

OUTDOOR UNIT

SERVICE MANUAL



No. OB464

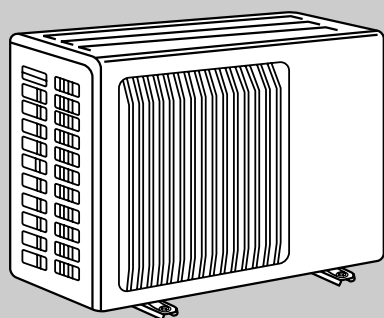
Wireless type Models

MU-GA50VB - A1

MU-GA60VB - A1

MU-GA80VB - A1

Indoor unit service manual
MS-GA-VB (OB463)



MU-GA50VB

CONTENTS

1. TECHNICAL CHANGES	2
2. PART NAMES AND FUNCTIONS	3
3. SPECIFICATION	3
4. NOISE CRITERIA CURVES	5
5. OUTLINES AND DIMENSIONS	6
6. WIRING DIAGRAM	7
7. REFRIGERANT SYSTEM DIAGRAM	9
8. PERFORMANCE CURVES	12
9. TROUBLESHOOTING	20
10. DISASSEMBLY INSTRUCTIONS	28
11. PARTS LIST	32
12. RoHS PARTS LIST	34

NOTE:

- This service manual describes technical data of 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.

MU-A18WV -^[A1]→MU-GA50VB -^[A1]

1. Model name has been changed.
Indication of capacity has been changed. (BTU→ kW)
2. Valve cover has been added.
3. Fan motor has been changed. (RA6V50-OG→ RA6V60-MA)

MU-A24WV -^[A1]→MU-GA60VB -^[A1]

1. Model name has been changed.
Indication of capacity has been changed. (BTU→ kW)
2. Compressor has been changed. (NN29VBAHT→NN25VBAHT)
3. Capillary tubes have been changed to LEV.
4. Fan speed regulator has been changed. (1 speed → 2 speed)
5. Outdoor fan motor has been changed. (RA6V60-MA → RA6V75-AD)
6. Ambient temperature thermistor has been added.
7. Outdoor unit size has been changed. (W 850 mm x H 605 mm x D 290 mm → W 840 mm x H 850 mm x D 330 mm)

MU-A30WV -^[A1]→MU-GA80VB -^[A1]

1. Model name has been changed.
Indication of capacity has been changed. (BTU→ kW)
2. Compressor has been changed. (NN37VAAHT→ NN33VACHT)

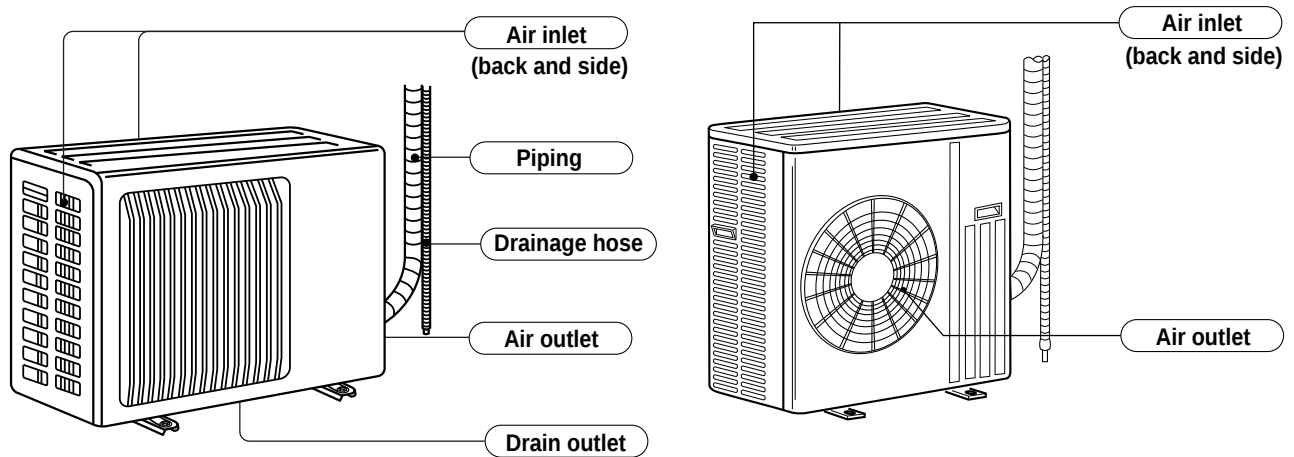
2

PART NAMES AND FUNCTIONS

OUTDOOR UNIT

MU-GA50VB

MU-GA60VB
MU-GA80VB



3

SPECIFICATION

Outdoor model			MU-GA50VB	MU-GA60VB
Function			Cooling	Cooling
Power supply			Single phase 230V, 50Hz	Single phase 230V, 50Hz
Capacity	Capacity	kW	5.1	6.5
	Dehumidification	L/h	1.4	2.3
	Air flow(High/ Low)	m³ /h	2,322/ –	2,940/1,470
Electrical data	Power outlet	A	15	25
	Running current	A	7.69	10.09
	Power input	W	1,681	2,251
	Power factor	%	95	97
	Starting current	A	37	45 or less
	Compressor motor current	A	7.14	9.52
	Fan motor current	A	0.55	0.57
	Maximum current	A	11.5	15.0
	Coefficient of performance(C.O.P)		2.91	2.80
Compressor	Model		RN196VHSHT	NN25VBAHT
	Output	W	1,300	1,600
	Winding resistance(at 20°C)	Ω	C-R 1.80 C-S 3.00	C-R 0.89 C-S 2.03
Fan motor	Model		RA6V60-MA	RA6V75-AD
	Winding resistance(at 20°C)	Ω	WHT-BLK 71 BLK-RED 89	WHT-BLK 62.8 BLK-YLW 55.9 YLW-RED 26.0
	Dimensions W×H×D	mm	850×605×290	840×850×330
Special remarks	Weight	kg	45	73
	Sound level(High)	dB	52	55/53
	Fan speed(High)	rpm	873	805/435
	Fan speed regulator		1	2
	Refrigerant filling capacity(R410A)	kg	1.60	2.40
	Refrigeration oil (Model)	L	0.52(NEO22)	1.20(NEO22)

NOTE: Test conditions are based on AZ/NZS 3823.1.1.

Cooling : Indoor Dry-bulb temperature 27°C Wet-bulb temperature 19°C

Outdoor Dry-bulb temperature 35°C Wet-bulb temperature 24°C

Indoor-Outdoor piping length : 7.5m



Outdoor model			MU-GA80VB
Function			Cooling
Power supply			Single phase 230V, 50Hz
Capacity	Capacity	kW	7.8
	Dehumidification	L/h	3.5
	Air flow(High/Low)	m³ /h	2,940/1,470
Electrical data	Power outlet	A	25
	Running current	A	12.91
	Power input	W	2,881
	Power factor	%	97
	Starting current	A	45 or less
	Compressor motor current	A	12.34
	Fan motor current	A	0.57
	Maximum current	A	20.0
Coefficient of performance(C.O.P)			2.64
Compressor	Model		NN33VACHT
	Output	W	2,200
	Winding resistance(at 20°C)	Ω	C-R 0.68 C-S 1.80
Fan motor	Model		RA6V75-AD
	Winding resistance(at 20°C)	Ω	WHT-BLK 62.8 BLK-YLW 55.9 YLW-RED 26.0
Dimensions W×H×D		mm	840×850×330
Weight		kg	75
Special remarks	Sound level(High/Low)	dB	55/53
	Fan speed(High/Low)	rpm	805/435
	Fan speed regulator		2
	Refrigerant filling capacity(R410A)	kg	2.40
	Refrigeration oil (Model)	L	1.30(NEO 22)

NOTE: Test conditions are based on AZ/NZS 3823.1.1.

Cooling : Indoor Dry-bulb temperature 27°C Wet-bulb temperature 19°C

Outdoor Dry-bulb temperature 35°C Wet-bulb temperature 24°C

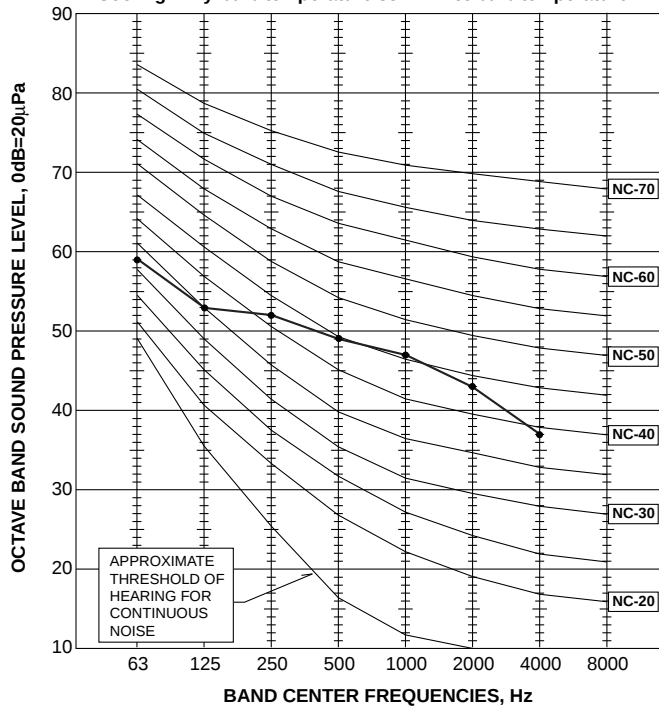
Indoor-Outdoor piping length : 7.5m

MU-GA50VB

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

Test conditions,

Cooling : Dry-bulb temperature 35°C Wet-bulb temperature 24°C

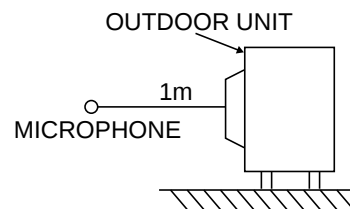
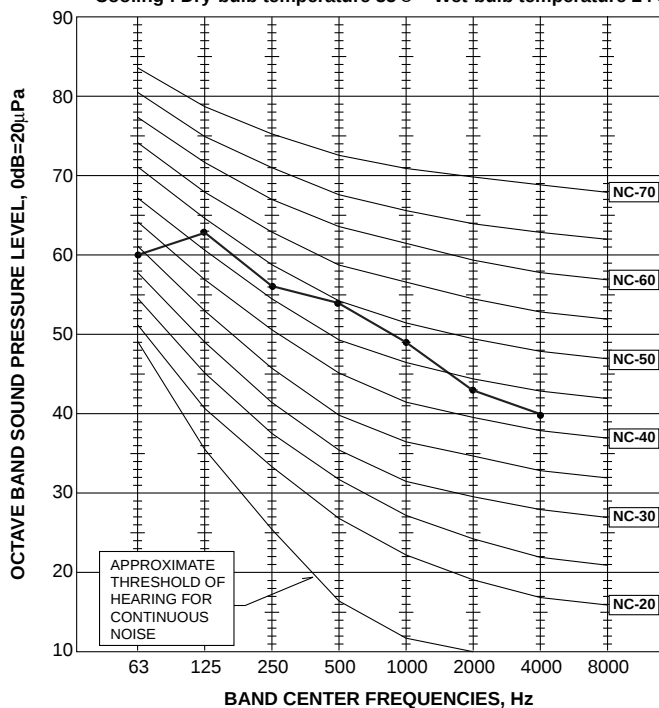


MU-GA60VB MU-GA80VB

FAN SPEED	SPL(dB(A))	LINE
High	55	● — ●

Test conditions,

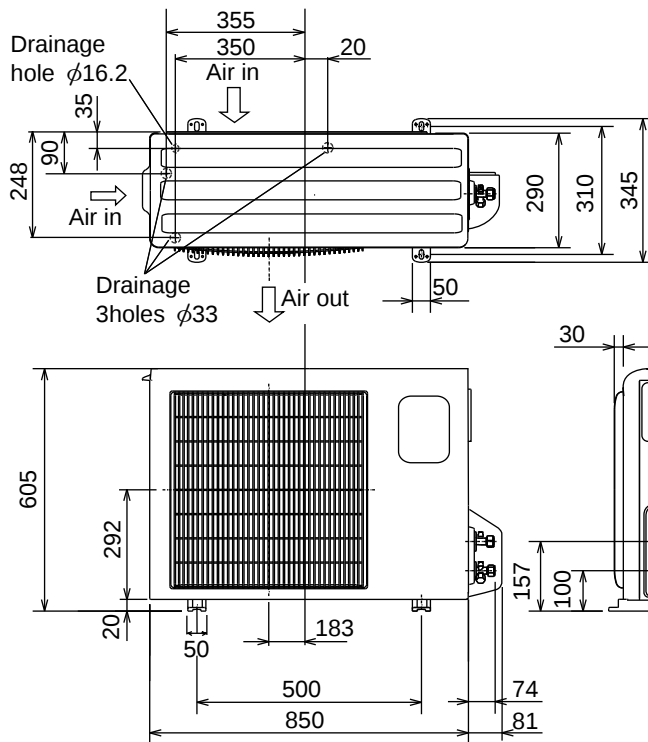
Cooling : Dry-bulb temperature 35°C Wet-bulb temperature 24°C



