MITSUBISHI ELECTRIC

Changes for the Better

FLOOR AND CEILING TYPE AIR CONDITIONERS

Revision A:
● RoHS PARTS LIST has been added.

Please void OB383.

OUTDOOR UNIT

SERVICE MANUAL

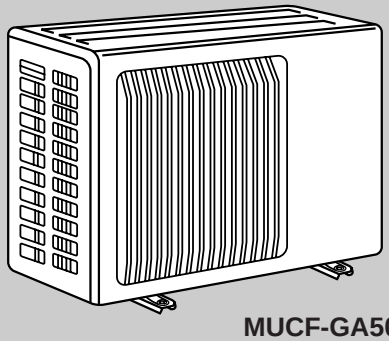
HFC utilized
R410A

No. OB383
REVISED EDITION-A

Wireless type
Models

MUCF-GA35VB - E1
MUCF-GA50VB - E1
MUCF-GA60VB - E1

Indoor unit service manual
MCF-GA•VB Series (OB382)



MUCF-GA50VB

CONTENTS

NOTE:
This service manual describes technical data of the outdoor units.
RoHS compliant products have <G> mark on the spec name plate.
For servicing of RoHS compliant products, refer to the RoHS PARTS LIST (RoHS compliant).

CE

Revision A :

• RoHS PARTS LIST has been added.

1 TECHNICAL CHANGES

MUCF-A12WV -E1 → MUCF-GA35VB -E1

1. Model name has been changed.

MUCF-A18WV -E1 → MUCF-GA50VB -E1

1. Model name has been changed.

MUCF-A24WV -E1 → MUCF-GA60VB -E1

1. Model name has been changed.

INFORMATION FOR THE AIR CONDITIONER WITH R410A REFRIGERANT

- This room air conditioner adopts HFC refrigerant (R410A) which never destroys the ozone layer.
- Pay particular attention to the following points, though the basic installation procedure is same as that for R22 conditioners.

① As R410A has working pressure approximate 1.6 times as high as that of R22, some special tools and piping parts/ materials are required. Refer to the table below.

② Take sufficient care not to allow water and other contaminations to enter the R410A refrigerant during storage and installation, since it is more susceptible to contaminations than R22.

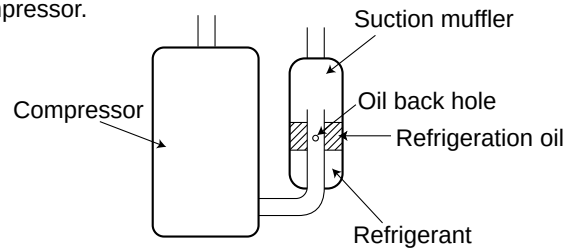
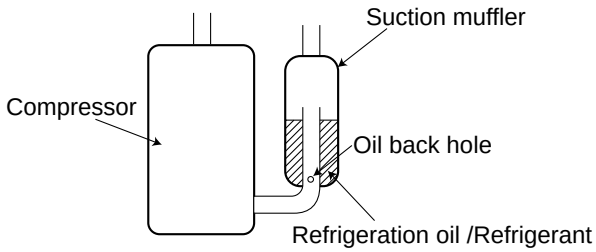
③ For refrigerant piping, use clean, pressure-proof parts/materials specifically designed for R410A. (Refer to 2. Refrigerant piping.)

④ Composition change may occur in R410A since it is a mixed refrigerant. When charging, charge liquid refrigerant to prevent composition change.

		New refrigerant	Previous refrigerant
Refrigerant	Refrigerant	R410A	R22
	Composition (Ratio)	HFC-32: HFC-125 (50%:50%)	R22 (100%)
	Refrigerant handling	Pseudo-azeotropic refrigerant	Single refrigerant
	Chlorine	Not included	Included
	Safety group (ASHRAE)	A1/A1	A1
	Molecular weight	72.6	86.5
	Boiling point (℃)	-51.4	-40.8
	Steam pressure [25℃](Mpa)	1.557	0.94
	Saturated steam density [25℃](Kg/m³)	64	44.4
	Combustibility	Non combustible	Non combustible
	ODP ※1	0	0.055
	GWP ※2	1730	1700
	Refrigerant charge method	From liquid phase in cylinder	Gas phase
	Additional charge on leakage	Possible	Possible
Refrigeration oil	Kind	Incompatible oil	Compatible oil
	Color	Non	Light yellow
	Smell	Non	Non

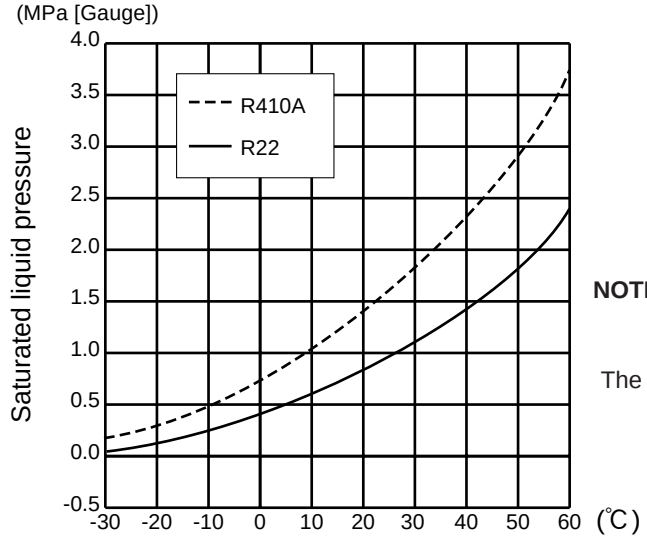
※1 :Ozone Destruction Parameter : based on CFC-11

※2 :Global Warmth Parameter : based on CO_2

	New Specification	Current Specification
Compressor	The incompatible refrigeration oil easily separates from refrigerant and is in the upper layer inside the suction muffler. Raising position of the oil back hole enables to back the refrigeration oil of the upper layer to flow back to the compressor. 	Since refrigerant and refrigerating oil are compatible each, refrigeration oil goes back to the compressor through the lower position oil back hole. 

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])**

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 R410A refrigerant

The following tools are required for R410A refrigerant. Some R22 tools can be substituted for R410A tools.
The diameter of the service port on the stop valve in outdoor unit has been changed to prevent any other refrigerant being charged into the unit. Cap size has been changed from 7/16 UNF with 20 threads to 1/2 UNF with 20 threads.

R410A tools	Can R22 tools be used?	Description
Gauge manifold	No	R410A has high pressures beyond the measurement range of existing gauges. Port diameters have been changed to prevent any other refrigerant from being charged into the unit.
Charge hose	No	Hose material and cap size have been changed to improve the pressure resistance.
Gas leak detector	No	Dedicated for HFC refrigerant.
Torque wrench	Yes	6.35 mm and 9.52 mm
	No	12.7 mm and 15.88 mm
Flare tool	Yes	Clamp bar hole has been enlarged to reinforce the spring strength in the tool.
Flare gauge	New	Provided for flaring work (to be used with R22 flare tool).
Vacuum pump adapter	New	Provided to prevent the back flow of oil. This adapter enables you to use vacuum pumps.
Electronic scale for refrigerant charging	New	It is difficult to measure R410A with a charging cylinder because the refrigerant bubbles due to high pressure and high-speed vaporization

No : Not Substitutable for R410A Yes : Substitutable for R410A

2.Refrigerant piping

① Specifications

Use the refrigerant pipes that meet the following specifications.

Pipe	Outside diameter mm	Wall thickness	Insulation material
For liquid	6.35	0.8 mm	Heat resisting foam plastic Specific gravity 0.045 Thickness 8 mm
	9.52	0.8 mm	
For gas	12.7	0.8 mm	
	15.88	1.0 mm	

- Use a copper pipe or a copper-alloy seamless pipe with a thickness of 0.8 mm (6.35, 9.52, 12.7), 1.0 mm (15.88). Never use any pipe with a thickness less than 0.8 mm (6.35, 9.52, 12.7), 1.0 mm (15.88), as the pressure resistance is insufficient.

② Flaring work and flare nut

Flaring work for R410A pipe differs from that for R22 pipe.

For details of flaring work, refer to Installation manual “FLARING WORK”.

Pipe diameter	Dimension of flare nut	
mm	R410A	R22
6.35	17	17
9.52	22	22
12.7	26	24
15.88	29	27

3.Refrigerant oil

Apply the special refrigeration oil (accessories: packed with indoor unit) to the flare and the union seat surfaces.

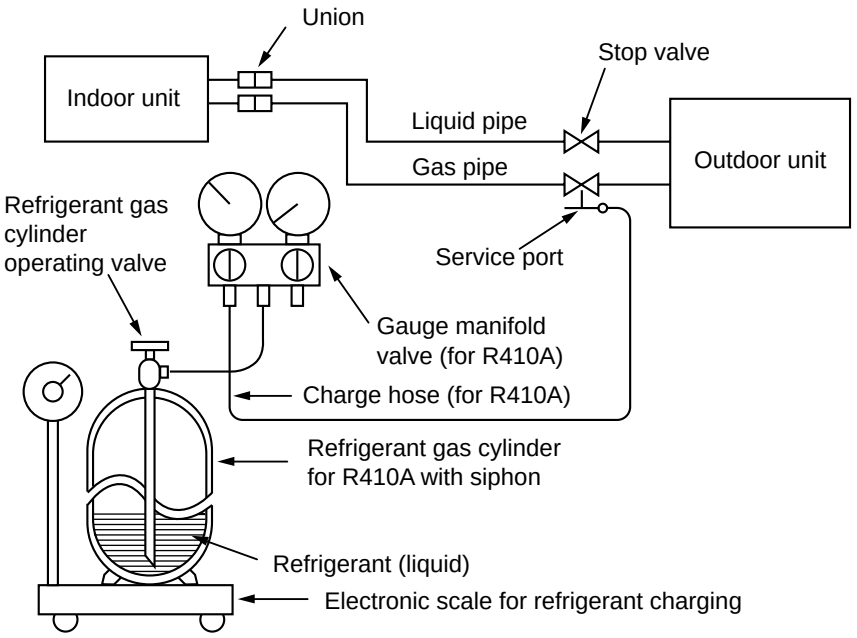
4.Air purge

- Do not discharge the refrigerant into the atmosphere.
  Take care not to discharge refrigerant into the atmosphere during installation, reinstallation, or repairs to the refrigerant circuit.
- Use the vacuum pump for air purging for the purpose of environmental protection.

5.Additional charge

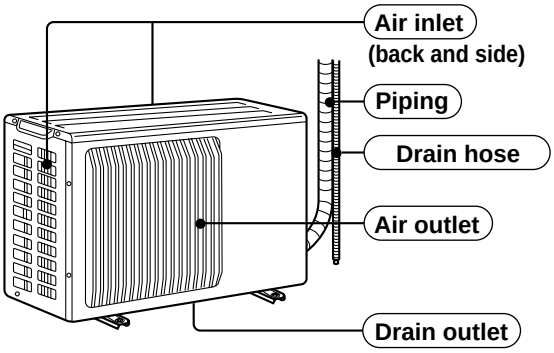
For additional charging, charge the refrigerant from liquid phase of the gas cylinder.

If the refrigerant is charged from the gas phase, composition change may occur in the refrigerant inside the cylinder and the outdoor unit. In this case, ability of the refrigeration cycle decreases or normal operation can be impossible. However, charging the liquid refrigerant all at once may cause the compressor to be locked. Thus, charge the refrigerant slowly.

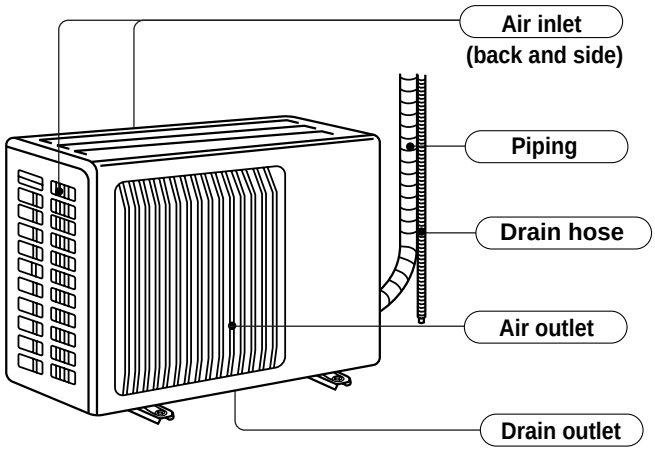


2 PART NAMES AND FUNCTIONS

MUCF-GA35VB



MUCF-GA50VB
MUCF-GA60VB



3 SPECIFICATION

Outdoor model			MUCF-GA35VB	MUCF-GA50VB	MUCF-GA60VB
Function			Cooling	Cooling	Cooling
Power supply			Single phase 230V, 50Hz	Single phase 230V, 50Hz	Single phase 230V, 50Hz
Capacity	Capacity	kW	3.5	4.8	6.0
	Dehumidification	ℓ /h	1.5	2.4	3.1
	Air flow(High)	m³ /h	1,914	2,196	2,322
Electrical data	Power outlet	A	10	15	25
	Runnning current	A	4.89	7.98	10.62
	Power input	W	1,104	1,744	2,370
	Power factor	%	98	95	97
	Starting current	A	29	37	74
	Compressor motor current	A	4.58	7.59	10.07
	Fan motor current	A	0.31	0.39	0.55
Coefficient of performance(C.O.P)			3.02	2.65	2.45
Compressor	Model		RN135VHSHT	RN196VHSHT	NN29VBAHT
	Output	W	900	1,300	1,900
	Winding resistance(at 20℃)	Ω	C-R 2.79 C-S 3.36	C-R 1.80 C-S 3.00	C-R 0.80 C-S 1.64
Fan motor	Model		RA6V33-JC	RA6V50-PA	RA6V60-MA
	Winding resistance(at 20℃)	Ω	WHT-BLK 215 BLK-RED 307	WHT-BLK 79.5 BLK-RED 83.0	WHT-BLK 71 BLK-RED 89
	Dimensions W×H×D	mm	780×540×255	850×605×290	850×605×290
	Weight	kg	36	44	60
Special remarks	Sound level(High)	dB	49	52	53
	Fan speed(High)	rpm	825	825	873
	Fan speed regulator		1	1	1
	Refrigerant filling capacity(R410A)	kg	0.75	1.45	1.85
	Refrigeration oil (Model)	cc	620 (NEO22)	520 (NEO22)	1,200 (NEO22)

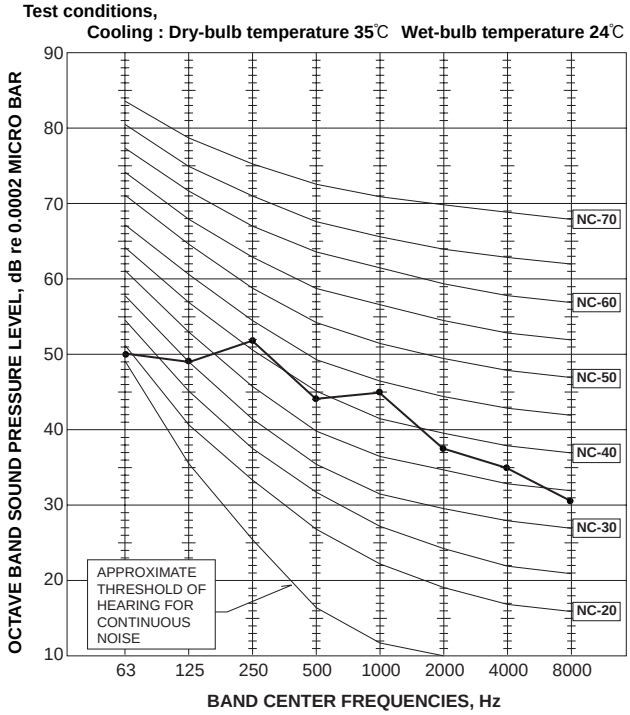
NOTE: Test conditions are based on ISO 5151
Cooling : Indoor DB27°C WB19°C
Outdoor DB35°C WB(24°C)
Indoor-Outdoor piping length : 5m

4 NOISE CRITERIA CURVES

NOISE CRITERIA CURVES

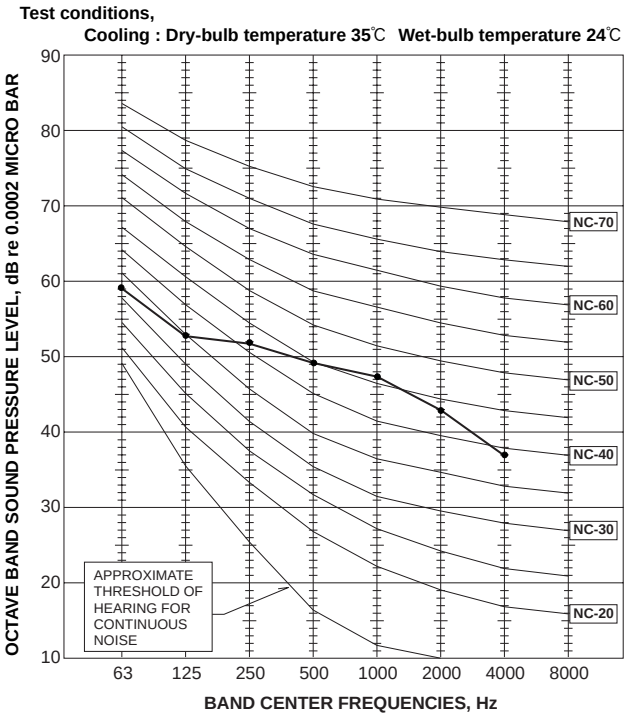
MUCF-GA35VB

FAN SPEED	FUNCTION	SPL(dB(A))	LINE
High	COOLING	49	●—●



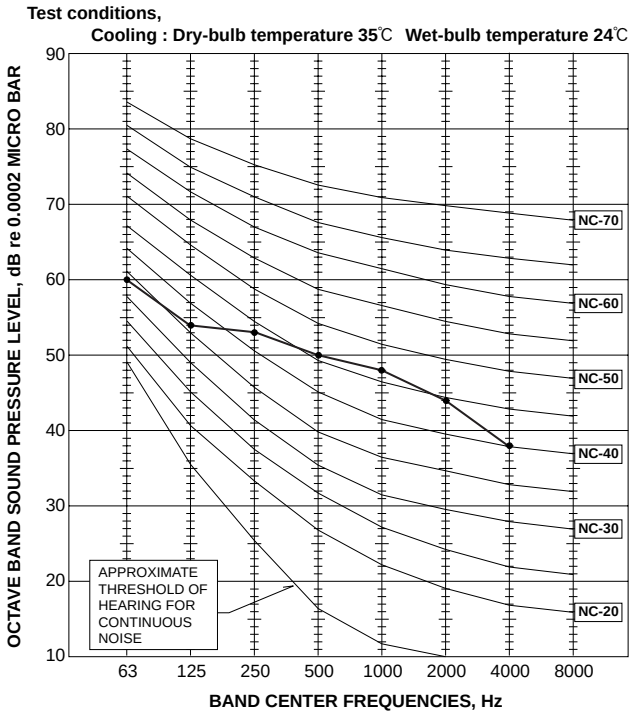
MUCF-GA50VB

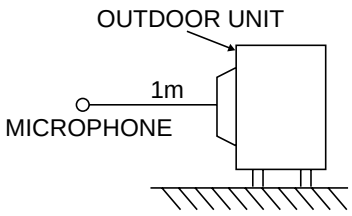
FAN SPEED	FUNCTION	SPL(dB(A))	LINE
High	COOLING	52	●—●



