Changes for the Better

MITSUBISHI ELECTRIC

SPLIT-TYPE, HEAT PUMP AIR CONDITIONERS

OUTDOOR UNIT

SERVICE MANUAL

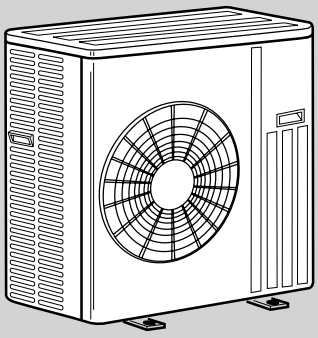
HFC utilized R410A

No. OBH514

Wireless type
Model

MUH-GD80VB -E1

Indoor unit service manual
MSH-GD•VB Series (OBH513)



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NOTE:
RoHS compliant products have <G> mark on the spec name plate.

CE

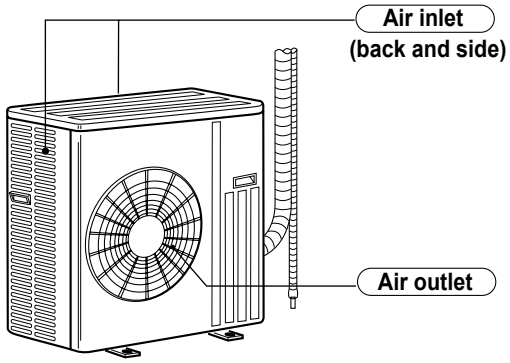
1 TECHNICAL CHANGES

MUH-GD80VB -E1

1. New model

2 PART NAMES AND FUNCTIONS

MUH-GD80VB



ACCESSORIES

		MUH-GD80VB
①	Drain socket	1
②	Drain cap ϕ 33	2
	Drain cap ϕ 16	—

3 SPECIFICATION

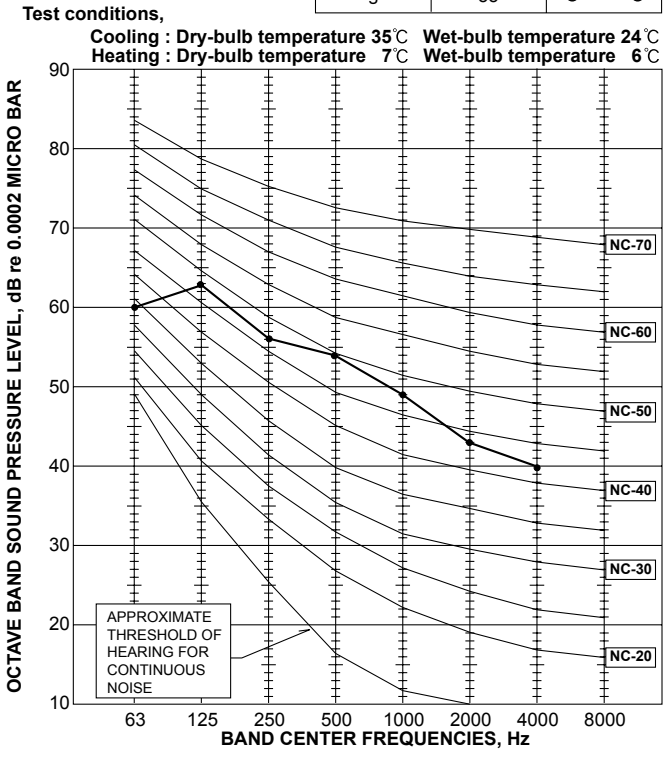
Outdoor model			MUH-GD80VB	
Function			Cooling	Heating
Power supply			Single phase 230 V, 50 Hz	
Capacity		kW	8.0	9.4
Electrical data	Breaker capacity	A	25	
	Running current (Total)	A	14.76	15.90
	Power input (Total)	W	3,320	3,580
	Power factor (Total)	%	98	
	Starting current (Total)	A	90	
Coefficient of performance (C.O.P) (Total)			2.41	2.63
Compressor	Model		NN37VAAHT	
	Output	W	2,500	
	Compressor motor current	A	13.85	14.62
Fan motor	Model		RA6V75-AD	
	Fan motor current	A	0.57	
Dimensions W × H × D		mm	840 × 850 × 330	
Weight		kg	77	
Special remarks	Dehumidification	ℓ/h	4.6	—
	Air flow (High/Low)	m³/h	2,940/1,470	
	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)		NEO 22	

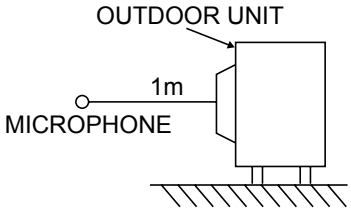
NOTE: Test conditions are based on ISO 5151.
Cooling: Indoor Dry-bulb temperature 27°C Wet-bulb temperature 19°C
Outdoor Dry-bulb temperature 35°C Wet-bulb temperature 24°C
Heating: Indoor Dry-bulb temperature 20°C Wet-bulb temperature 15.5°C
Outdoor Dry-bulb temperature 7°C Wet-bulb temperature 6°C
Indoor-Outdoor piping length: 5 m