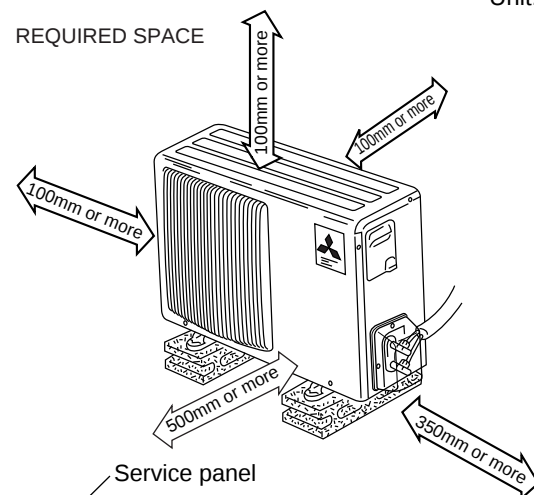
MU-GA50VB

Unit: mm

OUTDOOR UNIT

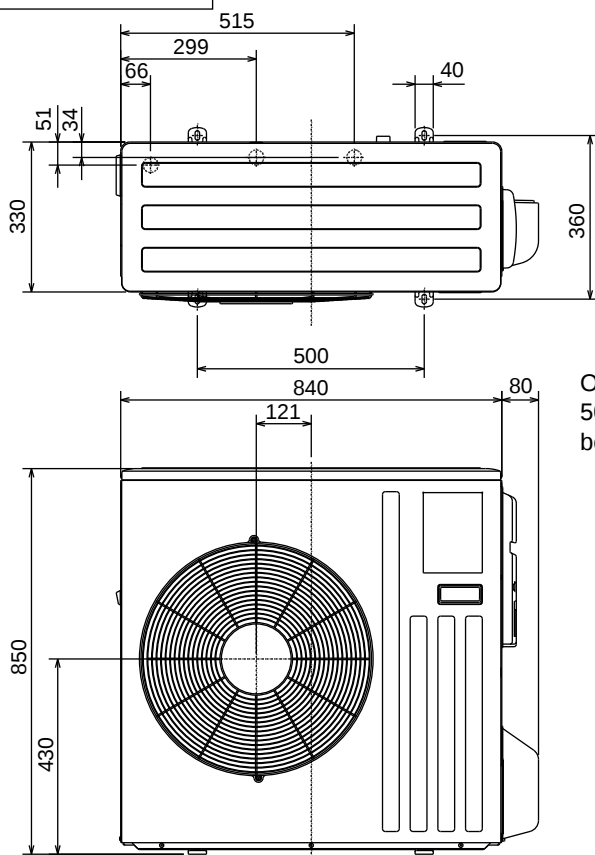


REQUIRED SPACE

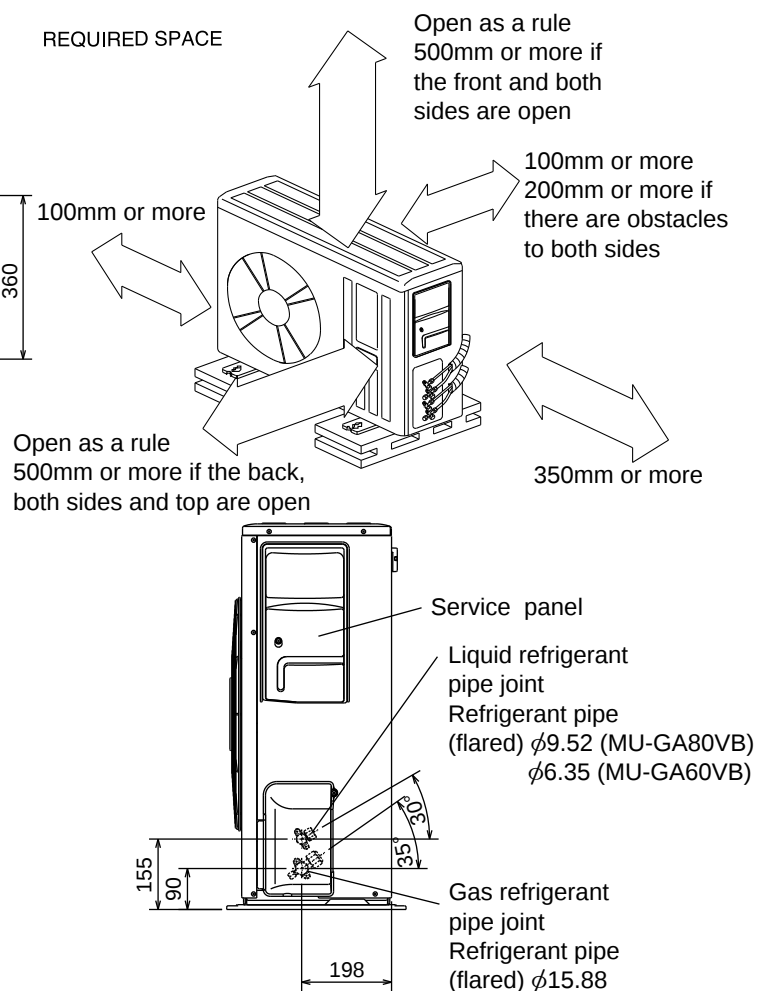


MU-GA60VB MU-GA80VB

OUTDOOR UNIT

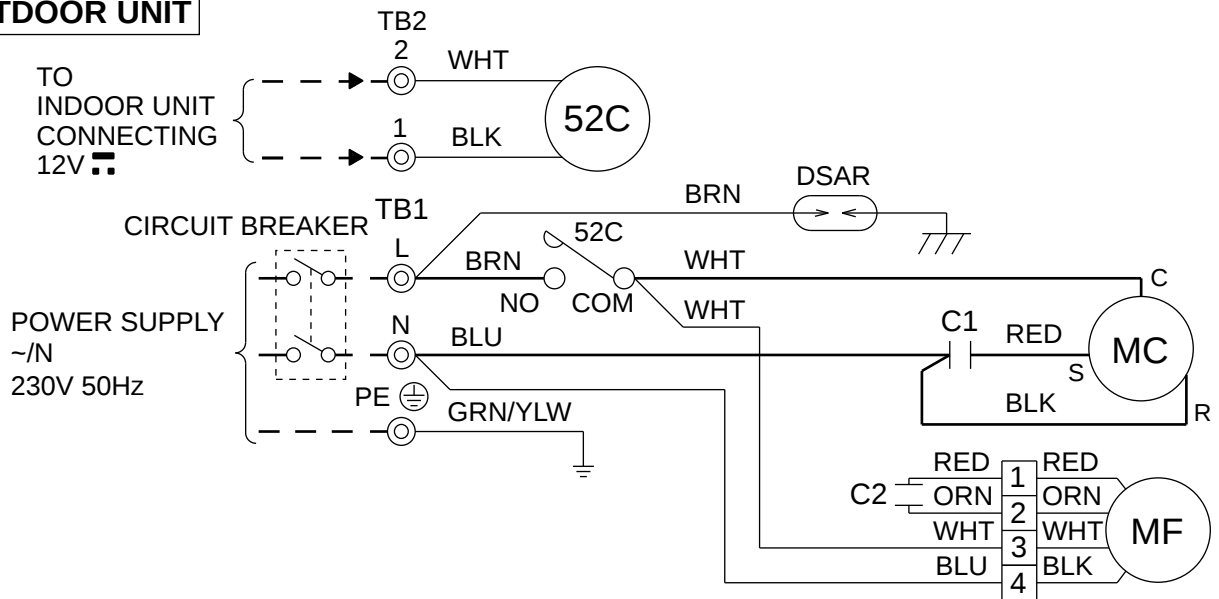


REQUIRED SPACE



MU-GA50VB

OUTDOOR UNIT



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		

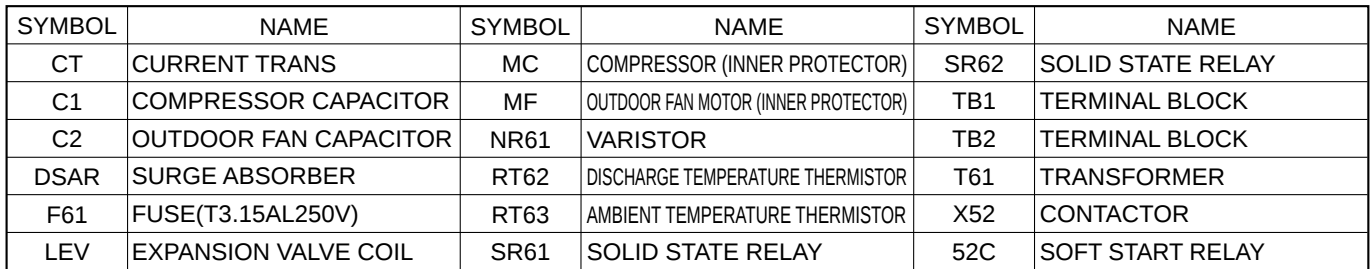
NOTES: 1.About the indoor side electric wiring refer to the indoor unit electric wiring diagram for servicing.

2.Use copper conductors only. (For field wiring)

3.Symbols below indicate.

⊙ : Terminal block □ : Connector

OUTDOOR UNIT

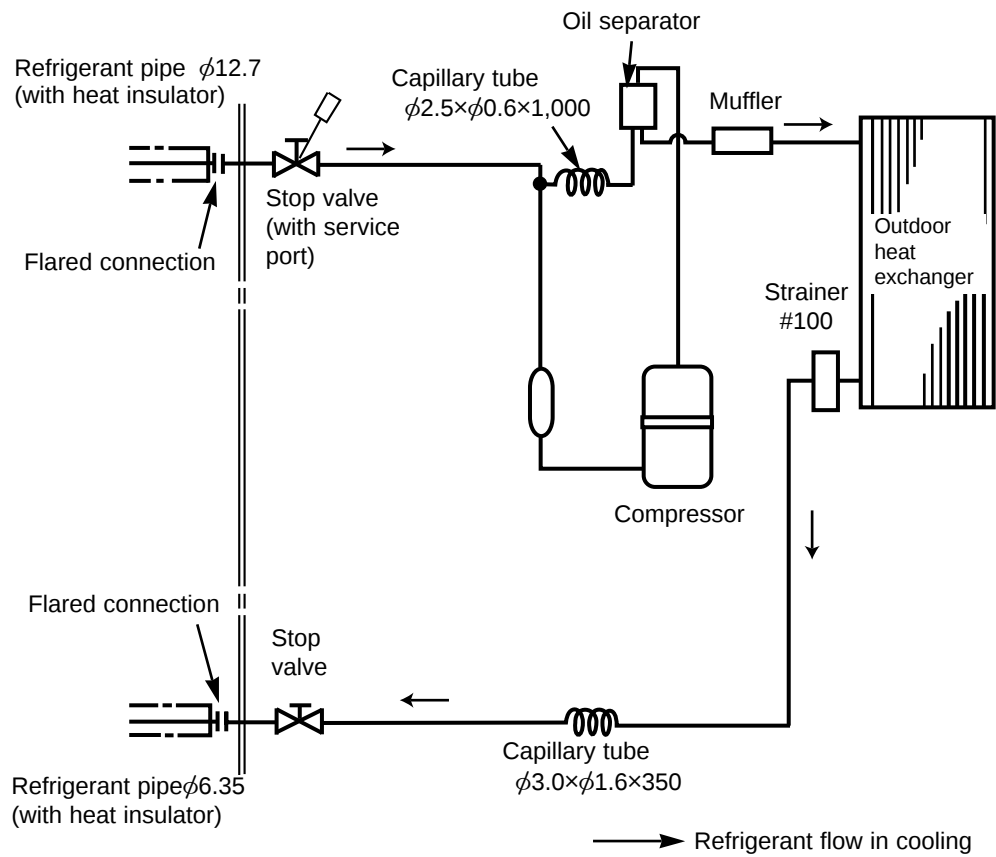


8

MU-GA50VB

Unit:mm

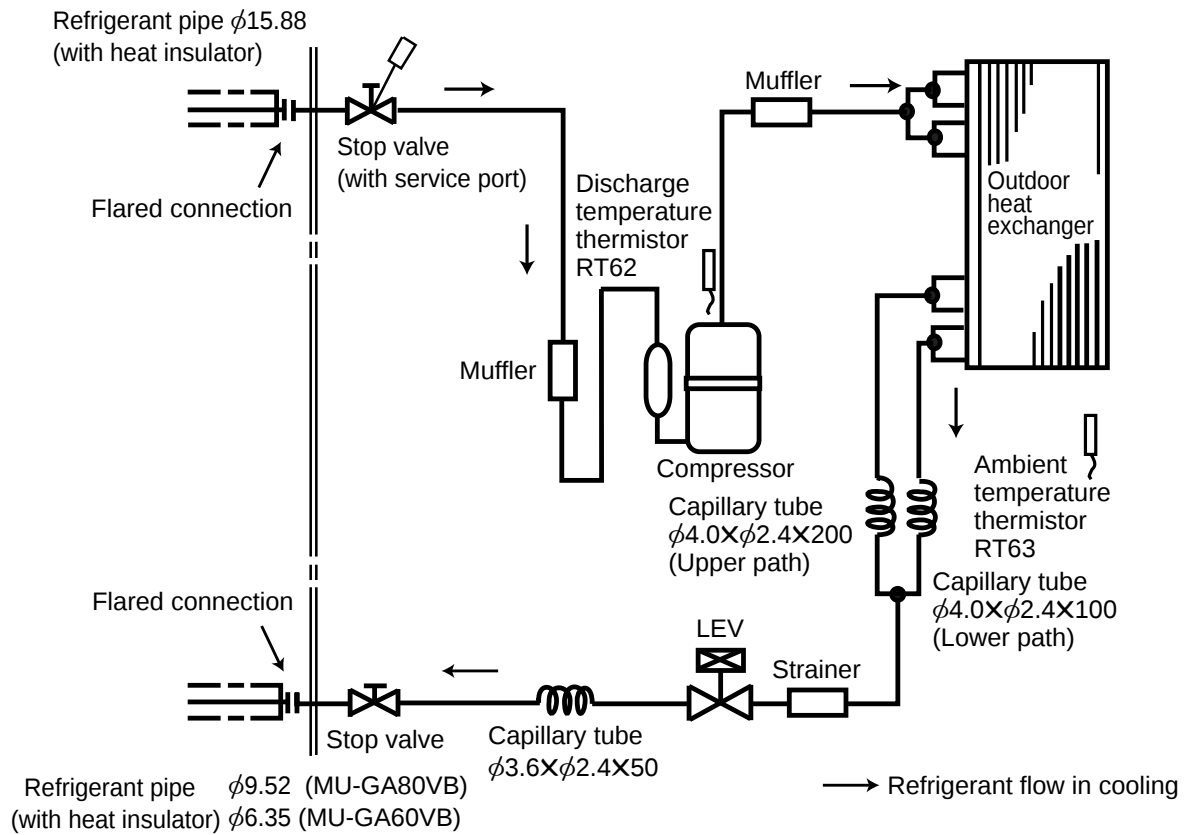
OUTDOOR UNIT



MU-GA60VB MU-GA80VB

Unit:mm

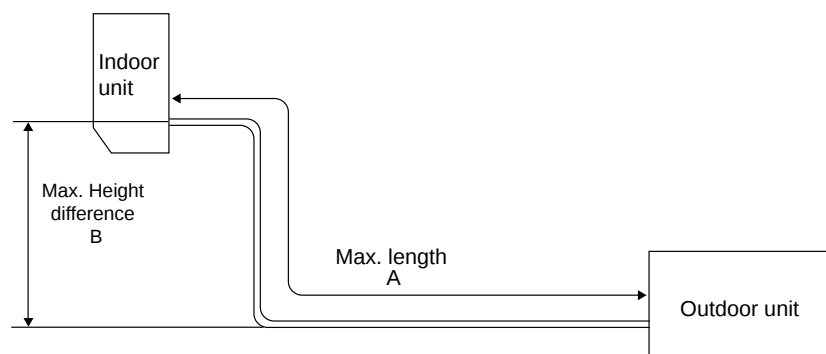
OUTDOOR UNIT



MAX. REFRIGERANT PIPING LENGTH

Model	Refrigerant piping : m		Piping size O.D : mm	
	Max. length A	Max. Height difference B	Gas	Liquid
MU-GA50VB	25	10	12.7	6.35
MU-GA60VB			15.88	
MU-GA80VB	30	15		

MAX. HEIGHT DIFFERENCE



ADDITIONAL REFRIGERANT CHARGE(R410A : g)

Model	Outdoor unit precharged	Refrigerant piping length (one way)				
		7m	10m	15m	20m	25m
MU-GA50VB	1,600	0	60	160	260	360

Calculation : $Xg=20g \times (\text{Refrigerant piping length (m)}-7)$

Model	Outdoor unit precharged	Refrigerant piping length (one way)				
		7m	10m	15m	20m	25m
MU-GA60VB	2,400	0	60	160	260	360

Calculation : $Xg=20g \times (\text{Refrigerant piping length (m)}-7)$

Model	Outdoor unit precharged	Refrigerant piping length (one way)					
		7m	10m	15m	20m	25m	30m
MU-GA80VB	2,400	0	165	440	715	990	1,265

Calculation : $Xg=55g \times (\text{Refrigerant piping length(m)}-7)$

MU-GA50VB MU-GA60VB MU-GA80VB

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

207 ~ 264V, 50Hz

(2) AIR FLOW

Air flow should be set at MAX.