MUCF-GA60VB

FAN SPEED	FUNCTION	SPL(dB(A))	LINE
High	COOLING	53	●—●

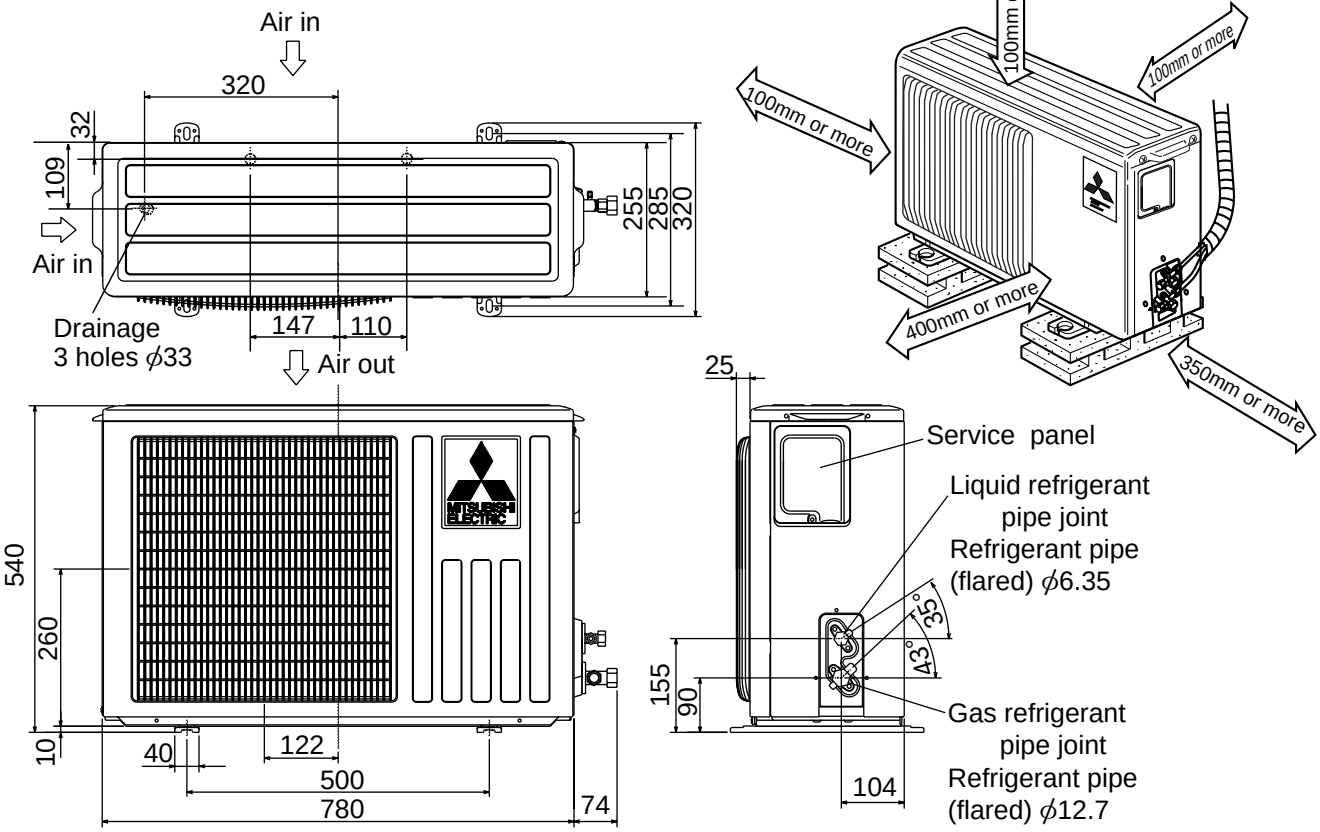




5 OUTLINES AND DIMENSIONS

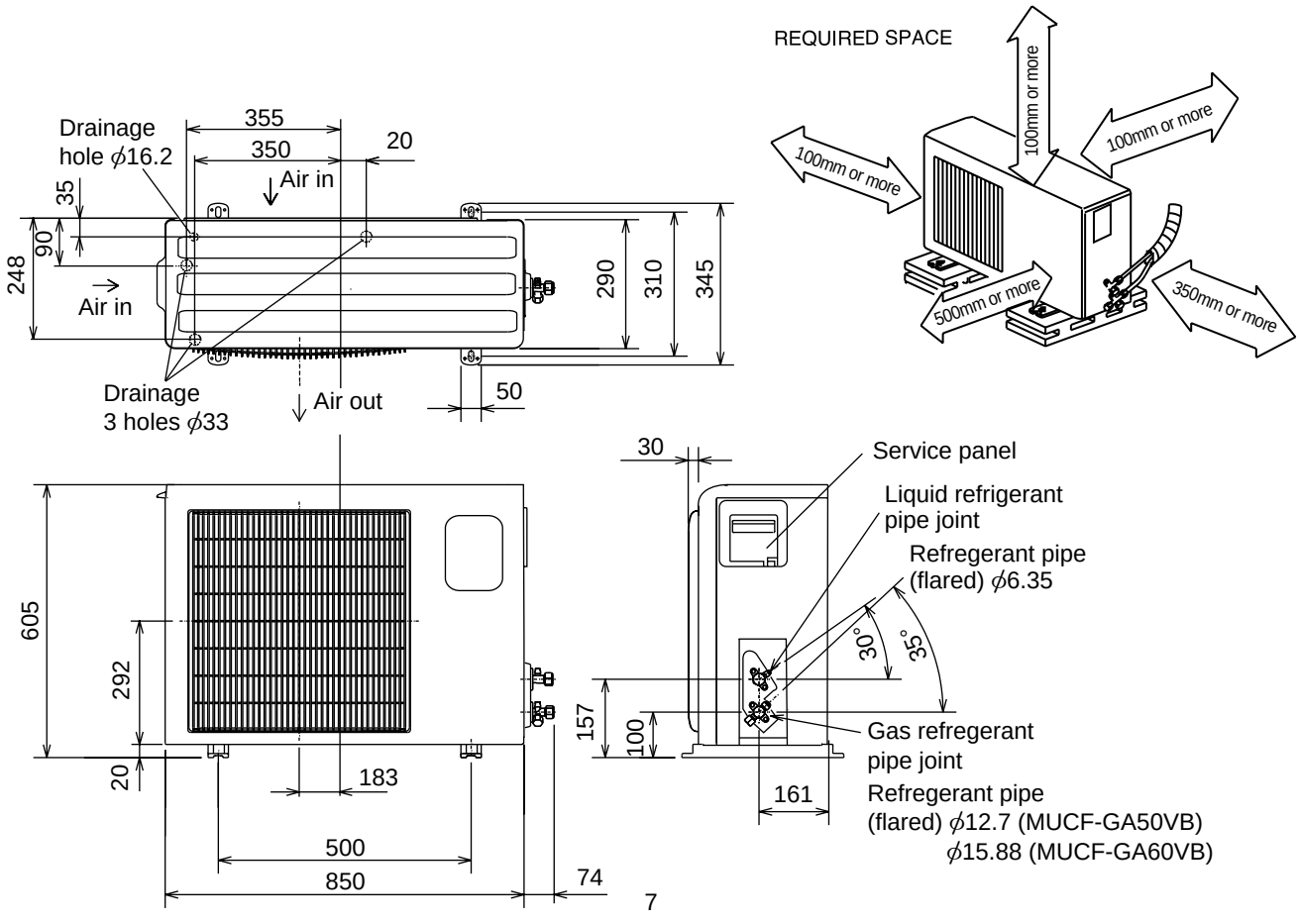
MUCF-GA35VB

Unit: mm



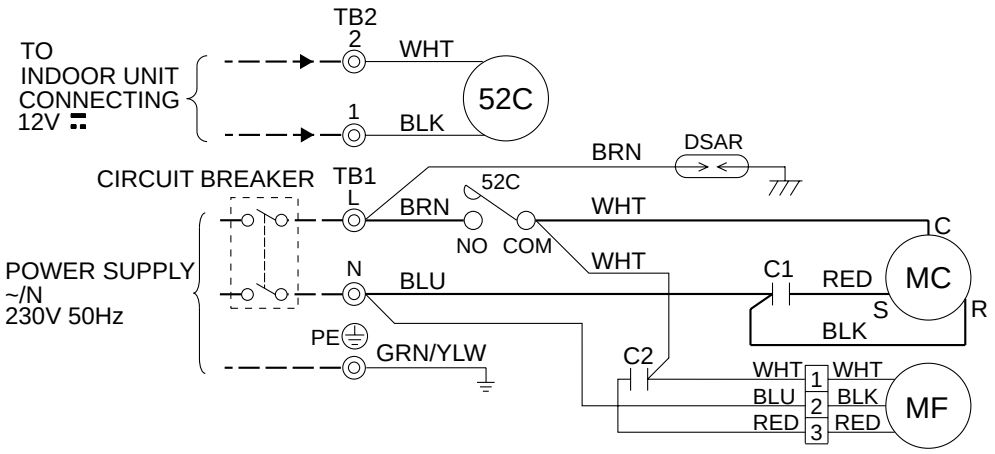
MUCF-GA50VB MUCF-GA60VB

Unit: mm



6 WIRING DIAGRAM

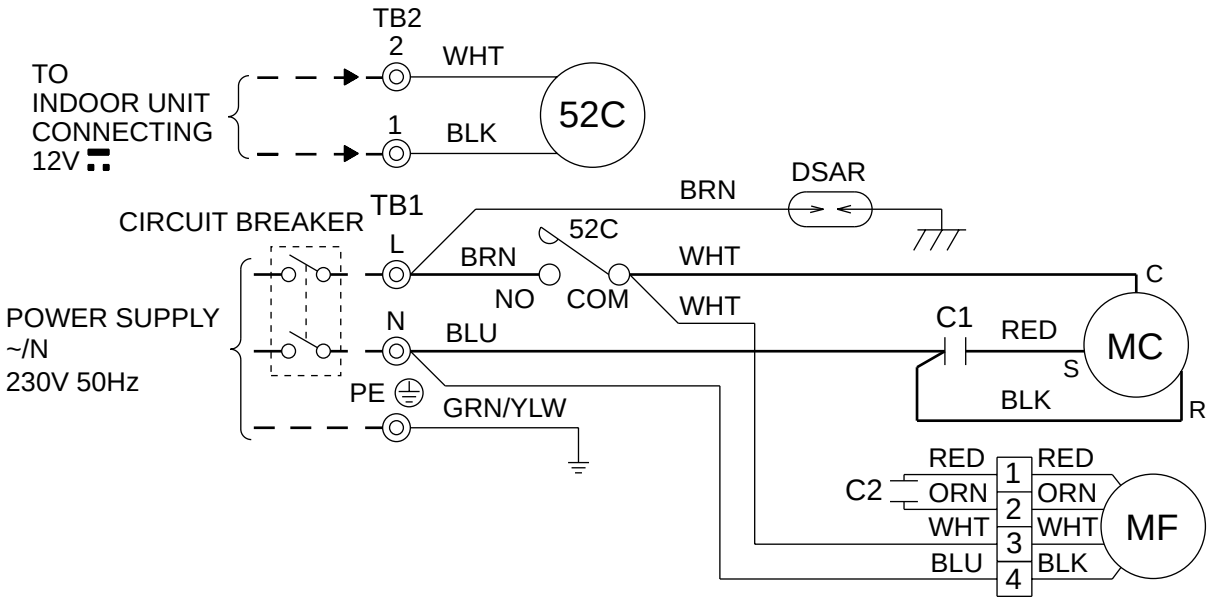
MUCF-GA35VB



SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
C1	COMPRESSOR CAPACITOR	MC	COMPRESSOR(INNER PROTECTOR)	TB1,TB2	TERMINAL BLOCK
C2	OUTDOOR FAN CAPACITOR	MF	OUTDOOR FAN MOTOR (INNER FUSE)	52C	COMPRESSOR CONTACTOR
DSAR	SURGE ABSORBER				

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

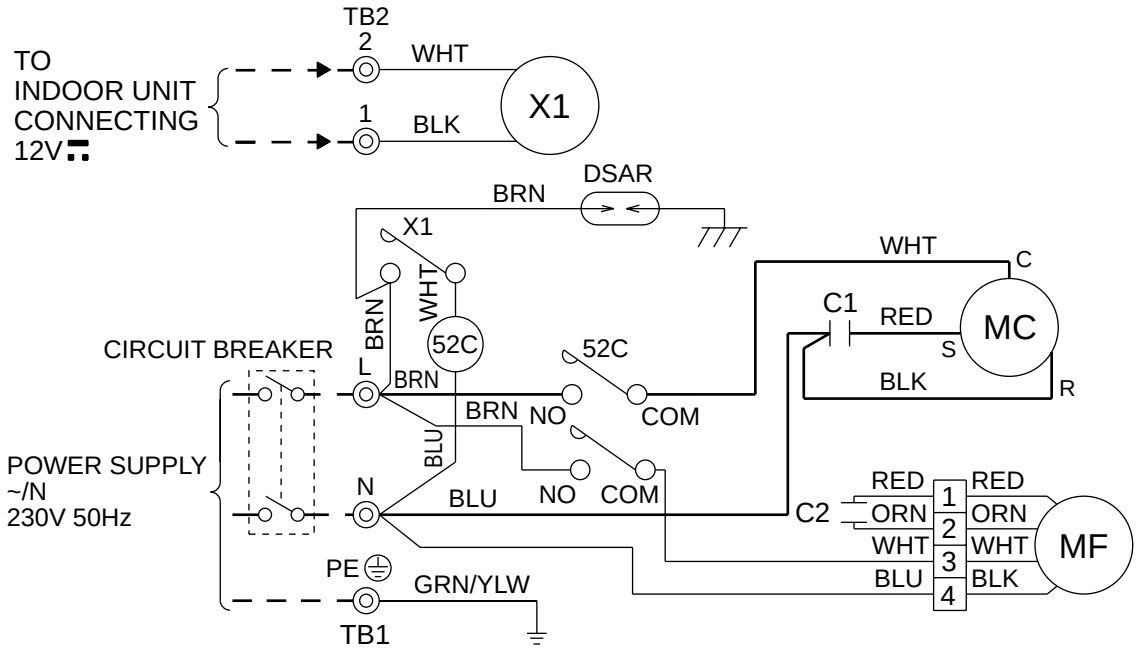
MUCF-GA50VB



SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
C1	COMPRESSOR CAPACITOR	MC	COMPRESOR (INNER PROTECTOR)	52C	COMPRESSOR CONTACTOR
C2	OUTDOOR FAN CAPACITOR	MF	OUTDOOR FAN MOTOR (INNER PROTECTOR)		
DSAR	SURGE ABSORBER	TB1,TB2	TERMINAL BLOCK		

NOTES: 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

MUCF-GA60VB



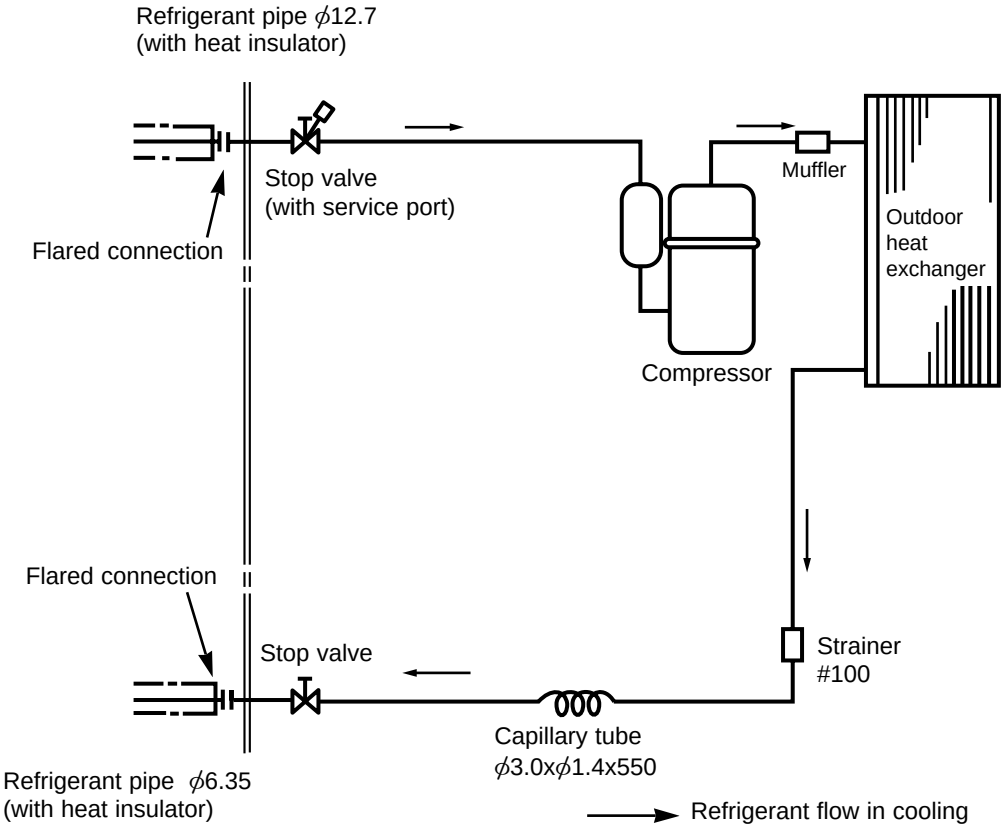
SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
C1	COMPRESSOR CAPACITOR	MC	COMPRESSOR (INNER PROTECTOR)	X1	RELAY
C2	OUTDOOR FAN CAPACITOR	MF	OUTDOOR FAN MOTOR (INNER PROTECTOR)	52C	COMPRESSOR CONTACTOR
DSAR	SURGE ABSORBER	TB1,TB2	TERMINAL BLOCK		