4 NOISE CRITERIA CURVES

MUH-GD80VB

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

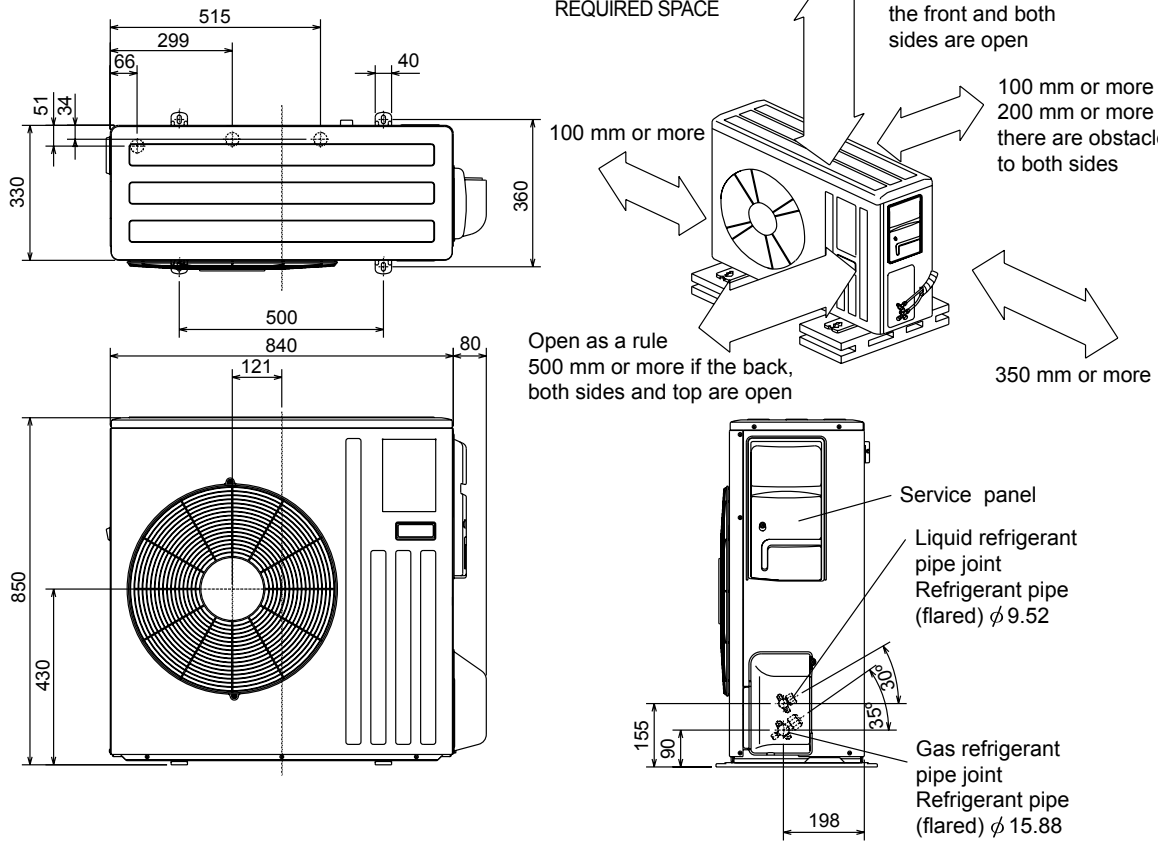




5 OUTLINES AND DIMENSIONS

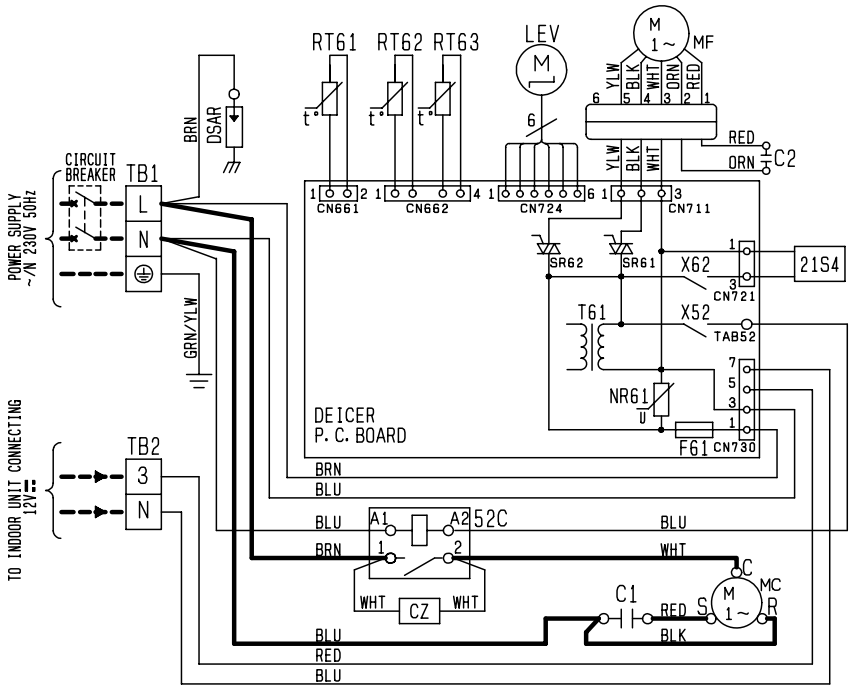
MUH-GD80VB

Unit: mm



6 WIRING DIAGRAM

MUH-GD80VB



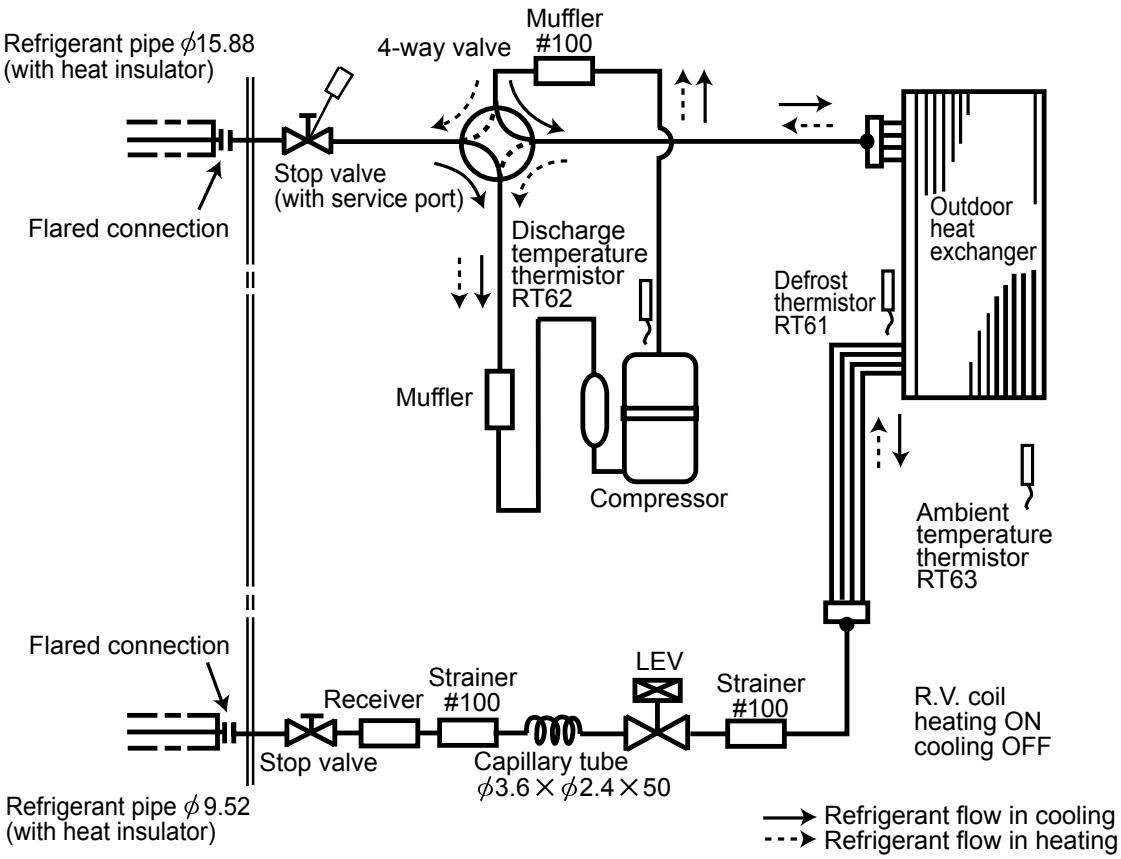
SYMBOL	NAME	SYMBOL	NAME
CZ	SURGE ABSORBER 2	RT63	AMBIENT TEMPERATURE THERMISTOR
C1	COMPRESSOR CAPACITOR	SR61	SOLID STATE RELAY
C2	FAN MOTOR CAPACITOR	SR62	SOLID STATE RELAY
DSAR	SURGE ABSORBER 1	TB1	TERMINAL BLOCK
F61	FUSE(T3.15AL250V)	TB2	TERMINAL BLOCK
LEV	EXPANSION VALVE COIL	T61	TRANSFORMER
MC	COMPRESSOR (INNER PROTECTOR)	X52	CONTACTOR
MF	FAN MOTOR (INNER PROTECTOR)	X62	REVERSING VALVE COIL RELAY
NR61	VARISTOR	21S4	REVERSING VALVE COIL
RT61	DEFROST TEMPERATURE THERMISTOR	52C	COMPRESSOR CONTACTOR
RT62	DISCHARGE TEMPERATURE THERMISTOR		

NOTES:
1. Use copper conductors only (For field wiring).
2. Since the indoor and outdoor unit connecting wires have polarity, connect them according to the numbers (3, N).
3. Symbols below indicate.
   :Terminal block
   :Connector
   :Connector

7 REFRIGERANT SYSTEM DIAGRAM

MUH-GD80VB

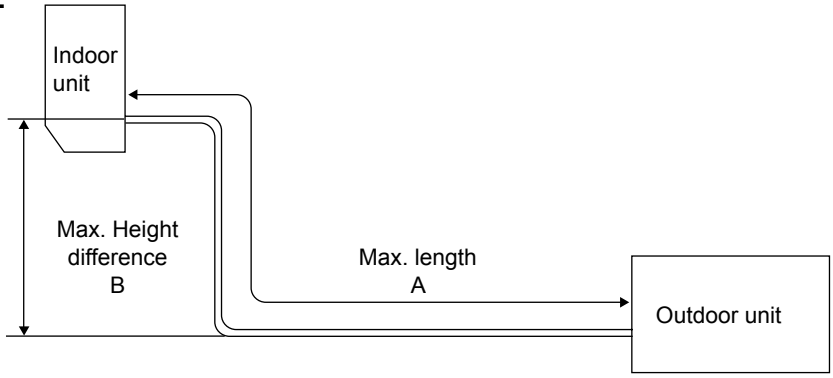
Unit: mm



MAX. REFRIGERANT PIPING LENGTH

Model	Refrigerant piping: m		Piping size O.D: mm	
	Max. length A	Max. height B	Gas	Liquid
MUH-GD80VB	30	15	ϕ15.88	ϕ9.52

MAX. HEIGHT DIFFERENCE



ADDITIONAL REFRIGERANT CHARGE (R410A: g)

Model	Outdoor unit precharged	Refrigerant piping length (one way)					
		7 m	10 m	15 m	20 m	25 m	30 m
MUH-GD80VB	2,400	0	165	440	715	990	1,265

Calculation: Xg = 55 g/m × (Refrigerant piping length (m) - 7)

8 PERFORMANCE CURVES

MUH-GD80VB

The standard 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 ~ 264 V, 50 Hz

(2) AIR FLOW

Air flow should be set at MAX.

