Changes for the Better

MITSUBISHI ELECTRIC

FLOOR AND CEILING TYPE AIR CONDITIONERS

No. OB299

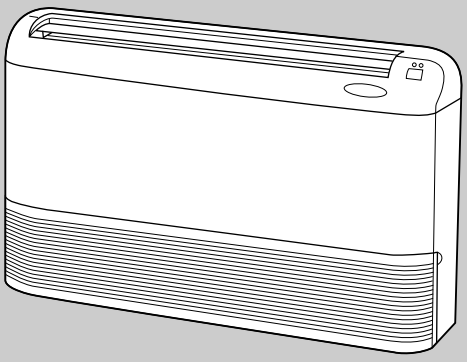
HFC utilized R407C

SERVICE MANUAL

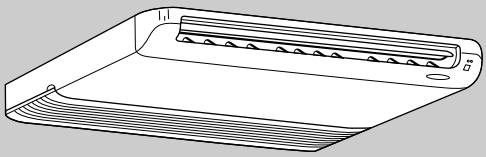
Wireless type
Models

MCF-C13UV-E1(WH) ▪ **MUCF-C13UV-E1**
MCF-C18UV-E1(WH) ▪ **MUCF-C18UV-E1**
MCF-C24UV-E1(WH) ▪ **MUCF-C24UV-E1**

(When installed on the floor)



(When installed on the ceiling)



CONTENTS

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1 TECHNICAL CHANGES

INFORMATION FOR THE AIR CONDITIONER WITH R407C REFRIGERANT

This room air conditioner adopts HFC refrigerant (R407C) which never destroy the ozone layer.
Pay attention to following points.

① Take sufficient care not to allow water and other contaminations to enter the R407C refrigerant during storage and installation, since it is more susceptible to contaminations than HCFC (R22) refrigerant.

② Clean refrigerant piping should be used.

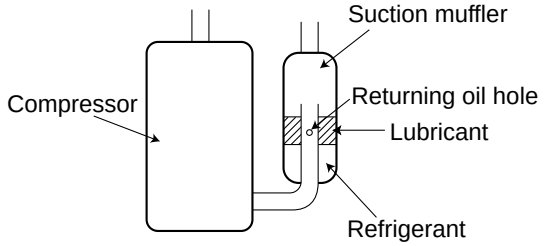
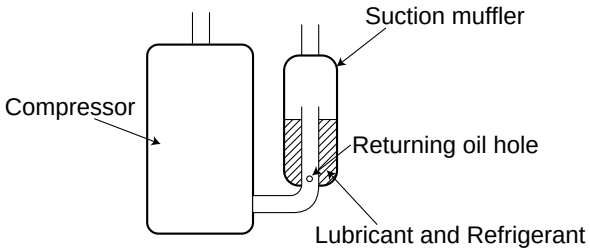
③ Composition change may occur in R407C since it is a mixed refrigerant. When charging, charge liquid refrigerant to prevent composition change.

④ Be especially careful when managing the tools.
If dust, dirt, or water mixes in the refrigerant cycle, it may cause decrease of performance.

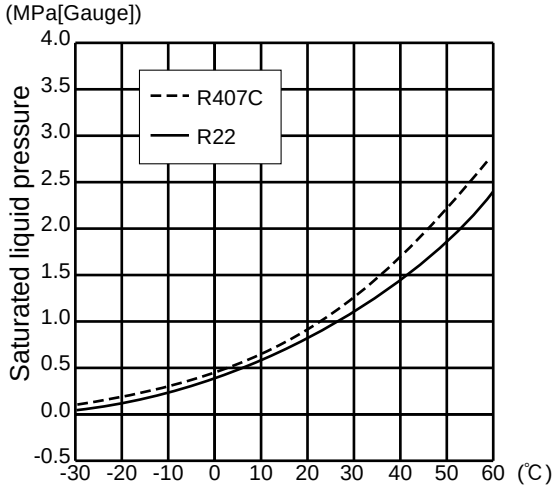
		New refrigerant	Previous refrigerant
Refrigerant	Refrigerant	R407C	R22
	Composition (Ratio)	R32: R125: R134a (23%:25%:52%)	HCFC22 (100%)
	Refrigerant handling	Non-azeotropic refrigerant	Single refrigerant
	Chlorine	Not included	Included
	Safety group (ASHRAE)	A1/A1	A1
	Molecular weight	86.2	86.5
	Boiling point (℃)	-43.6	-40.8
	Steam pressure [25℃](Mpa [Gauge])	0.9177	0.94
	Saturated steam density [25℃](Kg/m³)	42.5	44.4
	Combustibility	Non combustible	Non combustible
	ODP ※1	0	0.055
	GWP ※2	1530	1700
	Refrigerant charge method	From liquid phase in cylinder	Gas phase
	Additional charge on leakage	Impossible	Possible
Lubricant	Kind	Incompatible oil	Compatible oil
	Color	Non	Light yellow
	Smell	Non	Non

※1 :Ozone Destruction Parameter : based on CFC11

※2 :Global Warmth Parameter : based on CO_2

	New Specification	Previous Specification
Compressor	The incompatible lubricant easily separates from refrigerant and makes the layer in the upper inside the suction muffler. The higher position of the returning oil hole enables to return the lubricant of the upper layer to the compressor. 	Since refrigerant and lubricant are compatible each other, lubricant returns to the compressor through the lower position returning oil hole. 

Conversion chart of refrigerant temperature and pressure



NOTE : The unit of pressure has been changed to MPa on the international system of units(SI unit system).

The conversion factor is: **1(MPa[Gauge]) =10.2(kgf/㎠[Gauge])**

1.Tools dedicated for the air conditioner with R407C refrigerant

The following tools are required for R407C refrigerant. Some R22 tools can be substituted for R407C tools.
Do not use tools that are used with R22 refrigerant in order to avoid mixing oils.

R407C tools	Can R22 tools be used?	Description
Gauge manifold	No	A gauge manifold with a sight glass is recommended for charging the liquid refregerant.
Charge hose	No	Hose material have been changed to improve the pressure resistance.
Gas leak detector	No	Dedicated for HFC refrigerant.
Torque wrench	Yes	———
Flare tool	Yes	———
Vacuum pump adapter	New	Provided to prevent the back flow of oil. This adapter enables you to use existing vacuum pumps.
Electronic scale for refrigerant charging	New	Use the electronic control scale for measuring the R407C.

2.Refrigerant piping

Do not use copper pipes which are broken, deformed or discoloured.
In addition, be sure that the inner surfaces of the pipes are clean, free of hazardous sulfur and oxides, or have no dust/ dirt, shaving particles, oil, moisture or any other contamination.
•If there is a large amount of residual oil inside the piping and joints, deterioration of the refrigerant oil will result.

3.Refrigerant oil

Apply the specific refrigeration oil (accessories) to the flare and the union seat surfaces.

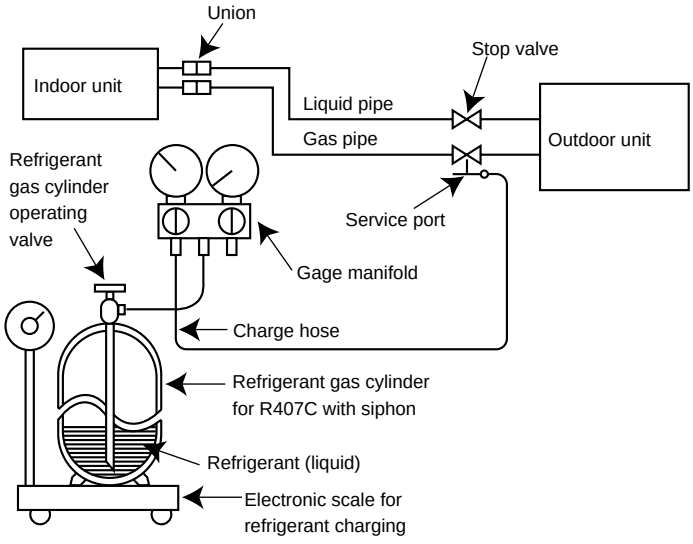
4.Air purge

Use the vacuum pump for air purge to protect environments, and to avoid changing the composition of refrigerant.

5.Additional charge

For additional charging, charge the refrigerant with liquid phase slowly using a gas cylinder. If the refrigerant is charged with gas phase, the composition of refrigerant will change. In this case, ability of the refrigerating cycle decreases or normal operation can be impossible.
If liquid refrigerant is rapidly charged at once, the compressor may be locked.

NOTE: 1. The R407C is mixed refrigerant which consist of three different kinds of evaporative temperature. As a result, the R407C occurs the change of composition.
2. Additional refrigerant charge has been changed by change of refrigerant.(R22 → R407C)
R22 : <MCF-type> 15g/m → R407C : <MCF-C13UV> 15g/m, <MCF-C18/C24UV> 20g/m



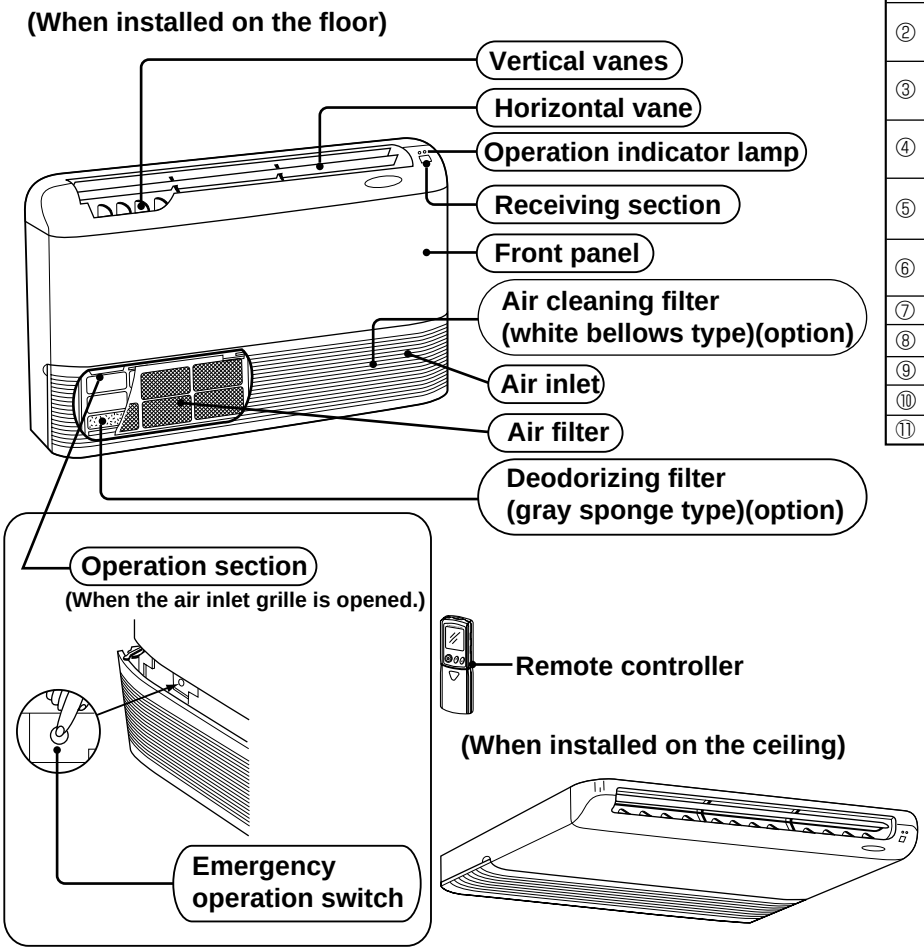
2 PART NAMES AND FUNCTIONS

MCF-C13UV -E1 MCF-C18UV -E1 MCF-C24UV -E1

INDOOR UNIT

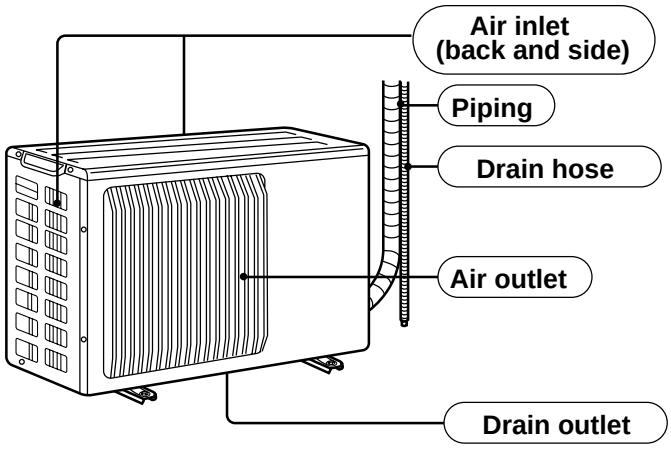
ACCESSORIES

	Item	Q'ty
①	Installation plate	2
②	Unit fixing screw 5 × 12mm	2
③	Wireless remote controller	1
④	Remote controller holder	1
⑤	Fixing screw for ④ 3.5 × 16mm (Black)	2
⑥	Battery (AAA) for remote controller	2
⑦	Drain hose	1
⑧	Drain pipe cover	1
⑨	Knockout cover	1
⑩	Screw for ⑨ 4 × 10mm	2
⑪	Refrigerating oil	1



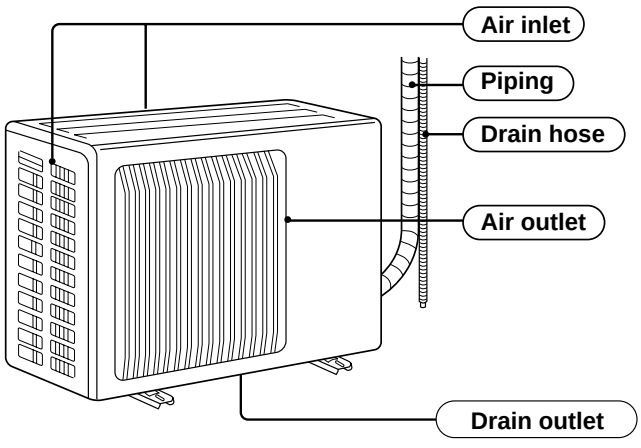
MUCF-C13UV -E1

OUTDOOR UNIT



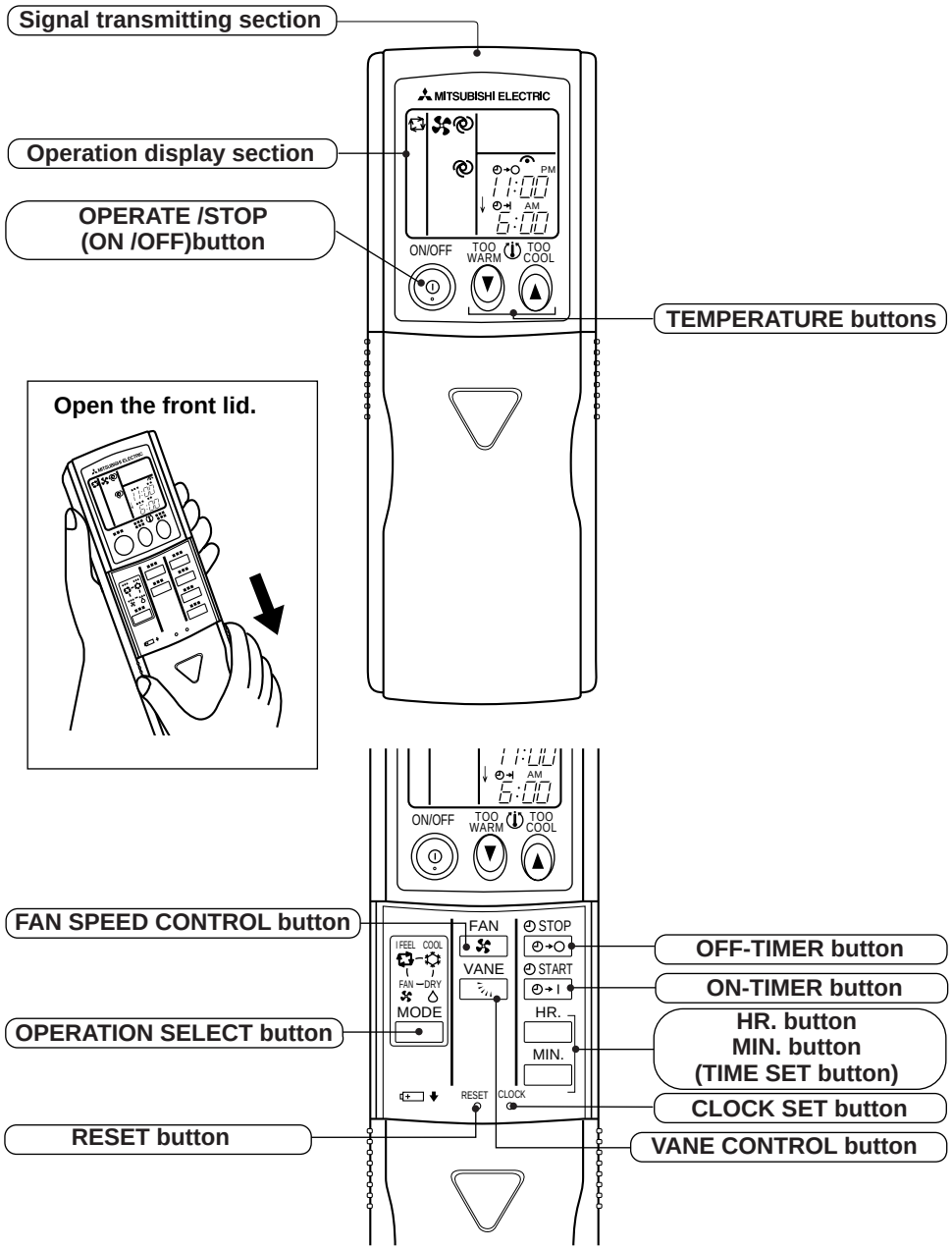
MUCF-C18UV -E1 MUCF-C24UV -E1

OUTDOOR UNIT



MCF-C13UV -E1 MCF-C18UV -E1 MCF-C24UV -E1

REMOTE CONTROLLER



3 SPECIFICATION

Indoor model			MCF-C13UV - E1	MCF-C18UV - E1	MCF-C24UV - E1
Function			Cooling	Cooling	Cooling
Power supply			Single phase 230V, 50Hz	Single phase 230V, 50Hz	Single phase 230V, 50Hz
Capacity	Capacity	kW	3.55	5.0	6.4
	Dehumidification	ℓ /h	1.5	2.3	3.6
	Air flow(High/Med.※/Low※)	m³ /h	678/582※/474※	840/696※/570※	840/744※/642※
Electrical data	Power outlet	A	10	15	25
	Running current	A	6.2	9.7	13.1
	Power input	W	1,400	2,180	2,920
	Auxiliary heater	A(kW)	—	—	—
	Power factor	%	98	98	97
	Starting current	A	34	50	83
	Fan motor current	A	0.26	0.36	0.36
Coefficient of performance(C.O.P)			2.54	2.29	2.19
Fan motor	Model		RB4V19-AB	RB4V36-AB	RB4V36-DA
	Winding resistance(at20℃)	Ω	WHT-BLK 203.2 BLK-YLW 45.9 YLW-BLU 32.7 BLU-BRN 44.4 BRN-RED 23.3	WHT-BLK 82.9 BLK-YLW 65.6 YLW-BLU 36.0 BLU-BRN 27.0 BRN-RED 13.7	WHT-BLK 84.0 BLK-YLW 46.2 YLW-BLU 37.3 BLU-BRN 45.2 BRN-RED 13.6
	Dimensions W×H×D	mm	1,100×650×180		
	Weight	kg	26		
Special remarks	Air direction		5		
	Sound level(High/Med.※/Low※)	dB	44/40※/34※	48/44※/39※	48/45※/42※
	Fan speed(High/Med.※/Low※)	rpm	1,105/970※/820※	1,320/1,145※/960※	1,320/1,190※/1,060※
	Fan speed regulator		3		
	Thermistor RT11(at25℃)	kΩ	10		
	Thermistor RT12(at25℃)	kΩ	10		
Outdoor model			MUCF-C13UV - E1	MUCF-C18UV - E1	MUCF-C24UV - E1
Capacity	Air flow(High/Low※)	m³ /h	High:1,914	High:2,238	2,322/1,638※
Electrical data	Compressor motor current	A	5.57	8.95	12.19
	Fan motor current	A	0.37	0.39	0.55
Compressor	Model		RE231VHSHT	PE33VPEHT	NE47VMHHT
	Output	W	1,100	1,500	2,200
	Winding resistance(at20℃)	Ω	C-R 2.25 C-S 4.07	C-R 1.08 C-S 2.18	C-R 0.67 C-S 2.02
Fan motor	Model		RA6V33-CB	RA6V50-OG	RA6V60-AC
	Winding resistance(at20℃)	Ω	WHT-BLK 176 BLK-RED 413	WHT-BLK 116 BLK-RED 111	WHT-BLK 81 BLK-YLW 92 BLK-RED 102
	Dimensions W×H×D	mm	780×540×255	850×605×290	
	Weight	kg	34	48	61
Special remarks	Sound level (High)	dB	49	52	53
	Fan speed(High/Low※)	rpm	High:725	High:828	873/629※
	Fan speed regulator		1	1	2
	Refrigerant filling capacity(R407C)	kg	0.95	1.10	1.85
	Refrigerating oil (Model)	cc	620 (NEO22)	1,100 (NEO22)	1,400 (NEO22)

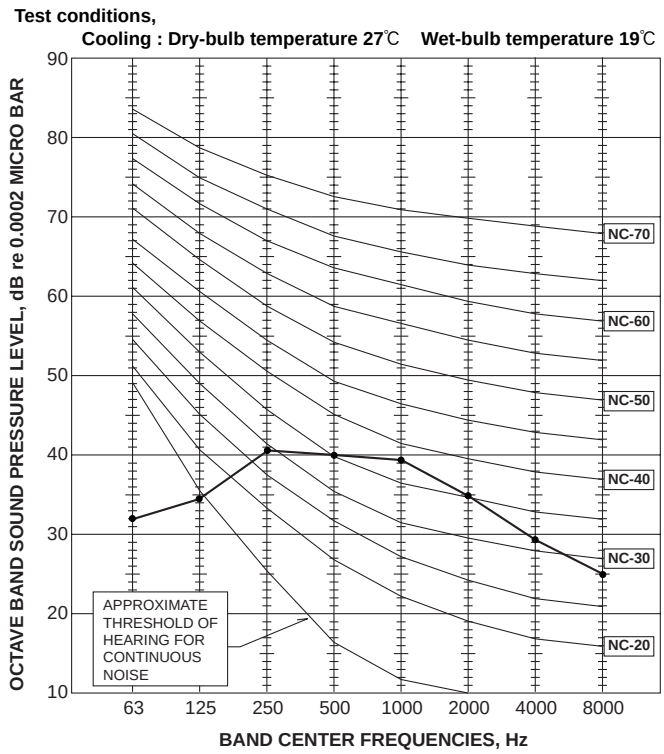
NOTE:Test conditions are based on ISO 5151
Cooling : Indoor DB27°C WB19°C
Outdoor DB35°C WB(24°C)
Indoor-Outdoor piping length 5 m

※ Reference value

4 NOISE CRITERIA CURVES

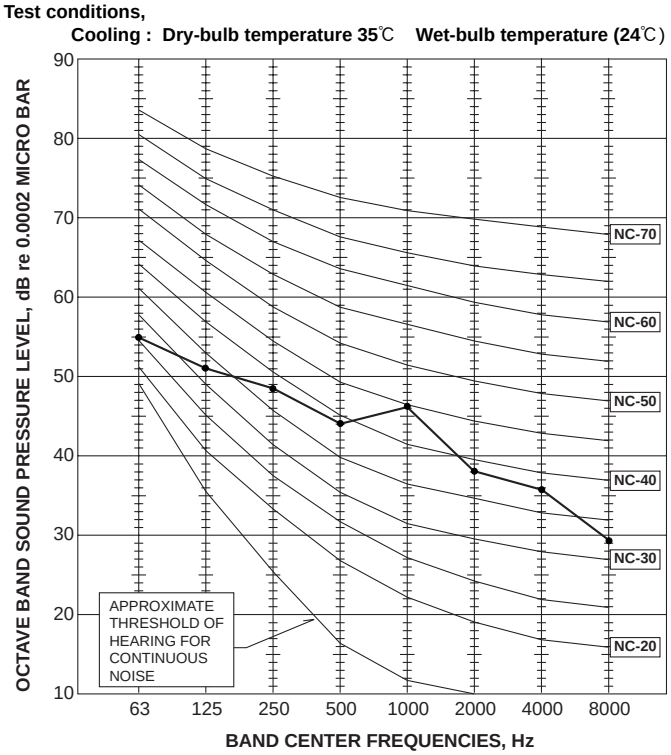
MCF-C13UV - E1

NOTCH	SPL(dB(A))	LINE
High	44	●——



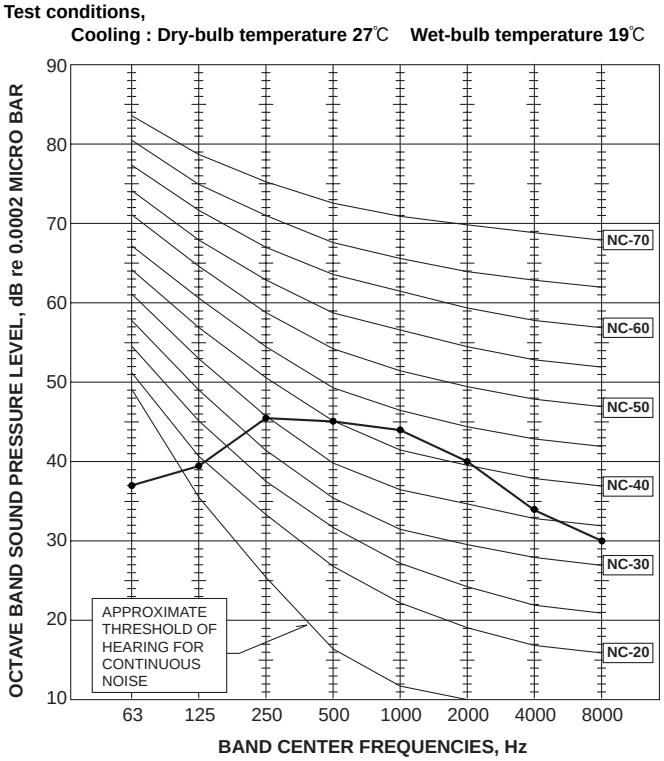
MUCF-C13UV - E1

NOTCH	SPL(dB(A))	LINE
High	49	●——



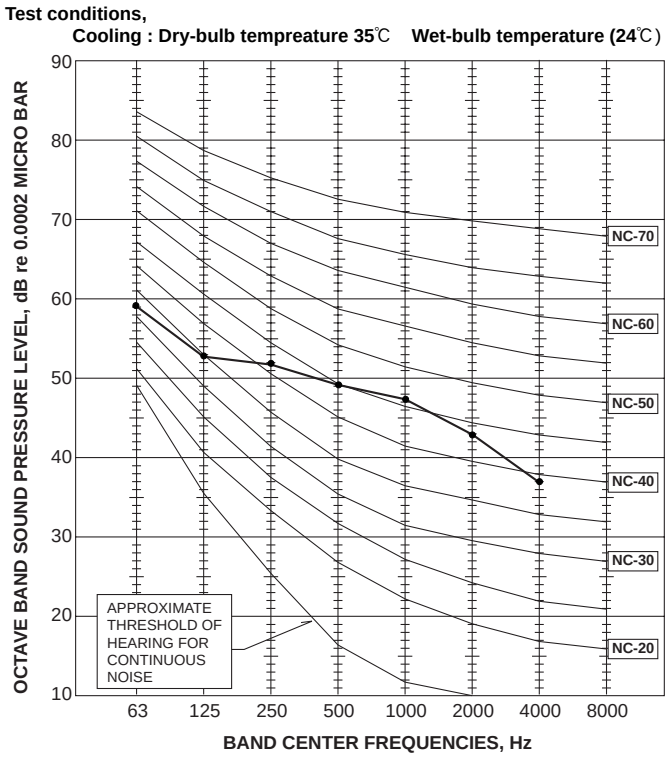
MCF-C18UV - E1

NOTCH	SPL(dB(A))	LINE
High	48	●——



MUCF-C18UV - E1

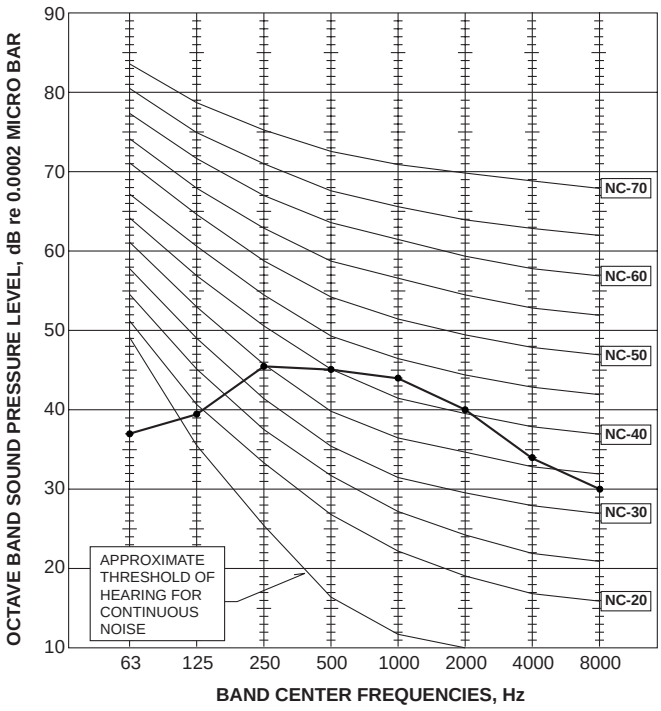
NOTCH	SPL(dB(A))	LINE
High	52	●——



MCF-C24UV - E1

NOTCH	SPL(dB(A))	LINE
High	48	●—●

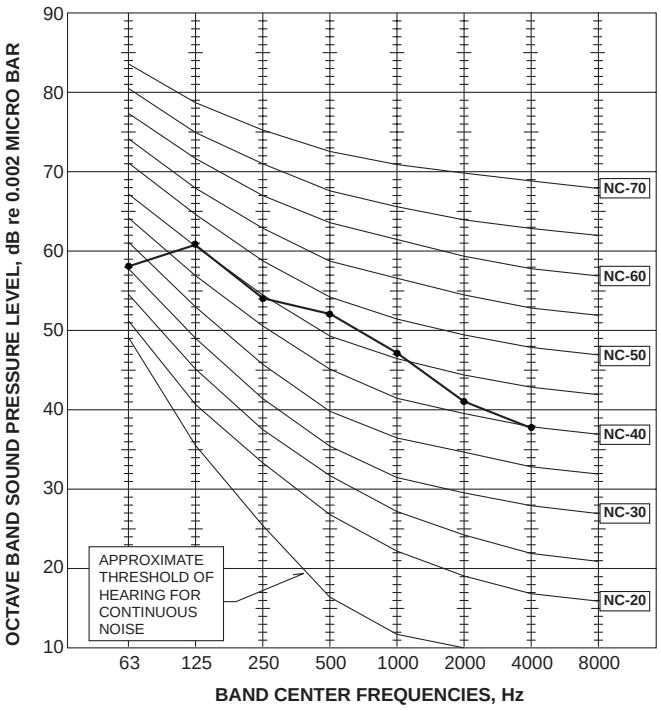
Test conditions,
Cooling : Dry-bulb temperature 27℃ Wet-bulb temperature 19℃