NOTES: 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

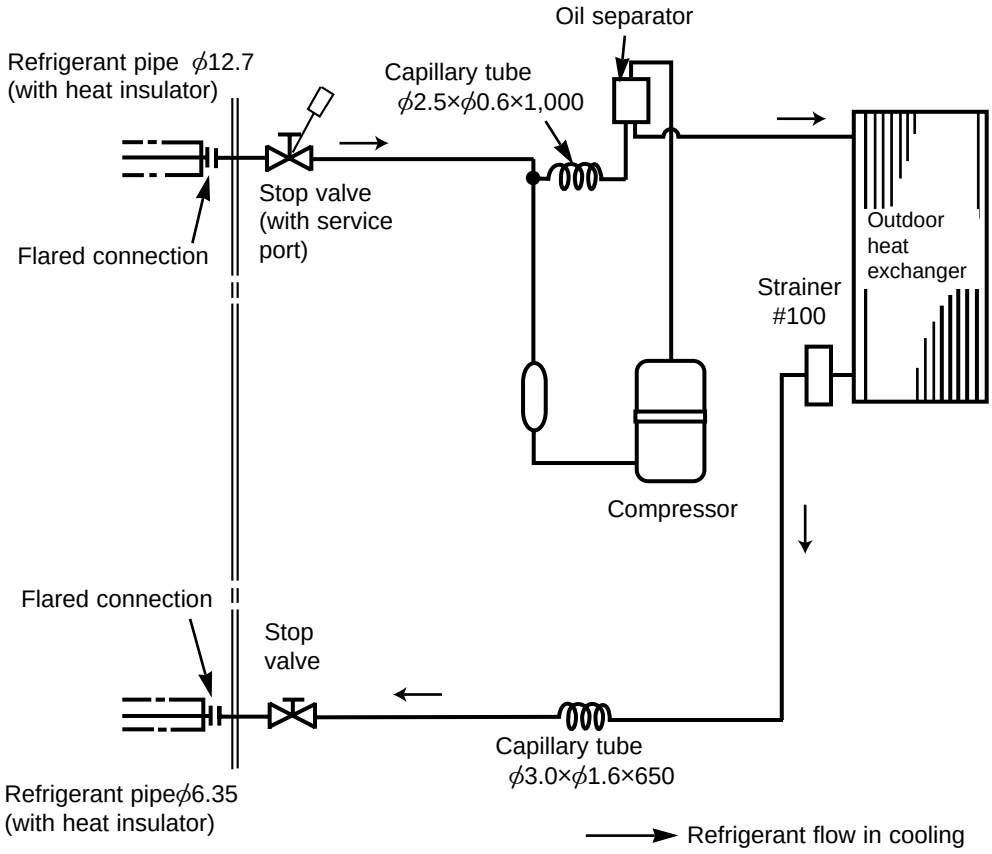
7 REFRIGERANT SYSTEM DIAGRAM

MUCF-GA35VB

Unit:mm

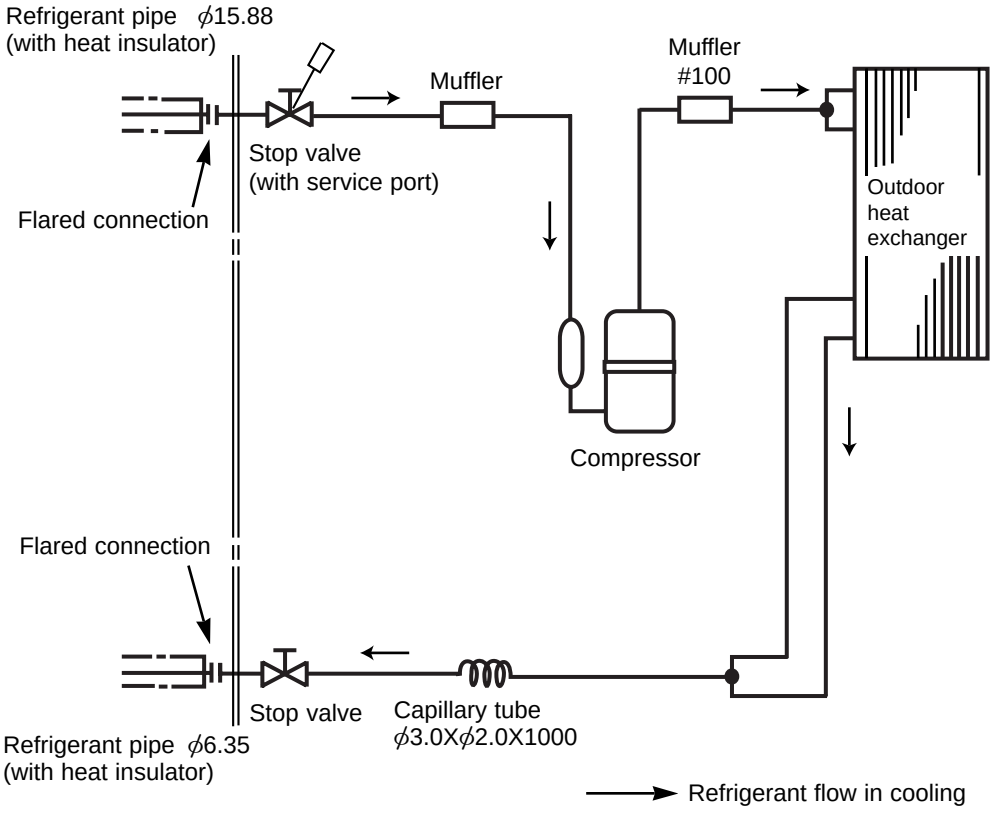


MUCF-GA50VB



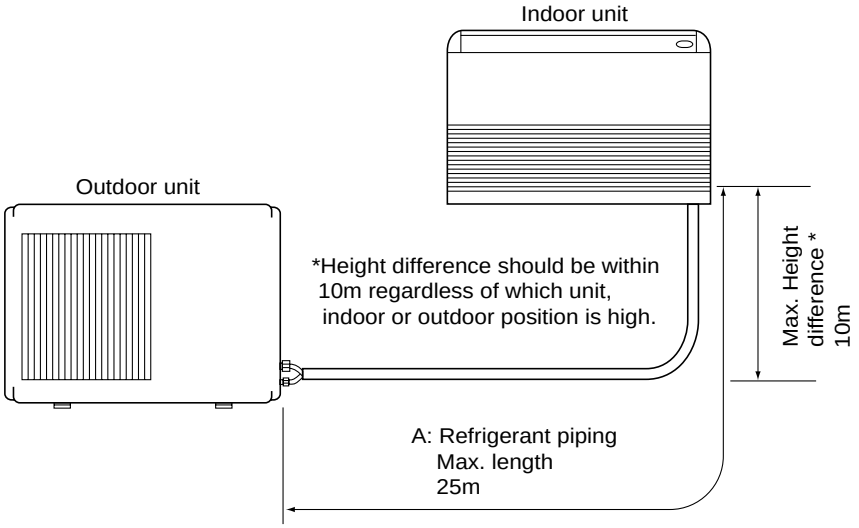
MUCF-GA60VB

Unit:mm



REFRIGERANT PIPING MAX. LENGTH & MAX. HEIGHT DIFFERENCE

Models	Refrigerant piping Max. length : m A	Piping size O.D. : mm	
		Gas	Liquid
MUCF-GA35VB	25	ϕ12.7	ϕ6.35
MUCF-GA50VB			
MUCF-GA60VB		ϕ15.88	



ADDITIONAL REFRIGERANT CHARGE (R410A : g)

If pipe length exceeds 7m, additional refrigerant (R410A) charge is required.

Model	Outdoor unit precharged	Refrigerant piping length (one way)				
		7m	10m	15m	20m	25m
MUCF-GA35VB	750	0	60	160	260	360
MUCF-GA50VB	1,450					
MUCF-GA60VB	1,850					

Calculation : Xg=20g/m × (Refrigerant piping length (m)–7)

8 PERFORMANCE CURVES

MUCF- GA35VB MUCF-GA50VB MUCF-GA60VB

The standard data contained in these specifications apply only to the operation of the air conditioner under normal conditions, since 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.

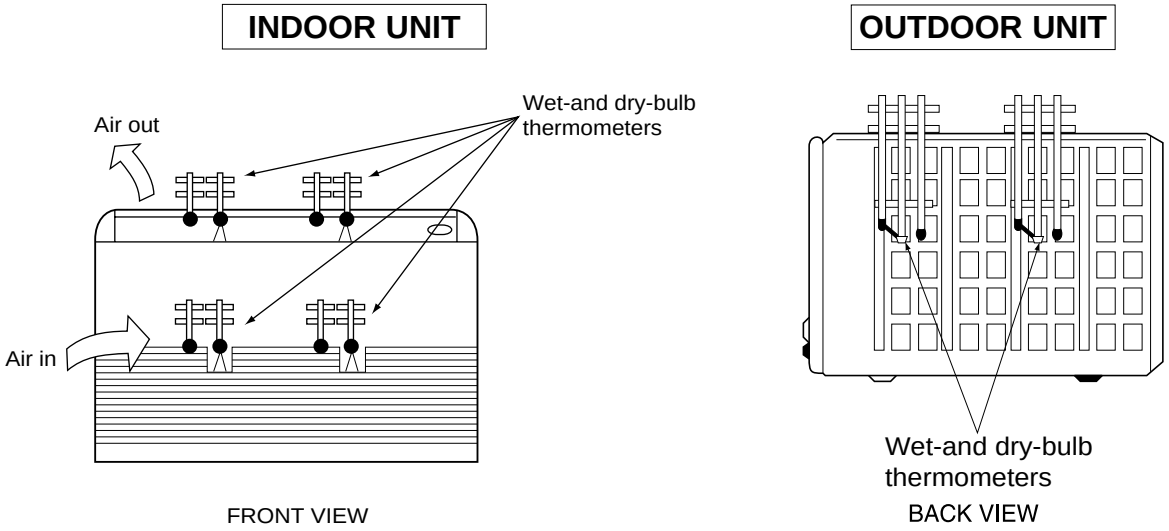
(3) MAIN READINGS

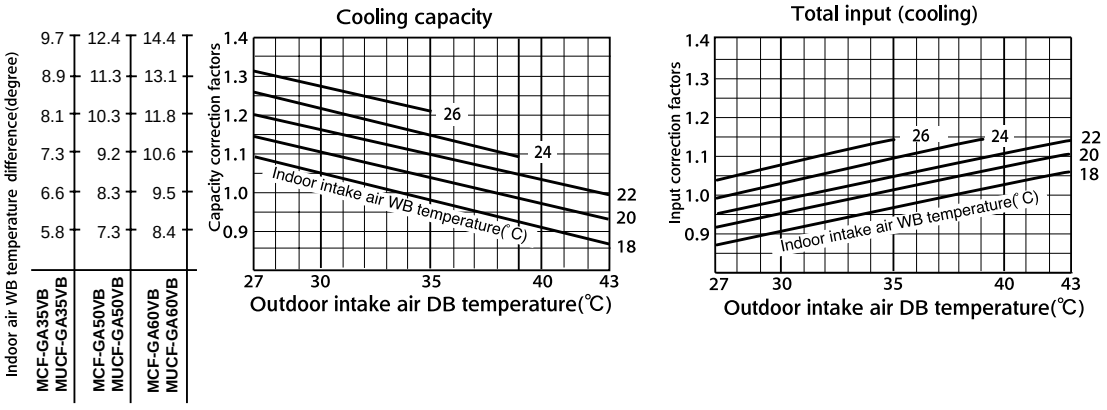
(1) Indoor intake air wet-bulb temperature :	°CWB	Cooling
(2) Indoor outlet air wet-bulb temperature :	°CWB	
(3) Outdoor intake air dry-bulb temperature :	°CDB	
(4) Total input:	W	

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

How to measure the indoor air wet-bulb/dry-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 wet-and dry-bulb thermometers to the outdoor air intake. Cover the thermometers to prevent direct rays of the sun.
3. Check that the air filter is cleaned.
4. Open windows and doors of room.
5. Press the EMERGENCY OPERATION switch once to start the EMERGENCY COOL MODE.
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.





OUTDOOR LOW PRESSURE AND OUTDOOR UNIT CURRENT

COOL operation

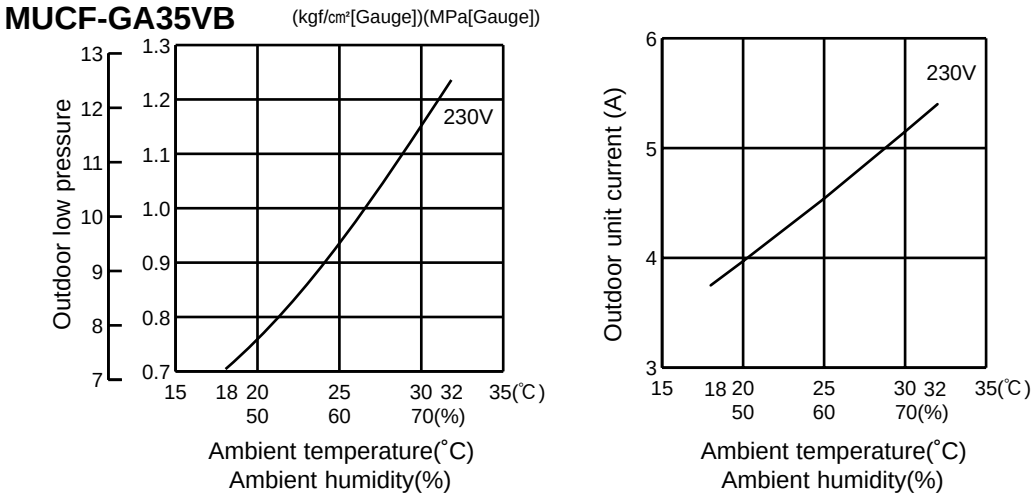
① Both indoor and outdoor units are under the same temperature/humidity condition.

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

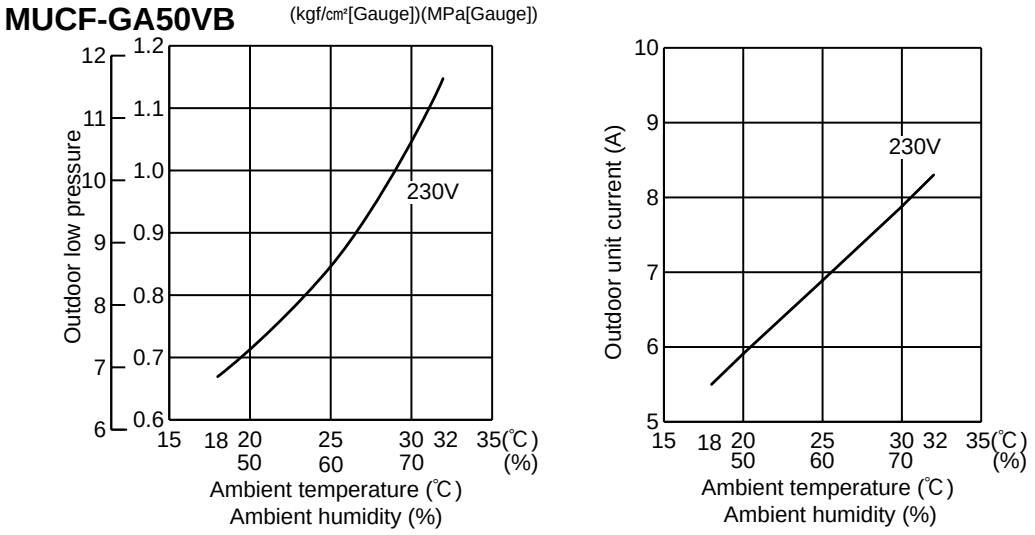
② Air flow should be set at MAX.

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-GA35VB

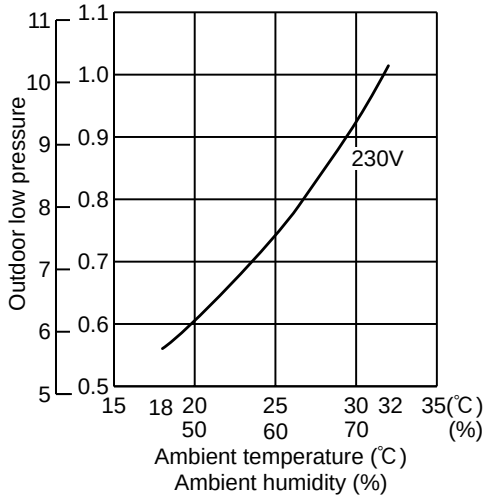


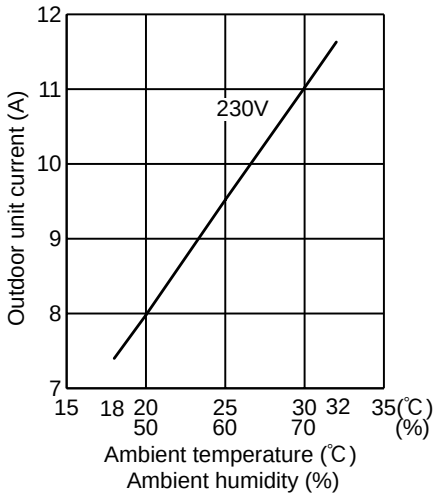
MUCF-GA50VB



MUCF-GA60VB

(kgf/㎠[Gauge])(MPa[Gauge])





PERFORMANCE DATA COOL operation (230V)