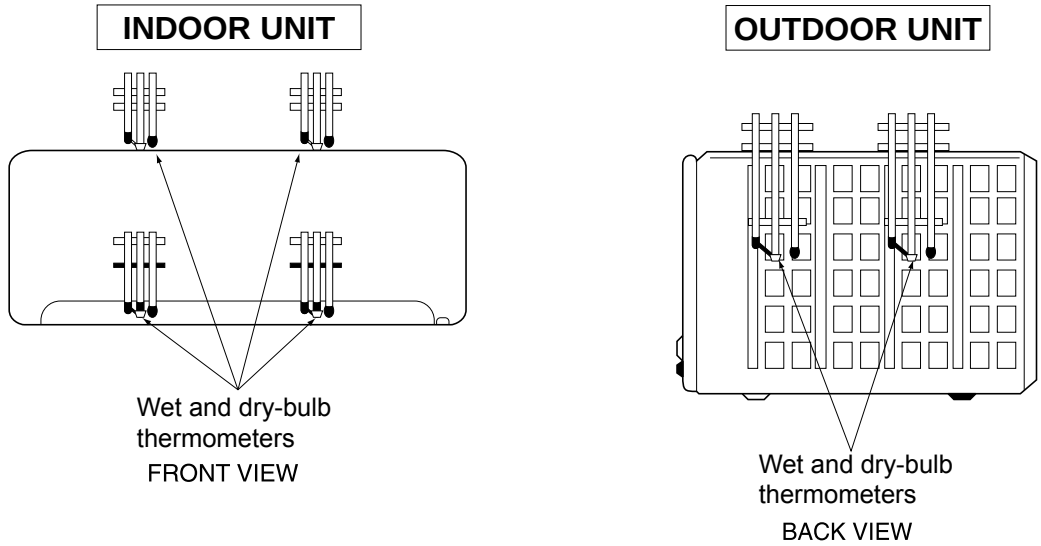
(3) MAIN READINGS

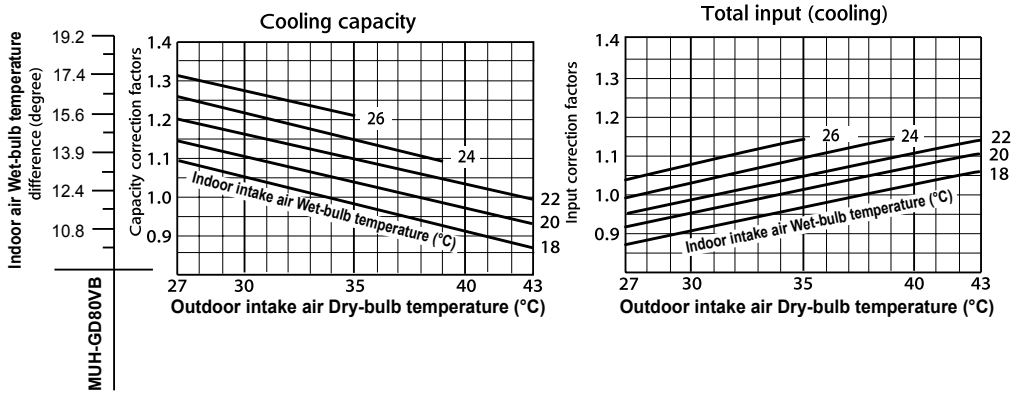
(1) Indoor intake air wet-bulb temperature:	°CWB	Cooling
(2) Indoor outlet air wet-bulb temperature:	°CWB	
(3) Outdoor intake air dry-bulb temperature:	°CDB	
(4) Total input:	W	
(5) Indoor intake air dry-bulb temperature:	°CDB	Heating
(6) Outdoor intake air wet-bulb temperature:	°CWB	
(7) Total input: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

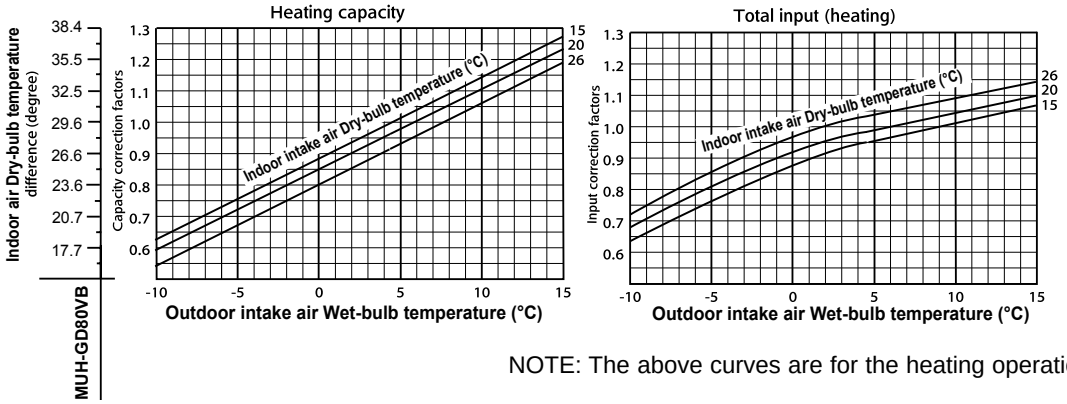
Indoor air wet/dry-bulb temperature difference on the left side of the following chart shows the difference between the indoor intake air wet/dry-bulb temperature and the indoor outlet air wet/dry-bulb temperature for your reference at service.

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 (twice) to start the EMERGENCY COOL (HEAT) 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.







NOTE: The above curves are for the heating operation without any frost.

OUTDOOR LOW PRESSURE AND OUTDOOR UNIT CURRENT
COOL operation

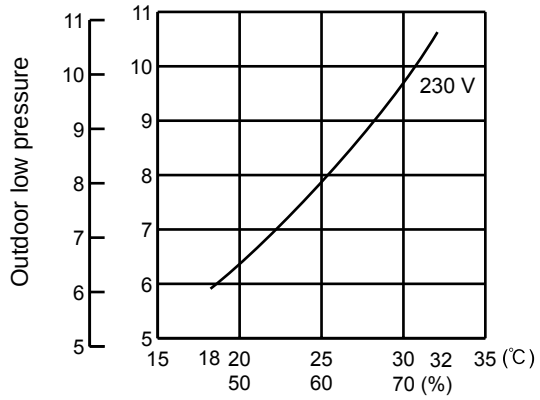
① Both indoor and outdoor unit are under the same temperature/humidity condition.

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

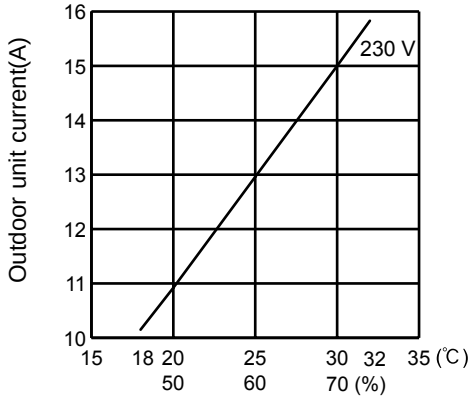
② Air flow should be set at MAX.

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])**

(kgf/㎠ [Gauge])(MPa[Gauge]) **MUH-GD80VB**



MUH-GD80VB

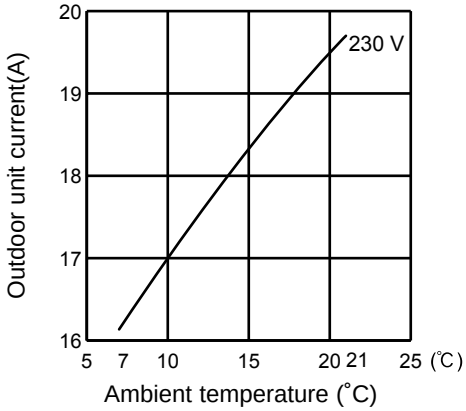


HEAT operation

Condition indoor: Dry bulb temperature 20.0°C
Wet bulb temperature 14.5°C

Outdoor: Dry bulb temperature 7,15, 20°C
Wet bulb temperature 6,12, 14.5°C

MUH-GD80VB



PERFORMANCE DATA COOL operation

MSH-GD80VB: MUH-GD80VB (230V)

CAPACITY : 8.0(kW) SHF : 0.62 INPUT : 3320(W)

