

OUTDOOR UNIT

SERVICE MANUAL

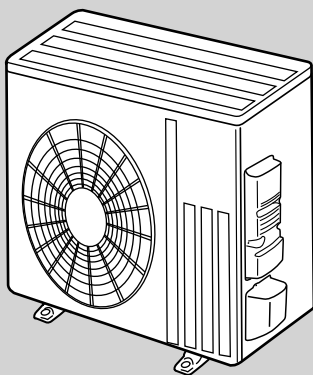


**No. OBH733
REVISED EDITION-D**

Models

MUZ-GL09NA - **U1 MUZ-GL09NAH - **U1** MUY-GL09NA - **U1****
MUZ-GL09NA - **U8 MUZ-GL09NAH - **U8****
MUZ-GL12NA - **U1 MUZ-GL12NAH - **U1** MUY-GL12NA - **U1****
MUZ-GL15NA - **U1 MUZ-GL15NAH - **U1** MUY-GL15NA - **U1****
MUZ-GL18NA - **U1 MUZ-GL18NAH - **U1** MUY-GL18NA - **U1****
MUZ-GL24NA - **U1 MUZ-GL24NAH - **U1** MUY-GL24NA - **U1****

Indoor unit service manual
MSZ-GL•NA, MSY-GL•NA Series (OBH732)



**MUZ-GL18/24NA
MUZ-GL18/24NAH
MUY-GL18/24NA**

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PARTS CATALOG (OBB733)

NOTE:

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

Use the specified refrigerant only

Never use any refrigerant other than that specified.

Doing so may cause a burst, an explosion, or fire when the unit is being used, serviced, or disposed of.

Correct refrigerant is specified in the manuals and on the spec labels provided with our products.

We will not be held responsible for mechanical failure, system malfunction, unit breakdown or accidents caused by failure to follow the instructions.

Revision A:

- MUZ-GL12/15NA-[U1], MUZ-GL12/15NAH-[U1] and MUY-GL09/12/15NA-[U1] have been added.

Revision B:

- MUZ-GL09NA-[U8] and MUZ-GL09NAH-[U8] have been added.

Revision C:

- MUZ-GL09NA-[U1] and MUZ-GL09NAH-[U1] have been added.

Revision D:

- MUZ-GL24NAH-[U1] has been added.

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TECHNICAL CHANGES

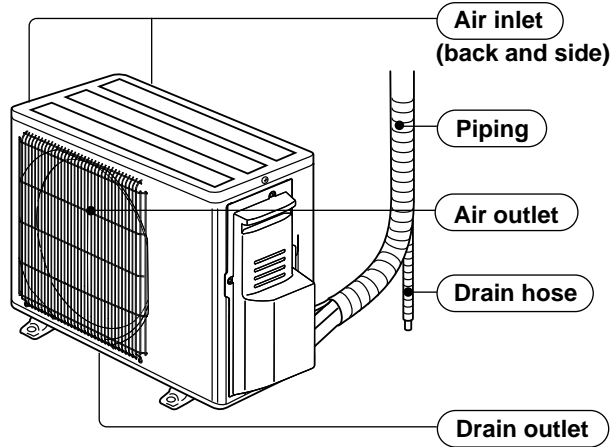
MUZ-GL09NA - [U1]	MUZ-GL09NAH - [U1]	MUY-GL09NA - [U1]
MUZ-GL09NA - [U8]	MUZ-GL09NAH - [U8]	
MUZ-GL12NA - [U1]	MUZ-GL12NAH - [U1]	MUY-GL12NA - [U1]
MUZ-GL15NA - [U1]	MUZ-GL15NAH - [U1]	MUY-GL15NA - [U1]
MUZ-GL18NA - [U1]	MUZ-GL18NAH - [U1]	MUY-GL18NA - [U1]
MUZ-GL24NA - [U1]	MUZ-GL24NAH - [U1]	MUY-GL24NA - [U1]

1. New model

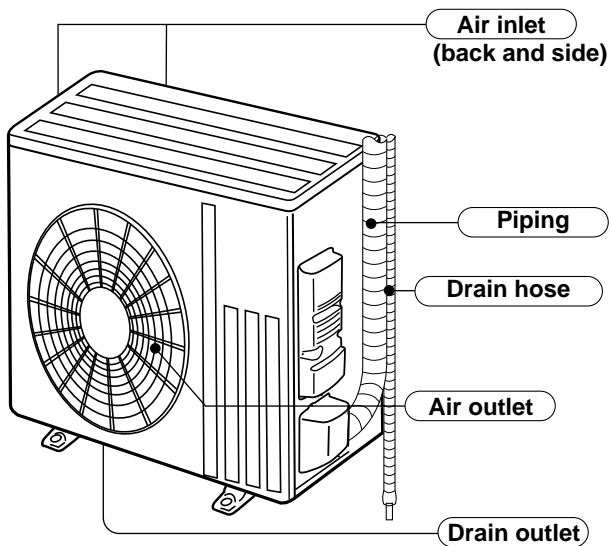
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PART NAMES AND FUNCTIONS

MUZ-GL09NA MUZ-GL09NAH MUY-GL09NA
MUZ-GL12NA MUZ-GL12NAH MUY-GL12NA
MUZ-GL15NA MUZ-GL15NAH MUY-GL15NA



MUZ-GL18NA MUZ-GL18NAH MUY-GL18NA
MUZ-GL24NA MUZ-GL24NAH MUY-GL24NA



Outdoor unit model			MUZ- GL09NA- U1 MUZ- GL09NAH- U1	MUZ- GL09NA- U8 MUZ- GL09NAH- U8	MUY- GL09NA	MUZ- GL12NA MUZ- GL12NAH	MUY- GL12NA
Capacity Rated (Minimum~Maximum)	Cooling *1	Btu/h	9,000 (3,600 - 12,200)			12,000 (1,500 - 13,600)	
	Heating 47 *1 (MUZ)	Btu/h	10,900 (4,500 - 15,900)	10,900 (4,500 - 14,100)	—	14,400 (2,000 - 18,100)	—
Capacity Rated (Maximum)	Heating 17 *2 (MUZ)	Btu/h	6,700 (10,200)	7,000 (9,400)	—	9,200 (12,000)	—
Power consumption Rated (Minimum~Maximum)	Cooling *1	W	585 (240 - 1,050)			920 (100 - 1,300)	
	Heating 47 *1 (MUZ)	W	720 (230 - 1,250)	720 (230 - 1,070)	—	1,100 (110 - 1,620)	—
Power consumption Rated (Maximum)	Heating 17 *2 (MUZ)	W	630 (1,060)	620 (790)	—	870 (1,240)	—
EER *1 [SEER] *3	Cooling		15.4 [24.6]			13.0 [23.1]	
HSPF IV *4	Heating (MUZ)		NA: 12.8			—	NA: 12.5
			NAH: 11.8			—	NAH: 11.5
COP	Heating *1 (MUZ)		4.44			—	3.84
Power factor	Cooling (208/230)	%	86/86	92/92	87/87	95/95	
	Heating (MUZ) (208/230)	%	90/90	95/95	—	96/96	
Power supply	V , phase , Hz		208/230, 1 , 60				
Max. fuse size (time delay)	A		15				
Min. circuit ampacity	A		9		7	9	7
Fan motor	F.L.A	A	0.50				
Compressor	Model		KNB073FRVMC	SNB092FQAMT	KNB073FRVMC	SNB092FQAMT	
	R.L.A	A	6.2		4.9	6.6	4.9
	L.R.A	A	7.7		6.1	8.2	6.1
	Refrigeration oil	fl oz. (L) (Model)	9.1 (0.27)/(FV50S)	11.8 (0.35)/(FV50S)	9.1 (0.27)/(FV50S)	11.8 (0.35)/(FV50S)	
Refrigerant control	Linear expansion valve						
Sound level *1	Cooling	dB(A)	48			49	49
	Heating (MUZ)	dB(A)	50			—	51
Airflow High - Med. - Low	Cooling	CFM	1,102 - 639				—
	Heating (MUZ)	CFM	1,186 - 1,116 - 1,045		—	1,186 - 1,116 - 1,045	
Fan speed High - Med. - Low	Cooling	rpm	810 - 490				—
	Heating (MUZ)	rpm	870 - 820 - 770		—	870 - 820 - 770	
Defrost method	Reverse cycle						
Dimensions	W	in.	31-1/2				
	D	in.	11-1/4				
	H	in.	21-5/8				
Weight	lb.		81				
External finish	Munsell 3Y 7.8/1.1						
Remote controller	Wireless type						
Control voltage (by built-in transformer)	VDC		12 - 24				
Refrigerant piping	Not supplied						
Refrigerant pipe size (Min. wall thickness)	Liquid	in.	1/4 (0.0315)				
	Gas	in.	3/8 (0.0315)				
Connection method	Indoor		Flared				
	Outdoor		Flared				
Between the indoor & outdoor units	Height difference	ft.	40				
	Piping length	ft.	65				
Refrigerant charge (R410A)			2 lb. 5 oz.		2 lb. 9 oz.		

NOTE: Test conditions are based on AHRI 210/240.

*1: Rating conditions (Cooling) — Indoor: 80°FDB, 67°FWB, Outdoor: 95°FDB, (75°FWB)
(Heating) — Indoor: 70°FDB, 60°FWB, Outdoor: 47°FDB, 43°FWB

*2: (Heating) — Indoor: 70°FDB, 60°FWB, Outdoor: 17°FDB, 15°FWB

*3: Test condition (Refer to page 6.)

*4: Test condition (Refer to page 6.)

Outdoor unit model			MUZ-GL15NA MUZ-GL15NAH	MUY-GL15NA	MUZ-GL18NA MUZ-GL18NAH	MUY-GL18NA	MUZ-GL24NA MUZ-GL24NAH	MUY-GL24NA	
Capacity Rated (Minimum~Maximum)	Cooling ※1	Btu/h	14,000 (3,100 - 18,200)		18,000 (5,800 ~ 22,000)		22,500 (8,200 ~ 31,400)		
	Heating 47 ※1 (MUZ)	Btu/h	18,000 (4,800 - 20,900)	-	21,600 (5,400 ~ 25,000)	-	27,600 (7,500 ~ 36,900)	-	
Capacity Rated (Maximum)	Heating 17 ※2 (MUZ)	Btu/h	12,200 (16,400)	-	13,800 (18,200)	-	16,000 (24,600)	-	
Power consumption Rated (Minimum~Maximum)	Cooling ※1	W	1,080 (210 - 2,000)		1,295 (285 ~ 2,105)		1,742 (560 ~ 3,522)		
	Heating 47 ※1 (MUZ)	W	1,600 (2,010)	-	1,635 (275 ~ 2,455)	-	2,282 (508 ~ 3,592)	-	
Power consumption Rated (Maximum)	Heating 17 ※2 (MUZ)	W	1,190 (1,850)	-	1,435 (2,105)	-	1,712 (3,232)	-	
EER ※1 [SEER] ※3	Cooling		13.0 [21.6]		13.4 [20.5]		12.5 [20.5]		
HSPF IV ※4	Heating (MUZ)		NA: 11.7	-	NA: 11.2	-	NA: 10.0	-	
			NAH: 10.8	-	NAH: 10.2	-	NAH: 10.0	-	
COP	Heating ※1 (MUZ)		3.30	-	3.77	-	3.46	-	
Power factor	Cooling (208/230)	%	97/97		99/99		99/99		
	Heating (MUZ) (208/230)	%	98/98		99/99		99/99		
Power supply	V , phase , Hz		208/230, 1 , 60						
Max. fuse size (time delay)	A		15				20		
Min. circuit ampacity	A		10	9	14		17.1		
Fan motor	F.L.A		0.50		0.93		0.93		
Compressor	Model		SNB130FQBMT		SNB130FQBMT		SNB172FQKMT		
	R.L.A	A	7.4	6.8	10		12.9		
	L.R.A	A	9.3	8.5	12.5		16.1		
	Refrigeration oil	fl oz. (L) (Model)	11.8 (0.35)/(FV50S)		11.8 (0.35)/(FV50S)	11.8 (0.35)/(FV50S)	13.5 (0.40)/(FV50S)		
Refrigerant control	Linear expansion valve								
Sound level ※1	Cooling	dB(A)	49	49	54		55		
	Heating (MUZ)	dB(A)	51	-	55	-	55	-	
Airflow High - Med. - Low	COOL	CFM	1,102-639		1,742 - 922		2,016 - 1,769 - 890		
	HEAT	CFM	1,186 - 1,045 - 1,045	-	1,691 - 1,691 - 1,372	-	1,701 - 1,701 - 1,341	-	
Fan speed High - Med. - Low	Cooling	rpm	810 - 490		840 - 450		950 - 840 - 450		
	Heating (MUZ)	rpm	870 - 770 - 770	-	810 - 810 - 650	-	810 - 810 - 650	-	
Defrost method	Reverse cycle								
Dimensions	W	in.	31-1/2		33-1/16				
	D	in.	11-1/4		13				
	H	in.	21-5/8		34-5/8				
Weight	lb.		81		121		119		
External finish	Munsell 3Y 7.8/1.1								
Remote controller	Wireless type								
Control voltage (by built-in transformer)	VDC		12 - 24						
Refrigerant piping	Not supplied								
Refrigerant pipe size (Min. wall thickness)	Liquid	in.	1/4 (0.0315)				3/8 (0.0315)		
	Gas	in.	1/2 (0.0315)				5/8 (0.0315)		
Connection method	Indoor		Flared						
	Outdoor		Flared						
Between the indoor & outdoor units	Height difference	ft.	40			50			
	Piping length	ft.	65			100			
Refrigerant charge (R410A)			2 lb. 9 oz.		3 lb. 9 oz.		4 lb. 3 oz.		

NOTE: Test conditions are based on AHRI 210/240.

※1: Rating conditions (Cooling) — Indoor: 80°FDB, 67°FWB, Outdoor: 95°FDB, (75°FWB)
(Heating) — Indoor: 70°FDB, 60°FWB, Outdoor: 47°FDB, 43°FWB

※2: (Heating) — Indoor: 70°FDB, 60°FWB, Outdoor: 17°FDB, 15°FWB

Test condition

*3,*4

ARI	Mode	Test	Indoor air condition (°F)		Outdoor air condition (°F)	
			Dry bulb	Wet bulb	Dry bulb	Wet bulb
	SEER (Cooling)	"A-2" Cooling Steady State at rated compressor Speed	80	67	95	(75)
		"B-2" Cooling Steady State at rated compressor Speed	80	67	82	(65)
		"B-1" Cooling Steady State at minimum compressor Speed	80	67	82	(65)
		"F-1" Cooling Steady State at minimum compressor Speed	80	67	67	(53.5)
		"E-V" Cooling Steady State at Intermediate compressor Speed *5	80	67	87	(69)
	HSPF (Heating)	"H1-2" Heating Steady State at rated compressor Speed	70	60	47	43
		"H3-2" Heating at rated compressor Speed	70	60	17	15
		"H0-1" Heating Steady State at minimum compressor Speed	70	60	62	56.5
		"H1-1" Heating Steady State at minimum compressor Speed	70	60	47	43
		"H2-V" Heating at Intermediate compressor Speed *5	70	60	35	33

NOTE:

*5: At Intermediate compressor Speed

= ("Rated compressor speed" - "minimum compressor speed") / 3 + "minimum compressor speed".

OPERATING RANGE

(1) POWER SUPPLY

	Rated voltage	Guaranteed voltage (V)
Outdoor unit	208/230 V 1 phase 60 Hz	

(2) OPERATION

Mode	Condition	Intake air temperature (°F)			
		Indoor		Outdoor	
		DB	WB	DB	WB
Cooling	Standard temperature	80	67	95	—
	Maximum temperature	90	73	115	—
	Minimum temperature	67	57	14	—
	Maximum humidity	78 %		—	
Heating	Standard temperature	70	60	47	43
	Maximum temperature	80	67	75	65
	Minimum temperature	70	60	-4	-5

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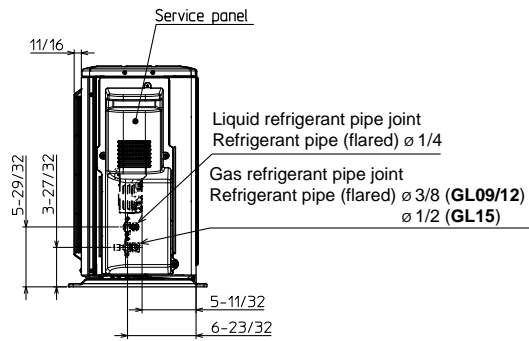
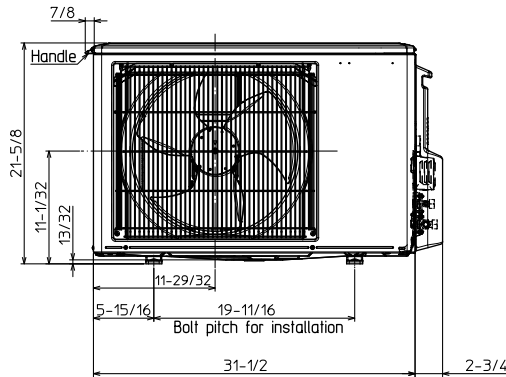
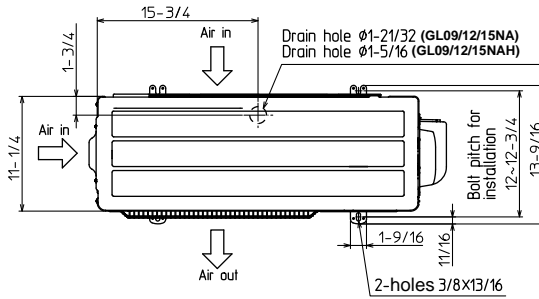
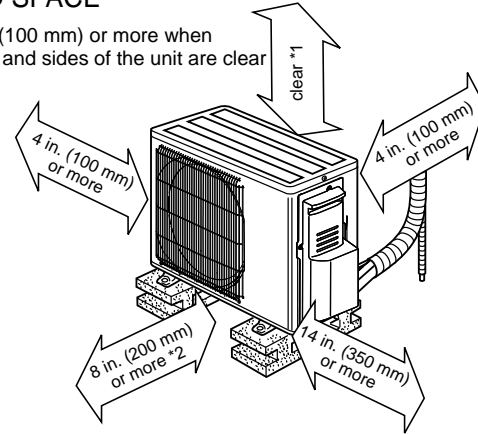
OUTLINES AND DIMENSIONS

MUZ-GL09NA MUZ-GL09NAH MUY-GL09NA
 MUZ-GL12NA MUZ-GL12NAH MUY-GL12NA
 MUZ-GL15NA MUZ-GL15NAH MUY-GL15NA

Unit: inch

REQUIRED SPACE

*1 4 in. (100 mm) or more when front and sides of the unit are clear

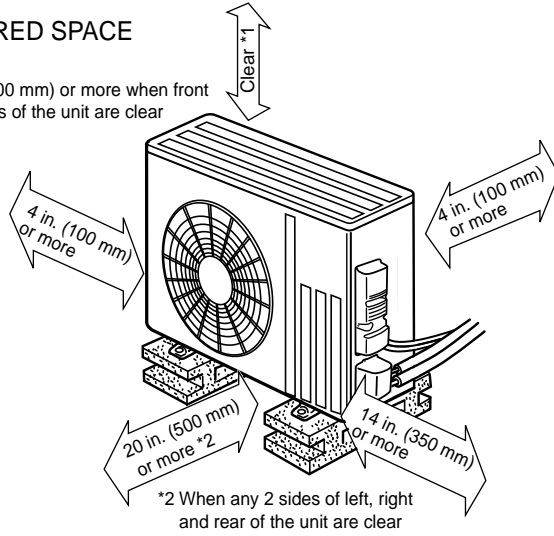
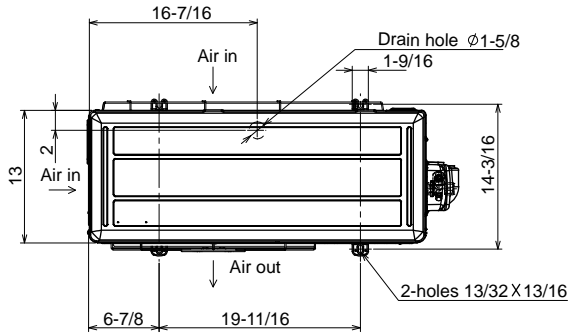


MUZ-GL18NA MUZ-GL18NAH MUY-GL18NA
 MUZ-GL24NA MUZ-GL24NAH MUY-GL24NA

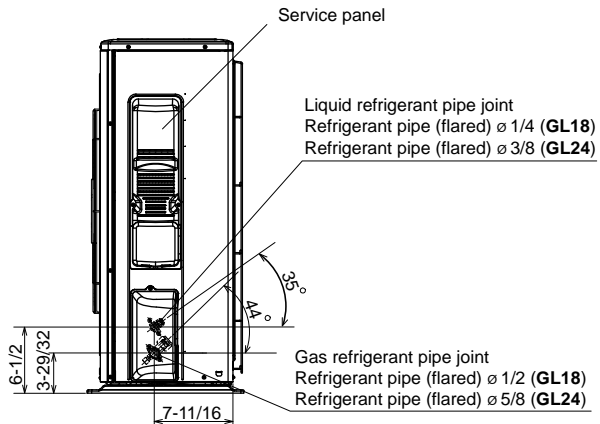
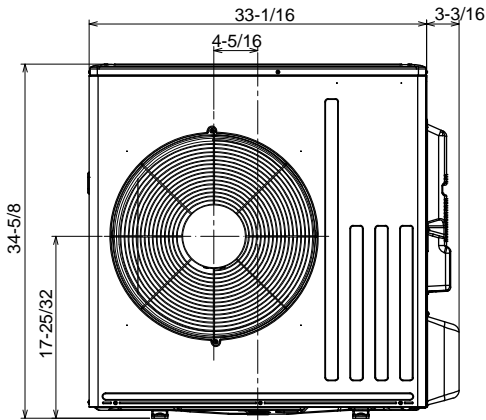
Unit: inch

