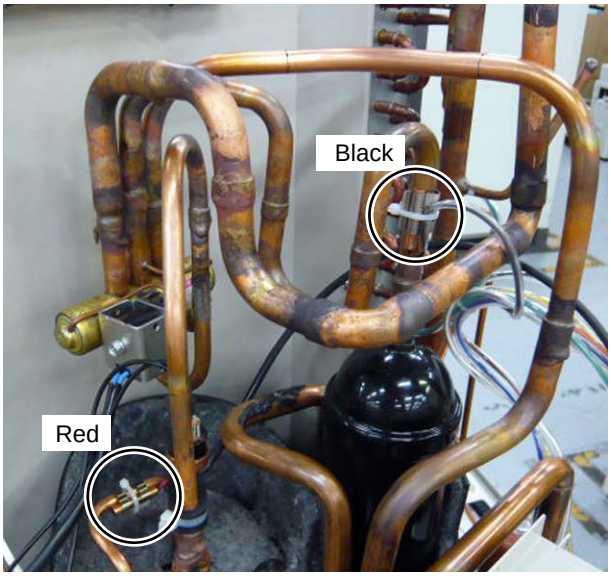
19. Remove the four (4) screws fixing the fan motor.



Position of the thermistors.

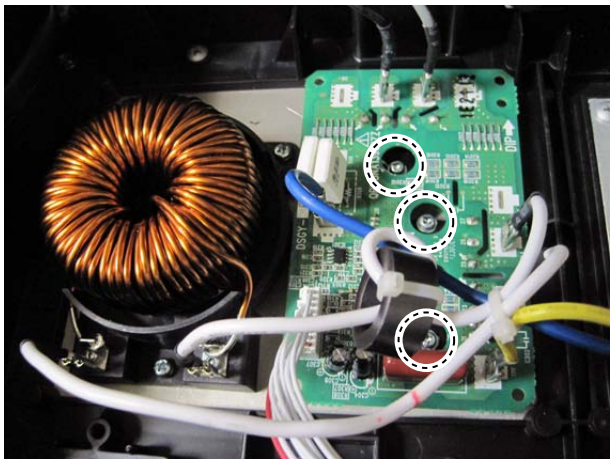




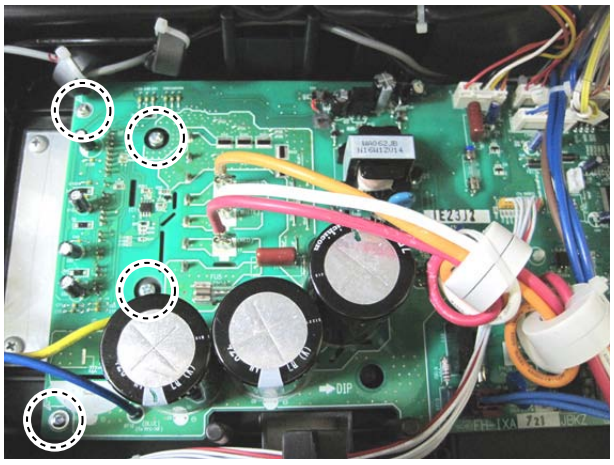


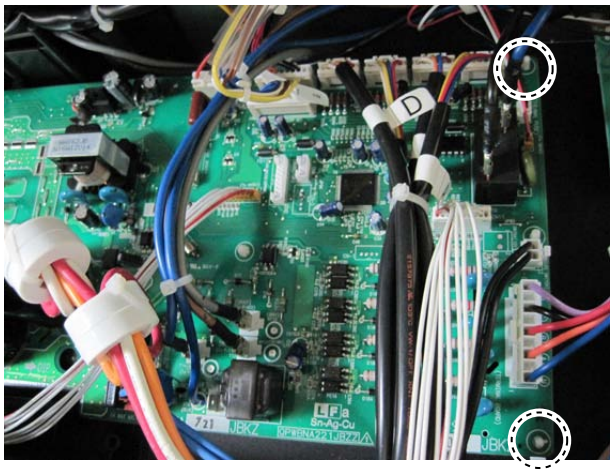
How to disassemble the control box assembly