MUCF-C24UV - E1

NOTCH	SPL(dB(A))	LINE
High	53	●—●

Test conditions,
Cooling : Dry-bulb temperature 35℃ Wet-bulb temperature (24℃)



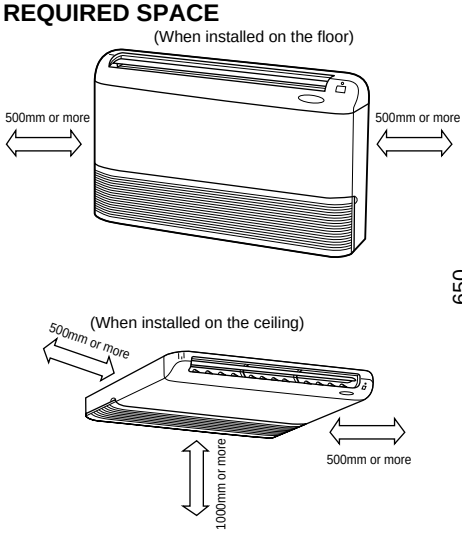
5 OUTLINES AND DIMENSIONS

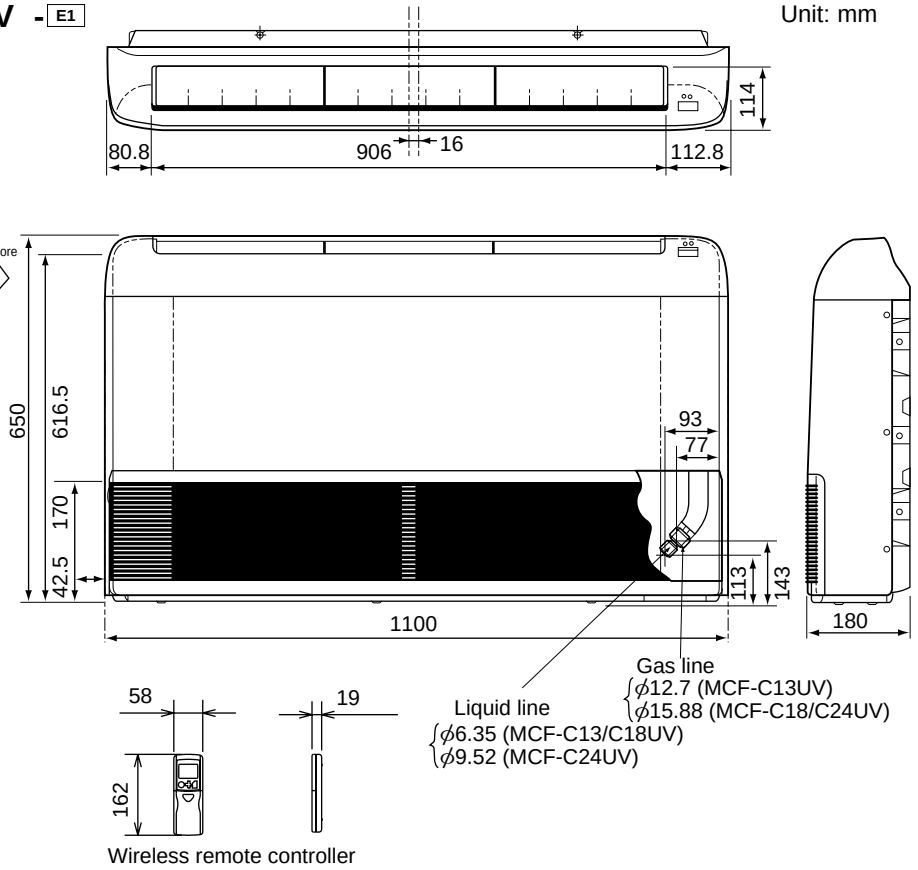
MCF-C13UV - E1 MCF-C18UV - E1
MCF-C24UV - E1

Unit: mm

INDOOR UNIT

REQUIRED SPACE



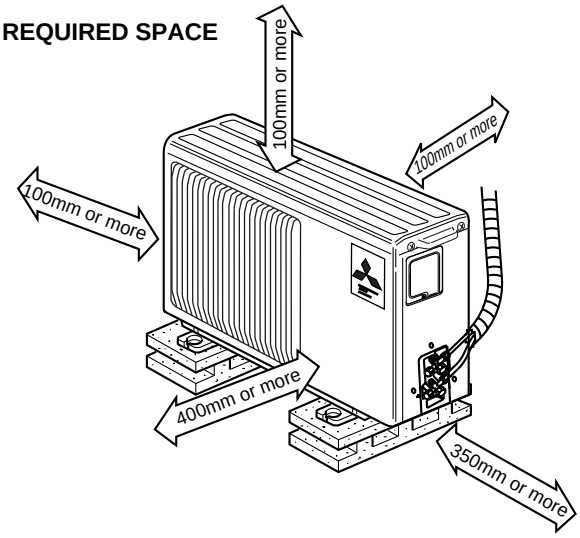


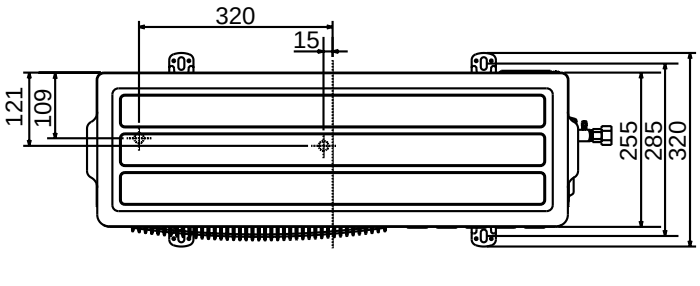
Wireless remote controller

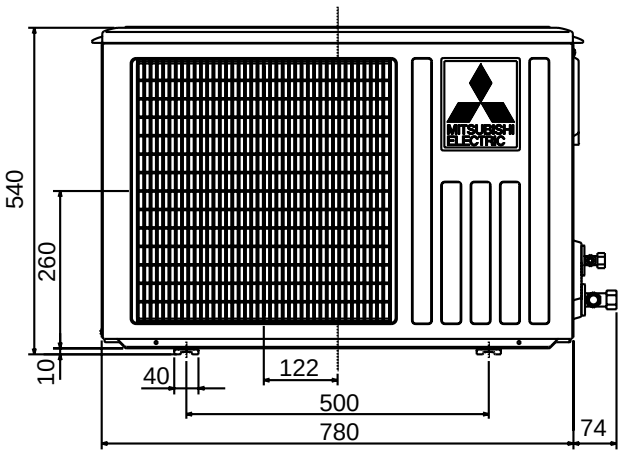
MUCF-C13UV - E1

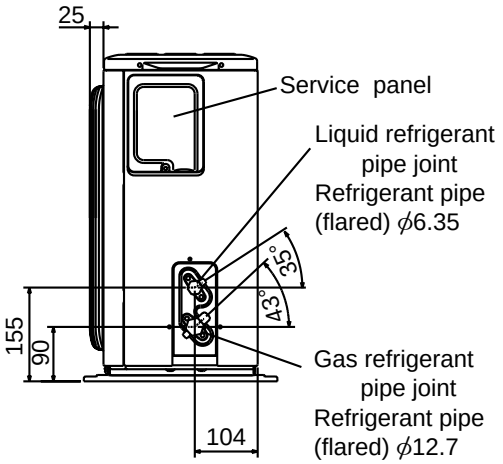
OUTDOOR UNIT

REQUIRED SPACE





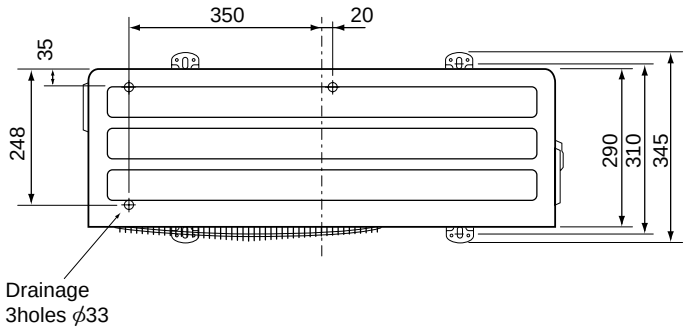




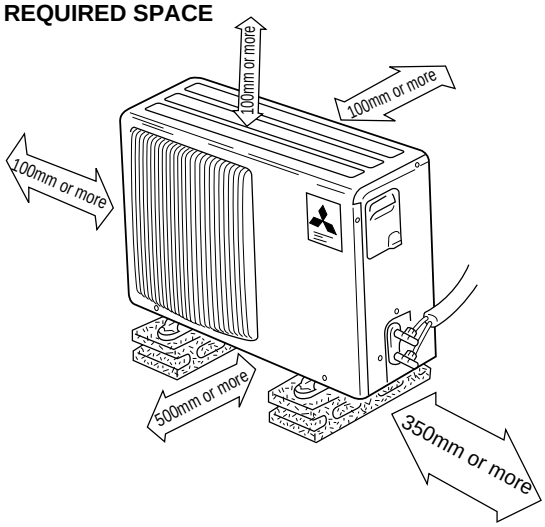
MUCF-C18UV -E1 MUCF-C24UV -E1

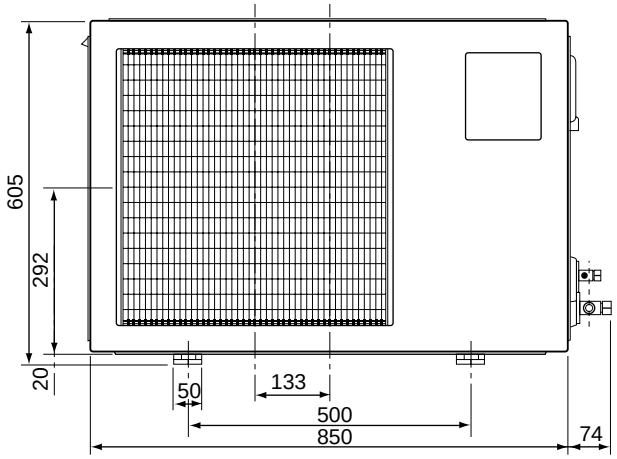
Unit: mm

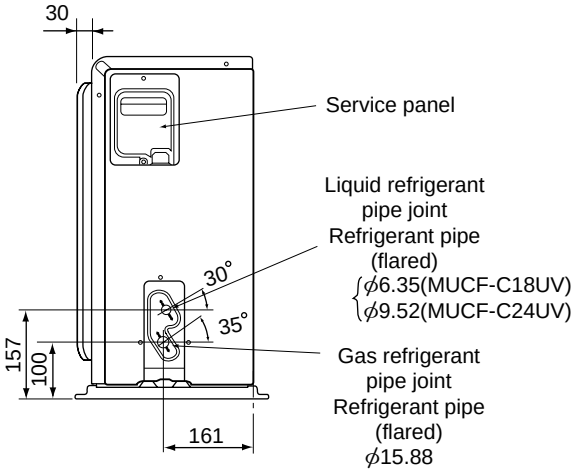
OUTDOOR UNIT



REQUIRED SPACE



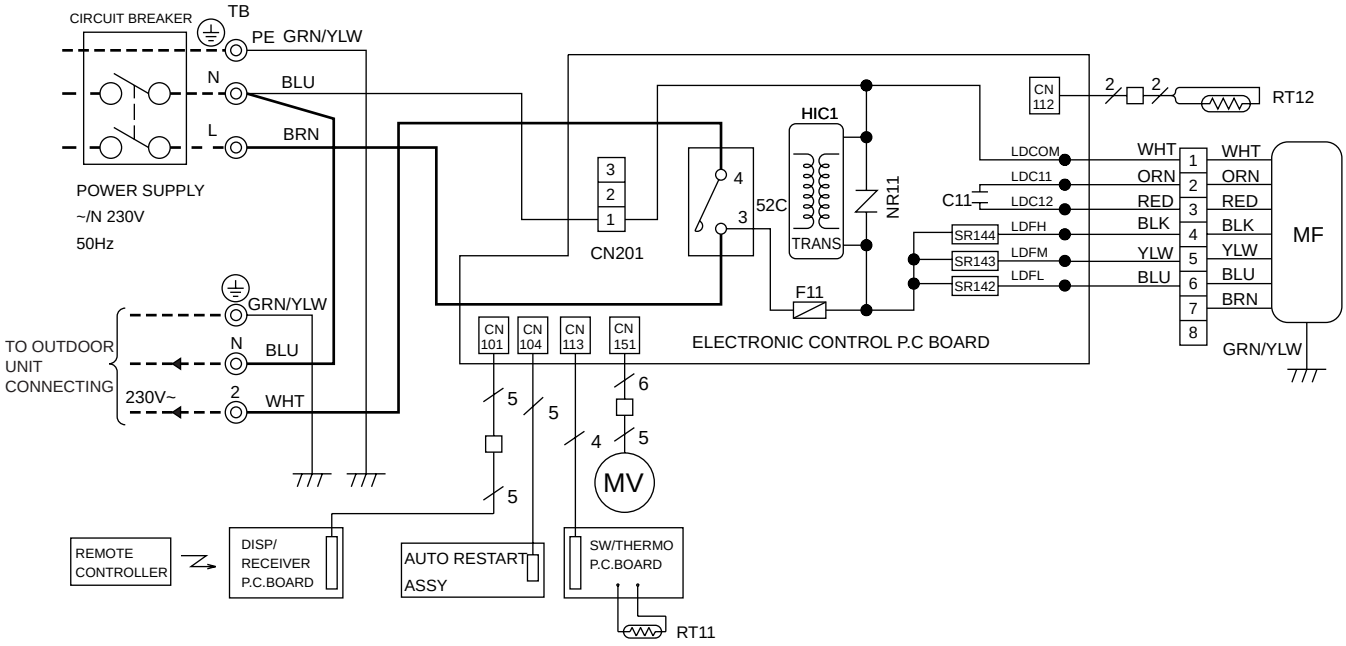




6 WIRING DIAGRAM

MCF-C13UV - E1

INDOOR UNIT MODEL WIRING DIAGRAM



SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
C11	INDOOR FAN CAPACITOR	MV	VANE MOTOR	SR142~SR144	SOLID STATE RELAY
F11	FUSE (3.15A)	NR11	VARISTOR	TB	TERMINAL BLOCK
HIC1	DC/DC CONVERTER	RT11	ROOM TEMPERATURE THERMISTOR	52C	CONTACTOR
MF	INDOOR FAN MOTOR(INNER PROTECTOR)	RT12	INDOOR COIL THERMISTOR		

NOTE:1. About the outdoor side electric wiring, refer to the outdoor unit electric wiring diagram for servicing.
2. Use copper conductors only.(For field wiring)
3. Symbols below indicate;
◎: Terminal block, □□□□: Connector

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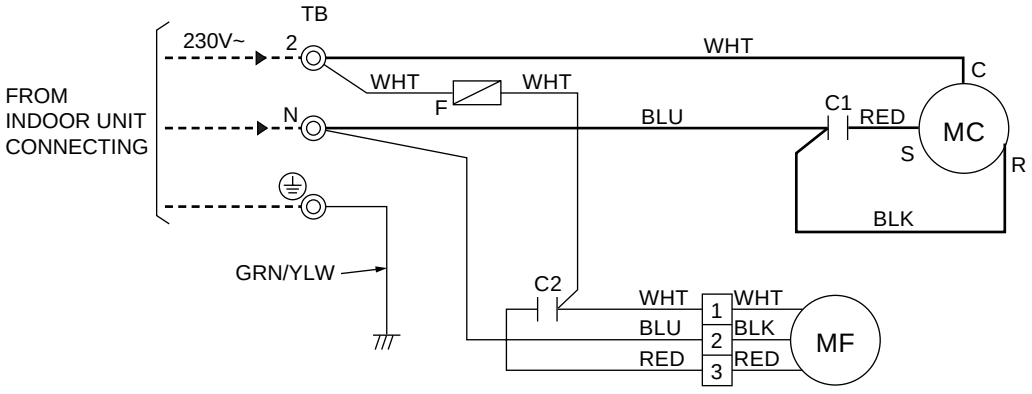
MUCF-C13UV - E1

OUTDOOR UNIT MODEL WIRING DIAGRAM



SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
C1	COMPRESSOR CAPACITOR	F	FUSE (2A)	MF	OUTDOOR FAN MOTOR (INNER PROTECTOR)
C2	OUTDOOR FAN CAPACITOR	MC	COMPRESSOR (INNER PROTECTOR)	TB	TERMINAL BLOCK

NOTES: 1.About the indoor side electric wiring refer to the indoor unit electric wiring diagram for servicing.
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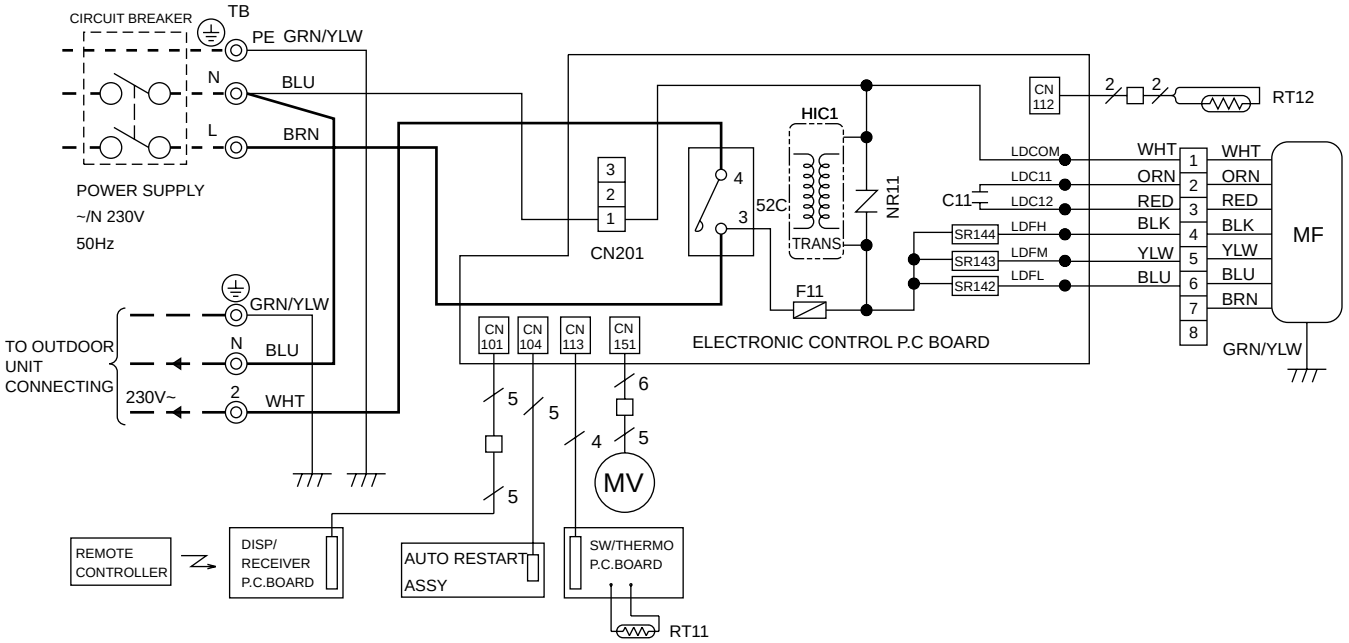
MCF-C18UV - E1

INDOOR UNIT MODEL WIRING DIAGRAM



SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
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HIC1	DC/DC CONVERTER	RT11	ROOM TEMPERATURE THERMISTOR	52C	CONTACTOR
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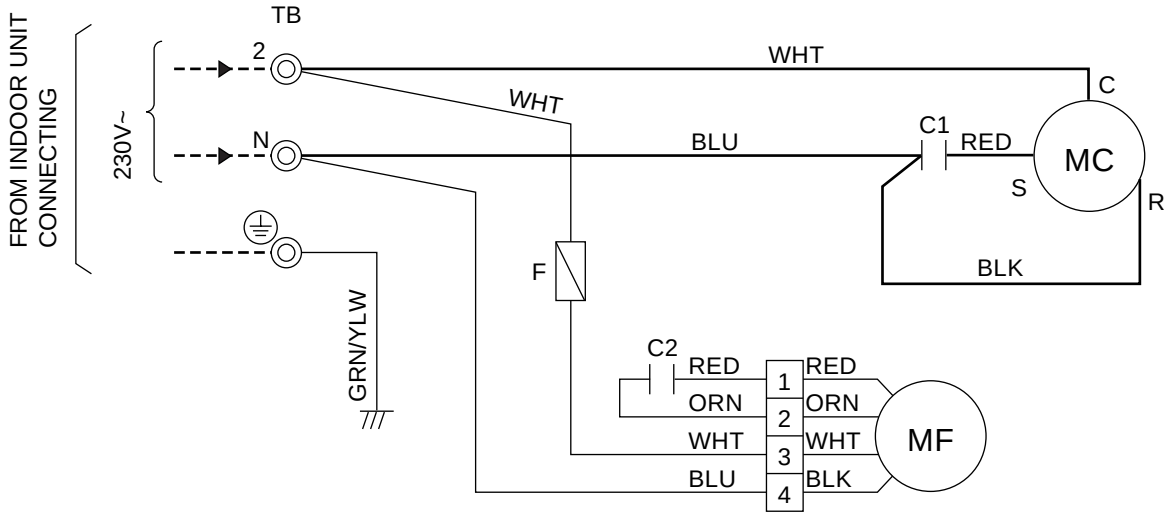

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C2	OUTDOOR FAN CAPACITOR	MC	COMPRESSOR (INNER PROTECTOR)	TB	TERMINAL BLOCK

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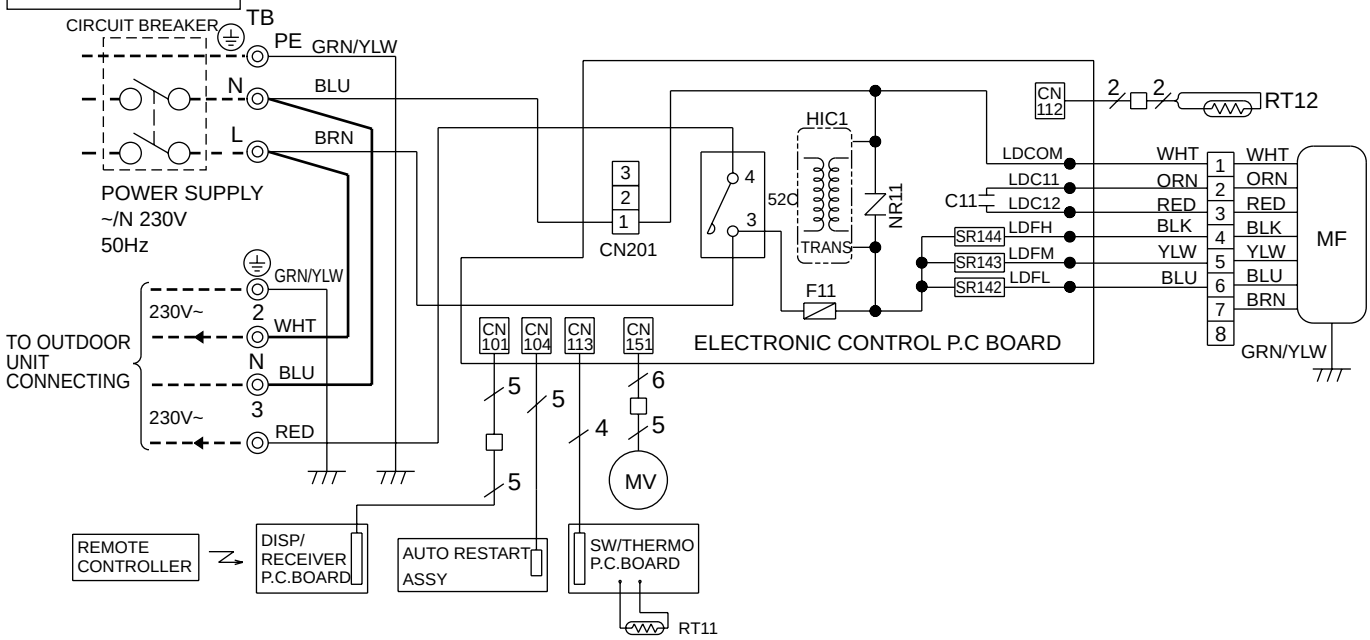
MCF-C24UV - E1