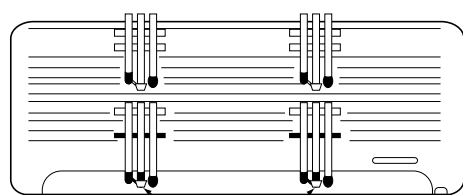
(3) MAIN READINGS

- | | | |
|---|--------|-----------|
| (1) Indoor intake air wet-bulb temperature : | °C[WB] | } Cooling |
| (2) Indoor outlet air wet-bulb temperature : | °C[WB] | |
| (3) Outdoor intake air dry-bulb temperature : | °C[DB] | |
| (4) Total input: | W | |

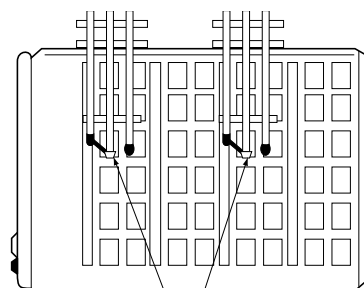
Indoor air wet/dry-bulb temperature difference on the left side of the chart on this page shows the difference between the indoor intake air wet/dry-bulb temperature and the indoor outlet air wet/dry-bulb temperature for your reference at service.

How to measure the indoor air wet-bulb/dry-bulb temperature difference

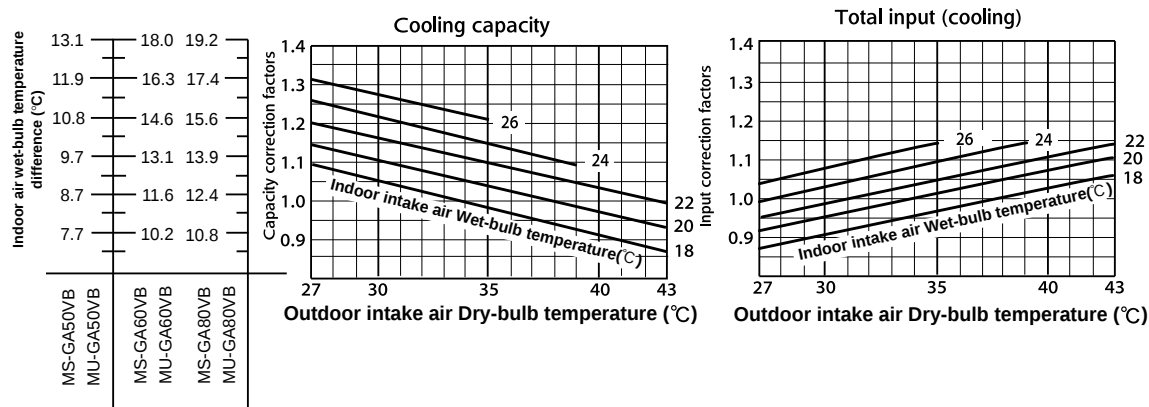
1. Attach at least 2 sets of wet-and dry-bulb thermometers to the indoor air intake as shown in the figure, and at least 2 sets of wet-and dry-bulb thermometers to the indoor air outlet. The thermometers must be attached to the position where air speed is high.
2. Attach at least 2 sets of wet-and dry-bulb thermometers to the outdoor air intake.
3. Cover the thermometers to prevent direct rays of the sun.
4. Check that the air filter is cleaned.
5. Open windows and doors of room.
6. Press the EMERGENCY OPERATION switch once to start the EMERGENCY COOL MODE.
7. When system stabilizes after more than 15 minutes, measure temperature and take an average temperature.
8. 10 minutes later, measure temperature again and check that the temperature does not change.

INDOOR UNIT

Wet-and dry-bulb
thermometers
FRONT VIEW

OUTDOOR UNIT

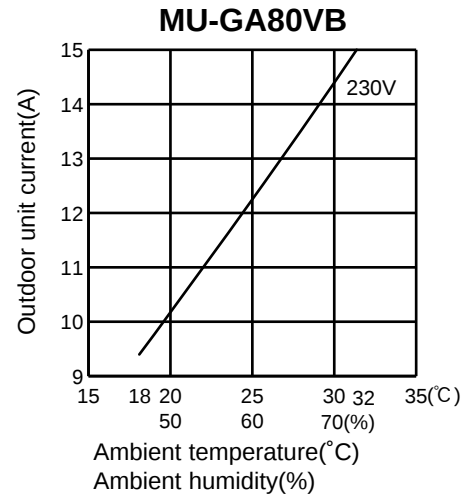
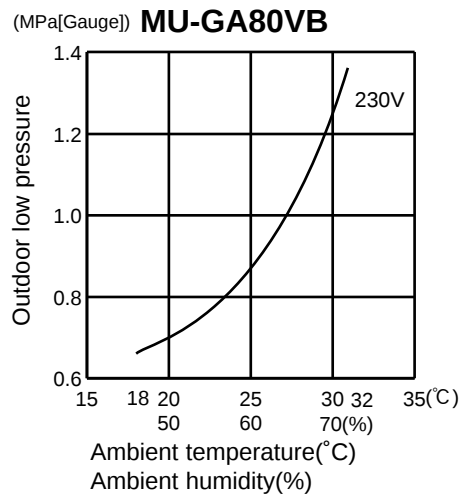
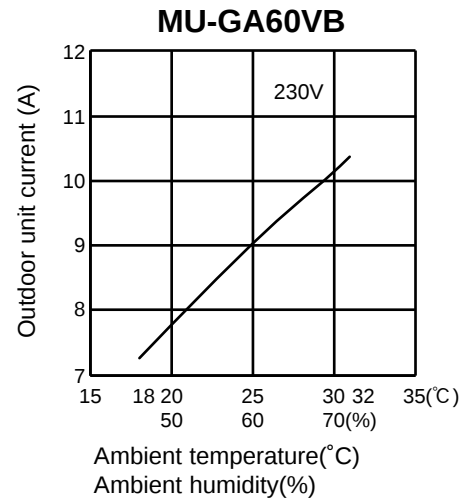
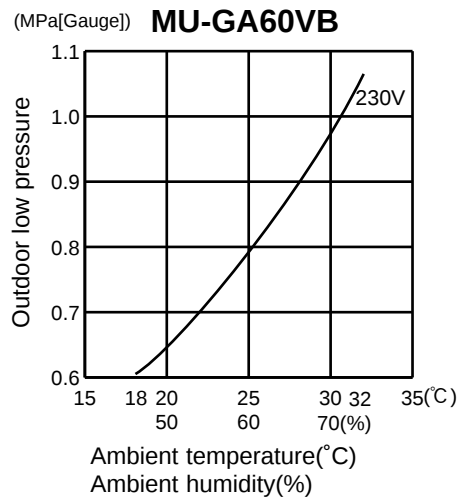
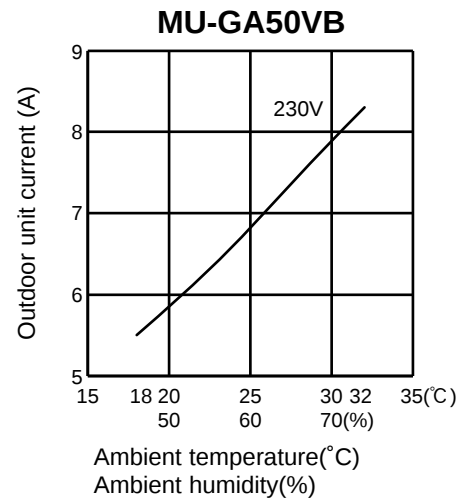
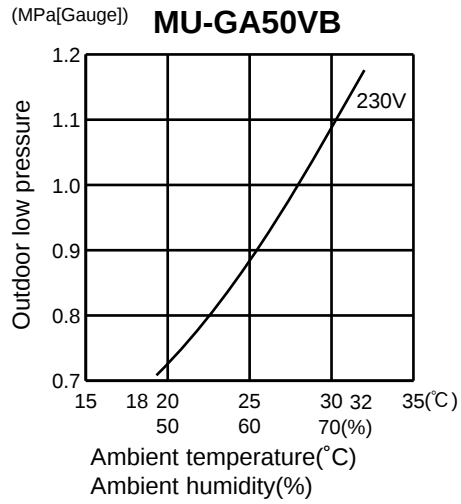
Wet-and dry-bulb
thermometers
BACK VIEW

**OUTDOOR LOW PRESSURE AND OUTDOOR UNIT CURRENT COOL operation**

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

Dry-bulb temperature	Relative humidity(%)
20	50
25	60
30	70

② Air flow should be set at MAX.



PERFORMANCE DATA COOL operation

MS-GA50VB : MU-GA50VB (230V)

CAPACITY : 5.1(kW) SHF : 0.81 INPUT : 1750(W)

		OUTDOOR DB(°C)															
INDOOR DB(°C)	INDOOR WB(°C)	21				25				27				30			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	5.99	3.78	0.63	1400	5.74	3.61	0.63	1470	5.51	3.47	0.63	1540	5.30	3.34	0.63	1610
21	20	6.25	3.19	0.51	1470	5.99	3.06	0.51	1558	5.81	2.97	0.51	1593	5.61	2.86	0.51	1663
22	18	5.99	4.01	0.67	1400	5.74	3.84	0.67	1470	5.51	3.69	0.67	1540	5.30	3.55	0.67	1610
22	20	6.25	3.44	0.55	1470	5.99	3.30	0.55	1558	5.81	3.20	0.55	1593	5.61	3.09	0.55	1663
22	22	6.50	2.80	0.43	1523	6.27	2.70	0.43	1619	6.12	2.63	0.43	1663	5.87	2.52	0.43	1733
23	18	5.99	4.25	0.71	1400	5.74	4.07	0.71	1470	5.51	3.91	0.71	1540	5.30	3.77	0.71	1610
23	20	6.25	3.69	0.59	1470	5.99	3.54	0.59	1558	5.81	3.43	0.59	1593	5.61	3.31	0.59	1663
23	22	6.50	3.06	0.47	1523	6.27	2.95	0.47	1619	6.12	2.88	0.47	1663	5.87	2.76	0.47	1733
24	18	5.99	4.49	0.75	1400	5.74	4.30	0.75	1470	5.51	4.13	0.75	1540	5.30	3.98	0.75	1610
24	20	6.25	3.94	0.63	1470	5.99	3.78	0.63	1558	5.81	3.66	0.63	1593	5.61	3.53	0.63	1663
24	22	6.50	3.32	0.51	1523	6.27	3.20	0.51	1619	6.12	3.12	0.51	1663	5.87	2.99	0.51	1733
24	24	6.83	2.67	0.39	1593	6.58	2.57	0.39	1680	6.43	2.51	0.39	1733	6.22	2.43	0.39	1820
25	18	5.99	4.73	0.79	1400	5.74	4.53	0.79	1470	5.51	4.35	0.79	1540	5.30	4.19	0.79	1610
25	20	6.25	4.19	0.67	1470	5.99	4.01	0.67	1558	5.81	3.90	0.67	1593	5.61	3.76	0.67	1663
25	22	6.50	3.58	0.55	1523	6.27	3.45	0.55	1619	6.12	3.37	0.55	1663	5.87	3.23	0.55	1733
25	24	6.83	2.94	0.43	1593	6.58	2.83	0.43	1680	6.43	2.76	0.43	1733	6.22	2.68	0.43	1820
26	18	5.99	4.97	0.83	1400	5.74	4.76	0.83	1470	5.51	4.57	0.83	1540	5.30	4.40	0.83	1610
26	20	6.25	4.44	0.71	1470	5.99	4.25	0.71	1558	5.81	4.13	0.71	1593	5.61	3.98	0.71	1663
26	22	6.50	3.84	0.59	1523	6.27	3.70	0.59	1619	6.12	3.61	0.59	1663	5.87	3.46	0.59	1733
26	24	6.83	3.21	0.47	1593	6.58	3.09	0.47	1680	6.43	3.02	0.47	1733	6.22	2.92	0.47	1820
26	26	7.04	2.46	0.35	1680	6.83	2.39	0.35	1768	6.73	2.36	0.35	1820	6.53	2.28	0.35	1873
27	18	5.99	5.21	0.87	1400	5.74	4.99	0.87	1470	5.51	4.79	0.87	1540	5.30	4.61	0.87	1610
27	20	6.25	4.69	0.75	1470	5.99	4.49	0.75	1558	5.81	4.36	0.75	1593	5.61	4.21	0.75	1663
27	22	6.50	4.10	0.63	1523	6.27	3.95	0.63	1619	6.12	3.86	0.63	1663	5.87	3.69	0.63	1733
27	24	6.83	3.49	0.51	1593	6.58	3.36	0.51	1680	6.43	3.28	0.51	1733	6.22	3.17	0.51	1820
27	26	7.04	2.74	0.39	1680	6.83	2.67	0.39	1768	6.73	2.63	0.39	1820	6.53	2.55	0.39	1873
28	18	5.99	5.45	0.91	1400	5.74	5.22	0.91	1470	5.51	5.01	0.91	1540	5.30	4.83	0.91	1610
28	20	6.25	4.94	0.79	1470	5.99	4.73	0.79	1558	5.81	4.59	0.79	1593	5.61	4.43	0.79	1663
28	22	6.50	4.36	0.67	1523	6.27	4.20	0.67	1619	6.12	4.10	0.67	1663	5.87	3.93	0.67	1733
28	24	6.83	3.76	0.55	1593	6.58	3.62	0.55	1680	6.43	3.53	0.55	1733	6.22	3.42	0.55	1820
28	26	7.04	3.03	0.43	1680	6.83	2.94	0.43	1768	6.73	2.89	0.43	1820	6.53	2.81	0.43	1873
29	18	5.99	5.69	0.95	1400	5.74	5.45	0.95	1470	5.51	5.23	0.95	1540	5.30	5.04	0.95	1610
29	20	6.25	5.19	0.83	1470	5.99	4.97	0.83	1558	5.81	4.83	0.83	1593	5.61	4.66	0.83	1663
29	22	6.50	4.62	0.71	1523	6.27	4.45	0.71	1619	6.12	4.35	0.71	1663	5.87	4.16	0.71	1733
29	24	6.83	4.03	0.59	1593	6.58	3.88	0.59	1680	6.43	3.79	0.59	1733	6.22	3.67	0.59	1820
29	26	7.04	3.31	0.47	1680	6.83	3.21	0.47	1768	6.73	3.16	0.47	1820	6.53	3.07	0.47	1873
30	18	5.99	5.93	0.99	1400	5.74	5.68	0.99	1470	5.51	5.45	0.99	1540	5.30	5.25	0.99	1610
30	20	6.25	5.44	0.87	1470	5.99	5.21	0.87	1558	5.81	5.06	0.87	1593	5.61	4.88	0.87	1663
30	22	6.50	4.88	0.75	1523	6.27	4.70	0.75	1619	6.12	4.59	0.75	1663	5.87	4.40	0.75	1733
30	24	6.83	4.31	0.63	1593	6.58	4.14	0.63	1680	6.43	4.05	0.63	1733	6.22	3.92	0.63	1820
30	26	7.04	3.59	0.51	1680	6.83	3.49	0.51	1768	6.73	3.43	0.51	1820	6.53	3.33	0.51	1873
31	18	5.99	6.17	1.03	1400	5.74	5.91	1.03	1470	5.51	5.67	1.03	1540	5.30	5.46	1.03	1610
31	20	6.25	5.69	0.91	1470	5.99	5.45	0.91	1558	5.81	5.29	0.91	1593	5.61	5.11	0.91	1663
31	22	6.50	5.14	0.79	1523	6.27	4.96	0.79	1619	6.12	4.83	0.79	1663	5.87	4.63	0.79	1733
31	24	6.83	4.58	0.67	1593	6.58	4.41	0.67	1680	6.43	4.31	0.67	1733	6.22	4.17	0.67	1820
31	26	7.04	3.87	0.55	1680	6.83	3.76	0.55	1768	6.73	3.70	0.55	1820	6.53	3.59	0.55	1873
32	18	5.99	6.41	1.07	1400	5.74	6.14	1.07	1470	5.51	5.89	1.07	1540	5.30	5.68	1.07	1610
32	20	6.25	5.94	0.95	1470	5.99	5.69	0.95	1558	5.81	5.52	0.95	1593	5.61	5.33	0.95	1663
32	22	6.50	5.40	0.83	1523	6.27	5.21	0.83	1619	6.12	5.08	0.83	1663	5.87	4.87	0.83	1733
32	24	6.83	4.85	0.71	1593	6.58	4.67	0.71	1680	6.43	4.56	0.71	1733	6.22	4.42	0.71	1820
32	26	7.04	4.15	0.59	1680	6.83	4.03	0.59	1768	6.73	3.97	0.59	1820	6.53	3.85	0.59	1873