1. Remove the 3 screws fixing the PFC PWB.

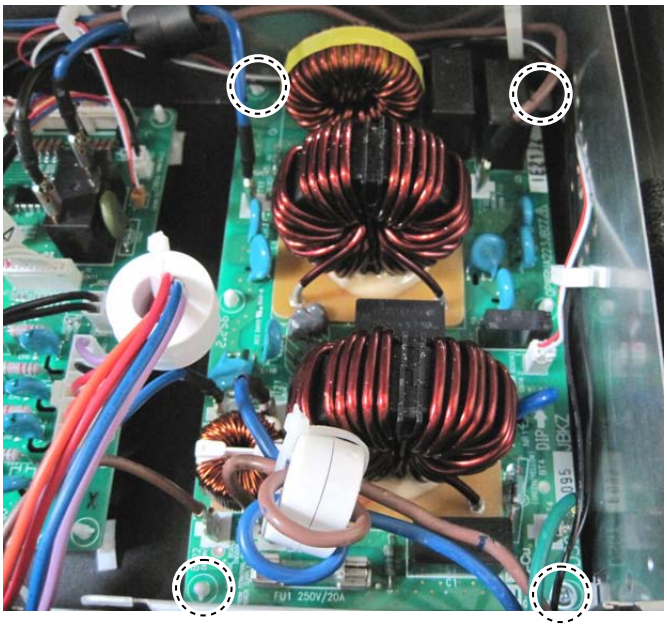


2. Remove the 4 screws fixing the MAIN PWB.
3. Unlock the 2 spacer's lock.

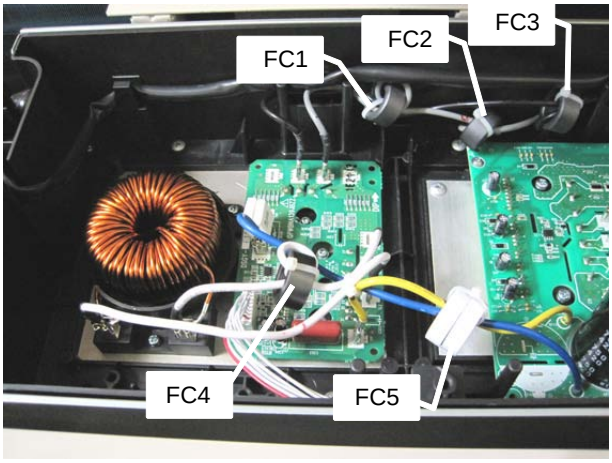


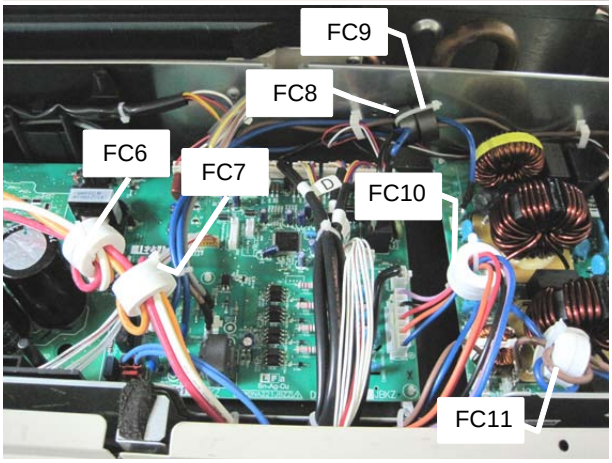


4. Remove the 2 screws fixing the FILTER PWB.
5. Unlock the 2 spacer's lock.



The position of setting Ferrite core (FC1-FC11)