		OUTDOOR DB(°C)															
INDOOR	INDOOR	21				25				27				30			
DB(°C)	WB(°C)	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	9.40	4.14	0.44	2656	9.00	3.96	0.44	2789	8.64	3.80	0.44	2922	8.32	3.66	0.44	3054
21	20	9.80	3.14	0.32	2789	9.40	3.01	0.32	2955	9.12	2.92	0.32	3021	8.80	2.82	0.32	3154
22	18	9.40	4.51	0.48	2656	9.00	4.32	0.48	2789	8.64	4.15	0.48	2922	8.32	3.99	0.48	3054
22	20	9.80	3.53	0.36	2789	9.40	3.38	0.36	2955	9.12	3.28	0.36	3021	8.80	3.17	0.36	3154
22	22	10.20	2.45	0.24	2888	9.84	2.36	0.24	3071	9.60	2.30	0.24	3154	9.20	2.21	0.24	3287
23	18	9.40	4.89	0.52	2656	9.00	4.68	0.52	2789	8.64	4.49	0.52	2922	8.32	4.33	0.52	3054
23	20	9.80	3.92	0.40	2789	9.40	3.76	0.40	2955	9.12	3.65	0.40	3021	8.80	3.52	0.40	3154
23	22	10.20	2.86	0.28	2888	9.84	2.76	0.28	3071	9.60	2.69	0.28	3154	9.20	2.58	0.28	3287
24	18	9.40	5.26	0.56	2656	9.00	5.04	0.56	2789	8.64	4.84	0.56	2922	8.32	4.66	0.56	3054
24	20	9.80	4.31	0.44	2789	9.40	4.14	0.44	2955	9.12	4.01	0.44	3021	8.80	3.87	0.44	3154
24	22	10.20	3.26	0.32	2888	9.84	3.15	0.32	3071	9.60	3.07	0.32	3154	9.20	2.94	0.32	3287
24	24	10.72	2.14	0.20	3021	10.32	2.06	0.20	3187	10.08	2.02	0.20	3287	9.76	1.95	0.20	3453
25	18	9.40	5.64	0.60	2656	9.00	5.40	0.60	2789	8.64	5.18	0.60	2922	8.32	4.99	0.60	3054
25	20	9.80	4.70	0.48	2789	9.40	4.51	0.48	2955	9.12	4.38	0.48	3021	8.80	4.22	0.48	3154
25	22	10.20	3.67	0.36	2888	9.84	3.54	0.36	3071	9.60	3.46	0.36	3154	9.20	3.31	0.36	3287
25	24	10.72	2.57	0.24	3021	10.32	2.48	0.24	3187	10.08	2.42	0.24	3287	9.76	2.34	0.24	3453
26	18	9.40	6.02	0.64	2656	9.00	5.76	0.64	2789	8.64	5.53	0.64	2922	8.32	5.32	0.64	3054
26	20	9.80	5.10	0.52	2789	9.40	4.89	0.52	2955	9.12	4.74	0.52	3021	8.80	4.58	0.52	3154
26	22	10.20	4.08	0.40	2888	9.84	3.94	0.40	3071	9.60	3.84	0.40	3154	9.20	3.68	0.40	3287
26	24	10.72	3.00	0.28	3021	10.32	2.89	0.28	3187	10.08	2.82	0.28	3287	9.76	2.73	0.28	3453
26	26	11.04	1.77	0.16	3187	10.72	1.72	0.16	3353	10.56	1.69	0.16	3453	10.24	1.64	0.16	3552
27	18	9.40	6.39	0.68	2656	9.00	6.12	0.68	2789	8.64	5.88	0.68	2922	8.32	5.66	0.68	3054
27	20	9.80	5.49	0.56	2789	9.40	5.26	0.56	2955	9.12	5.11	0.56	3021	8.80	4.93	0.56	3154
27	22	10.20	4.49	0.44	2888	9.84	4.33	0.44	3071	9.60	4.22	0.44	3154	9.20	4.05	0.44	3287
27	24	10.72	3.43	0.32	3021	10.32	3.30	0.32	3187	10.08	3.23	0.32	3287	9.76	3.12	0.32	3453
27	26	11.04	2.21	0.20	3187	10.72	2.14	0.20	3353	10.56	2.11	0.20	3453	10.24	2.05	0.20	3552
28	18	9.40	6.77	0.72	2656	9.00	6.48	0.72	2789	8.64	6.22	0.72	2922	8.32	5.99	0.72	3054
28	20	9.80	5.88	0.60	2789	9.40	5.64	0.60	2955	9.12	5.47	0.60	3021	8.80	5.28	0.60	3154
28	22	10.20	4.90	0.48	2888	9.84	4.72	0.48	3071	9.60	4.61	0.48	3154	9.20	4.42	0.48	3287
28	24	10.72	3.86	0.36	3021	10.32	3.72	0.36	3187	10.08	3.63	0.36	3287	9.76	3.51	0.36	3453
28	26	11.04	2.65	0.24	3187	10.72	2.57	0.24	3353	10.56	2.53	0.24	3453	10.24	2.46	0.24	3552
29	18	9.40	7.14	0.76	2656	9.00	6.84	0.76	2789	8.64	6.57	0.76	2922	8.32	6.32	0.76	3054
29	20	9.80	6.27	0.64	2789	9.40	6.02	0.64	2955	9.12	5.84	0.64	3021	8.80	5.63	0.64	3154
29	22	10.20	5.30	0.52	2888	9.84	5.12	0.52	3071	9.60	4.99	0.52	3154	9.20	4.78	0.52	3287
29	24	10.72	4.29	0.40	3021	10.32	4.13	0.40	3187	10.08	4.03	0.40	3287	9.76	3.90	0.40	3453
29	26	11.04	3.09	0.28	3187	10.72	3.00	0.28	3353	10.56	2.96	0.28	3453	10.24	2.87	0.28	3552
30	18	9.40	7.52	0.80	2656	9.00	7.20	0.80	2789	8.64	6.91	0.80	2922	8.32	6.66	0.80	3054
30	20	9.80	6.66	0.68	2789	9.40	6.39	0.68	2955	9.12	6.20	0.68	3021	8.80	5.98	0.68	3154
30	22	10.20	5.71	0.56	2888	9.84	5.51	0.56	3071	9.60	5.38	0.56	3154	9.20	5.15	0.56	3287
30	24	10.72	4.72	0.44	3021	10.32	4.54	0.44	3187	10.08	4.44	0.44	3287	9.76	4.29	0.44	3453
30	26	11.04	3.53	0.32	3187	10.72	3.43	0.32	3353	10.56	3.38	0.32	3453	10.24	3.28	0.32	3552
31	18	9.40	7.90	0.84	2656	9.00	7.56	0.84	2789	8.64	7.26	0.84	2922	8.32	6.99	0.84	3054
31	20	9.80	7.06	0.72	2789	9.40	6.77	0.72	2955	9.12	6.57	0.72	3021	8.80	6.34	0.72	3154
31	22	10.20	6.12	0.60	2888	9.84	5.90	0.60	3071	9.60	5.76	0.60	3154	9.20	5.52	0.60	3287
31	24	10.72	5.15	0.48	3021	10.32	4.95	0.48	3187	10.08	4.84	0.48	3287	9.76	4.68	0.48	3453
31	26	11.04	3.97	0.36	3187	10.72	3.86	0.36	3353	10.56	3.80	0.36	3453	10.24	3.69	0.36	3552
32	18	9.40	8.27	0.88	2656	9.00	7.92	0.88	2789	8.64	7.60	0.88	2922	8.32	7.32	0.88	3054
32	20	9.80	7.45	0.76	2789	9.40	7.14	0.76	2955	9.12	6.93	0.76	3021	8.80	6.69	0.76	3154
32	22	10.20	6.53	0.64	2888	9.84	6.30	0.64	3071	9.60	6.14	0.64	3154	9.20	5.89	0.64	3287
32	24	10.72	5.57	0.52	3021	10.32	5.37	0.52	3187	10.08	5.24	0.52	3287	9.76	5.08	0.52	3453
32	26	11.04	4.42	0.40	3187	10.72	4.29	0.40	3353	10.56	4.22	0.40	3453	10.24	4.10	0.40	3552

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

MSH-GD80VB: MUH-GD80VB (230V)

CAPACITY : 8.0(kW) SHF : 0.62 INPUT : 3320(W)

		OUTDOOR DB(°C)											
INDOOR	INDOOR	35				40				43			
DB(°C)	WB(°C)	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	7.84	3.45	0.44	3254	7.20	3.17	0.44	3453	6.92	3.04	0.44	3519
21	20	8.24	2.64	0.32	3386	7.68	2.46	0.32	3552	7.40	2.37	0.32	3652
22	18	7.84	3.76	0.48	3254	7.20	3.46	0.48	3453	6.92	3.32	0.48	3519
22	20	8.24	2.97	0.36	3386	7.68	2.76	0.36	3552	7.40	2.66	0.36	3652
22	22	8.72	2.09	0.24	3519	8.16	1.96	0.24	3718	7.88	1.89	0.24	3785
23	18	7.84	4.08	0.52	3254	7.20	3.74	0.52	3453	6.92	3.60	0.52	3519
23	20	8.24	3.30	0.40	3386	7.68	3.07	0.40	3552	7.40	2.96	0.40	3652
23	22	8.72	2.44	0.28	3519	8.16	2.28	0.28	3718	7.88	2.21	0.28	3785
24	18	7.84	4.39	0.56	3254	7.20	4.03	0.56	3453	6.92	3.88	0.56	3519
24	20	8.24	3.63	0.44	3386	7.68	3.38	0.44	3552	7.40	3.26	0.44	3652
24	22	8.72	2.79	0.32	3519	8.16	2.61	0.32	3718	7.88	2.52	0.32	3785
24	24	9.20	1.84	0.20	3652	8.64	1.73	0.20	3818	8.40	1.68	0.20	3901
25	18	7.84	4.70	0.60	3254	7.20	4.32	0.60	3453	6.92	4.15	0.60	3519
25	20	8.24	3.96	0.48	3386	7.68	3.69	0.48	3552	7.40	3.55	0.48	3652
25	22	8.72	3.14	0.36	3519	8.16	2.94	0.36	3718	7.88	2.84	0.36	3785
25	24	9.20	2.21	0.24	3652	8.64	2.07	0.24	3818	8.40	2.02	0.24	3901
26	18	7.84	5.02	0.64	3254	7.20	4.61	0.64	3453	6.92	4.43	0.64	3519
26	20	8.24	4.28	0.52	3386	7.68	3.99	0.52	3552	7.40	3.85	0.52	3652
26	22	8.72	3.49	0.40	3519	8.16	3.26	0.40	3718	7.88	3.15	0.40	3785
26	24	9.20	2.58	0.28	3652	8.64	2.42	0.28	3818	8.40	2.35	0.28	3901
26	26	9.68	1.55	0.16	3785	9.12	1.46	0.16	3951	8.84	1.41	0.16	4034
27	18	7.84	5.33	0.68	3254	7.20	4.90	0.68	3453	6.92	4.71	0.68	3519
27	20	8.24	4.61	0.56	3386	7.68	4.30	0.56	3552	7.40	4.14	0.56	3652
27	22	8.72	3.84	0.44	3519	8.16	3.59	0.44	3718	7.88	3.47	0.44	3785
27	24	9.20	2.94	0.32	3652	8.64	2.76	0.32	3818	8.40	2.69	0.32	3901
27	26	9.68	1.94	0.20	3785	9.12	1.82	0.20	3951	8.84	1.77	0.20	4034
28	18	7.84	5.64	0.72	3254	7.20	5.18	0.72	3453	6.92	4.98	0.72	3519
28	20	8.24	4.94	0.60	3386	7.68	4.61	0.60	3552	7.40	4.44	0.60	3652
28	22	8.72	4.19	0.48	3519	8.16	3.92	0.48	3718	7.88	3.78	0.48	3785
28	24	9.20	3.31	0.36	3652	8.64	3.11	0.36	3818	8.40	3.02	0.36	3901
28	26	9.68	2.32	0.24	3785	9.12	2.19	0.24	3951	8.84	2.12	0.24	4034
29	18	7.84	5.96	0.76	3254	7.20	5.47	0.76	3453	6.92	5.26	0.76	3519
29	20	8.24	5.27	0.64	3386	7.68	4.92	0.64	3552	7.40	4.74	0.64	3652
29	22	8.72	4.53	0.52	3519	8.16	4.24	0.52	3718	7.88	4.10	0.52	3785
29	24	9.20	3.68	0.40	3652	8.64	3.46	0.40	3818	8.40	3.36	0.40	3901
29	26	9.68	2.71	0.28	3785	9.12	2.55	0.28	3951	8.84	2.48	0.28	4034
30	18	7.84	6.27	0.80	3254	7.20	5.76	0.80	3453	6.92	5.54	0.80	3519
30	20	8.24	5.60	0.68	3386	7.68	5.22	0.68	3552	7.40	5.03	0.68	3652
30	22	8.72	4.88	0.56	3519	8.16	4.57	0.56	3718	7.88	4.41	0.56	3785
30	24	9.20	4.05	0.44	3652	8.64	3.80	0.44	3818	8.40	3.70	0.44	3901
30	26	9.68	3.10	0.32	3785	9.12	2.92	0.32	3951	8.84	2.83	0.32	4034
31	18	7.84	6.59	0.84	3254	7.20	6.05	0.84	3453	6.92	5.81	0.84	3519
31	20	8.24	5.93	0.72	3386	7.68	5.53	0.72	3552	7.40	5.33	0.72	3652
31	22	8.72	5.23	0.60	3519	8.16	4.90	0.60	3718	7.88	4.73	0.60	3785
31	24	9.20	4.42	0.48	3652	8.64	4.15	0.48	3818	8.40	4.03	0.48	3901
31	26	9.68	3.48	0.36	3785	9.12	3.28	0.36	3951	8.84	3.18	0.36	4034
32	18	7.84	6.90	0.88	3254	7.20	6.34	0.88	3453	6.92	6.09	0.88	3519
32	20	8.24	6.26	0.76	3386	7.68	5.84	0.76	3552	7.40	5.62	0.76	3652
32	22	8.72	5.58	0.64	3519	8.16	5.22	0.64	3718	7.88	5.04	0.64	3785
32	24	9.20	4.78	0.52	3652	8.64	4.49	0.52	3818	8.40	4.37	0.52	3901
32	26	9.68	3.87	0.40	3785	9.12	3.65	0.40	3951	8.84	3.54	0.40	4034