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

MS-GA50VB : MU-GA50VB (230V)

CAPACITY : 5.1(kW) SHF : 0.81 INPUT : 1750(W)

		OUTDOOR DB(°C)											
INDOOR DB(°C)	INDOOR WB(°C)	35				40				43			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	5.00	3.15	0.63	1715	4.59	2.89	0.63	1820	4.41	2.78	0.63	1855
21	20	5.25	2.68	0.51	1785	4.90	2.50	0.51	1873	4.72	2.41	0.51	1925
22	18	5.00	3.35	0.67	1715	4.59	3.08	0.67	1820	4.41	2.96	0.67	1855
22	20	5.25	2.89	0.55	1785	4.90	2.69	0.55	1873	4.72	2.59	0.55	1925
22	22	5.56	2.39	0.43	1855	5.20	2.24	0.43	1960	5.02	2.16	0.43	1995
23	18	5.00	3.55	0.71	1715	4.59	3.26	0.71	1820	4.41	3.13	0.71	1855
23	20	5.25	3.10	0.59	1785	4.90	2.89	0.59	1873	4.72	2.78	0.59	1925
23	22	5.56	2.61	0.47	1855	5.20	2.44	0.47	1960	5.02	2.36	0.47	1995
24	18	5.00	3.75	0.75	1715	4.59	3.44	0.75	1820	4.41	3.31	0.75	1855
24	20	5.25	3.31	0.63	1785	4.90	3.08	0.63	1873	4.72	2.97	0.63	1925
24	22	5.56	2.84	0.51	1855	5.20	2.65	0.51	1960	5.02	2.56	0.51	1995
24	24	5.87	2.29	0.39	1925	5.51	2.15	0.39	2013	5.36	2.09	0.39	2056
25	18	5.00	3.95	0.79	1715	4.59	3.63	0.79	1820	4.41	3.49	0.79	1855
25	20	5.25	3.52	0.67	1785	4.90	3.28	0.67	1873	4.72	3.16	0.67	1925
25	22	5.56	3.06	0.55	1855	5.20	2.86	0.55	1960	5.02	2.76	0.55	1995
25	24	5.87	2.52	0.43	1925	5.51	2.37	0.43	2013	5.36	2.30	0.43	2056
26	18	5.00	4.15	0.83	1715	4.59	3.81	0.83	1820	4.41	3.66	0.83	1855
26	20	5.25	3.73	0.71	1785	4.90	3.48	0.71	1873	4.72	3.35	0.71	1925
26	22	5.56	3.28	0.59	1855	5.20	3.07	0.59	1960	5.02	2.96	0.59	1995
26	24	5.87	2.76	0.47	1925	5.51	2.59	0.47	2013	5.36	2.52	0.47	2056
26	26	6.17	2.16	0.35	1995	5.81	2.03	0.35	2083	5.64	1.97	0.35	2126
27	18	5.00	4.35	0.87	1715	4.59	3.99	0.87	1820	4.41	3.84	0.87	1855
27	20	5.25	3.94	0.75	1785	4.90	3.67	0.75	1873	4.72	3.54	0.75	1925
27	22	5.56	3.50	0.63	1855	5.20	3.28	0.63	1960	5.02	3.16	0.63	1995
27	24	5.87	2.99	0.51	1925	5.51	2.81	0.51	2013	5.36	2.73	0.51	2056
27	26	6.17	2.41	0.39	1995	5.81	2.27	0.39	2083	5.64	2.20	0.39	2126
28	18	5.00	4.55	0.91	1715	4.59	4.18	0.91	1820	4.41	4.01	0.91	1855
28	20	5.25	4.15	0.79	1785	4.90	3.87	0.79	1873	4.72	3.73	0.79	1925
28	22	5.56	3.72	0.67	1855	5.20	3.49	0.67	1960	5.02	3.37	0.67	1995
28	24	5.87	3.23	0.55	1925	5.51	3.03	0.55	2013	5.36	2.95	0.55	2056
28	26	6.17	2.65	0.43	1995	5.81	2.50	0.43	2083	5.64	2.42	0.43	2126
29	18	5.00	4.75	0.95	1715	4.59	4.36	0.95	1820	4.41	4.19	0.95	1855
29	20	5.25	4.36	0.83	1785	4.90	4.06	0.83	1873	4.72	3.92	0.83	1925
29	22	5.56	3.95	0.71	1855	5.20	3.69	0.71	1960	5.02	3.57	0.71	1995
29	24	5.87	3.46	0.59	1925	5.51	3.25	0.59	2013	5.36	3.16	0.59	2056
29	26	6.17	2.90	0.47	1995	5.81	2.73	0.47	2083	5.64	2.65	0.47	2126
30	18	5.00	4.95	0.99	1715	4.59	4.54	0.99	1820	4.41	4.37	0.99	1855
30	20	5.25	4.57	0.87	1785	4.90	4.26	0.87	1873	4.72	4.10	0.87	1925
30	22	5.56	4.17	0.75	1855	5.20	3.90	0.75	1960	5.02	3.77	0.75	1995
30	24	5.87	3.69	0.63	1925	5.51	3.47	0.63	2013	5.36	3.37	0.63	2056
30	26	6.17	3.15	0.51	1995	5.81	2.97	0.51	2083	5.64	2.87	0.51	2126
31	18	5.00	5.15	1.03	1715	4.59	4.73	1.03	1820	4.41	4.54	1.03	1855
31	20	5.25	4.78	0.91	1785	4.90	4.46	0.91	1873	4.72	4.29	0.91	1925
31	22	5.56	4.39	0.79	1855	5.20	4.11	0.79	1960	5.02	3.97	0.79	1995
31	24	5.87	3.93	0.67	1925	5.51	3.69	0.67	2013	5.36	3.59	0.67	2056
31	26	6.17	3.39	0.55	1995	5.81	3.20	0.55	2083	5.64	3.10	0.55	2126
32	18	5.00	5.35	1.07	1715	4.59	4.91	1.07	1820	4.41	4.72	1.07	1855
32	20	5.25	4.99	0.95	1785	4.90	4.65	0.95	1873	4.72	4.48	0.95	1925
32	22	5.56	4.61	0.83	1855	5.20	4.32	0.83	1960	5.02	4.17	0.83	1995
32	24	5.87	4.16	0.71	1925	5.51	3.91	0.71	2013	5.36	3.80	0.71	2056
32	26	6.17	3.64	0.59	1995	5.81	3.43	0.59	2083	5.64	3.32	0.59	2126

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

MS-GA60VB : MU-GA60VB (230V)

CAPACITY : 6.5(kW) SHF : 0.76 INPUT : 2320(W)

		OUTDOOR DB(°C)											
INDOOR DB(°C)	INDOOR WB(°C)	35				40				43			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	6.37	3.69	0.58	2274	5.85	3.39	0.58	2413	5.62	3.26	0.58	2459
21	20	6.70	3.08	0.46	2366	6.24	2.87	0.46	2482	6.01	2.77	0.46	2552
22	18	6.37	3.95	0.62	2274	5.85	3.63	0.62	2413	5.62	3.49	0.62	2459
22	20	6.70	3.35	0.50	2366	6.24	3.12	0.50	2482	6.01	3.01	0.50	2552
22	22	7.09	2.69	0.38	2459	6.63	2.52	0.38	2598	6.40	2.43	0.38	2645
23	18	6.37	4.20	0.66	2274	5.85	3.86	0.66	2413	5.62	3.71	0.66	2459
23	20	6.70	3.62	0.54	2366	6.24	3.37	0.54	2482	6.01	3.25	0.54	2552
23	22	7.09	2.98	0.42	2459	6.63	2.78	0.42	2598	6.40	2.69	0.42	2645
24	18	6.37	4.46	0.70	2274	5.85	4.10	0.70	2413	5.62	3.94	0.70	2459
24	20	6.70	3.88	0.58	2366	6.24	3.62	0.58	2482	6.01	3.49	0.58	2552
24	22	7.09	3.26	0.46	2459	6.63	3.05	0.46	2598	6.40	2.95	0.46	2645
24	24	7.48	2.54	0.34	2552	7.02	2.39	0.34	2668	6.83	2.32	0.34	2726
25	18	6.37	4.71	0.74	2274	5.85	4.33	0.74	2413	5.62	4.16	0.74	2459
25	20	6.70	4.15	0.62	2366	6.24	3.87	0.62	2482	6.01	3.73	0.62	2552
25	22	7.09	3.54	0.50	2459	6.63	3.32	0.50	2598	6.40	3.20	0.50	2645
25	24	7.48	2.84	0.38	2552	7.02	2.67	0.38	2668	6.83	2.59	0.38	2726
26	18	6.37	4.97	0.78	2274	5.85	4.56	0.78	2413	5.62	4.39	0.78	2459
26	20	6.70	4.42	0.66	2366	6.24	4.12	0.66	2482	6.01	3.97	0.66	2552
26	22	7.09	3.83	0.54	2459	6.63	3.58	0.54	2598	6.40	3.46	0.54	2645
26	24	7.48	3.14	0.42	2552	7.02	2.95	0.42	2668	6.83	2.87	0.42	2726
26	26	7.87	2.36	0.30	2645	7.41	2.22	0.30	2761	7.18	2.15	0.30	2819
27	18	6.37	5.22	0.82	2274	5.85	4.80	0.82	2413	5.62	4.61	0.82	2459
27	20	6.70	4.69	0.70	2366	6.24	4.37	0.70	2482	6.01	4.21	0.70	2552
27	22	7.09	4.11	0.58	2459	6.63	3.85	0.58	2598	6.40	3.71	0.58	2645
27	24	7.48	3.44	0.46	2552	7.02	3.23	0.46	2668	6.83	3.14	0.46	2726
27	26	7.87	2.67	0.34	2645	7.41	2.52	0.34	2761	7.18	2.44	0.34	2819
28	18	6.37	5.48	0.86	2274	5.85	5.03	0.86	2413	5.62	4.84	0.86	2459
28	20	6.70	4.95	0.74	2366	6.24	4.62	0.74	2482	6.01	4.45	0.74	2552
28	22	7.09	4.39	0.62	2459	6.63	4.11	0.62	2598	6.40	3.97	0.62	2645
28	24	7.48	3.74	0.50	2552	7.02	3.51	0.50	2668	6.83	3.41	0.50	2726
28	26	7.87	2.99	0.38	2645	7.41	2.82	0.38	2761	7.18	2.73	0.38	2819
29	18	6.37	5.73	0.90	2274	5.85	5.27	0.90	2413	5.62	5.06	0.90	2459
29	20	6.70	5.22	0.78	2366	6.24	4.87	0.78	2482	6.01	4.69	0.78	2552
29	22	7.09	4.68	0.66	2459	6.63	4.38	0.66	2598	6.40	4.23	0.66	2645
29	24	7.48	4.04	0.54	2552	7.02	3.79	0.54	2668	6.83	3.69	0.54	2726
29	26	7.87	3.30	0.42	2645	7.41	3.11	0.42	2761	7.18	3.02	0.42	2819
30	18	6.37	5.99	0.94	2274	5.85	5.50	0.94	2413	5.62	5.29	0.94	2459
30	20	6.70	5.49	0.82	2366	6.24	5.12	0.82	2482	6.01	4.93	0.82	2552
30	22	7.09	4.96	0.70	2459	6.63	4.64	0.70	2598	6.40	4.48	0.70	2645
30	24	7.48	4.34	0.58	2552	7.02	4.07	0.58	2668	6.83	3.96	0.58	2726
30	26	7.87	3.62	0.46	2645	7.41	3.41	0.46	2761	7.18	3.30	0.46	2819
31	18	6.37	6.24	0.98	2274	5.85	5.73	0.98	2413	5.62	5.51	0.98	2459
31	20	6.70	5.76	0.86	2366	6.24	5.37	0.86	2482	6.01	5.17	0.86	2552
31	22	7.09	5.24	0.74	2459	6.63	4.91	0.74	2598	6.40	4.74	0.74	2645
31	24	7.48	4.63	0.62	2552	7.02	4.35	0.62	2668	6.83	4.23	0.62	2726
31	26	7.87	3.93	0.50	2645	7.41	3.71	0.50	2761	7.18	3.59	0.50	2819
32	18	6.37	6.50	1.02	2274	5.85	5.97	1.02	2413	5.62	5.73	1.02	2459
32	20	6.70	6.03	0.90	2366	6.24	5.62	0.90	2482	6.01	5.41	0.90	2552
32	22	7.09	5.53	0.78	2459	6.63	5.17	0.78	2598	6.40	4.99	0.78	2645
32	24	7.48	4.93	0.66	2552	7.02	4.63	0.66	2668	6.83	4.50	0.66	2726
32	26	7.87	4.25	0.54	2645	7.41	4.00	0.54	2761	7.18	3.88	0.54	2819

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

MS-GA80VB : MU-GA80VB (230V)

CAPACITY : 7.8(kW) SHF : 0.69 INPUT : 2950(W)