SHARP PARTS LIST

MULTI SPLIT TYPE
ROOM AIR CONDITIONER

OUTDOOR UNIT

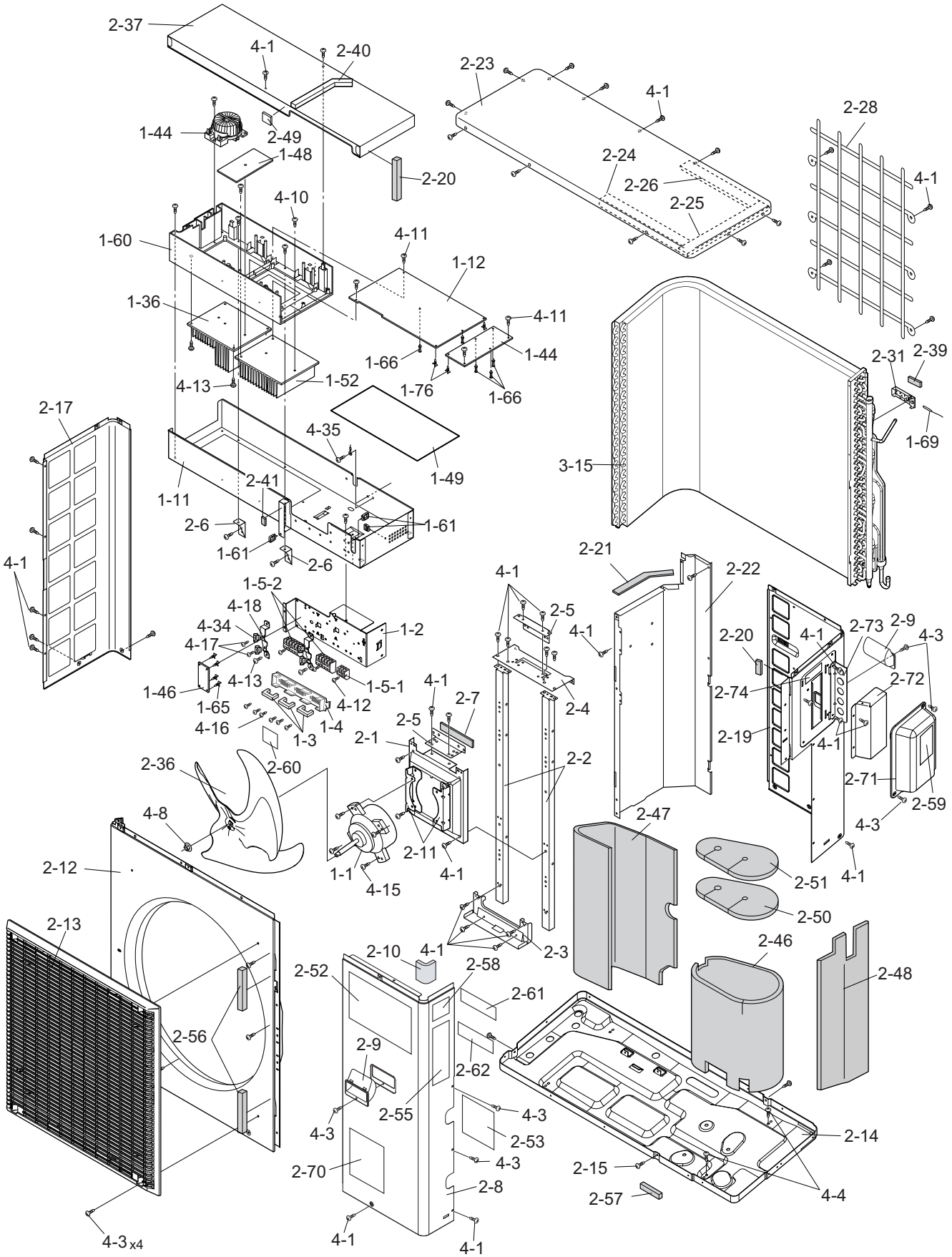
MODEL AE-X4M30PU

CONTENTS

Parts marked with "⚠" are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

SHARP CORPORATION

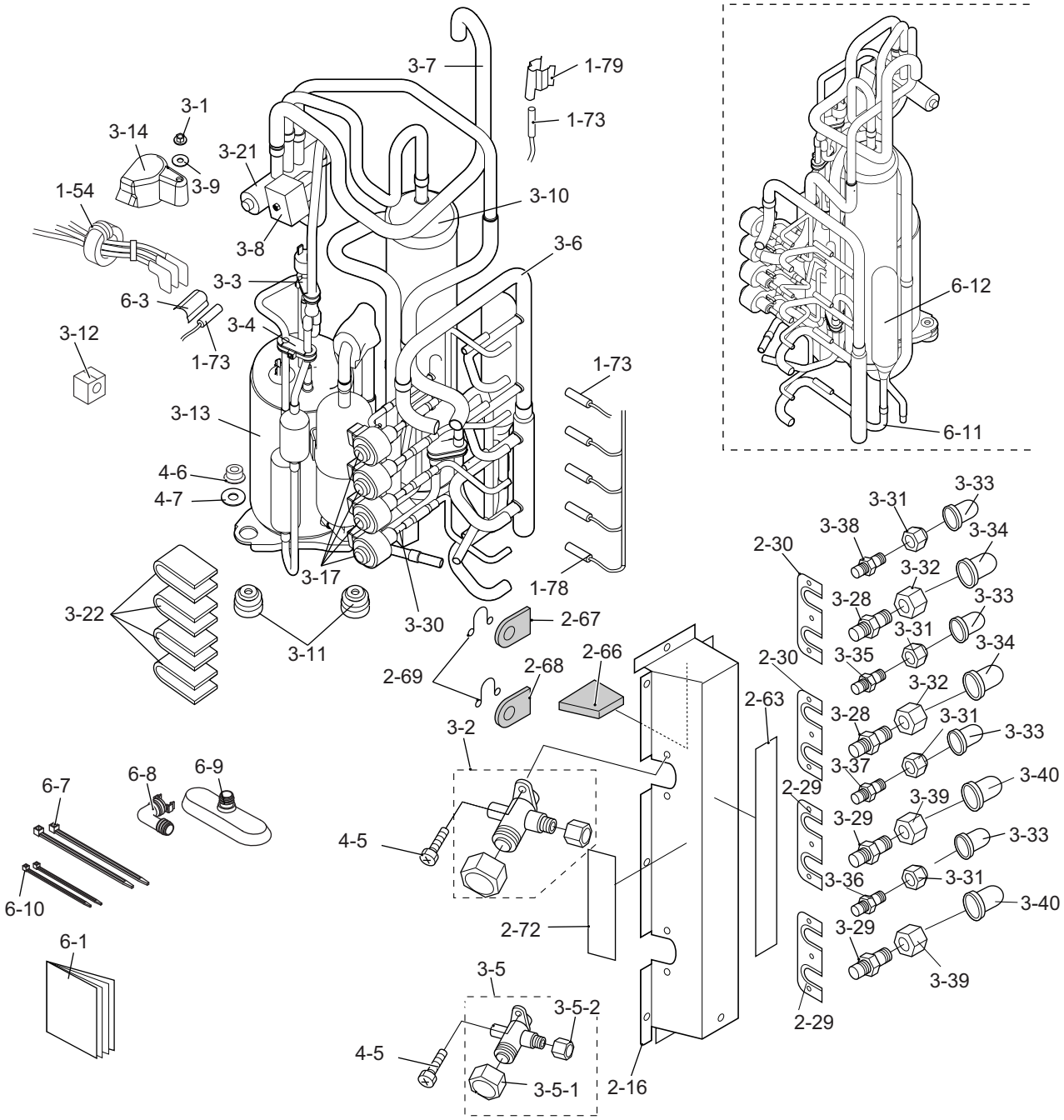
[1] OUTDOOR UNIT PARTS 1



NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
[1] OUTDOOR UNIT PARTS 1					
1-1	CMOTLB541JBEZ	BT			Fan motor
1-2	LANG-A769JBWZ	AN			Terminal board angle
1-3	LHLD-A539JBFA	AE			Cord holder
1-4	LHLD-B095JBFA	AK			Cord clamp holder
1-5-1	QTANZA093JBZZ	AQ			Terminal board
1-5-2	QTANZA096JBZZ	AV			Terminal board
1-11	DBOX-A044JBWZ	AT			Control box assembly
1-12	DSGY-F100JBKZ	CD			Control board unit
1-36	PRDAFA264JBEZ	BA			Haet sink
1-44	DSGY-F095JBKZ	BH			Filter board unit
1-46	DSGY-F096JBKZ	AX			Display board unit
1-48	DSGY-F104JBKZ	BP			PFC control board unit
1-49	PSHE-A359JBEZ	AN			Protect sheet
1-52	PRDAFA263JBEZ	AZ			Heat sink
1-60	LHLD-B236JBFZ	AV			Heat sink holder
1-61	LHLDWA039JBEZ	AC			Wire holder
1-65	PSPA-A146JBE0	AC			Spacer
1-66	PSPA-A173JBEZ	AE			PWB spacer
1-69	RH-HXA182JBZZ	AZ			Thermistor
1-76	PSPA-A082JBE0	AB			PWB spacer
2-1	LANGKA332JBTA	AS			Fan motor base
2-11	LANGKA333JBTA	AV			Motor angle sub
2-2	LANGKA330JBTA	AR			Motor angle
2-3	LANGKA331JBTA	AM			Motor angle B
2-4	LANGKA329JBTA	AY			Motor angle T
2-5	LSUB-A043JBTA	AG			Motor angle sub A
2-6	LSUB-A042JBTA	AU			Motor angle sub B
2-7	PSEL-C642JBEZ	AA			M.ang sub a seal
2-8	GCAB-A476JBTA	AZ			Front panel R
2-9	JHNDPA030JBFA	AG			Handle
2-10	PSEL-C637JBEZ	AD			Front panel seal A
2-12	GCAB-A475JBTA	BD			Front panel L
2-13	GGADFA049JBFA	BC			Fan guard
2-14	CCHS-B381JBTA	BD			Base pan sub ass'y
2-15	GLEGMA043JBTB	AX			Base stand
2-17	GPLTMA082JBTA	AX			Side cabinet L
2-19	GPLTMA083JBTA	BA			Side cover R
2-20	PSEL-C641JBEZ	AD			Side cover R seal