REQUIRED SPACE

*1 20 in. (500 mm) or more when front and sides of the unit are clear



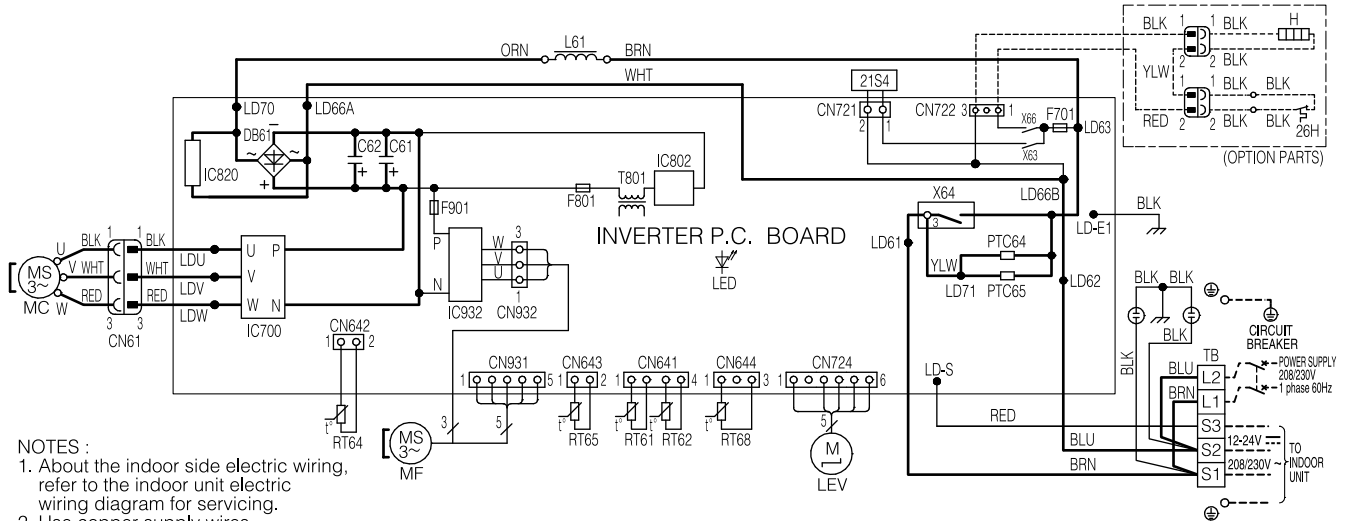
*2 When any 2 sides of left, right and rear of the unit are clear



5

WIRING DIAGRAM

MUZ-GL09NA MUZ-GL12NA



NOTES :

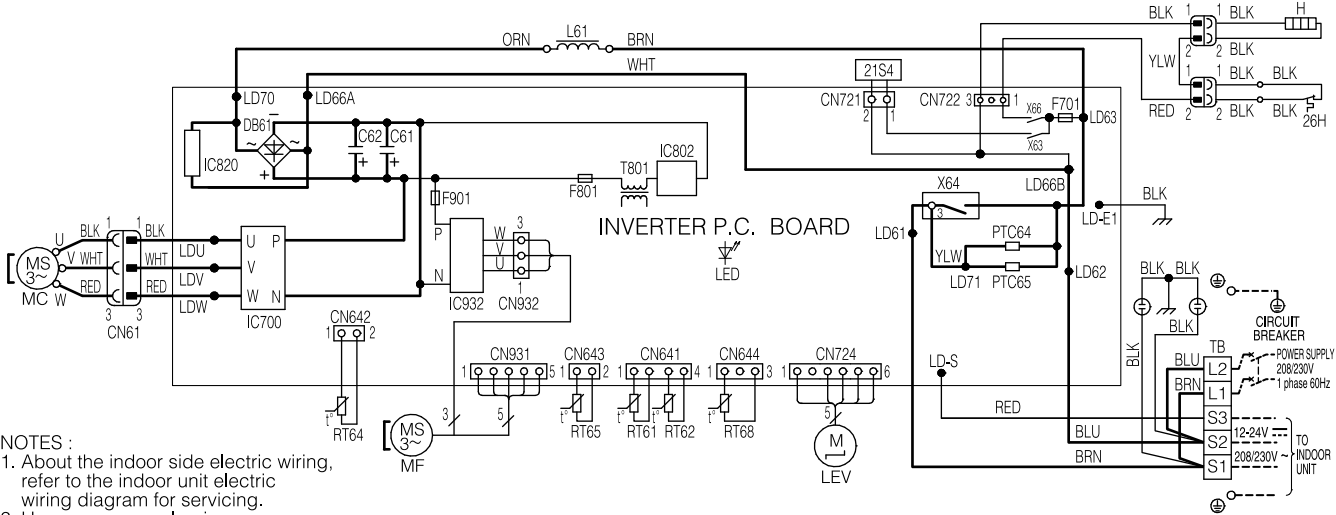
- About the indoor side electric wiring, refer to the indoor unit electric wiring diagram for servicing.
- Use copper supply wires.
- Symbols indicate, :Terminal block
 :Connector

REMARQUES :

- Pour le câblage électronique côté intérieur, se reporter au schéma d'entretien du câblage électronique de l'appareil intérieur.
- Utiliser des fils d'alimentation en cuivre.
- Les symboles ont les significations suivantes, :Borne
 :Connecteur

SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
C61, C62	SMOOTHING CAPACITOR	L61	REACTOR	RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR
DB61	DIODE MODULE	MC	COMPRESSOR	TB	TERMINAL BLOCK
F701, F801, F901	FUSE (T3. 15AL250V)	MF	FAN MOTOR	T801	TRANSFORMER
H	DEFROST HEATER(OPTION PARTS)	PTC64, PTC65	CIRCUIT PROTECTION	X63, X64, X66	RELAY
IC700, IC820, IC932	POWER MODULE	RT61	DEFROST THERMISTOR	21S4	REVERSING VALVE COIL
IC802	POWER DEVICE	RT62	DISCHARGE TEMP. THERMISTOR	26H	HEATER PROTECTOR(OPTION PARTS)
LED	LED	RT64	FIN TEMP. THERMISTOR		
LEV	EXPANSION VALVE COIL	RT65	AMBIENT TEMP. THERMISTOR		

MUZ-GL09NAH MUZ-GL12NAH



NOTES :

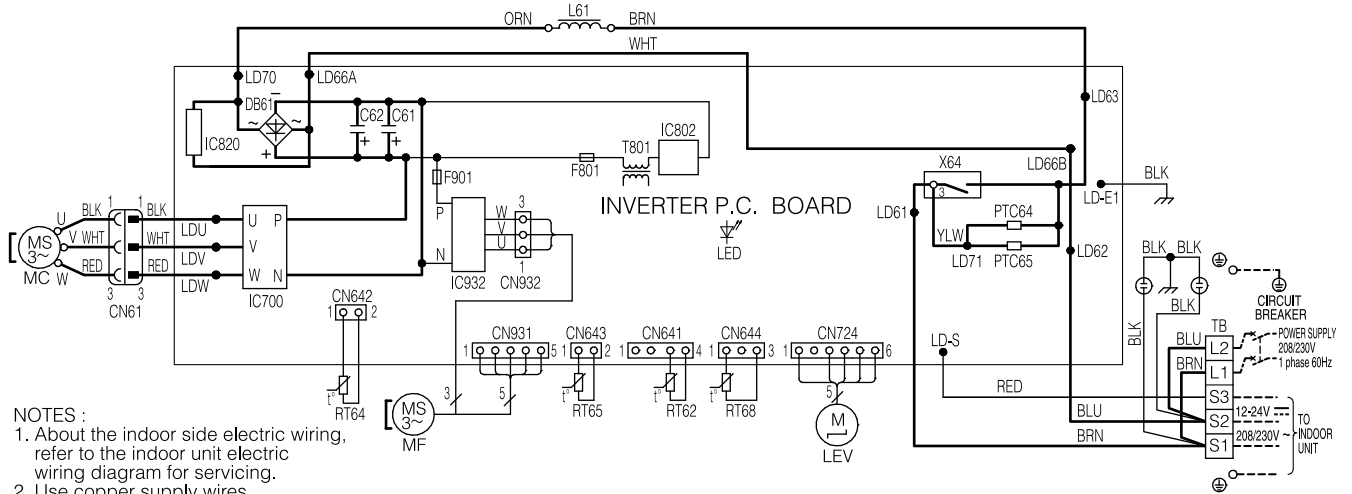
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DB61	DIODE MODULE	MC	COMPRESSOR		
F701,F801,F901	FUSE (T3, 15AL250V)	MF	FAN MOTOR	TB	TERMINAL BLOCK
H	DEFROST HEATER	PTC64, PTC65	CIRCUIT PROTECTION	T801	TRANSFORMER
IC700,IC820,IC932	POWER MODULE	RT61	DEFROST THERMISTOR	X63, X64, X66	RELAY
IC802	POWER DEVICE	RT62	DISCHARGE TEMP. THERMISTOR	21S4	REVERSING VALVE COIL
LED	LED	RT64	FIN TEMP. THERMISTOR	26H	HEATER PROTECTOR
LEV	EXPANSION VALVE COIL	RT65	AMBIENT TEMP. THERMISTOR		

MUY-GL09NA MUY-GL12NA



NOTES :

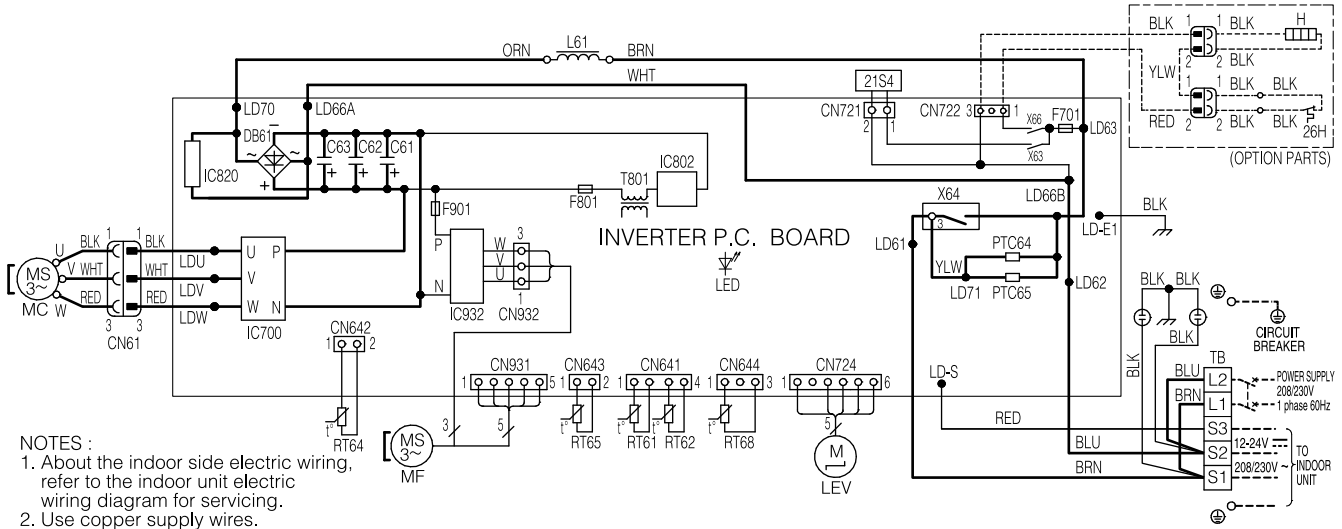
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IC700,IC820,IC932	POWER MODULE	PTC64, PTC65	CIRCUIT PROTECTION	T801	TRANSFORMER
IC802	POWER DEVICE	RT62	DISCHARGE TEMP. THERMISTOR	X64	RELAY
LED	LED	RT64	FIN TEMP. THERMISTOR		
LEV	EXPANSION VALVE COIL	RT65	AMBIENT TEMP. THERMISTOR		

MUZ-GL15NA



NOTES :

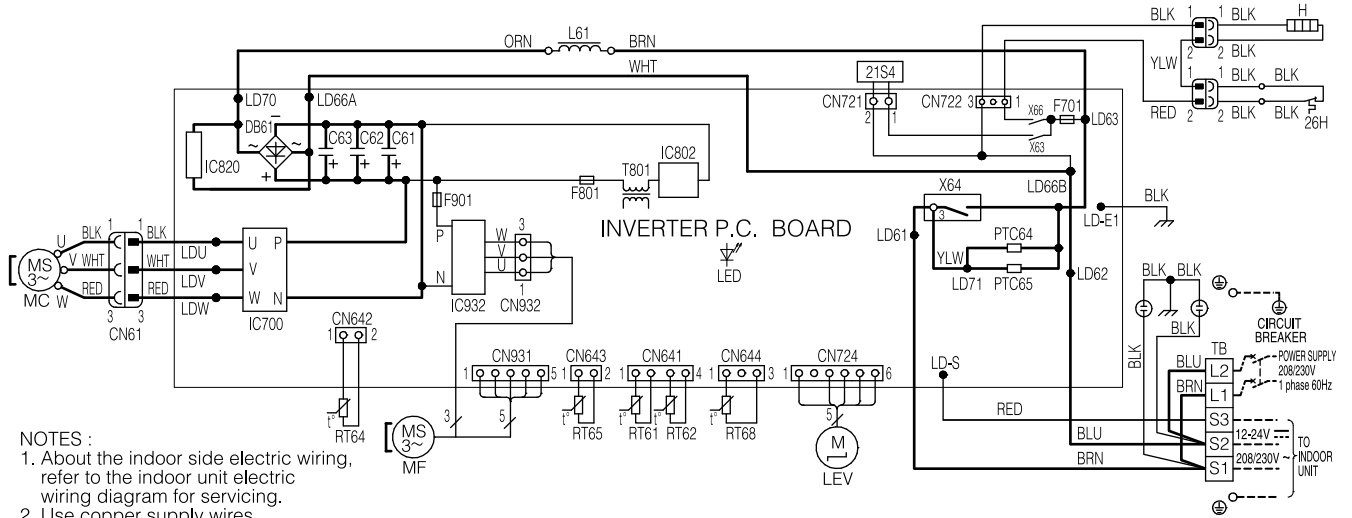
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3. Symbols indicate, :Terminal block
 :Connector

REMARQUES :

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2. Utiliser des fils d'alimentation en cuivre.
3. Les symboles ont les :Borne significations suivantes, :Connecteur

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F701,F801,F901	FUSE (T3. 15AL250V)	MF	FAN MOTOR	TB	TERMINAL BLOCK
H	DEFROST HEATER	PTC64, PTC65	CIRCUIT PROTECTION	T801	TRANSFORMER
IC700,IC820,IC932	POWER MODULE	RT61	DEFROST THERMISTOR	X63, X64, X66	RELAY
IC802	POWER DEVICE	RT62	DISCHARGE TEMP. THERMISTOR	21S4	REVERSING VALVE COIL
LED	LED	RT64	FIN TEMP. THERMISTOR	26H	HEATER PROTECTOR
LEV	EXPANSION VALVE COIL	RT65	AMBIENT TEMP. THERMISTOR		

MUZ-GL15NAH



NOTES :

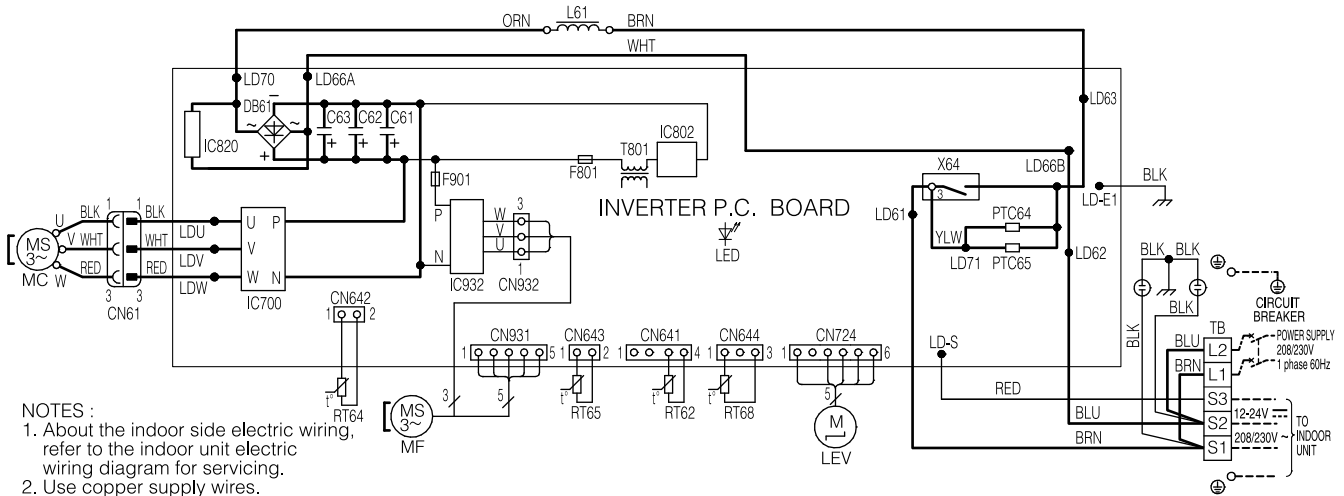
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2. Use copper supply wires.
3. Symbols indicate, □ :Terminal block
□ :Connector

REMARQUES :

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F701,F801,F901	FUSE (T3. 15AL250V)	MF	FAN MOTOR	T801	TRANSFORMER
H	DEFROST HEATER	PTC64, PTC65	CIRCUIT PROTECTION	X63, X64, X66	RELAY
IC700,IC820,IC932	POWER MODULE	RT61	DEFROST THERMISTOR	21S4	REVERSING VALVE COIL
IC802	POWER DEVICE	RT62	DISCHARGE TEMP. THERMISTOR	26H	HEATER PROTECTOR
LED	LED	RT64	FIN TEMP. THERMISTOR		
LEV	EXPANSION VALVE COIL	RT65	AMBIENT TEMP. THERMISTOR		

MUY-GL15NA



NOTES :

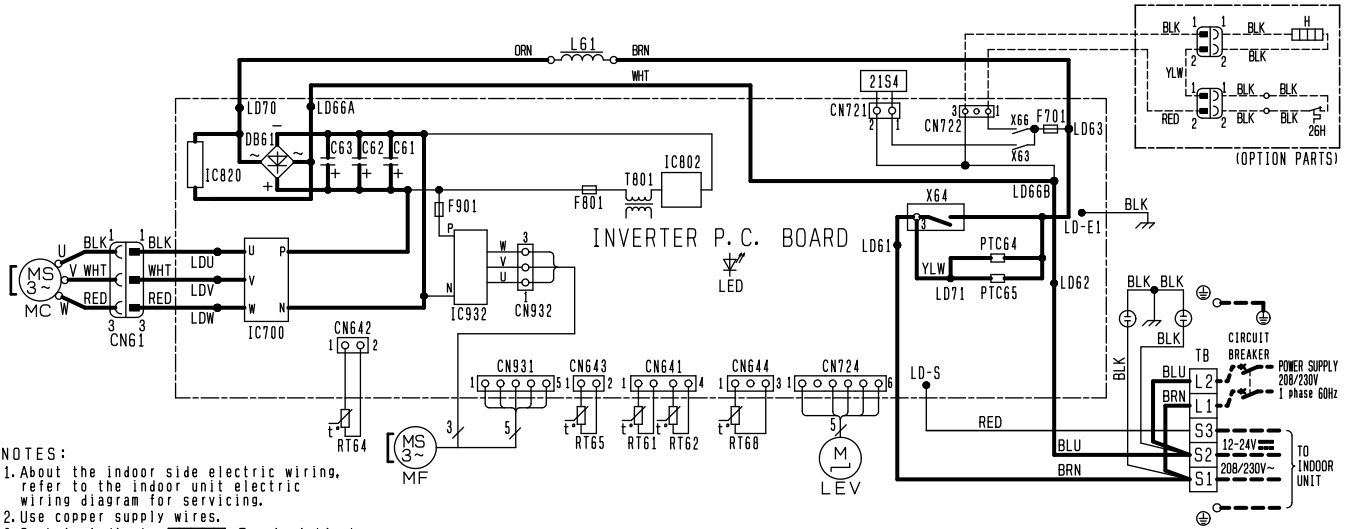
1. About the indoor side electric wiring, refer to the indoor unit electric wiring diagram for servicing.
2. Use copper supply wires.
3. Symbols indicate, :Terminal block, :Connector

REMARQUES :

1. Pour le câblage électronique côté intérieur, se reporter au schéma d'entretien du câblage électronique de l'appareil intérieur.
2. Utiliser des fils d'alimentation en cuivre.
3. Les symboles ont les significations suivantes, :Borne, :Connecteur

SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
C61,C62,C63	SMOOTHING CAPACITOR	L61	REACTOR	RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR
DB61	DIODE MODULE	MC	COMPRESSOR		
F801,F901	FUSE (T3, 15AL250V)	MF	FAN MOTOR	TB	TERMINAL BLOCK
IC700,IC820,IC932	POWER MODULE	PTC64, PTC65	CIRCUIT PROTECTION	T801	TRANSFORMER
IC802	POWER DEVICE	RT62	DISCHARGE TEMP. THERMISTOR	X64	RELAY
LED	LED	RT64	FIN TEMP. THERMISTOR		
LEV	EXPANSION VALVE COIL	RT65	AMBIENT TEMP. THERMISTOR		

MUZ-GL18NA

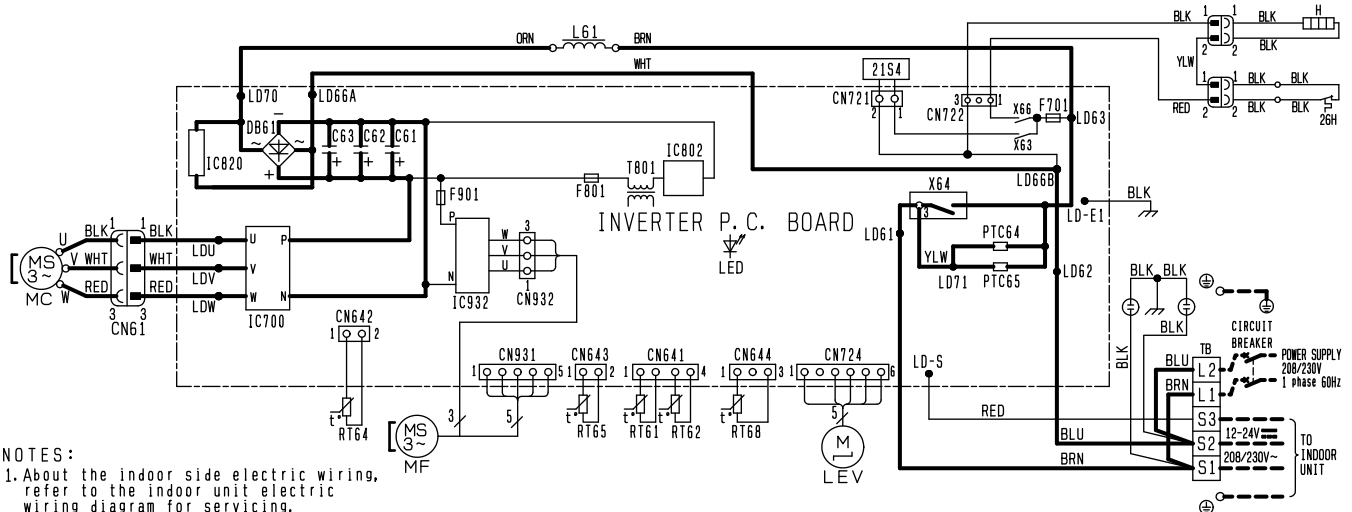


- NOTES:**
- About the indoor side electric wiring, refer to the indoor unit electric wiring diagram for servicing.
 - Use copper supply wires.
 - Symbols indicate, : Terminal block
 : Connector

- REMARQUES:**
- Pour le câblage électronique côté intérieur, se reporter au schéma d'entretien du câblage électronique de l'appareil intérieur.
 - Utiliser des fils d'alimentation en cuivre.
 - Les symboles ont les significations suivantes, : Borne
 : Connecteur

SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
C61, C62, C63	SMOOTHING CAPACITOR	L61	REACTOR	RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR.
DB61	DIODE MODULE	MC	COMPRESSOR	T801	TRANSFORMER
F701, F801, F901	FUSE (T3. 15AL250V)	MF	FAN MOTOR	X63, X64, X66	RELAY
H	DEFROST HEATER (OPTION PARTS)	PTC64, PTC65	CIRCUIT PROTECTION	21S4	REVERSING VALVE COIL
IC700, IC820, IC932	POWER MODULE	RT61	DEFROST THERMISTOR	26H	HEATER PROTECTOR (OPTION PARTS)
IC802	POWER DEVICE	RT62	DISCHARGE TEMP. THERMISTOR		
LED	LED	RT64	FIN TEMP. THERMISTOR		
LEV	EXPANSION VALVE COIL	RT65	AMBIENT TEMP. THERMISTOR		

MUZ-GL18NAH



NOTES :

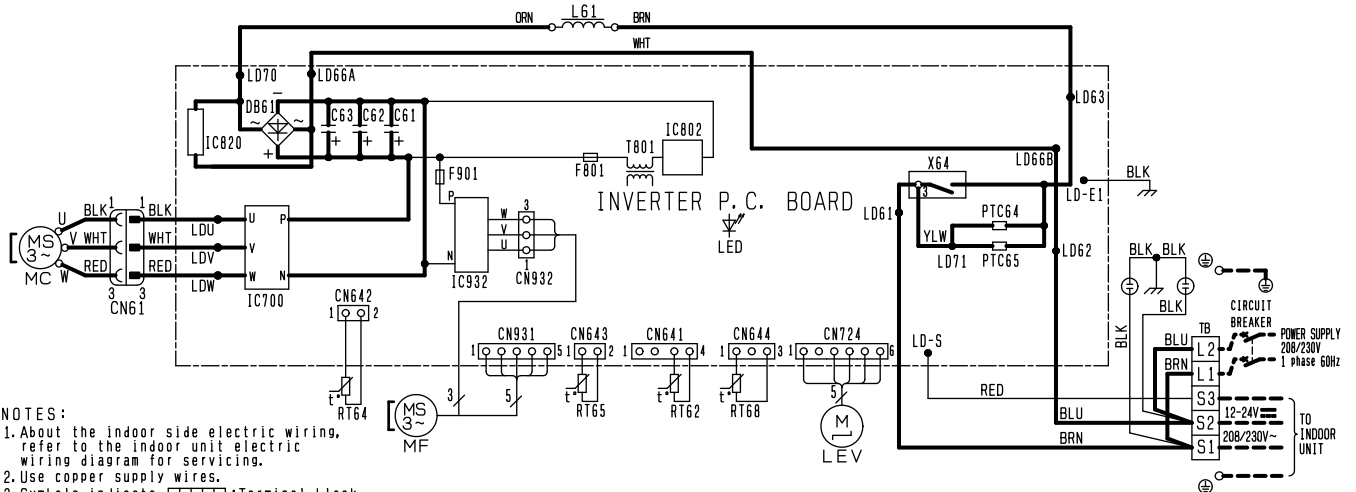
1. About the indoor side electric wiring, refer to the indoor unit electric wiring diagram for servicing.
2. Use copper supply wires.
3. Symbols indicate, :Terminal block
 :Connector

REMARQUES :

1. Pour le câblage électronique côté intérieur, se reporter au schéma d'entretien du câblage électronique de l'appareil intérieur.
2. Utiliser des fils d'alimentation en cuivre.
3. Les symboles ont les significations suivantes, :Borne
 :Connecteur

SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
C61, C62, C63	SMOOTHING CAPACITOR	L61	REACTOR	RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR.
DB61	DIODE MODULE	MC	COMPRESSOR		
F701, F801, F901	FUSE (T3, 15A/250V)	MF	FAN MOTOR	TB	TERMINAL BLOCK
H	DEFROST HEATER	PTC64, PTC65	CIRCUIT PROTECTION	T801	TRANSFORMER
IC700, IC820, IC932	POWER MODULE	RT61	DEFROST THERMISTOR	X63, X64, X66	RELAY
IC802	POWER DEVICE	RT62	DISCHARGE TEMP. THERMISTOR	21S4	REVERSING VALVE COIL
LED	LED	RT64	FIN TEMP. THERMISTOR	26H	HEATER PROTECTOR
LEV	EXPANSION VALVE COIL	RT65	AMBIENT TEMP. THERMISTOR		

MUY-GL18NA



NOTES:

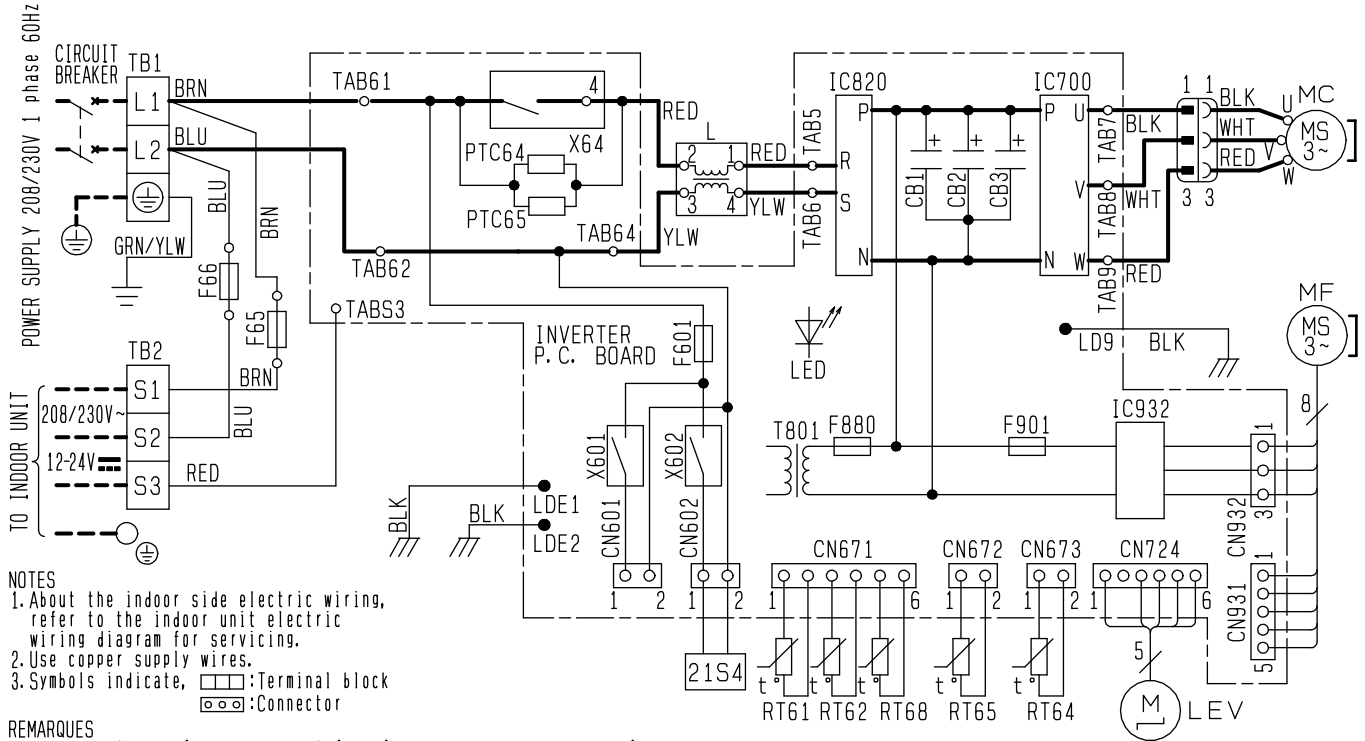
1. About the indoor side electric wiring, refer to the indoor unit electric wiring diagram for servicing.
2. Use copper supply wires.
3. Symbols indicate, :Terminal block
 :Connector

REMARQUES:

1. Pour le câblage électronique côté intérieur, se reporter au schéma d'entretien du câblage électronique de l'appareil intérieur.
2. Utiliser des fils d'alimentation en cuivre.
3. Les symboles ont les significations suivantes, :Borne
 :Connecteur

SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
C61, C62, C63	SMOOTHING CAPACITOR	L61	REACTOR	RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR.
DB61	DIODE MODULE	MC	COMPRESSOR		
F801, F901	FUSE (T3, 15A/250V)	MF	FAN MOTOR	TB	TERMINAL BLOCK
IC700, IC820, IC932	POWER MODULE	PTC64, PTC65	CIRCUIT PROTECTION	T801	TRANSFORMER
IC802	POWER DEVICE	RT62	DISCHARGE TEMP. THERMISTOR	X64	RELAY
LED	LED	RT64	FIN TEMP. THERMISTOR		
LEV	EXPANSION VALVE COIL	RT65	AMBIENT TEMP. THERMISTOR		

MUZ-GL24NA

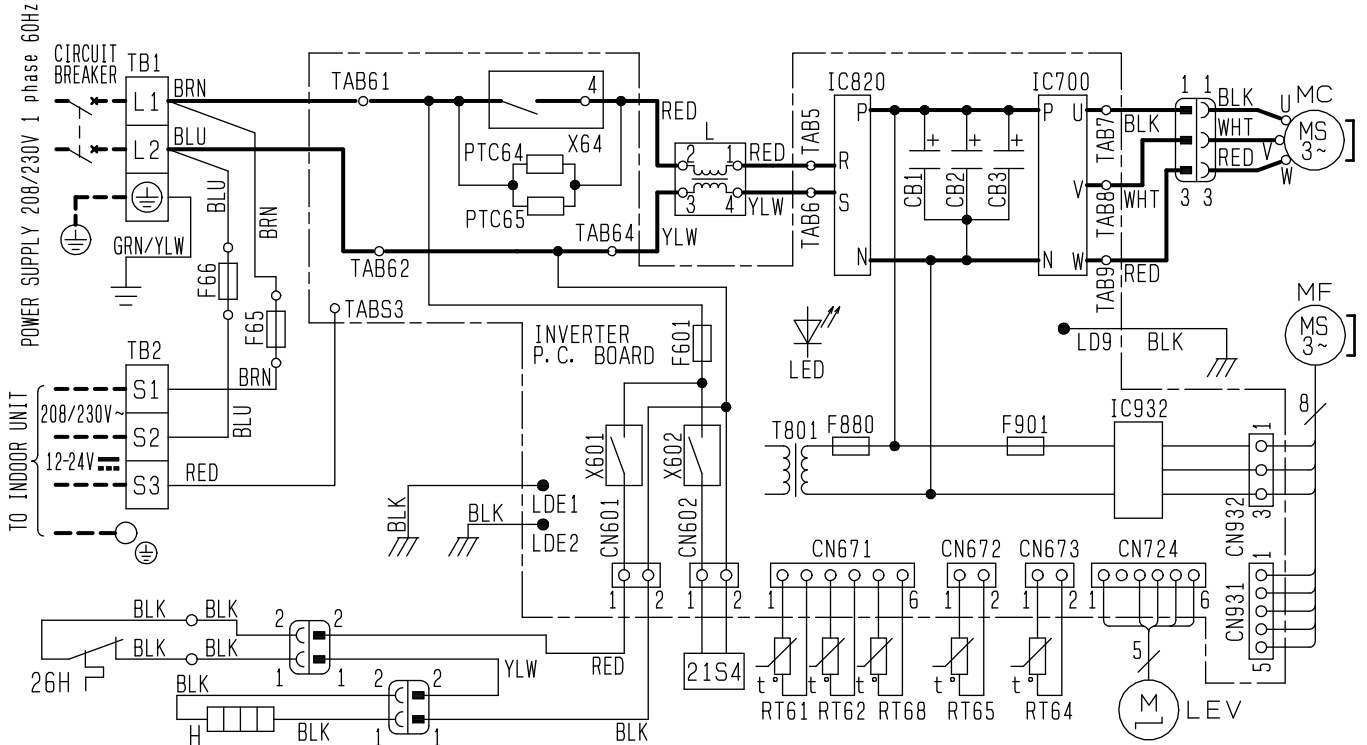


- NOTES**
1. About the indoor side electric wiring, refer to the indoor unit electric wiring diagram for servicing.
 2. Use copper supply wires.
 3. Symbols indicate, :Terminal block :Connector

- REMARQUES**
1. Pour le câblage électronique côté intérieur, se reporter au schéma d'entretien du câblage électronique de l'appareil intérieur.
 2. Utiliser des fils d'alimentation en cuivre.
 3. Les symboles ont les significations suivantes, :Borne :Connecteur

SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
CB1~3	SMOOTHING CAPACITOR	LED	LED	RT65	AMBIENT TEMP. THERMISTOR
F65, F66	FUSE (T6. 3AL 250V)	LEV	EXPANSION VALVE COIL	RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR
F601	FUSE (T3. 15AL 250V)	MC	COMPRESSOR	TB1, TB2	TERMINAL BLOCK
F880	FUSE (T3. 15AL 250V)	MF	FAN MOTOR	T801	TRANSFORMER
F901	FUSE (T3. 15AL 250V)	PTC64	CIRCUIT PROTECTION	X601	RELAY
IC700	IGBT Module	PTC65	CIRCUIT PROTECTION	X602	RELAY
IC820	DIODE Module	RT61	DEFROST THERMISTOR	X64	RELAY
IC932	IGBT Module	RT62	DISCHARGE TEMP. THERMISTOR	X64	RELAY
L	REACTOR	RT64	FIN TEMP. THERMISTOR	21S4	REVERSING VALVE COIL

MUZ-GL24NAH



NOTES

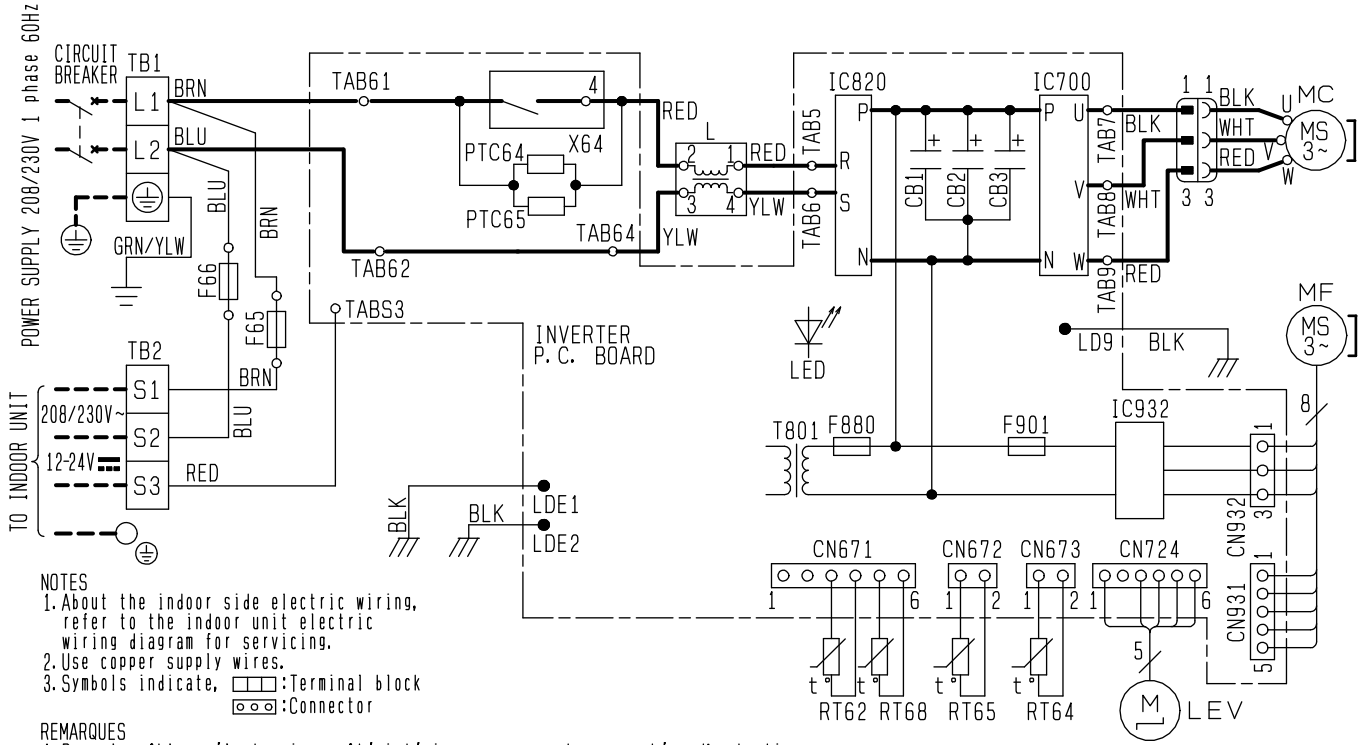
1. About the indoor side electric wiring, refer to the indoor unit electric wiring diagram for servicing.
2. Use copper supply wires.
3. Symbols indicate, :Terminal block :Connector

REMARQUES

1. Pour le câblage électronique côté intérieur, se reporter au schéma d'entretien du câblage électronique de l'appareil intérieur.
2. Utiliser des fils d'alimentation en cuivre.
3. Les symboles ont les significations suivantes, :Borne :Connecteur

SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
CB1~3	SMOOTHING CAPACITOR	LED	LED	RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR
F65, F66	FUSE (T6. 3AL250V)	LEV	EXPANSION VALVE COIL	TB1, TB2	TERMINAL BLOCK
F601	FUSE (T3. 15AL250V)	MC	COMPRESSOR	T801	TRANSFORMER
F880	FUSE (T3. 15AL250V)	PTC64	CIRCUIT PROTECTION	X601	RELAY
F901	FUSE (T3. 15AL250V)	PTC65	CIRCUIT PROTECTION	X602	RELAY
H	DEFROST HEATER	RT61	DEFROST THERMISTOR	X64	RELAY
IC700	IGBT Module	RT62	DISCHARGE TEMP. THERMISTOR	21S4	REVERSING VALVE COIL
IC820	DIODE Module	RT64	FIN TEMP. THERMISTOR	26H	HEATER PROTECTOR
IC932	IGBT Module	RT65	AMBIENT TEMP. THERMISTOR		
L	REACTOR				

MUY-GL24NA



NOTES

1. About the indoor side electric wiring, refer to the indoor unit electric wiring diagram for servicing.
2. Use copper supply wires.
3. Symbols indicate, :Terminal block :Connector

REMARQUES

1. Pour le câblage électronique côté intérieur, se reporter au schéma d'entretien du câblage électronique de l'appareil intérieur.
2. Utiliser des fils d'alimentation en cuivre.
3. Les symboles ont les significations suivantes, :Borne :Connecteur

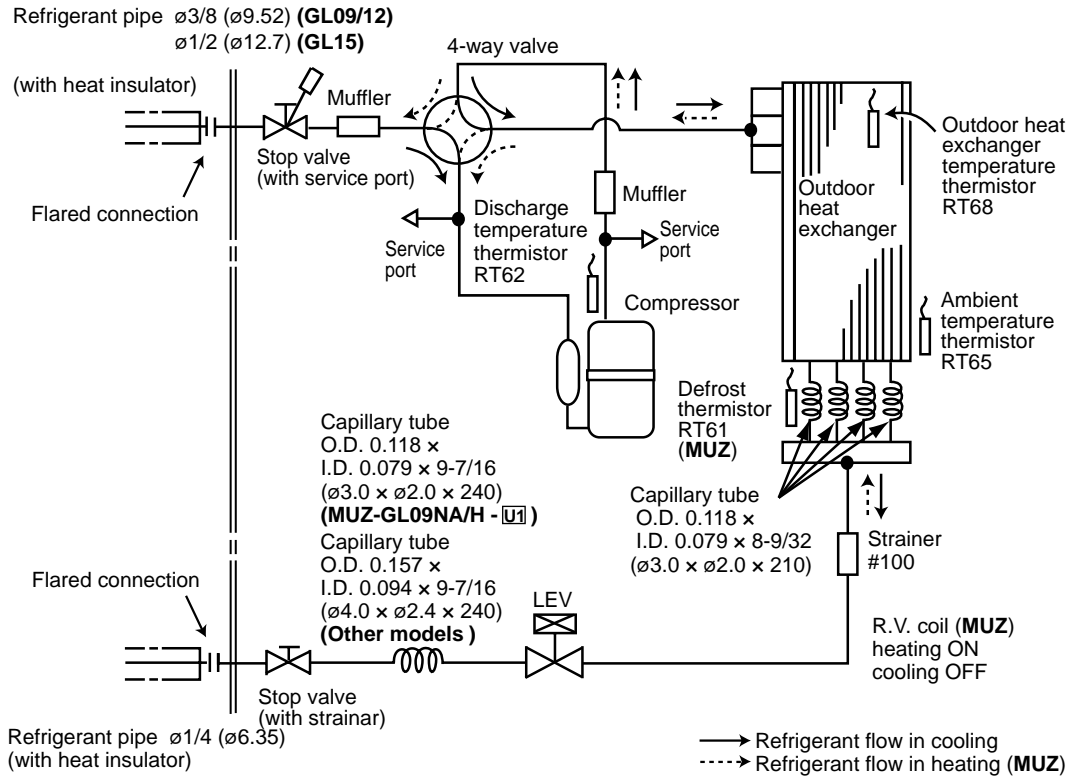
SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
CB1 ~ 3	SMOOTHING CAPACITOR	LED	LED	RT64	FIN TEMP. THERMISTOR
F65, F66	FUSE (T6. 3AL250V)	LEV	EXPANSION VALVE COIL	RT65	AMBIENT TEMP. THERMISTOR
F880	FUSE (T3. 15AL250V)	MC	COMPRESSOR	RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR
F901	FUSE (T3. 15AL250V)	MF	FAN MOTOR		
IC700	IGBT Module	PTC64	CIRCUIT PROTECTION	TB1, TB2	TERMINAL BLOCK
IC820	DIODE Module	PTC65	CIRCUIT PROTECTION	T801	TRANSFORMER
IC932	IGBT Module	RT62	DISCHARGE TEMP. THERMISTOR	X64	RELAY
L	REACTOR				