		OUTDOOR DB(°C)											
INDOOR DB(°C)	INDOOR WB(°C)	35				40				43			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	7.64	3.90	0.51	2891	7.02	3.58	0.51	3068	6.75	3.44	0.51	3127
21	20	8.03	3.13	0.39	3009	7.49	2.92	0.39	3157	7.22	2.81	0.39	3245
22	18	7.64	4.20	0.55	2891	7.02	3.86	0.55	3068	6.75	3.71	0.55	3127
22	20	8.03	3.45	0.43	3009	7.49	3.22	0.43	3157	7.22	3.10	0.43	3245
22	22	8.50	2.64	0.31	3127	7.96	2.47	0.31	3304	7.68	2.38	0.31	3363
23	18	7.64	4.51	0.59	2891	7.02	4.14	0.59	3068	6.75	3.98	0.59	3127
23	20	8.03	3.78	0.47	3009	7.49	3.52	0.47	3157	7.22	3.39	0.47	3245
23	22	8.50	2.98	0.35	3127	7.96	2.78	0.35	3304	7.68	2.69	0.35	3363
24	18	7.64	4.82	0.63	2891	7.02	4.42	0.63	3068	6.75	4.25	0.63	3127
24	20	8.03	4.10	0.51	3009	7.49	3.82	0.51	3157	7.22	3.68	0.51	3245
24	22	8.50	3.32	0.39	3127	7.96	3.10	0.39	3304	7.68	3.00	0.39	3363
24	24	8.97	2.42	0.27	3245	8.42	2.27	0.27	3393	8.19	2.21	0.27	3466
25	18	7.64	5.12	0.67	2891	7.02	4.70	0.67	3068	6.75	4.52	0.67	3127
25	20	8.03	4.42	0.55	3009	7.49	4.12	0.55	3157	7.22	3.97	0.55	3245
25	22	8.50	3.66	0.43	3127	7.96	3.42	0.43	3304	7.68	3.30	0.43	3363
25	24	8.97	2.78	0.31	3245	8.42	2.61	0.31	3393	8.19	2.54	0.31	3466
26	18	7.64	5.43	0.71	2891	7.02	4.98	0.71	3068	6.75	4.79	0.71	3127
26	20	8.03	4.74	0.59	3009	7.49	4.42	0.59	3157	7.22	4.26	0.59	3245
26	22	8.50	4.00	0.47	3127	7.96	3.74	0.47	3304	7.68	3.61	0.47	3363
26	24	8.97	3.14	0.35	3245	8.42	2.95	0.35	3393	8.19	2.87	0.35	3466
26	26	9.44	2.17	0.23	3363	8.89	2.05	0.23	3511	8.62	1.98	0.23	3584
27	18	7.64	5.73	0.75	2891	7.02	5.27	0.75	3068	6.75	5.06	0.75	3127
27	20	8.03	5.06	0.63	3009	7.49	4.72	0.63	3157	7.22	4.55	0.63	3245
27	22	8.50	4.34	0.51	3127	7.96	4.06	0.51	3304	7.68	3.92	0.51	3363
27	24	8.97	3.50	0.39	3245	8.42	3.29	0.39	3393	8.19	3.19	0.39	3466
27	26	9.44	2.55	0.27	3363	8.89	2.40	0.27	3511	8.62	2.33	0.27	3584
28	18	7.64	6.04	0.79	2891	7.02	5.55	0.79	3068	6.75	5.33	0.79	3127
28	20	8.03	5.38	0.67	3009	7.49	5.02	0.67	3157	7.22	4.83	0.67	3245
28	22	8.50	4.68	0.55	3127	7.96	4.38	0.55	3304	7.68	4.23	0.55	3363
28	24	8.97	3.86	0.43	3245	8.42	3.62	0.43	3393	8.19	3.52	0.43	3466
28	26	9.44	2.93	0.31	3363	8.89	2.76	0.31	3511	8.62	2.67	0.31	3584
29	18	7.64	6.34	0.83	2891	7.02	5.83	0.83	3068	6.75	5.60	0.83	3127
29	20	8.03	5.70	0.71	3009	7.49	5.32	0.71	3157	7.22	5.12	0.71	3245
29	22	8.50	5.02	0.59	3127	7.96	4.69	0.59	3304	7.68	4.53	0.59	3363
29	24	8.97	4.22	0.47	3245	8.42	3.96	0.47	3393	8.19	3.85	0.47	3466
29	26	9.44	3.30	0.35	3363	8.89	3.11	0.35	3511	8.62	3.02	0.35	3584
30	18	7.64	6.65	0.87	2891	7.02	6.11	0.87	3068	6.75	5.87	0.87	3127
30	20	8.03	6.03	0.75	3009	7.49	5.62	0.75	3157	7.22	5.41	0.75	3245
30	22	8.50	5.36	0.63	3127	7.96	5.01	0.63	3304	7.68	4.84	0.63	3363
30	24	8.97	4.57	0.51	3245	8.42	4.30	0.51	3393	8.19	4.18	0.51	3466
30	26	9.44	3.68	0.39	3363	8.89	3.47	0.39	3511	8.62	3.36	0.39	3584
31	18	7.64	6.96	0.91	2891	7.02	6.39	0.91	3068	6.75	6.14	0.91	3127
31	20	8.03	6.35	0.79	3009	7.49	5.92	0.79	3157	7.22	5.70	0.79	3245
31	22	8.50	5.70	0.67	3127	7.96	5.33	0.67	3304	7.68	5.15	0.67	3363
31	24	8.97	4.93	0.55	3245	8.42	4.63	0.55	3393	8.19	4.50	0.55	3466
31	26	9.44	4.06	0.43	3363	8.89	3.82	0.43	3511	8.62	3.71	0.43	3584
32	18	7.64	7.26	0.95	2891	7.02	6.67	0.95	3068	6.75	6.41	0.95	3127
32	20	8.03	6.67	0.83	3009	7.49	6.22	0.83	3157	7.22	5.99	0.83	3245
32	22	8.50	6.04	0.71	3127	7.96	5.65	0.71	3304	7.68	5.45	0.71	3363
32	24	8.97	5.29	0.59	3245	8.42	4.97	0.59	3393	8.19	4.83	0.59	3466
32	26	9.44	4.44	0.47	3363	8.89	4.18	0.47	3511	8.62	4.05	0.47	3584

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

MU-GA50VB

MU-GA60VB

MU-GA80VB

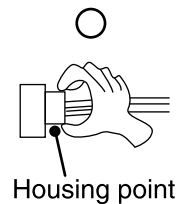
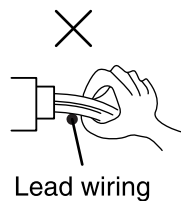
9-1. Cautions on troubleshooting

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.

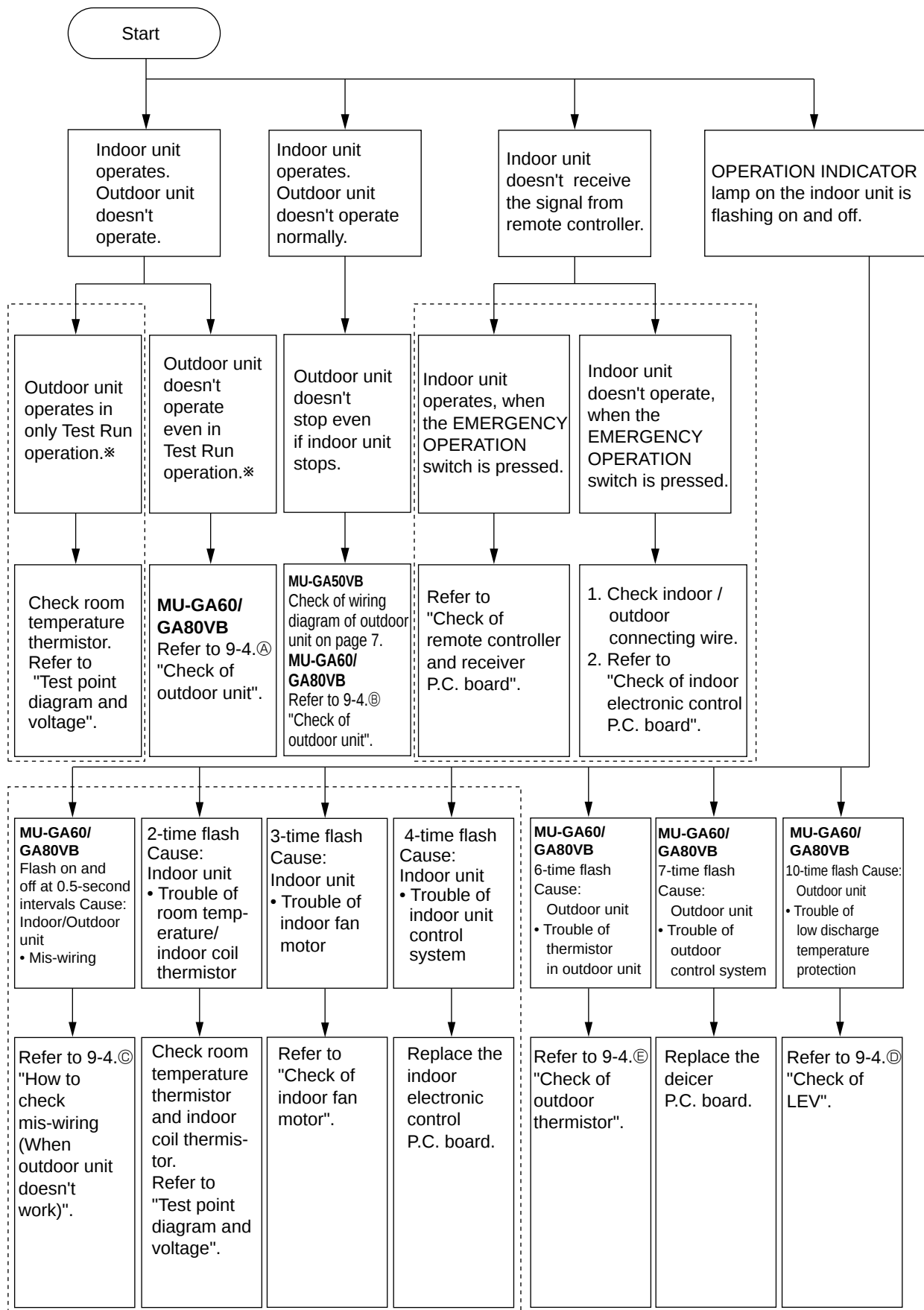
- (1) Before servicing the air conditioner, be sure to first turn off the remote controller to stop the main unit, and then after confirming the horizontal vane is closed, turn off the breaker and / or disconnect the power plug.
- (2) Be sure to turn OFF the power supply before removing the front panel, 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 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 9-2. and 9-3.

9-2. Instruction of troubleshooting



Refer to indoor unit service manual.

*"Test Run operation" means the operation within 30 minutes after EMERGENCY OPERATION switch is pressed.

9-3. Trouble criterion of main parts

MU-GA50VB MU-GA60VB MU-GA80VB

Part name	Check method and criterion	Figure																	
Discharge temperature thermistor(RT62) MU-GA60/GA80VB	Measure the resistance with a tester. Before measurement, hold the thermistor with your hands to warm it up. (Part temperature 0°C ~ 40°C) Refer to 9-5. "Test point diagram and voltage", "Outdoor deicer P.C. board", the chart of themistor.																		
Ambient temperature thermistor(RT63) MU-GA60/GA80VB	Measure the resistance with a tester. (Part temperature -10°C ~ 40°C) <table><tr><td>Normal</td></tr><tr><td>5 kΩ ~ 60 kΩ</td></tr></table>	Normal	5 kΩ ~ 60 kΩ																
Normal																			
5 kΩ ~ 60 kΩ																			
Compressor (MC) INNER PROTECTOR 160± 5°C OPEN 90±10°C CLOSE	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></tr><tr><th>MU-GA50VB</th><th>MU-GA60VB</th><th>MU-GA80VB</th></tr><tr><td>C – R</td><td>1.59 Ω ~ 1.95 Ω</td><td>0.79 Ω ~ 0.96 Ω</td><td>0.60 Ω ~ 0.73 Ω</td></tr><tr><td>C – S</td><td>2.65 Ω ~ 3.24 Ω</td><td>1.80 Ω ~ 2.18 Ω</td><td>1.60 Ω ~ 1.94 Ω</td></tr></table>	Terminal	Normal			MU-GA50VB	MU-GA60VB	MU-GA80VB	C – R	1.59 Ω ~ 1.95 Ω	0.79 Ω ~ 0.96 Ω	0.60 Ω ~ 0.73 Ω	C – S	2.65 Ω ~ 3.24 Ω	1.80 Ω ~ 2.18 Ω	1.60 Ω ~ 1.94 Ω			
Terminal	Normal																		
	MU-GA50VB	MU-GA60VB	MU-GA80VB																
C – R	1.59 Ω ~ 1.95 Ω	0.79 Ω ~ 0.96 Ω	0.60 Ω ~ 0.73 Ω																
C – S	2.65 Ω ~ 3.24 Ω	1.80 Ω ~ 2.18 Ω	1.60 Ω ~ 1.94 Ω																
Outdoor fan motor(MF) INNER PROTECTOR MU-GA50VB 130± 5°C OPEN (83±15°C CLOSE*) MU-GA60/GA80VB 135± 5°C OPEN (87±15°C CLOSE*)	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="2">Normal</th></tr><tr><th>MU-GA50VB</th><th>MU-GA60/GA80VB</th></tr><tr><td>WHT – BLK</td><td>63.1 Ω ~ 76.6 Ω</td><td>55.4 Ω ~ 67.7 Ω</td></tr><tr><td>BLK – RED</td><td>79.1 Ω ~ 96.1 Ω</td><td>—</td></tr><tr><td>BLK – YLW</td><td>—</td><td>49.3 Ω ~ 60.3 Ω</td></tr><tr><td>YLW – RED</td><td>—</td><td>22.9 Ω ~ 28.0 Ω</td></tr></table>	Color of lead wire	Normal		MU-GA50VB	MU-GA60/GA80VB	WHT – BLK	63.1 Ω ~ 76.6 Ω	55.4 Ω ~ 67.7 Ω	BLK – RED	79.1 Ω ~ 96.1 Ω	—	BLK – YLW	—	49.3 Ω ~ 60.3 Ω	YLW – RED	—	22.9 Ω ~ 28.0 Ω	
Color of lead wire	Normal																		
	MU-GA50VB	MU-GA60/GA80VB																	
WHT – BLK	63.1 Ω ~ 76.6 Ω	55.4 Ω ~ 67.7 Ω																	
BLK – RED	79.1 Ω ~ 96.1 Ω	—																	
BLK – YLW	—	49.3 Ω ~ 60.3 Ω																	
YLW – RED	—	22.9 Ω ~ 28.0 Ω																	
LEV(Expansion valve) MU-GA60/GA80VB	Measure the resistance with a tester. (Part temperature : -10°C ~ 40°C) <table><tr><th>Color of lead wire</th><th>Normal</th></tr><tr><td>WHT – RED</td><td rowspan="4">41.0 Ω ~ 49.0 Ω</td></tr><tr><td>RED – ORN</td></tr><tr><td>YLW – BRN</td></tr><tr><td>BRN – BLU</td></tr></table>	Color of lead wire	Normal	WHT – RED	41.0 Ω ~ 49.0 Ω	RED – ORN	YLW – BRN	BRN – BLU											
Color of lead wire	Normal																		
WHT – RED	41.0 Ω ~ 49.0 Ω																		
RED – ORN																			
YLW – BRN																			
BRN – BLU																			

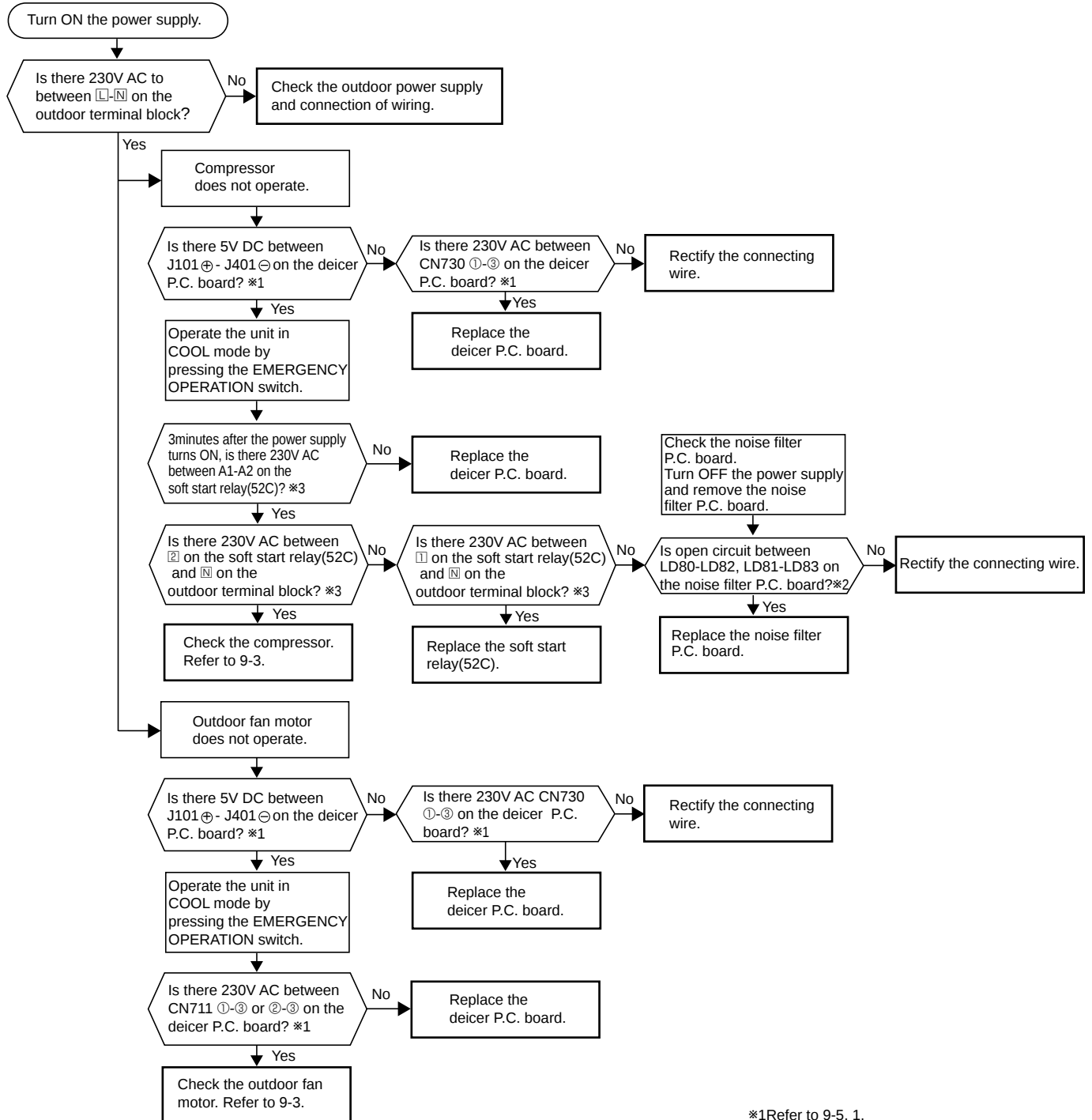
* Reference value

Ⓟ: INNER PROTECTOR

9-4. Troubleshooting flow

Compressor and/or outdoor fan motor doesn't operate.