2-21	PSEL-C597JBEZ	AC			Bulkhead insulator
2-22	PSKR-A414JBTA	AY			Bulkhead
2-23	GCAB-A477JBTA	BA			Top cover
2-24	PSEL-C598JBEZ	AK			Top cover seal A
2-25	PSEL-C640JBEZ	AG			Top cover seal B
2-26	PSEL-C702JBEZ	AE			Top cover seal C
2-28	GGADRA001JBTA	AV			Rear guard
2-31	LHLD-B239JBFA	AD			Thermistor holder
2-36	NFANPA152JBEZ	AY			Propeller fan
2-37	PCOV-A940JBWZ	AP			Control box cover
2-39	PSEL-C373JBEZ	AC			Seal
2-40	PSEL-C634JBEZ	AE			Panel seal A
2-41	PSEL-C635JBEZ	AD			Panel seal B
2-46	PSPF-B353JBEZ	AT			Compressor cover A1
2-47	PSPF-B266JBEZ	AW			Compressor cover B
2-48	PSPF-B267JBEZ	AQ			Compressor cover C
2-49	PSEL-C638JBEZ	AD			Front panel seal B
2-50	PSPF-B357JBEZ	AF			Compressor cover A3
2-51	PSPF-B358JBEZ	AF			Compressor cover B3
2-52	TLABMA819JBRA	AV			Inverter label
2-53	TLABCE011JBRZ	AG			Wiring diagram
2-55	TSPC-H712JBRZ	AH			Name label
2-56	PSEL-C760JBEZ	AB			Fr.panel l seal A
2-57	PSEL-C761JBEZ	AB			Base pan seal A
2-58	TLAB-F696JBRZ	AF			Caution label UL
2-59	TLAB-F697JBRZ	AH			Cable holder label
2-60	TLAB-F686JBRZ	AD			Caution label in
2-61	TLAB-F692JBRZ	AH			Service label
2-62	TLAB-F693JBRZ	AM			Label
2-70	TLAB-F694JBEZ	AH			Energy label
2-71	PCOV-C029JBTA	AL			Cable cover 1
2-72	PCOV-C028JBFA	AN			Cable cover 2
2-73	LHLD-B238JBTA	AL			Conduit holder
2-74	TLAB-F748JBRZ	AF			UL Copper wire label
3-15	DCON-A761JBKZ	CV			Condenser assembly
4-1	LX-BZA493JBEZ	AE			Special screw
4-3	LX-BZA495JBEZ	AE			Special screw
4-4	LX-BZA380JBEZ	AK			Special screw
4-8	LX-NZA428JBEZ	AC			Special nut
4-10	XBPS740P20J00	AF			Machine screw
4-11	XTPS730P12XS0	AF			Tapping screw
4-12	XCPS740P25000	AD			Tapping screw
4-13	XJTS740P10000	AC			Tap tight screw
4-15	XTTWW40P16000	AC			Tapping screw
4-16	XCTS740P30000	AF			Tapping screw
4-17	XBPS740P08K00	AK			Machine screw
4-18	LANG-A734JBWZ	AK			Earth angle