MCF-GA35VB : MUCF-GA35VB

CAPACITY :3.5(kW) SHF :0.70 INPUT :1160(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	4.11	2.14	0.52	928	3.94	2.05	0.52	974	3.78	1.97	0.52	1021	3.64	1.89	0.52	1067
21	20	4.29	1.72	0.40	974	4.11	1.65	0.40	1032	3.99	1.60	0.40	1056	3.85	1.54	0.40	1102
22	18	4.11	2.30	0.56	928	3.94	2.21	0.56	974	3.78	2.12	0.56	1021	3.64	2.04	0.56	1067
22	20	4.29	1.89	0.44	974	4.11	1.81	0.44	1032	3.99	1.76	0.44	1056	3.85	1.69	0.44	1102
22	22	4.46	1.43	0.32	1009	4.31	1.38	0.32	1073	4.20	1.34	0.32	1102	4.03	1.29	0.32	1148
23	18	4.11	2.47	0.60	928	3.94	2.36	0.60	974	3.78	2.27	0.60	1021	3.64	2.18	0.60	1067
23	20	4.29	2.06	0.48	974	4.11	1.97	0.48	1032	3.99	1.92	0.48	1056	3.85	1.85	0.48	1102
23	22	4.46	1.61	0.36	1009	4.31	1.55	0.36	1073	4.20	1.51	0.36	1102	4.03	1.45	0.36	1148
24	18	4.11	2.63	0.64	928	3.94	2.52	0.64	974	3.78	2.42	0.64	1021	3.64	2.33	0.64	1067
24	20	4.29	2.23	0.52	974	4.11	2.14	0.52	1032	3.99	2.07	0.52	1056	3.85	2.00	0.52	1102
24	22	4.46	1.79	0.40	1009	4.31	1.72	0.40	1073	4.20	1.68	0.40	1102	4.03	1.61	0.40	1148
24	24	4.69	1.31	0.28	1056	4.52	1.26	0.28	1114	4.41	1.23	0.28	1148	4.27	1.20	0.28	1206
25	18	4.11	2.80	0.68	928	3.94	2.68	0.68	974	3.78	2.57	0.68	1021	3.64	2.48	0.68	1067
25	20	4.29	2.40	0.56	974	4.11	2.30	0.56	1032	3.99	2.23	0.56	1056	3.85	2.16	0.56	1102
25	22	4.46	1.96	0.44	1009	4.31	1.89	0.44	1073	4.20	1.85	0.44	1102	4.03	1.77	0.44	1148
25	24	4.69	1.50	0.32	1056	4.52	1.44	0.32	1114	4.41	1.41	0.32	1148	4.27	1.37	0.32	1206
26	18	4.11	2.96	0.72	928	3.94	2.84	0.72	974	3.78	2.72	0.72	1021	3.64	2.62	0.72	1067
26	20	4.29	2.57	0.60	974	4.11	2.47	0.60	1032	3.99	2.39	0.60	1056	3.85	2.31	0.60	1102
26	22	4.46	2.14	0.48	1009	4.31	2.07	0.48	1073	4.20	2.02	0.48	1102	4.03	1.93	0.48	1148
26	24	4.69	1.69	0.36	1056	4.52	1.63	0.36	1114	4.41	1.59	0.36	1148	4.27	1.54	0.36	1206
26	26	4.83	1.16	0.24	1114	4.69	1.13	0.24	1172	4.62	1.11	0.24	1206	4.48	1.08	0.24	1241
27	18	4.11	3.13	0.76	928	3.94	2.99	0.76	974	3.78	2.87	0.76	1021	3.64	2.77	0.76	1067
27	20	4.29	2.74	0.64	974	4.11	2.63	0.64	1032	3.99	2.55	0.64	1056	3.85	2.46	0.64	1102
27	22	4.46	2.32	0.52	1009	4.31	2.24	0.52	1073	4.20	2.18	0.52	1102	4.03	2.09	0.52	1148
27	24	4.69	1.88	0.40	1056	4.52	1.81	0.40	1114	4.41	1.76	0.40	1148	4.27	1.71	0.40	1206
27	26	4.83	1.35	0.28	1114	4.69	1.31	0.28	1172	4.62	1.29	0.28	1206	4.48	1.25	0.28	1241
28	18	4.11	3.29	0.80	928	3.94	3.15	0.80	974	3.78	3.02	0.80	1021	3.64	2.91	0.80	1067
28	20	4.29	2.92	0.68	974	4.11	2.80	0.68	1032	3.99	2.71	0.68	1056	3.85	2.62	0.68	1102
28	22	4.46	2.50	0.56	1009	4.31	2.41	0.56	1073	4.20	2.35	0.56	1102	4.03	2.25	0.56	1148
28	24	4.69	2.06	0.44	1056	4.52	1.99	0.44	1114	4.41	1.94	0.44	1148	4.27	1.88	0.44	1206
28	26	4.83	1.55	0.32	1114	4.69	1.50	0.32	1172	4.62	1.48	0.32	1206	4.48	1.43	0.32	1241
29	18	4.11	3.45	0.84	928	3.94	3.31	0.84	974	3.78	3.18	0.84	1021	3.64	3.06	0.84	1067
29	20	4.29	3.09	0.72	974	4.11	2.96	0.72	1032	3.99	2.87	0.72	1056	3.85	2.77	0.72	1102
29	22	4.46	2.68	0.60	1009	4.31	2.58	0.60	1073	4.20	2.52	0.60	1102	4.03	2.42	0.60	1148
29	24	4.69	2.25	0.48	1056	4.52	2.17	0.48	1114	4.41	2.12	0.48	1148	4.27	2.05	0.48	1206
29	26	4.83	1.74	0.36	1114	4.69	1.69	0.36	1172	4.62	1.66	0.36	1206	4.48	1.61	0.36	1241
30	18	4.11	3.62	0.88	928	3.94	3.47	0.88	974	3.78	3.33	0.88	1021	3.64	3.20	0.88	1067
30	20	4.29	3.26	0.76	974	4.11	3.13	0.76	1032	3.99	3.03	0.76	1056	3.85	2.93	0.76	1102
30	22	4.46	2.86	0.64	1009	4.31	2.76	0.64	1073	4.20	2.69	0.64	1102	4.03	2.58	0.64	1148
30	24	4.69	2.44	0.52	1056	4.52	2.35	0.52	1114	4.41	2.29	0.52	1148	4.27	2.22	0.52	1206
30	26	4.83	1.93	0.40	1114	4.69	1.88	0.40	1172	4.62	1.85	0.40	1206	4.48	1.79	0.40	1241
31	18	4.11	3.78	0.92	928	3.94	3.62	0.92	974	3.78	3.48	0.92	1021	3.64	3.35	0.92	1067
31	20	4.29	3.43	0.80	974	4.11	3.29	0.80	1032	3.99	3.19	0.80	1056	3.85	3.08	0.80	1102
31	22	4.46	3.03	0.68	1009	4.31	2.93	0.68	1073	4.20	2.86	0.68	1102	4.03	2.74	0.68	1148
31	24	4.69	2.63	0.56	1056	4.52	2.53	0.56	1114	4.41	2.47	0.56	1148	4.27	2.39	0.56	1206
31	26	4.83	2.13	0.44	1114	4.69	2.06	0.44	1172	4.62	2.03	0.44	1206	4.48	1.97	0.44	1241
32	18	4.11	3.95	0.96	928	3.94	3.78	0.96	974	3.78	3.63	0.96	1021	3.64	3.49	0.96	1067
32	20	4.29	3.60	0.84	974	4.11	3.45	0.84	1032	3.99	3.35	0.84	1056	3.85	3.23	0.84	1102
32	22	4.46	3.21	0.72	1009	4.31	3.10	0.72	1073	4.20	3.02	0.72	1102	4.03	2.90	0.72	1148
32	24	4.69	2.81	0.60	1056	4.52	2.71	0.60	1114	4.41	2.65	0.60	1148	4.27	2.56	0.60	1206
32	26	4.83	2.32	0.48	1114	4.69	2.25	0.48	1172	4.62	2.22	0.48	1206	4.48	2.15	0.48	1241

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 (230V)

MCF-GA35VB : MUCF-GA35VB

CAPACITY :3.5(kW) SHF :0.70 INPUT :1160(W)

		OUTDOOR DB(℃)											
INDOOR	INDOOR	35				40				43			
DB(℃)	WB(℃)	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	3.43	1.78	0.52	1137	3.15	1.64	0.52	1206	3.03	1.57	0.52	1230
21	20	3.61	1.44	0.40	1183	3.36	1.34	0.40	1241	3.24	1.30	0.40	1276
22	18	3.43	1.92	0.56	1137	3.15	1.76	0.56	1206	3.03	1.70	0.56	1230
22	20	3.61	1.59	0.44	1183	3.36	1.48	0.44	1241	3.24	1.42	0.44	1276
22	22	3.82	1.22	0.32	1230	3.57	1.14	0.32	1299	3.45	1.10	0.32	1322
23	18	3.43	2.06	0.60	1137	3.15	1.89	0.60	1206	3.03	1.82	0.60	1230
23	20	3.61	1.73	0.48	1183	3.36	1.61	0.48	1241	3.24	1.55	0.48	1276
23	22	3.82	1.37	0.36	1230	3.57	1.29	0.36	1299	3.45	1.24	0.36	1322
24	18	3.43	2.20	0.64	1137	3.15	2.02	0.64	1206	3.03	1.94	0.64	1230
24	20	3.61	1.87	0.52	1183	3.36	1.75	0.52	1241	3.24	1.68	0.52	1276
24	22	3.82	1.53	0.40	1230	3.57	1.43	0.40	1299	3.45	1.38	0.40	1322
24	24	4.03	1.13	0.28	1276	3.78	1.06	0.28	1334	3.68	1.03	0.28	1363
25	18	3.43	2.33	0.68	1137	3.15	2.14	0.68	1206	3.03	2.06	0.68	1230
25	20	3.61	2.02	0.56	1183	3.36	1.88	0.56	1241	3.24	1.81	0.56	1276
25	22	3.82	1.68	0.44	1230	3.57	1.57	0.44	1299	3.45	1.52	0.44	1322
25	24	4.03	1.29	0.32	1276	3.78	1.21	0.32	1334	3.68	1.18	0.32	1363
26	18	3.43	2.47	0.72	1137	3.15	2.27	0.72	1206	3.03	2.18	0.72	1230
26	20	3.61	2.16	0.60	1183	3.36	2.02	0.60	1241	3.24	1.94	0.60	1276
26	22	3.82	1.83	0.48	1230	3.57	1.71	0.48	1299	3.45	1.65	0.48	1322
26	24	4.03	1.45	0.36	1276	3.78	1.36	0.36	1334	3.68	1.32	0.36	1363
26	26	4.24	1.02	0.24	1322	3.99	0.96	0.24	1380	3.87	0.93	0.24	1409
27	18	3.43	2.61	0.76	1137	3.15	2.39	0.76	1206	3.03	2.30	0.76	1230
27	20	3.61	2.31	0.64	1183	3.36	2.15	0.64	1241	3.24	2.07	0.64	1276
27	22	3.82	1.98	0.52	1230	3.57	1.86	0.52	1299	3.45	1.79	0.52	1322
27	24	4.03	1.61	0.40	1276	3.78	1.51	0.40	1334	3.68	1.47	0.40	1363
27	26	4.24	1.19	0.28	1322	3.99	1.12	0.28	1380	3.87	1.08	0.28	1409
28	18	3.43	2.74	0.80	1137	3.15	2.52	0.80	1206	3.03	2.42	0.80	1230
28	20	3.61	2.45	0.68	1183	3.36	2.28	0.68	1241	3.24	2.20	0.68	1276
28	22	3.82	2.14	0.56	1230	3.57	2.00	0.56	1299	3.45	1.93	0.56	1322
28	24	4.03	1.77	0.44	1276	3.78	1.66	0.44	1334	3.68	1.62	0.44	1363
28	26	4.24	1.36	0.32	1322	3.99	1.28	0.32	1380	3.87	1.24	0.32	1409
29	18	3.43	2.88	0.84	1137	3.15	2.65	0.84	1206	3.03	2.54	0.84	1230
29	20	3.61	2.60	0.72	1183	3.36	2.42	0.72	1241	3.24	2.33	0.72	1276
29	22	3.82	2.29	0.60	1230	3.57	2.14	0.60	1299	3.45	2.07	0.60	1322
29	24	4.03	1.93	0.48	1276	3.78	1.81	0.48	1334	3.68	1.76	0.48	1363
29	26	4.24	1.52	0.36	1322	3.99	1.44	0.36	1380	3.87	1.39	0.36	1409
30	18	3.43	3.02	0.88	1137	3.15	2.77	0.88	1206	3.03	2.66	0.88	1230
30	20	3.61	2.74	0.76	1183	3.36	2.55	0.76	1241	3.24	2.46	0.76	1276
30	22	3.82	2.44	0.64	1230	3.57	2.28	0.64	1299	3.45	2.21	0.64	1322
30	24	4.03	2.09	0.52	1276	3.78	1.97	0.52	1334	3.68	1.91	0.52	1363
30	26	4.24	1.69	0.40	1322	3.99	1.60	0.40	1380	3.87	1.55	0.40	1409
31	18	3.43	3.16	0.92	1137	3.15	2.90	0.92	1206	3.03	2.79	0.92	1230
31	20	3.61	2.88	0.80	1183	3.36	2.69	0.80	1241	3.24	2.59	0.80	1276
31	22	3.82	2.59	0.68	1230	3.57	2.43	0.68	1299	3.45	2.34	0.68	1322
31	24	4.03	2.25	0.56	1276	3.78	2.12	0.56	1334	3.68	2.06	0.56	1363
31	26	4.24	1.86	0.44	1322	3.99	1.76	0.44	1380	3.87	1.70	0.44	1409
32	18	3.43	3.29	0.96	1137	3.15	3.02	0.96	1206	3.03	2.91	0.96	1230
32	20	3.61	3.03	0.84	1183	3.36	2.82	0.84	1241	3.24	2.72	0.84	1276
32	22	3.82	2.75	0.72	1230	3.57	2.57	0.72	1299	3.45	2.48	0.72	1322
32	24	4.03	2.42	0.60	1276	3.78	2.27	0.60	1334	3.68	2.21	0.60	1363
32	26	4.24	2.03	0.48	1322	3.99	1.92	0.48	1380	3.87	1.86	0.48	1409

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(230V)

MCF-GA50VB : MUCF-GA50VB

CAPACITY :4.8(kW) SHF :0.65 INPUT :1810(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	5.64	2.65	0.47	1448	5.40	2.54	0.47	1520	5.18	2.44	0.47	1593	4.99	2.35	0.47	1665
21	20	5.88	2.06	0.35	1520	5.64	1.97	0.35	1611	5.47	1.92	0.35	1647	5.28	1.85	0.35	1720
22	18	5.64	2.88	0.51	1448	5.40	2.75	0.51	1520	5.18	2.64	0.51	1593	4.99	2.55	0.51	1665
22	20	5.88	2.29	0.39	1520	5.64	2.20	0.39	1611	5.47	2.13	0.39	1647	5.28	2.06	0.39	1720
22	22	6.12	1.65	0.27	1575	5.90	1.59	0.27	1674	5.76	1.56	0.27	1720	5.52	1.49	0.27	1792
23	18	5.64	3.10	0.55	1448	5.40	2.97	0.55	1520	5.18	2.85	0.55	1593	4.99	2.75	0.55	1665
23	20	5.88	2.53	0.43	1520	5.64	2.43	0.43	1611	5.47	2.35	0.43	1647	5.28	2.27	0.43	1720
23	22	6.12	1.90	0.31	1575	5.90	1.83	0.31	1674	5.76	1.79	0.31	1720	5.52	1.71	0.31	1792
24	18	5.64	3.33	0.59	1448	5.40	3.19	0.59	1520	5.18	3.06	0.59	1593	4.99	2.95	0.59	1665
24	20	5.88	2.76	0.47	1520	5.64	2.65	0.47	1611	5.47	2.57	0.47	1647	5.28	2.48	0.47	1720
24	22	6.12	2.14	0.35	1575	5.90	2.07	0.35	1674	5.76	2.02	0.35	1720	5.52	1.93	0.35	1792
24	24	6.43	1.48	0.23	1647	6.19	1.42	0.23	1738	6.05	1.39	0.23	1792	5.86	1.35	0.23	1882
25	18	5.64	3.55	0.63	1448	5.40	3.40	0.63	1520	5.18	3.27	0.63	1593	4.99	3.14	0.63	1665
25	20	5.88	3.00	0.51	1520	5.64	2.88	0.51	1611	5.47	2.79	0.51	1647	5.28	2.69	0.51	1720
25	22	6.12	2.39	0.39	1575	5.90	2.30	0.39	1674	5.76	2.25	0.39	1720	5.52	2.15	0.39	1792
25	24	6.43	1.74	0.27	1647	6.19	1.67	0.27	1738	6.05	1.63	0.27	1792	5.86	1.58	0.27	1882
26	18	5.64	3.78	0.67	1448	5.40	3.62	0.67	1520	5.18	3.47	0.67	1593	4.99	3.34	0.67	1665
26	20	5.88	3.23	0.55	1520	5.64	3.10	0.55	1611	5.47	3.01	0.55	1647	5.28	2.90	0.55	1720
26	22	6.12	2.63	0.43	1575	5.90	2.54	0.43	1674	5.76	2.48	0.43	1720	5.52	2.37	0.43	1792
26	24	6.43	1.99	0.31	1647	6.19	1.92	0.31	1738	6.05	1.87	0.31	1792	5.86	1.82	0.31	1882
26	26	6.62	1.26	0.19	1738	6.43	1.22	0.19	1828	6.34	1.20	0.19	1882	6.14	1.17	0.19	1937
27	18	5.64	4.00	0.71	1448	5.40	3.83	0.71	1520	5.18	3.68	0.71	1593	4.99	3.54	0.71	1665
27	20	5.88	3.47	0.59	1520	5.64	3.33	0.59	1611	5.47	3.23	0.59	1647	5.28	3.12	0.59	1720
27	22	6.12	2.88	0.47	1575	5.90	2.77	0.47	1674	5.76	2.71	0.47	1720	5.52	2.59	0.47	1792
27	24	6.43	2.25	0.35	1647	6.19	2.17	0.35	1738	6.05	2.12	0.35	1792	5.86	2.05	0.35	1882
27	26	6.62	1.52	0.23	1738	6.43	1.48	0.23	1828	6.34	1.46	0.23	1882	6.14	1.41	0.23	1937
28	18	5.64	4.23	0.75	1448	5.40	4.05	0.75	1520	5.18	3.89	0.75	1593	4.99	3.74	0.75	1665
28	20	5.88	3.70	0.63	1520	5.64	3.55	0.63	1611	5.47	3.45	0.63	1647	5.28	3.33	0.63	1720
28	22	6.12	3.12	0.51	1575	5.90	3.01	0.51	1674	5.76	2.94	0.51	1720	5.52	2.82	0.51	1792
28	24	6.43	2.51	0.39	1647	6.19	2.41	0.39	1738	6.05	2.36	0.39	1792	5.86	2.28	0.39	1882
28	26	6.62	1.79	0.27	1738	6.43	1.74	0.27	1828	6.34	1.71	0.27	1882	6.14	1.66	0.27	1937
29	18	5.64	4.46	0.79	1448	5.40	4.27	0.79	1520	5.18	4.10	0.79	1593	4.99	3.94	0.79	1665
29	20	5.88	3.94	0.67	1520	5.64	3.78	0.67	1611	5.47	3.67	0.67	1647	5.28	3.54	0.67	1720
29	22	6.12	3.37	0.55	1575	5.90	3.25	0.55	1674	5.76	3.17	0.55	1720	5.52	3.04	0.55	1792
29	24	6.43	2.77	0.43	1647	6.19	2.66	0.43	1738	6.05	2.60	0.43	1792	5.86	2.52	0.43	1882
29	26	6.62	2.05	0.31	1738	6.43	1.99	0.31	1828	6.34	1.96	0.31	1882	6.14	1.90	0.31	1937
30	18	5.64	4.68	0.83	1448	5.40	4.48	0.83	1520	5.18	4.30	0.83	1593	4.99	4.14	0.83	1665
30	20	5.88	4.17	0.71	1520	5.64	4.00	0.71	1611	5.47	3.89	0.71	1647	5.28	3.75	0.71	1720
30	22	6.12	3.61	0.59	1575	5.90	3.48	0.59	1674	5.76	3.40	0.59	1720	5.52	3.26	0.59	1792
30	24	6.43	3.02	0.47	1647	6.19	2.91	0.47	1738	6.05	2.84	0.47	1792	5.86	2.75	0.47	1882
30	26	6.62	2.32	0.35	1738	6.43	2.25	0.35	1828	6.34	2.22	0.35	1882	6.14	2.15	0.35	1937
31	18	5.64	4.91	0.87	1448	5.40	4.70	0.87	1520	5.18	4.51	0.87	1593	4.99	4.34	0.87	1665
31	20	5.88	4.41	0.75	1520	5.64	4.23	0.75	1611	5.47	4.10	0.75	1647	5.28	3.96	0.75	1720
31	22	6.12	3.86	0.63	1575	5.90	3.72	0.63	1674	5.76	3.63	0.63	1720	5.52	3.48	0.63	1792
31	24	6.43	3.28	0.51	1647	6.19	3.16	0.51	1738	6.05	3.08	0.51	1792	5.86	2.99	0.51	1882
31	26	6.62	2.58	0.39	1738	6.43	2.51	0.39	1828	6.34	2.47	0.39	1882	6.14	2.40	0.39	1937
32	18	5.64	5.13	0.91	1448	5.40	4.91	0.91	1520	5.18	4.72	0.91	1593	4.99	4.54	0.91	1665
32	20	5.88	4.65	0.79	1520	5.64	4.46	0.79	1611	5.47	4.32	0.79	1647	5.28	4.17	0.79	1720
32	22	6.12	4.10	0.67	1575	5.90	3.96	0.67	1674	5.76	3.86	0.67	1720	5.52	3.70	0.67	1792
32	24	6.43	3.54	0.55	1647	6.19	3.41	0.55	1738	6.05	3.33	0.55	1792	5.86	3.22	0.55	1882
32	26	6.62	2.85	0.43	1738	6.43	2.77	0.43	1828	6.34	2.72	0.43	1882	6.14	2.64	0.43	1937