A Check of outdoor unit MU-GA60VB MU-GA80VB



*1Refer to 9-5. 1.

*2Refer to 9-5. 2.

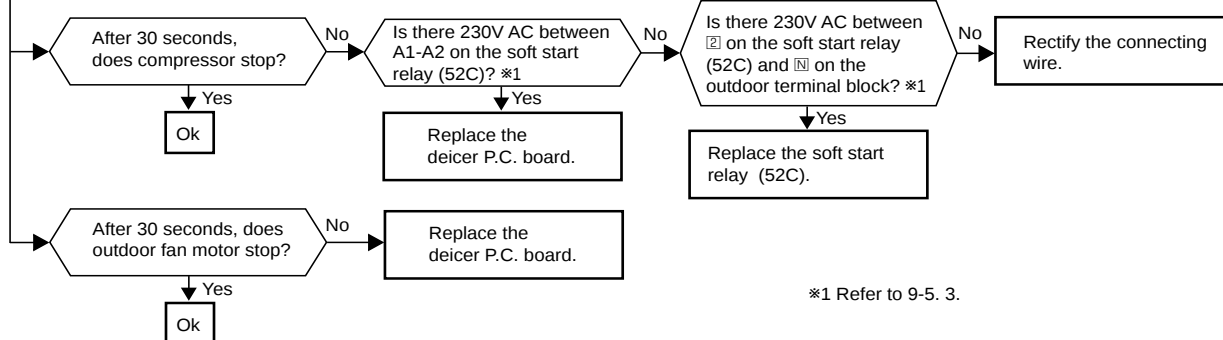
*3Refer to 9-5. 3.

Compressor and/or outdoor fan motor doesn't stop.

⑧ Check of outdoor unit

MU-GA60VB MU-GA80VB

- ① Turn OFF the power supply.
- ② After 30 seconds, turn ON the power supply again.
- ③ Operate the unit in COOL mode by pressing the EMERGENCY OPERATION switch.
- ④ Operate the unit for 1 minute or more and stop it by pressing the EMERGENCY OPERATION switch again.

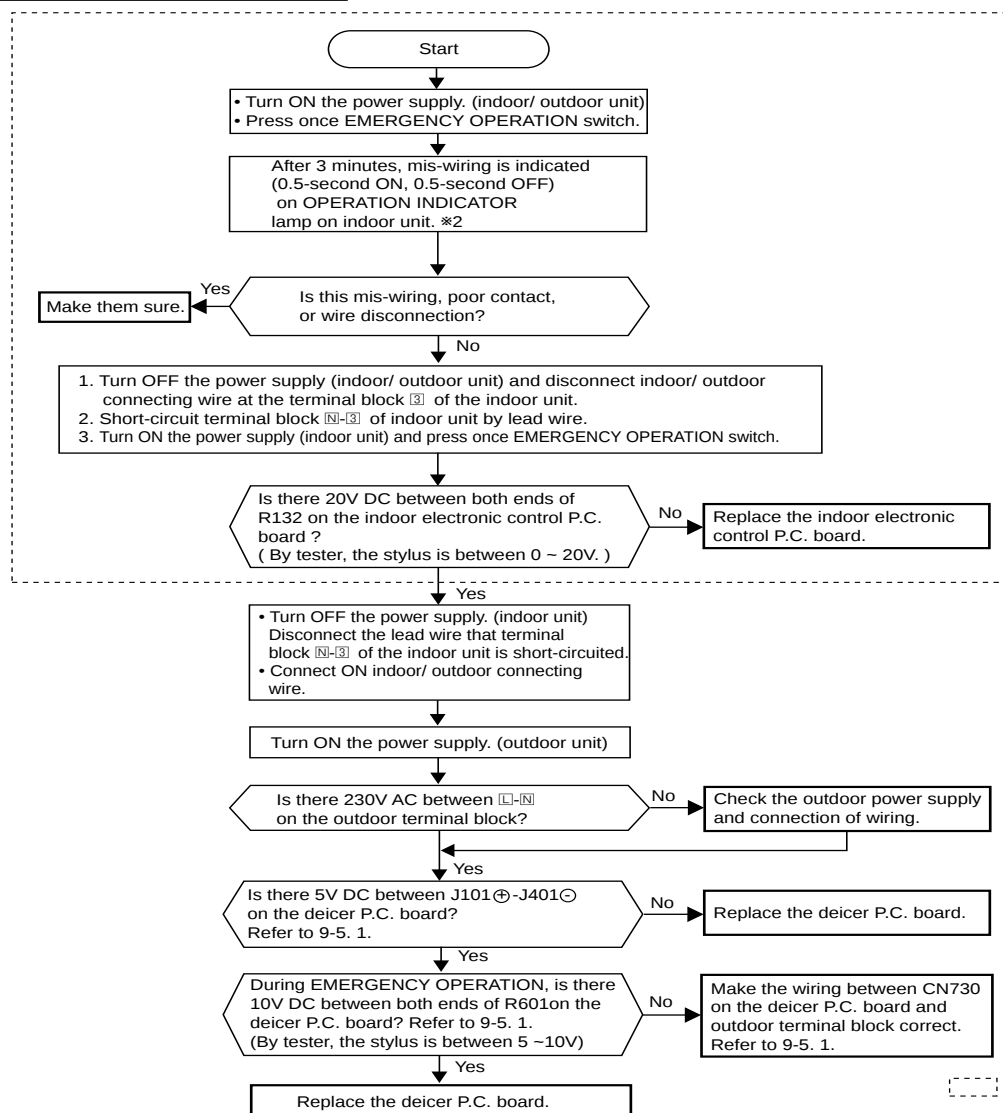


When OPERATION INDICATOR lamp flashes ON and OFF in every 0.5-second. Outdoor unit doesn't operate.

⑨ How to check mis-wiring

MU-GA60VB MU-GA80VB

*2 Short circuit of JPG and JPS on the indoor electronic control P.C. board enables self-check to be displayed in 3 seconds.



**When OPERATION INDICATOR lamp flashes 10-time.
Cooling doesn't operate.**

① Check of LEV (Expansion valve)

MU-GA60VB MU-GA80VB

Turn ON the power supply.
① While pressing both OPERATION SELECT button and TOO COOL button on the remote controller at the same time, press RESET button.
② First, release RESET button. And release the other two buttons after all LCD in operation display section of the remote controller is displayed after 3 seconds.

With remote controller set toward the indoor unit, press OPERATE/ STOP(ON/ OFF) button and confirm one beep tone.

LEV operates in full-opening direction.

Do you hear the expansion valve "click,click....."?
Do you feel the expansion valve vibrate on touching it?

Yes

Ok

No

Is LEV properly fixed to the expansion valve?

No

Properly fix the LEV coil to the expansion valve.

Yes

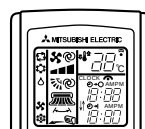
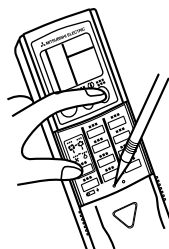
Does the resistance of LEV have the characteristics on 9-3.?

Yes

Replace the deicer P.C. board.

No

Replace the LEV.



NOTE : After check of LEV, do the undermentioned operations.

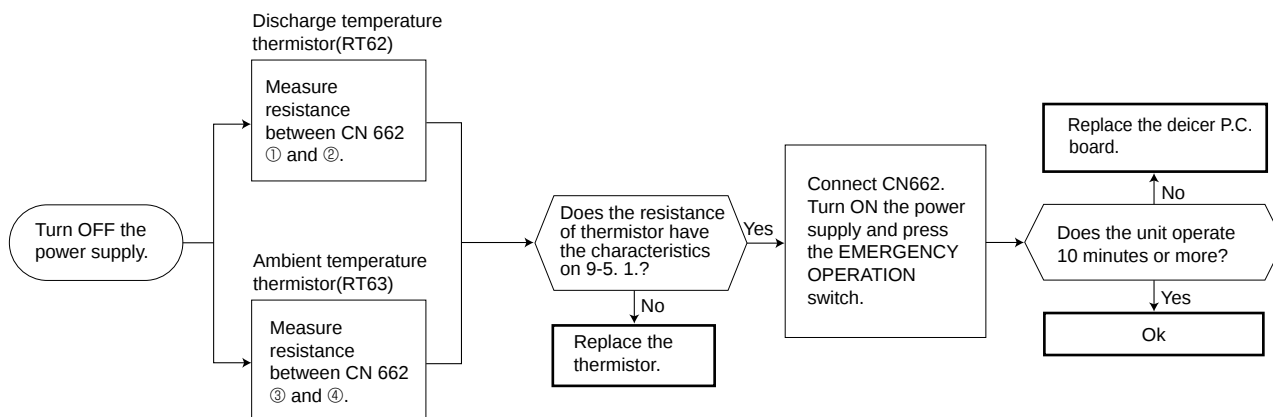
1. Turn OFF the power supply and turn ON again.
2. Press the RESET button on the remote controller.

**When OPERATION INDICATOR lamp flashes 6-time.
Thermistors in the outdoor unit are abnormal.**

② Check of outdoor thermistor

MU-GA60VB MU-GA80VB

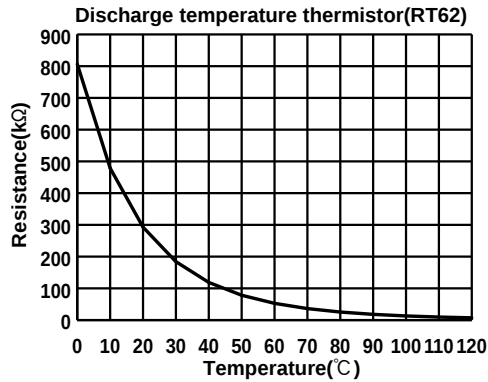
※ Disconnect the connectors CN662 from the deicer P.C. board.
(Check the characteristics of each thermistor.)



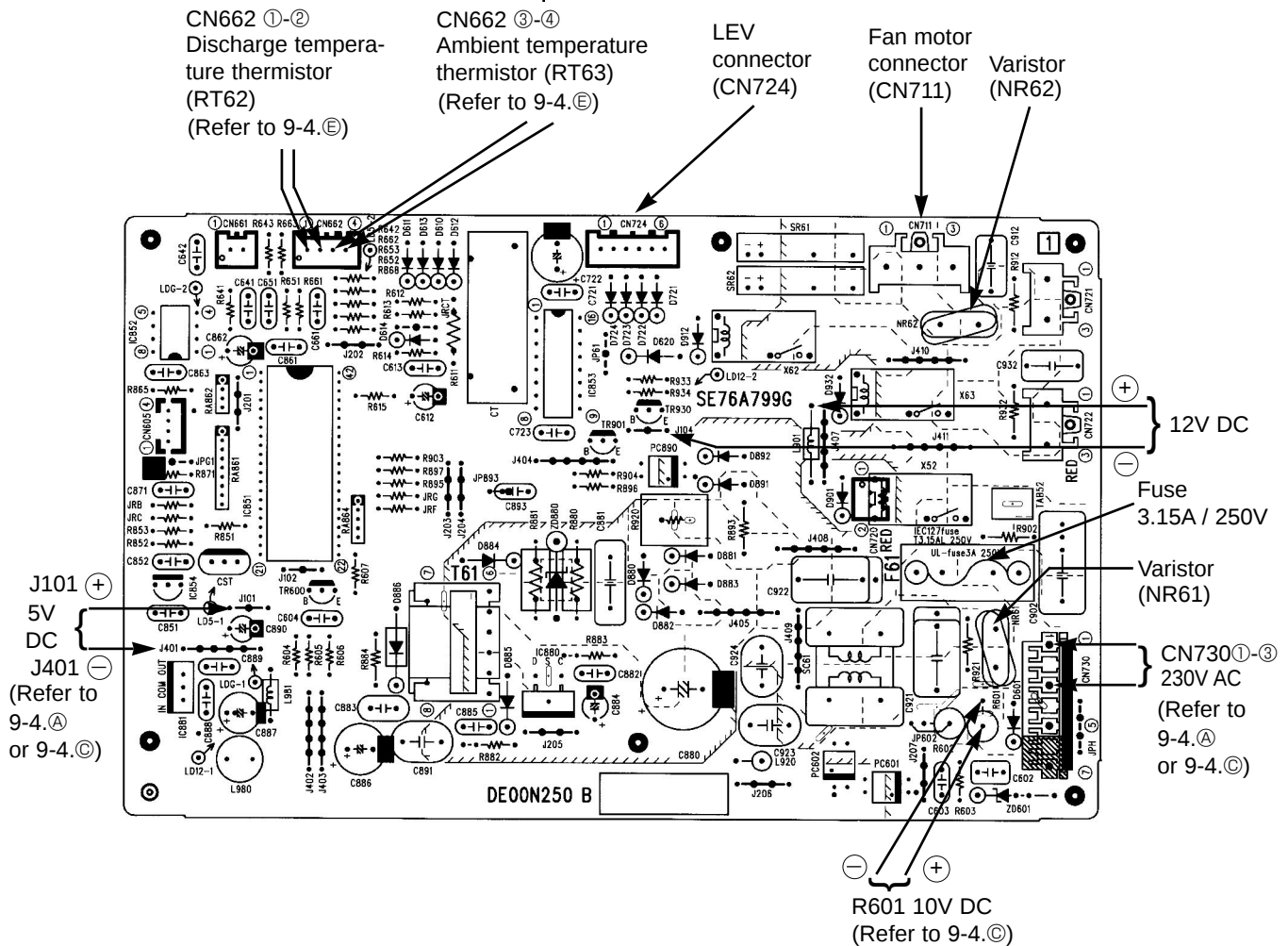
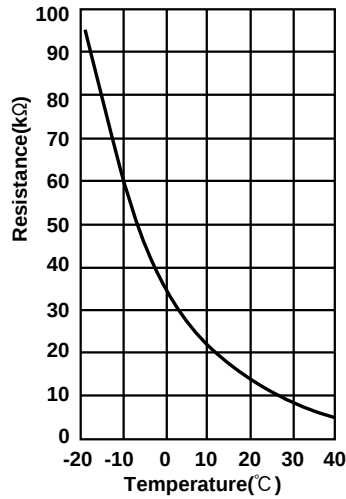
9-5. Test point diagram and voltage