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
[1] OUTDOOR UNIT PARTS 1					
4-34	LHLD-B067JBEZ	AN			Special Washer
4-35	LX-BZA075JBE0	AA			Special Screw

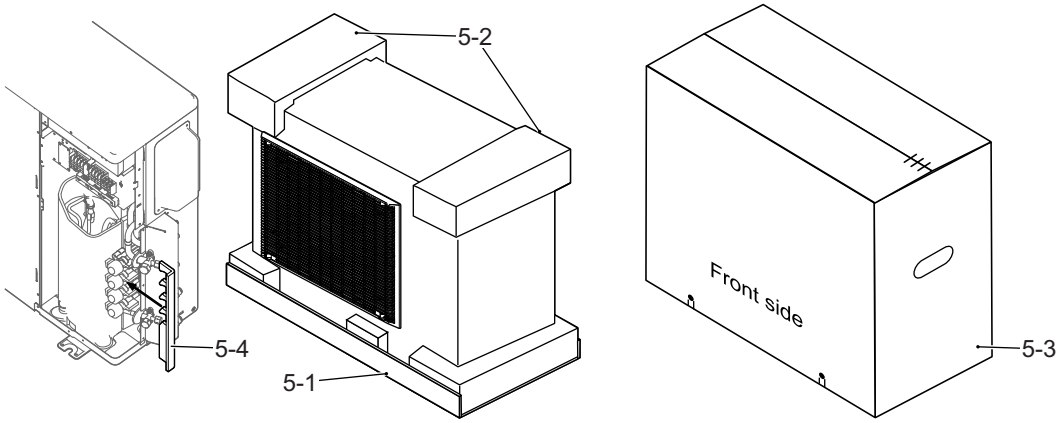
[2] OUTDOOR UNIT PARTS 2



NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
[2] OUTDOOR UNIT PARTS 2					
1-54	QW-iZA161JBZZ	AV			Compressor cord
1-73	RH-HXA182JBZZ	AZ			Thermistor
1-78	RH-HXA183JBZZ	AY			Thermistor
1-79	MSPR-A036JBE0	AB			Thermistor spring
2-16	PDAi-A298JBTA	AX			Flare coupling base
2-29	LSUB-A021JBWZ	AE			Flare cou. Sub-L
2-30	LSUB-A020JBWZ	AE			Flare cou. Sub-S
2-63	TLAB-F691JBRA	AS			Unit label
2-66	PSEL-C006JBEZ	AC			Insulator
2-67	PGUM-A242JBEZ	AH			Valve rubber
2-68	PGUM-A120JBEZ	AG			Valve rubber
2-69	MSPR-A129JBE0	AD			Cycle spring
2-72	TLAB-F690JBRA	AR			Label
3-1	LX-NZA411JBEZ	AH			Frange nut
3-2	DVLV-B360JBKZ	BC			3Way valve unit
3-3	PGUM-A121JBEZ	AE			Damper rubber
3-4	PGUM-A008JBE0	AE			Damper rubber
3-5	DVLV-B361JBKZ	AY			3Way valve unit
3-5-1	LX-NZA227JBEZ	AF			Bonnet
3-5-2	LX-NZA228JBEZ	AD			Service nut
3-6	CPiPCB796JBKZ	BB			Hedder pipe-L K
3-7	DVLV-B370JBKZ	BT			Reverse valve ass'Y
3-8	CCiL-A185JBKZ	AU			Coil assembly
3-9	PSEL-E240JBEZ	AK			Terminal gasket
3-10	PACU-A054JBEZ	BG			Accumulator
3-11	GLEG-A162JBEZ	AF			Compressor cushion
3-12	PSEL-E239JBEZ	AH			Gasket washer
3-13	PCMPRA718JBEZ	CU			Compressor
3-14	PCOV-B887JBEZ	AR			Terminal cover
3-17	RMOTSA050JBZZ	AY			Coil
3-21	PVLVXA081JBEZ	BB			Reverse valve
3-22	PGUMSA047JBE0	AF			Damper rubber
3-28	DVLV-B362JBKZ	AU			Flare union unit 3s
3-29	DVLV-B363JBKZ	AX			Flare union unit 4s
3-30	DVLV-B364JBKZ	BT			Expan. valve assembly
3-31	LX-NZA250JBEZ	AE			Flare nut
3-32	LX-NZA251JBEZ	AG			Flare nut
3-33	PCAP-A083JBEZ	AC			Nut bonnet
3-34	PCAP-A084JBEZ	AC			Nut bonnet
3-35	DVLV-B367JBKZ	AT			Flare union unit 2S C
3-36	DVLV-B365JBKZ	AT			Flare union unit 2S A
3-37	DVLV-B366JBKZ	AT			Flare union unit 2S B
3-38	DVLV-B368JBKZ	AT			Flare union unit 2S D
3-39	LX-NZA280JBEZ	AG			Flare nut(4)
3-40	PCAP-A103JBEZ	AF			Nut bonnet
4-5	LX-BZA494JBEZ	AE			Special Screw
4-6	XNFS760-50000	AE			Nut
4-7	LX-WZA057JBEZ	AC			Washer 22