6

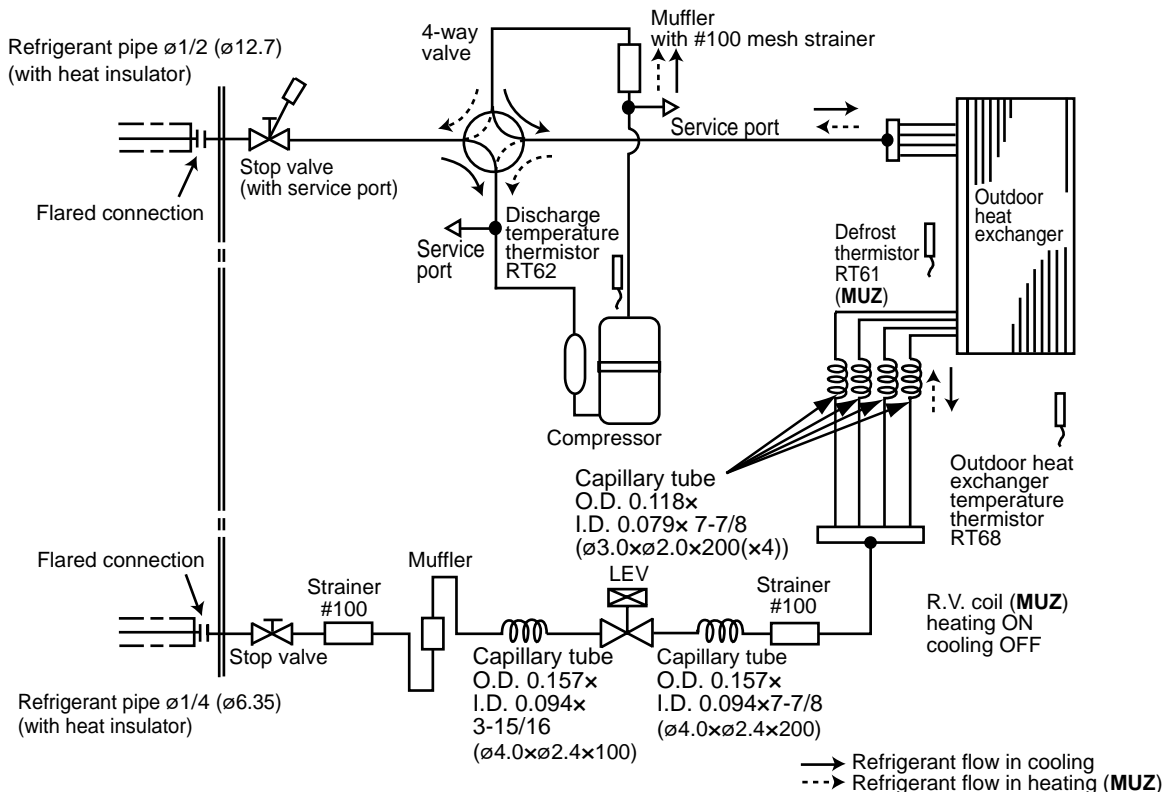
REFRIGERANT SYSTEM DIAGRAM

MUZ-GL09NA MUZ-GL09NAH MUY-GL09NA
 MUZ-GL12NA MUZ-GL12NAH MUY-GL12NA
 MUZ-GL15NA MUZ-GL15NAH MUY-GL15NA

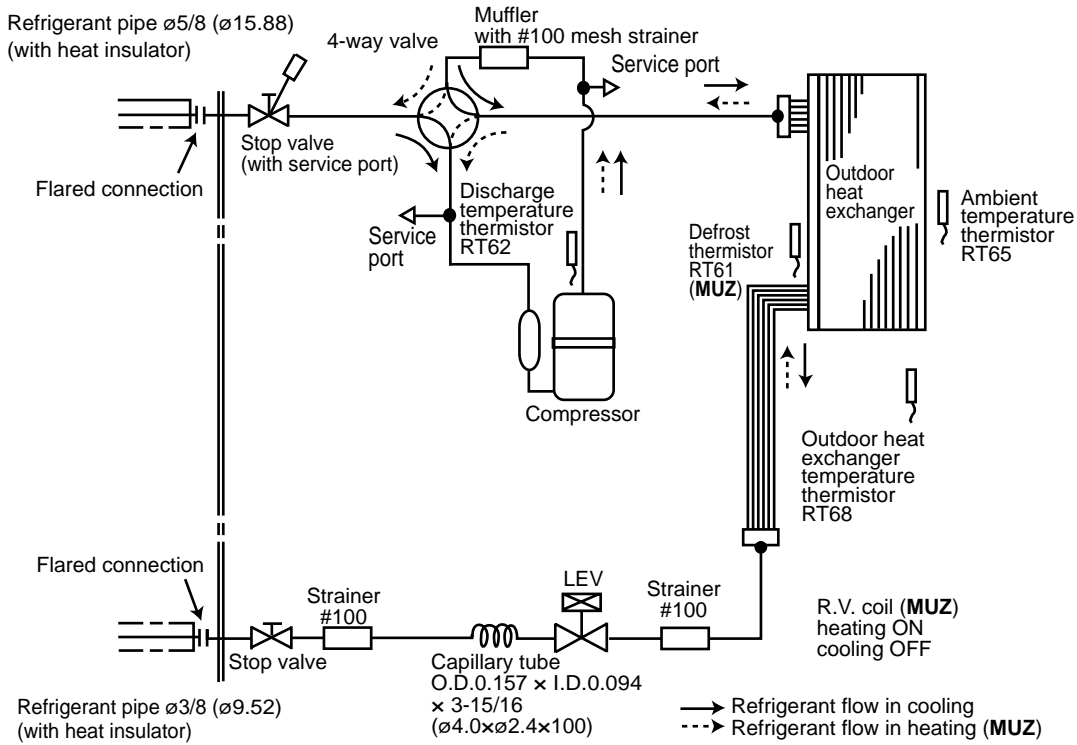
Unit: Inch (mm)



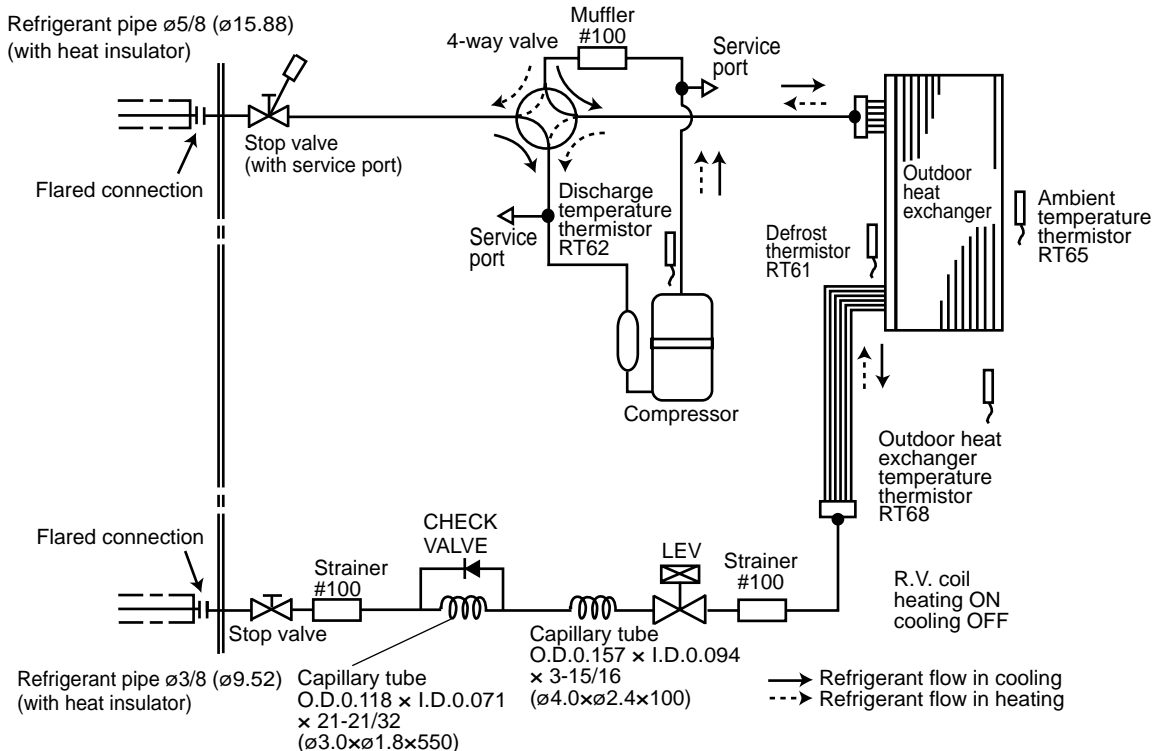
MUZ-GL18NA MUZ-GL18NAH MUY-GL18NA



MUZ-GL24NA MUY-GL24NA

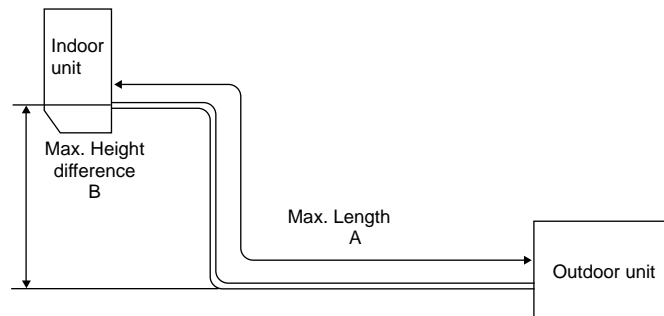


MUZ-GL24NAH



MAX. REFRIGERANT PIPING LENGTH and MAX. HEIGHT DIFFERENCE

Model	Refrigerant piping: ft.		Piping size O.D: in.	
	Max. Length A	Max. Height difference B	Gas	Liquid
MUZ-GL09NA MUZ-GL09NAH MUY-GL09NA MUZ-GL12NA MUZ-GL12NAH MUY-GL12NA	65	40	3/8	1/4
MUZ-GL15NA MUZ-GL15NAH MUY-GL15NA			1/2	
MUZ-GL18NA MUZ-GL18NAH MUY-GL18NA	100	50	5/8	3/8
MUZ-GL24NA MUZ-GL24NAH MUY-GL24NA			5/8	3/8



ADDITIONAL REFRIGERANT CHARGE (R410A: oz.)

NOTE: Refrigerant piping exceeding 25 ft. requires additional refrigerant charge according to the calculation.

Model	Outdoor unit precharged	Refrigerant piping length (one way): ft.					
		25	30	40	50	60	65
MUZ-GL09NA - U1 MUZ-GL09NAH - U1	2 lb. 5 oz.	0	1.08	3.24	5.40	7.56	8.64
MUZ-GL09NA - U8 MUZ-GL09NAH - U8 MUY-GL09NA MUZ-GL12NA MUZ-GL12NAH MUY-GL12NA MUZ-GL15NA MUZ-GL15NAH MUY-GL15NA	2 lb. 9 oz.						

Calculation: X oz. = 1.08/5 oz./ft. × (Refrigerant piping length (ft.) - 25)



NOTE: Refrigerant piping exceeding 25 ft. requires additional refrigerant charge according to the calculation.

Model	Outdoor unit precharged	Refrigerant piping length (one way): ft.								
		25	30	40	50	60	70	80	90	100
MUZ-GL18NA MUZ-GL18NAH MUY-GL18NA	3 lb. 9 oz.	0	1.08	3.24	5.40	7.56	9.72	11.88	14.04	16.20

Calculation: X oz. = 1.08/5 oz./ft. × (Refrigerant piping length (ft.) - 25)

NOTE: Refrigerant piping exceeding 33 ft. requires additional refrigerant charge according to the calculation.

Model	Outdoor unit precharged	Refrigerant piping length (one way): ft.							
		33	40	50	60	70	80	90	100
MUZ-GL24NA MUZ-GL24NAH MUY-GL24NA	4 lb. 3 oz.	0	4.14	10.06	15.98	21.90	27.82	33.74	39.66

Calculation: X oz. = 2.96/5 oz./ft. × (Refrigerant piping length (ft.) - 33)

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DATA

MUZ-GL09NA MUZ-GL09NAH MUY-GL09NA
MUZ-GL12NA MUZ-GL12NAH MUY-GL12NA
MUZ-GL15NA MUZ-GL15NAH MUY-GL15NA
MUZ-GL18NA MUZ-GL18NAH MUY-GL18NA
MUZ-GL24NA MUZ-GL24NAH MUY-GL24NA

7-1. PERFORMANCE DATA

1) COOLING CAPACITY

Model	Indoor air IWB (°F)	Outdoor intake air DB temperature (°F)														
		75			85			95			105			115		
		TC	SHC	TPC	TC	SHC	TPC	TC	SHC	TPC	TC	SHC	TPC	TC	SHC	TPC
MUZ-GL09NA	71	11.0	7.6	0.52	10.3	7.1	0.57	9.7	6.6	0.61	9.0	6.2	0.65	8.3	5.7	0.67
MUZ-GL09NAH	67	10.4	8.6	0.49	9.7	8.0	0.54	9.0	7.4	0.59	8.4	6.9	0.62	7.7	6.3	0.65
MUY-GL09NA	63	9.8	9.4	0.47	9.1	8.7	0.52	8.5	8.1	0.56	7.7	7.3	0.60	7.0	6.7	0.62
MUZ-GL12NA	71	14.7	9.4	0.82	13.7	8.7	0.90	12.9	8.2	0.97	12.0	7.6	1.02	11.0	7.0	1.06
MUZ-GL12NAH	67	13.9	10.7	0.77	13.0	10.0	0.85	12.0	9.2	0.92	11.2	8.6	0.98	10.3	7.9	1.02
MUY-GL12NA	63	13.1	11.8	0.74	12.1	10.9	0.81	11.3	10.2	0.88	10.3	9.3	0.94	9.4	8.5	0.98
MUZ-GL15NA	71	17.2	9.7	0.96	16.0	9.1	1.05	15.1	8.5	1.13	14.0	7.9	1.19	12.9	7.3	1.24
MUZ-GL15NAH	67	16.2	11.4	0.91	15.1	10.6	1.00	14.0	9.8	1.08	13.0	9.1	1.14	12.0	8.4	1.20
MUY-GL15NA	63	15.3	12.7	0.86	14.1	11.8	0.96	13.2	11.0	1.03	12.0	10.0	1.10	10.9	9.1	1.14
MUZ-GL18NA	71	22.1	16.2	1.19	20.6	15.2	1.31	19.4	14.3	1.41	18.0	13.3	1.48	16.6	12.2	1.54
MUZ-GL18NAH	67	20.9	18.2	1.13	19.4	16.9	1.24	18.0	15.7	1.34	16.7	14.6	1.42	15.4	13.4	1.49
MUY-GL18NA	63	19.6	19.7	1.07	18.2	18.2	1.19	16.9	17.0	1.28	15.4	15.4	1.37	14.0	14.1	1.42
MUZ-GL24NA	71	27.6	17.0	1.60	25.8	15.9	1.76	24.2	14.9	1.89	22.5	13.9	1.99	20.7	12.8	2.07
MUZ-GL24NAH	67	26.1	19.6	1.51	24.3	18.2	1.67	22.5	16.9	1.80	20.9	15.7	1.91	19.2	14.4	2.00
MUY-GL24NA	63	24.5	21.7	1.44	22.7	20.1	1.59	21.2	18.7	1.72	19.2	17.0	1.84	17.6	15.5	1.91

NOTE: 1. IWB : Intake air wet-bulb temperature TC : Total Capacity (x10³Btu/h)
 SHC : Sensible Heat Capacity (x10³Btu/h) TPC : Total Power Consumption (kW)
 2. SHC is based on 80°F of indoor Intake air DB temperature.

2) COOLING CAPACITY CORRECTIONS

	Refrigerant piping length (one way: ft.)			
	25 (std.)	40	65	100
MUZ-GL09NA MUZ-GL09NAH MUY-GL09NA MUZ-GL12NA MUZ-GL12NAH MUY-GL12NA MUZ-GL15NA MUZ-GL15NAH MUY-GL15NA	1.0	0.954	0.878	-
MUZ-GL18NA MUZ-GL18NAH MUY-GL18NA MUZ-GL24NA MUZ-GL24NAH MUY-GL24NA	1.0	0.954	0.878	0.771

3) HEATING CAPACITY (MUZ)

Model	Indoor air		Outdoor intake air WB temperature (°F)												
	IDB (°F)	5		15		25		35		43		45		55	
		TC	TPC	TC	TPC	TC	TPC	TC	TPC	TC	TPC	TC	TPC	TC	TPC
MUZ-GL09NA	75	4.8	0.42	6.3	0.54	7.9	0.63	9.4	0.70	10.6	0.74	11.0	0.75	12.4	0.78
	70	5.2	0.41	6.7	0.52	8.2	0.62	9.6	0.68	10.9	0.72	11.2	0.73	12.7	0.76
	65	5.5	0.39	6.9	0.50	8.6	0.59	10.0	0.67	11.2	0.70	11.6	0.71	13.0	0.75
MUZ-GL12NA	75	6.3	0.65	8.4	0.82	10.4	0.96	12.5	1.07	14.0	1.13	14.5	1.14	16.4	1.19
	70	6.8	0.62	8.9	0.79	10.8	0.94	12.7	1.05	14.4	1.10	14.8	1.12	16.8	1.17
	65	7.2	0.59	9.1	0.76	11.3	0.91	13.2	1.02	14.8	1.07	15.3	1.09	17.1	1.14
MUZ-GL09NAH	75	4.8	0.55	6.3	0.67	7.9	0.76	9.4	0.70	10.6	0.74	11.0	0.75	12.4	0.78
	70	5.2	0.54	6.7	0.65	8.2	0.75	9.6	0.68	10.9	0.72	11.2	0.73	12.7	0.76
	65	5.5	0.52	6.9	0.63	8.6	0.72	10.0	0.67	11.2	0.70	11.6	0.71	13.0	0.75
MUZ-GL12NAH	75	6.3	0.78	8.4	0.95	10.4	1.09	12.5	1.07	14.0	1.13	14.5	1.14	16.4	1.19
	70	6.8	0.75	8.9	0.92	10.8	1.07	12.7	1.05	14.4	1.10	14.8	1.12	16.8	1.17
	65	7.2	0.72	9.1	0.89	11.3	1.04	13.2	1.02	14.8	1.07	15.3	1.09	17.1	1.14
MUZ-GL15NA	75	7.9	0.94	10.4	1.19	13.1	1.40	15.6	1.56	17.6	1.64	18.1	1.66	20.5	1.73
	70	8.6	0.90	11.1	1.15	13.5	1.37	15.9	1.52	18.0	1.60	18.5	1.63	21.0	1.70
	65	9.0	0.86	11.3	1.10	14.1	1.32	16.5	1.48	18.5	1.56	19.1	1.58	21.4	1.66
MUZ-GL15NAH	75	7.9	1.07	10.4	1.32	13.1	1.53	15.6	1.56	17.6	1.64	18.1	1.66	20.5	1.73
	70	8.6	1.03	11.1	1.28	13.5	1.50	15.9	1.52	18.0	1.60	18.5	1.63	21.0	1.70
	65	9.0	0.99	11.3	1.23	14.1	1.45	16.5	1.48	18.5	1.56	19.1	1.58	21.4	1.66
MUZ-GL18NA	75	9.5	0.99	12.5	1.25	15.7	1.47	18.7	1.64	21.1	1.72	21.7	1.75	24.6	1.81
	70	10.3	0.95	13.3	1.21	16.2	1.44	19.1	1.60	21.6	1.68	22.2	1.71	25.2	1.78
	65	10.8	0.91	13.6	1.16	17.0	1.39	19.8	1.55	22.2	1.64	22.9	1.66	25.7	1.75
MUZ-GL18NAH	75	9.5	1.12	12.5	1.38	15.7	1.60	18.7	1.64	21.1	1.72	21.7	1.75	24.6	1.81
	70	10.3	1.08	13.3	1.34	16.2	1.57	19.1	1.60	21.6	1.68	22.2	1.71	25.2	1.78
	65	10.8	1.04	13.6	1.29	17.0	1.52	19.8	1.55	22.2	1.64	22.9	1.66	25.7	1.75
MUZ-GL24NA	75	12.1	1.38	16.0	1.74	20.0	2.05	23.9	2.28	26.9	2.40	27.7	2.43	31.5	2.53
	70	13.1	1.32	17.0	1.68	20.7	2.00	24.4	2.22	27.6	2.34	28.4	2.39	32.2	2.48
	65	13.8	1.26	17.4	1.61	21.7	1.93	25.3	2.16	28.4	2.28	29.3	2.32	32.8	2.43
MUZ-GL24NAH	75	12.1	1.38	16.0	1.74	20.0	2.05	23.9	2.28	26.9	2.40	27.7	2.43	31.5	2.53
	70	13.1	1.32	17.0	1.68	20.7	2.00	24.4	2.22	27.6	2.34	28.4	2.39	32.2	2.48
	65	13.8	1.26	17.4	1.61	21.7	1.93	25.3	2.16	28.4	2.28	29.3	2.32	32.8	2.43

NOTE: 1. IDB : Intake air dry-bulb temperature

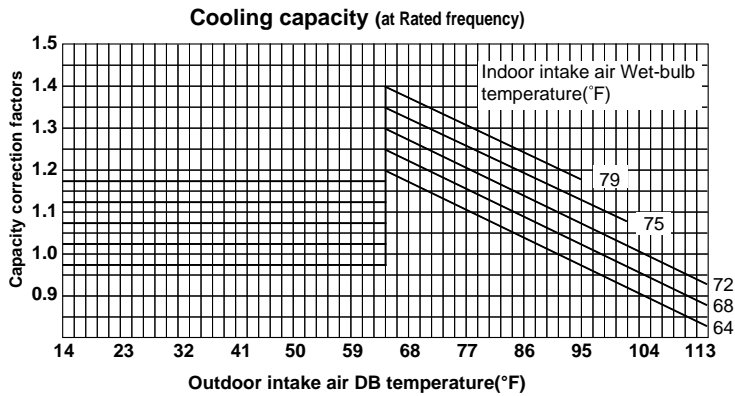
TC : Total Capacity (x10³ Btu/h) TPC : Total Power Consumption (kW)

2. Above data is for heating operation without any frost.

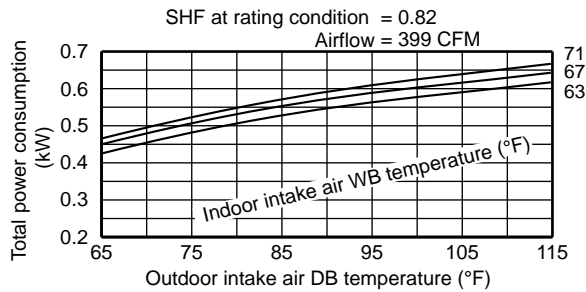
How to operate with fixed operational frequency of the compressor.

1. Press the EMERGENCY OPERATION switch on the front of the indoor unit, and select either EMERGENCY COOL mode or EMERGENCY HEAT mode before starting to operate the air conditioner.
2. The compressor starts with operational frequency.
3. The fan speed of the indoor unit is High.
4. This operation continues for 30 minutes.
5. In order to release this operation, press the EMERGENCY OPERATION switch or press any button on the remote controller.