1. Outdoor deicer P.C. board

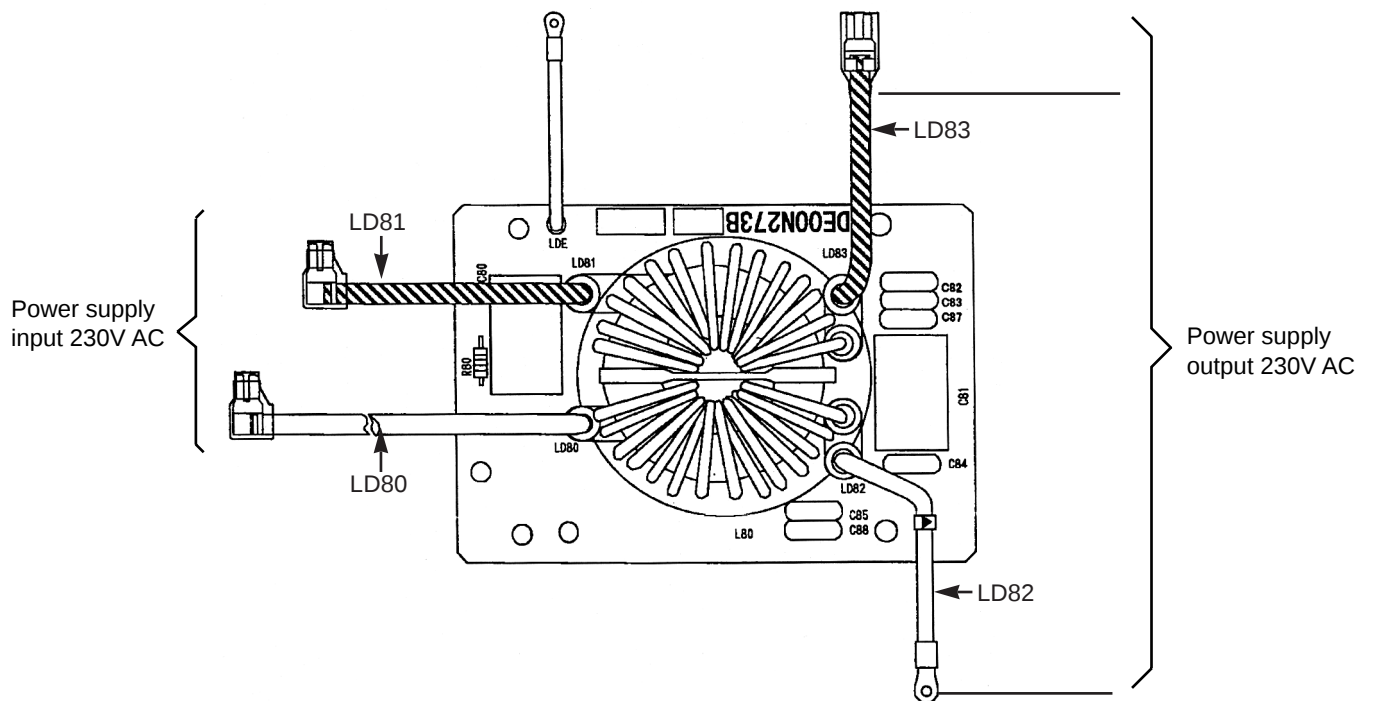
MU-GA60VB MU-GA80VB



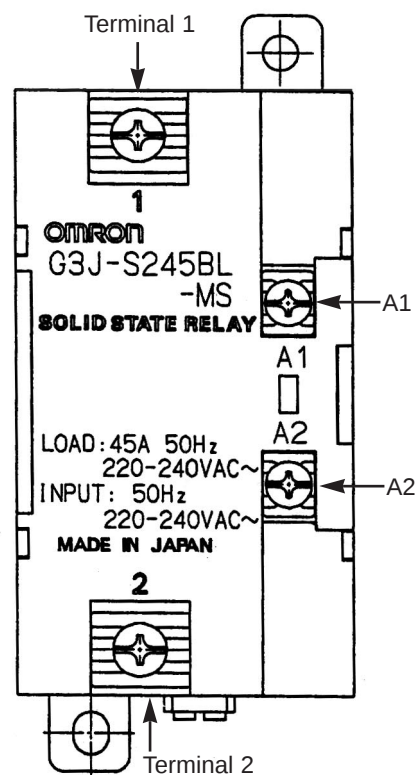
Ambient temperature thermistor (RT63)



2. Noise filter P.C. board MU-GA60VB MU-GA80VB



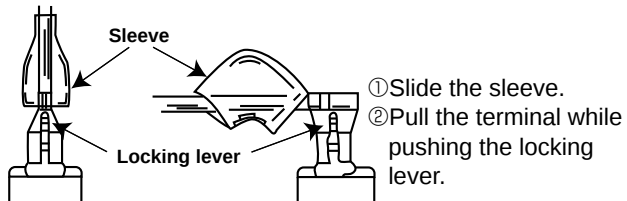
3. Soft start relay MU-GA60VB MU-GA80VB



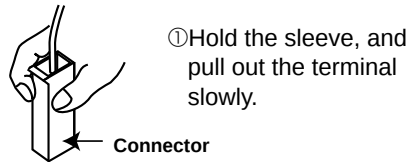
<"Terminal with locking mechanism" Detaching points>

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.

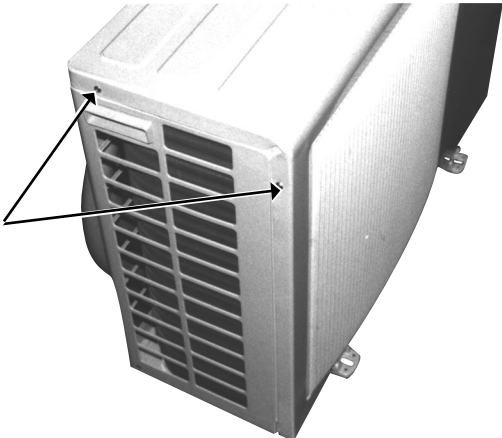
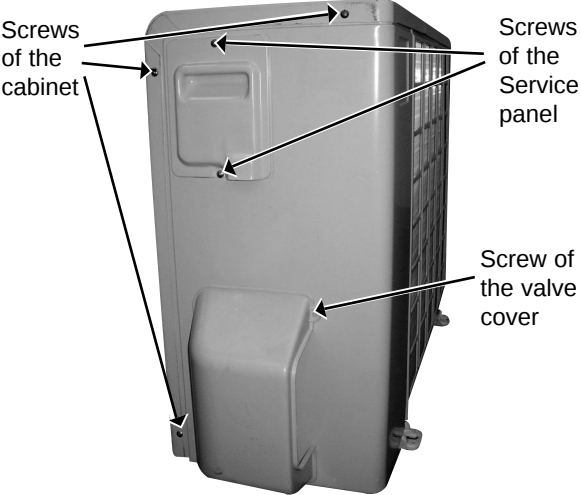
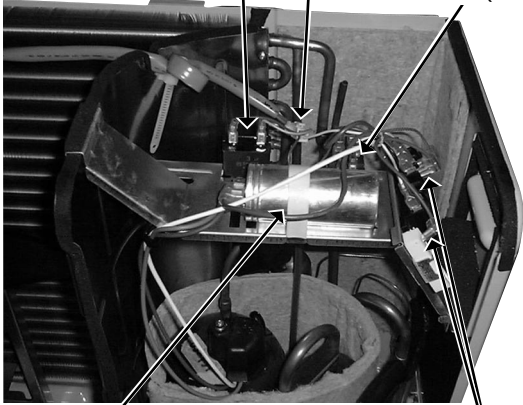
(1) Slide the sleeve and check if there is a locking lever or not.



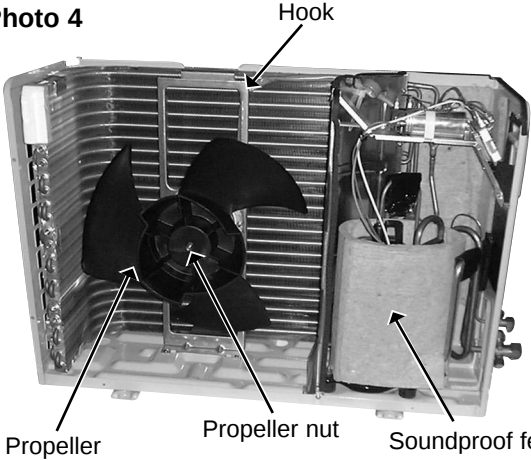
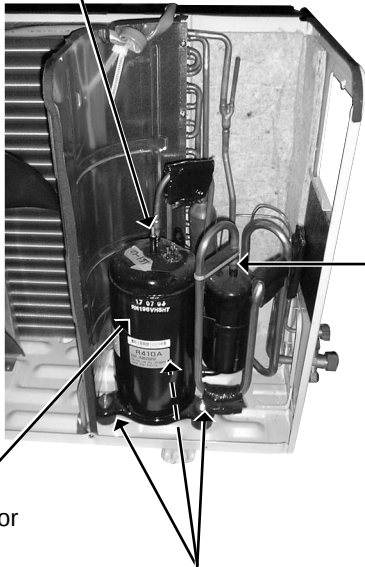
(2) The terminal with this connector has the locking mechanism.



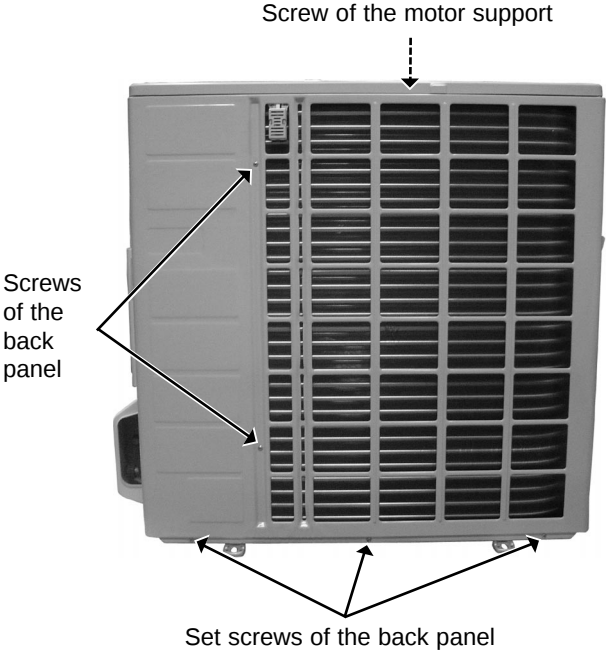
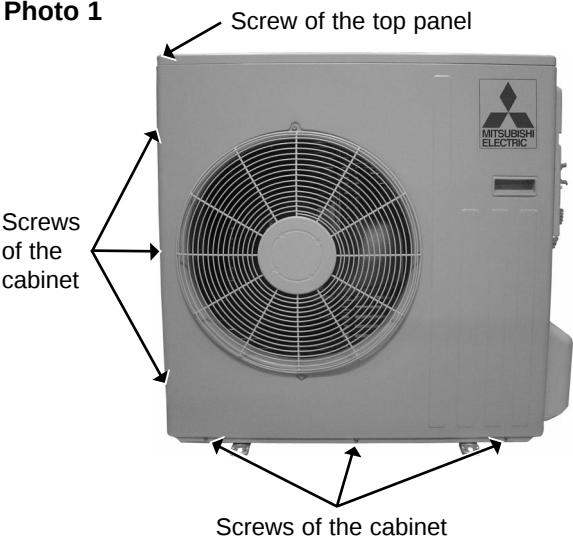
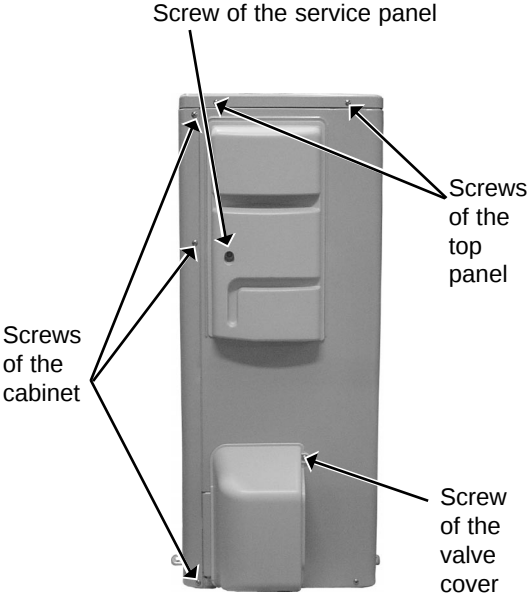
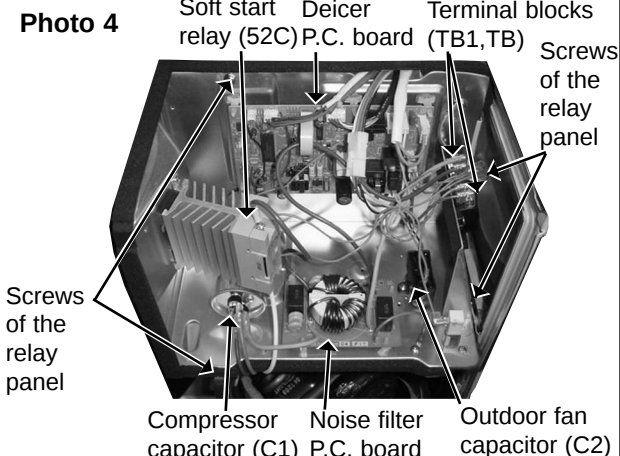
10-1. MU-GA50VB OUTDOOR UNIT

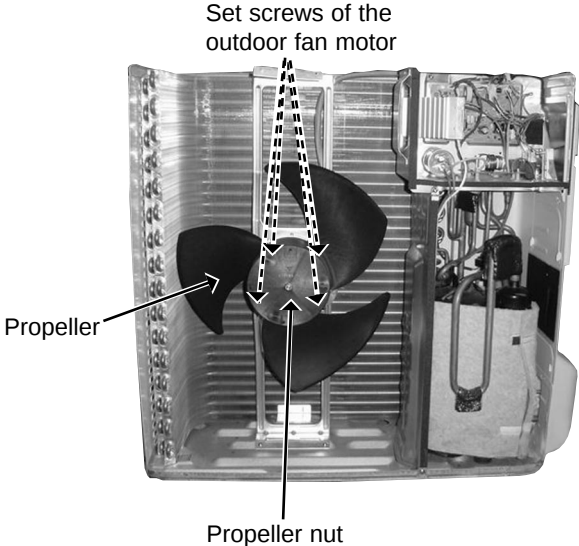
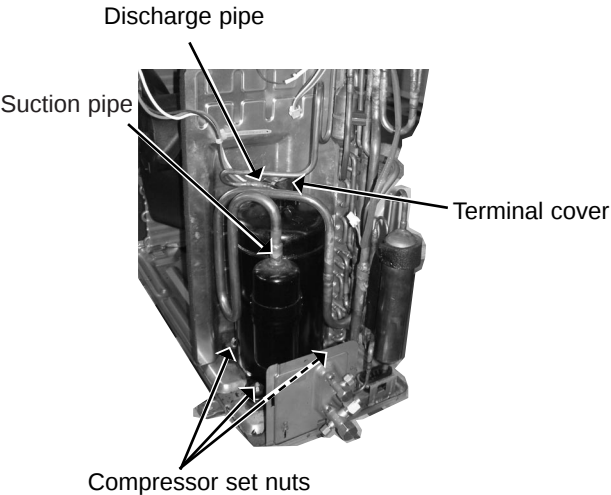
OPERATING PROCEDURE	PHOTOS
1. Removing the cabinet (1) Remove the screws of the cabinet. (2) Hold the down of the cabinet on the both side and remove the cabinet. Photo 2  Screws of the cabinet	Photo 1  Screws of the cabinet Screws of the Service panel Screw of the valve cover
2. Removing the electrical 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  Outdoor fan capacitor(C2) Connector Compressor contactor(52C) Compressor capacitor(C1) Terminal blocks (TB1, TB2)