6-1	TiNS-B434JBRZ	AG			Installation manual
6-3	MSPR-A026JBE0	AB			Spring
6-7	LBND-A046JBE0	AE			Wire fixing band
6-8	LPFT-A134JBFZ	AF			Drain joint
6-9	LPFT-A135JBFZ	AH			Drain tray
6-10	LBND-A097JBEZ	AE			Wire fixing band
6-11	PPiPCL655JB1Z	AN			Lead tube
6-12	PPiPCL661JBEZ	BB			Receiver
[3] OTHER OUTDOOR PARTS					
1-6	RFiL-A064JBE0	AP			Ferrite core (FC1~4, 8, 9)
1-7	RNF--A001VBE0	AP			Ferrite core (FC5~7, 10,11)
1-8	QFS-GA065JBZZ	BA			Fuse 20A AC250V(FUSE1, 5)
1-9	QFS-GA062JBZZ	AF			Fuse 3.15A C250V(FUSE2)
1-13	QFS-GA063JBZZ	AE			Fuse 2A C250V(FUSE3, 6)
1-16	QW-VZG778JBZZ	AF			Lead wire (BCN14)
1-17	QW-VZG779JBZZ	AH			Lead wire (PFC AC2-T5)
1-18	QW-VZG780JBZZ	AE			Lead wire (BT11)
1-19	QW-VZG781JBZZ	AF			Lead wire (BT12)
1-20	QW-VZG782JBZZ	AL			Lead wire (BCN13)
1-21	QW-VZG783JBZZ	AG			Lead wire (T10-T13)
1-22	QW-VZG784JBZZ	AG			Lead wire (T11-T14)
1-23	QW-VZG785JBZZ	AF			Lead wire (BT16)
1-25	QW-VZG786JBZZ	AF			Lead wire (TBL1-T20)
1-26	QW-VZG787JBZZ	AE			Lead wire (TBL2-T22)
1-27	QW-VZG788JBZZ	AF			Lead wire (TBN-T21)(TBL1-T21)
1-28	QW-VZG789JBZZ	AF			Lead wire (TBN-T23)(TBL1-T23)
1-29	QW-VZG790JBZZ	AE			Lead wire (TB-TBOX)
1-30	QW-VZG791JBZZ	AE			Lead wire (TBL1-TBL1)
1-31	QW-VZG792JBZZ	AE			Lead wire (TBL2-TBL2)
1-32	QW-VZG793JBZZ	AL			Lead wire (Display lead)
1-33	QW-VZG794JBZZ	AH			Lead wire (Pressure switch)
1-34	QW-VZG795JBZZ	AL			Lead wire (TB-CN6)
1-37	QW-VZG796JBZZ	AE			Lead wire (T4-TBOX)
1-38	QW-VZG797JBZZ	AH			Lead wire (PFC-AC1-MRY)
1-39	QW-VZG798JBZZ	AF			Lead wire (PFC coil)

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
[3] OTHER OUTDOOR PARTS					
1-40	RBiM-A003JBEZ	BG			Pressure switch
1-41	RTRN-A306JBZZ	BP			PFC Coil
4-19	LHLD-B237JBFZ	AG			Heat sink holder Sub
4-21	PCOV-C027JBWZ	AH			Holder cover
4-26	TLAB-F836JBRZ	AH			Label (Terminal CDP)
4-27	TLAB-F685JBRZ	AH			Label (Terminal AB)
4-29	TLAB-F689JBRZ	AH			Label
6-11	CPiPCB666JBKZ	AX			JOINT 1/2-3/8 assembly

[4] PACKING PARTS



NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
[4] PACKING PARTS					
5-1	CPADBA072JBKZ	AR			Bottom pad ass'y
5-2	CPADBA073JBKZ	AH			Packing pad ass'y
5-3	SPAKCE269JBEZ	AZ			Packing case
5-4	SPADBA707JBEZ	AF			Packing pad