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(230V)

MCF-GA50VB : MUCF-GA50VB

CAPACITY :4.8(kW) SHF :0.65 INPUT :1810(W)

		OUTDOOR DB(℃)											
INDOOR	INDOOR	35				40				43			
DB(℃)	WB(℃)	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	4.70	2.21	0.47	1774	4.32	2.03	0.47	1882	4.15	1.95	0.47	1919
21	20	4.94	1.73	0.35	1846	4.61	1.61	0.35	1937	4.44	1.55	0.35	1991
22	18	4.70	2.40	0.51	1774	4.32	2.20	0.51	1882	4.15	2.12	0.51	1919
22	20	4.94	1.93	0.39	1846	4.61	1.80	0.39	1937	4.44	1.73	0.39	1991
22	22	5.23	1.41	0.27	1919	4.90	1.32	0.27	2027	4.73	1.28	0.27	2063
23	18	4.70	2.59	0.55	1774	4.32	2.38	0.55	1882	4.15	2.28	0.55	1919
23	20	4.94	2.13	0.43	1846	4.61	1.98	0.43	1937	4.44	1.91	0.43	1991
23	22	5.23	1.62	0.31	1919	4.90	1.52	0.31	2027	4.73	1.47	0.31	2063
24	18	4.70	2.78	0.59	1774	4.32	2.55	0.59	1882	4.15	2.45	0.59	1919
24	20	4.94	2.32	0.47	1846	4.61	2.17	0.47	1937	4.44	2.09	0.47	1991
24	22	5.23	1.83	0.35	1919	4.90	1.71	0.35	2027	4.73	1.65	0.35	2063
24	24	5.52	1.27	0.23	1991	5.18	1.19	0.23	2082	5.04	1.16	0.23	2127
25	18	4.70	2.96	0.63	1774	4.32	2.72	0.63	1882	4.15	2.62	0.63	1919
25	20	4.94	2.52	0.51	1846	4.61	2.35	0.51	1937	4.44	2.26	0.51	1991
25	22	5.23	2.04	0.39	1919	4.90	1.91	0.39	2027	4.73	1.84	0.39	2063
25	24	5.52	1.49	0.27	1991	5.18	1.40	0.27	2082	5.04	1.36	0.27	2127
26	18	4.70	3.15	0.67	1774	4.32	2.89	0.67	1882	4.15	2.78	0.67	1919
26	20	4.94	2.72	0.55	1846	4.61	2.53	0.55	1937	4.44	2.44	0.55	1991
26	22	5.23	2.25	0.43	1919	4.90	2.11	0.43	2027	4.73	2.03	0.43	2063
26	24	5.52	1.71	0.31	1991	5.18	1.61	0.31	2082	5.04	1.56	0.31	2127
26	26	5.81	1.10	0.19	2063	5.47	1.04	0.19	2154	5.30	1.01	0.19	2199
27	18	4.70	3.34	0.71	1774	4.32	3.07	0.71	1882	4.15	2.95	0.71	1919
27	20	4.94	2.92	0.59	1846	4.61	2.72	0.59	1937	4.44	2.62	0.59	1991
27	22	5.23	2.46	0.47	1919	4.90	2.30	0.47	2027	4.73	2.22	0.47	2063
27	24	5.52	1.93	0.35	1991	5.18	1.81	0.35	2082	5.04	1.76	0.35	2127
27	26	5.81	1.34	0.23	2063	5.47	1.26	0.23	2154	5.30	1.22	0.23	2199
28	18	4.70	3.53	0.75	1774	4.32	3.24	0.75	1882	4.15	3.11	0.75	1919
28	20	4.94	3.11	0.63	1846	4.61	2.90	0.63	1937	4.44	2.80	0.63	1991
28	22	5.23	2.67	0.51	1919	4.90	2.50	0.51	2027	4.73	2.41	0.51	2063
28	24	5.52	2.15	0.39	1991	5.18	2.02	0.39	2082	5.04	1.97	0.39	2127
28	26	5.81	1.57	0.27	2063	5.47	1.48	0.27	2154	5.30	1.43	0.27	2199
29	18	4.70	3.72	0.79	1774	4.32	3.41	0.79	1882	4.15	3.28	0.79	1919
29	20	4.94	3.31	0.67	1846	4.61	3.09	0.67	1937	4.44	2.97	0.67	1991
29	22	5.23	2.88	0.55	1919	4.90	2.69	0.55	2027	4.73	2.60	0.55	2063
29	24	5.52	2.37	0.43	1991	5.18	2.23	0.43	2082	5.04	2.17	0.43	2127
29	26	5.81	1.80	0.31	2063	5.47	1.70	0.31	2154	5.30	1.64	0.31	2199
30	18	4.70	3.90	0.83	1774	4.32	3.59	0.83	1882	4.15	3.45	0.83	1919
30	20	4.94	3.51	0.71	1846	4.61	3.27	0.71	1937	4.44	3.15	0.71	1991
30	22	5.23	3.09	0.59	1919	4.90	2.89	0.59	2027	4.73	2.79	0.59	2063
30	24	5.52	2.59	0.47	1991	5.18	2.44	0.47	2082	5.04	2.37	0.47	2127
30	26	5.81	2.03	0.35	2063	5.47	1.92	0.35	2154	5.30	1.86	0.35	2199
31	18	4.70	4.09	0.87	1774	4.32	3.76	0.87	1882	4.15	3.61	0.87	1919
31	20	4.94	3.71	0.75	1846	4.61	3.46	0.75	1937	4.44	3.33	0.75	1991
31	22	5.23	3.30	0.63	1919	4.90	3.08	0.63	2027	4.73	2.98	0.63	2063
31	24	5.52	2.82	0.51	1991	5.18	2.64	0.51	2082	5.04	2.57	0.51	2127
31	26	5.81	2.27	0.39	2063	5.47	2.13	0.39	2154	5.30	2.07	0.39	2199
32	18	4.70	4.28	0.91	1774	4.32	3.93	0.91	1882	4.15	3.78	0.91	1919
32	20	4.94	3.91	0.79	1846	4.61	3.64	0.79	1937	4.44	3.51	0.79	1991
32	22	5.23	3.51	0.67	1919	4.90	3.28	0.67	2027	4.73	3.17	0.67	2063
32	24	5.52	3.04	0.55	1991	5.18	2.85	0.55	2082	5.04	2.77	0.55	2127
32	26	5.81	2.50	0.43	2063	5.47	2.35	0.43	2154	5.30	2.28	0.43	2199

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(230V)

MCF-GA60VB : MUCF-GA60VB

CAPACITY :6.0(kW) SHF :0.64 INPUT :2450(W)

INDOOR DB(℃)	INDOOR WB(℃)	OUTDOOR DB(℃) 21 Q	SHC	SHF	INPUT	25 Q	SHC	SHF	INPUT	27 Q	SHC	SHF	INPUT	30 Q	SHC	SHF	INPUT
21	18	7.05	3.24	0.46	1960	6.75	3.11	0.46	2058	6.48	2.98	0.46	2156	6.24	2.87	0.46	2254
21	20	7.35	2.50	0.34	2058	7.05	2.40	0.34	2181	6.84	2.33	0.34	2230	6.60	2.24	0.34	2328
22	18	7.05	3.53	0.50	1960	6.75	3.38	0.50	2058	6.48	3.24	0.50	2156	6.24	3.12	0.50	2254
22	20	7.35	2.79	0.38	2058	7.05	2.68	0.38	2181	6.84	2.60	0.38	2230	6.60	2.51	0.38	2328
22	22	7.65	1.99	0.26	2132	7.38	1.92	0.26	2266	7.20	1.87	0.26	2328	6.90	1.79	0.26	2426
23	18	7.05	3.81	0.54	1960	6.75	3.65	0.54	2058	6.48	3.50	0.54	2156	6.24	3.37	0.54	2254
23	20	7.35	3.09	0.42	2058	7.05	2.96	0.42	2181	6.84	2.87	0.42	2230	6.60	2.77	0.42	2328
23	22	7.65	2.30	0.30	2132	7.38	2.21	0.30	2266	7.20	2.16	0.30	2328	6.90	2.07	0.30	2426
24	18	7.05	4.09	0.58	1960	6.75	3.92	0.58	2058	6.48	3.76	0.58	2156	6.24	3.62	0.58	2254
24	20	7.35	3.38	0.46	2058	7.05	3.24	0.46	2181	6.84	3.15	0.46	2230	6.60	3.04	0.46	2328
24	22	7.65	2.60	0.34	2132	7.38	2.51	0.34	2266	7.20	2.45	0.34	2328	6.90	2.35	0.34	2426
24	24	8.04	1.77	0.22	2230	7.74	1.70	0.22	2352	7.56	1.66	0.22	2426	7.32	1.61	0.22	2548
25	18	7.05	4.37	0.62	1960	6.75	4.19	0.62	2058	6.48	4.02	0.62	2156	6.24	3.87	0.62	2254
25	20	7.35	3.68	0.50	2058	7.05	3.53	0.50	2181	6.84	3.42	0.50	2230	6.60	3.30	0.50	2328
25	22	7.65	2.91	0.38	2132	7.38	2.80	0.38	2266	7.20	2.74	0.38	2328	6.90	2.62	0.38	2426
25	24	8.04	2.09	0.26	2230	7.74	2.01	0.26	2352	7.56	1.97	0.26	2426	7.32	1.90	0.26	2548
26	18	7.05	4.65	0.66	1960	6.75	4.46	0.66	2058	6.48	4.28	0.66	2156	6.24	4.12	0.66	2254
26	20	7.35	3.97	0.54	2058	7.05	3.81	0.54	2181	6.84	3.69	0.54	2230	6.60	3.56	0.54	2328
26	22	7.65	3.21	0.42	2132	7.38	3.10	0.42	2266	7.20	3.02	0.42	2328	6.90	2.90	0.42	2426
26	24	8.04	2.41	0.30	2230	7.74	2.32	0.30	2352	7.56	2.27	0.30	2426	7.32	2.20	0.30	2548
26	26	8.28	1.49	0.18	2352	8.04	1.45	0.18	2475	7.92	1.43	0.18	2548	7.68	1.38	0.18	2622
27	18	7.05	4.94	0.70	1960	6.75	4.73	0.70	2058	6.48	4.54	0.70	2156	6.24	4.37	0.70	2254
27	20	7.35	4.26	0.58	2058	7.05	4.09	0.58	2181	6.84	3.97	0.58	2230	6.60	3.83	0.58	2328
27	22	7.65	3.52	0.46	2132	7.38	3.39	0.46	2266	7.20	3.31	0.46	2328	6.90	3.17	0.46	2426
27	24	8.04	2.73	0.34	2230	7.74	2.63	0.34	2352	7.56	2.57	0.34	2426	7.32	2.49	0.34	2548
27	26	8.28	1.82	0.22	2352	8.04	1.77	0.22	2475	7.92	1.74	0.22	2548	7.68	1.69	0.22	2622
28	18	7.05	5.22	0.74	1960	6.75	5.00	0.74	2058	6.48	4.80	0.74	2156	6.24	4.62	0.74	2254
28	20	7.35	4.56	0.62	2058	7.05	4.37	0.62	2181	6.84	4.24	0.62	2230	6.60	4.09	0.62	2328
28	22	7.65	3.83	0.50	2132	7.38	3.69	0.50	2266	7.20	3.60	0.50	2328	6.90	3.45	0.50	2426
28	24	8.04	3.06	0.38	2230	7.74	2.94	0.38	2352	7.56	2.87	0.38	2426	7.32	2.78	0.38	2548
28	26	8.28	2.15	0.26	2352	8.04	2.09	0.26	2475	7.92	2.06	0.26	2548	7.68	2.00	0.26	2622
29	18	7.05	5.50	0.78	1960	6.75	5.27	0.78	2058	6.48	5.05	0.78	2156	6.24	4.87	0.78	2254
29	20	7.35	4.85	0.66	2058	7.05	4.65	0.66	2181	6.84	4.51	0.66	2230	6.60	4.36	0.66	2328
29	22	7.65	4.13	0.54	2132	7.38	3.99	0.54	2266	7.20	3.89	0.54	2328	6.90	3.73	0.54	2426
29	24	8.04	3.38	0.42	2230	7.74	3.25	0.42	2352	7.56	3.18	0.42	2426	7.32	3.07	0.42	2548
29	26	8.28	2.48	0.30	2352	8.04	2.41	0.30	2475	7.92	2.38	0.30	2548	7.68	2.30	0.30	2622
30	18	7.05	5.78	0.82	1960	6.75	5.54	0.82	2058	6.48	5.31	0.82	2156	6.24	5.12	0.82	2254
30	20	7.35	5.15	0.70	2058	7.05	4.94	0.70	2181	6.84	4.79	0.70	2230	6.60	4.62	0.70	2328
30	22	7.65	4.44	0.58	2132	7.38	4.28	0.58	2266	7.20	4.18	0.58	2328	6.90	4.00	0.58	2426
30	24	8.04	3.70	0.46	2230	7.74	3.56	0.46	2352	7.56	3.48	0.46	2426	7.32	3.37	0.46	2548
30	26	8.28	2.82	0.34	2352	8.04	2.73	0.34	2475	7.92	2.69	0.34	2548	7.68	2.61	0.34	2622
31	18	7.05	6.06	0.86	1960	6.75	5.81	0.86	2058	6.48	5.57	0.86	2156	6.24	5.37	0.86	2254
31	20	7.35	5.44	0.74	2058	7.05	5.22	0.74	2181	6.84	5.06	0.74	2230	6.60	4.88	0.74	2328
31	22	7.65	4.74	0.62	2132	7.38	4.58	0.62	2266	7.20	4.46	0.62	2328	6.90	4.28	0.62	2426
31	24	8.04	4.02	0.50	2230	7.74	3.87	0.50	2352	7.56	3.78	0.50	2426	7.32	3.66	0.50	2548
31	26	8.28	3.15	0.38	2352	8.04	3.06	0.38	2475	7.92	3.01	0.38	2548	7.68	2.92	0.38	2622
32	18	7.05	6.35	0.90	1960	6.75	6.08	0.90	2058	6.48	5.83	0.90	2156	6.24	5.62	0.90	2254
32	20	7.35	5.73	0.78	2058	7.05	5.50	0.78	2181	6.84	5.34	0.78	2230	6.60	5.15	0.78	2328
32	22	7.65	5.05	0.66	2132	7.38	4.87	0.66	2266	7.20	4.75	0.66	2328	6.90	4.55	0.66	2426
32	24	8.04	4.34	0.54	2230	7.74	4.18	0.54	2352	7.56	4.08	0.54	2426	7.32	3.95	0.54	2548
32	26	8.28	3.48	0.42	2352	8.04	3.38	0.42	2475	7.92	3.33	0.42	2548	7.68	3.23	0.42	2622

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(230V)

MCF-GA60VB : MUCF-GA60VB

CAPACITY :6.0(kW) SHF :0.64 INPUT :2450(W)

		OUTDOOR DB(℃)											
INDOOR	INDOOR	35				40				43			
DB(℃)	WB(℃)	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	5.88	2.70	0.46	2401	5.40	2.48	0.46	2548	5.19	2.39	0.46	2597
21	20	6.18	2.10	0.34	2499	5.76	1.96	0.34	2622	5.55	1.89	0.34	2695
22	18	5.88	2.94	0.50	2401	5.40	2.70	0.50	2548	5.19	2.60	0.50	2597
22	20	6.18	2.35	0.38	2499	5.76	2.19	0.38	2622	5.55	2.11	0.38	2695
22	22	6.54	1.70	0.26	2597	6.12	1.59	0.26	2744	5.91	1.54	0.26	2793
23	18	5.88	3.18	0.54	2401	5.40	2.92	0.54	2548	5.19	2.80	0.54	2597
23	20	6.18	2.60	0.42	2499	5.76	2.42	0.42	2622	5.55	2.33	0.42	2695
23	22	6.54	1.96	0.30	2597	6.12	1.84	0.30	2744	5.91	1.77	0.30	2793
24	18	5.88	3.41	0.58	2401	5.40	3.13	0.58	2548	5.19	3.01	0.58	2597
24	20	6.18	2.84	0.46	2499	5.76	2.65	0.46	2622	5.55	2.55	0.46	2695
24	22	6.54	2.22	0.34	2597	6.12	2.08	0.34	2744	5.91	2.01	0.34	2793
24	24	6.90	1.52	0.22	2695	6.48	1.43	0.22	2818	6.30	1.39	0.22	2879
25	18	5.88	3.65	0.62	2401	5.40	3.35	0.62	2548	5.19	3.22	0.62	2597
25	20	6.18	3.09	0.50	2499	5.76	2.88	0.50	2622	5.55	2.78	0.50	2695
25	22	6.54	2.49	0.38	2597	6.12	2.33	0.38	2744	5.91	2.25	0.38	2793
25	24	6.90	1.79	0.26	2695	6.48	1.68	0.26	2818	6.30	1.64	0.26	2879
26	18	5.88	3.88	0.66	2401	5.40	3.56	0.66	2548	5.19	3.43	0.66	2597
26	20	6.18	3.34	0.54	2499	5.76	3.11	0.54	2622	5.55	3.00	0.54	2695
26	22	6.54	2.75	0.42	2597	6.12	2.57	0.42	2744	5.91	2.48	0.42	2793
26	24	6.90	2.07	0.30	2695	6.48	1.94	0.30	2818	6.30	1.89	0.30	2879
26	26	7.26	1.31	0.18	2793	6.84	1.23	0.18	2916	6.63	1.19	0.18	2977
27	18	5.88	4.12	0.70	2401	5.40	3.78	0.70	2548	5.19	3.63	0.70	2597
27	20	6.18	3.58	0.58	2499	5.76	3.34	0.58	2622	5.55	3.22	0.58	2695
27	22	6.54	3.01	0.46	2597	6.12	2.82	0.46	2744	5.91	2.72	0.46	2793
27	24	6.90	2.35	0.34	2695	6.48	2.20	0.34	2818	6.30	2.14	0.34	2879
27	26	7.26	1.60	0.22	2793	6.84	1.50	0.22	2916	6.63	1.46	0.22	2977
28	18	5.88	4.35	0.74	2401	5.40	4.00	0.74	2548	5.19	3.84	0.74	2597
28	20	6.18	3.83	0.62	2499	5.76	3.57	0.62	2622	5.55	3.44	0.62	2695
28	22	6.54	3.27	0.50	2597	6.12	3.06	0.50	2744	5.91	2.96	0.50	2793
28	24	6.90	2.62	0.38	2695	6.48	2.46	0.38	2818	6.30	2.39	0.38	2879
28	26	7.26	1.89	0.26	2793	6.84	1.78	0.26	2916	6.63	1.72	0.26	2977
29	18	5.88	4.59	0.78	2401	5.40	4.21	0.78	2548	5.19	4.05	0.78	2597
29	20	6.18	4.08	0.66	2499	5.76	3.80	0.66	2622	5.55	3.66	0.66	2695
29	22	6.54	3.53	0.54	2597	6.12	3.30	0.54	2744	5.91	3.19	0.54	2793
29	24	6.90	2.90	0.42	2695	6.48	2.72	0.42	2818	6.30	2.65	0.42	2879
29	26	7.26	2.18	0.30	2793	6.84	2.05	0.30	2916	6.63	1.99	0.30	2977
30	18	5.88	4.82	0.82	2401	5.40	4.43	0.82	2548	5.19	4.26	0.82	2597
30	20	6.18	4.33	0.70	2499	5.76	4.03	0.70	2622	5.55	3.89	0.70	2695
30	22	6.54	3.79	0.58	2597	6.12	3.55	0.58	2744	5.91	3.43	0.58	2793
30	24	6.90	3.17	0.46	2695	6.48	2.98	0.46	2818	6.30	2.90	0.46	2879
30	26	7.26	2.47	0.34	2793	6.84	2.33	0.34	2916	6.63	2.25	0.34	2977
31	18	5.88	5.06	0.86	2401	5.40	4.64	0.86	2548	5.19	4.46	0.86	2597
31	20	6.18	4.57	0.74	2499	5.76	4.26	0.74	2622	5.55	4.11	0.74	2695
31	22	6.54	4.05	0.62	2597	6.12	3.79	0.62	2744	5.91	3.66	0.62	2793
31	24	6.90	3.45	0.50	2695	6.48	3.24	0.50	2818	6.30	3.15	0.50	2879
31	26	7.26	2.76	0.38	2793	6.84	2.60	0.38	2916	6.63	2.52	0.38	2977
32	18	5.88	5.29	0.90	2401	5.40	4.86	0.90	2548	5.19	4.67	0.90	2597
32	20	6.18	4.82	0.78	2499	5.76	4.49	0.78	2622	5.55	4.33	0.78	2695
32	22	6.54	4.32	0.66	2597	6.12	4.04	0.66	2744	5.91	3.90	0.66	2793
32	24	6.90	3.73	0.54	2695	6.48	3.50	0.54	2818	6.30	3.40	0.54	2879
32	26	7.26	3.05	0.42	2793	6.84	2.87	0.42	2916	6.63	2.78	0.42	2977

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 TROUBLESHOOTING

MUCF-GA35VB MUCF-GA50VB MUCF-GA60VB

9-1. 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.