INDOOR UNIT MODEL WIRING DIAGRAM



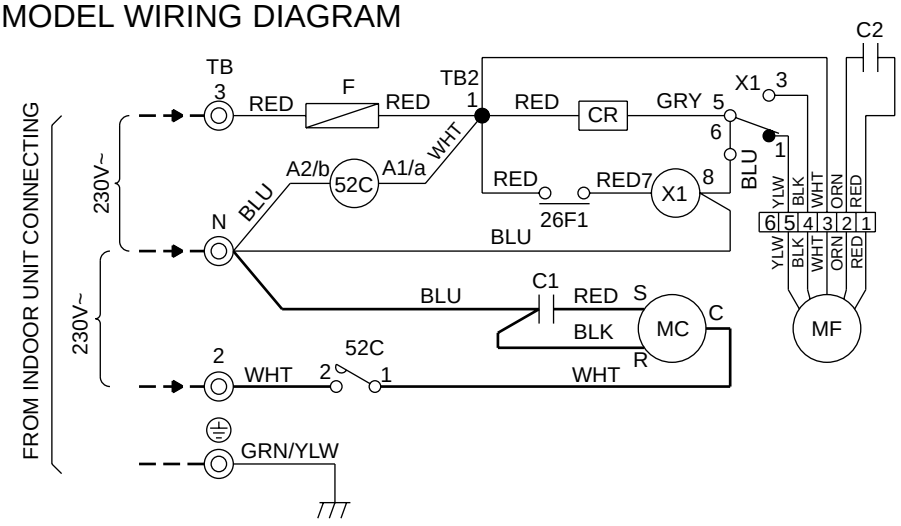
SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
C11	INDOOR FAN CAPACITOR	MV	VANE MOTOR	SR142~SR144	SOLID STATE RELAY
F11	FUSE (3.15A)	NR11	VARISTOR	TB	TERMINAL BLOCK
HIC1	DC/DC CONVERTER	RT11	ROOM TEMPERATURE THERMISTOR	52C	CONTACTOR
MF	INDOOR FAN MOTOR (INNER PROTECTOR)	RT12	INDOOR COIL THERMISTOR		

NOTE:1. About the outdoor side electric wiring, refer to the outdoor unit electric wiring diagram for servicing.
2. Use copper conductors only.(For field wiring)
3. Symbols below indicate;
◎: Terminal block,□□□□: Connector

VG79B092H03

MUCF-C24UV - E1

OUTDOOR UNIT MODEL WIRING DIAGRAM



SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
CR	CR SURGE ABSORBER	MC	COMPRESSOR (INNER PROTECTOR)	X1	FAN MOTOR RELAY
C1	COMPRESSOR CAPACITOR	MF	OUTDOOR FAN MOTOR (INNER PROTECTOR)	26F1	THERMOSTAT (AIRFLOW CONTROL)
C2	OUTDOOR FAN CAPACITOR	TB	TERMINAL BLOCK	52C	COMPRESSOR CONTACTOR
F	FUSE (2A)	TB2	TERMINAL BLOCK		

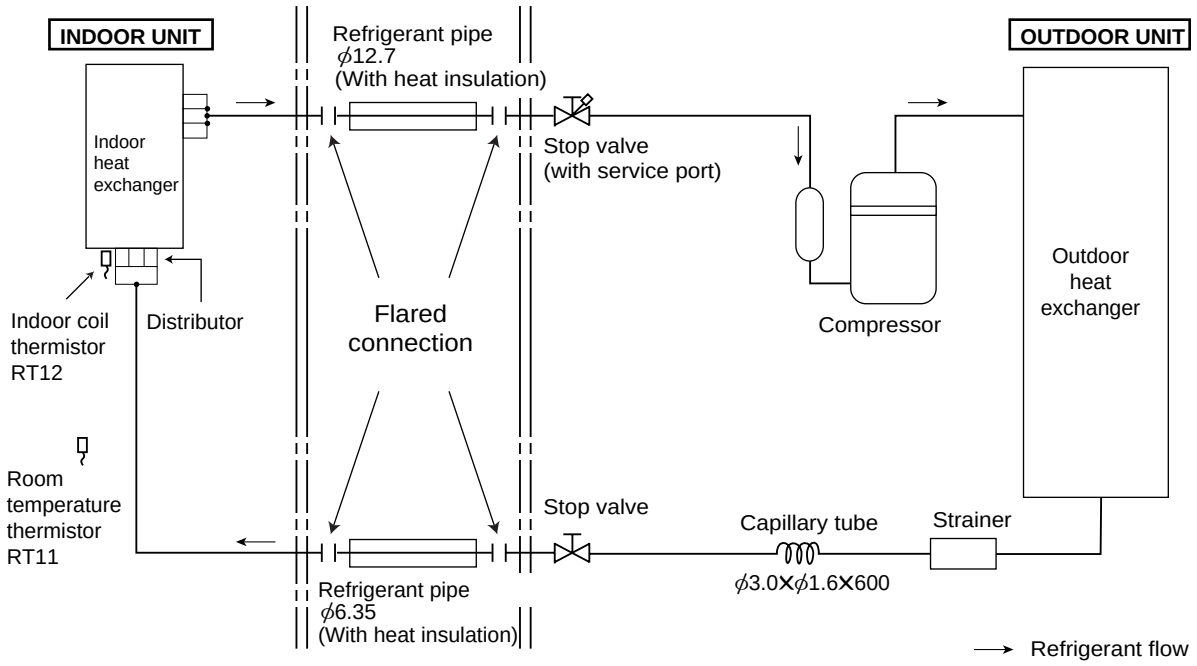
VG79B104H01

NOTE:1. About the indoor side electric wiring, refer to the indoor unit electric wiring diagram for servicing.
2. Use copper conductors only.(For field wiring)
3. Symbols below indicate;
◎: Terminal block,□□□□: Connector

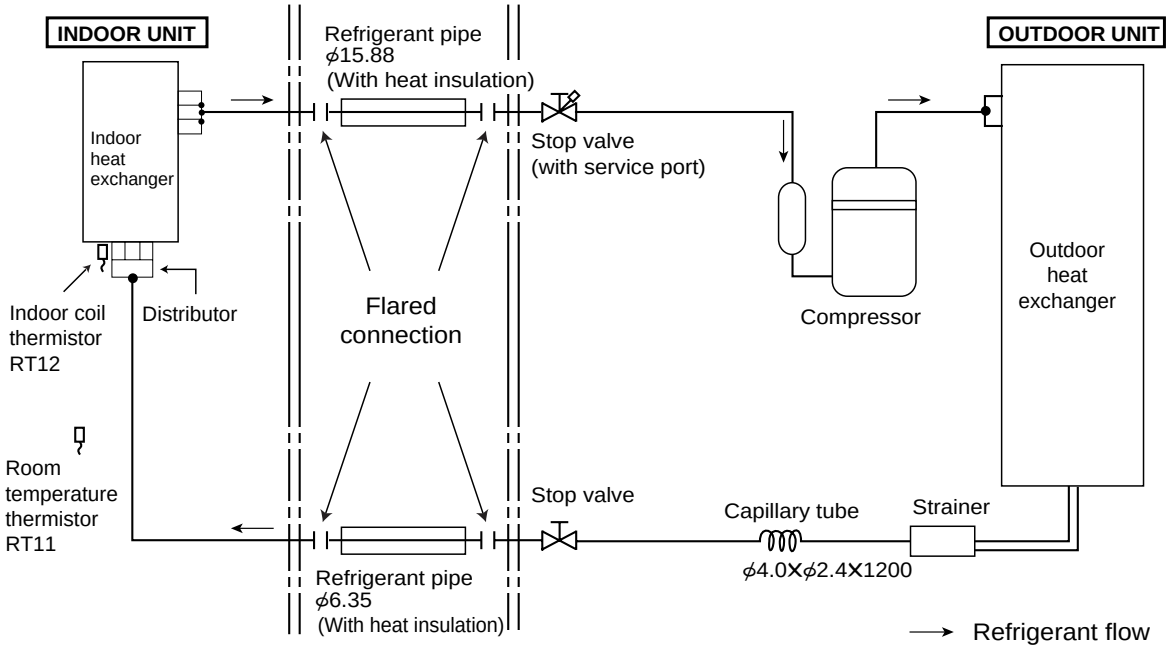
7 REFRIGERANT SYSTEM DIAGRAM

Unit:mm

MCF-C13UV -E1 MUCF-C13UV -E1

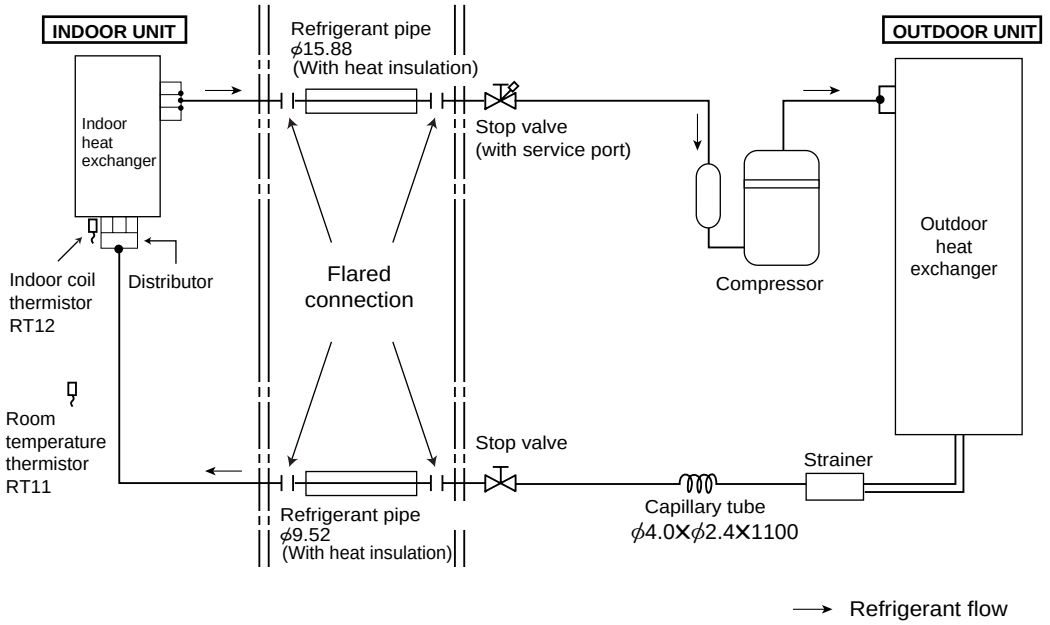


MCF-C18UV -E1 MUCF-C18UV -E1



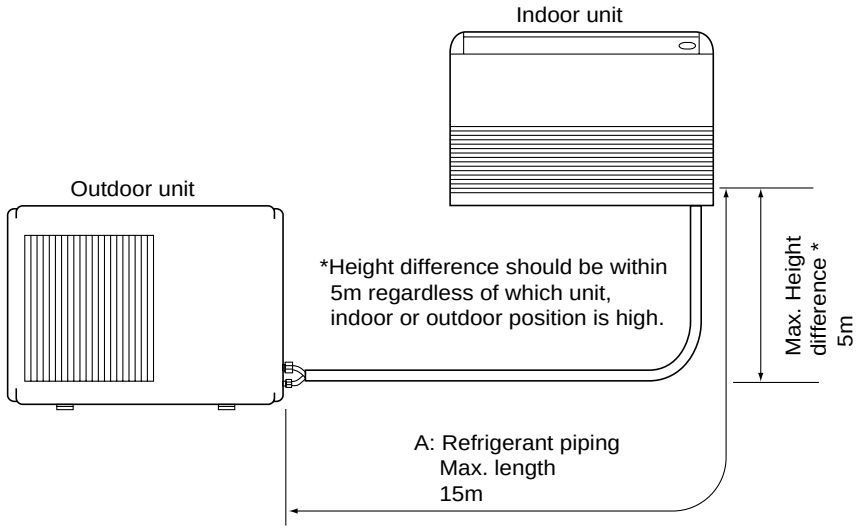
Unit:mm

MCF-C24UV - E1 **MUCF-C24UV -** E1



REFRIGERANT PIPING MAX. LENGTH & MAX. HEIGHT DIFFERENCE

Model	Refrigerant piping Max. length : m A	Piping size O.D. : mm	
		Gas	Liquid
MCF-C13UV - E1	15	ϕ12.7	ϕ6.35
MCF-C18UV - E1		ϕ15.88	
MCF-C24UV - E1			ϕ9.52



ADDITIONAL REFRIGERANT CHARGE (R407C : g)

If pipe length exceeds 7m, additional refrigerant (R407C) charge is required.

Model	Outdoor unit precharged	Refrigerant piping length (one way)								
		7m	8m	9m	10m	11m	12m	13m	14m	15m
MCF-C13UV - E1	950	0	15	30	45	60	75	90	105	120
MCF-C18UV - E1	1,100	0	20	40	60	80	100	120	140	160
MCF-C24UV - E1	1,850	0	20	40	60	80	100	120	140	160

Calculation : **MCF-C13UV** ×g=15g/m×(Refrigerant piping length (m)-7)
MCF-C18/C24UV ×g=20g/m×(Refrigerant piping length (m)-7)

8 PERFORMANCE CURVES

MCF-C13UV -E1 MUCF-C13UV -E1
MCF-C18UV -E1 MUCF-C18UV -E1
MCF-C24UV -E1 MUCF-C24UV -E1

The standard data contained in these specifications apply only to the operation of the air conditioner under normal condition. Operating conditions vary according to the areas where these units are installed. The following information has been provided to clarify the operating characteristics of the air conditioner under the conditions indicated by the performance curve.

(1) GUARANTEED VOLTAGE

198~264V, 50Hz

(2) AIR FLOW

Air flow should be set at MAX.

(3) MAIN READINGS

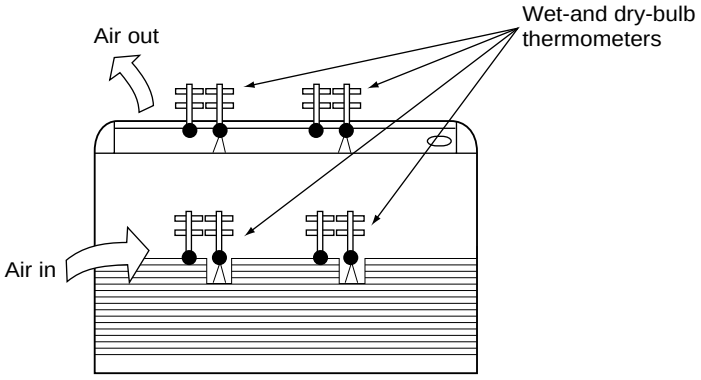
(1) Indoor intake air wet-bulb temperature : ˚C WB
(2) Indoor outlet air wet-bulb temperature : ˚C WB
(3) Outdoor intake air dry-bulb temperature : ˚C DB
(4) Total input : W

The table of Indoor air wet-bulb temperature difference on the left side of the chart on this page shows the difference between the indoor intake air wet-bulb temperature and the indoor outlet air wet-bulb temperature for your reference at service.

How to measure the indoor air wet-bulb temperature difference

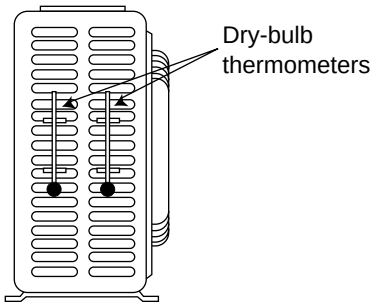
1. Attach at least 2 sets of wet-and dry-bulb thermometers to the indoor air intake as shown in the figure, and at least 2 sets of wet-and dry-bulb thermometers to the indoor air outlet. The thermometers must be attached to the position where air speed is high.
2. Attach at least 2 sets of dry-bulb thermometers to the outdoor air intake. Cover the thermometers to avoid direct rays of the sun.
3. Check that the air filter is cleaned.
4. Open windows and doors of the room.
5. Press the EMERGENCY OPERATION switch to start the EMERGENCY operation.
6. When system stabilizes after more than 15 minutes, measure temperature and take an average temperature.
7. 10 minutes later, measure temperature again and check that the temperature does not change.

INDOOR UNIT

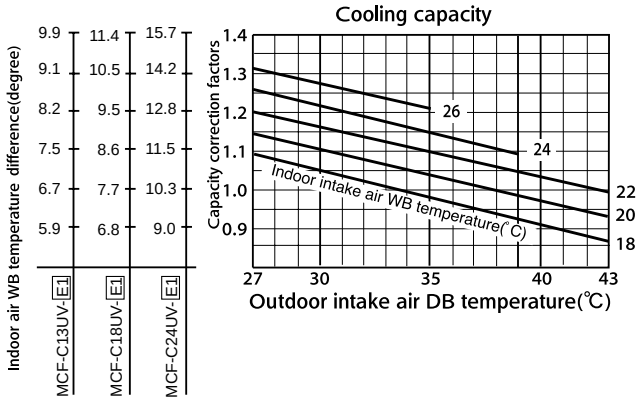


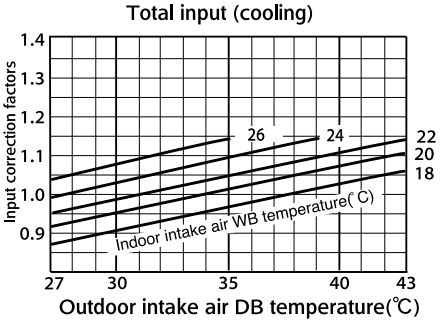
FRONT VIEW

OUTDOOR UNIT



SIDE VIEW





OUTDOOR LOW PRESSURE AND OUTDOOR UNIT CURRENT

COOL operation

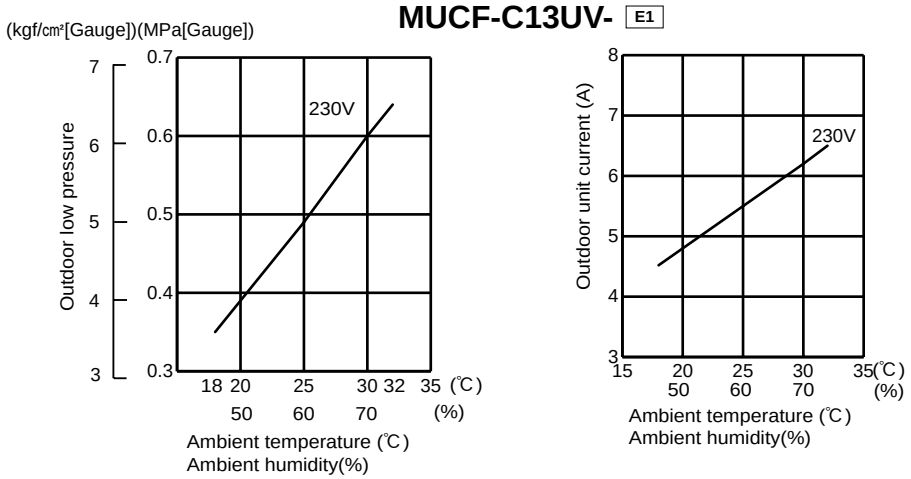
① Both indoor and outdoor units are under the same temperature/humidity condition.

Dry Bulb temperature (˚C)	Relative humidity (%)
20	50
25	60
30	70

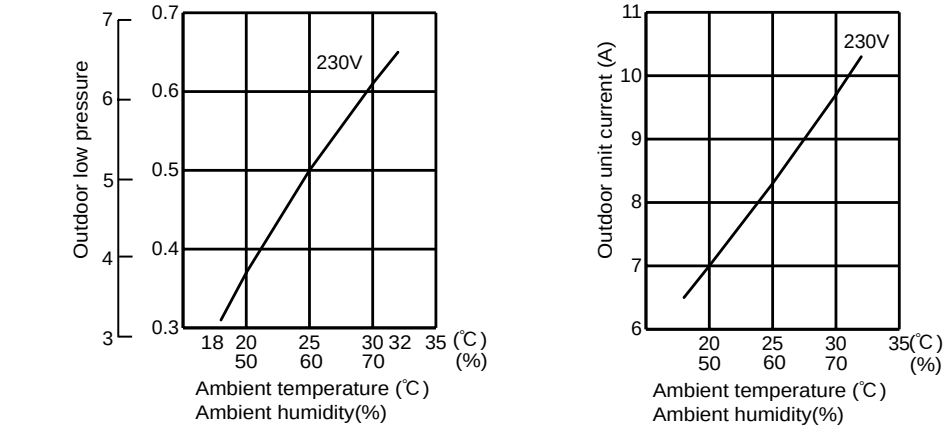
② Air flow should be set at MAX..

③ The unit of pressure has been changed to MPa on the international system of units(SI unit system).
The conversion factor is : **1(MPa [Gauge]) =10.2(kgf/㎠ [Gauge])**

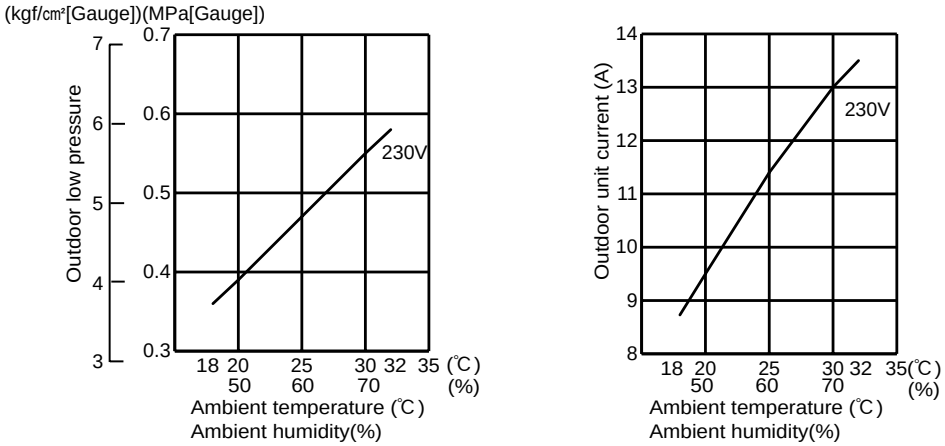
MUCF-C13UV- E1



MUCF-C18UV- E1



MUCF-C24UV- E1



PERFORMANCE DATA

COOL operation

MCF-C13UV -E1 : MUCF-C13UV -E1

CAPACITY:3.55(kW) SHF:0.70 INPUT:1400(W)

		OUTDOOR DB(℃)															
INDOOR DB(℃)	INDOOR WB(℃)	21				25				27				30			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	4.17	2.17	0.52	1120	3.99	2.08	0.52	1176	3.83	1.99	0.52	1232	3.69	1.92	0.52	1288
21	20	4.35	1.74	0.40	1176	4.17	1.67	0.40	1246	4.05	1.62	0.40	1274	3.91	1.56	0.40	1330
22	18	4.17	2.34	0.56	1120	3.99	2.24	0.56	1176	3.83	2.15	0.56	1232	3.69	2.07	0.56	1288
22	20	4.35	1.91	0.44	1176	4.17	1.84	0.44	1246	4.05	1.78	0.44	1274	3.91	1.72	0.44	1330
22	22	4.53	1.45	0.32	1218	4.37	1.40	0.32	1295	4.26	1.36	0.32	1330	4.08	1.31	0.32	1386
23	18	4.17	2.50	0.60	1120	3.99	2.40	0.60	1176	3.83	2.30	0.60	1232	3.69	2.22	0.60	1288
23	20	4.35	2.09	0.48	1176	4.17	2.00	0.48	1246	4.05	1.94	0.48	1274	3.91	1.87	0.48	1330
23	22	4.53	1.63	0.36	1218	4.37	1.57	0.36	1295	4.26	1.53	0.36	1330	4.08	1.47	0.36	1386
24	18	4.17	2.67	0.64	1120	3.99	2.56	0.64	1176	3.83	2.45	0.64	1232	3.69	2.36	0.64	1288
24	20	4.35	2.26	0.52	1176	4.17	2.17	0.52	1246	4.05	2.10	0.52	1274	3.91	2.03	0.52	1330
24	22	4.53	1.81	0.40	1218	4.37	1.75	0.40	1295	4.26	1.70	0.40	1330	4.08	1.63	0.40	1386
24	24	4.76	1.33	0.28	1274	4.58	1.28	0.28	1344	4.47	1.25	0.28	1386	4.33	1.21	0.28	1456
25	18	4.17	2.84	0.68	1120	3.99	2.72	0.68	1176	3.83	2.61	0.68	1232	3.69	2.51	0.68	1288
25	20	4.35	2.44	0.56	1176	4.17	2.34	0.56	1246	4.05	2.27	0.56	1274	3.91	2.19	0.56	1330
25	22	4.53	1.99	0.44	1218	4.37	1.92	0.44	1295	4.26	1.87	0.44	1330	4.08	1.80	0.44	1386
25	24	4.76	1.52	0.32	1274	4.58	1.47	0.32	1344	4.47	1.43	0.32	1386	4.33	1.39	0.32	1456
26	18	4.17	3.00	0.72	1120	3.99	2.88	0.72	1176	3.83	2.76	0.72	1232	3.69	2.66	0.72	1288
26	20	4.35	2.61	0.60	1176	4.17	2.50	0.60	1246	4.05	2.43	0.60	1274	3.91	2.34	0.60	1330
26	22	4.53	2.17	0.48	1218	4.37	2.10	0.48	1295	4.26	2.04	0.48	1330	4.08	1.96	0.48	1386
26	24	4.76	1.71	0.36	1274	4.58	1.65	0.36	1344	4.47	1.61	0.36	1386	4.33	1.56	0.36	1456
26	26	4.90	1.18	0.24	1344	4.76	1.14	0.24	1414	4.69	1.12	0.24	1456	4.54	1.09	0.24	1498
27	18	4.17	3.17	0.76	1120	3.99	3.04	0.76	1176	3.83	2.91	0.76	1232	3.69	2.81	0.76	1288
27	20	4.35	2.78	0.64	1176	4.17	2.67	0.64	1246	4.05	2.59	0.64	1274	3.91	2.50	0.64	1330
27	22	4.53	2.35	0.52	1218	4.37	2.27	0.52	1295	4.26	2.22	0.52	1330	4.08	2.12	0.52	1386
27	24	4.76	1.90	0.40	1274	4.58	1.83	0.40	1344	4.47	1.79	0.40	1386	4.33	1.73	0.40	1456
27	26	4.90	1.37	0.28	1344	4.76	1.33	0.28	1414	4.69	1.31	0.28	1456	4.54	1.27	0.28	1498
28	18	4.17	3.34	0.80	1120	3.99	3.20	0.80	1176	3.83	3.07	0.80	1232	3.69	2.95	0.80	1288
28	20	4.35	2.96	0.68	1176	4.17	2.84	0.68	1246	4.05	2.75	0.68	1274	3.91	2.66	0.68	1330
28	22	4.53	2.53	0.56	1218	4.37	2.45	0.56	1295	4.26	2.39	0.56	1330	4.08	2.29	0.56	1386
28	24	4.76	2.09	0.44	1274	4.58	2.01	0.44	1344	4.47	1.97	0.44	1386	4.33	1.91	0.44	1456
28	26	4.90	1.57	0.32	1344	4.76	1.52	0.32	1414	4.69	1.50	0.32	1456	4.54	1.45	0.32	1498
29	18	4.17	3.50	0.84	1120	3.99	3.35	0.84	1176	3.83	3.22	0.84	1232	3.69	3.10	0.84	1288
29	20	4.35	3.13	0.72	1176	4.17	3.00	0.72	1246	4.05	2.91	0.72	1274	3.91	2.81	0.72	1330
29	22	4.53	2.72	0.60	1218	4.37	2.62	0.60	1295	4.26	2.56	0.60	1330	4.08	2.45	0.60	1386
29	24	4.76	2.28	0.48	1274	4.58	2.20	0.48	1344	4.47	2.15	0.48	1386	4.33	2.08	0.48	1456
29	26	4.90	1.76	0.36	1344	4.76	1.71	0.36	1414	4.69	1.69	0.36	1456	4.54	1.64	0.36	1498
30	18	4.17	3.67	0.88	1120	3.99	3.51	0.88	1176	3.83	3.37	0.88	1232	3.69	3.25	0.88	1288
30	20	4.35	3.31	0.76	1176	4.17	3.17	0.76	1246	4.05	3.08	0.76	1274	3.91	2.97	0.76	1330
30	22	4.53	2.90	0.64	1218	4.37	2.79	0.64	1295	4.26	2.73	0.64	1330	4.08	2.61	0.64	1386
30	24	4.76	2.47	0.52	1274	4.58	2.38	0.52	1344	4.47	2.33	0.52	1386	4.33	2.25	0.52	1456
30	26	4.90	1.96	0.40	1344	4.76	1.90	0.40	1414	4.69	1.87	0.40	1456	4.54	1.82	0.40	1498
31	18	4.17	3.84	0.92	1120	3.99	3.67	0.92	1176	3.83	3.53	0.92	1232	3.69	3.40	0.92	1288
31	20	4.35	3.48	0.80	1176	4.17	3.34	0.80	1246	4.05	3.24	0.80	1274	3.91	3.12	0.80	1330
31	22	4.53	3.08	0.68	1218	4.37	2.97	0.68	1295	4.26	2.90	0.68	1330	4.08	2.78	0.68	1386
31	24	4.76	2.66	0.56	1274	4.58	2.56	0.56	1344	4.47	2.50	0.56	1386	4.33	2.43	0.56	1456
31	26	4.90	2.16	0.44	1344	4.76	2.09	0.44	1414	4.69	2.06	0.44	1456	4.54	2.00	0.44	1498
32	18	4.17	4.00	0.96	1120	3.99	3.83	0.96	1176	3.83	3.68	0.96	1232	3.69	3.54	0.96	1288
32	20	4.35	3.65	0.84	1176	4.17	3.50	0.84	1246	4.05	3.40	0.84	1274	3.91	3.28	0.84	1330
32	22	4.53	3.26	0.72	1218	4.37	3.14	0.72	1295	4.26	3.07	0.72	1330	4.08	2.94	0.72	1386
32	24	4.76	2.85	0.60	1274	4.58	2.75	0.60	1344	4.47	2.68	0.60	1386	4.33	2.60	0.60	1456
32	26	4.90	2.35	0.48	1344	4.76	2.28	0.48	1414	4.69	2.25	0.48	1456	4.54	2.18	0.48	1498