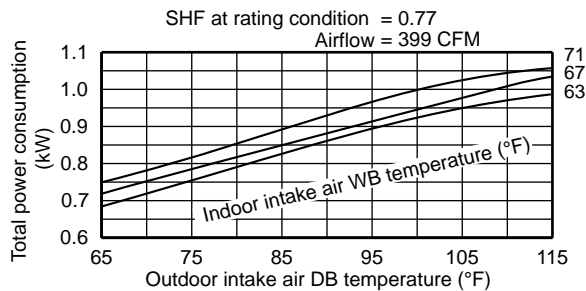
7-2. PERFORMANCE CURVE Cooling



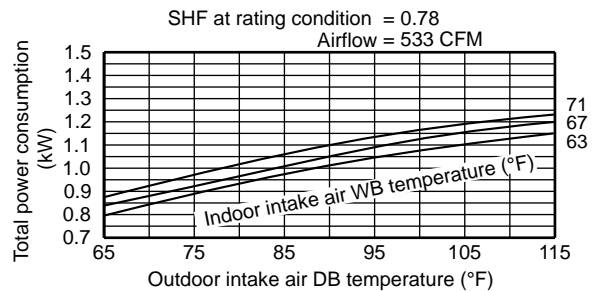
MUZ-GL09NA MUZ-GL09NAH MUY-GL09NA



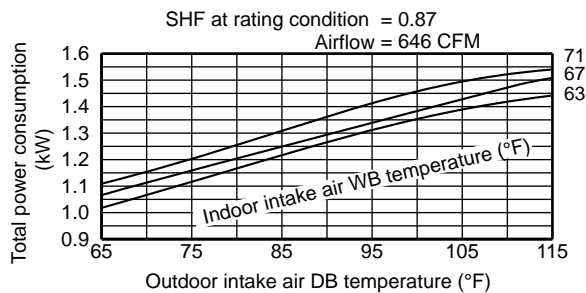
MUZ-GL12NA MUZ-GL12NAH MUY-GL12NA



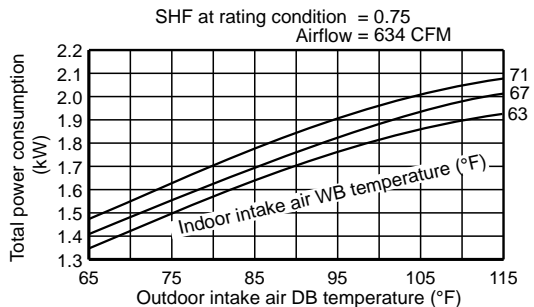
MUZ-GL15NA MUZ-GL15NAH MUY-GL15NA



MUZ-GL18NA MUZ-GL18NAH MUY-GL18NA



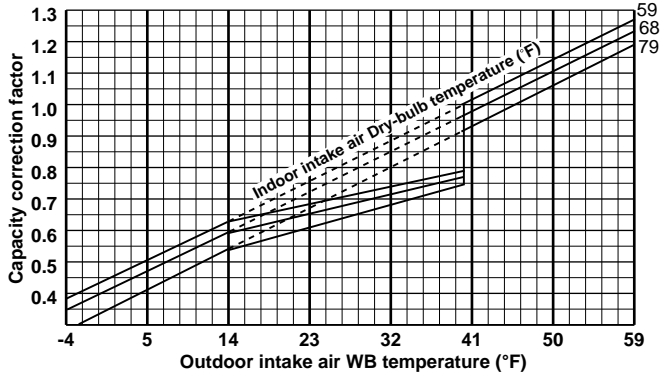
MUZ-GL24NA MUZ-GL24NAH MUY-GL24NA



This value of frequency is not the same as the actual frequency in operating. Refer to 7-5 and 7-6 for the relationships between frequency and capacity.

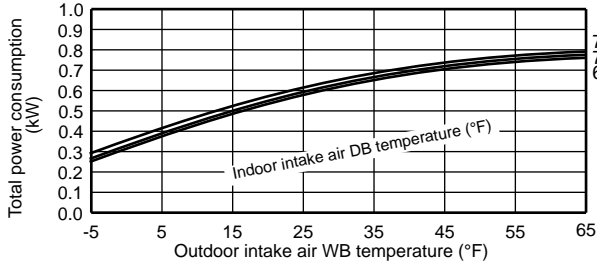
Heating

Heating capacity (at Rated frequency)



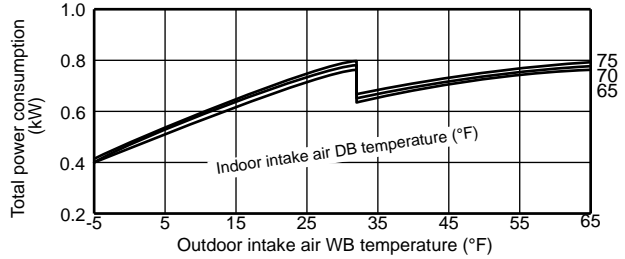
MUZ-GL09NA

Airflow = 406 CFM



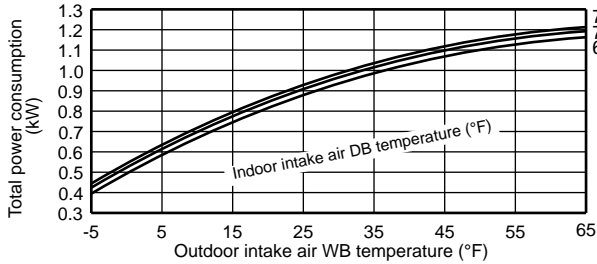
MUZ-GL09NAH

Airflow = 406 CFM



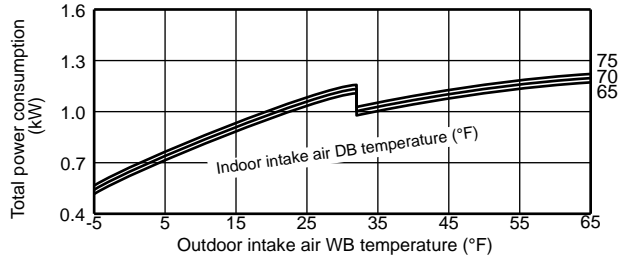
MUZ-GL12NA

Airflow = 406 CFM



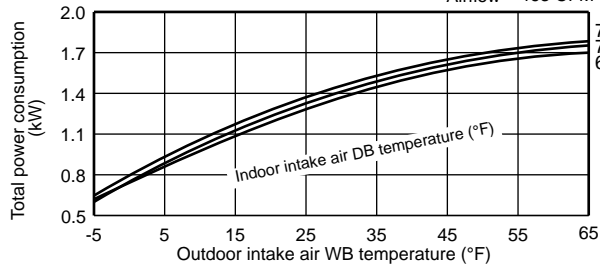
MUZ-GL12NAH

Airflow = 406 CFM



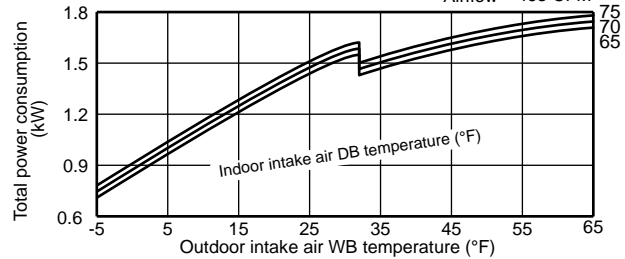
MUZ-GL15NA

Airflow = 463 CFM

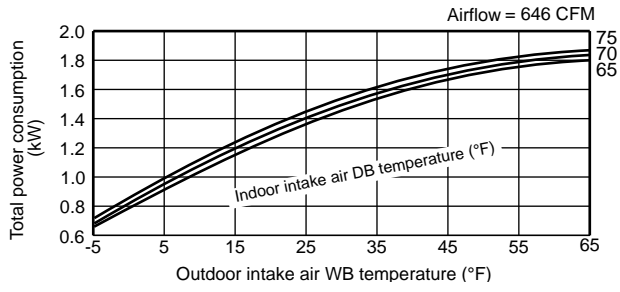


MUZ-GL15NAH

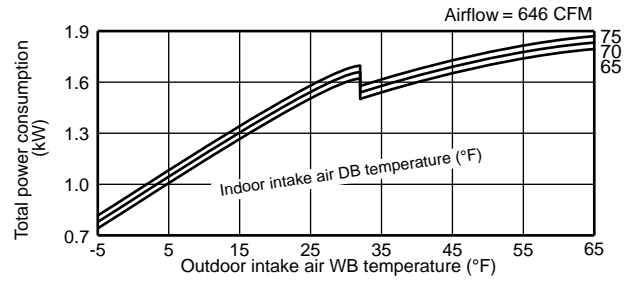
Airflow = 463 CFM



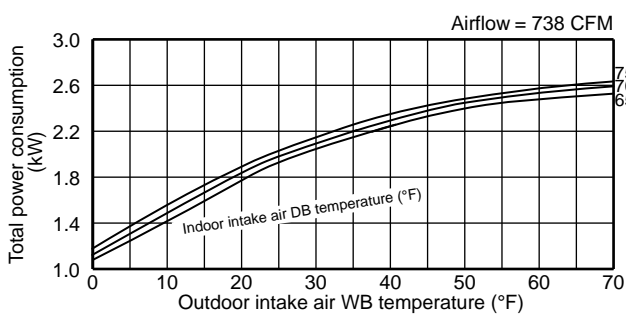
MUZ-GL18NA



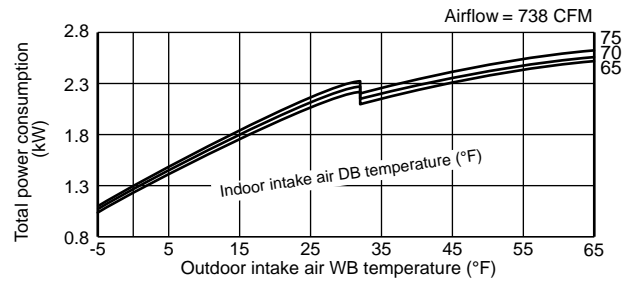
MUZ-GL18NAH



MUZ-GL24NA



MUZ-GL24NAH



This value of frequency is not the same as the actual frequency in operating. Refer to 7-5 and 7-6 for the relationships between frequency and capacity.

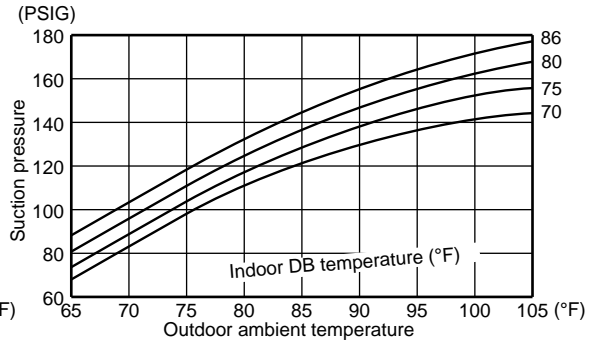
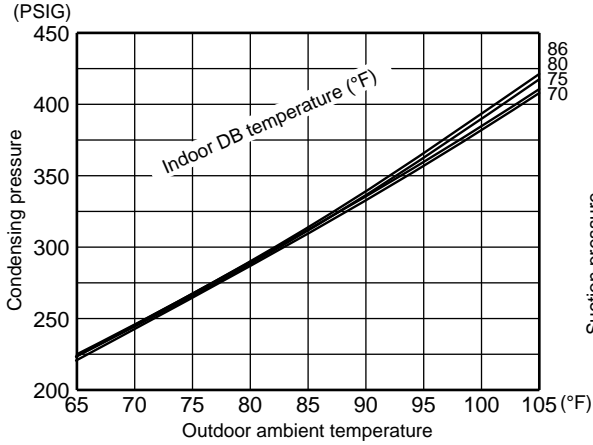
7-3. CONDENSING PRESSURE

Cooling

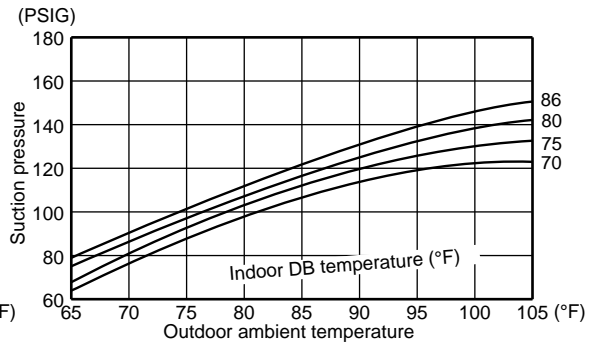
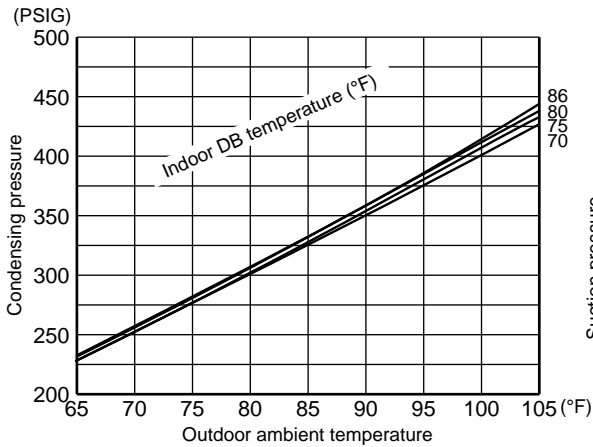
Data are based on the condition of indoor humidity 50 %.

Air flow should be set to High speed.

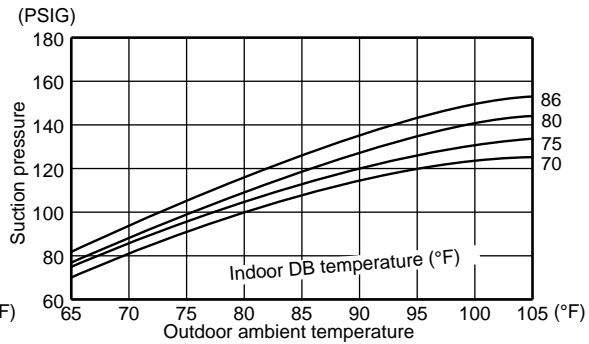
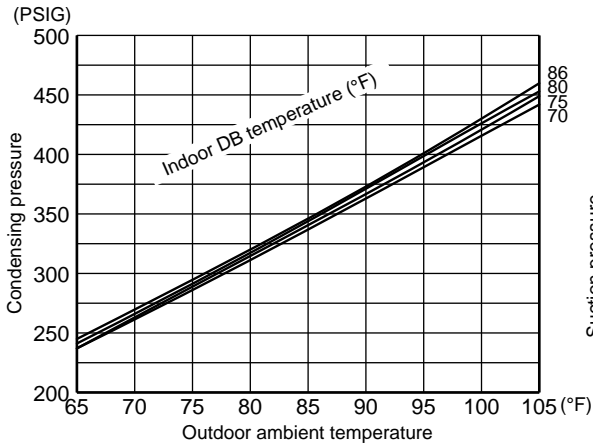
MUZ-GL09NA MUZ-GL09NAH MUY-GL09NA



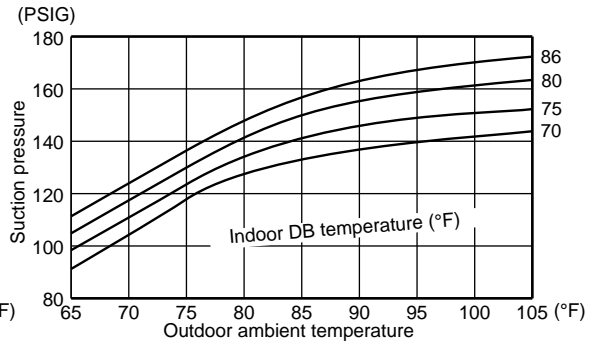
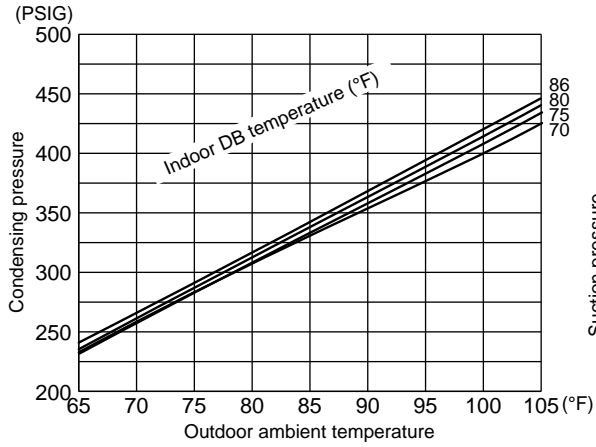
MUZ-GL12NA MUZ-GL12NAH MUY-GL12NA



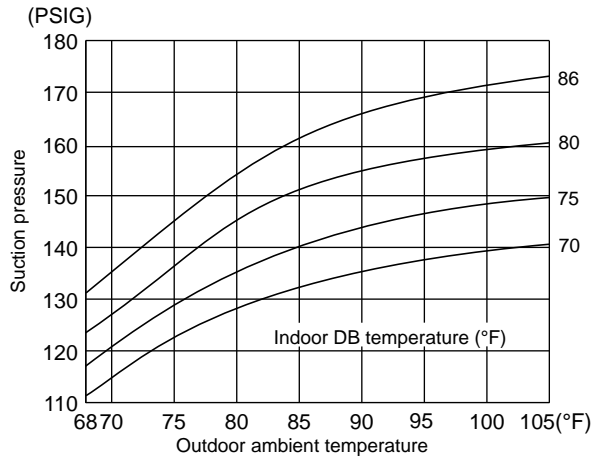
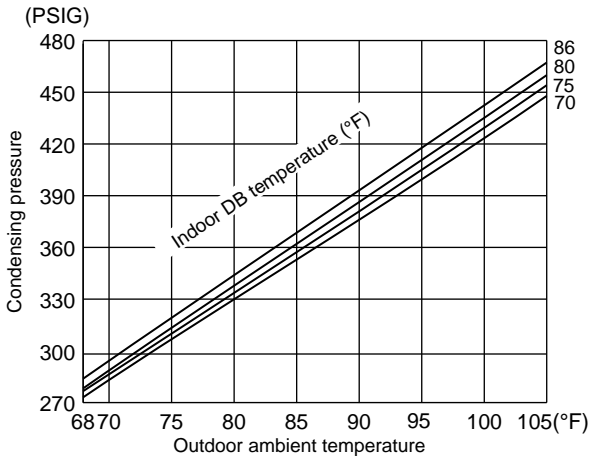
MUZ-GL15NA MUZ-GL15NAH MUY-GL15NA



MUZ-GL18NA MUZ-GL18NAH MUY-GL18NA



MUZ-GL24NA MUZ-GL24NAH MUY-GL24NA



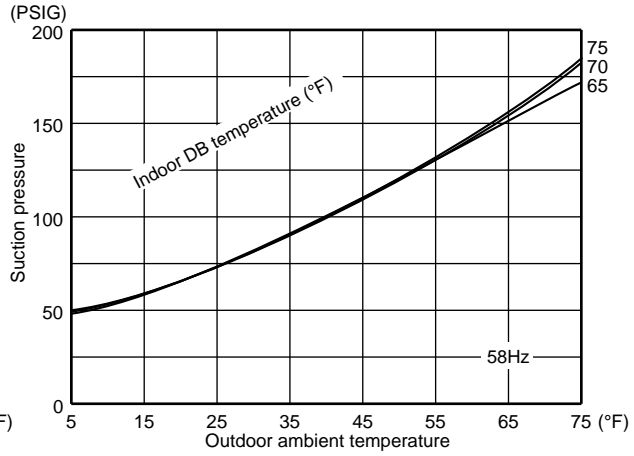
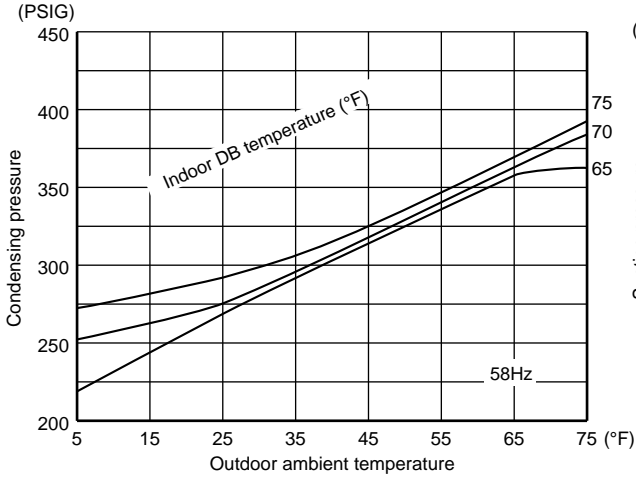
Heating

Data are based on the condition of outdoor humidity 75%.

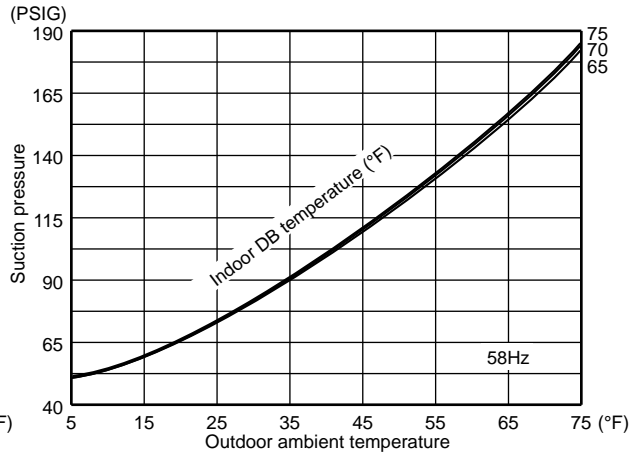
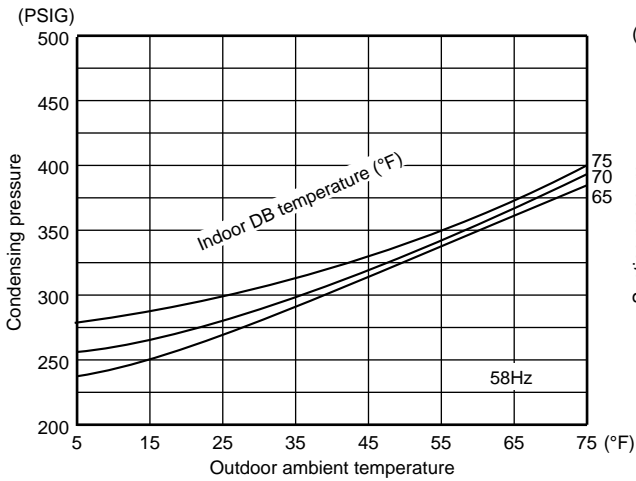
Air flow should be set to High speed.

Data are for heating operation without any frost.