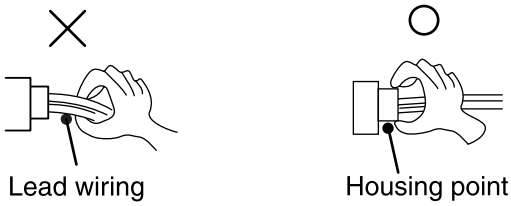
2. Take care the following during servicing.

(1) Before servicing the air conditioner, be sure to turn OFF the main unit first with the remote controller, 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

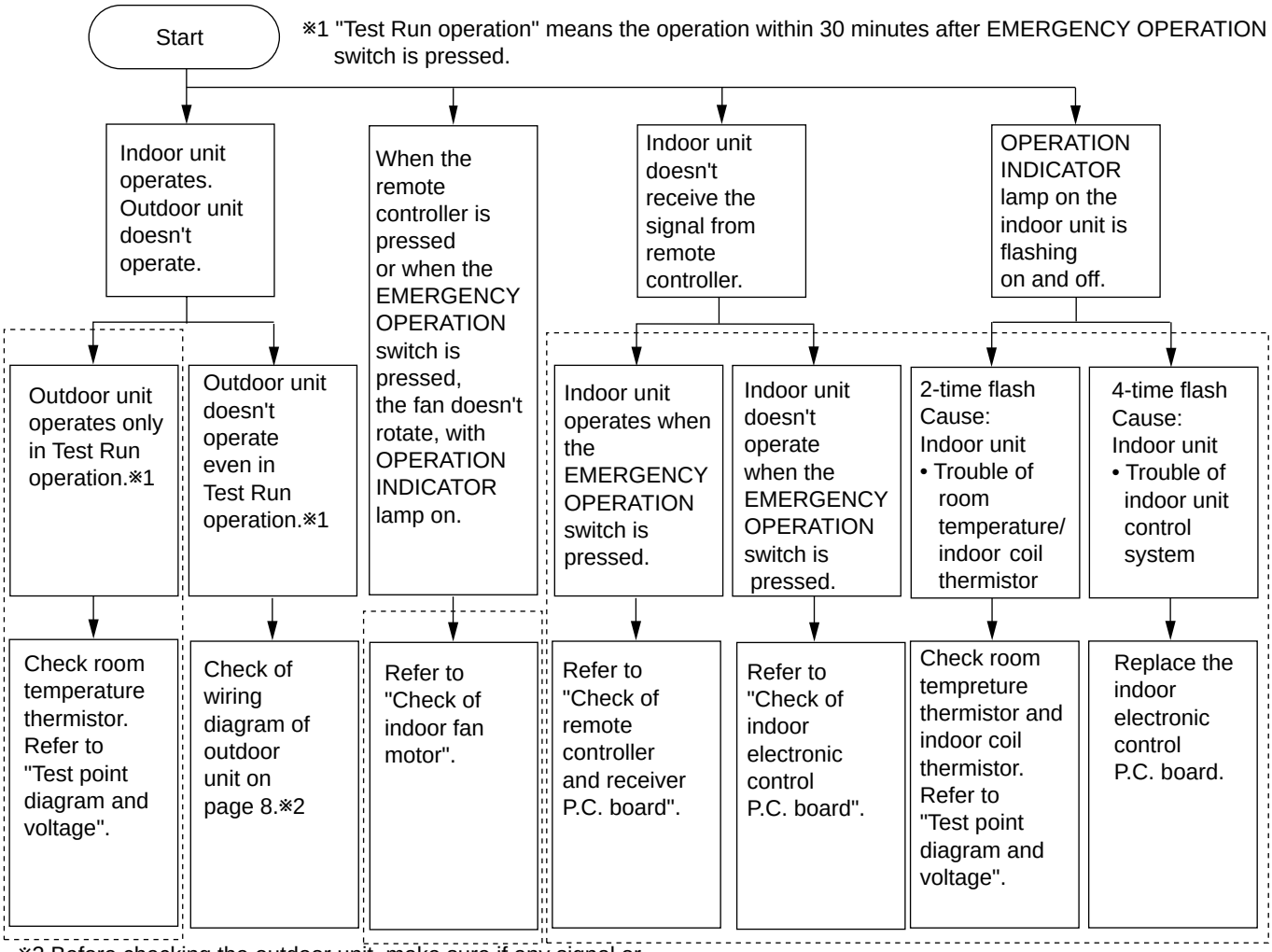
(1) First, check if the OPERATION INDICATOR lamp on the indoor unit is flashing on and off to indicate an abnormality. To make sure, check how many times the abnormality indication is flashing on and off before starting service work.

(2) Before servicing 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 discoloration.

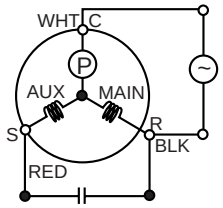
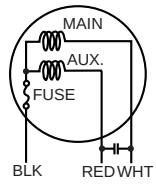
(4) When troubleshooting, refer to the flow chart on this page.

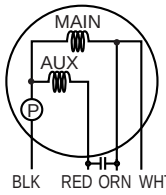
9-2. Instruction of troubleshooting



9-3. Trouble criterion of main parts

MUCF-GA35VB MUCF-GA50VB MUCF-GA60VB

<table>
<tr><th>Part name</th><th>Check method and criterion</th><th>Figure</th></tr>
<tr><td>Compressor
(MC)
INNER
PROTECTOR
MUCF-GA35VB
155± 5℃ OPEN
90± 10℃ CLOSE
MUCF-GA50/GA60VB
160± 5℃ OPEN
90±10℃ CLOSE</td><td>Measure the resistance between the terminals with a tester.
(Part 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-GA35VB</th><th>MUCF-GA50VB</th><th>MUCF-GA60VB</th></tr>
<tr><td>C – R</td><td>2.46 Ω ~ 3.01 Ω</td><td>1.59 Ω ~ 1.95 Ω</td><td>0.71 Ω ~ 0.87 Ω</td><td rowspan="2">Open or
short-circuit</td></tr>
<tr><td>C – S</td><td>2.96 Ω ~ 3.63 Ω</td><td>2.65 Ω ~ 3.24 Ω</td><td>1.45 Ω ~ 1.77 Ω</td></tr>
</table></td><td> 
</td></tr>
<tr><td>Outdoor fan motor(MF)
INNER FUSE
MUCF-GA35VB
145± 2℃ CUT OFF
INNER
PROTECTOR
MUCF-GA50VB
135± 5℃ OPEN
(87±15℃ CLOSE※)
MUCF-GA60VB
130± 5℃ OPEN
(83±15℃ CLOSE※)</td><td>Measure the resistance between the terminals with a tester.
(Part temperature –10˚C ~ 40˚C)
<table>
<tr><th rowspan="2">Color of
lead wire</th><th colspan="3">Normal</th><th>Abnormal</th></tr>
<tr><th>MUCF-GA35VB</th><th>MUCF-GA50VB</th><th>MUCF-GA60VB</th><th rowspan="3">Open or
short-circuit</th></tr>
<tr><td>WHT – BLK</td><td>191 Ω ~ 231 Ω</td><td>70 Ω ~ 86 Ω</td><td>62 Ω ~ 77 Ω</td></tr>
<tr><td>BLK – RED</td><td>272 Ω ~ 330 Ω</td><td>74 Ω ~ 89 Ω</td><td>78 Ω ~ 96 Ω</td></tr>
</table></td><td>MUCF-GA35VB
 

MUCF-GA50/GA60VB
 
</td></tr>
</table>

※ Reference value

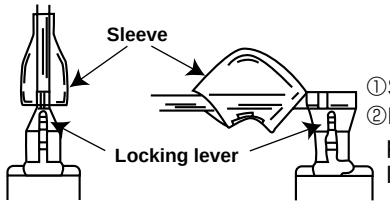
Ⓟ:INNER PROTECTOR

10 DISASSEMBLY INSTRUCTIONS

<"Terminal with locking mechanism" Detaching points>

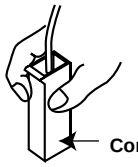
The terminal which has the locking mechanism can be detached as shown below.
There are two types (Refer to (1) and (2)) of the terminal with locking mechanism.
The terminal without locking mechanism can be detached by pulling it out.
Check the shape of the terminal before detaching.

(1) Slide the sleeve and check if there is a locking lever or not.



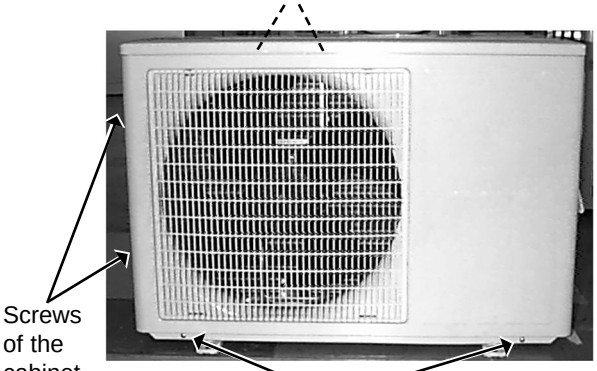
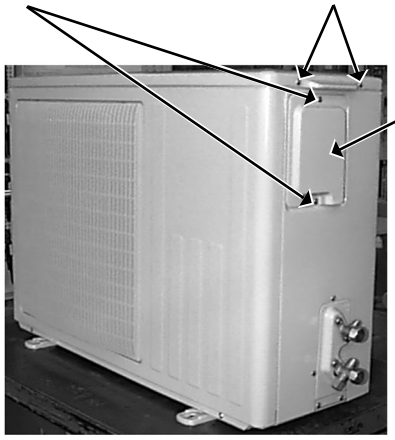
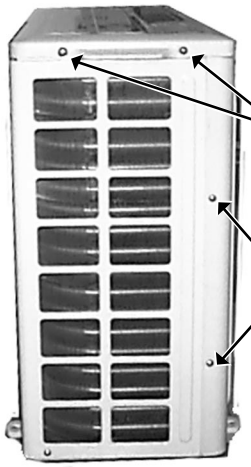
①Slide the sleeve.
②Pull the terminal while pushing the locking lever.

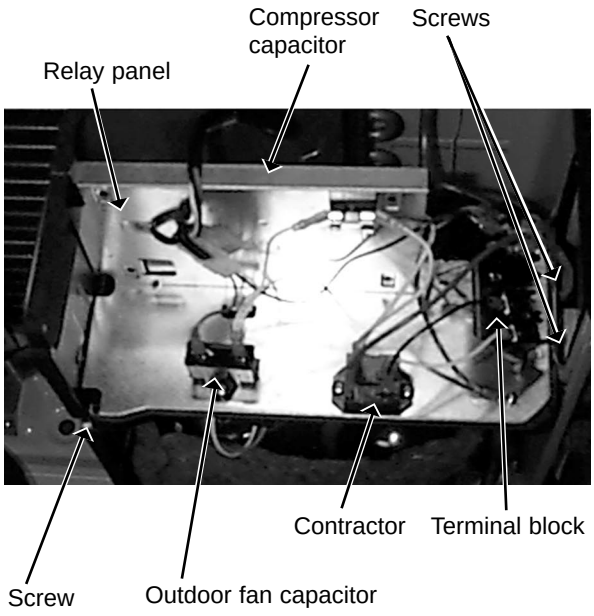
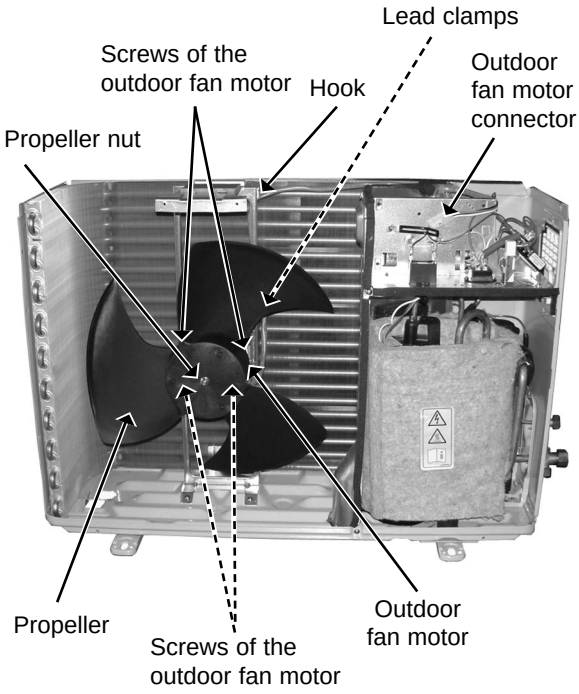
(2) The terminal with this connector has the locking mechanism.

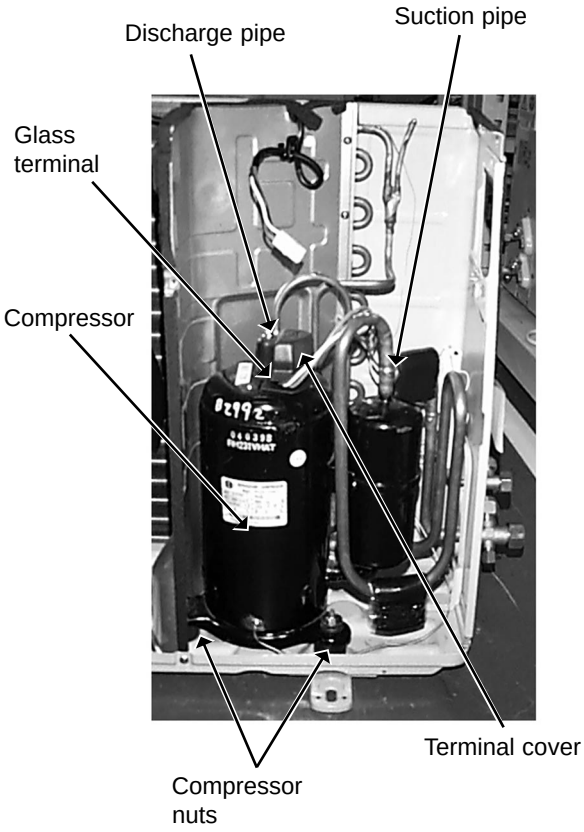


①Hold the sleeve, and pull out the terminal slowly.