NOTE Q : Total capacity (kW) SHF : Sensible heat factor DB: Dry-bulb temperature
SHC : Sensible heat capacity (kW) INPUT : Total power input (W) WB: Wet-bulb temperature

PERFORMANCE DATA

COOL operation

MCF-C13UV -E1 : MUCF-C13UV -E1

CAPACITY:3.55(kW) SHF:0.70 INPUT:1400(W)

		OUTDOOR DB(℃)															
INDOOR DB(℃)	INDOOR WB(℃)	35				40				43				46			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	3.48	1.81	0.52	1372	3.20	1.66	0.52	1456	3.07	1.60	0.52	1484	2.95	1.53	0.52	1512
21	20	3.66	1.46	0.40	1428	3.41	1.36	0.40	1498	3.28	1.31	0.40	1540	3.16	1.26	0.40	1582
22	18	3.48	1.95	0.56	1372	3.20	1.79	0.56	1456	3.07	1.72	0.56	1484	2.95	1.65	0.56	1512
22	20	3.66	1.61	0.44	1428	3.41	1.50	0.44	1498	3.28	1.44	0.44	1540	3.16	1.39	0.44	1582
22	22	3.87	1.24	0.32	1484	3.62	1.16	0.32	1568	3.50	1.12	0.32	1596	3.37	1.08	0.32	1624
23	18	3.48	2.09	0.60	1372	3.20	1.92	0.60	1456	3.07	1.84	0.60	1484	2.95	1.77	0.60	1512
23	20	3.66	1.76	0.48	1428	3.41	1.64	0.48	1498	3.28	1.58	0.48	1540	3.16	1.52	0.48	1582
23	22	3.87	1.39	0.36	1484	3.62	1.30	0.36	1568	3.50	1.26	0.36	1596	3.37	1.21	0.36	1624
24	18	3.48	2.23	0.64	1372	3.20	2.04	0.64	1456	3.07	1.97	0.64	1484	2.95	1.89	0.64	1512
24	20	3.66	1.90	0.52	1428	3.41	1.77	0.52	1498	3.28	1.71	0.52	1540	3.16	1.64	0.52	1582
24	22	3.87	1.55	0.40	1484	3.62	1.45	0.40	1568	3.50	1.40	0.40	1596	3.37	1.35	0.40	1624
24	24	4.08	1.14	0.28	1540	3.83	1.07	0.28	1610	3.73	1.04	0.28	1645	3.62	1.01	0.28	1680
25	18	3.48	2.37	0.68	1372	3.20	2.17	0.68	1456	3.07	2.09	0.68	1484	2.95	2.00	0.68	1512
25	20	3.66	2.05	0.56	1428	3.41	1.91	0.56	1498	3.28	1.84	0.56	1540	3.16	1.77	0.56	1582
25	22	3.87	1.70	0.44	1484	3.62	1.59	0.44	1568	3.50	1.54	0.44	1596	3.37	1.48	0.44	1624
25	24	4.08	1.31	0.32	1540	3.83	1.23	0.32	1610	3.73	1.19	0.32	1645	3.62	1.16	0.32	1680
26	18	3.48	2.50	0.72	1372	3.20	2.30	0.72	1456	3.07	2.21	0.72	1484	2.95	2.12	0.72	1512
26	20	3.66	2.19	0.60	1428	3.41	2.04	0.60	1498	3.28	1.97	0.60	1540	3.16	1.90	0.60	1582
26	22	3.87	1.86	0.48	1484	3.62	1.74	0.48	1568	3.50	1.68	0.48	1596	3.37	1.62	0.48	1624
26	24	4.08	1.47	0.36	1540	3.83	1.38	0.36	1610	3.73	1.34	0.36	1645	3.62	1.30	0.36	1680
26	26	4.30	1.03	0.24	1596	4.05	0.97	0.24	1666	3.92	0.94	0.24	1701	3.80	0.91	0.24	1736
27	18	3.48	2.64	0.76	1372	3.20	2.43	0.76	1456	3.07	2.33	0.76	1484	2.95	2.24	0.76	1512
27	20	3.66	2.34	0.64	1428	3.41	2.18	0.64	1498	3.28	2.10	0.64	1540	3.16	2.02	0.64	1582
27	22	3.87	2.01	0.52	1484	3.62	1.88	0.52	1568	3.50	1.82	0.52	1596	3.37	1.75	0.52	1624
27	24	4.08	1.63	0.40	1540	3.83	1.53	0.40	1610	3.73	1.49	0.40	1645	3.62	1.45	0.40	1680
27	26	4.30	1.20	0.28	1596	4.05	1.13	0.28	1666	3.92	1.10	0.28	1701	3.80	1.06	0.28	1736
28	18	3.48	2.78	0.80	1372	3.20	2.56	0.80	1456	3.07	2.46	0.80	1484	2.95	2.36	0.80	1512
28	20	3.66	2.49	0.68	1428	3.41	2.32	0.68	1498	3.28	2.23	0.68	1540	3.16	2.15	0.68	1582
28	22	3.87	2.17	0.56	1484	3.62	2.03	0.56	1568	3.50	1.96	0.56	1596	3.37	1.89	0.56	1624
28	24	4.08	1.80	0.44	1540	3.83	1.69	0.44	1610	3.73	1.64	0.44	1645	3.62	1.59	0.44	1680
28	26	4.30	1.37	0.32	1596	4.05	1.30	0.32	1666	3.92	1.26	0.32	1701	3.80	1.22	0.32	1736
29	18	3.48	2.92	0.84	1372	3.20	2.68	0.84	1456	3.07	2.58	0.84	1484	2.95	2.48	0.84	1512
29	20	3.66	2.63	0.72	1428	3.41	2.45	0.72	1498	3.28	2.36	0.72	1540	3.16	2.27	0.72	1582
29	22	3.87	2.32	0.60	1484	3.62	2.17	0.60	1568	3.50	2.10	0.60	1596	3.37	2.02	0.60	1624
29	24	4.08	1.96	0.48	1540	3.83	1.84	0.48	1610	3.73	1.79	0.48	1645	3.62	1.74	0.48	1680
29	26	4.30	1.55	0.36	1596	4.05	1.46	0.36	1666	3.92	1.41	0.36	1701	3.80	1.37	0.36	1736
30	18	3.48	3.06	0.88	1372	3.20	2.81	0.88	1456	3.07	2.70	0.88	1484	2.95	2.59	0.88	1512
30	20	3.66	2.78	0.76	1428	3.41	2.59	0.76	1498	3.28	2.50	0.76	1540	3.16	2.40	0.76	1582
30	22	3.87	2.48	0.64	1484	3.62	2.32	0.64	1568	3.50	2.24	0.64	1596	3.37	2.16	0.64	1624
30	24	4.08	2.12	0.52	1540	3.83	1.99	0.52	1610	3.73	1.94	0.52	1645	3.62	1.88	0.52	1680
30	26	4.30	1.72	0.40	1596	4.05	1.62	0.40	1666	3.92	1.57	0.40	1701	3.80	1.52	0.40	1736
31	18	3.48	3.20	0.92	1372	3.20	2.94	0.92	1456	3.07	2.83	0.92	1484	2.95	2.71	0.92	1512
31	20	3.66	2.93	0.80	1428	3.41	2.73	0.80	1498	3.28	2.63	0.80	1540	3.16	2.53	0.80	1582
31	22	3.87	2.63	0.68	1484	3.62	2.46	0.68	1568	3.50	2.38	0.68	1596	3.37	2.29	0.68	1624
31	24	4.08	2.29	0.56	1540	3.83	2.15	0.56	1610	3.73	2.09	0.56	1645	3.62	2.03	0.56	1680
31	26	4.30	1.89	0.44	1596	4.05	1.78	0.44	1666	3.92	1.73	0.44	1701	3.80	1.67	0.44	1736
32	18	3.48	3.34	0.96	1372	3.20	3.07	0.96	1456	3.07	2.95	0.96	1484	2.95	2.83	0.96	1512
32	20	3.66	3.07	0.84	1428	3.41	2.86	0.84	1498	3.28	2.76	0.84	1540	3.16	2.65	0.84	1582
32	22	3.87	2.79	0.72	1484	3.62	2.61	0.72	1568	3.50	2.52	0.72	1596	3.37	2.43	0.72	1624
32	24	4.08	2.45	0.60	1540	3.83	2.30	0.60	1610	3.73	2.24	0.60	1645	3.62	2.17	0.60	1680
32	26	4.30	2.06	0.48	1596	4.05	1.94	0.48	1666	3.92	1.88	0.48	1701	3.80	1.82	0.48	1736

NOTE Q : Total capacity (kW) SHF : Sensible heat factor DB: Dry-bulb temperature
SHC : Sensible heat capacity (kW) INPUT : Total power input (W) WB: Wet-bulb temperature

PERFORMANCE DATA

COOL operation

MCF-C18UV -E1 : MUCF-C18UV -E1

CAPACITY:5.00(kW) SHF:0.68 INPUT:2180(W)

		OUTDOOR DB(℃)															
INDOOR DB(℃)	INDOOR WB(℃)	21				25				27				30			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	5.88	2.94	0.50	1744	5.63	2.81	0.50	1831	5.40	2.70	0.50	1918	5.20	2.60	0.50	2006
21	20	6.13	2.33	0.38	1831	5.88	2.23	0.38	1940	5.70	2.17	0.38	1984	5.50	2.09	0.38	2071
22	18	5.88	3.17	0.54	1744	5.63	3.04	0.54	1831	5.40	2.92	0.54	1918	5.20	2.81	0.54	2006
22	20	6.13	2.57	0.42	1831	5.88	2.47	0.42	1940	5.70	2.39	0.42	1984	5.50	2.31	0.42	2071
22	22	6.38	1.91	0.30	1897	6.15	1.85	0.30	2017	6.00	1.80	0.30	2071	5.75	1.73	0.30	2158
23	18	5.88	3.41	0.58	1744	5.63	3.26	0.58	1831	5.40	3.13	0.58	1918	5.20	3.02	0.58	2006
23	20	6.13	2.82	0.46	1831	5.88	2.70	0.46	1940	5.70	2.62	0.46	1984	5.50	2.53	0.46	2071
23	22	6.38	2.17	0.34	1897	6.15	2.09	0.34	2017	6.00	2.04	0.34	2071	5.75	1.96	0.34	2158
24	18	5.88	3.64	0.62	1744	5.63	3.49	0.62	1831	5.40	3.35	0.62	1918	5.20	3.22	0.62	2006
24	20	6.13	3.06	0.50	1831	5.88	2.94	0.50	1940	5.70	2.85	0.50	1984	5.50	2.75	0.50	2071
24	22	6.38	2.42	0.38	1897	6.15	2.34	0.38	2017	6.00	2.28	0.38	2071	5.75	2.19	0.38	2158
24	24	6.70	1.74	0.26	1984	6.45	1.68	0.26	2093	6.30	1.64	0.26	2158	6.10	1.59	0.26	2267
25	18	5.88	3.88	0.66	1744	5.63	3.71	0.66	1831	5.40	3.56	0.66	1918	5.20	3.43	0.66	2006
25	20	6.13	3.31	0.54	1831	5.88	3.17	0.54	1940	5.70	3.08	0.54	1984	5.50	2.97	0.54	2071
25	22	6.38	2.68	0.42	1897	6.15	2.58	0.42	2017	6.00	2.52	0.42	2071	5.75	2.42	0.42	2158
25	24	6.70	2.01	0.30	1984	6.45	1.94	0.30	2093	6.30	1.89	0.30	2158	6.10	1.83	0.30	2267
26	18	5.88	4.11	0.70	1744	5.63	3.94	0.70	1831	5.40	3.78	0.70	1918	5.20	3.64	0.70	2006
26	20	6.13	3.55	0.58	1831	5.88	3.41	0.58	1940	5.70	3.31	0.58	1984	5.50	3.19	0.58	2071
26	22	6.38	2.93	0.46	1897	6.15	2.83	0.46	2017	6.00	2.76	0.46	2071	5.75	2.65	0.46	2158
26	24	6.70	2.28	0.34	1984	6.45	2.19	0.34	2093	6.30	2.14	0.34	2158	6.10	2.07	0.34	2267
26	26	6.90	1.52	0.22	2093	6.70	1.47	0.22	2202	6.60	1.45	0.22	2267	6.40	1.41	0.22	2333
27	18	5.88	4.35	0.74	1744	5.63	4.16	0.74	1831	5.40	4.00	0.74	1918	5.20	3.85	0.74	2006
27	20	6.13	3.80	0.62	1831	5.88	3.64	0.62	1940	5.70	3.53	0.62	1984	5.50	3.41	0.62	2071
27	22	6.38	3.19	0.50	1897	6.15	3.08	0.50	2017	6.00	3.00	0.50	2071	5.75	2.88	0.50	2158
27	24	6.70	2.55	0.38	1984	6.45	2.45	0.38	2093	6.30	2.39	0.38	2158	6.10	2.32	0.38	2267
27	26	6.90	1.79	0.26	2093	6.70	1.74	0.26	2202	6.60	1.72	0.26	2267	6.40	1.66	0.26	2333
28	18	5.88	4.58	0.78	1744	5.63	4.39	0.78	1831	5.40	4.21	0.78	1918	5.20	4.06	0.78	2006
28	20	6.13	4.04	0.66	1831	5.88	3.88	0.66	1940	5.70	3.76	0.66	1984	5.50	3.63	0.66	2071
28	22	6.38	3.44	0.54	1897	6.15	3.32	0.54	2017	6.00	3.24	0.54	2071	5.75	3.11	0.54	2158
28	24	6.70	2.81	0.42	1984	6.45	2.71	0.42	2093	6.30	2.65	0.42	2158	6.10	2.56	0.42	2267
28	26	6.90	2.07	0.30	2093	6.70	2.01	0.30	2202	6.60	1.98	0.30	2267	6.40	1.92	0.30	2333
29	18	5.88	4.82	0.82	1744	5.63	4.61	0.82	1831	5.40	4.43	0.82	1918	5.20	4.26	0.82	2006
29	20	6.13	4.29	0.70	1831	5.88	4.11	0.70	1940	5.70	3.99	0.70	1984	5.50	3.85	0.70	2071
29	22	6.38	3.70	0.58	1897	6.15	3.57	0.58	2017	6.00	3.48	0.58	2071	5.75	3.34	0.58	2158
29	24	6.70	3.08	0.46	1984	6.45	2.97	0.46	2093	6.30	2.90	0.46	2158	6.10	2.81	0.46	2267
29	26	6.90	2.35	0.34	2093	6.70	2.28	0.34	2202	6.60	2.24	0.34	2267	6.40	2.18	0.34	2333
30	18	5.88	5.05	0.86	1744	5.63	4.84	0.86	1831	5.40	4.64	0.86	1918	5.20	4.47	0.86	2006
30	20	6.13	4.53	0.74	1831	5.88	4.35	0.74	1940	5.70	4.22	0.74	1984	5.50	4.07	0.74	2071
30	22	6.38	3.95	0.62	1897	6.15	3.81	0.62	2017	6.00	3.72	0.62	2071	5.75	3.57	0.62	2158
30	24	6.70	3.35	0.50	1984	6.45	3.23	0.50	2093	6.30	3.15	0.50	2158	6.10	3.05	0.50	2267
30	26	6.90	2.62	0.38	2093	6.70	2.55	0.38	2202	6.60	2.51	0.38	2267	6.40	2.43	0.38	2333
31	18	5.88	5.29	0.90	1744	5.63	5.06	0.90	1831	5.40	4.86	0.90	1918	5.20	4.68	0.90	2006
31	20	6.13	4.78	0.78	1831	5.88	4.58	0.78	1940	5.70	4.45	0.78	1984	5.50	4.29	0.78	2071
31	22	6.38	4.21	0.66	1897	6.15	4.06	0.66	2017	6.00	3.96	0.66	2071	5.75	3.80	0.66	2158
31	24	6.70	3.62	0.54	1984	6.45	3.48	0.54	2093	6.30	3.40	0.54	2158	6.10	3.29	0.54	2267
31	26	6.90	2.90	0.42	2093	6.70	2.81	0.42	2202	6.60	2.77	0.42	2267	6.40	2.69	0.42	2333
32	18	5.88	5.52	0.94	1744	5.63	5.29	0.94	1831	5.40	5.08	0.94	1918	5.20	4.89	0.94	2006
32	20	6.13	5.02	0.82	1831	5.88	4.82	0.82	1940	5.70	4.67	0.82	1984	5.50	4.51	0.82	2071
32	22	6.38	4.46	0.70	1897	6.15	4.31	0.70	2017	6.00	4.20	0.70	2071	5.75	4.03	0.70	2158
32	24	6.70	3.89	0.58	1984	6.45	3.74	0.58	2093	6.30	3.65	0.58	2158	6.10	3.54	0.58	2267
32	26	6.90	3.17	0.46	2093	6.70	3.08	0.46	2202	6.60	3.04	0.46	2267	6.40	2.94	0.46	2333

NOTE Q : Total capacity (kW) SHF : Sensible heat factor DB: Dry-bulb temperature
SHC : Sensible heat capacity (kW) INPUT : Total power input (W) WB: Wet-bulb temperature

PERFORMANCE DATA

COOL operation

MCF-C18UV -E1 : MUCF-C18UV -E1

CAPACITY:5.00(kW) SHF:0.68 INPUT:2180(W)

		OUTDOOR DB(℃)															
INDOOR DB(℃)	INDOOR WB(℃)	35				40				43				46			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	4.90	2.45	0.50	2136	4.50	2.25	0.50	2267	4.33	2.16	0.50	2311	4.15	2.08	0.50	2354
21	20	5.15	1.96	0.38	2224	4.80	1.82	0.38	2333	4.63	1.76	0.38	2398	4.45	1.69	0.38	2463
22	18	4.90	2.65	0.54	2136	4.50	2.43	0.54	2267	4.33	2.34	0.54	2311	4.15	2.24	0.54	2354
22	20	5.15	2.16	0.42	2224	4.80	2.02	0.42	2333	4.63	1.94	0.42	2398	4.45	1.87	0.42	2463
22	22	5.45	1.64	0.30	2311	5.10	1.53	0.30	2442	4.93	1.48	0.30	2485	4.75	1.43	0.30	2529
23	18	4.90	2.84	0.58	2136	4.50	2.61	0.58	2267	4.33	2.51	0.58	2311	4.15	2.41	0.58	2354
23	20	5.15	2.37	0.46	2224	4.80	2.21	0.46	2333	4.63	2.13	0.46	2398	4.45	2.05	0.46	2463
23	22	5.45	1.85	0.34	2311	5.10	1.73	0.34	2442	4.93	1.67	0.34	2485	4.75	1.62	0.34	2529
24	18	4.90	3.04	0.62	2136	4.50	2.79	0.62	2267	4.33	2.68	0.62	2311	4.15	2.57	0.62	2354
24	20	5.15	2.58	0.50	2224	4.80	2.40	0.50	2333	4.63	2.31	0.50	2398	4.45	2.23	0.50	2463
24	22	5.45	2.07	0.38	2311	5.10	1.94	0.38	2442	4.93	1.87	0.38	2485	4.75	1.81	0.38	2529
24	24	5.75	1.50	0.26	2398	5.40	1.40	0.26	2507	5.25	1.37	0.26	2562	5.10	1.33	0.26	2616
25	18	4.90	3.23	0.66	2136	4.50	2.97	0.66	2267	4.33	2.85	0.66	2311	4.15	2.74	0.66	2354
25	20	5.15	2.78	0.54	2224	4.80	2.59	0.54	2333	4.63	2.50	0.54	2398	4.45	2.40	0.54	2463
25	22	5.45	2.29	0.42	2311	5.10	2.14	0.42	2442	4.93	2.07	0.42	2485	4.75	2.00	0.42	2529
25	24	5.75	1.73	0.30	2398	5.40	1.62	0.30	2507	5.25	1.58	0.30	2562	5.10	1.53	0.30	2616
26	18	4.90	3.43	0.70	2136	4.50	3.15	0.70	2267	4.33	3.03	0.70	2311	4.15	2.91	0.70	2354
26	20	5.15	2.99	0.58	2224	4.80	2.78	0.58	2333	4.63	2.68	0.58	2398	4.45	2.58	0.58	2463
26	22	5.45	2.51	0.46	2311	5.10	2.35	0.46	2442	4.93	2.27	0.46	2485	4.75	2.19	0.46	2529
26	24	5.75	1.96	0.34	2398	5.40	1.84	0.34	2507	5.25	1.79	0.34	2562	5.10	1.73	0.34	2616
26	26	6.05	1.33	0.22	2485	5.70	1.25	0.22	2594	5.53	1.22	0.22	2649	5.35	1.18	0.22	2703
27	18	4.90	3.63	0.74	2136	4.50	3.33	0.74	2267	4.33	3.20	0.74	2311	4.15	3.07	0.74	2354
27	20	5.15	3.19	0.62	2224	4.80	2.98	0.62	2333	4.63	2.87	0.62	2398	4.45	2.76	0.62	2463
27	22	5.45	2.73	0.50	2311	5.10	2.55	0.50	2442	4.93	2.46	0.50	2485	4.75	2.38	0.50	2529
27	24	5.75	2.19	0.38	2398	5.40	2.05	0.38	2507	5.25	2.00	0.38	2562	5.10	1.94	0.38	2616
27	26	6.05	1.57	0.26	2485	5.70	1.48	0.26	2594	5.53	1.44	0.26	2649	5.35	1.39	0.26	2703
28	18	4.90	3.82	0.78	2136	4.50	3.51	0.78	2267	4.33	3.37	0.78	2311	4.15	3.24	0.78	2354
28	20	5.15	3.40	0.66	2224	4.80	3.17	0.66	2333	4.63	3.05	0.66	2398	4.45	2.94	0.66	2463
28	22	5.45	2.94	0.54	2311	5.10	2.75	0.54	2442	4.93	2.66	0.54	2485	4.75	2.57	0.54	2529
28	24	5.75	2.42	0.42	2398	5.40	2.27	0.42	2507	5.25	2.21	0.42	2562	5.10	2.14	0.42	2616
28	26	6.05	1.82	0.30	2485	5.70	1.71	0.30	2594	5.53	1.66	0.30	2649	5.35	1.61	0.30	2703
29	18	4.90	4.02	0.82	2136	4.50	3.69	0.82	2267	4.33	3.55	0.82	2311	4.15	3.40	0.82	2354
29	20	5.15	3.61	0.70	2224	4.80	3.36	0.70	2333	4.63	3.24	0.70	2398	4.45	3.12	0.70	2463
29	22	5.45	3.16	0.58	2311	5.10	2.96	0.58	2442	4.93	2.86	0.58	2485	4.75	2.76	0.58	2529
29	24	5.75	2.65	0.46	2398	5.40	2.48	0.46	2507	5.25	2.42	0.46	2562	5.10	2.35	0.46	2616
29	26	6.05	2.06	0.34	2485	5.70	1.94	0.34	2594	5.53	1.88	0.34	2649	5.35	1.82	0.34	2703
30	18	4.90	4.21	0.86	2136	4.50	3.87	0.86	2267	4.33	3.72	0.86	2311	4.15	3.57	0.86	2354
30	20	5.15	3.81	0.74	2224	4.80	3.55	0.74	2333	4.63	3.42	0.74	2398	4.45	3.29	0.74	2463
30	22	5.45	3.38	0.62	2311	5.10	3.16	0.62	2442	4.93	3.05	0.62	2485	4.75	2.95	0.62	2529
30	24	5.75	2.88	0.50	2398	5.40	2.70	0.50	2507	5.25	2.63	0.50	2562	5.10	2.55	0.50	2616
30	26	6.05	2.30	0.38	2485	5.70	2.17	0.38	2594	5.53	2.10	0.38	2649	5.35	2.03	0.38	2703
31	18	4.90	4.41	0.90	2136	4.50	4.05	0.90	2267	4.33	3.89	0.90	2311	4.15	3.74	0.90	2354
31	20	5.15	4.02	0.78	2224	4.80	3.74	0.78	2333	4.63	3.61	0.78	2398	4.45	3.47	0.78	2463
31	22	5.45	3.60	0.66	2311	5.10	3.37	0.66	2442	4.93	3.25	0.66	2485	4.75	3.14	0.66	2529
31	24	5.75	3.11	0.54	2398	5.40	2.92	0.54	2507	5.25	2.84	0.54	2562	5.10	2.75	0.54	2616
31	26	6.05	2.54	0.42	2485	5.70	2.39	0.42	2594	5.53	2.32	0.42	2649	5.35	2.25	0.42	2703
32	18	4.90	4.61	0.94	2136	4.50	4.23	0.94	2267	4.33	4.07	0.94	2311	4.15	3.90	0.94	2354
32	20	5.15	4.22	0.82	2224	4.80	3.94	0.82	2333	4.63	3.79	0.82	2398	4.45	3.65	0.82	2463
32	22	5.45	3.82	0.70	2311	5.10	3.57	0.70	2442	4.93	3.45	0.70	2485	4.75	3.33	0.70	2529
32	24	5.75	3.34	0.58	2398	5.40	3.13	0.58	2507	5.25	3.05	0.58	2562	5.10	2.96	0.58	2616
32	26	6.05	2.78	0.46	2485	5.70	2.62	0.46	2594	5.53	2.54	0.46	2649	5.35	2.46	0.46	2703

NOTE Q : Total capacity (kW) SHF : Sensible heat factor DB: Dry-bulb temperature
SHC : Sensible heat capacity (kW) INPUT : Total power input (W) WB: Wet-bulb temperature

PERFORMANCE DATA

COOL operation

MCF-C24UV -E1 : MUCF-C24UV -E1

CAPACITY:6.40(kW) SHF:0.61 INPUT:2920(W)