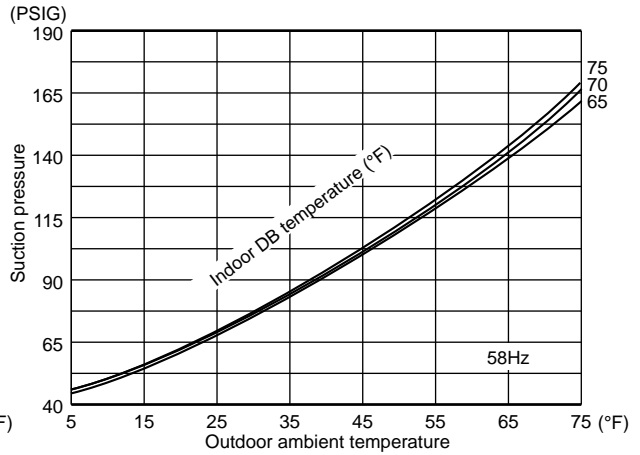
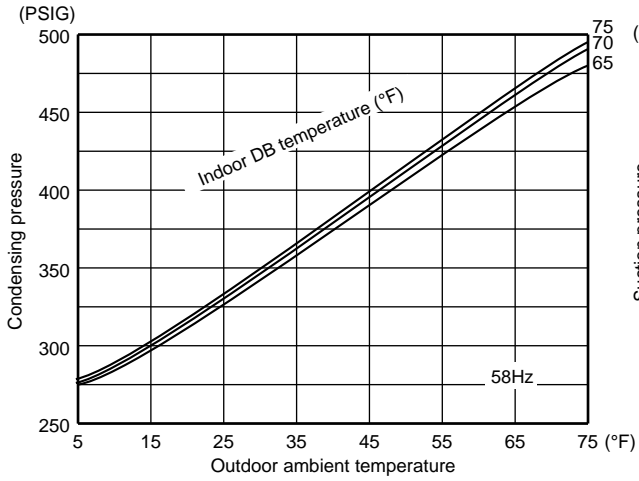
MUZ-GL09NA - U1 MUZ-GL09NAH - U1



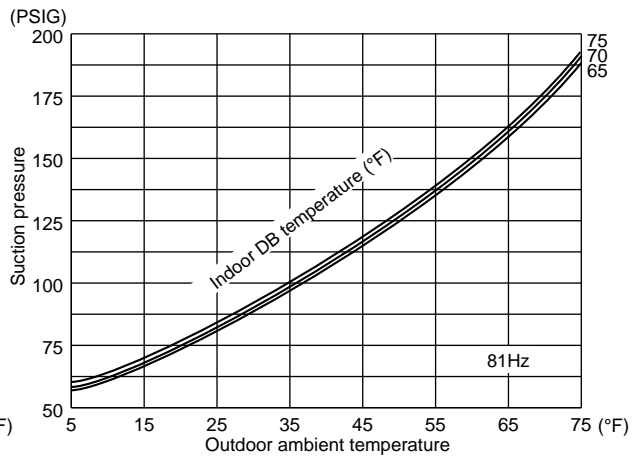
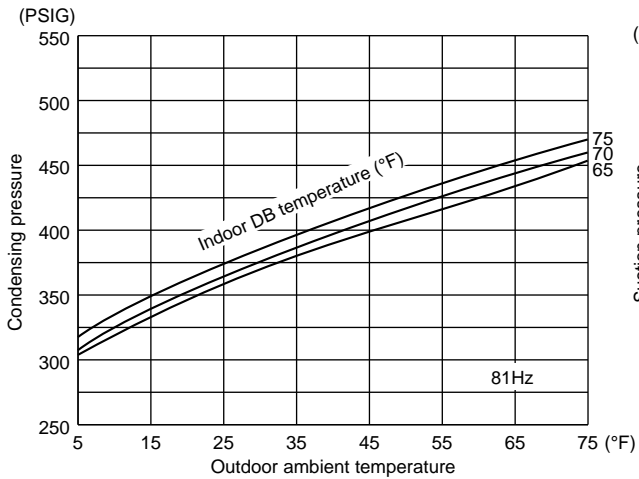
MUZ-GL09NA - U8 MUZ-GL09NAH - U8 MUZ-GL12NA MUZ-GL12NAH



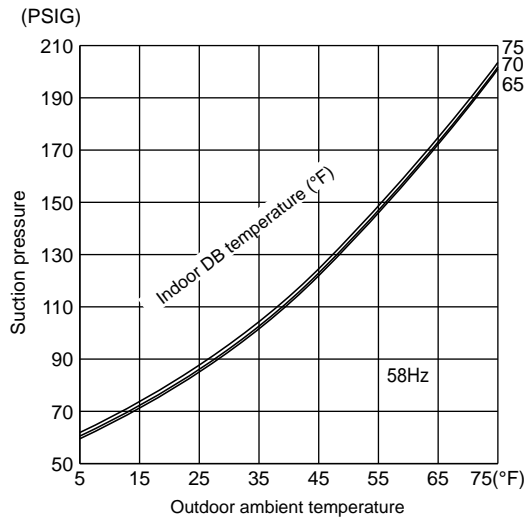
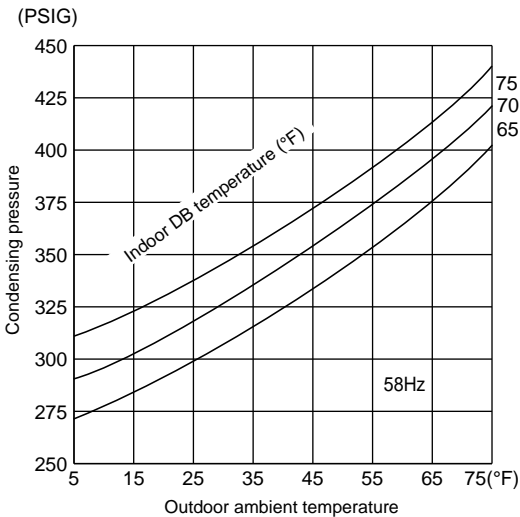
MUZ-GL15NA MUZ-GL15NAH



MUZ-GL18NA MUZ-GL18NAH



MUZ-GL24NA MUZ-GL24NAH



7-4. STANDARD OPERATION DATA

Model			MSZ-GL09NA - [U1]		MSZ-GL09NA - [U8]		MSY-GL09NA	
Item		Unit	Cooling	Heating	Cooling	Heating	Cooling	
Total	Capacity	Btu/h	9,000	10,900	9,000	10,900	9,000	
	SHF	—	0.82	—	0.82	—	0.82	
	Input	kW	0.585	0.72	0.585	0.72	0.585	
	Rated frequency	Hz	59	73	48	59	59.5	
Electrical circuit	Indoor unit		MSZ-GL09NA		MSZ-GL09NA		MSY-GL09NA	
	Power supply	V, phase, Hz	208/230, 1, 60					
	Input	kW	0.022	0.023	0.022	0.023	0.022	
	Fan motor current	A	0.24/0.22	0.25/0.23	0.24/0.22	0.25/0.23	0.24/0.22	
	Outdoor unit		MUZ-GL09NA - [U1] MUZ-GL09NAH - [U1]		MUZ-GL09NA - [U8] MUZ-GL09NAH - [U8]		MUY-GL09NA	
	Power supply	V, phase, Hz	208/230, 1, 60					
	Input	kW	0.563	0.697	0.563	0.697	0.563	
	Comp. current	A	2.67/2.41	3.25/2.94	2.45/2.21	3.05/2.76	2.63/2.37	
	Fan motor current	A	0.36/0.33	0.34/0.31	0.36/0.33	0.34/0.31	0.36/0.33	
	Refrigerant circuit	Condensing pressure	PSIG	357	345	358	349	358
Suction pressure		PSIG	151	107	149	108	149	
Discharge temperature		°F	146	156	148	155	154	
Condensing temperature		°F	108	102	108	104	108	
Suction temperature		°F	61	44	63	44	66	
Comp. shell bottom temperature		°F	144	154	140	144	152	
Ref. pipe length		ft.	25					
Refrigerant charge (R410A)			2 lb 5 oz.		2 lb 9 oz.			
Indoor unit	Intake air temperature	DB	°F	80	70	80	70	80
		WB	°F	67	60	67	60	67
	Discharge air temperature	DB	°F	59	99	59	99	59
		WB	°F	56	—	56	—	56
	Fan speed (High)	rpm	1,020	1,040	1,020	1,040	1,020	
Airflow (High)	CFM	367 (Wet)	413	367 (Wet)	413	367 (Wet)		
Outdoor unit	Intake air temperature	DB	°F	95	47	95	47	95
		WB	°F	—	—	—	—	—
	Fan speed	rpm	900	860	900	860	900	
	Airflow	CFM	1,229	1,172	1,229	1,172	1,229	



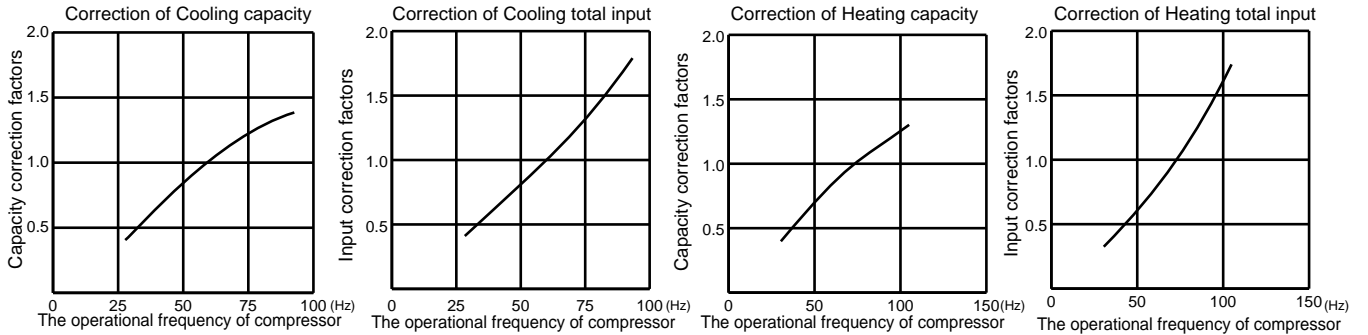
Model			MSZ-GL12NA MSY-GL12NA		MSZ-GL15NA MSY-GL15NA		
Item		Unit	Cooling	Heating	Cooling	Heating	
Total	Capacity	Btu/h	12,000	14,400	14,000	18,000	
	SHF	—	0.77	—	0.78	—	
	Input	kW	0.920	1.10	1.080	1.60	
	Rated frequency	Hz	70	77	56.5	74	
Electrical circuit	Indoor unit		MSZ-GL12NA MSY-GL12NA		MSZ-GL15NA MSY-GL15NA		
	Power supply	V, phase, Hz	208/230, 1, 60				
	Input	kW	0.022	0.023	0.043	0.030	
	Fan motor current	A	0.24/0.22	0.25/0.23	0.43/0.39	0.34/0.31	
	Outdoor unit		MUZ-GL12NA MUZ-GL12NAH MUY-GL12NA		MUZ-GL15NA MUZ-GL15NAH MUY-GL15NA		
	Power supply	V, phase, Hz	208/230, 1, 60				
	Input	kW	0.898	1.077	1.037	1.570	
	Comp. current	A	4.01/3.62	4.86/4.39	4.51/4.08	7.11/6.43	
	Fan motor current	A	0.41/0.37	0.40/0.36	0.41/0.37	0.40/0.36	
	Refrigerant circuit	Condensing pressure	PSIG	380	402	396	427
Suction pressure		PSIG	133	106	138	98	
Discharge temperature		°F	166	167	168	178	
Condensing temperature		°F	112	115	115	120	
Suction temperature		°F	60	35	61	31	
Comp. shell bottom temperature		°F	152	150	152	158	
Ref. pipe length		ft.	25				
Refrigerant charge (R410A)			2 lb 9 oz.				
Indoor unit	Intake air temperature	DB	°F	80	70	80	70
		WB	°F	67	60	67	60
	Discharge air temperature	DB	°F	57	110	58	114
		WB	°F	55	—	56	—
	Fan speed (High)	rpm	1,020	1,040	1,280	1,140	
Airflow (High)	CFM	367 (Wet)	413	498 (Wet)	463		
Outdoor unit	Intake air temperature	DB	°F	95	47	95	47
		WB	°F	—	43	—	43
	Fan speed	rpm	900	860	910	900	
	Airflow	CFM	1,229	1,172	1,243	1,229	



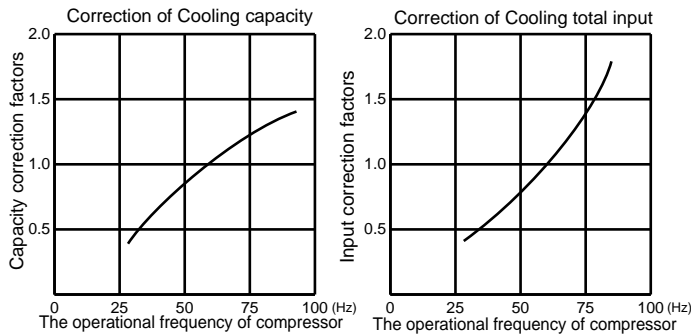
Model			MSZ-GL18NA MSY-GL18NA		MSZ-GL24NA MSY-GL24NA		
Item		Unit	Cooling	Heating	Cooling	Heating	
Total	Capacity	Btu/h	18,000	21,600	22,500	27,600	
	SHF	—	0.87	—	0.75	—	
	Input	kW	1.34	1.68	1.80	2.34	
	Rated frequency	Hz	69	81	67.5	82.0	
Electrical circuit	Indoor unit		MSZ-GL18NA MSY-GL18NA		MSZ-GL24NA MSY-GL24NA		
	Power supply	V, phase, Hz	208/230, 1, 60				
	Input	kW	0.045		0.058		
	Fan motor current	A	0.46/0.42		0.56/0.51		
	Outdoor unit		MUZ-GL18NA MUZ-GL18NAH MUY-GL18NA		MUZ-GL24NA MUZ-GL24NAH MUY-GL24NA		
	Power supply	V, phase, Hz	208/230, 1, 60				
	Input	kW	1.295	1.635	1.742	2.282	
	Comp. current	A	5.01/4.53	6.67/6.03	7.01/6.34	9.59/8.67	
	Fan motor current	A	1.05/0.95	1.05/0.95	1.16/1.05	1.13/1.02	
	Refrigerant circuit	Condensing pressure	PSIG	377	391	395	405
Suction pressure		PSIG	144	103	141	102	
Discharge temperature		°F	149	178	158	171	
Condensing temperature		°F	111	111	115	115	
Suction temperature		°F	51	43	52	33	
Comp. shell bottom temperature		°F	134	160	140	148	
Ref. pipe length		ft.	25				
Refrigerant charge (R410A)			3 lb 9 oz.		4 lb 3 oz.		
Indoor unit	Intake air temperature	DB	°F	80	70	80	70
		WB	°F	67	60	67	60
	Discharge air temperature	DB	°F	52	111	56	111
		WB	°F	51	—	53	—
	Fan speed (High)	rpm	1,170	1,170	1,300	1,300	
Airflow (High)	CFM	581 (Wet)	646	634 (Wet)	738		
Outdoor unit	Intake air temperature	DB	°F	95	47	95	47
		WB	°F	—	43	—	43
	Fan speed	rpm	810	810	840	810	
Airflow	CFM	1,691	1,691	1,769	1,701		

7-5. CAPACITY AND INPUT CORRECTION BY INVERTER OUTPUT FREQUENCY

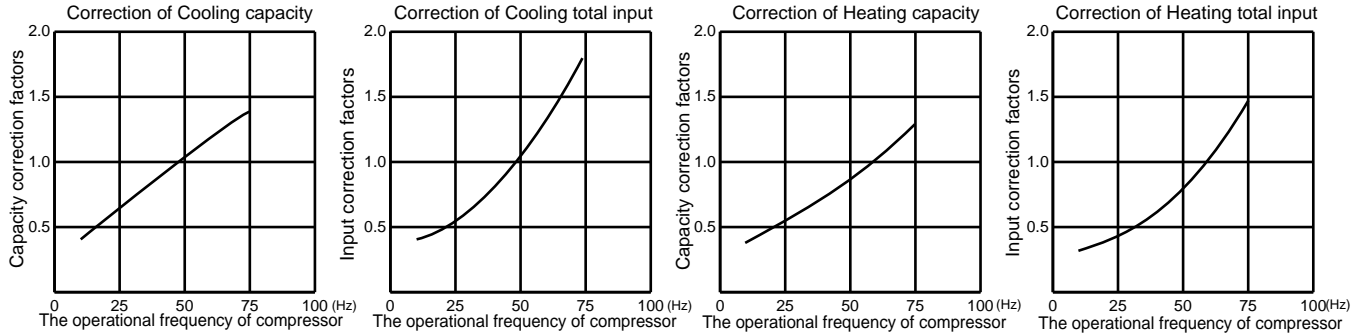
MUZ-GL09NA - U1 MUZ-GL09NAH - U1



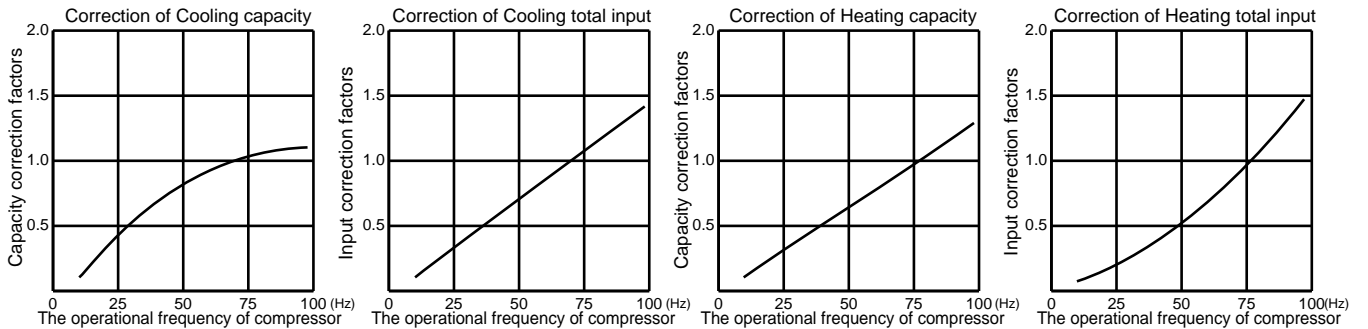
MUY-GL09NA



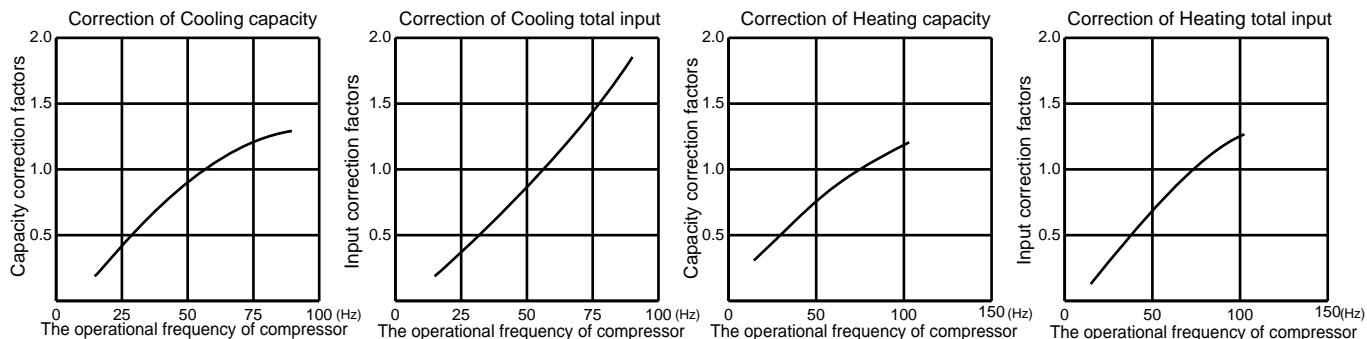
MUZ-GL09NA - U8 MUZ-GL09NAH - U8



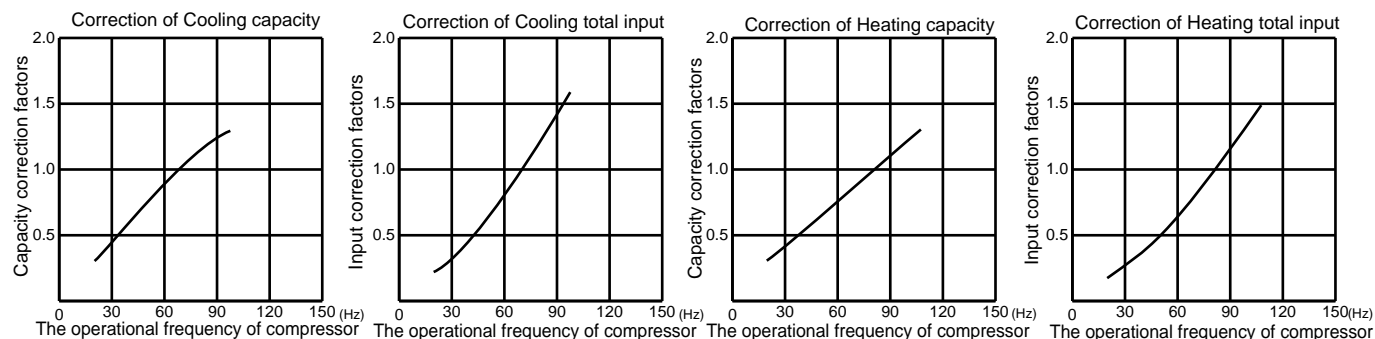
MUZ-GL12NA MUZ-GL12NAH MUY-GL12NA



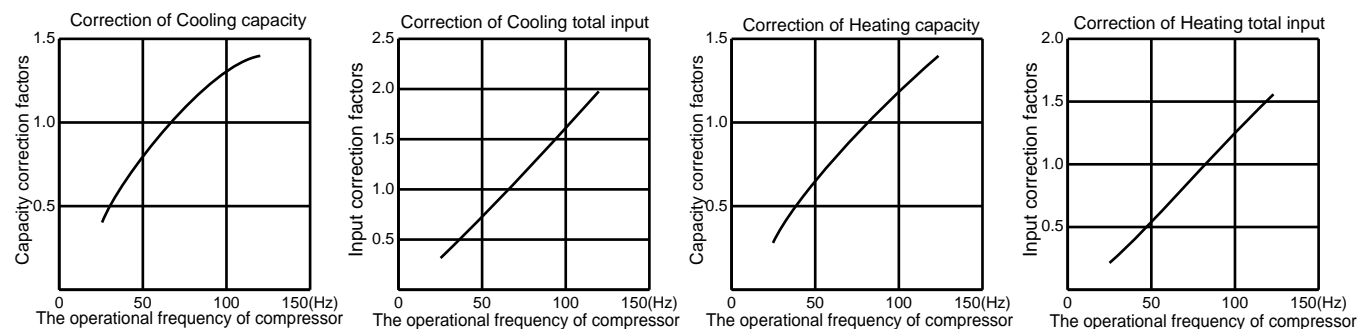
MUZ-GL15NA MUZ-GL15NAH MUY-GL15NA



MUZ-GL18NA MUZ-GL18NAH MUY-GL18NA



MUZ-GL24NA MUZ-GL24NAH MUY-GL24NA



7-6. HOW TO OPERATE FIXED-FREQUENCY OPERATION (Test run operation)

1. Press EMERGENCY OPERATION switch to start COOL or HEAT mode (COOL: Press once, HEAT: Press twice).
2. Test run operation starts and continues to operate for 30 minutes.
3. Compressor operates at rated frequency in COOL mode or 58 Hz in HEAT mode.
4. Indoor fan operates at High speed.
5. After 30 minutes, test run operation finishes and EMERGENCY OPERATION starts (operation frequency of compressor varies).
6. To cancel test run operation (EMERGENCY OPERATION), press EMERGENCY OPERATION switch or any button on the remote controller.