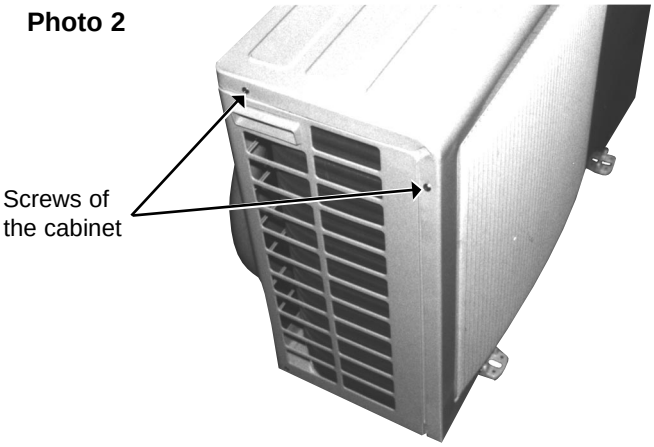
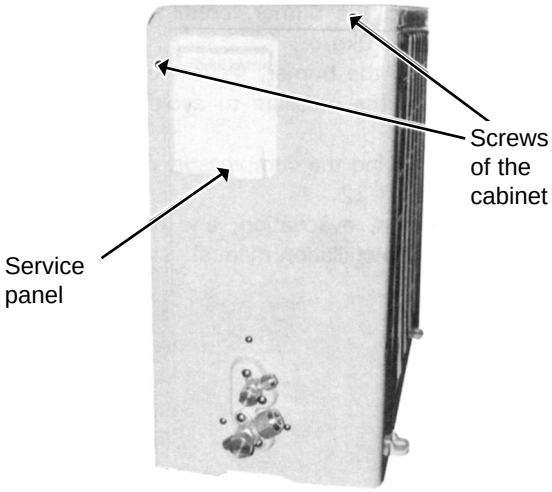
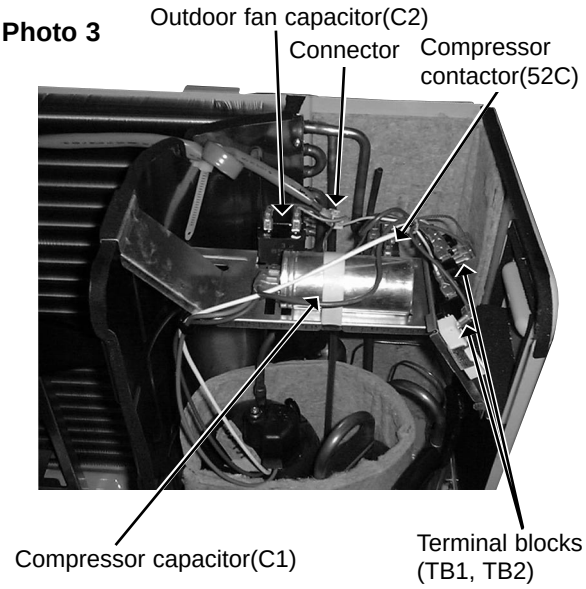
10-1. MUCF-GA35VB

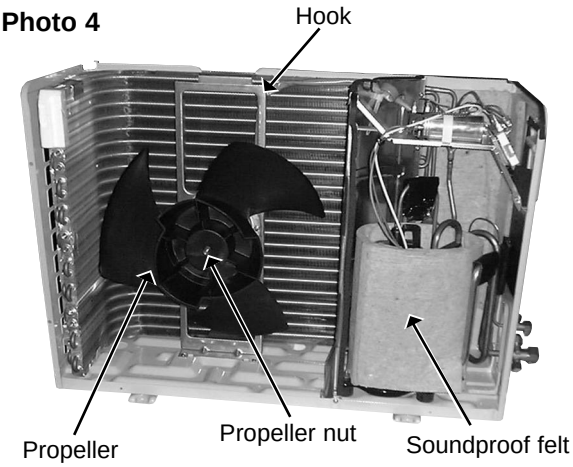
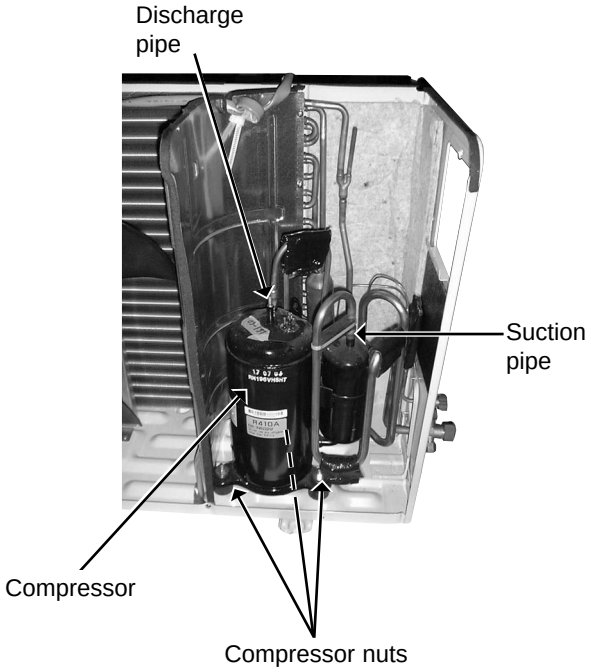
OPERATING PROCEDURE	PHOTOS
1. Removing the cabinet (1) Remove the screws of the top panel. (2) Remove the screw of the service panel. (3) Remove the screws of the cabinet. (4) Remove the screws of the front panel and motor support. (5) Remove the service panel, and remove the screw from the insides. (6) Remove the top panel. (7) Remove the cabinet.	**Photo 1** Screws of the front panel and motor support  Screws of the cabinet Screws of the cabinet
Photo 3 Screws of the service panel Screws of the top panel  Service panel	**Photo 2**  Screws of the top panel Screws of the cabinet

OPERATING PROCEDURE	PHOTOS
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	**Photo 4** 
3. Removing the propeller and the outdoor fan motor (1) Remove the cabinet. (Refer to 1.) (2) Remove the propeller nut. (3) Remove the propeller. **NOTE : Loose the propeller in the rotating direction for removal.** When attaching the propeller, align the mark on the propeller and the motor shaft cut section. Set the propeller in position by using the cut on the shaft and the mark on the propeller. (4) Remove lead clamps and disconnect the outdoor fan motor connector. (5) Remove screws fixing the fan motor. (6) Remove the outdoor fan motor.	**Photo 5** 

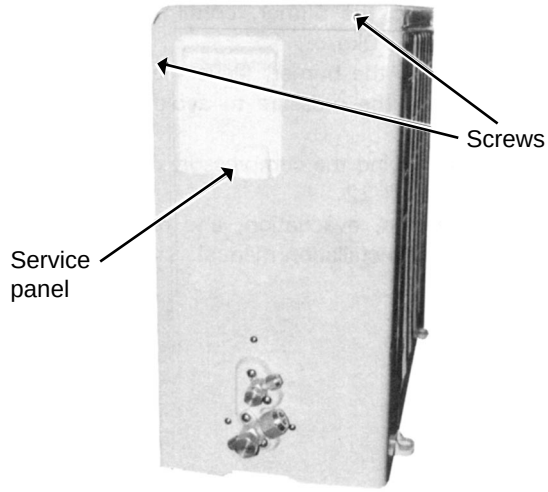
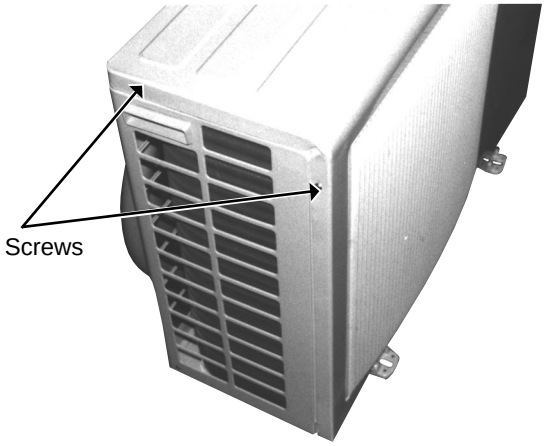
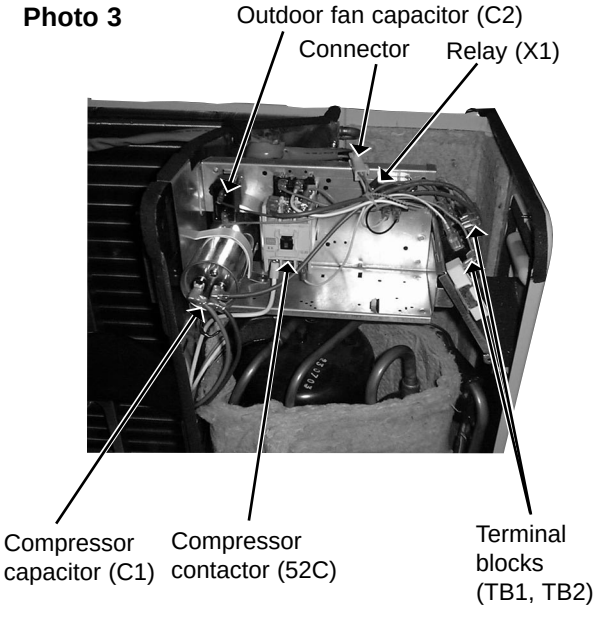
OPERATING PROCEDURE	PHOTOS
4. Removing the compressor (1) Remove the cabinet. (Refer to 1.) (2) Remove the relay panel. (3) Remove the soundproof felt. (4) Remove the terminal cover on the compressor. (5) Disconnect lead wires from the glass terminal of the compressor. (6) Recover gas from the refrigerant circuit. **NOTE** : Recover gas from the pipes until the pressure gauge shows 0 kg/cm^2 (0MPa). (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.	**Photo 6** 

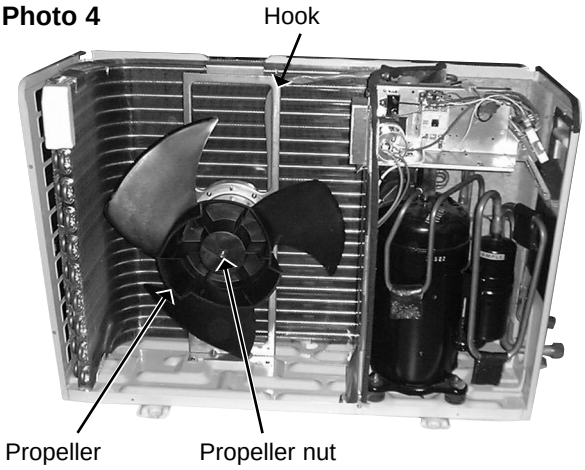
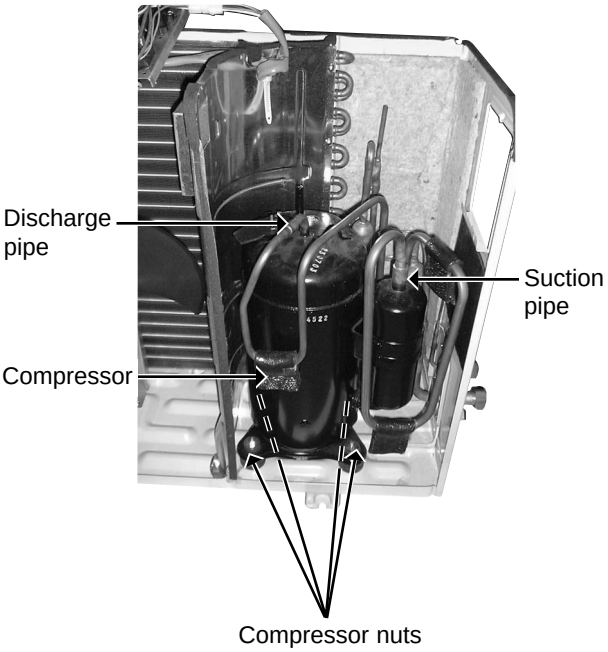
10-2. MUCF-GA50VB

OPERATING PROCEDURE	PHOTOS
1. Removing the cabinet (1) Remove the screws of the cabinet. (2) Hold the bottom of the cabinet on both sides and remove the cabinet. **Photo 2**  	**Photo 1** 
2. Removing the electrical parts (1) Remove the service panel and the cabinet. (2) Remove the following parts. •Compressor capacitor (C1) •Outdoor fan capacitor (C2) •Terminal block (TB1, TB2) •Compressor contactor (52C)	**Photo 3** 

OPERATING PROCEDURE	PHOTOS
3. Removing the outdoor fan motor (1) Remove the cabinet. (Refer to 1.) (2) Disconnect the connector and remove the hooked lead wire from the fan motor. (3) Remove the propeller nut and remove the propeller. (4) Remove screws fixing the outdoor fan motor. (5) Remove the outdoor fan motor.	**Photo 4** 
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. **NOTE** : Recover gas from the pipes until the pressure gauge shows 0 kg/cm^2 (0MPa). (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.	**Photo 5** 

10-3. MUCF-GA60VB

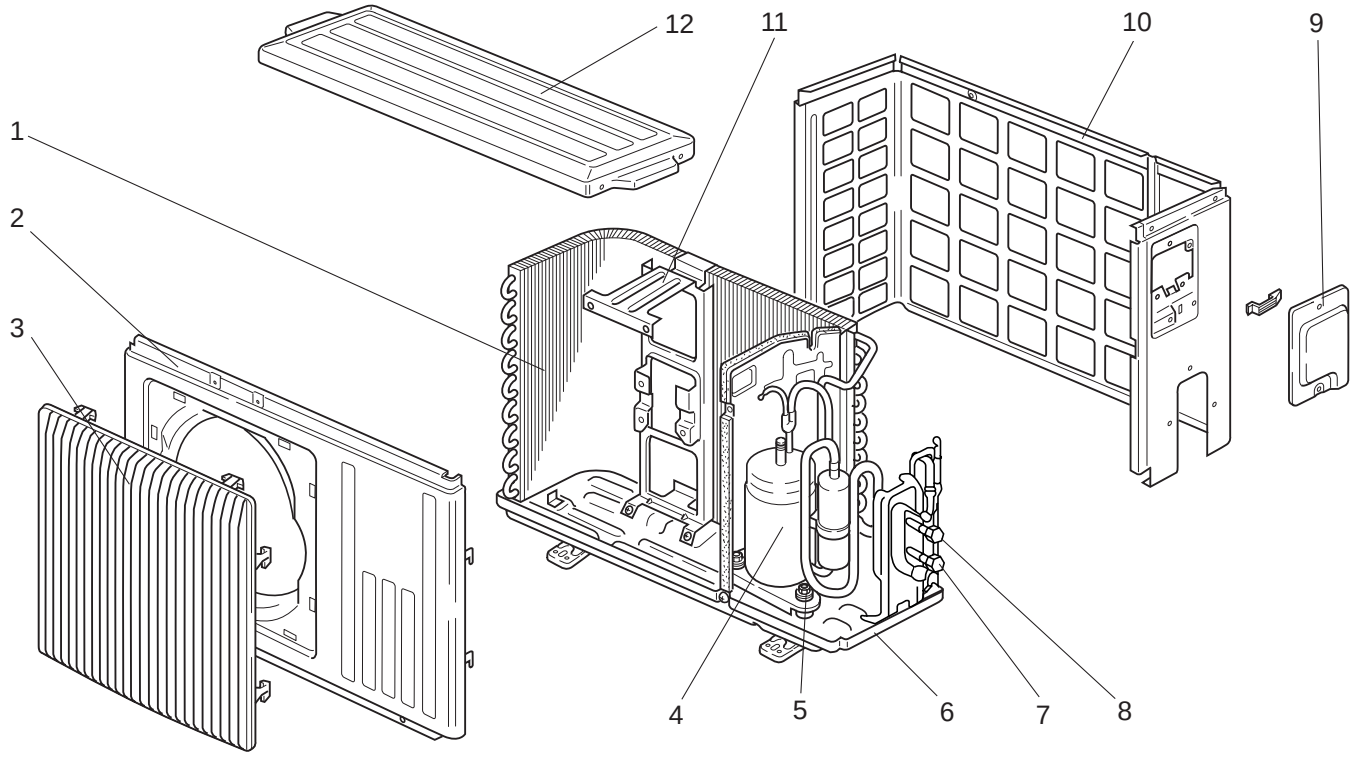
OPERATING PROCEDURE	PHOTOS
1. Removing the cabinet (1) Remove the screws of the cabinet. (2) Hold the bottom of the cabinet on the both side to remove the cabinet.	**Photo 1**  **Photo 2** 
2. Removing the electrical parts (1) Remove the cabinet . (Refer to 1.) (2) Remove the following parts. •Compressor capacitor (C1) •Outdoor fan capacitor (C2) •Terminal block(TB1, TB2) •Relay (X1) •Compressor contactor (52C)	**Photo 3** 

OPERATING PROCEDURE	PHOTOS
3. Removing the outdoor fan motor (1) Remove the cabinet. (Refer to 1.) (2) Disconnect the connector and remove the hocked lead wire from the fan motor. (3) Remove the propeller nut and remove the propeller. (4) Remove the screws fixing the fan motor. (5) Remove the outdoor fan motor.	**Photo 4** 
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 the lead wires from the glass terminal of the compressor. (6) Recover gas from the refrigerant circuit. **NOTE** : Recover gas from the pipes until the pressure gauge shows 0 kg/cm^2 (0MPa). (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.	**Photo 5** 

11 PARTS LIST (non-RoHS compliant)

MUCF-GA35VB

11-1. OUTDOOR UNIT STRUCTURAL PARTS



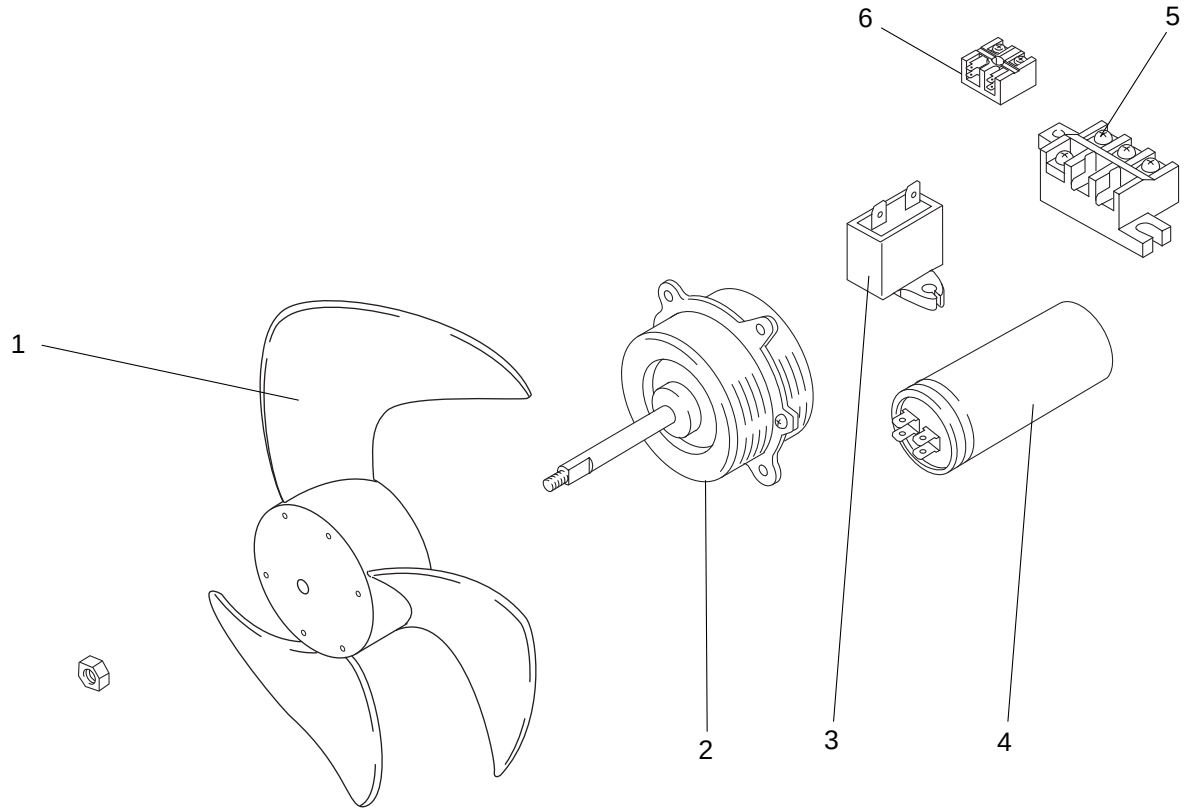
Part number that is circled is not shown in the illustration.