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 HEAT operation

MSH-GD80VB: MUH-GD80VB (230V)

CAPACITY : 9.4(kW) INPUT : 3580(W)

INDOOR DB(°C)	OUTDOOR WB(°C)													
	-10		-5		0		5		10		15		20	
	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT
15	5.92	2327	7.14	2792	8.37	3150	9.59	3401	10.81	3616	11.94	3723	13.16	3795
21	5.64	2506	6.77	2971	7.99	3294	9.12	3544	10.34	3723	11.47	3831	12.64	3974
26	5.08	2685	6.30	3150	7.43	3473	8.65	3723	9.87	3902	11.00	4010	12.22	4117

NOTE Q :Total capacity (kW) INPUT:Total power input (W) DB: Dry-bulb temperature

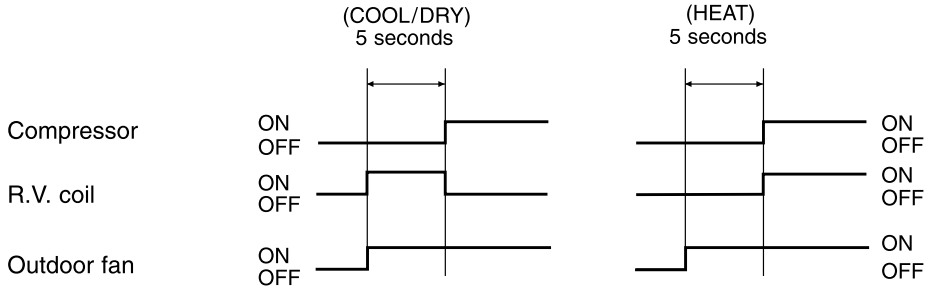
9 ACTUATOR CONTROL

MUH-GD80VB

9-1. R.V. COIL CONTROL

Heating · · · · · ON
Cooling · · · · · OFF
Dry · · · · · · · · OFF

NOTE: The 4-way valve reverses for 5 seconds right before start-up of the compressor.



10 SERVICE FUNCTIONS

MUH-GD80VB

10-1. COMPULSORY DEFROSTING MODE FOR SERVICE

By short circuit of the connector JPG1 and R871 on the outdoor deicer P.C. board, defrosting mode can be accomplished regardless of the defrost interval restriction. (Refer to 11-4.)
Defrost thermistor RT61 must read below -3°C.

10-2. CHANGE IN DEFROST SETTING

<JRF> When the JRF wire of the deicer P.C. board is cut, the defrost interval time will be changed.
<JRG> When the JRG wire of the deicer P.C. board is cut, the defrost temperature will be changed.
(Refer to 11-4.)

Model	Jumper wire	Change point
MUH-GD80VB	JRF	Defrost interval time changes from 40 minutes to 15 minutes.
	JRG	Defrost start temperature does not change.(-3.0℃) Defrost finish temperature changes from 13℃ to 15℃.

11 TROUBLESHOOTING

MUH-GD80VB

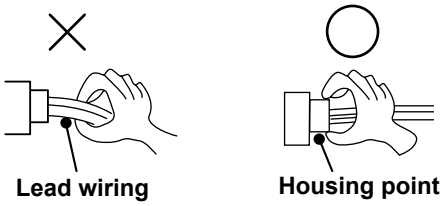
11-1. CAUTIONS ON TROUBLESHOOTING

1. Before troubleshooting, check the following:

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

2. Take care the following during servicing.

(1) Before servicing the air conditioner, be sure to 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.



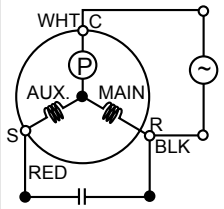
3. Troubleshooting procedure

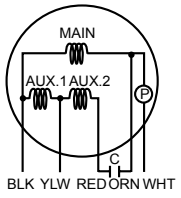
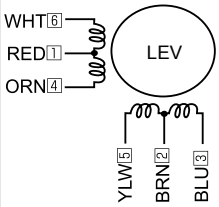
(1) First, check if the OPERATION INDICATOR lamp on the indoor unit is flashing ON and OFF to indicate an abnormality. To make sure, check how many times the OPERATION INDICATOR lamp is flashing ON and OFF before starting service work.
(2) Before servicing check that the connector and terminal are connected properly.
(3) If the electronic control P.C. board seems to be defective, check the copper foil pattern for disconnection and the components for bursting and discoloration.

11-2. TROUBLE CRITERION OF MAIN PARTS

MUH-GD80VB

<table>
<tr><th>Part name</th><th>Check method and criterion</th><th>Figure</th></tr>
<tr><td>Defrost thermistor
(RT61)</td><td>Measure the resistance with a tester.
(Part temperature –10°C ~ 40°C)
Refer to 11-4. "Test point diagram and voltage", "Outdoor deicer P.C. board", the chart of thermistor.</td><td></td></tr>
<tr><td>Discharge temperature thermistor (RT62)</td><td>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 11-4. "Test point diagram and voltage", "Outdoor deicer P.C. board", the chart of thermistor.</td><td></td></tr>
<tr><td>Ambient temperature thermistor (RT63)</td><td>Measure the resistance with a tester.
(Part temperature –10°C ~ 40°C)
Refer to 11-4. "Test point diagram and voltage", "Outdoor deicer P.C. board", the chart of thermistor.</td><td></td></tr>
<tr><td>Compressor (MC)

INNER PROTECTOR
160± 5°C OPEN
90±10°C CLOSE</td><td>Measure the resistance between the terminals with a tester.
(Part temperature –10°C ~ 40°C)
<table><tr><th>Terminal</th><th>Normal</th></tr><tr><td>C – R</td><td>0.56 Ω ~ 0.71 Ω</td></tr><tr><td>C – S</td><td>1.43 Ω ~ 1.76 Ω</td></tr></table></td><td> 
</td></tr>
<tr><td>Outdoor fan motor (MF)