■INDEX

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
【 C 】				
CCHS-B381JBTA	1-2-14	BD		
CCiL-A185JBKZ	2-3-8	AU		
CMOTLB541JBEZ	1-1-1	BT		
CPADBA072JBKZ	4-5-1	AR		
CPADBA073JBKZ	4-5-2	AH		
CPiPCB666JBKZ	3-6-11	AX		
CPiPCB796JBKZ	2-3-6	BB		
【 D 】				
DBOX-A044JBWZ	1-1-11	AT		
DCON-A761JBKZ	1-3-15	CV		
DSGY-F095JBKZ	1-1-44	BH		
DSGY-F096JBKZ	1-1-46	AX		
DSGY-F100JBKZ	1-1-12	CD		
DSGY-F104JBKZ	1-1-48	BP		
DVLV-B360JBKZ	2-3-2	BC		
DVLV-B361JBKZ	2-3-5	AY		
DVLV-B362JBKZ	2-3-28	AU		
DVLV-B363JBKZ	2-3-29	AX		
DVLV-B364JBKZ	2-3-30	BT		
DVLV-B365JBKZ	2-3-36	AT		
DVLV-B366JBKZ	2-3-37	AT		
DVLV-B367JBKZ	2-3-35	AT		
DVLV-B368JBKZ	2-3-38	AT		
DVLV-B370JBKZ	2-3-7	BT		
【 G 】				
GCAB-A475JBTA	1-2-12	BD		
GCAB-A476JBTA	1-2-8	AZ		
GCAB-A477JBTA	1-2-23	BA		
GGADFA049JBFA	1-2-13	BC		
GGADRA001JBTA	1-2-28	AV		
GLEG-A162JBEZ	2-3-11	AF		
GLEGMA043JBTB	1-2-15	AX		
GPLTMA082JBTA	1-2-17	AX		
GPLTMA083JBTA	1-2-19	BA		
【 J 】				
JHNDPA030JBFA	1-2-9	AG		
【 L 】				
LANG-A734JBWZ	1-4-18	AK		
LANG-A769JBWZ	1-1-2	AN		
LANGKA329JBTA	1-2-4	AY		
LANGKA330JBTA	1-2-2	AR		
LANGKA331JBTA	1-2-3	AM		
LANGKA332JBTA	1-2-1	AS		
LANGKA333JBTA	1-2-11	AV		
LBND-A046JBE0	2-6-7	AE		
LBND-A097JBEZ	2-6-10	AE		
LHLD-A539JBFA	1-1-3	AE		
LHLD-B067JBEZ	1-4-34	AN		
LHLD-B095JBFA	1-1-4	AK		
LHLD-B236JBFZ	1-1-60	AV		
LHLD-B237JBFZ	3-4-19	AG		
LHLD-B238JBTA	1-2-73	AL		
LHLD-B239JBFA	1-2-31	AD		
LHLDWA039JBEZ	1-1-61	AC		
LPFT-A134JBFZ	2-6-8	AF		
LPFT-A135JBFZ	2-6-9	AH		
LSUB-A020JBWZ	2-2-30	AE		
LSUB-A021JBWZ	2-2-29	AE		
LSUB-A042JBTA	1-2-6	AU		
LSUB-A043JBTA	1-2-5	AG		
LX-BZA075JBE0	1-4-35	AA		
LX-BZA380JBEZ	1-4-4	AK		
LX-BZA493JBEZ	1-4-1	AE		
LX-BZA494JBEZ	2-4-5	AE		
LX-BZA495JBEZ	1-4-3	AE		
LX-NZA227JBEZ	2-3-5-1	AF		
LX-NZA228JBEZ	2-3-5-2	AD		
LX-NZA250JBEZ	2-3-31	AE		
LX-NZA251JBEZ	2-3-32	AG		
LX-NZA280JBEZ	2-3-39	AG		
LX-NZA411JBEZ	2-3-1	AH		
LX-NZA428JBEZ	1-4-8	AC		
LX-WZA057JBEZ	2-4-7	AC		
【 M 】				
MSPR-A026JBE0	2-6-3	AB		
MSPR-A036JBE0	2-1-79	AB		
MSPR-A129JBE0	2-2-69	AD		
【 N 】				
NFANPA152JBEZ	1-2-36	AY		
【 P 】				
PACU-A054JBEZ	2-3-10	BG		
PCAP-A083JBEZ	2-3-33	AC		
PCAP-A084JBEZ	2-3-34	AC		
PCAP-A103JBEZ	2-3-40	AF		
PCMPRA718JBEZ	2-3-13	CU		
PCOV-A940JBWZ	1-2-37	AP		
PCOV-B887JBEZ	2-3-14	AR		
PCOV-C027JBWZ	3-4-21	AH		
PCOV-C028JBFA	1-2-72	AN		
PCOV-C029JBTA	1-2-71	AL		
PDAi-A298JBTA	2-2-16	AX		
PGUM-A008JBE0	2-3-4	AE		
PGUM-A120JBEZ	2-2-68	AG		
PGUM-A121JBEZ	2-3-3	AE		
PGUM-A242JBEZ	2-2-67	AH		
PGUMSA047JBE0	2-3-22	AF		
PPiPCL655JB1Z	2-6-11	AN		
PPiPCL661JBEZ	2-6-12	BB		
PRDAFA263JBEZ	1-1-52	AZ		
PRDAFA264JBEZ	1-1-36	BA		
PSEL-C006JBEZ	2-2-66	AC		
PSEL-C373JBEZ	1-2-39	AC		
PSEL-C597JBEZ	1-2-21	AC		
PSEL-C598JBEZ	1-2-24	AK		
PSEL-C634JBEZ	1-2-40	AE		
PSEL-C635JBEZ	1-2-41	AD		
PSEL-C637JBEZ	1-2-10	AD		
PSEL-C638JBEZ	1-2-49	AD		
PSEL-C640JBEZ	1-2-25	AG		
PSEL-C641JBEZ	1-2-20	AD		
PSEL-C642JBEZ	1-2-7	AA		
PSEL-C702JBEZ	1-2-26	AE		
PSEL-C760JBEZ	1-2-56	AB		
PSEL-C761JBEZ	1-2-57	AB		
PSEL-E239JBEZ	2-3-12	AH		
PSEL-E240JBEZ	2-3-9	AK		
PSHE-A359JBEZ	1-1-49	AN		
PSKR-A414JBTA	1-2-22	AY		
PSPA-A082JBE0	1-1-76	AB		
PSPA-A146JBE0	1-1-65	AC		
PSPA-A173JBEZ	1-1-66	AE		
PSPF-B266JBEZ	1-2-47	AW		
PSPF-B267JBEZ	1-2-48	AQ		
PSPF-B353JBEZ	1-2-46	AT		
PSPF-B357JBEZ	1-2-50	AF		
PSPF-B358JBEZ	1-2-51	AF		
PVLVXA081JBEZ	2-3-21	BB		
【 Q 】				
QFS-GA062JBZZ	3-1-9	AF		
QFS-GA063JBZZ	3-1-13	AE		
QFS-GA065JBZZ	3-1-8	BA		
QTANZA093JBZZ	1-1-5-1	AQ		
QTANZA096JBZZ	1-1-5-2	AV		
QW-iZA161JBZZ	2-1-54	AV		
QW-VZG778JBZZ	3-1-16	AF		
QW-VZG779JBZZ	3-1-17	AH		
QW-VZG780JBZZ	3-1-18	AE		
QW-VZG781JBZZ	3-1-19	AF		
QW-VZG782JBZZ	3-1-20	AL		
QW-VZG783JBZZ	3-1-21	AG		
QW-VZG784JBZZ	3-1-22	AG		
QW-VZG785JBZZ	3-1-23	AF		
QW-VZG786JBZZ	3-1-25	AF		
QW-VZG787JBZZ	3-1-26	AE		
QW-VZG788JBZZ	3-1-27	AF		
QW-VZG789JBZZ	3-1-28	AF		
QW-VZG790JBZZ	3-1-29	AE		
QW-VZG791JBZZ	3-1-30	AE		
QW-VZG792JBZZ	3-1-31	AE		
QW-VZG793JBZZ	3-1-32	AL		
QW-VZG794JBZZ	3-1-33	AH		
QW-VZG795JBZZ	3-1-34	AL		
QW-VZG796JBZZ	3-1-37	AE		
QW-VZG797JBZZ	3-1-38	AH		
QW-VZG798JBZZ	3-1-39	AF		
【 R 】				
RBiM-A003JBEZ	3-1-40	BG		