		OUTDOOR DB(℃)															
INDOOR DB(℃)	INDOOR WB(℃)	21				25				27				30			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	7.52	3.23	0.43	2336	7.20	3.10	0.43	2453	6.91	2.97	0.43	2570	6.66	2.86	0.43	2686
21	20	7.84	2.43	0.31	2453	7.52	2.33	0.31	2599	7.30	2.26	0.31	2657	7.04	2.18	0.31	2774
22	18	7.52	3.53	0.47	2336	7.20	3.38	0.47	2453	6.91	3.25	0.47	2570	6.66	3.13	0.47	2686
22	20	7.84	2.74	0.35	2453	7.52	2.63	0.35	2599	7.30	2.55	0.35	2657	7.04	2.46	0.35	2774
22	22	8.16	1.88	0.23	2540	7.87	1.81	0.23	2701	7.68	1.77	0.23	2774	7.36	1.69	0.23	2891
23	18	7.52	3.84	0.51	2336	7.20	3.67	0.51	2453	6.91	3.53	0.51	2570	6.66	3.39	0.51	2686
23	20	7.84	3.06	0.39	2453	7.52	2.93	0.39	2599	7.30	2.85	0.39	2657	7.04	2.75	0.39	2774
23	22	8.16	2.20	0.27	2540	7.87	2.13	0.27	2701	7.68	2.07	0.27	2774	7.36	1.99	0.27	2891
24	18	7.52	4.14	0.55	2336	7.20	3.96	0.55	2453	6.91	3.80	0.55	2570	6.66	3.66	0.55	2686
24	20	7.84	3.37	0.43	2453	7.52	3.23	0.43	2599	7.30	3.14	0.43	2657	7.04	3.03	0.43	2774
24	22	8.16	2.53	0.31	2540	7.87	2.44	0.31	2701	7.68	2.38	0.31	2774	7.36	2.28	0.31	2891
24	24	8.58	1.63	0.19	2657	8.26	1.57	0.19	2803	8.06	1.53	0.19	2891	7.81	1.48	0.19	3037
25	18	7.52	4.44	0.59	2336	7.20	4.25	0.59	2453	6.91	4.08	0.59	2570	6.66	3.93	0.59	2686
25	20	7.84	3.68	0.47	2453	7.52	3.53	0.47	2599	7.30	3.43	0.47	2657	7.04	3.31	0.47	2774
25	22	8.16	2.86	0.35	2540	7.87	2.76	0.35	2701	7.68	2.69	0.35	2774	7.36	2.58	0.35	2891
25	24	8.58	1.97	0.23	2657	8.26	1.90	0.23	2803	8.06	1.85	0.23	2891	7.81	1.80	0.23	3037
26	18	7.52	4.74	0.63	2336	7.20	4.54	0.63	2453	6.91	4.35	0.63	2570	6.66	4.19	0.63	2686
26	20	7.84	4.00	0.51	2453	7.52	3.84	0.51	2599	7.30	3.72	0.51	2657	7.04	3.59	0.51	2774
26	22	8.16	3.18	0.39	2540	7.87	3.07	0.39	2701	7.68	3.00	0.39	2774	7.36	2.87	0.39	2891
26	24	8.58	2.32	0.27	2657	8.26	2.23	0.27	2803	8.06	2.18	0.27	2891	7.81	2.11	0.27	3037
26	26	8.83	1.32	0.15	2803	8.58	1.29	0.15	2949	8.45	1.27	0.15	3037	8.19	1.23	0.15	3124
27	18	7.52	5.04	0.67	2336	7.20	4.82	0.67	2453	6.91	4.63	0.67	2570	6.66	4.46	0.67	2686
27	20	7.84	4.31	0.55	2453	7.52	4.14	0.55	2599	7.30	4.01	0.55	2657	7.04	3.87	0.55	2774
27	22	8.16	3.51	0.43	2540	7.87	3.38	0.43	2701	7.68	3.30	0.43	2774	7.36	3.16	0.43	2891
27	24	8.58	2.66	0.31	2657	8.26	2.56	0.31	2803	8.06	2.50	0.31	2891	7.81	2.42	0.31	3037
27	26	8.83	1.68	0.19	2803	8.58	1.63	0.19	2949	8.45	1.61	0.19	3037	8.19	1.56	0.19	3124
28	18	7.52	5.34	0.71	2336	7.20	5.11	0.71	2453	6.91	4.91	0.71	2570	6.66	4.73	0.71	2686
28	20	7.84	4.63	0.59	2453	7.52	4.44	0.59	2599	7.30	4.30	0.59	2657	7.04	4.15	0.59	2774
28	22	8.16	3.84	0.47	2540	7.87	3.70	0.47	2701	7.68	3.61	0.47	2774	7.36	3.46	0.47	2891
28	24	8.58	3.00	0.35	2657	8.26	2.89	0.35	2803	8.06	2.82	0.35	2891	7.81	2.73	0.35	3037
28	26	8.83	2.03	0.23	2803	8.58	1.97	0.23	2949	8.45	1.94	0.23	3037	8.19	1.88	0.23	3124
29	18	7.52	5.64	0.75	2336	7.20	5.40	0.75	2453	6.91	5.18	0.75	2570	6.66	4.99	0.75	2686
29	20	7.84	4.94	0.63	2453	7.52	4.74	0.63	2599	7.30	4.60	0.63	2657	7.04	4.44	0.63	2774
29	22	8.16	4.16	0.51	2540	7.87	4.01	0.51	2701	7.68	3.92	0.51	2774	7.36	3.75	0.51	2891
29	24	8.58	3.34	0.39	2657	8.26	3.22	0.39	2803	8.06	3.14	0.39	2891	7.81	3.05	0.39	3037
29	26	8.83	2.38	0.27	2803	8.58	2.32	0.27	2949	8.45	2.28	0.27	3037	8.19	2.21	0.27	3124
30	18	7.52	5.94	0.79	2336	7.20	5.69	0.79	2453	6.91	5.46	0.79	2570	6.66	5.26	0.79	2686
30	20	7.84	5.25	0.67	2453	7.52	5.04	0.67	2599	7.30	4.89	0.67	2657	7.04	4.72	0.67	2774
30	22	8.16	4.49	0.55	2540	7.87	4.33	0.55	2701	7.68	4.22	0.55	2774	7.36	4.05	0.55	2891
30	24	8.58	3.69	0.43	2657	8.26	3.55	0.43	2803	8.06	3.47	0.43	2891	7.81	3.36	0.43	3037
30	26	8.83	2.74	0.31	2803	8.58	2.66	0.31	2949	8.45	2.62	0.31	3037	8.19	2.54	0.31	3124
31	18	7.52	6.24	0.83	2336	7.20	5.98	0.83	2453	6.91	5.74	0.83	2570	6.66	5.52	0.83	2686
31	20	7.84	5.57	0.71	2453	7.52	5.34	0.71	2599	7.30	5.18	0.71	2657	7.04	5.00	0.71	2774
31	22	8.16	4.81	0.59	2540	7.87	4.64	0.59	2701	7.68	4.53	0.59	2774	7.36	4.34	0.59	2891
31	24	8.58	4.03	0.47	2657	8.26	3.88	0.47	2803	8.06	3.79	0.47	2891	7.81	3.67	0.47	3037
31	26	8.83	3.09	0.35	2803	8.58	3.00	0.35	2949	8.45	2.96	0.35	3037	8.19	2.87	0.35	3124
32	18	7.52	6.54	0.87	2336	7.20	6.26	0.87	2453	6.91	6.01	0.87	2570	6.66	5.79	0.87	2686
32	20	7.84	5.88	0.75	2453	7.52	5.64	0.75	2599	7.30	5.47	0.75	2657	7.04	5.28	0.75	2774
32	22	8.16	5.14	0.63	2540	7.87	4.96	0.63	2701	7.68	4.84	0.63	2774	7.36	4.64	0.63	2891
32	24	8.58	4.37	0.51	2657	8.26	4.21	0.51	2803	8.06	4.11	0.51	2891	7.81	3.98	0.51	3037
32	26	8.83	3.44	0.39	2803	8.58	3.34	0.39	2949	8.45	3.29	0.39	3037	8.19	3.19	0.39	3124

NOTE Q : Total capacity (kW) SHF : Sensible heat factor DB: Dry-bulb temperature
SHC : Sensible heat capacity (kW) INPUT : Total power input (W) WB: Wet-bulb temperature

PERFORMANCE DATA
COOL operation
MCF-C24UV -E1 : MUCF-C24UV -E1

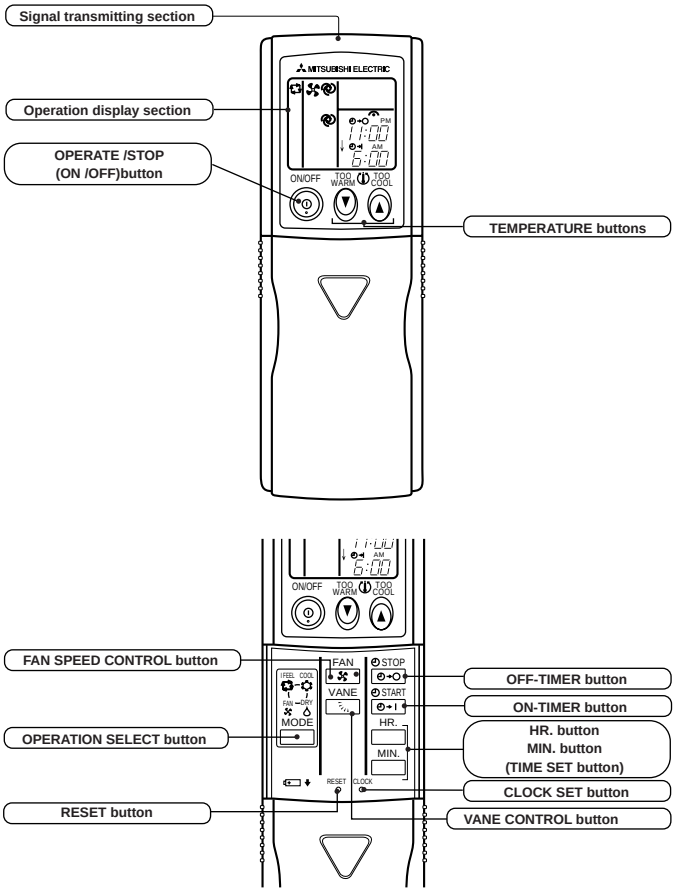
CAPACITY:6.40(kW) SHF:0.61 INPUT:2920(W)

		OUTDOOR DB(℃)															
INDOOR DB(℃)	INDOOR WB(℃)	35				40				43				46			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	6.27	2.70	0.43	2862	5.76	2.48	0.43	3037	5.54	2.38	0.43	3095	5.31	2.28	0.43	3154
21	20	6.59	2.04	0.31	2978	6.14	1.90	0.31	3124	5.92	1.84	0.31	3212	5.70	1.77	0.31	3300
22	18	6.27	2.95	0.47	2862	5.76	2.71	0.47	3037	5.54	2.60	0.47	3095	5.31	2.50	0.47	3154
22	20	6.59	2.31	0.35	2978	6.14	2.15	0.35	3124	5.92	2.07	0.35	3212	5.70	1.99	0.35	3300
22	22	6.98	1.60	0.23	3095	6.53	1.50	0.23	3270	6.30	1.45	0.23	3329	6.08	1.40	0.23	3387
23	18	6.27	3.20	0.51	2862	5.76	2.94	0.51	3037	5.54	2.82	0.51	3095	5.31	2.71	0.51	3154
23	20	6.59	2.57	0.39	2978	6.14	2.40	0.39	3124	5.92	2.31	0.39	3212	5.70	2.22	0.39	3300
23	22	6.98	1.88	0.27	3095	6.53	1.76	0.27	3270	6.30	1.70	0.27	3329	6.08	1.64	0.27	3387
24	18	6.27	3.45	0.55	2862	5.76	3.17	0.55	3037	5.54	3.04	0.55	3095	5.31	2.92	0.55	3154
24	20	6.59	2.83	0.43	2978	6.14	2.64	0.43	3124	5.92	2.55	0.43	3212	5.70	2.45	0.43	3300
24	22	6.98	2.16	0.31	3095	6.53	2.02	0.31	3270	6.30	1.95	0.31	3329	6.08	1.88	0.31	3387
24	24	7.36	1.40	0.19	3212	6.91	1.31	0.19	3358	6.72	1.28	0.19	3431	6.53	1.24	0.19	3504
25	18	6.27	3.70	0.59	2862	5.76	3.40	0.59	3037	5.54	3.27	0.59	3095	5.31	3.13	0.59	3154
25	20	6.59	3.10	0.47	2978	6.14	2.89	0.47	3124	5.92	2.78	0.47	3212	5.70	2.68	0.47	3300
25	22	6.98	2.44	0.35	3095	6.53	2.28	0.35	3270	6.30	2.21	0.35	3329	6.08	2.13	0.35	3387
25	24	7.36	1.69	0.23	3212	6.91	1.59	0.23	3358	6.72	1.55	0.23	3431	6.53	1.50	0.23	3504
26	18	6.27	3.95	0.63	2862	5.76	3.63	0.63	3037	5.54	3.49	0.63	3095	5.31	3.35	0.63	3154
26	20	6.59	3.36	0.51	2978	6.14	3.13	0.51	3124	5.92	3.02	0.51	3212	5.70	2.90	0.51	3300
26	22	6.98	2.72	0.39	3095	6.53	2.55	0.39	3270	6.30	2.46	0.39	3329	6.08	2.37	0.39	3387
26	24	7.36	1.99	0.27	3212	6.91	1.87	0.27	3358	6.72	1.81	0.27	3431	6.53	1.76	0.27	3504
26	26	7.74	1.16	0.15	3329	7.30	1.09	0.15	3475	7.07	1.06	0.15	3548	6.85	1.03	0.15	3621
27	18	6.27	4.20	0.67	2862	5.76	3.86	0.67	3037	5.54	3.71	0.67	3095	5.31	3.56	0.67	3154
27	20	6.59	3.63	0.55	2978	6.14	3.38	0.55	3124	5.92	3.26	0.55	3212	5.70	3.13	0.55	3300
27	22	6.98	3.00	0.43	3095	6.53	2.81	0.43	3270	6.30	2.71	0.43	3329	6.08	2.61	0.43	3387
27	24	7.36	2.28	0.31	3212	6.91	2.14	0.31	3358	6.72	2.08	0.31	3431	6.53	2.02	0.31	3504
27	26	7.74	1.47	0.19	3329	7.30	1.39	0.19	3475	7.07	1.34	0.19	3548	6.85	1.30	0.19	3621
28	18	6.27	4.45	0.71	2862	5.76	4.09	0.71	3037	5.54	3.93	0.71	3095	5.31	3.77	0.71	3154
28	20	6.59	3.89	0.59	2978	6.14	3.62	0.59	3124	5.92	3.49	0.59	3212	5.70	3.36	0.59	3300
28	22	6.98	3.28	0.47	3095	6.53	3.07	0.47	3270	6.30	2.96	0.47	3329	6.08	2.86	0.47	3387
28	24	7.36	2.58	0.35	3212	6.91	2.42	0.35	3358	6.72	2.35	0.35	3431	6.53	2.28	0.35	3504
28	26	7.74	1.78	0.23	3329	7.30	1.68	0.23	3475	7.07	1.63	0.23	3548	6.85	1.58	0.23	3621
29	18	6.27	4.70	0.75	2862	5.76	4.32	0.75	3037	5.54	4.15	0.75	3095	5.31	3.98	0.75	3154
29	20	6.59	4.15	0.63	2978	6.14	3.87	0.63	3124	5.92	3.73	0.63	3212	5.70	3.59	0.63	3300
29	22	6.98	3.56	0.51	3095	6.53	3.33	0.51	3270	6.30	3.22	0.51	3329	6.08	3.10	0.51	3387
29	24	7.36	2.87	0.39	3212	6.91	2.70	0.39	3358	6.72	2.62	0.39	3431	6.53	2.55	0.39	3504
29	26	7.74	2.09	0.27	3329	7.30	1.97	0.27	3475	7.07	1.91	0.27	3548	6.85	1.85	0.27	3621
30	18	6.27	4.95	0.79	2862	5.76	4.55	0.79	3037	5.54	4.37	0.79	3095	5.31	4.20	0.79	3154
30	20	6.59	4.42	0.67	2978	6.14	4.12	0.67	3124	5.92	3.97	0.67	3212	5.70	3.82	0.67	3300
30	22	6.98	3.84	0.55	3095	6.53	3.59	0.55	3270	6.30	3.47	0.55	3329	6.08	3.34	0.55	3387
30	24	7.36	3.16	0.43	3212	6.91	2.97	0.43	3358	6.72	2.89	0.43	3431	6.53	2.81	0.43	3504
30	26	7.74	2.40	0.31	3329	7.30	2.26	0.31	3475	7.07	2.19	0.31	3548	6.85	2.12	0.31	3621
31	18	6.27	5.21	0.83	2862	5.76	4.78	0.83	3037	5.54	4.59	0.83	3095	5.31	4.41	0.83	3154
31	20	6.59	4.68	0.71	2978	6.14	4.36	0.71	3124	5.92	4.20	0.71	3212	5.70	4.04	0.71	3300
31	22	6.98	4.12	0.59	3095	6.53	3.85	0.59	3270	6.30	3.72	0.59	3329	6.08	3.59	0.59	3387
31	24	7.36	3.46	0.47	3212	6.91	3.25	0.47	3358	6.72	3.16	0.47	3431	6.53	3.07	0.47	3504
31	26	7.74	2.71	0.35	3329	7.30	2.55	0.35	3475	7.07	2.48	0.35	3548	6.85	2.40	0.35	3621
32	18	6.27	5.46	0.87	2862	5.76	5.01	0.87	3037	5.54	4.82	0.87	3095	5.31	4.62	0.87	3154
32	20	6.59	4.94	0.75	2978	6.14	4.61	0.75	3124	5.92	4.44	0.75	3212	5.70	4.27	0.75	3300
32	22	6.98	4.39	0.63	3095	6.53	4.11	0.63	3270	6.30	3.97	0.63	3329	6.08	3.83	0.63	3387
32	24	7.36	3.75	0.51	3212	6.91	3.53	0.51	3358	6.72	3.43	0.51	3431	6.53	3.33	0.51	3504
32	26	7.74	3.02	0.39	3329	7.30	2.85	0.39	3475	7.07	2.76	0.39	3548	6.85	2.67	0.39	3621

NOTE Q : Total capacity (kW) SHF : Sensible heat factor DB: Dry-bulb temperature
SHC : Sensible heat capacity (kW) INPUT : Total power input (W) WB: Wet-bulb temperature

9 MICROPROCESSOR CONTROL

WIRELESS REMOTE CONTROLLER

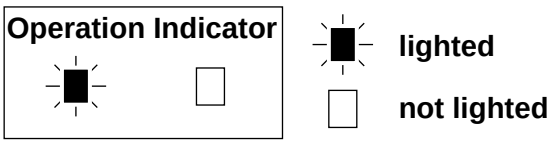


INDOOR UNIT DISPLAY SECTION

Operation Indicator lamp

The operation indicator at the right side of the indoor unit indicates the operation state.

• The following indication applies regardless of shape of the indicator.



Indication	Operation state	Difference between target temperature and room temperature
☀ ☀	This shows that the air conditioner is operating to reach the target temperature. Please wait until the target temperature is obtained.	Approx. 2 ℃ or more
☀ □	This shows that the room temperature is approaching the target temperature.	Approx. 2 ℃ or less

MCF-C13UV -E1 MUCF-C13UV -E1
MCF-C18UV -E1 MUCF-C18UV -E1
MCF-C24UV -E1 MUCF-C24UV -E1

Once the operation mode are set, the same operation mode can be repeated by simply turning the OPERATE/STOP (ON/OFF) button ON.
Indoor unit receives the signal with a beep tone.
When the system turns off, 3-minute time delay will operate to protect system from overload and compressor will not restart for 3 minutes.

9-1. "I FEEL CONTROL" (▭)OPERATION

(1) Press OPERATE/STOP (ON/OFF) button on the remote controller. OPERATION INDICATOR lamp of the indoor unit turns on with a beep tone.
(2) Select "I FEEL CONTROL"(▭)mode with the OPERATION SELECT button.
(3) The operation mode is determined by the room temperature at start-up of the operation.

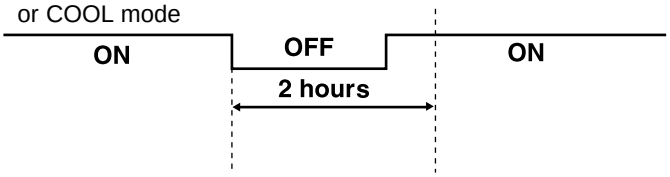
Initial room temperature	mode
more than 25°C	COOL mode of "I FEEL CONTROL"
more than 13°C, less than 25°C	DRY mode of "I FEEL CONTROL"

- Once the mode is fixed, the mode will not change by room temperature afterwards.
- Under the ON-TIMER (◴→|)timer operation, mode is determined according to the room temperature at the set time the operation starts.
- When the system is stopped on the remote controller, and restarted within 2 hours in "I FEEL CONTROL" (▭)mode, the system operates in previous mode automatically regardless of the room temperature.

Example

Previous operation
COOL mode of "I FEEL CONTROL" or COOL mode

Restart
COOL mode of "I FEEL CONTROL"

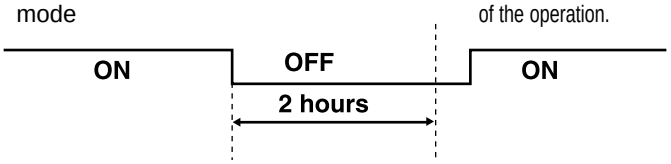


- When the system is restarted after 2 hours and more, the operation mode is determined by the room temperature at start-up of the operation.

Example

Previous operation
COOL mode of "I FEEL CONTROL" or COOL mode

Restart
COOL or DRY mode of "I FEEL CONTROL" that is determined by room temperature at start-up of the operation.



(4) The initial set temperature is decided by the initial room temperature.

Model	Initial room temperature	Initial set temperature	
COOL mode of "I FEEL CONTROL"	26°C or more	24°C	✵1
	25°C to 26°C	Initial room temperature minus 2°C	
DRY mode of "I FEEL CONTROL"	more than 13°C, less than 25°C	Initial room temperature minus 2°C	

✵1 When the system is restarted with the remote controller, the system operates with the previous set temperature regardless of the room temperature at restart.
The set temperature is calculated by the previous set temperature.

(5) TEMPERATURES buttons
In "I FEEL CONTROL"(▭) mode, set temperature is decided by the microprocessor based on the room temperature.
In addition, set temperature is controlled by or TOO WARM or TOO COOL buttons when you feel too warm or too cool.
Each time the TOO WARM or TOO COOL button is pressed, the indoor unit receives the signal and emits a beep tone.

● **Fuzzy control**

When the TOO COOL or TOO WARM button is pressed, the microprocessor changes the set temperature, considering the room temperature, the frequency of pressing TOO COOL or TOO WARM button and the user's preference to heat or cold. So this is called "Fuzzy control", and works only in "I FEEL CONTROL" mode.
In DRY mode of "I FEEL CONTROL", the set temperature doesn't change.

TOO COOL ▲ ··· To raise the set temperature 1~2 degrees(°C)

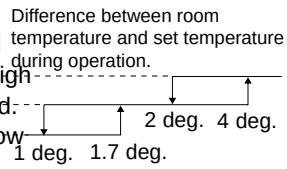
TOO WARM ▼ ··· To lower the set temperature 1~2 degrees(°C)

9-1-1. COOL mode of "I FEEL CONTROL"

1. Indoor fan speed control

Indoor fan operates at the set speed by FAN SPEED CONTROL button.
In AUTO the fan speed is as follows.

Initial temperature difference	Fan speed
Room temperature minus set temperature : 2 degrees or more	High
Room temperature minus set temperature : Between 1 and 2 degrees	Med.
Room temperature minus set temperature : less than 1 degrees	Low



2. Coil frost prevention

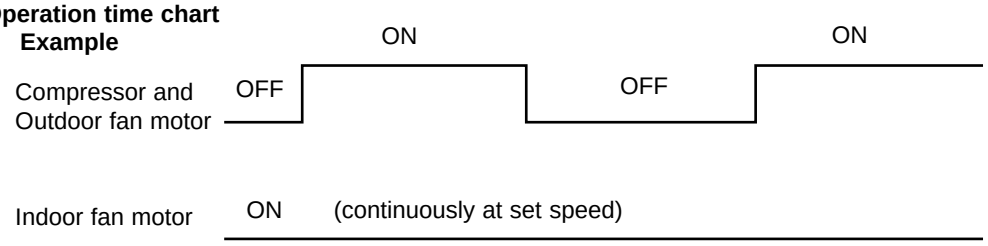
① Temperature control

When the indoor coil thermistor RT12 reads -1℃ or below, the coil frost prevention mode starts immediately. However the coil frost prevention doesn't work for 5 minutes since the compressor has started.
The indoor fan operates at the set speed the compressor stops for 5 minutes.
After that, if RT12 still reads below -1℃ this mode is prolonged until the RT12 reads over -1℃.

② Time control

When the three conditions as follows have been satisfied for 1 hour and 45 minutes, compressor stops for 3 minutes.
a. Compressor has been continuously operating.
b. Indoor fan speed is Low or Med..
c. Room temperature is below 26℃.
When compressor stops, the accumulated time is cancelled and when compressor restarts, time counting starts from the beginning.
Time counting also stops temporarily when the indoor fan speed becomes High or the room temperature exceeds 26℃. However, when two of the above conditions (b.and c.) are satisfied again. Time accumulation is resumed.

Operation time chart
Example



9-1-2. DRY mode of "I FEEL CONTROL"

The system for dry operation uses the same refrigerant circuit as the cooling circuit.
The compressor and the indoor fan are controlled by the temperature.
By such controls, indoor flow amounts will be reduced in order to lower humidity without much room temperature decrease.

1. Indoor fan speed control

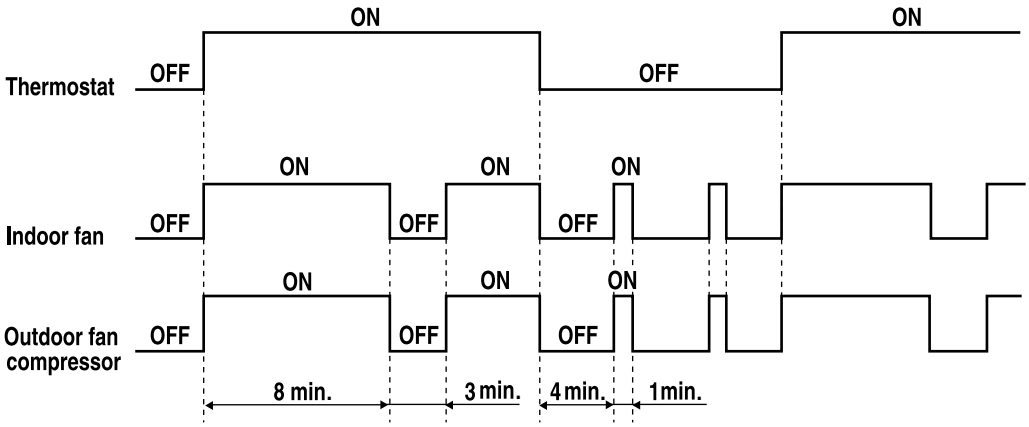
Indoor fan operates at the set speed by FAN SPEED CONTROL button.
However, in AUTO fan operation, fan speed becomes Low.

2. The operation of the compressor and indoor/ outdoor fan

Compressor operates by room temperature control and time control.
Set temperature is controlled to fall 2℃ as initial set temperature.
Indoor fan and outdoor fan operate in the same cycle as the compressor.

- When the room temperature is 23℃ or over:
  When the thermostat is ON, the compressor repeats 8 minutes ON and 3 minutes OFF.
  When the thermostat is OFF, the compressor repeats 4 minutes OFF and 1 minute ON.
- When the room temperature is under 23℃.
  When the thermostat is ON, the compressor repeats 2 minutes ON and 3 minutes OFF.
  When the thermostat is OFF, the compressor repeats 4 minutes OFF and 1 minute ON.

Operation time chart
Example



3. Coil frost prevention

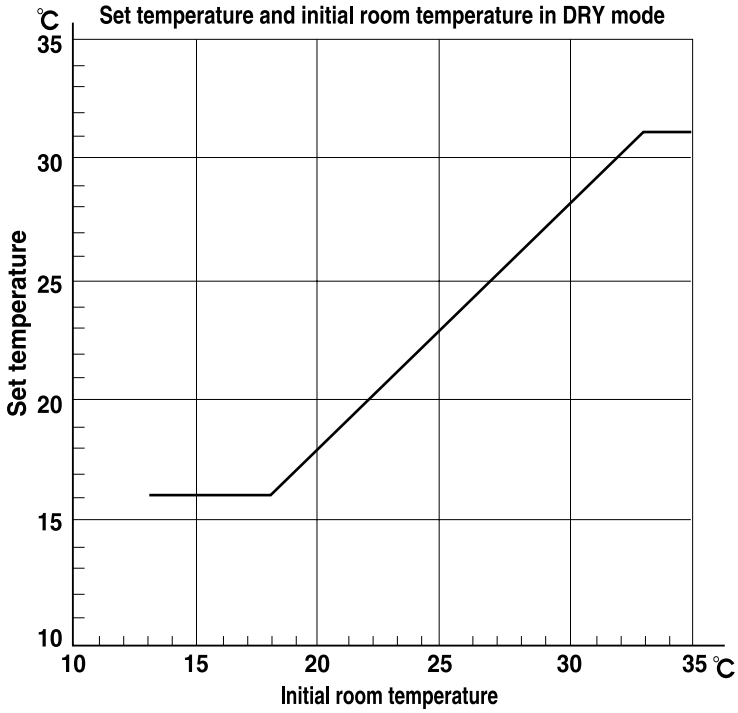
- The operation is as same as coil frost prevention during COOL mode of "I FEEL CONTROL".
- Indoor fan operates at the set speed and the compressor stops for 5 minutes, because protection (Coil frost prevention) has the priority.
  However, when coil frost prevention works while the compressor is not operating, it's speed becomes Low.