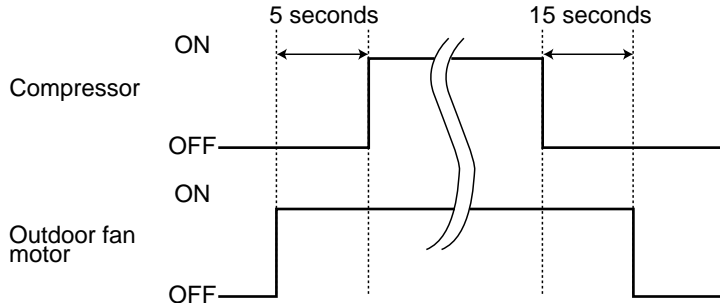
- MUZ-GL09NA MUZ-GL09NAH MUY-GL09NA
- MUZ-GL12NA MUZ-GL12NAH MUY-GL12NA
- MUZ-GL15NA MUZ-GL15NAH MUY-GL15NA
- MUZ-GL18NA MUZ-GL18NAH MUY-GL18NA
- MUZ-GL24NA MUZ-GL24NAH MUY-GL24NA

8-1. OUTDOOR FAN MOTOR CONTROL

The fan motor turns ON/OFF, interlocking with the compressor.

[ON] The fan motor turns ON 5 seconds before the compressor starts up.

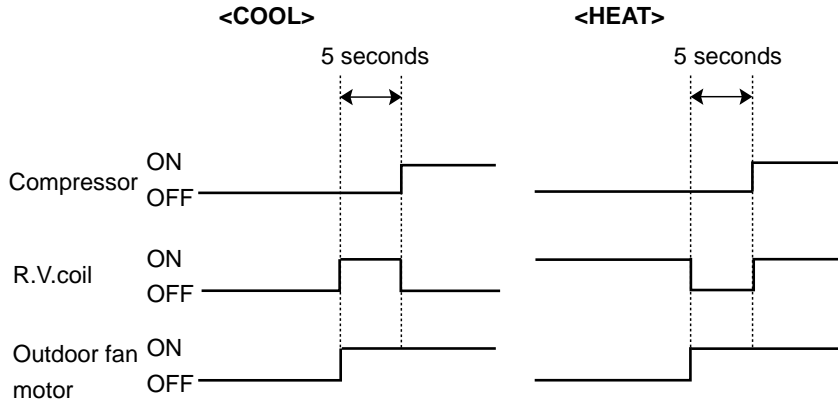
[OFF] The fan motor turns OFF 15 seconds after the compressor has stopped running.



8-2. R.V. COIL CONTROL (MUZ)

- Heating ON
- Cooling OFF
- Dry OFF

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



8-3. RELATION BETWEEN MAIN SENSOR AND ACTUATOR

Sensor	Purpose	Actuator					
		Compressor	LEV	Outdoor fan motor	R.V.coil	Indoor fan motor	Defrost heater *
Discharge temperature thermistor	Protection	○	○				
Indoor coil temperature thermistor	Cooling: Coil frost prevention	○					
	Heating: High pressure protection	○	○				
Defrost thermistor (MUZ)	Heating: Defrosting	○	○	○	○	○	
Fin temperature thermistor	Protection	○		○			
Ambient temperature thermistor	Cooling: Low ambient temperature operation	○	○	○			
	Heating: Defrosting (Heater)						○
Outdoor heat exchanger temperature thermistor	Cooling: Low ambient temperature operation	○	○	○			
	Cooling: High pressure protection	○	○	○			

*. MUZ-GL•NAH only.

MUZ-GL09NA MUZ-GL09NAH MUY-GL09NA
MUZ-GL12NA MUZ-GL12NAH MUY-GL12NA
MUZ-GL15NA MUZ-GL15NAH MUY-GL15NA
MUZ-GL18NA MUZ-GL18NAH MUY-GL18NA
MUZ-GL24NA MUZ-GL24NAH MUY-GL24NA

9-1. CHANGE IN DEFROST SETTING (MUZ)

Changing defrost finish temperature

<JS> To change the defrost finish temperature, cut/solder the JS wire of the outdoor inverter P.C. board (Refer to 10-6.1.).

Jumper		Defrost finish temperature	
		MUZ-GL09/12/15NA MUZ-GL09/12/15NAH	MUZ-GL18/24NA MUZ-GL18/24NAH
JS	Soldered (Initial setting)	41°F (5°C)	50°F (10°C)
	None (Cut)	50°F (10°C)	64°F (18°C)

9-2. PRE-HEAT CONTROL SETTING (MUZ)

MUZ-GL09/12/15/18

When moisture gets into the refrigerant cycle, it may interfere with the start-up of the compressor at low outside temperature. The pre-heat control prevents this interference. The pre-heat control turns ON when the discharge temperature thermostat is 68°F (20°C) or below. When the pre-heat control turns ON, the compressor is energized. (About 50 W)

MUZ-GL24

Prolonged low load operation, in which the thermostat is OFF for a long time, at low outside temperature [32°F (0°C) or less] may cause the following troubles. The pre-heat control prevents those troubles.

- 1) If moisture gets into the refrigerant cycle and freezes, it may interfere the start-up of the compressor.
- 2) If liquid refrigerant collects in the compressor, a failure in the compressor may occur.

The pre-heat control turns ON when the compressor temperature is 68°F (20°C) or below. When the pre-heat control turns ON, the compressor is energized. (About 70 W)

Pre-heat control setting

<JK>

ON: To activate the pre-heat control, cut JK wire of the inverter P.C. board.

OFF: To deactivate the pre-heat control, solder JK wire of the inverter P.C. board.

(Refer to 10-6.1)

Jumper		Pre-heat control setting	
		MUZ-GL09/12/15/18NA MUZ-GL09/12/15/18NAH	MUZ-GL24NA MUZ-GL24NAH
JK	Soldered	Deactivated (Factory setting)	Deactivated
	Cut	Activated	Activated (Factory setting)

NOTE: When the inverter P.C. board is replaced, check the jumper wires, and cut/solder them if necessary.

MUZ-GL09NA MUZ-GL09NAH MUY-GL09NA
 MUZ-GL12NA MUZ-GL12NAH MUY-GL12NA
 MUZ-GL15NA MUZ-GL15NAH MUY-GL15NA
 MUZ-GL18NA MUZ-GL18NAH MUY-GL18NA
 MUZ-GL24NA MUZ-GL24NAH MUY-GL24NA

10-1. CAUTIONS ON TROUBLESHOOTING

1. Before troubleshooting, check the following

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

2. Take care of the following during servicing

- 1) Before servicing the air conditioner, be sure to turn OFF the main unit first with the remote controller, 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 electrical parts, be careful of the residual voltage of smoothing capacitor.
- 4) When removing the electronic control P.C. board, hold the edge of the board with care NOT to apply stress on the components.
- 5) When connecting or disconnecting the connectors, hold the connector housing. DO NOT pull the lead wires.

<Incorrect>



Lead wiring

<Correct>



Connector housing

3. Troubleshooting procedure

- 1) 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. (See the service manual of the indoor unit for a description of those failure codes.)
- 2) Before servicing, check that the connector and terminal are connected properly.
- 3) When the electronic control P.C. board seems to be defective, check the copper foil pattern for disconnection and the components for bursting and discoloration.
- 4) Refer to 10-2 and 10-3.

10-2. FAILURE MODE RECALL FUNCTION

Outline of the function

This air conditioner can memorize the abnormal condition which has occurred once.

Even though LED indication listed on the troubleshooting check table (10-3.) disappears, the memorized failure details can be recalled.

1. Flow chart of failure mode recall function for the indoor/outdoor unit

MSZ-GL06/09/12/15NA
MSY-GL09/12/15NA

MSZ-GL18NA
MSY-GL18NA

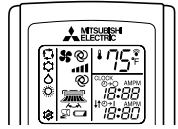
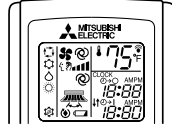
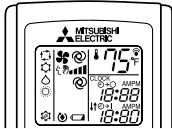
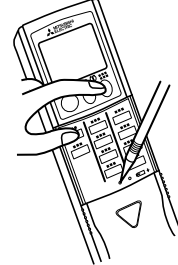
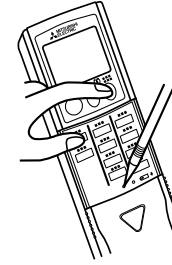
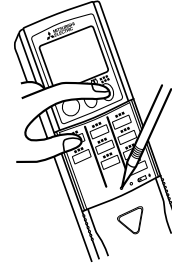
MSZ-GL24NA
MSY-GL24NA

Operational procedure

The cause of abnormality cannot be found because the abnormality does not recur.

Setting up the failure mode recall function

Turn ON the power supply.
<Preparation of the remote controller>
① While pressing OPERATION SELECT button and TOO COOL button on the remote controller at the same time, press RESET button.
② First, release RESET button.
Hold down the other 2 buttons for another 3 seconds. Make sure that the indicators on the LCD screen shown in the right figure are all displayed. Then release the buttons.



Press STOP/OPERATE (OFF/ON) button of the remote controller (the set temperature is displayed) with the remote controller headed towards the indoor unit. ※1

※1. Regardless of normal or abnormal condition, a short beep is emitted once the signal is received.

Does the upper lamp of the OPERATION INDICATOR lamp on the indoor unit blink at the interval of 0.5 seconds?
Blinks: Either indoor or outdoor unit is abnormal. Beep is emitted at the same timing as the blinking of the upper lamp of the OPERATION INDICATOR lamp. ※2

Indoor unit is normal.
But the outdoor unit might be abnormal because there are some abnormalities that cannot be recalled with this way.
Check if outdoor unit is abnormal according to the detailed outdoor unit failure mode recall function. (Refer to 10-2.2)

E.g.: MSZ type

Judgment of indoor/outdoor abnormality

Before blinking, does the upper lamp of the OPERATION INDICATOR lamp stay ON for 3 seconds?
When it stays ON for 3 seconds (without beep): The outdoor unit is abnormal.

The outdoor unit is abnormal.
Check the blinking pattern, and identify the abnormal point by referring to the outdoor unit failure recall mode table. (Refer to 10-2.3)
Make sure to check at least 2 consecutive blinking cycles. ※3

The indoor unit is abnormal.
Check the blinking pattern, and identify the abnormal point by referring to the indoor unit failure recall mode table. (Refer to indoor unit service manual.)
Make sure to check at least 2 consecutive blinking cycles. ※2

Releasing the failure mode recall function

Release the failure mode recall function by the following procedures.
Turn OFF the power supply and turn it ON again.
Press RESET button of the remote controller.

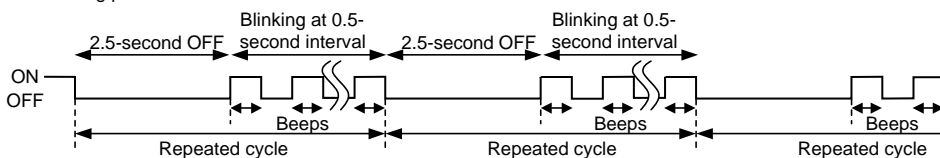
Repair the failure parts.

Deleting the memorized abnormal condition

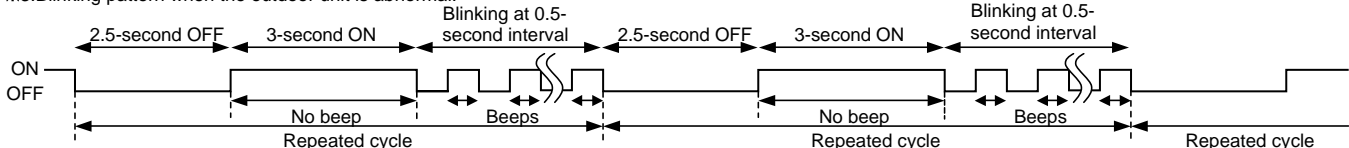
① After repairing the unit, recall the failure mode again according to "Setting up the failure mode recall function" mentioned above.
② Press STOP/OPERATE (OFF/ON) button of the remote controller (the set temperature is displayed) with the remote controller headed towards the indoor unit.
③ Press EMERGENCY OPERATION switch so that the memorized abnormal condition is deleted.
④ Release the failure mode recall function according to "Releasing the failure mode recall function" mentioned above.

NOTE: 1. Make sure to release the failure mode recall function after it is set up, otherwise the unit cannot operate properly.
2. If the abnormal condition is not deleted from the memory, the last abnormal condition is kept memorized.

※2. Blinking pattern when the indoor unit is abnormal:

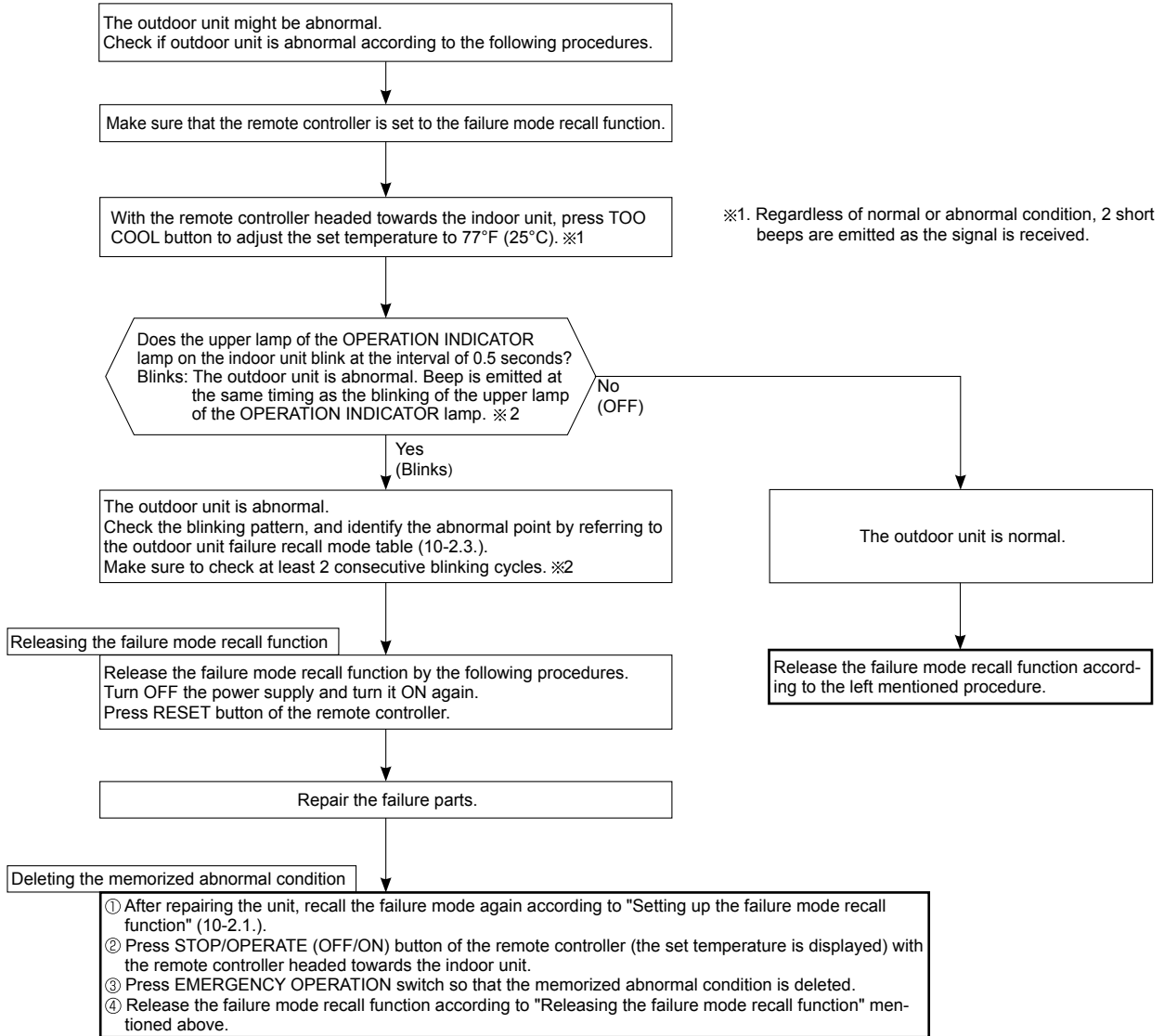


※3. Blinking pattern when the outdoor unit is abnormal:



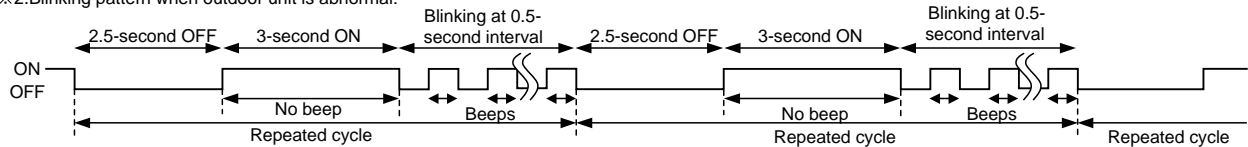
2. Flow chart of the detailed outdoor unit failure mode recall function

Operational procedure



NOTE: 1. Make sure to release the failure mode recall function after it is set up, otherwise the unit cannot operate properly.
2. If the abnormal condition is not deleted from the memory, the last abnormal condition is kept memorized.

※2. Blinking pattern when outdoor unit is abnormal:



NOTE: Blinking patterns of this mode differ from the ones of TROUBLESHOOTING CHECK TABLE (10-3.).

3. Outdoor unit failure recall mode table

The upper lamp of the OPERATION INDICATOR lamp (Indoor unit)	Abnormal point (Failure mode/protection)	LED indication (Outdoor P.C. board)	Condition	Remedy	Indoor/outdoor unit failure mode recall function	Outdoor unit failure mode recall function
OFF	None (Normal)	—	—	—	—	—
1-time flash 2.5 seconds OFF	Indoor/outdoor communication, receiving error	—	Any signals from the inverter P.C. board cannot be received normally for 3 minutes.	•Refer to 10-5. ㉔ How to check miswiring and serial signal error.	○	○
	Indoor/outdoor communication, receiving error	—	Although the inverter P.C. board sends signal "0", signal "1" has been received 30 consecutive times.	•Refer to 10-5. ㉔ How to check miswiring and serial signal error.		
2-time flash 2.5 seconds OFF	Outdoor power system	—	Overcurrent protection cut-out operates 3 consecutive times within 1 minute after the compressor gets started.	•Reconnect connectors. •Refer to 10-5. ㉔ "How to check inverter/compressor". •Check stop valve.	○	○
3-time flash 2.5 seconds OFF	Discharge temperature thermistor	1-time flash every 2.5 seconds	Thermistor shorts or opens during compressor running.	•Refer to 10-5. ㉔ "Check of outdoor thermistors". Defective outdoor thermistors can be identified by checking the blinking pattern of LED.	○	○
	Defrost thermistor	—				
	Fin temperature thermistor	3-time flash 2.5 seconds OFF				
	P.C. board temperature thermistor	4-time flash 2.5 seconds OFF				
	Ambient temperature thermistor	2-time flash 2.5 seconds OFF				
Outdoor heat exchanger temperature thermistor	—					
4-time flash 2.5 seconds OFF	Overcurrent	11-time flash 2.5 seconds OFF	Large current flows into the power module (IC700) (MUZ-GL09/12/15/18, MUY-GL09/12/15/18) / IGBT module (IC700) (MUZ-GL24, MUY-GL24).	•Reconnect compressor connector. •Refer to 10-5. ㉔ "How to check inverter/compressor". •Check stop valve.	—	○
	Compressor synchronous abnormality (Compressor start-up failure protection)	12-time flash 2.5 seconds OFF	Waveform of compressor current is distorted.	•Reconnect compressor connector. •Refer to 10-5. ㉔ "How to check inverter/compressor".	—	○
5-time flash 2.5 seconds OFF	Discharge temperature	—	Temperature of discharge temperature thermistor exceeds 241°F (116°C), compressor stops. Compressor can restart if discharge temperature thermistor reads 212°F (100°C) or less 3 minutes later.	•Check refrigerant circuit and refrigerant amount. •Refer to 10-5. ㉔ "Check of LEV".	—	○
6-time flash 2.5 seconds OFF	High pressure	—	Temperature indoor coil thermistor exceeds 158°F (70°C) in HEAT mode. Temperature defrost thermistor exceeds 158°F (70°C) in COOL mode.	•Check refrigerant circuit and refrigerant amount. •Check stop valve.	—	○
7-time flash 2.5 seconds OFF	Fin temperature/ P.C. board temperature	7-time flash 2.5 seconds OFF	Temperature of the fin temperature thermistor on the inverter P.C. board exceeds 167 - 187°F (75 - 86°C) (MUZ-GL09/12/15/18, MUY-GL09/12/15/18) / 167 - 176°F (75 - 80°C) (MUZ-GL24, MUY-GL24), or temperature of P.C. board temperature thermistor on the inverter P.C. board exceeds 162 - 185°F (72 - 85°C) (MUZ-GL09/12/15/18, MUY-GL09/12/15/18) / 158 - 167°F (70 - 75°C) (MUZ-GL24, MUY-GL24).	•Check around outdoor unit. •Check outdoor unit air passage. •Refer to 10-5. ㉔ "Check of outdoor fan motor".	—	○
8-time flash 2.5 seconds OFF	Outdoor fan motor	—	Outdoor fan has stopped 3 times in a row within 30 seconds after outdoor fan start-up.	•Refer to 10-5. ㉔ "Check of outdoor fan motor". Refer to 10-5. ㉔ "Check of inverter P.C. board".	—	○
9-time flash 2.5 seconds OFF	Non-volatile memory data	5-time flash 2.5 seconds OFF	Non-volatile memory data cannot be read properly.	•Replace the inverter P.C. board.	○	○
	Power module (IC700) (MUZ-GL09/12/15/18, MUY-GL09/12/15/18) / IGBT module (IC700) (MUZ-GL24, MUY-GL24)	6-time flash 2.5 seconds OFF	The interface short circuit occurs in the output of the power module (IC700) (MUZ-GL09/12/15/18, MUY-GL09/12/15/18) / IGBT module (IC700) (MUZ-GL24, MUY-GL24). The compressor winding shorts circuit.	•Refer to 10-5. ㉔ "How to check inverter/compressor".		

NOTE: Blinking patterns of this mode differ from the ones of TROUBLESHOOTING CHECK TABLE (10-3.).