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
RFiL-A064JBE0	3-1-6	AP		
RH-HXA182JBZZ	1-1-69	AZ		
〃	2-1-73	AZ		
RH-HXA183JBZZ	2-1-78	AY		
RMOTSA050JBZZ	2-3-17	AY		
RNF--A001VBE0	3-1-7	AP		
RTRN-A306JBZZ	3-1-41	BP		
【 S 】				
SPADBA707JBEZ	4-5-4	AF		
SPAKCE269JBEZ	4-5-3	AZ		
【 T 】				
TiNS-B434JBRZ	2-6-1	AG		
TLABCE011JBRZ	1-2-53	AG		
TLAB-F685JBRZ	3-4-27	AH		
TLAB-F686JBRZ	1-2-60	AD		
TLAB-F689JBRZ	3-4-29	AH		
TLAB-F690JBRA	2-2-72	AR		
TLAB-F691JBRA	2-2-63	AS		
TLAB-F692JBRZ	1-2-61	AH		
TLAB-F693JBRZ	1-2-62	AM		
TLAB-F694JBEZ	1-2-70	AH		
TLAB-F696JBRZ	1-2-58	AF		
TLAB-F697JBRZ	1-2-59	AH		
TLAB-F748JBRZ	1-2-74	AF		
TLAB-F836JBRZ	3-4-26	AH		
TLABMA819JBRA	1-2-52	AV		
TSPC-H712JBRZ	1-2-55	AH		
【 X 】				
XBPS740P08K00	1-4-17	AK		
XBPS740P20J00	1-4-10	AF		
XCPS740P25000	1-4-12	AD		
XCTS740P30000	1-4-16	AF		
XJTS740P10000	1-4-13	AC		
XNFS760-50000	2-4-6	AE		
XTPS730P12XS0	1-4-11	AF		
XTTWW40P16000	1-4-15	AC		