9-2. COOL (✪) OPERATION

(1) Press OPERATE/STOP (ON/OFF) button.
OPERATION INDICATOR lamp of the indoor unit turns on with a beep tone.
(2) Select COOL mode with the OPERATION SELECT button.
(3) Press the TEMPERATURE buttons.
(TOO WARM or TOO COOL button)
The setting range is 16 ~ 31°C
※ Indoor fan continues to operate regardless of thermostat's OFF-ON.
※ Coil frost prevention is as same as COOL mode of "I FEEL CONTROL".

9-3. DRY (△) OPERATION

(1) Press OPERATE/STOP (ON/OFF) button.
OPERATION INDICATOR lamp of the indoor unit turns on with a beep tone.
(2) Select DRY mode with the OPERATION SELECT button.
(3) The microprocessor reads the room temperature and determines the set temperature. Set temperature is as shown on the right chart.
Thermostat (SET TEMP.)does not work.
The other operations are same as DRY mode of "I FEEL CONTROL".
(4) DRY operation will not function when the room temperature is 13°C or below.

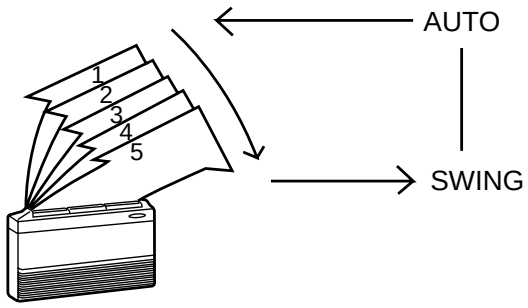


9-4. FAN (✣) OPERATION

(1) Press the OPERATE/STOP (ON/OFF) button.
(2) Select FAN mode with the OPERATION SELECT button.
(3) Select the desired fan speed. When AUTO, it becomes Low.
Only indoor fan operates.
Outdoor unit does not operate.

9-5. AUTO VANE OPERATION

(1) Vane motor drive
This series is equipped with a stepping motor for the vane. The rotating direction, speed, and angle of the motor are controlled by pulse signals (approx. 12V, transmitted from indoor microprocessor.)
(2) Each time the VANE CONTROL button is pressed, angle of horizontal vane is changed in sequence, from 1, 2, 3, 4, 5, SWING to AUTO.

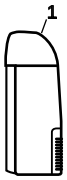


(3) Positioning
The vane is once pressed to the vane stopper to confirm the standard position and then set to the desired angle.
Confirming of standard position is performed in case of follows.
(a) When the OPERATE/STOP (ON/OFF) button is pressed (POWER ON/OFF).
(b) When the vane control is changed from AUTO to MANUAL.
(c) When the SWING is finished.
(d) When the test run starts.
(e) When the power supply turns ON.

(4) VANE AUTO (㉾) mode

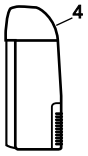
In VANE AUTO mode, the microprocessor automatically determines the vane angle and operation to make the optimum room-temperature distribution.

1.In COOL and DRY operation

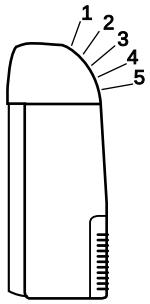


Vane angle is fixed to position 1.

2.In FAN operation



Vane angle is fixed to position 4.



(5) Dew prevention

During COOL or DRY operation at position 4 or 5 when the compressor cumulative operation time exceeds 1 hour, the angle of horizontal vane automatically changes to position 1 for dew prevention.

(6) SWING MODE( )

By selecting SWING mode with the VANE CONTROL button the horizontal vane swings vertically. The remote controller displays " ".SWING mode is cancelled when the VANE CONTROL button is pressed once again.

(7) STOP and ON-TIMER standby

When the following cases occur, the vane returns to the closed position.

(a) When the operation is stopped by the remote controller.

(b) When the operation is stopped by the emergency operation.

(c) When the ON-timer is on standby.

9-6. TIMER OPERATION

1. How to set the timer

(1) Press OPERATE/STOP (ON/OFF) button to start the air conditioner.

(2) Check that the current time is set correctly.

NOTE : Timer operation will not work without setting the current time. Initially "AM0:00" blinks at the current time display of TIME MONITOR, so set the current time correctly with CLOCK SET button.

(3) Press TIMER CONTROL button to select the operation.

"ON-TIMER" button... AUTO START operation (ON timer)

"OFF-TIMER" button... AUTO STOP operation (OFF timer)

(4) Press HR. and MIN. button to set the timer. Time setting is 10-minute units.

HR. and MIN. button will work when " " or " " mark is flashing.

These marks disappear in 1 minute.

After setting the ON timer, check that OPERATION INDICATOR lamp of the indoor unit lights.

NOTE1 : Be sure to place the remote controller at the position where its signal can reach the air conditioner even during TIMER operation, or the set time may deviate within the range of about 10 minutes.

NOTE2 : Reset the timer in the following cases, or the set time may deviate and other malfunctions may occur.

- A power failure occurs.
- The circuit breaker functions.

2. Cancel

TIMER setting can be cancelled with the ON/OFF TIMER buttons.

To cancel the ON timer, press the "ON-TIMER" button.

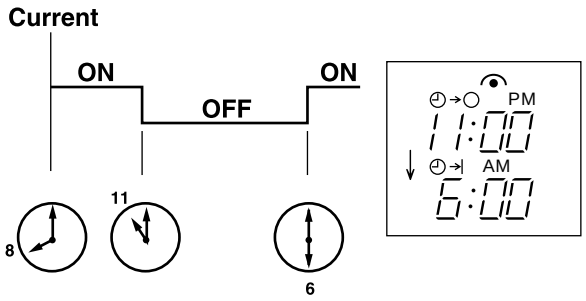
To cancel the OFF timer, press the "OFF-TIMER" button.

TIMER is cancelled and the display of set time disappears.

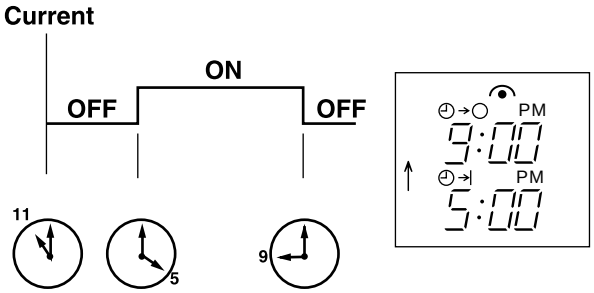
PROGRAM TIMER

- The OFF timer and ON timer can be used in combination.
- "↑" and "↓" display show the order of the OFF timer and ON timer operation.

(Example 1) The current timer is 8:00 PM.
The unit turns off at 11:00 PM, and on at 6:00 AM.



(Example 2) The current time is 11:00 AM.
The unit turns on at 5:00 PM, and off at 9:00 PM.



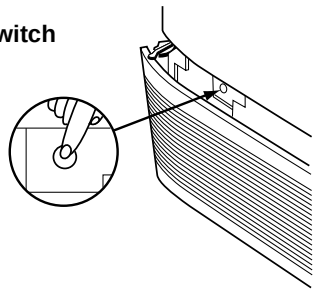
NOTE : TIMER setting will be cancelled by power failure or breaker functioning.

9-7. EMERGENCY-TEST OPERATION

In case of test run operation or emergency operation, use the EMERGENCY OPERATION switch on the front of the indoor unit. Emergency operation is available when the remote controller is missing, has failed or the batteries of remote controller run down. The unit will start and the OPERATION INDICATOR lamp will light.
The first 30 minutes of operation is the test run operation. This operation is for servicing. The indoor fan speed runs at High speed and the system is in continuous operation. (The thermostat is ON.)
After 30 minutes of test run operation the system shifts to EMERGENCY COOL MODE with a set temperature of 24°C.
The fan speed shifts to Med. speed.
The coil frost prevention works even in emergency operation.
In the test run or emergency operation, the horizontal vane operates in VANE AUTO ( ) mode.
Emergency operation continues until the EMERGENCY OPERATION switch is pressed again or the unit receives any signal from the remote controller. In case of latter normal operation will start.

NOTE : Do not press the EMERGENCY OPERATION switch during normal operation.

EMERGENCY OPERATION switch



• The following indication applies regardless of shape of the indicator.

OPERATION INDICATOR lamp

Press once <Cool>

Press once again <Stop>

9-8. AUTO RESTART FUNCTION

When the indoor unit is controlled with the remote controller, the operation mode, set temperature, and the fan speed are memorized by the auto restart P.C. board.
The "AUTO RESTART" function sets to work the moment the power has restored after power failure. Then, the unit will restart automatically. However if the unit is operated in "I FEEL CONTROL" mode, before power failure, the operation is not memorized. In "I FEEL CONTROL" mode, the operation is decided by the initial room temperature.

NOTE :

- •The operation settings are memorized when 10 seconds have passed after the remote controller was operated.
- •If the main power is turned off or a power failure occurs while AUTO START/ STOP timer is active, the timer setting is cancelled.
- •If the unit has been off with the remote controller before power failure, the auto restart function does not work as the power button of the remote controller is off.
- •To prevent breaker off due to the rush of starting current, systematize other home appliances not to turn on at the same time.
- •When some air conditioners are connected to the same supply system, if they are operated before power failure, the starting current of all the compressors may flow simultaneously at restart.
  Therefore, the special counter-measures are required to prevent the main voltage-drop or the rush of the starting current by adding to the system that allows the units to start one by one.

10 SERVICE FUNCTIONS

MCF-C13UV -E1 MUCF-C13UV -E1
MCF-C18UV -E1 MUCF-C18UV -E1
MCF-C24UV -E1 MUCF-C24UV -E1

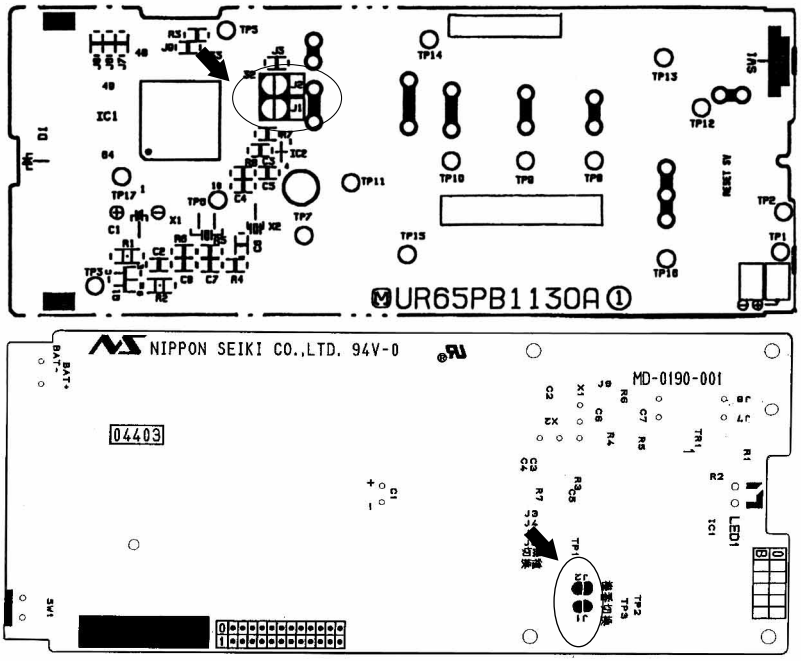
10-1. TIMER SHORT MODE

For service, set time can be shortened by short circuit of JPG and JPS on the indoor electronic control P.C. board.
The time will be shortened as follows.(Refer to page 36.)
Set time : 1 minute ➔ 1-second
Set time : 3 minute ➔ 3-second (It takes 3 minutes for the compressor to start operation. However, the starting time is shortened by short circuit of JPG and JPS.)

10-2. P.C. BOARD MODIFICATION FOR INDIVIDUAL OPERATION

A maximum of 4 indoor units with wireless remote controllers can be used in a room. In this case, to operate each indoor unit individually by each remote controller, P.C. boards of remote controller must be modified according to the indoor unit number.

How to modify the remote controller P.C. board
Remove batteries before modification.
The board has a print as shown below :



NOTE : For remodelling, take out the batteries and press the OPERATE/STOP(ON/OFF)button twice or 3 times at first.
After finish remodelling, put back the batteries then press the RESET button.

The P.C. board has the print “J1” and “J2”. Solder “J1” and “J2” according to the number of indoor unit as shown in Table 1.
After modification, press the RESET button.

Table 1

	1 unit operation	2 units operation	3 units operation	4 units operation
No. 1 unit	No modification	Same as at left	Same as at left	Same as at left
No. 2 unit	–	Solder J1	Same as at left	Same as at left
No. 3 unit	–	–	Solder J2	Same as at left
No. 4 unit	–	–	–	Solder both J1 and J2

How to set the remote controller exclusively for particular indoor unit

After you turn the breaker ON, the first remote controller that sends the signal to the indoor unit will be regarded as the remote controller for the indoor unit.
The indoor unit will only accepts the signal from the remote controller that has been assigned to the indoor unit once they are set.
The setting will be cancelled if the breaker has turned off, or the power supply has shut down.
Please conduct the above setting once again after the power has restored.

10-3. RELEASE OF AUTO RESTART FUNCTION

Solder JHA (refer to page 36) with a jumper line on the indoor electronic control P.C. board.
Remove the auto restart assy from “Connector CN104”.

11 TROUBLESHOOTING

MCF-C13UV -E1 MUCF-C13UV -E1
MCF-C18UV -E1 MUCF-C18UV -E1
MCF-C24UV -E1 MUCF-C24UV -E1

11-1. Cautions on troubleshooting

1. Before troubleshooting, check the following:

(1) Check the power supply voltage.
(2) Check the indoor/outdoor connecting wire for mis-wiring.

2. Take care the following during servicing.

(1) Before servicing the air conditioner, be sure to first turn off the remote controller to stop the main unit, and then after confirming the horizontal vane is closed, turn off the breaker and / or disconnect the power plug.
(2) Be sure to turn OFF the power supply before removing the front panel, the cabinet, the top panel, and the electronic control P.C. board.
(3) When removing the electronic control P.C. board, hold the edge of the board with care NOT to apply stress on the components.
(4) When connecting or disconnecting the connectors, hold the housing of the connector. DO NOT pull the lead wires.

3. Troubleshooting procedure

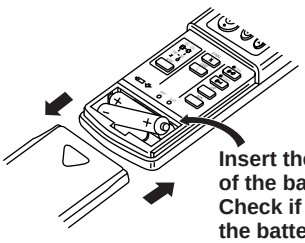
(1) First, check if the OPERATION INDICATOR lamp on the indoor unit is flashing on and off to indicate an abnormality. To make sure, check how many times the abnormality indication is flashing on and off before starting service work.
(2) Before servicing check that the connector and terminal are connected properly.
(3) If the electronic control P.C. board is supposed to be defective, check the copper foil pattern for disconnection and the components for bursting and discolouration.
(4) When troubleshooting, refer to the flow chart and the check table on page 32.

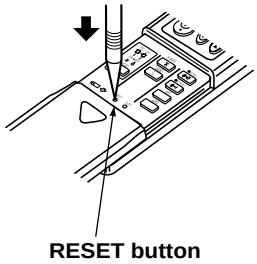
4. How to replace batteries

Weak batteries may cause the remote controller malfunction.
In this case, replace the batteries to operate the remote controller normally.

① Remove the front lid and insert batteries. Then re-attach the front lid.

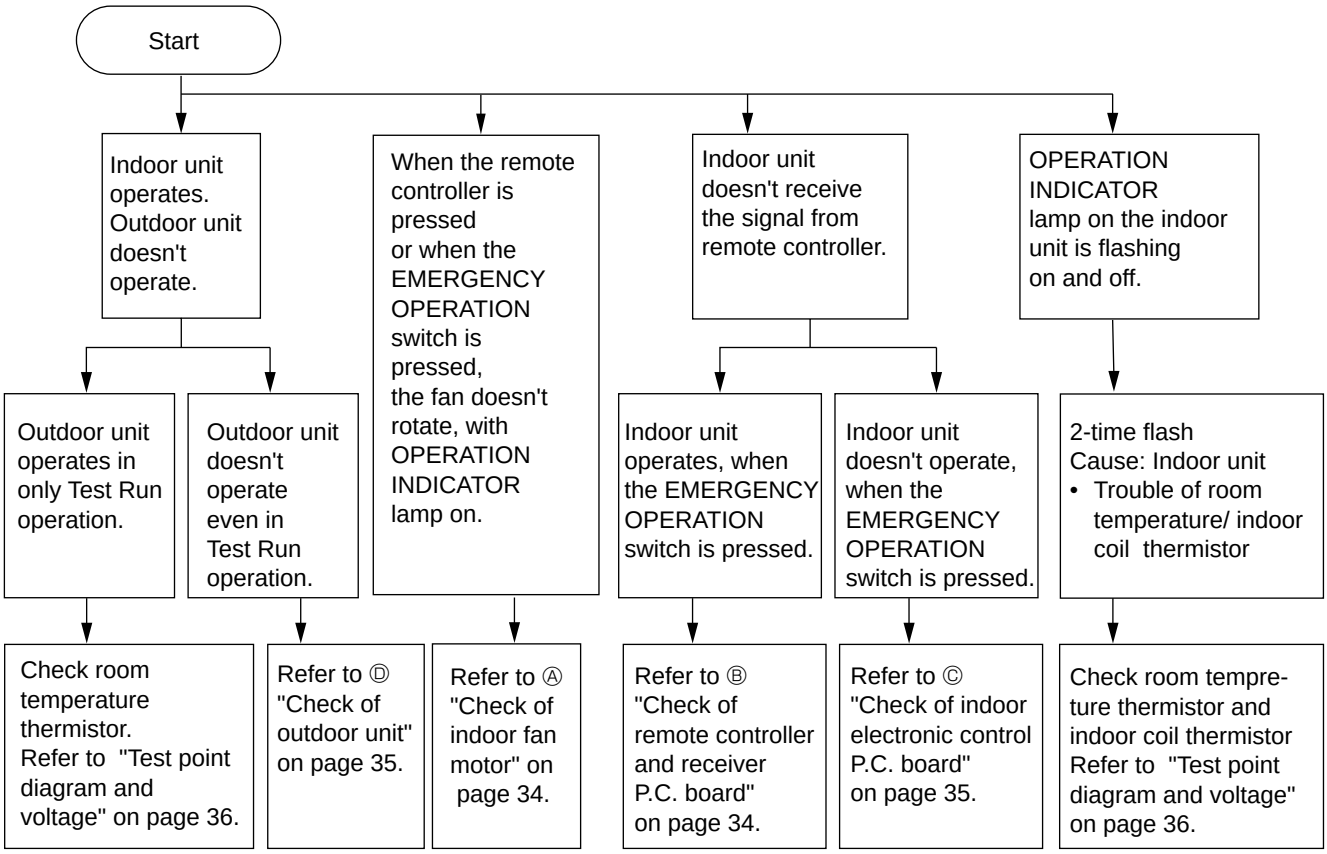
② Press the RESET button with tip end of ball point pen or the like, and then use the remote controller.





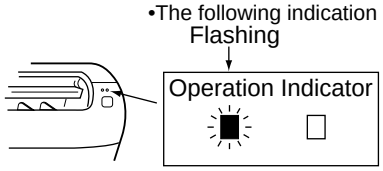
NOTE1. : If the RESET button is not pressed, the remote controller may not operate correctly.

11-2. Instruction of troubleshooting



1. Troubleshooting check table

•The following indication applies regardless of shape of the indocator.



· Flashing of the OPERATION INDICATOR lamp (on the left-hand side) indicates possible abnormalities.
· The OPERATION INDICATOR lamp (on the left-hand side) is lighting during normal operation.

Before taking measures, make sure that the symptom reappears, for accurate troubleshooting.
Self check table

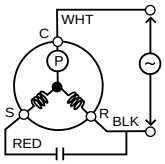
NO.	Abnormal point	Indication	Symptom	Detect method	Check point
1	Indoor coil thermistor Room tempera-ture ther-mistor	2-time flash 2.5-second OFF	Outdoor unit does not run.	Detect Indoor coil/room tem-perature thermistor short or open circuit.	● Check resistance of thermistor. ● Re-connect connector. ● Check indoor electronic control P.C.board.

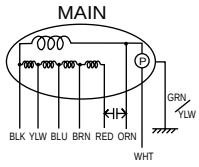
2. Trouble criterion of main parts

MCF-C13UV -E1 MUCF-C13UV -E1
MCF-C18UV -E1 MUCF-C18UV -E1
MCF-C24UV -E1 MUCF-C24UV -E1

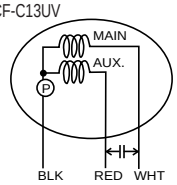
<table>
<tr><th>Part name</th><th>Check method and criterion</th><th>Figure</th></tr>
<tr><td>Room temperature thermistor (RT11)

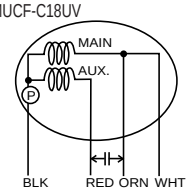
Indoor coil thermistor (RT12)</td><td>Measure the resistance with a tester.
(Part temperature 10°C ~ 30°C)
<table><tr><th>Normal</th><th>Abnormal</th></tr><tr><td>8kΩ ~ 20kΩ</td><td>Open or short-circuit</td></tr></table></td><td></td></tr>
<tr><td>Compressor (MC)

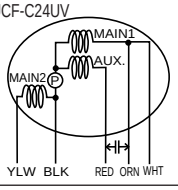
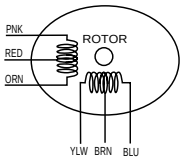
INNER PROTECTOR
MUCF-C13UV
150 ± 5℃ OPEN
90 ± 10℃ CLOSE
MUCF-C18UV
155 ± 5℃ OPEN
90 ± 10℃ CLOSE
MUCF-C24UV
160 ± 5℃ OPEN
90 ± 10℃ CLOSE</td><td>Measure the resistance between the terminals with a tester.
(Part wiring temperature -10°C ~ 40°C)
<table><tr><th rowspan="2">Terminal</th><th colspan="3">Normal</th><th rowspan="2">Abnormal</th></tr><tr><th>MUCF-C13UV</th><th>MUCF-C18UV</th><th>MUCF-C24UV</th></tr><tr><td>C-R</td><td>1.98~2.43Ω</td><td>0.95~1.17Ω</td><td>0.59~0.73Ω</td><td>Open or short-circuit</td></tr><tr><td>C-S</td><td>3.59~4.39Ω</td><td>1.92~2.36Ω</td><td>1.78~2.18Ω</td><td></td></tr></table></td><td> 
</td></tr>
<tr><td>Indoor fan motor (MF)

INNER PROTECTOR
120 ± 15℃ OPEN
77 ± 15℃ CLOSE</td><td>Measure the resistance between the terminals with a tester.
(Part wiring temperature10°C ~ 30°C)
<table><tr><th rowspan="2">Color of lead wire</th><th colspan="3">Normal</th><th rowspan="2">Abnormal</th></tr><tr><th>MCF-C13UV</th><th>MCF-C18UV</th><th>MCF-C24UV</th></tr><tr><td>WHT-BLK</td><td>195~212Ω</td><td>79~87Ω</td><td>80~88Ω</td><td>Open or short-circuit</td></tr><tr><td>BLK-YLW</td><td>44~48Ω</td><td>63~69Ω</td><td>44~49Ω</td><td></td></tr><tr><td>YLW-BLU</td><td>31~34Ω</td><td>34~38Ω</td><td>35~39Ω</td><td></td></tr><tr><td>BLU-BRN</td><td>42~47Ω</td><td>25~29Ω</td><td>43~47Ω</td><td></td></tr><tr><td>BRN-RED</td><td>22~25Ω</td><td>13~15Ω</td><td>13~15Ω</td><td></td></tr></table></td><td> 
</td></tr>
<tr><td>Outdoor fan motor (MF)

INNER PROTECTOR
MUCF-C13UV
135 ± 5℃ OPEN

MUCF-C18UV
MUCF-C24UV
145 ± 8℃ OPEN
Reference
(88 ± 15℃ CLOSE)</td><td>Measure the resistance between the terminals with a tester.
(Part wiring temperature -10°C ~ 40°C)
<table><tr><th rowspan="2">Color of lead wire</th><th colspan="3">Normal</th><th rowspan="2">Abnormal</th></tr><tr><th>MUCF-C13UV</th><th>MUCF-C18UV</th><th>MUCF-C24UV</th></tr><tr><td>WHT-BLK</td><td>155 ~ 190Ω</td><td>102 ~ 126Ω</td><td>71 ~ 88Ω</td><td>Open or short-circuit</td></tr><tr><td>BLK-RED</td><td>364 ~ 446Ω</td><td>97 ~ 120Ω</td><td>90 ~ 111Ω</td><td></td></tr><tr><td>BLK-YLW</td><td>—</td><td>—</td><td>81~ 100Ω</td><td></td></tr></table></td><td>MUCF-C13UV
 

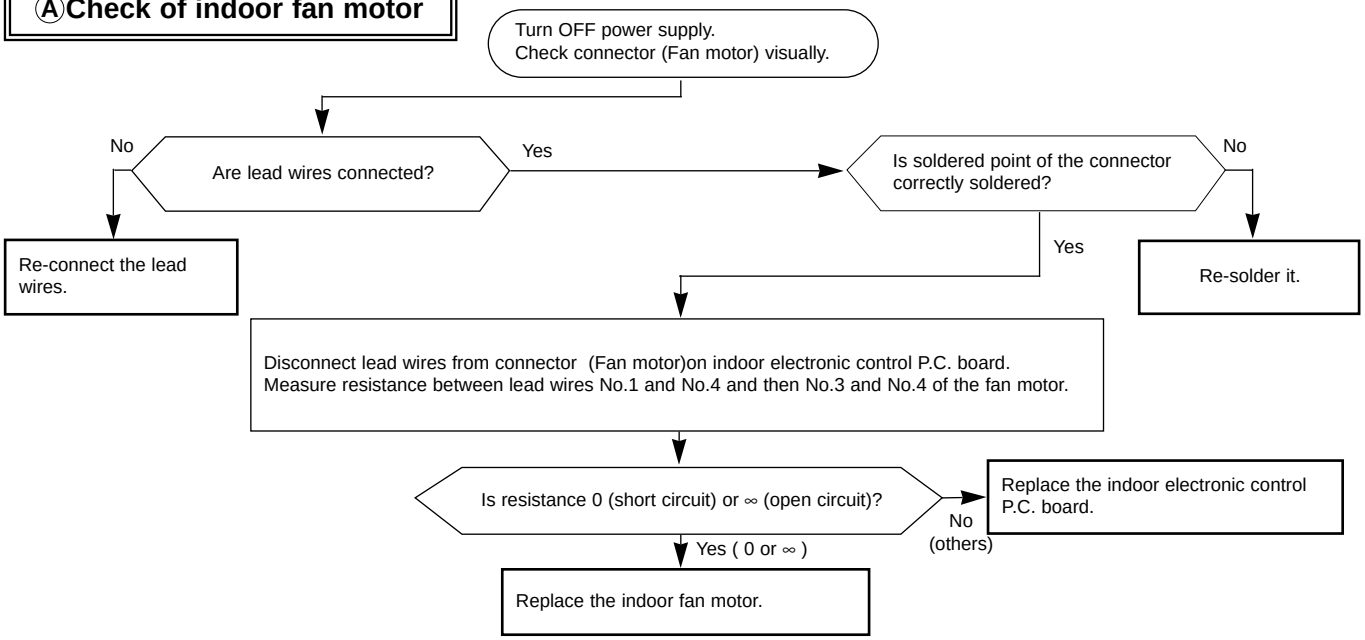
MUCF-C18UV
 

MUCF-C24UV
 
</td></tr>
<tr><td>Vane motor (MV)</td><td>Measure the resistance between the terminals with a tester.
(Part wiring temperature10°C ~ 30°C)
<table><tr><th></th><th>Normal</th><th>Abnormal</th></tr><tr><td>RED-PNK/ORN
BRN-YLW/BLU</td><td>329~357Ω</td><td>Open or short-circuit</td></tr></table></td><td> 
</td></tr>
</table>

Ⓟ : INNER PROTECTOR

Indoor fan does not operate.