INNER PROTECTOR
135± 5°C OPEN
(83±15°C CLOSE※)</td><td>Measure the resistance between the terminals with a tester.
(Part temperature –10°C ~ 40°C)
<table><tr><th>Color of lead wire</th><th>Normal</th></tr><tr><td>WHT – BLK</td><td>55 Ω ~ 68 Ω</td></tr><tr><td>BLK – YLW</td><td>49 Ω ~ 61 Ω</td></tr><tr><td>YLW – RED</td><td>22 Ω ~ 29 Ω</td></tr></table></td><td> 
</td></tr>
<tr><td>R.V. coil (21S4)</td><td>Measure the resistance between the terminals with a tester.
(Part temperature –10°C ~ 40°C)
<table><tr><th>Normal</th></tr><tr><td>2.673 kΩ ~ 3.268 kΩ</td></tr></table></td><td></td></tr>
<tr><td>LEV (Expansion valve)</td><td>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></td><td> 
</td></tr>
</table>

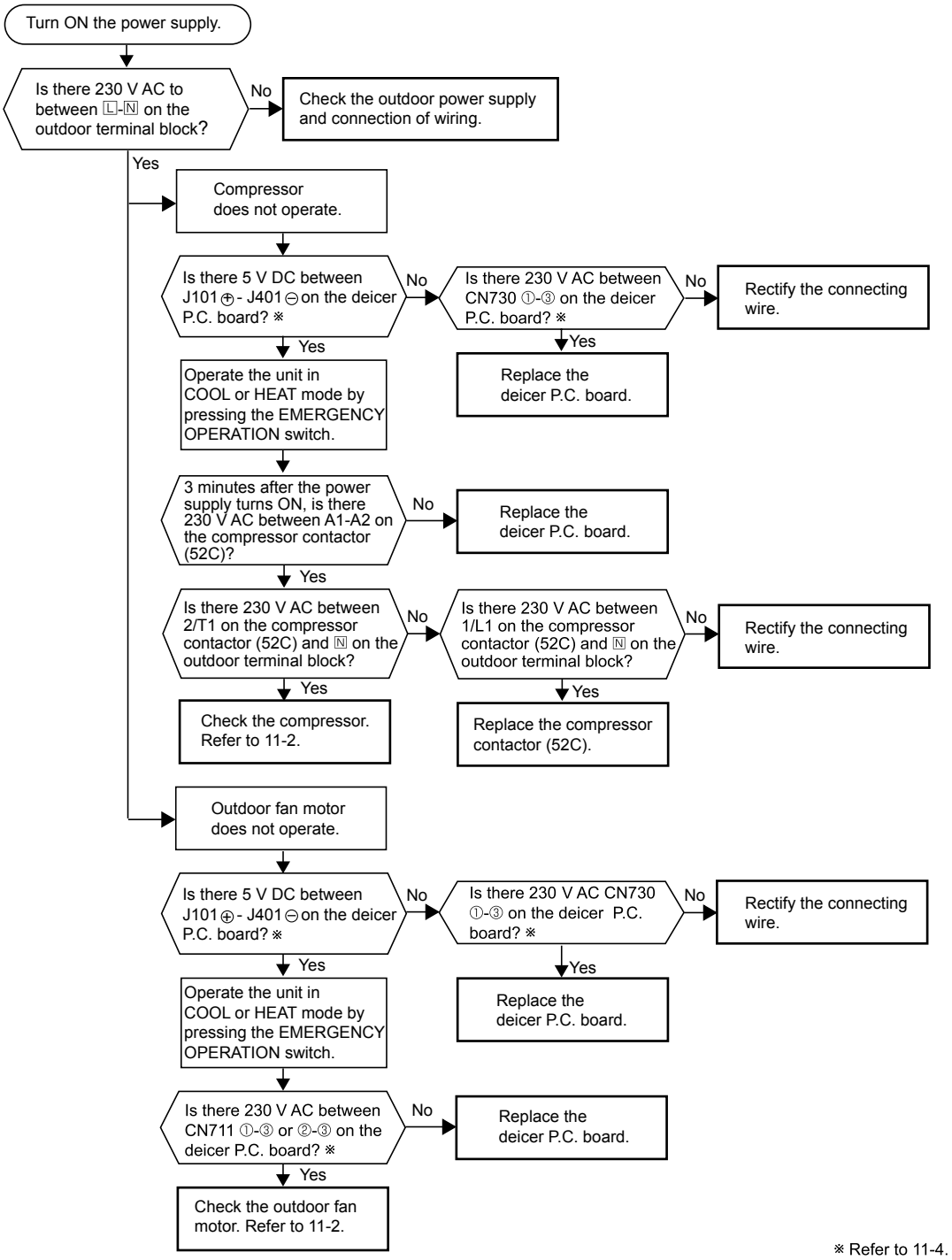
※ Reference value

Ⓟ: INNER PROTECTOR

11-3. TROUBLESHOOTING FLOW

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

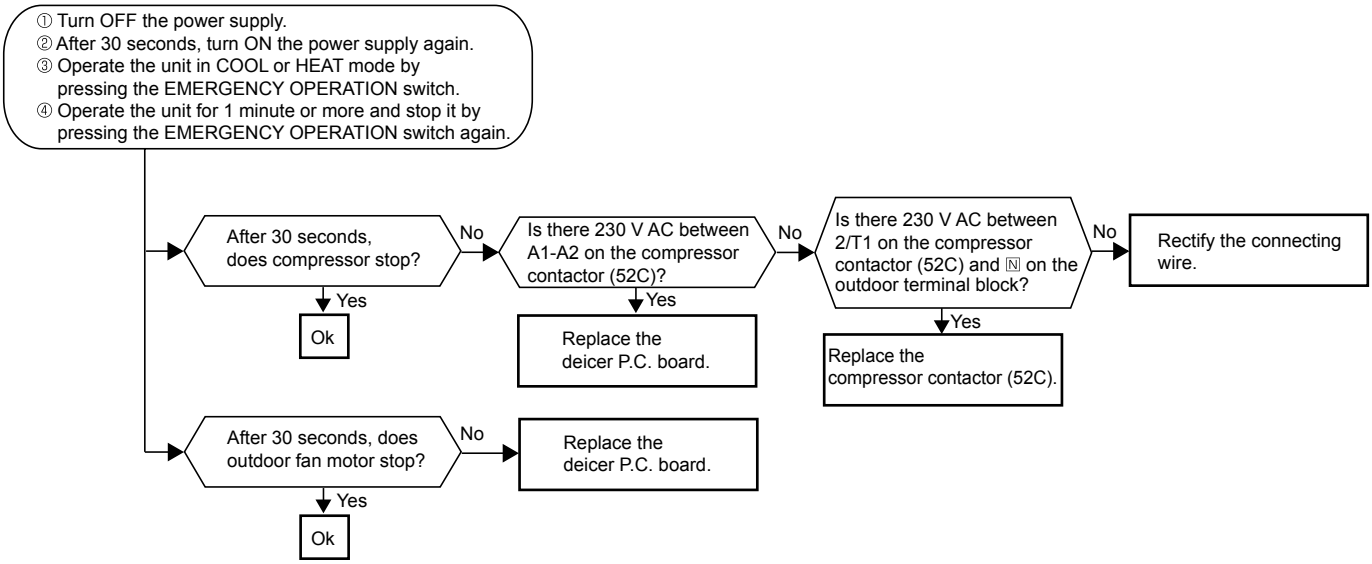
Ⓐ Check of outdoor unit



※ Refer to 11-4.

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

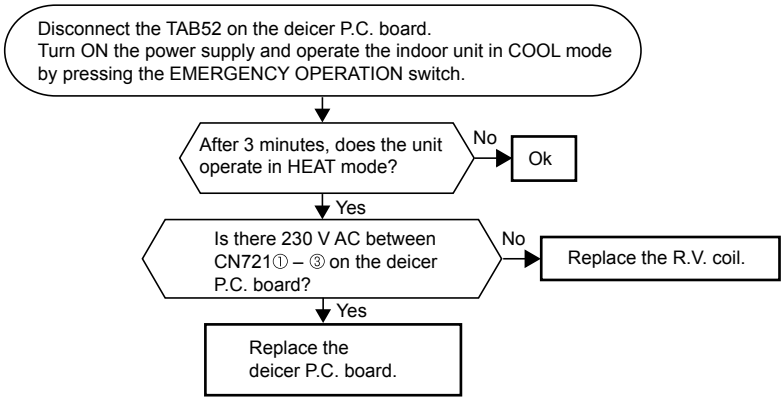
Ⓑ Check of outdoor unit



ⓒCheck of R.V. coil

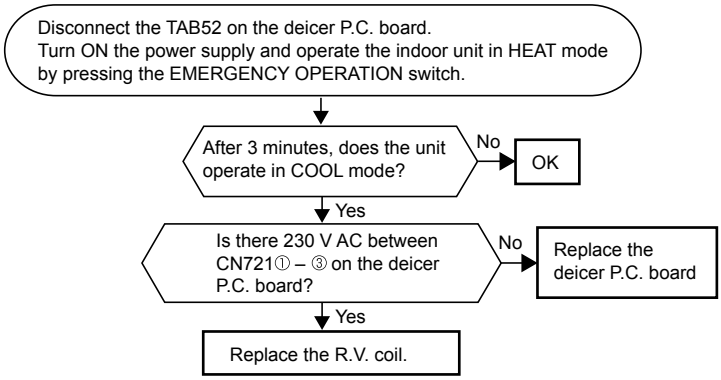
Unit operates HEAT mode even if it is set to COOL mode.