No.	Part No.	Part name	Symbol in Wiring Diagram	Q'ty/unit	Remarks
				MUCF-GA35VB-E1	
1	E02 832 630	OUTDOOR HEAT EXCHANGER		1	
2	E02 815 232	CABINET		1	
3	E02 815 521	GRILLE(OUT)		1	
4	E02 754 900	COMPRESSOR	MC	1	RN135VHSHT
5	E02 075 506	COMPRESSOR RUBBER SET		3	3RUBBERS/SET
6	E02 832 290	BASE		1	
7	E02 910 661	STOP VALVE(GAS)		1	ϕ12.7
8	E02 910 662	STOP VALVE(LIQUID)		1	ϕ6.35
9	E02 815 245	SERVICE PANEL		1	
10	E02 835 233	BACK PANEL		1	
11	E02 336 515	MOTOR SUPPORT		1	
12	E02 815 297	TOP PANEL		1	
(13)	E02 441 936	CAPILLARY TUBE		1	ϕ3.0xϕ1.4x550

PARTS LIST (non-RoHS compliant)

MUCF-GA35VB

11-2. OUTDOOR UNIT ELECTRICAL PARTS AND FUNCTIONAL PARTS

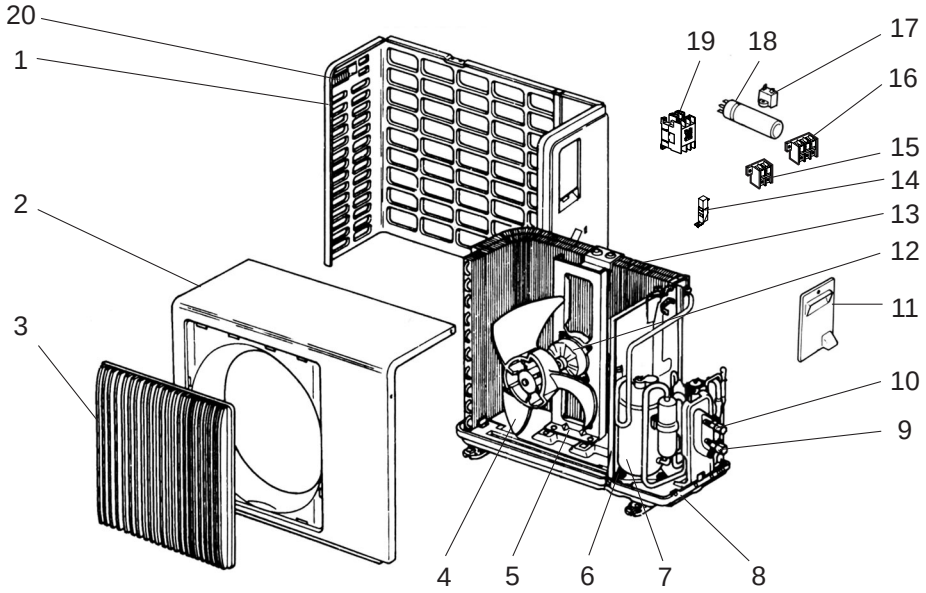


Part numbers that are circled are not shown in the illustration.

No.	Part No.	Part name	Symbol in Wiring Diagram	Q'ty/unit	Remarks
				MUCF-GA35VB- E1	
1	E02 665 501	PROPELLER		1	
2	E02 677 301	OUTDOOR FAN MOTOR	MF	1	RA6V33-□□
3	E02 900 351	OUTDOOR FAN CAPACITOR	C2	1	2.0μF /440V AC
4	E02 696 353	COMPRESSOR CAPACITOR	C1	1	30μF /440V AC
5	E02 817 374	TERMINAL BLOCK	TB1	1	3P
6	E02 832 374	TERMINAL BLOCK	TB2	1	2P
⑦	E02 466 340	COMPRESSOR CONTACTOR	52C	1	
⑧	E02 890 383	SURGE ABSORBER	DSAR	1	

PARTS LIST (non-RoHS compliant)

MUCF-GA50VB
MUCF-GA60VB
11-3. OUTDOOR UNIT
STRUCTURAL PARTS, ELECTRICAL PARTS AND FUNCTIONAL PARTS



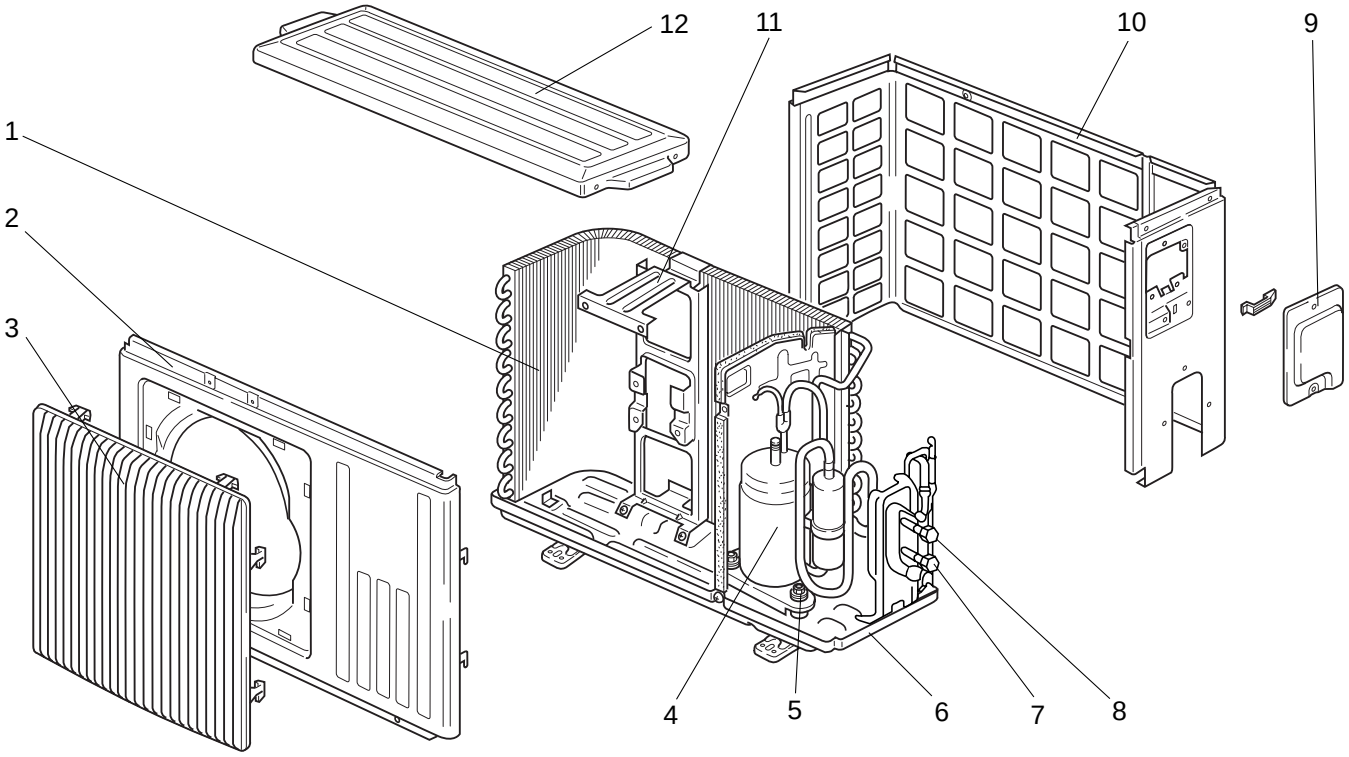
Part numbers that are circled are not shown in the illustration.

No.	Part No.	Part Name	Symbol in Wiring Diagram	Q'ty/unit		Remarks
				MUCF-GA50VB-E1	MUCF-GA60VB-E1	
1	E02 817 233	BACK PANEL(OUT)		1	1	
2	E02 817 232	CABINET		1	1	
3	E02 817 521	GRILLE(OUT)		1	1	
4	E02 141 501	PROPELLER		1	1	
5	E02 139 515	MOTOR SUPPORT		1	1	
6	E02 075 506	COMPRESSOR RUBBER SET		3		3RUBBERS/SET
	E02 527 506	COMPRESSOR RUBBER SET			4	4RUBBERS/SET
7	E02 817 900	COMPRESSOR	MC	1		RN196VHSHT
	E02 821 900	COMPRESSOR	MC		1	NN29VBAHT
8	E02 817 290	BASE		1		
	E02 818 290	BASE			1	
9	E02 817 661	STOP VALVE(GAS)		1		ϕ12.7
	E02 818 661	STOP VALVE(GAS)			1	ϕ15.88
10	E02 817 662	STOP VALVE(LIQUID)		1	1	ϕ 6.35
11	E02 817 245	SERVICE PANEL		1	1	
12	E02 816 301	OUTDOOR FAN MOTOR	MF	1		RA6V50 - □□
	E02 818 301	OUTDOOR FAN MOTOR	MF		1	RA6V60 - □□
13	E02 817 630	OUTDOOR HEAT EXCHANGER		1		
	E02 818 630	OUTDOOR HEAT EXCHANGER			1	
14	E02 895 383	SURGE ABSORBER	DSAR	1	1	
15	E02 818 374	TERMINAL BLOCK	TB2	1	1	2P
16	E02 817 374	TERMINAL BLOCK	TB1	1	1	3P
17	E02 895 351	OUTDOOR FAN CAPACITOR	C2	1	1	3.0μF/440V AC
18	E02 888 353	COMPRESSOR CAPACITOR	C1	1		40μF/440V AC
	E02 889 353	COMPRESSOR CAPACITOR	C1		1	55μF/440V AC
19	E07 012 340	COMPRESSOR CONTACTOR	52C		1	
20	E02 817 009	HANDLE		1	1	
㉑	E02 746 937	CAPILLARY TUBE		1		ϕ3.0×ϕ1.6×650
	E02 825 936	CAPILLARY TUBE			1	ϕ3.0×ϕ2.0×1000
	E02 820 936	CAPILLARY TUBE		1		ϕ2.5×ϕ0.6×1000
㉒	E02 466 340	COMPRESSOR CONTACTOR	52C	1		
㉓	E02 466 340	RELAY	X1		1	

12 RoHS PARTS LIST (RoHS compliant)

MUCF-GA35VB

12-1. OUTDOOR UNIT STRUCTURAL PARTS



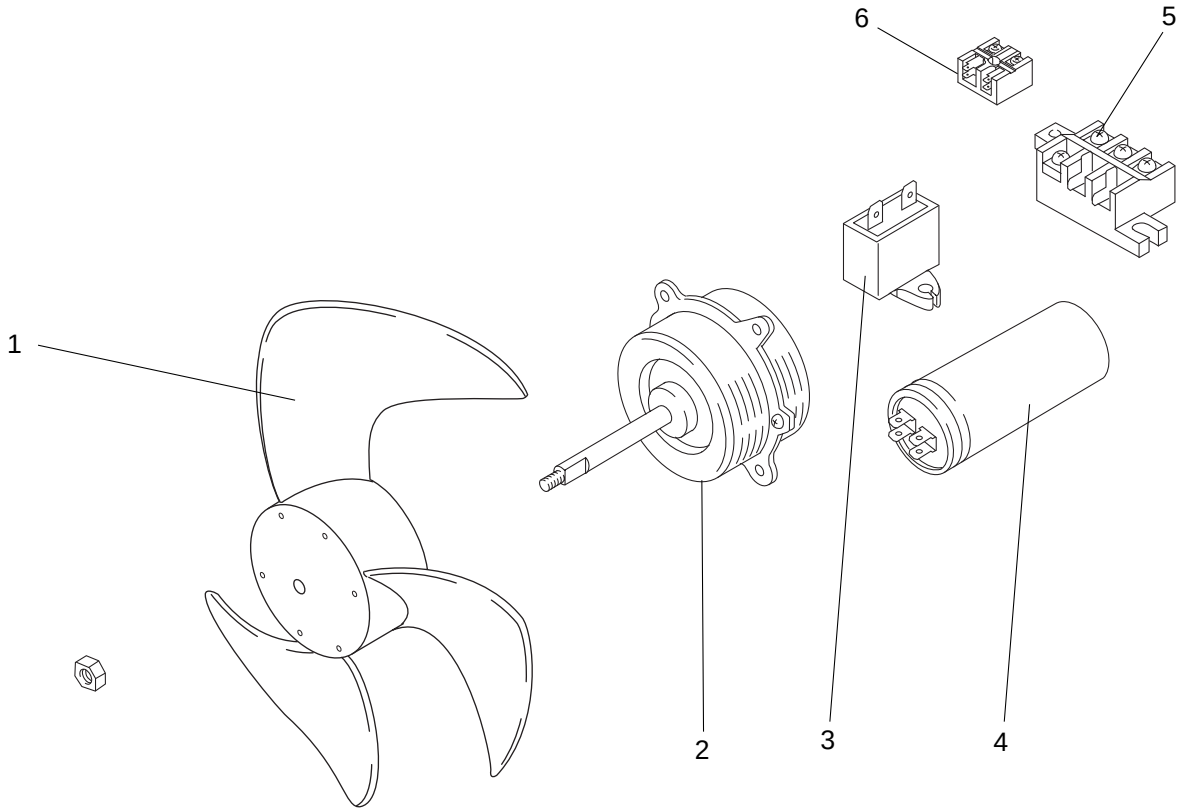
Part number that is circled is not shown in the illustration.

No.	RoHS	Part No.	Part name	Symbol in Wiring Diagram	Q'ty/unit	Remarks
					MUCF-GA35VB-E1	
1	G	E12 832 630	OUTDOOR HEAT EXCHANGER		1	
2	G	E12 815 232	CABINET		1	
3	G	E12 815 521	GRILLE(OUT)		1	
4	G	E12 754 900	COMPRESSOR	MC	1	RN135VHSHT
5	G	E12 075 506	COMPRESSOR RUBBER SET		3	3RUBBERS/SET
6	G	E12 832 290	BASE		1	
7	G	E12 910 661	STOP VALVE(GAS)		1	ϕ12.7
8	G	E12 910 662	STOP VALVE(LIQUID)		1	ϕ6.35
9	G	E12 815 245	SERVICE PANEL		1	
10	G	E12 835 233	BACK PANEL		1	
11	G	E12 336 515	MOTOR SUPPORT		1	
12	G	E12 815 297	TOP PANEL		1	
(13)	G	E12 441 936	CAPILLARY TUBE		1	ϕ3.0xϕ1.4x550

RoHS PARTS LIST (RoHS compliant)

MUCF-GA35VB

12-2. OUTDOOR UNIT ELECTRICAL PARTS AND FUNCTIONAL PARTS

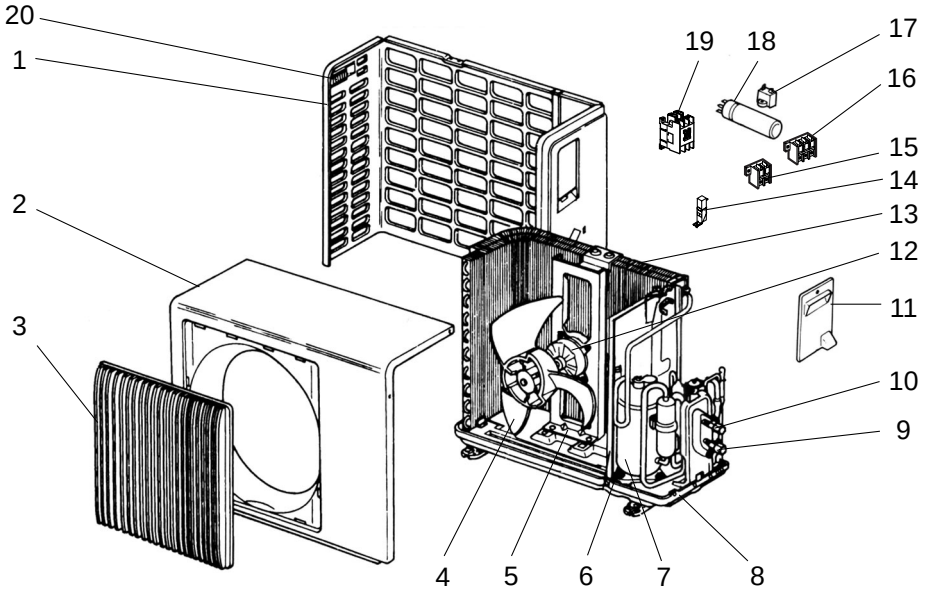


Part numbers that are circled are not shown in the illustration.

No.	RoHS	Part No.	Part name	Symbol in Wiring Diagram	Q'ty/unit	Remarks
					MUCF-GA35VB- E1	
1	G	E12 665 501	PROPELLER		1	
2	G	E12 677 301	OUTDOOR FAN MOTOR	MF	1	RA6V33-□□
3	G	E12 900 351	OUTDOOR FAN CAPACITOR	C2	1	2.0μF /440V AC
4	G	E12 900 353	COMPRESSOR CAPACITOR	C1	1	30μF /440V AC
5	G	E12 817 374	TERMINAL BLOCK	TB1	1	3P
6	G	E12 832 374	TERMINAL BLOCK	TB2	1	2P
⑦	G	E12 466 340	COMPRESSOR CONTACTOR	52C	1	
⑧	G	E12 890 383	SURGE ABSORBER	DSAR	1	

RoHS PARTS LIST (RoHS compliant)

MUCF-GA50VB
MUCF-GA60VB
12-3. OUTDOOR UNIT
STRUCTURAL PARTS, ELECTRICAL PARTS AND FUNCTIONAL PARTS



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

No.	RoHS	Part No.	Part Name	Symbol in Wiring Diagram	Q'ty/unit		Remarks
					MUCF-GA50VB-E1	MUCF-GA60VB-E1	
1	G	E12 817 233	BACK PANEL(OUT)		1	1	
2	G	E12 817 232	CABINET		1	1	
3	G	E12 817 521	GRILLE(OUT)		1	1	
4	G	E12 141 501	PROPELLER		1	1	
5	G	E12 139 515	MOTOR SUPPORT		1	1	
6	G	E12 075 506	COMPRESSOR RUBBER SET		3		3RUBBERS/SET
	G	E12 527 506	COMPRESSOR RUBBER SET			4	4RUBBERS/SET
7	G	E12 817 900	COMPRESSOR	MC	1		RN196VHSHT
	G	E12 821 900	COMPRESSOR	MC		1	NN29VBAHT
8	G	E12 817 290	BASE		1		
	G	E12 818 290	BASE			1	
9	G	E12 817 661	STOP VALVE(GAS)		1		ϕ12.7
	G	E12 818 661	STOP VALVE(GAS)			1	ϕ15.88
10	G	E12 817 662	STOP VALVE(LIQUID)		1	1	ϕ 6.35
11	G	E12 817 245	SERVICE PANEL		1	1	
12	G	E12 816 301	OUTDOOR FAN MOTOR	MF	1		RA6V50 - □□
	G	E12 818 301	OUTDOOR FAN MOTOR	MF		1	RA6V60 - □□
13	G	E12 817 630	OUTDOOR HEAT EXCHANGER		1		
	G	E12 818 630	OUTDOOR HEAT EXCHANGER			1	
14	G	E12 895 383	SURGE ABSORBER	DSAR	1	1	
15	G	E12 818 374	TERMINAL BLOCK	TB2	1	1	2P
16	G	E12 817 374	TERMINAL BLOCK	TB1	1	1	3P
17	G	E12 895 351	OUTDOOR FAN CAPACITOR	C2	1	1	3.0μF/440V AC
18	G	E12 888 353	COMPRESSOR CAPACITOR	C1	1		40μF/440V AC
	G	E12 889 353	COMPRESSOR CAPACITOR	C1		1	55μF/440V AC
19	G	E17 012 340	COMPRESSOR CONTACTOR	52C		1	
20	G	E12 817 009	HANDLE		1	1	
㉑	G	E12 746 937	CAPILLARY TUBE		1		ϕ3.0×ϕ1.6×650
	G	E12 825 936	CAPILLARY TUBE			1	ϕ3.0×ϕ2.0×1000
	G	E12 820 936	CAPILLARY TUBE		1		ϕ2.5×ϕ0.6×1000
㉒	G	E12 466 340	COMPRESSOR CONTACTOR	52C	1		
㉓	G	E12 466 340	RELAY	X1		1	

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