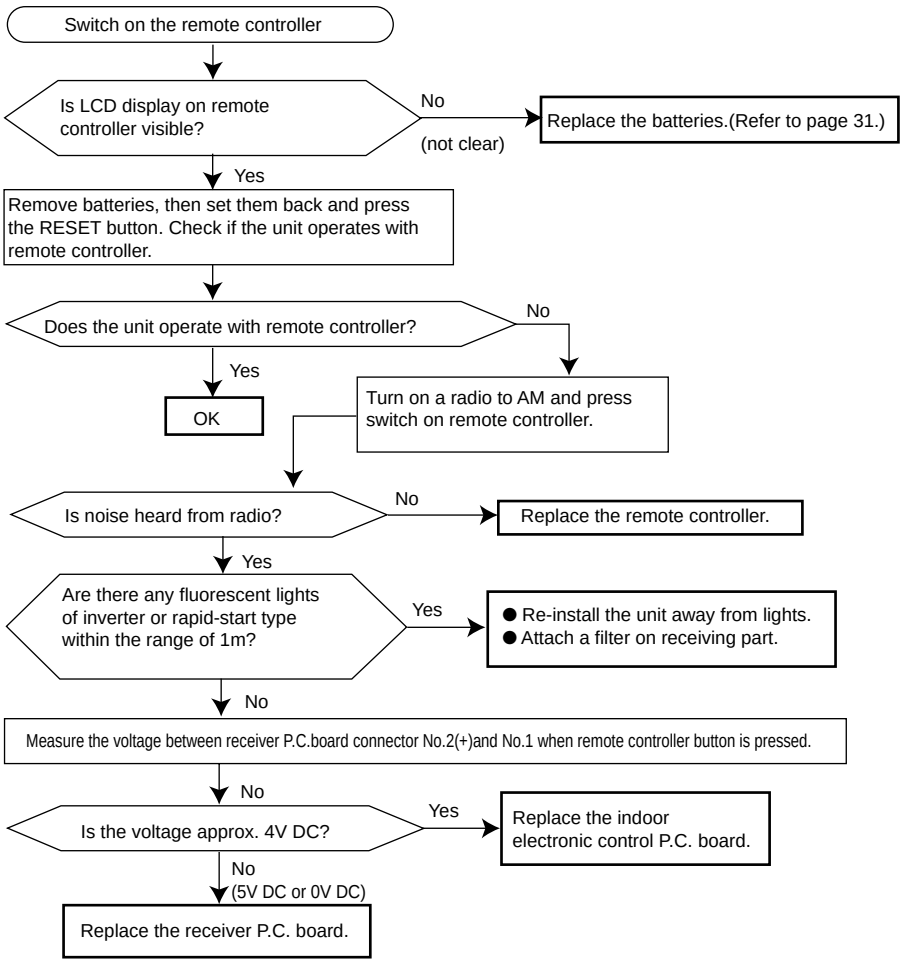
Ⓐ Check of indoor fan motor



Indoor unit operates by pressing the EMERGENCY OPERATION switch, but does not operate with the remote controller.

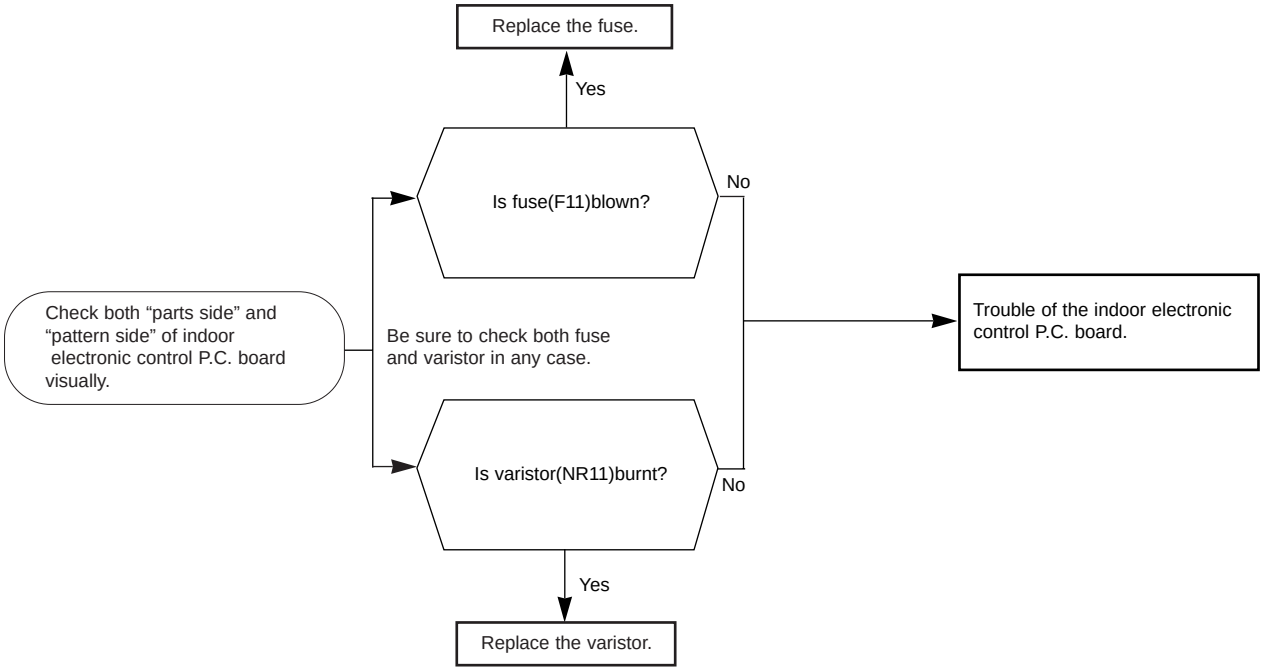
Ⓑ Check of remote controller and receiver P.C. board

※ Check if the remote controller is exclusive for this air conditioner.



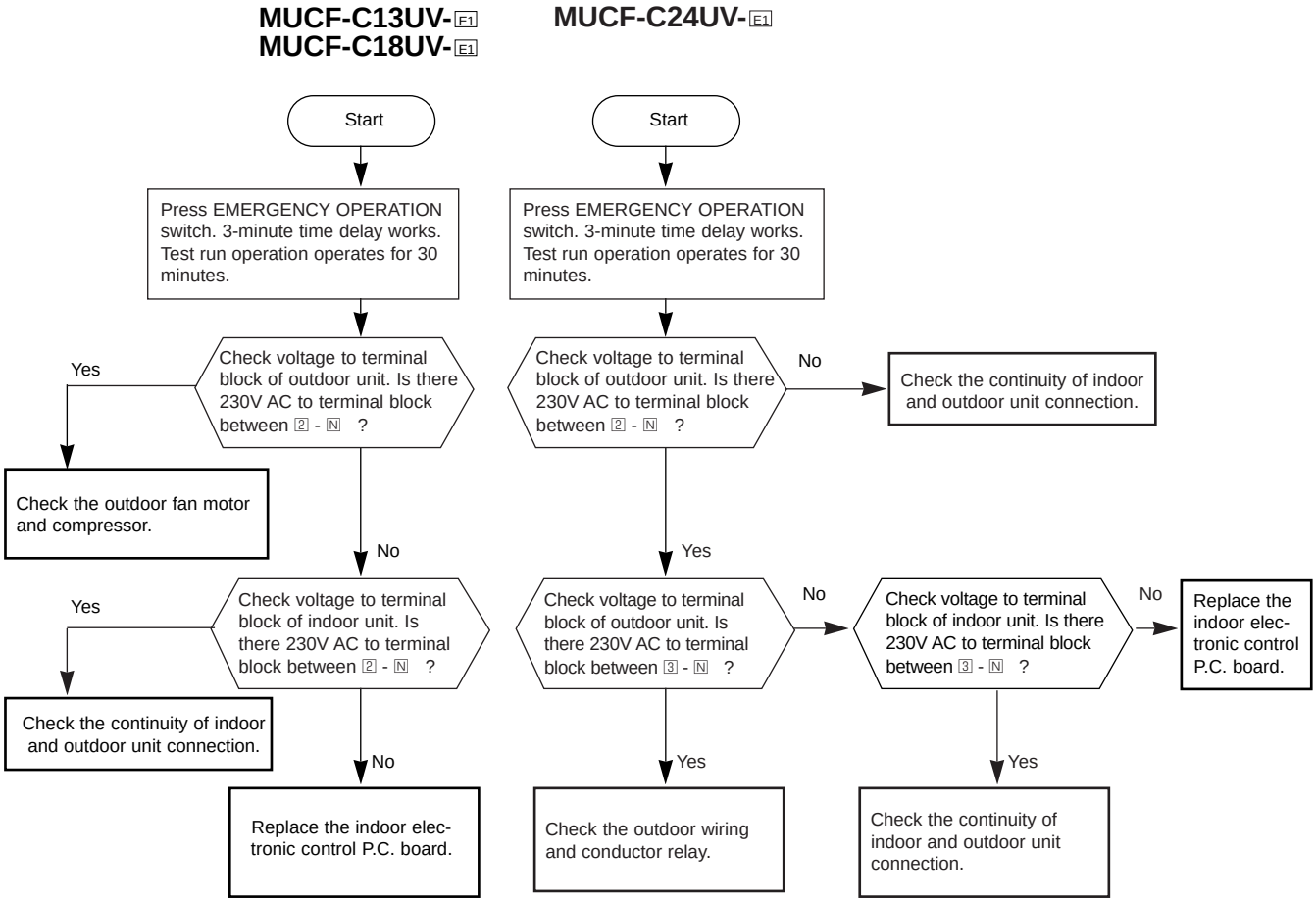
The unit doesn't operate with the remote controller.
Also, the OPERATION INDICATOR lamp doesn't light up by pressing the EMERGENCY OPERATION switch.

ⓒCheck of indoor electronic control P.C. board



Compressor and / or outdoor fan motor does not operate.

ⓓCheck of outdoor unit



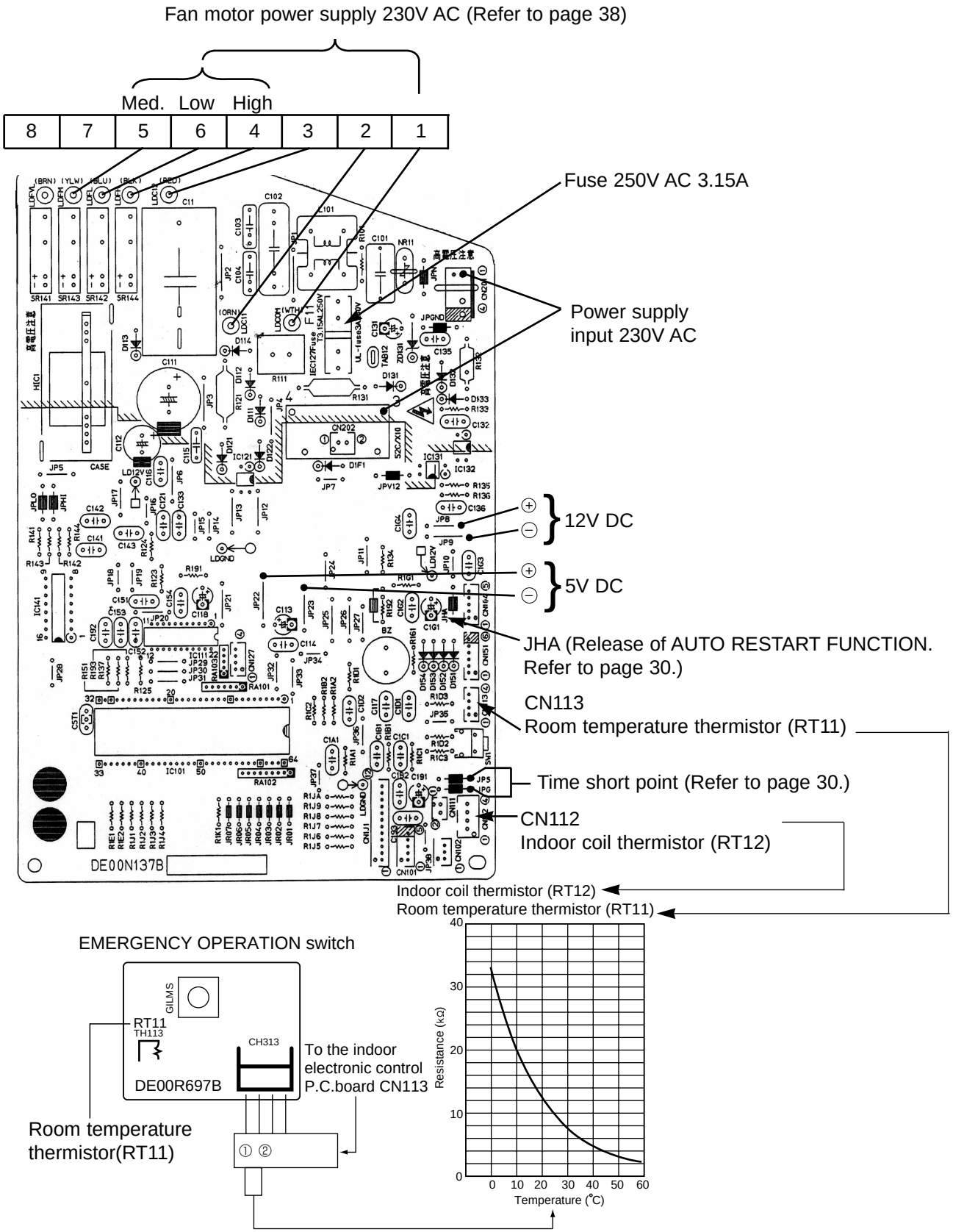
TEST POINT DIAGRAM AND VOLTAGE

MCF-C13UV - E1

MCF-C18UV - E1

MCF-C24UV - E1

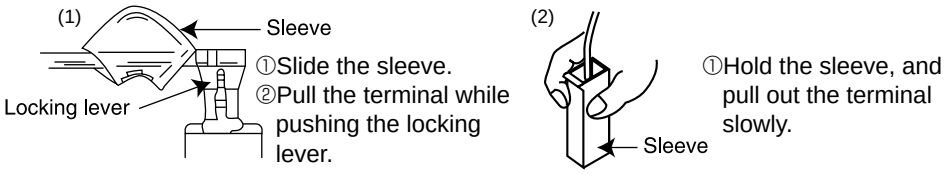
Indoor electronic control P.C. board



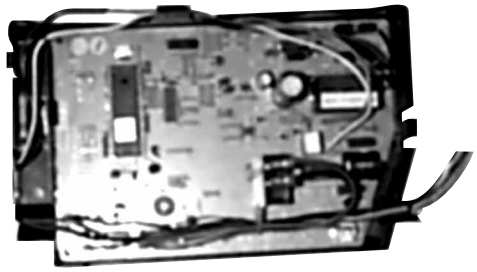
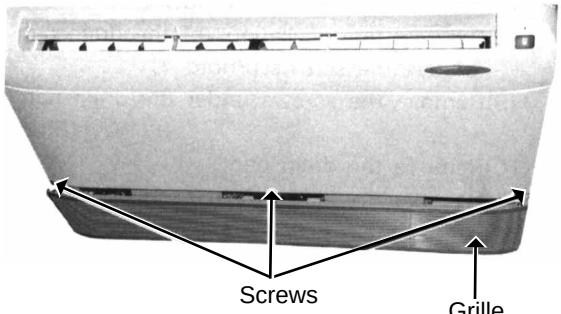
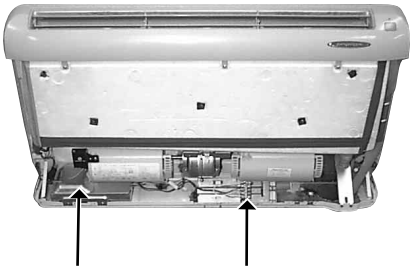
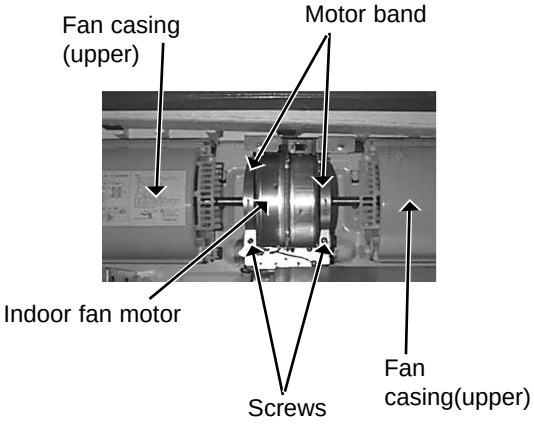
12 DISASSEMBLY INSTRUCTIONS

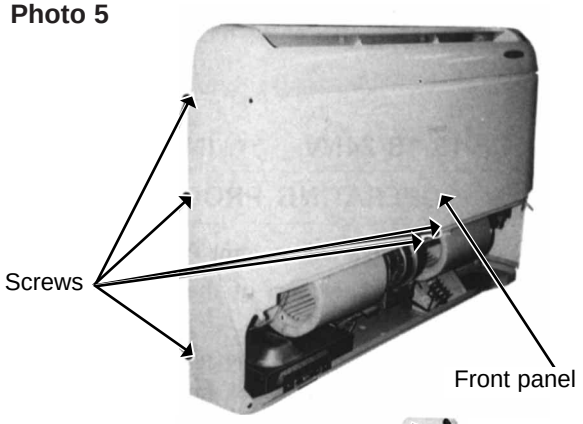
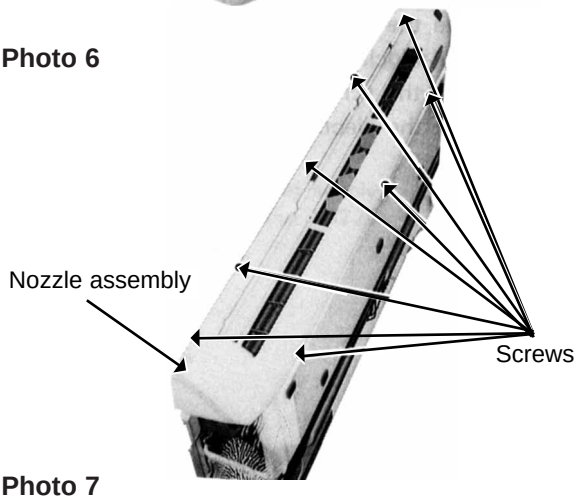
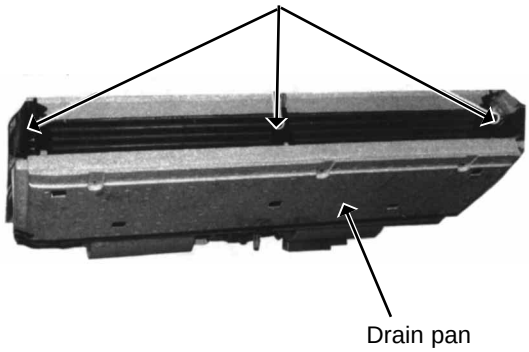
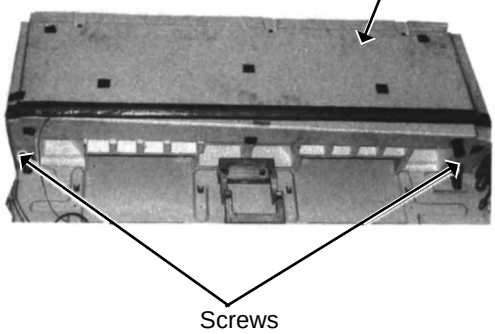
<"Terminal with lock mechanism" Detaching points>

In the case of terminal with lock mechanism, detach the terminal as shown below.

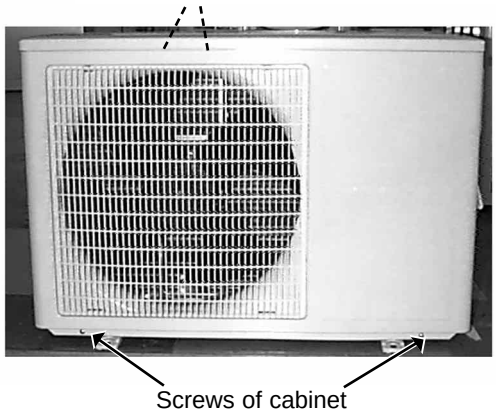
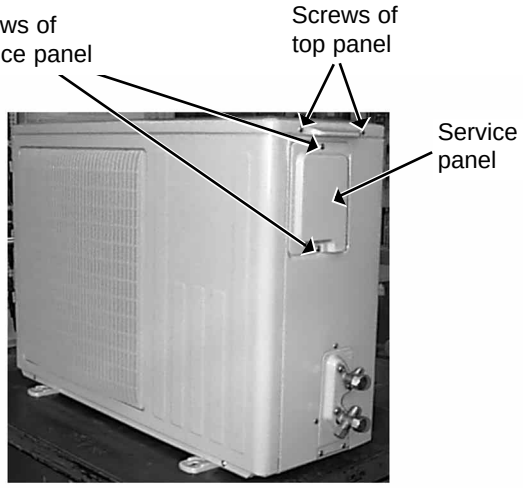
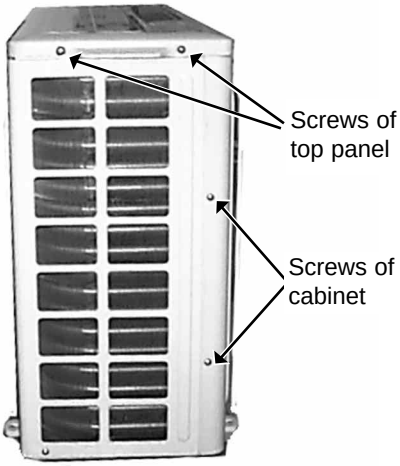
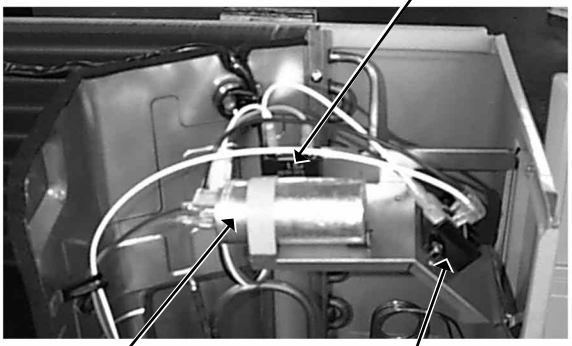


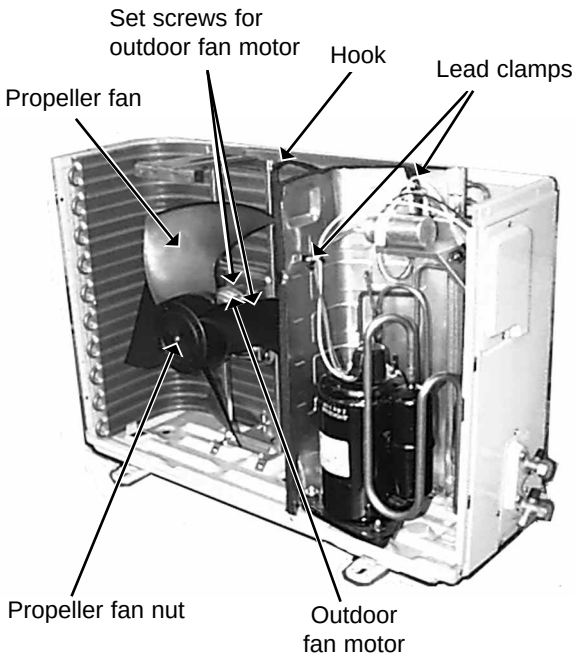
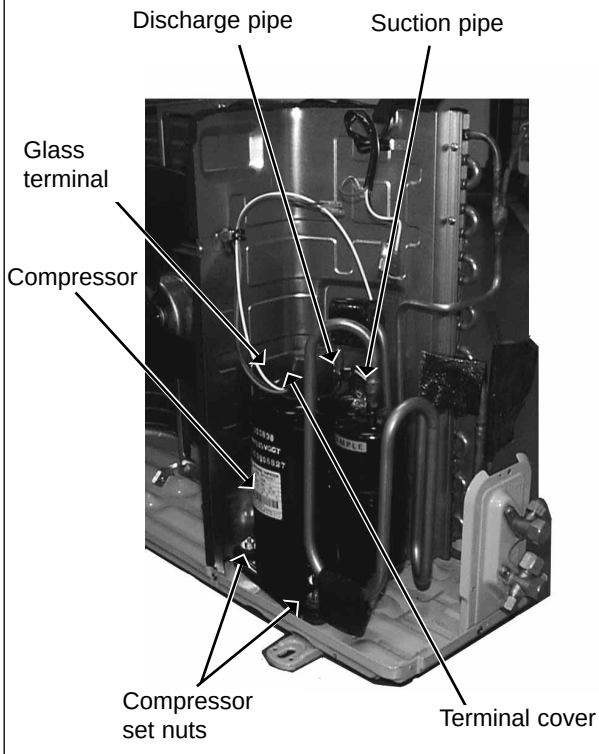
12-1. MCF-C13UV -E1 MCF-C18UV -E1 MCF-C24UV -E1 INDOOR UNIT

OPERATING PROCEDURE	PHOTOS
1. Removing the electronic control P. C . board. (1) Pull out the upper part of the grille. (Photo 1) (2) Remove the screws of the grille. (3) Remove screws of terminal block cover. (Photo 2) Remove the terminal block cover and remove the terminal block. (4) Remove the screws of the electrical box cover. (5) Pull out the electronic control P.C. board. (Photo 3) **Photo 3**  Electronic control P.C. board	**Photo 1**  **Photo 2** 
2. Removing the indoor fan motor (1) Remove the grille. (Refer to 1(1) (2)) (2) Remove the screws of pipe support assembly. (3) Remove the fan casing.(upper). (4) Disconnect the connector of the indoor fan motor. (5) Disconnect the ground wire of the fan motor. (6) Remove the screws of the motor band and remove the catch. (7) Take out the sirocco fan and the indoor fan motor.	**Photo 4** 

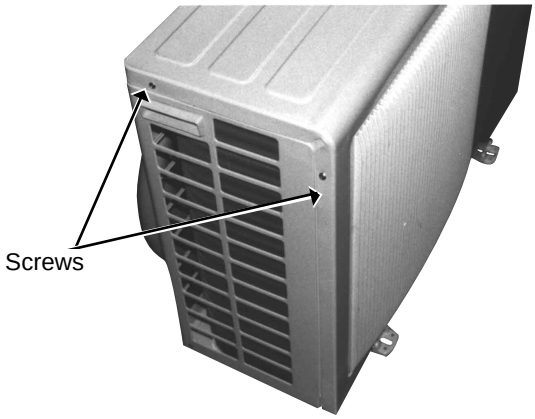
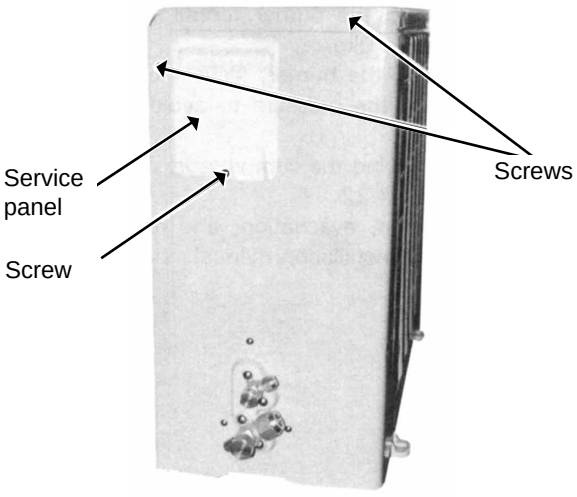
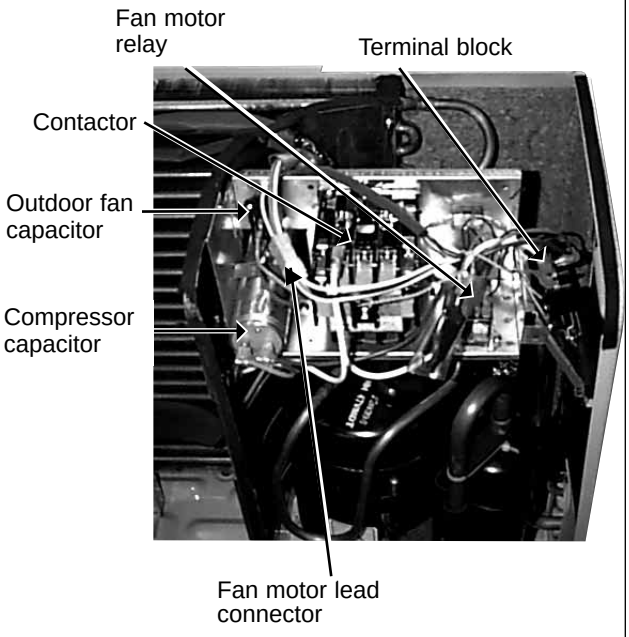
OPERATING PROCEDURE	PHOTOS
3. Removing the indoor heat exchanger. (1) Remove the grille. (Refer to 1(1) (2)) (2) Remove the screws on both sides and in front of the front panel. (Photo 5) (3) Remove the screws of the nozzle assembly. (Photo 6) (4) Remove the electrical box. (Refer to 1) (5) Remove the indoor fan motor. (Refer to 2) (6) Remove the screws of the motor support. (7) Remove the fan casing. (lower) (8) Remove the insulation of the drain pan and remove the screws. (Photo 7) (9) Remove the screws under the drain pan.(Photo 8) (10) Remove the drain pan. (11) Remove the indoor heat exchanger.	**Photo 5**  **Photo 6**  **Photo 7**  **Photo 8** 