※ First, measure the resistance of R.V. coil to confirm it is disconnected or is not short-circuit.



Unit operates COOL mode even if it is set to HEAT mode.

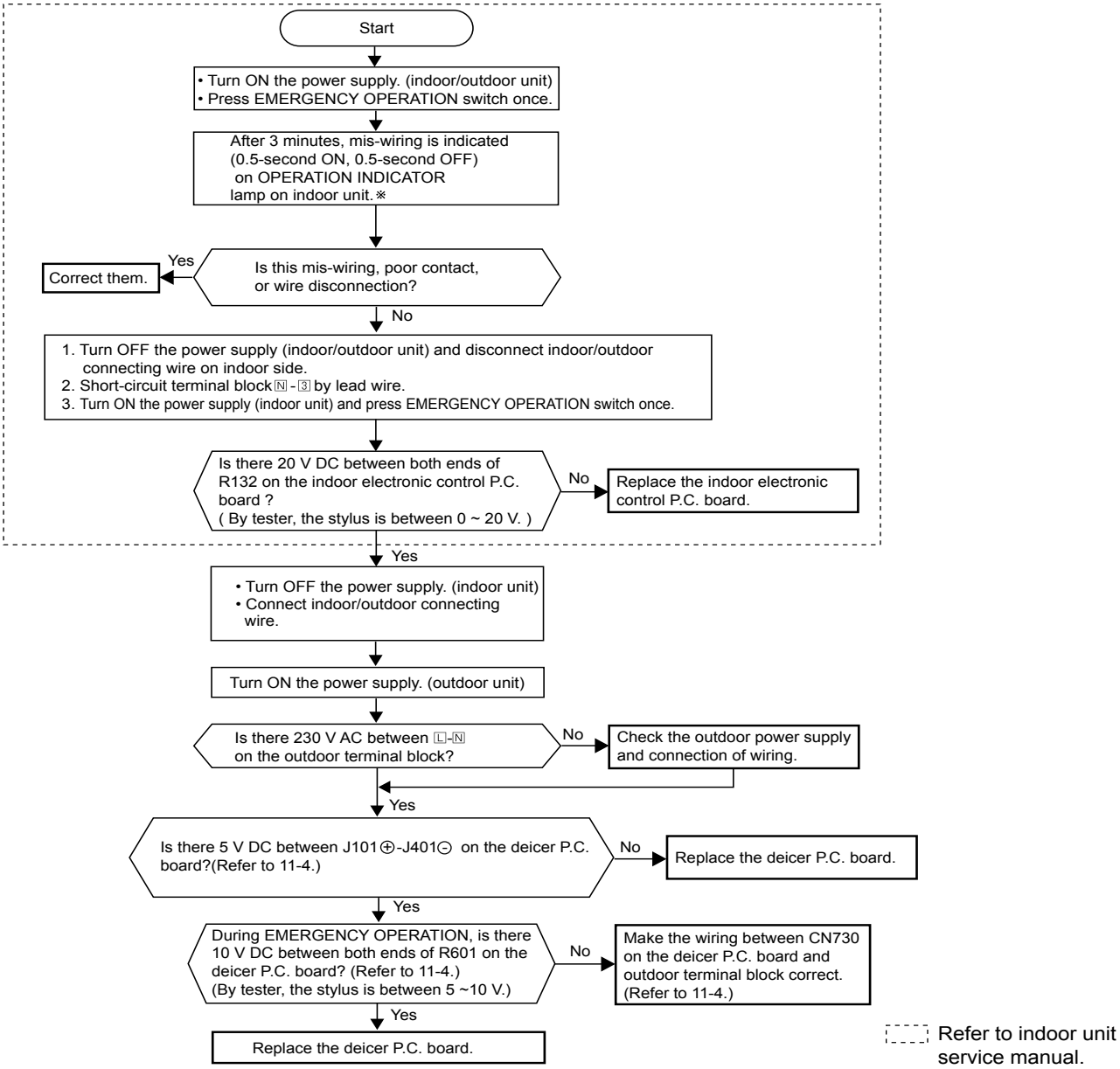
※ First, measure the resistance of R.V. coil to confirm it is disconnected or is not short-circuit.



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

Ⓓ How to check mis-wiring

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



Refer to indoor unit service manual.

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

Ⓔ Check of LEV (Expansion valve)

Turn ON the power supply.
① During pressing both the OPERATION SELECT button and the TOO COOL button on the remote controller at the same time, press the RESET button.
② First, release the RESET button.
And release the other two buttons since 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

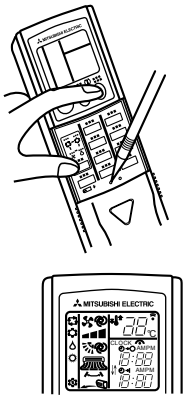
Is LEV properly fixed to the expansion valve? — No → Properly fix the LEV to the expansion valve.

↓ Yes

Does the resistance of LEV have the characteristics on 11-2? — 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.

Ⓕ Check of outdoor thermistor

※ Disconnect the connectors CN661 and/or CN662 from the deicer P.C. board.
(Check the characteristics of each thermistor.)

Turn OFF the power supply.

Defrost thermistor(RT61)
Measure resistance between CN661 ① and ② .

Discharge temperature thermistor(RT62)
Measure resistance between CN662 ① and ② .

Ambient temperature thermistor(RT63)
Measure resistance between CN662 ③ and ④ .

↓

Does the resistance of thermistor have the characteristics on 11-4? — No → Replace the thermistor.

↓ Yes

Connect CN661 and CN662.
Turn ON the power supply and press the EMERGENCY OPERATION switch.

↓

Does the unit operate 10 minutes or more? — No → Replace the deicer P.C. board.

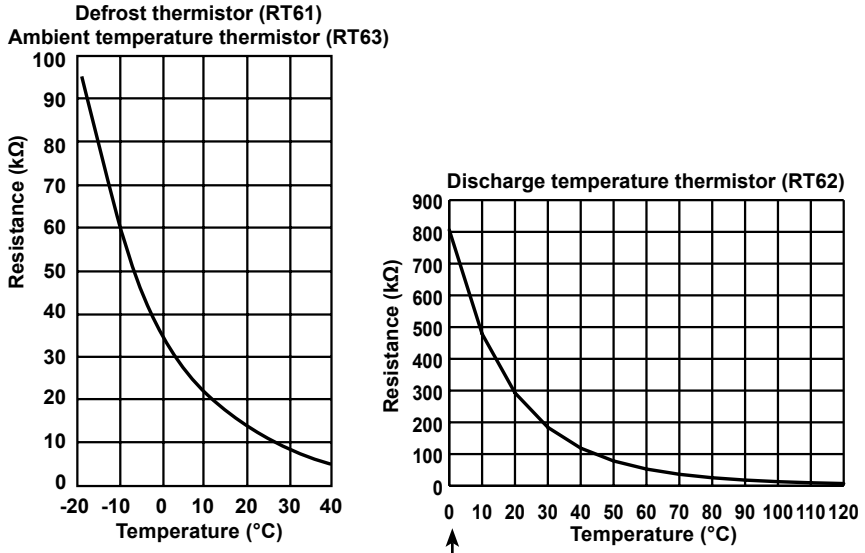
↓ Yes

OK ※ .

※ It probably had contact failure of the connectors.

11-4. TEST POINT DIAGRAM AND VOLTAGE

MUH-GD80VB
Outdoor deicer P.C. board



CN661 ①-②
Defrost thermistor (RT61)
(Refer to 11-3.Ⓕ)

CN662 ①-②
Discharge temperature thermistor (RT62)
(Refer to 11-3.Ⓕ)

CN662 ③-④
Ambient temperature thermistor (RT63)
(Refer to 11-3.Ⓕ)

LEV connector (CN724)

Fan motor connector (CN711)

Varistor (NR62)

R.V. coil (CN721)

12 V DC

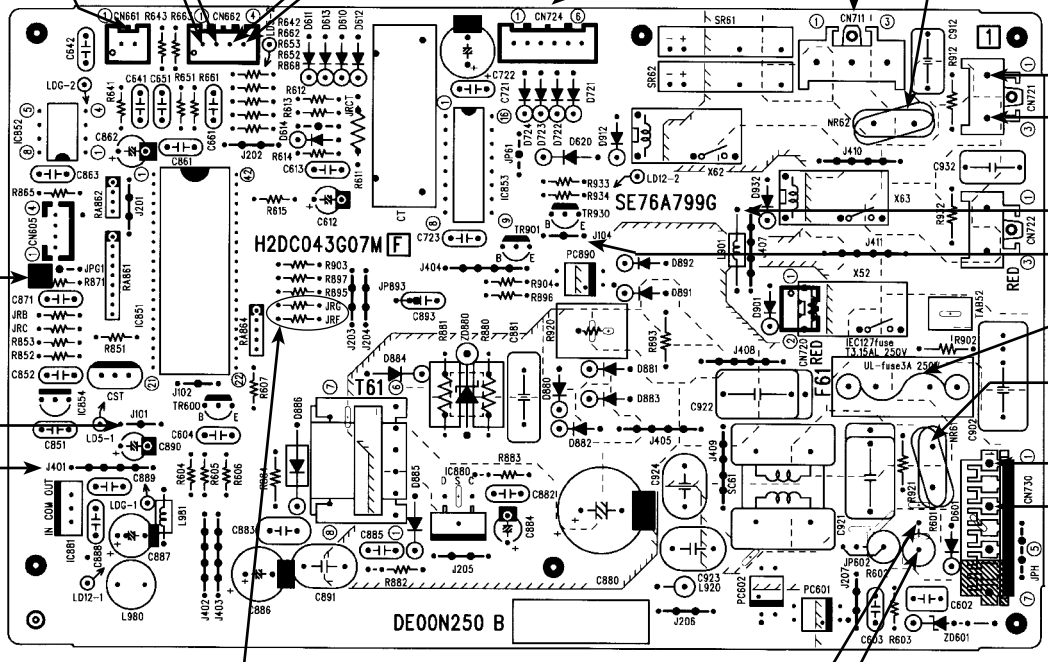
Fuse T3.15AL250V

Varistor (NR61)

CN730①-③ 230 V AC
(Refer to 11-3.Ⓐ or 11-3.Ⓓ.)