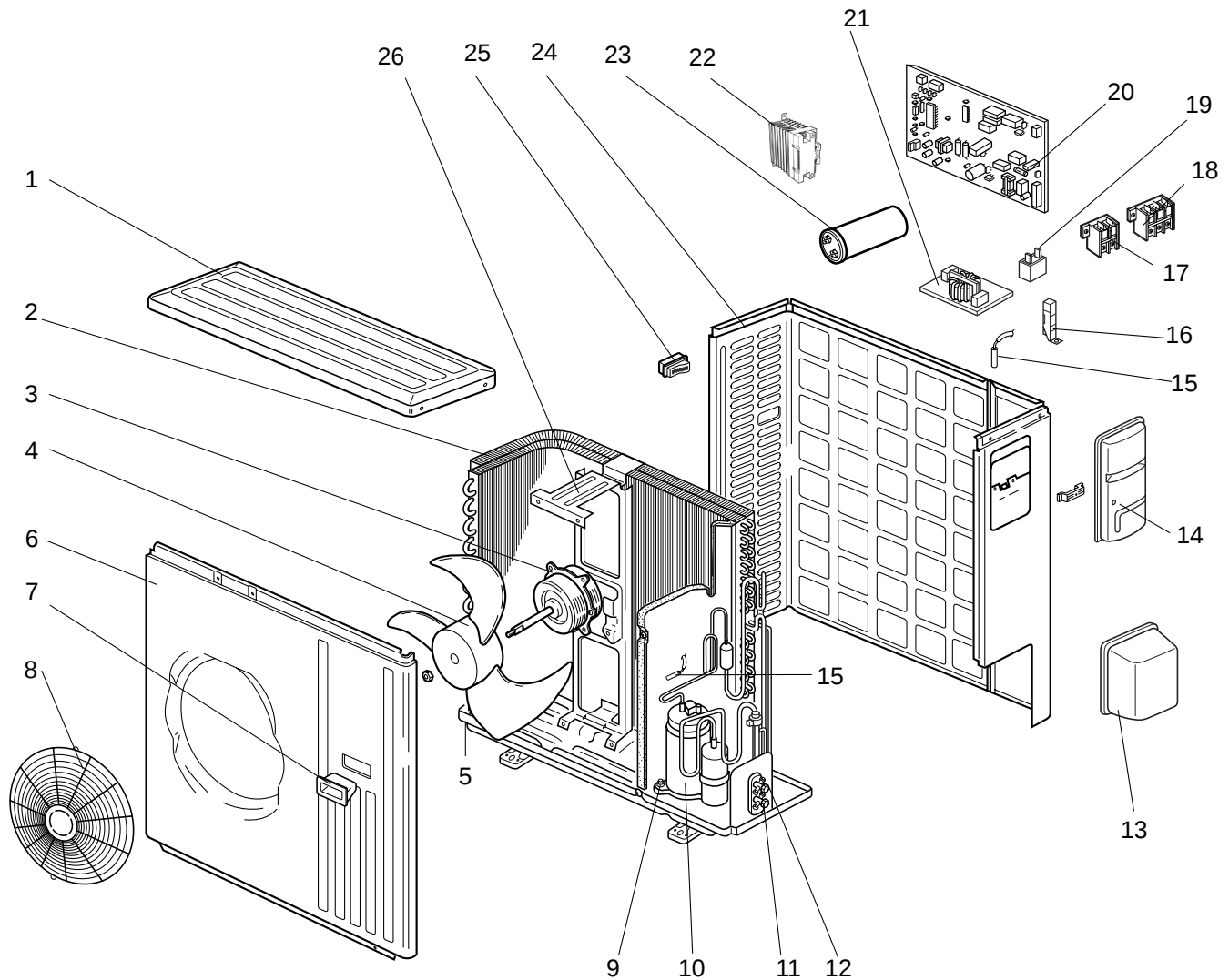


OPERATING PROCEDURE	PHOTOS
3. Removing the propeller and the outdoor fan motor (1) Remove the cabinet. (Refer to 1.) (2) Disconnect the connector and remove the hooked lead wire from the fan motor. (3) Remove the propeller nut and remove the propeller. (4) Remove screws fixing the outdoor fan motor. (5) Remove the outdoor fan motor.	Photo 4  Hook Propeller Propeller nut Soundproof felt
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 MPa. (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  Discharge pipe Suction pipe Compressor Compressor set nuts

10-2. MU-GA60VB MU-GA80VB OUTDOOR UNIT

OPERATING PROCEDURE	PHOTOS
1.Removing the cabinet (1) Remove the screws of the service panel. (2) Remove the screws of the top panel. (3) Remove the screw of the valve cover. (4) Remove the service panel. (5) Remove the top panel. (6) Remove the valve cover. (7) Remove the screws of the cabinet. (8) Remove the cabinet. (9) Remove the screws of the back panel. (10) Remove the back panel. Photo 3 	Photo 1  Photo 2 
2. Removing the deicer P.C. board (1) Remove the service panel and the cabinet. (2) Disconnect all the connectors and the terminals on the deicer P.C. board. (3) Remove the deicer P.C. board.	Photo 4 

OPERATING PROCEDURE	PHOTOS
3. Removing the propeller and the outdoor fan motor (1) Remove the cabinet. (Refer to 1.) (2) Remove the propeller nut and 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. (3) Remove the clamp of outdoor fan motor lead wire and disconnect the outdoor fan motor connector. (4) Remove the screws fixing the outdoor fan motor. (5) 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 compressor. (6) Recover gas from the refrigerant circuit. NOTE: Recover gas from the pipes until the pressure gauge shows 0 MPa. (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 

MU-GA60VB MU-GA80VB**11-1. OUTDOOR UNIT STRUCTURAL PARTS, ELECTRICAL PARTS
AND FUNCTIONAL PARTS**

PARTS LIST (non-RoHS compliant)

MU-GA60VB MU-GA80VB

11-1. OUTDOOR UNIT STRUCTURAL PARTS, ELECTRICAL PARTS AND FUNCTIONAL PARTS

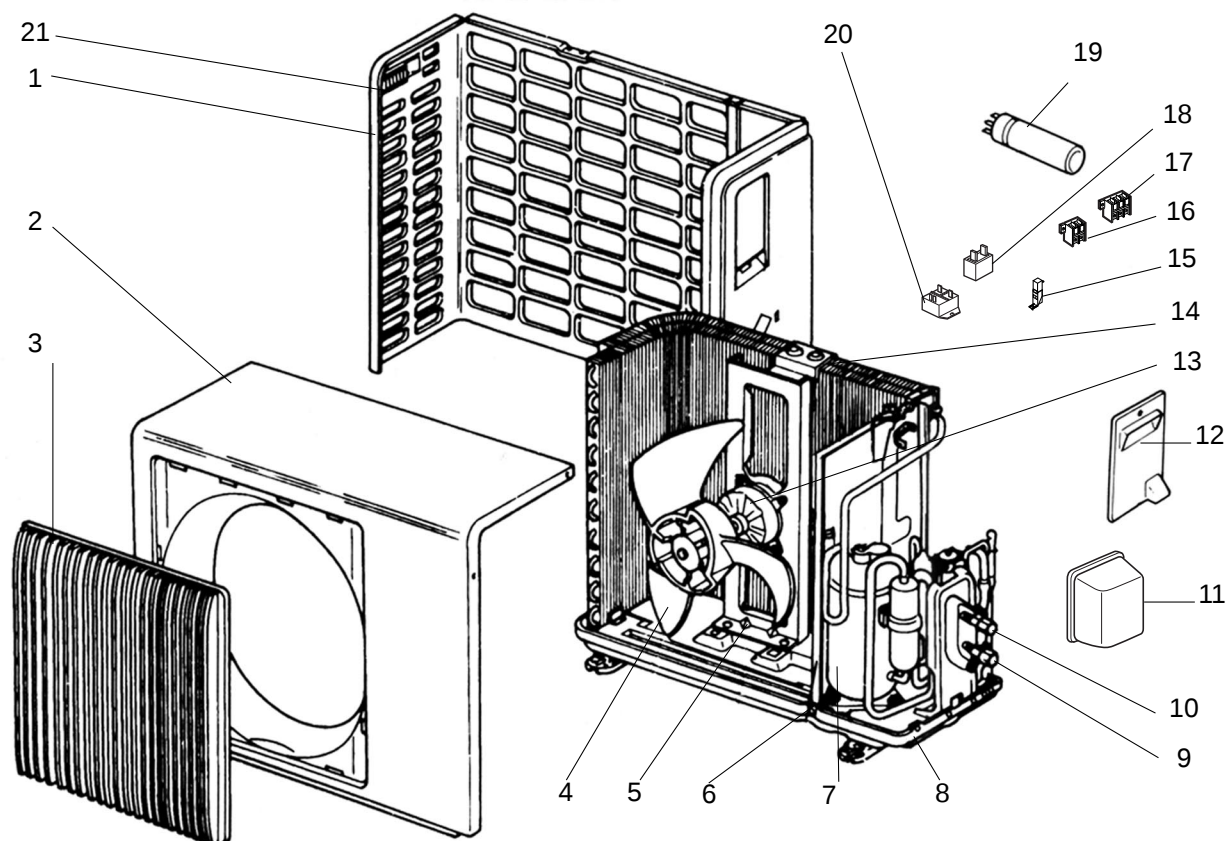
Part numbers that are circled are not shown in the illustration.

No.	Part No.	Part Name	Symbol in Wiring Diagram	Q'ty/unit		Remarks
				MU-GA60VB - [A1]	MU-GA80VB - [A1]	
1	E02 819 297	TOP PANEL		1	1	
2	E02 819 630	OUTDOOR HEAT EXCHANGER		1	1	
3	E02 819 301	OUTDOOR FAN MOTOR	MF	1	1	RA6V75- □□
4	E02 214 501	PROPELLER		1	1	
5	E02 819 290	BASE		1	1	
6	E02 819 232	CABINET		1	1	
7	E02 819 009	HANDLE		1	1	
8	E02 819 521	FAN GUARD		1	1	
9	E02 527 506	COMPRESSOR RUBBER SET		4	4	4RUBBERS/SET
10	E02 B31 900	COMPRESSOR	MC		1	NN33VACHT
	E02 B30 900	COMPRESSOR	MC	1		NN25VBAHT
11	E02 819 661	STOP VALVE(GAS)		1	1	φ15.88
12	E02 819 662	STOP VALVE(LIQUID)			1	φ9.52
	E02 B30 662	STOP VALVE(LIQUID)		1		φ6.35
13	E02 819 650	VALVE COVER		1	1	
14	E02 819 245	SERVICE PANEL		1	1	
15	E02 819 309	THERMISTOR	RT62, RT63	1	1	DISCHARGE, AMBIENT
16	E02 890 383	SURGE ABSORBER	DSAR	1	1	
17	E02 821 374	TERMINAL BLOCK	TB2	1	1	2P
18	E02 817 374	TERMINAL BLOCK	TB1	1	1	3P
19	E02 890 351	OUTDOOR FAN CAPACITOR	C2	1	1	4.0μF/440V AC
20	E02 B31 451	DEICER P.C. BOARD			1	
	E02 B30 451	DEICER P.C. BOARD		1		
21	E02 865 444	NOISE FILTER P.C. BOARD		1	1	
22	E02 528 340	SOFT START RELAY	52C	1	1	
23	E02 889 353	COMPRESSOR CAPACITOR	C1		1	55μF/440V AC
	E02 946 353	COMPRESSOR CAPACITOR	C1	1		50μF/440V AC
24	E02 819 233	BACK PANEL(OUT)		1	1	
25	E02 817 009	HANDLE		1	1	
26	E02 726 515	MOTOR SUPPORT		1	1	
27	E02 822 640	EXPANSION VALVE			1	
	E02 851 640	EXPANSION VALVE		1		
28	E02 819 493	EXPANSION VALVE COIL	LEV	1	1	
29	E02 A49 382	FUSE	F61	1	1	T3.15AL250V
30	E02 336 385	VARISTOR	NR61	1	1	
31	E02 819 936	CAPILLARY TUBE(TAPER PIPE)		1	1	φ3.6×φ2.4×50
32	E02 262 936	CAPILLARY TUBE		1	1	φ4.0×φ2.4×200
33	E02 527 936	CAPILLARY TUBE		1	1	φ4.0×φ2.4×100

MU-GA50VB

12-1. OUTDOOR UNIT

STRUCTURAL PARTS, ELECTRICAL PARTS AND FUNCTIONAL PARTS



RoHS PARTS LIST (RoHS compliant)

MU-GA50VB

12-1. 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
					MU-GA50VB-[A1]	
1	G	E12 A27 233	BACK PANEL		1	
2	G	E12 817 232	CABINET		1	
3	G	E12 817 521	GRILLE		1	
4	G	E12 141 501	PROPELLER		1	
5	G	E12 139 515	MOTOR SUPPORT		1	
6	G	E12 075 506	COMPRESSOR RUBBER SET		3	3RUBBERS/SET
7	G	E12 817 900	COMPRESSOR	MC	1	RN196VHSHT
8	G	E12 A27 290	BASE		1	
9	G	E12 817 661	STOP VALVE(GAS)		1	φ12.7
10	G	E12 817 662	STOP VALVE(LIQUID)		1	φ 6.35
11	G	E12 819 650	VALVE COVER		1	
12	G	E12 817 245	SERVICE PANEL		1	
13	G	E12 818 301	OUTDOOR FAN MOTOR	MF	1	RA6V60 - □□
14	G	E12 B29 630	OUTDOOR HEAT EXCHANGER		1	
15	G	E12 890 383	SURGE ABSORBER	DSAR	1	
16	G	E12 818 374	TERMINAL BLOCK	TB2	1	2P
17	G	E12 817 374	TERMINAL BLOCK	TB1	1	3P
18	G	E12 895 351	OUTDOOR FAN CAPACITOR	C2	1	3.0μF/440V AC
19	G	E12 888 353	COMPRESSOR CAPACITOR	C1	1	40μF/440V AC
20	G	E12 466 340	COMPRESSOR CONTACTOR	52C	1	
21	G	E12 817 009	HANDLE		1	
22	G	E12 176 936	CAPILLARY TUBE		1	φ3.0×φ1.6×350
23	G	E12 938 936	CAPILLARY TUBE		1	φ2.5×φ0.6×1000
24	G	E12 B36 299	OIL SEPARATOR		1	



HEAD OFFICE: TOKYO BLDG.,2-7-3, MARUNOUCHI, CHIYODA-KU, TOKYO100-8310, JAPAN