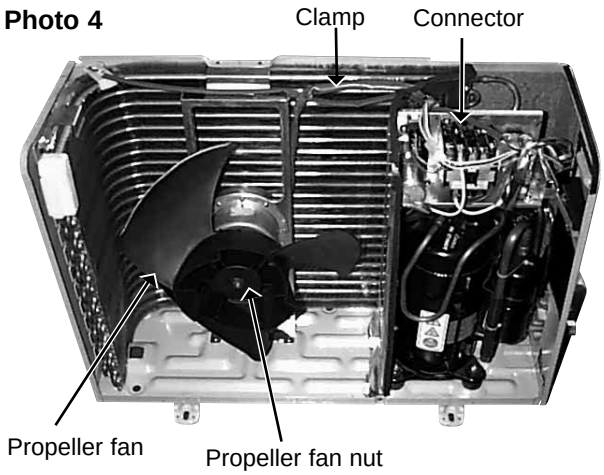
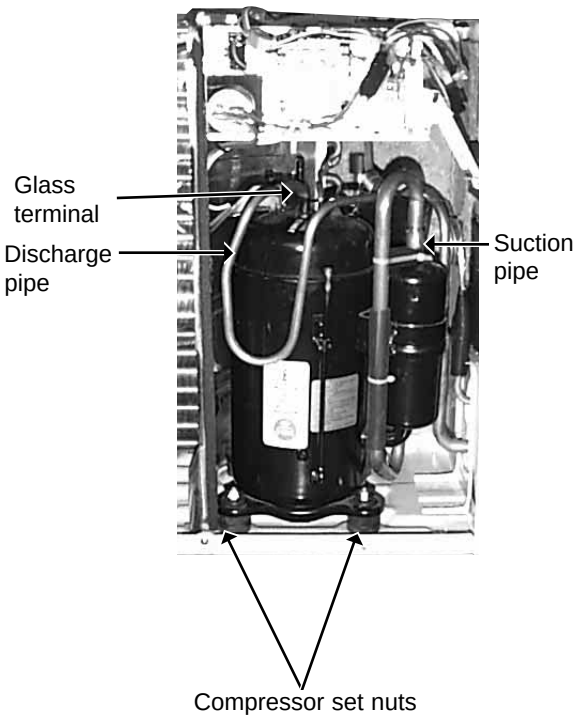
12-2. MUCF-C13UV -E1
OUTDOOR UNIT

OPERATING PROCEDURE	PHOTOS
1. Removing the cabinet (1) Remove the screws fixing the top panel. (2) Remove the screw fixing the service panel. (3) Remove the screws fixing the cabinet. (4) Remove the screws fixing the front panel and motor support. (5) Remove the service panel, and remove the screw from the insides. (6) Remove the top panel. (7) Remove the cabinet.	**Photo 1** 
Photo 3  	**Photo 2** 
2. Removing the electrical parts (1) Remove the service panel and the cabinet.(Refer to 1) (2) Remove the following parts. •Compressor capacitor (C1) •Outdoor fan capacitor (C2) •Terminal block (TB)	**Photo 4** 

OPERATING PROCEDURE	PHOTOS
3. Removing the propeller fan and the outdoor fan motor (1) Remove the cabinet. (Refer to 1.) (2) Remove the propeller fan nut. (3) Remove the propeller fan. **NOTE : Loose the propeller fan in the rotating direction for removal.** When attaching the propeller fan, align the mark on the propeller fan and the motor shaft cut section. Set the propeller fan in position by using the cut on the shaft and the mark on the propeller fan. (4) Remove lead clamps and disconnect the outdoor fan motor lead wires. (5) Remove screws fixing the fan motor. (6) Remove the outdoor fan motor.	**Photo 5** 
4. Removing the compressor (1) Remove the cabinet. (Refer to 1) (2) Remove the relay panel. (3) Remove the soundproof felt. (4) Remove the terminal cover on the compressor. (5) Disconnect lead wires from the glass terminal of the compressor. (6) Recover gas from the refrigerant circuit. (7) Disconnect the welded part of the discharge pipe. (8) Disconnect the welded part of the suction pipe. (9) Remove nuts fixing the compressor. (10) Remove the compressor. **NOTE** ● Before using a burner, reclaim gas from the pipes until the pressure gauge shows 0 kg/cm^2 (0MPa). ● Use the burner under the condition that gas can be recovered even when the inner pressure rises by heat.	**Photo 6** 

12-3. MUCF-C18UV-E1 MUCF-C24UV-E1
OUTDOOR UNIT

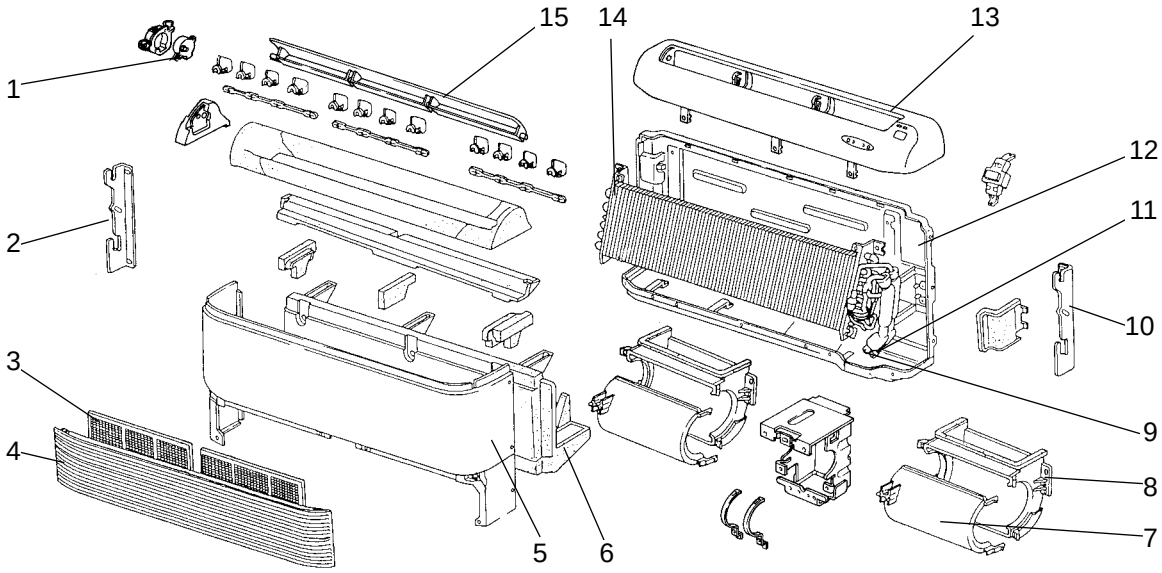
OPERATING PROCEDURE	PHOTOS
1. Removing the cabinet (1) Remove the screws fixing the cabinet. (2) Remove the screw fixing the service panel. (3) Remove the service panel, and remove the screw from the insides. (4) Remove the cabinet. **Photo 2**  	**Photo 1** 
2. Removing the electrical parts (1) Remove the cabinet . (Refer to 1) (2) Remove the following parts . •Compressor capacitor (C1) •Outdoor fan capacitor (C2) •Terminal block •Fan motor relay (X 1)(For MUCF-C24UV) •Contactor (52 C) (For MUCF-C24UV)	**Photo 3** 

OPERATING PROCEDURE	PHOTOS
3. Removing the outdoor fan motor (1) Remove the cabinet. (Refer to 1) (2) Disconnect the connector to remove the clamp of fan motor lead wire. (3) Remove the propeller fan nut and remove the propeller fan. (4) Remove screws fixing the fan motor.	**Photo 4** 
4. Removing the compressor (1) Remove the cabinet. (Refer to 1) (2) Remove the soundproof felt. (3) Remove the terminal cover on the compressor. (4) Disconnect lead wires from the glass terminal of the compressor.(Refer to 2) (5) Recover gas from the refrigerant circuit. (6) Disconnect the welded part of the discharge pipe. (7) Disconnect the welded part of the suction pipe. (8) Remove nuts fixing the compressor. (9) Remove the compressor. **NOTE** ● Before using a burner, reclaim gas from the pipes until the pressure gauge shows 0 kg/cm^2 (0MPa). ● Use the burner under the condition that gas can be recovered even when the inner pressure rises by heat.	**Photo 5** 

13 PARTS LIST

MCF-C13UV -E1(WH)
MCF-C18UV -E1(WH)
MCF-C24UV -E1(WH)

13-1. INDOOR UNIT STRUCTURAL PARTS

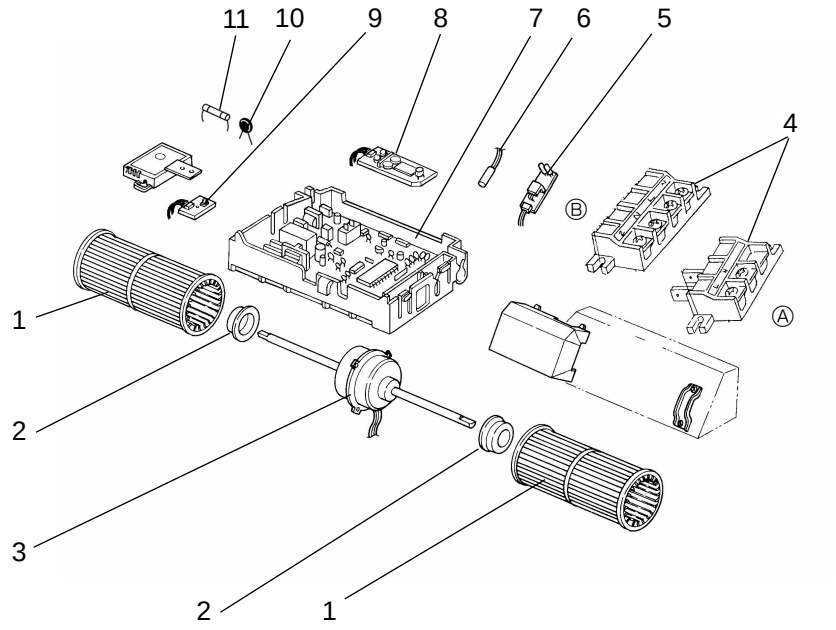


Part number that is circled is not shown in the illustration.

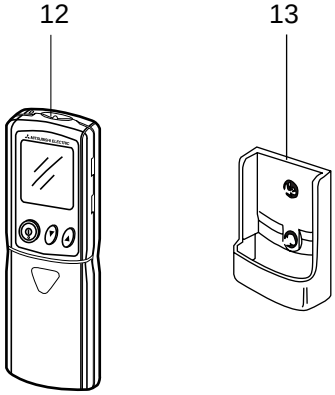
No.	Part No.	Part name	Symbol in Wiring Diagram	Q'ty/unit			Remarks
				MCF-C13UV-E1 (WH)	MCF-C18UV-E1 (WH)	MCF-C24UV-E1 (WH)	
1	E02 227 303	VANE MOTOR	MV	1	1	1	
2	E02 179 971	INSTALLATION METAL (L)		1	1	1	
3	E02 179 100	AIR FILTER		2	2	2	
4	E02 179 010	GRILLE		1	1	1	
5	E02 179 000	FRONT PANEL ASSEMBLY		1	1	1	
6	E02 215 700	DRAIN PAN		1	1	1	
7	E02 179 237	FAN CASING (U)		2	2	2	
8	E02 179 238	FAN CASING (L)		2	2	2	
9	E02 179 667	UNION (GAS)		1			ϕ12.7
	E02 138 666	UNION (GAS)			1	1	ϕ15.88
10	E02 179 972	INSTALLATION METAL (R)		1	1	1	
11	E02 176 667	UNION (LIQUID)				1	ϕ9.52
	E02 138 667	UNION (LIQUID)		1	1		ϕ6.35
12	E02 179 231	BACK PANEL		1	1	1	
13	E02 227 235	NOZZLE		1	1	1	
14	E02 179 620	INDOOR HERT EXCHANGER		1	1	1	
15	E02 227 040	VANE		1	1	1	
⑯	E02 179 142	GRILLE CATCH		3	3	3	3PCS/SET

MCF-C13UV -E1(WH)
MCF-C18UV -E1(WH)
MCF-C24UV -E1(WH)

13-2. INDOOR UNIT ELECTRICAL PARTS AND FUNCTIONAL PARTS



13-3. ACCESSORY AND REMOTE CONTROLLER



13-2. INDOOR UNIT ELECTRICAL PARTS AND FUNCTIONAL PARTS

Part numbers that are circled are not shown in the illustration.

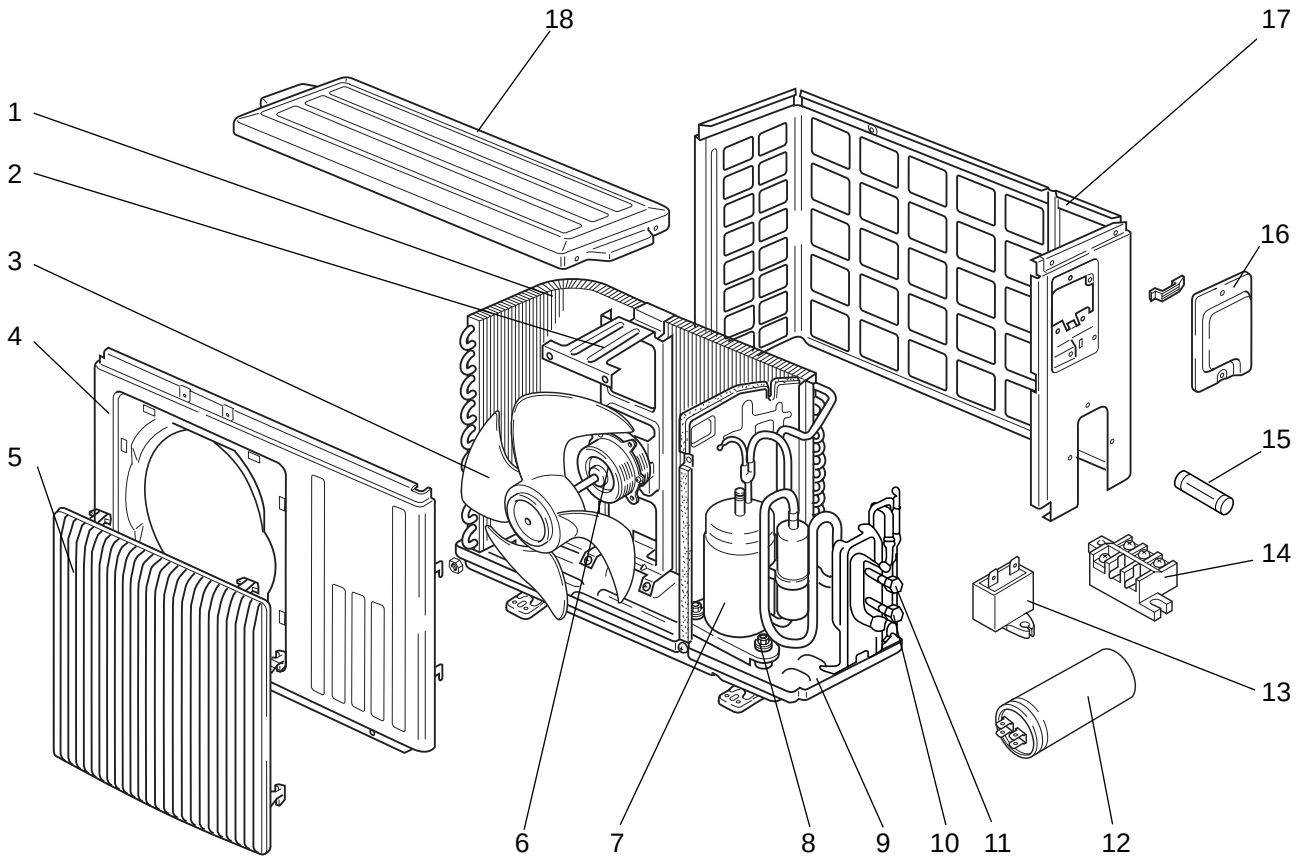
No.	Part No.	Part name	Symbol in Wiring Diagram	Q'ty/unit			Remarks
				MCF-C13UV-E1 (WH)	MCF-C18UV-E1 (WH)	MCF-C24UV-E1 (WH)	
1	E02 179 500	SIROCCO FAN		2	2	2	
2	E02 179 505	FAN MOTOR RUBBER MOUNT		2	2	2	2PCS/SET
3	E02 227 300	INDOOR FAN MOTOR	MF	1			RB4V19-□□
	E02 229 300	INDOOR FAN MOTOR	MF		1		RB4V36-□□
	E02 684 300	INDOOR FAN MOTOR	MF			1	RB4V36-□□
4	E02 573 375	TERMINAL BLOCK	TB	1	1	1	FigureA 3P
	E02 574 375	TERMINAL BLOCK	TB	1	1		FigureB 4P
	E02 575 375	TERMINAL BLOCK	TB			1	FigureB 4P
5	E02 227 468	RECEIVER P.C. BOARD		1	1	1	
6	E02 324 307	INDOOR COIL THERMISTOR	RT12	1	1	1	
7	E02 324 450	ELECTRONIC CONTROL P.C. BOARD		1			
	E02 325 450	ELECTRONIC CONTROL P.C. BOARD			1		
	E02 326 450	ELECTRONIC CONTROL P.C. BOARD				1	
8	E02 324 452	AUTO RESTART ASSEMBLY		1	1	1	
9	E02 215 328	SWITCH BOARD		1	1	1	
10	E02 336 385	VARISTOR	NR11	1	1	1	
11	E02 127 382	FUSE	F11	1	1	1	3.15A

13-3. ACCESSORY AND REMOTE CONTROLLER

12	E02 573 426	REMOTE CONTROLLER		1	1	1	
13	E02 527 083	REMOTE CONTROLLER HOLDER		1	1	1	

MUCF-C13UV -E1

13-4. OUTDOOR UNIT
STRUCTURAL PARTS, ELECTRICAL PARTS AND FUNCTIONAL PARTS



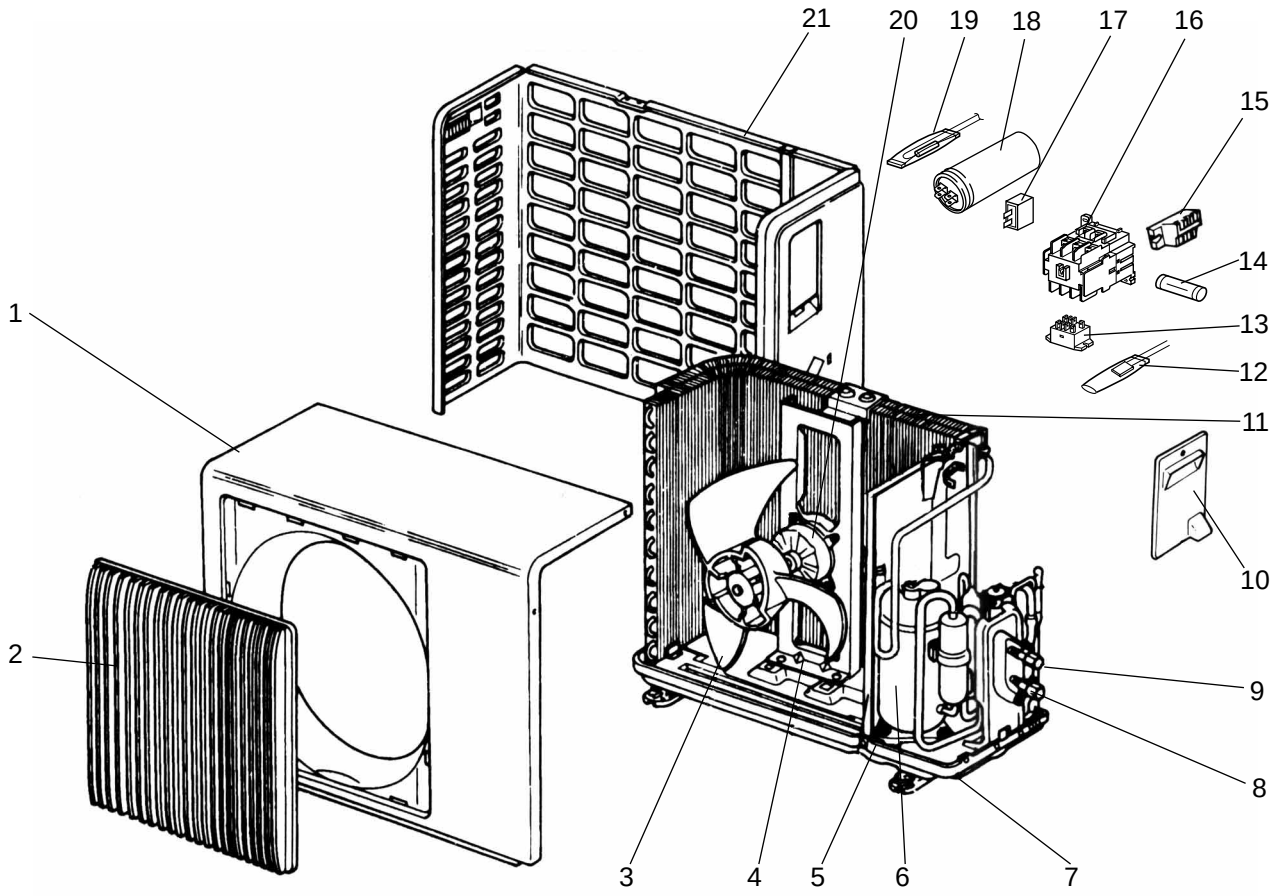
Part numbers that are circled are not shown in the illustration.

No.	Part No.	Part name	Symbol in Wiring Diagram	Q'ty/unit	Remarks
				MUCF-C13UV-E1	
1	E02 336 630	OUTDOOR HEAT EXCHANGER		1	
2	E02 336 515	MOTOR SUPPORT		1	
3	E02 336 501	PROPELLER FAN		1	
4	E02 336 232	CABINET		1	
5	E02 336 521	GRILLE(OUT)		1	
6	E02 438 301	OUTDOOR FAN MOTOR	MF	1	RA6V33-□□
7	E02 515 900	COMPRESSOR	MC	1	RE231VHSHT
8	E02 075 506	COMPRESSOR RUBBER SET		3	3PCS/SET
9	E02 340 290	BASE		1	
10	E02 623 661	STOP VALVE (GAS)		1	ϕ12.7
11	E02 621 662	STOP VALVE (LIQUID)		1	ϕ6.35
12	E02 079 353	COMPRESSOR CAPACITOR	C1	1	30μF /440V AC
13	E02 095 350	OUTDOOR FAN CAPACITOR	C2	1	1.5μF /440V AC
14	E02 197 374	TERMINAL BLOCK	TB	1	3P
15	E02 095 382	FUSE	F	1	250V 2A
16	E02 336 245	SERVICE PANEL		1	
17	E02 339 233	BACK PANEL		1	
18	E02 336 297	TOP PANEL		1	
⑲	E02 412 936	CAPILLARY TUBE		1	ϕ 3.0Xϕ1.6X600

MUCF-C18UV - E1

MUCF-C24UV - E1

13-5. OUTDOOR UNIT
STRUCTURAL PARTS, ELECTRICAL PARTS AND FUNCTIONAL PARTS



13-5. OUTDOOR UNIT
STRUCTURAL PARTS, ELECTRICAL PARTS AND FUNCTIONAL PARTS

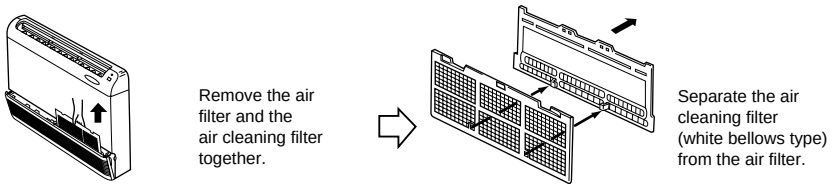
Part numbers that are circled are not shown in the illustration.

No.	Part No.	Part name	Symbol in Wiring Diagram	Q'ty/unit		Remarks
				MUCF-C18UV- E1	MUCF-C24UV- E1	
1	E02 141 232	CABINET		1	1	
2	E02 141 521	GRILLE(OUT)		1	1	
3	E02 141 501	PROPELLER FAN		1	1	
4	E02 140 515	MOTOR SUPPORT		1		
	E02 139 515	MOTOR SUPPORT			1	
5	E02 138 506	COMPRESSOR RUBBER SET		4	4	4RUBBERS/SET
6	E02 624 900	COMPRESSOR	MC	1		PE33VPEHT
	E02 517 900	COMPRESSOR	MC		1	NE47VMHHT
7	E02 217 290	BASE		1		
	E02 176 290	BASE			1	
8	E02 624 661	STOP VALVE(GAS)		1	1	ϕ15.88
9	E02 627 662	STOP VALVE(LIQUID)		1		ϕ6.35
	E02 625 662	STOP VALVE(LIQUID)			1	ϕ9.52
10	E02 141 245	SERVICE PANEL		1	1	
11	E02 217 630	OUTDOOR HEAT EXCHANGER		1		
	E02 147 630	OUTDOOR HEAT EXCHANGER			1	
12	E02 326 384	CR SURGE ABSORBER	CR		1	
13	E02 288 343	FAN MOTOR RELAY	X1		1	
14	E02 095 382	FUSE	F	1	1	2A
15	E02 197 374	TERMINAL BLOCK	TB	1		3P
	E02 601 374	TERMINAL BLOCK	TB		1	4P
	E07 056 374	TERMINAL BLOCK	TB2		1	
16	E02 010 342	COMPRESSOR CONTACTOR	52C		1	
17	E02 138 351	OUTDOOR FAN CAPACITOR	C2	1	1	3.0μF/440VAC
18	E02 082 353	COMPRESSOR CAPACITOR	C1	1	1	50μF/440VAC
19	E02 229 381	THERMOSTAT	26F1		1	
20	E02 144 301	OUTDOOR FAN MOTOR	MF	1		RA6V50-OG
	E02 147 301	OUTDOOR FAN MOTOR	MF		1	RA6V60-AC
21	E02 140 233	BACK PANEL		1	1	
㉒	E02 683 937	CAPILLARY TUBE		1		ϕ4.0Xϕ2.4X1200
	E02 684 936	CAPILLARY TUBE			1	ϕ4.0Xϕ2.4X1100

14 OPTIONAL PARTS

14-1. AIR CLEANING FILTER

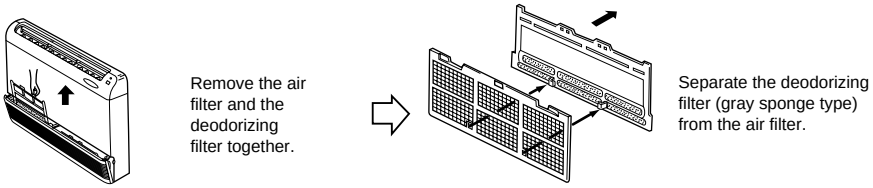
- If the air cleaning filter is clogged, it may lower the unit's capacity or cause condensation at the air outlet .
- The air cleaning filter is disposable . The standard usable term is about 4 months . However , if the color of the filter turns to dark brown , replace soon .



Model	Part No.
MCF-C13UV-E1 **MCF-C18UV-E1** **MCF-C24UV-E1**	**MAC - 1200 FT**

14-2. DEODORIZING FILTER

- Clean the filter every two weeks . When it becomes too dirt , clean it more often .
- Replace the filter with a new one when its color can not be restored even after washing or when the filter becomes dark.
- Standard interval for the filter replacement is about 1 year .



Model	Part No.
MCF-C13UV-E1 **MCF-C18UV-E1** **MCF-C24UV-E1**	**MAC - 1700 DF**

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