Defrost interval time short pin(JPG1, R871)
(Refer to 10-1.)

J101 ⊕
5 V DC
J401 ⊖
(Refer to 11-3.Ⓐ or 11-3.Ⓓ.)



Jumper wire for change in defrost setting (JRF, JRG)
(Refer to 10-2.)

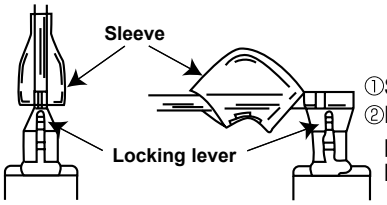
R601 10 V DC
(Refer to 11-3.Ⓓ.)

12 DISASSEMBLY INSTRUCTIONS

<"Terminal with locking mechanism" Detaching points>

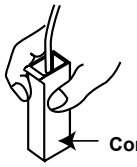
The terminal which has the locking mechanism can be detached as shown below.
There are two types (Refer to (1) and (2)) of the terminal with locking mechanism.
The terminal without locking mechanism can be detached by pulling it out.
Check the shape of the terminal before detaching.

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



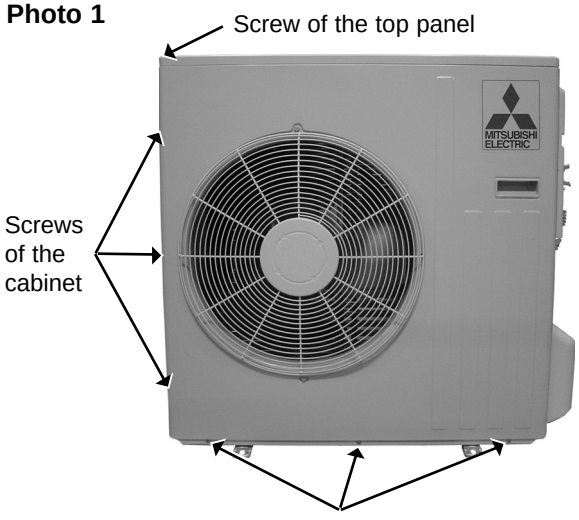
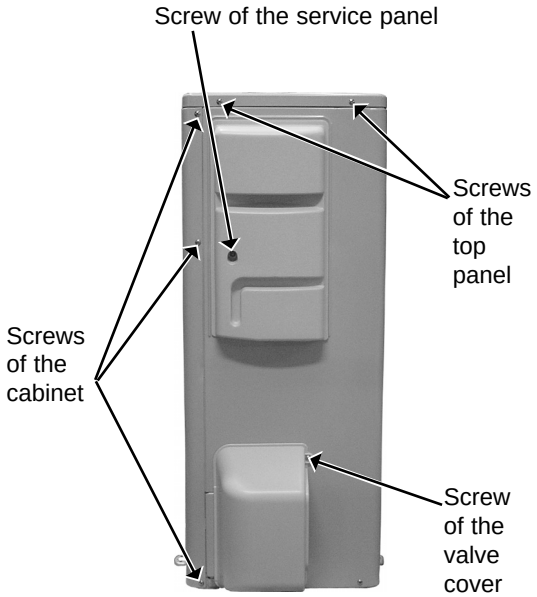
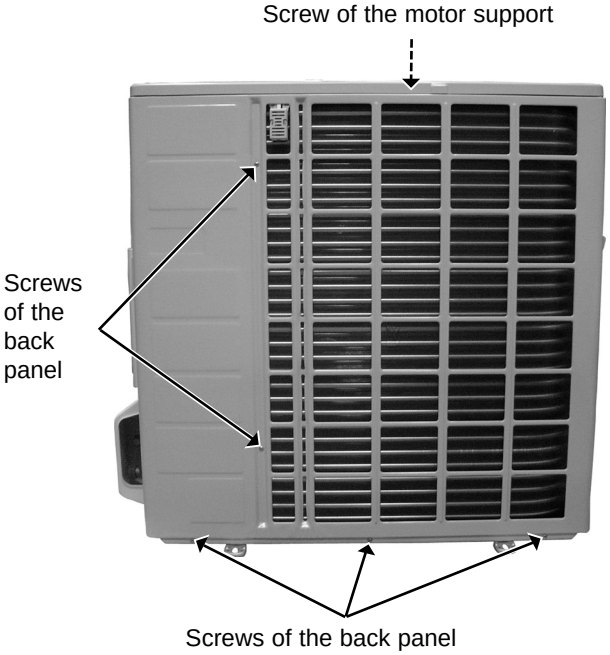
①Slide the sleeve.
②Pull the terminal while pushing the locking lever.

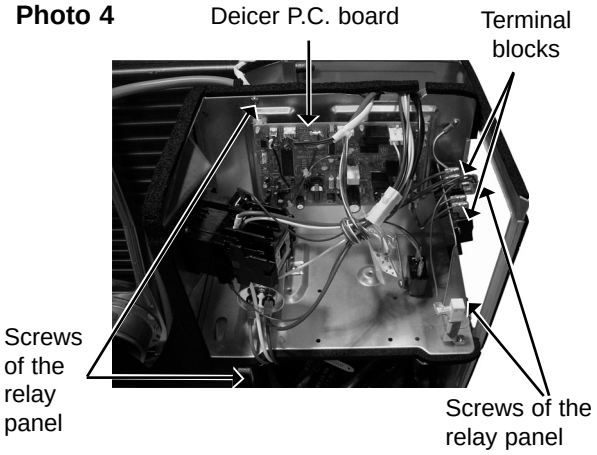
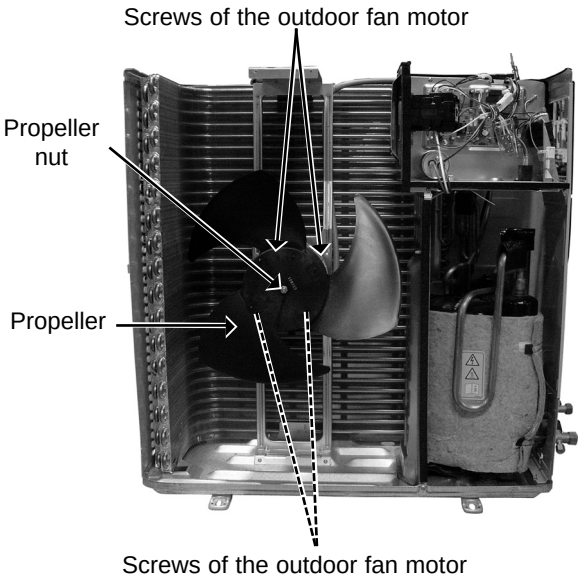
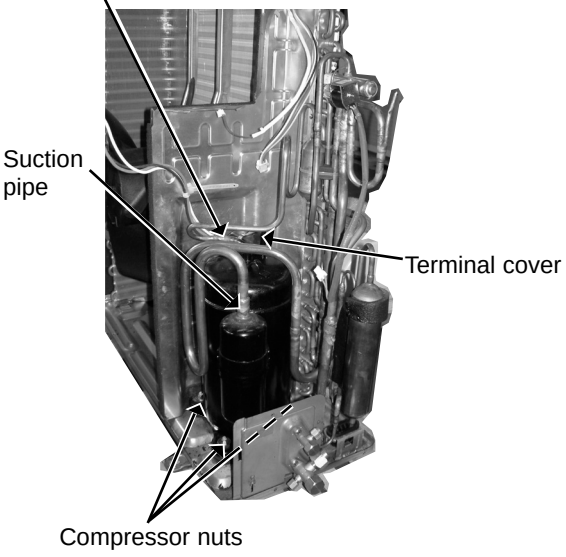
(2) The terminal with this connector has the locking mechanism.



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

MUH-GD80VB

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 1**  **Photo 2**  **Photo 3** 

OPERATING PROCEDURE	PHOTOS
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** 
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 fan 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 kg/cm^2 (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** 

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