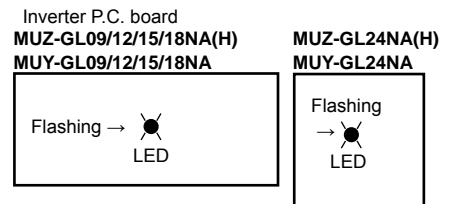
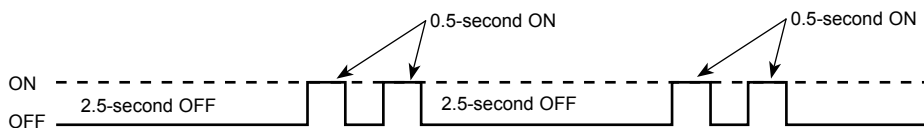
The upper lamp of the OPERATION INDICATOR lamp (Indoor unit)	Abnormal point (Failure mode/protection)	LED indication (Outdoor P.C. board)	Condition	Remedy	Indoor/outdoor unit failure mode recall function	Outdoor unit failure mode recall function
10-time flash 2.5 seconds OFF	Discharge temperature	—	Temperature of discharge temperature thermistor has been 122°F (50°C) or less for 20 minutes.	<ul style="list-style-type: none"> •Refer to 10-5.Ⓒ"Check of LEV". •Check refrigerant circuit and refrigerant amount. 	—	○
11-time flash 2.5 seconds OFF	DC voltage	8-time flash 2.5 seconds OFF	DC voltage of inverter cannot be detected normally.	<ul style="list-style-type: none"> •Refer to 10-5.Ⓐ"How to check inverter/compressor". 	—	○
	Each phase current of compressor	9-time flash 2.5 seconds OFF	Each phase current of compressor cannot be detected normally.			
14-time flash or more 2.5 seconds OFF	Stop valve (Closed valve)	14-time flash 2.5 seconds OFF	Closed valve is detected by compressor current.	<ul style="list-style-type: none"> •Check stop valve. 	○	○
	4-way valve/ Pipe temperature	16-time flash 2.5 seconds OFF	The 4-way valve does not work properly. The indoor coil thermistor detects an abnormal temperature.	<ul style="list-style-type: none"> •Check the 4-way valve. •Replace the inverter P.C. board. 		
	Outdoor refrigerant system abnormality	1-time flash 2.5 seconds OFF	A closed valve and air trapped in the refrigerant circuit are detected based on the temperature sensed by the indoor and outdoor thermistors and the current of the compressor.	<ul style="list-style-type: none"> •Check for a gas leak in a connecting piping etc. •Check the stop valve. •Refer to 10-5.Ⓓ "Check of outdoor refrigerant circuit". 		

10-3. TROUBLESHOOTING CHECK TABLE

No.	Symptom	LED indication	Abnormal point/ Condition	Condition	Remedy	
1	Outdoor unit does not operate.	1-time flash every 2.5 seconds	Outdoor power system	Overcurrent protection cut-out operates 3 consecutive times within 1 minute after the compressor gets started.	<ul style="list-style-type: none"> •Reconnect connector of compressor. •Refer to 10-5.Ⓐ "How to check inverter/compressor". •Check stop valve. 	
2			Outdoor thermistors	Discharge temperature thermistor, fin temperature thermistor, defrost thermistor, P.C. board temperature thermistor, outdoor heat exchanger temperature thermistor or ambient temperature thermistor shorts or opens during compressor running.	•Refer to 10-5.Ⓒ "Check of outdoor thermistors".	
3			Outdoor control system	Nonvolatile memory data cannot be read properly. (The upper lamp of the OPERATION INDICATOR lamp on the indoor unit lights up or flashes 7-time.)	•Replace inverter P.C. board.	
4			6-time flash 2.5 seconds OFF	Serial signal	The communication fails between the indoor and outdoor unit for 3 minutes.	•Refer to 10-5.Ⓜ "How to check miswiring and serial signal error.
5			11-time flash 2.5 seconds OFF	Stop valve/ Closed valve	Closed valve is detected by compressor current.	•Check stop valve.
6			16-time flash 2.5 seconds OFF	4-way valve/ Pipe temperature	The 4-way valve does not work properly. The indoor coil thermistor detects an abnormal temperature.	<ul style="list-style-type: none"> •Refer to 10-5.Ⓓ "Check of R.V. coil". •Replace the inverter P.C. board.
7			17-time flash 2.5 seconds OFF	Outdoor refrigerant system abnormality	A closed valve and air trapped in the refrigerant circuit are detected based on the temperature sensed by the indoor and outdoor thermistors and the current of the compressor.	<ul style="list-style-type: none"> •Check for a gas leak in a connecting piping etc. •Check the stop valve. •Refer to 10-5.Ⓒ "Check of outdoor refrigerant circuit".
8	'Outdoor unit stops and restarts 3 minutes later' is repeated.	2-time flash 2.5 seconds OFF	Overcurrent protection	Large current flows into the power module (IC700) (MUZ-GL09/12/15/18, MUY-GL09/12/15/18)/ IGBT module (IC700) (MUZ-GL24, MUY-GL24).	<ul style="list-style-type: none"> •Reconnect connector of compressor. •Refer to 10-5.Ⓐ "How to check inverter/compressor". •Check stop valve. 	
9			3-time flash 2.5 seconds OFF	Discharge temperature overheat protection	Temperature of discharge temperature thermistor exceeds 241°F (116°C), compressor stops. Compressor can restart if discharge temperature thermistor reads 212°F (100°C) or less 3 minutes later.	<ul style="list-style-type: none"> •Check refrigerant circuit and refrigerant amount. •Refer to 10-5.Ⓚ "Check of LEV".
10			4-time flash 2.5 seconds OFF	Fin temperature /P.C. board temperature thermistor overheat protection	Temperature of the fin temperature thermistor on the heat sink exceeds 167 - 187°F (75 - 86°C) (MUZ-GL09/12/15/18, MUY-GL09/12/15/18)/167 - 176°F (75 - 80°C) (MUZ-GL24, MUY-GL24) or temperature of P.C. board temperature thermistor on the inverter P.C. board exceeds 162 - 185°F (72 - 85°C) (MUZ-GL09/12/15/18, MUY-GL09/12/15/18)/158 - 167°F (70 - 75°C) (MUZ-GL24, MUY-GL24).	<ul style="list-style-type: none"> •Check around outdoor unit. •Check outdoor unit air passage. •Refer to 10-5.Ⓛ "Check of outdoor fan motor".
11			5-time flash 2.5 seconds OFF	High pressure protection	Indoor coil thermistor exceeds 158°F (70°C) in HEAT mode. Defrost thermistor exceeds 158°F (70°C) in COOL mode.	<ul style="list-style-type: none"> •Check refrigerant circuit and refrigerant amount. •Check stop valve.
12			8-time flash 2.5 seconds OFF	Compressor synchronous abnormality	The waveform of compressor current is distorted.	<ul style="list-style-type: none"> •Reconnect connector of compressor. •Refer to 10-5.Ⓐ "How to check inverter/compressor".
13			10-time flash 2.5 seconds OFF	Outdoor fan motor	Outdoor fan has stopped 3 times in a row within 30 seconds after outdoor fan start-up.	<ul style="list-style-type: none"> •Refer to 10-5.Ⓛ "Check of outdoor fan motor. •Refer to 10-5.Ⓛ "Check of inverter P.C. board.
14			12-time flash 2.5 seconds OFF	Each phase current of compressor	Each phase current of compressor cannot be detected normally.	•Refer to 10-5.Ⓐ "How to check inverter/compressor".
15			13-time flash 2.5 seconds OFF	DC voltage	DC voltage of inverter cannot be detected normally.	<ul style="list-style-type: none"> •It occurs with following case. Instantaneous power voltage drop. (Short time power failure) (MUZ-GL24, MUY-GL24) •Refer to 10-5.Ⓞ "Check of power supply". (MUZ-GL24, MUY-GL24) •Refer to 10-5.Ⓐ "How to check inverter/compressor".

NOTE: 1. The location of LED is illustrated at the right figure. Refer to 10-6.1.
 2. LED is lighted during normal operation.
 3. Blinking patterns of this mode differ from the ones of the failure recall mode.

The flashing frequency shows the number of times the LED blinks after every 2.5-second OFF.
 (Example) When the flashing frequency is "2".

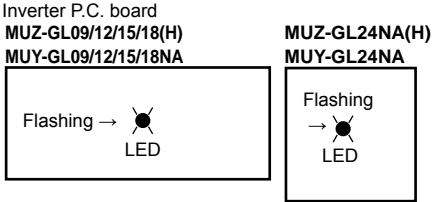
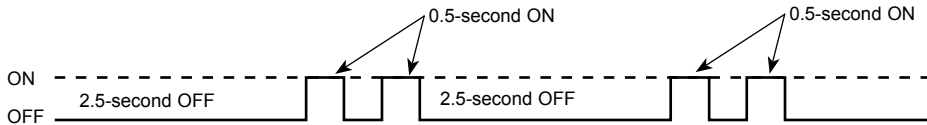




No.	Symptom	LED indication	Abnormal point/Condition	Condition	Remedy
16	Outdoor unit operates.	1-time flash 2.5 seconds OFF	Frequency drop by current protection	MUZ-GL09/12/15/18 MUY-GL09/12/15/18	When the input current exceeds approximately 10.5A, compressor frequency lowers.
				MUZ-GL24 MUY-GL24	Current from power outlet is nearing breaker capacity.
17		3-time flash 2.5 seconds OFF	Frequency drop by high pressure protection	Temperature of indoor coil thermistor exceeds 131 °F (55°C) in HEAT mode, compressor frequency lowers.	
				Indoor coil thermistor reads 46°F (8°C) or less in COOL mode, compressor frequency lowers.	
18		4-time flash 2.5 seconds OFF	Frequency drop by discharge temperature protection	Temperature of discharge temperature thermistor exceeds 232°F (111°C), compressor frequency lowers.	
19		5-time flash 2.5 seconds OFF	Outside temperature thermistor protection	When the outside temperature thermistor shorts or opens, protective operation without that thermistors is performed.	
20	Outdoor unit operates.	7-time flash 2.5 seconds OFF	Low discharge temperature protection	Temperature of discharge temperature thermistor has been 122°F (50°C) or less for 20 minutes.	
21		8-time flash 2.5 seconds OFF	MUZ-GL09/12/15/18 MUY-GL09/12/15/18 PAM protection PAM: Pulse Amplitude Modulation	The overcurrent flows into PFC (Power factor correction :IC820) or the DC voltage reaches 394 V or more, PAM stops and restarts.	
			MUZ-GL24 MUY-GL24 Zero cross detecting circuit	Zero cross signal cannot be detected.	
22		9-time flash 2.5 seconds OFF	Inverter check mode	The connector of compressor is disconnected, inverter check mode starts.	

NOTE: 1. The location of LED is illustrated at the right figure. Refer to 10-6.1.
 2. LED is lighted during normal operation.
 3. Blinking patterns of this mode differ from the ones of the failure recall mode.

The flashing frequency shows the number of times the LED blinks after every 2.5-second OFF.
 (Example) When the flashing frequency is "2".



10-4. TROUBLE CRITERION OF MAIN PARTS

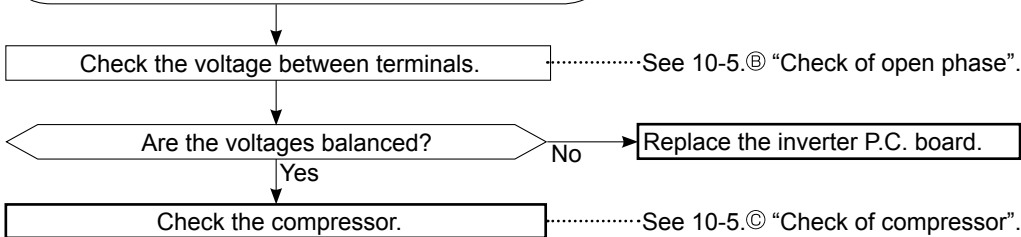
MUZ-GL09NA MUZ-GL09NAH MUY-GL09NA
MUZ-GL12NA MUZ-GL12NAH MUY-GL12NA
MUZ-GL15NA MUZ-GL15NAH MUY-GL15NA
MUZ-GL18NA MUZ-GL18NAH MUY-GL18NA
MUZ-GL24NA MUZ-GL24NAH MUY-GL24NA

Part name	Check method and criterion	Figure																
Defrost thermistor (RT61) (MUZ) Fin temperature thermistor (RT64) Ambient temperature thermistor (RT65) Outdoor heat exchanger temperature thermistor (RT68)	Measure the resistance with a tester. Refer to 10-6. "Test point diagram and voltage", 1. "Inverter P.C. board", for the chart of thermistor.																	
Discharge temperature thermistor (RT62)	Measure the resistance with a tester. Before measurement, hold the thermistor with your hands to warm it up. Refer to 10-6. "Test point diagram and voltage", 1. "Inverter P.C. board", for the chart of thermistor.																	
Compressor	Measure the resistance between terminals using a tester. [Temperature: 14 - 104°F (-10 - 40°C)] <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th rowspan="2"></th> <th colspan="4">Normal (Ω)</th> </tr> <tr> <th>MUY-GL09 MUZ-GL09NA(H) -U1</th> <th>MUZ-GL09NA(H) -U8 MUZ-GL12 MUY-GL12</th> <th>MUZ-GL15/18 MUY-GL15/18</th> <th>MUZ-GL24 MUY-GL24</th> </tr> </thead> <tbody> <tr> <td>U-V</td> <td rowspan="3">1.26 - 1.72</td> <td rowspan="3">1.60 - 2.17</td> <td rowspan="3">0.82 - 1.11</td> <td rowspan="3">0.87 - 1.18</td> </tr> <tr> <td>U-W</td> </tr> <tr> <td>V-W</td> </tr> </tbody> </table>		Normal (Ω)				MUY-GL09 MUZ-GL09NA(H) -U1	MUZ-GL09NA(H) -U8 MUZ-GL12 MUY-GL12	MUZ-GL15/18 MUY-GL15/18	MUZ-GL24 MUY-GL24	U-V	1.26 - 1.72	1.60 - 2.17	0.82 - 1.11	0.87 - 1.18	U-W	V-W	
	Normal (Ω)																	
	MUY-GL09 MUZ-GL09NA(H) -U1	MUZ-GL09NA(H) -U8 MUZ-GL12 MUY-GL12	MUZ-GL15/18 MUY-GL15/18	MUZ-GL24 MUY-GL24														
U-V	1.26 - 1.72	1.60 - 2.17	0.82 - 1.11	0.87 - 1.18														
U-W																		
V-W																		
Outdoor fan motor	Measure the resistance between lead wires using a tester. [Temperature: 14 - 104°F (-10 - 40°C)] <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th rowspan="2">Color of lead wire</th> <th colspan="2">Normal (Ω)</th> </tr> <tr> <th>MUZ-GL09/12/15 MUY-GL09/12/15</th> <th>MUZ-GL18/24 MUY-GL18/24</th> </tr> </thead> <tbody> <tr> <td>RED - BLK</td> <td rowspan="3">29 - 40</td> <td rowspan="3">12 - 16</td> </tr> <tr> <td>BLK - WHT</td> </tr> <tr> <td>WHT - RED</td> </tr> </tbody> </table>	Color of lead wire	Normal (Ω)		MUZ-GL09/12/15 MUY-GL09/12/15	MUZ-GL18/24 MUY-GL18/24	RED - BLK	29 - 40	12 - 16	BLK - WHT	WHT - RED							
Color of lead wire	Normal (Ω)																	
	MUZ-GL09/12/15 MUY-GL09/12/15	MUZ-GL18/24 MUY-GL18/24																
RED - BLK	29 - 40	12 - 16																
BLK - WHT																		
WHT - RED																		
R. V. coil (21S4)	Measure the resistance using a tester. [Temperature: 14 - 104°F (-10 - 40°C)] <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th>Normal (kΩ)</th> </tr> </thead> <tbody> <tr> <td>0.97 - 1.38</td> </tr> </tbody> </table>	Normal (kΩ)	0.97 - 1.38															
Normal (kΩ)																		
0.97 - 1.38																		
Expansion valve coil (LEV)	Measure the resistance using a tester. [Temperature: 14 - 104°F (-10 - 40°C)] <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th>Color of lead wire</th> <th>Normal (Ω)</th> </tr> </thead> <tbody> <tr> <td>RED - ORN</td> <td rowspan="4">37 - 54</td> </tr> <tr> <td>RED - WHT</td> </tr> <tr> <td>RED - BLU</td> </tr> <tr> <td>RED - YLW</td> </tr> </tbody> </table>	Color of lead wire	Normal (Ω)	RED - ORN	37 - 54	RED - WHT	RED - BLU	RED - YLW										
Color of lead wire	Normal (Ω)																	
RED - ORN	37 - 54																	
RED - WHT																		
RED - BLU																		
RED - YLW																		
Defrost heater (MUZ-GL-NAH)	Measure the resistance using a tester. [Temperature: 14 - 104°F (-10 - 40°C)] <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th>Normal (Ω)</th> </tr> </thead> <tbody> <tr> <td>349 - 428</td> </tr> </tbody> </table>	Normal (Ω)	349 - 428															
Normal (Ω)																		
349 - 428																		

10-5. TROUBLESHOOTING FLOW

A How to check inverter/compressor

Disconnect the connector between the compressor and the power module (IC700) (**MUZ-GL09/12/15/18, MUY-GL09/12/15/18**)/IGBT module (IC700) (**MUZ-GL24, MUY-GL24**).



B Check of open phase

- With the connector between the compressor and the power module (IC700) (**MUZ-GL09/12/15/18, MUY-GL09/12/15/18**)/IGBT module (IC700) (**MUZ-GL24, MUY-GL24**) disconnected, activate the inverter and check if the inverter is normal by measuring **the voltage balance** between the terminals.

Output voltage is 50 - 130 V. (The voltage may differ according to the tester.)

<< Operation method >>

Start cooling or heating operation by pressing EMERGENCY OPERATION switch on the indoor unit. (TEST RUN OPERATION: Refer to 7-6.)

<< Measurement point >>

At 3 points

BLK (U)-WHT (V)

※ Measure AC voltage between the lead wires at 3 points.

BLK (U)-RED (W)

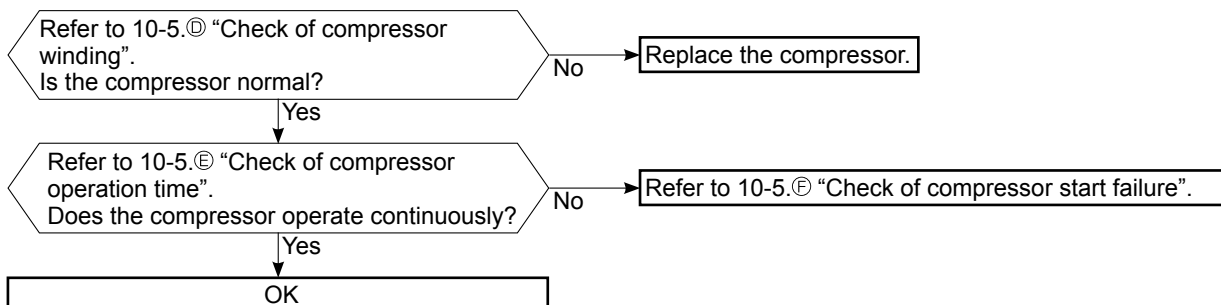
WHT(V)-RED (W)

NOTE: 1. Output voltage varies according to power supply voltage.

2. Measure the voltage by analog type tester.

3. During this check, LED of the inverter P.C. board flashes 9 times. (Refer to 10-6.1.)

C Check of compressor



D Check of compressor winding

- Disconnect the connector between the compressor and the power module (IC700) (MUZ-GL09/12/15/18, MUY-GL09/12/15/18)/ IGBT module (IC700) (MUZ-GL24, MUY-GL24), and measure the resistance between the compressor terminals.

<<Measurement point>>

At 3 points

BLK-WHT

BLK-RED

WHT-RED

※ Measure the resistance between the lead wires at 3 points.

<<Judgement>>

Refer to 10-4.

0 [Ω]Abnormal [short]

Infinite [Ω]Abnormal [open]

NOTE: Be sure to zero the ohmmeter before measurement.

E Check of compressor operation time

- Connect the compressor and activate the inverter. Then measure the time until the inverter stops due to overcurrent.

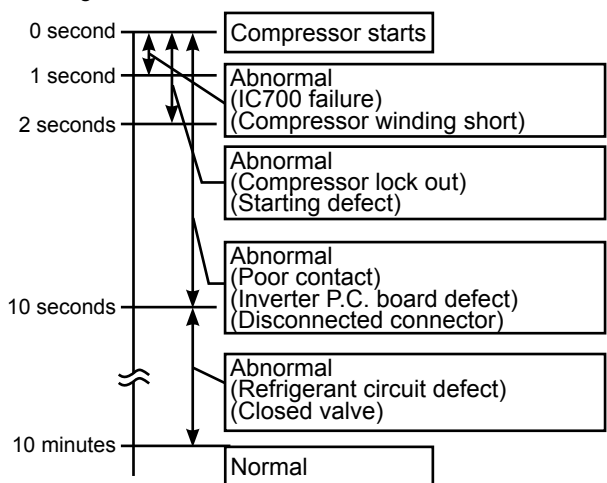
<<Operation method>>

Start heating or cooling operation by pressing EMERGENCY OPERATION switch on the indoor unit. (TEST RUN OPERATION: Refer to 7-6.)

<<Measurement>>

Measure the time from the start of compressor to the stop of compressor due to overcurrent.

<<Judgement>>



F Check of compressor start failure

Confirm that ①~④ is normal.

•Electrical circuit check

①. Contact of the compressor connector

②. Output voltage of inverter P.C. board and balance of them (See 10-5.⑥)

③. Direct current voltage between DB61(+) and (-) (MUZ-GL09/12/15/18, MUY-GL09/12/15/18)/JP715(+) and JP30(-) (MUZ-GL24, MUY-GL24) on the inverter P.C. board

④. Voltage between outdoor terminal block S1-S2

Does the compressor run for 10 seconds or more after it starts?

Yes

Check the refrigerant circuit.
Check the stop valve.

No

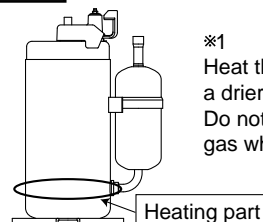
After the compressor is heated with a drier, does the compressor start? ※1

No

Replace the compressor.

Yes

Compressor start failure. Activate pre-heat control.
(Refer to 9-2. "PRE-HEAT CONTROL SETTING")



※1

Heat the compressor with a drier for about 20 minutes. Do not recover refrigerant gas while heating.

⑥ Check of outdoor thermistors

Disconnect the connector of thermistor in the inverter P.C. board (see below table), and measure the resistance of thermistor.

Is the resistance of thermistor normal?
(Refer to 10-6.1.)

No

Replace the thermistor except RT64.
When RT64 is abnormal, replace the inverter P.C. board.

Yes

Reconnect the connector of thermistor.
Turn ON the power supply and press EMERGENCY OPERATION switch.

Does the unit operate for 10 minutes or more
without showing thermistor abnormality?

No

Replace the inverter P.C. board.

Yes

OK
(Cause is poor contact.)

MUZ-GL09/12/15/18, MUY-GL09/12/15/18

Thermistor	Symbol	Connector, Pin No.	Board
Defrost (MUZ)	RT61	Between CN641 pin1 and pin2	Inverter P.C. board
Discharge temperature	RT62	Between CN641 pin3 and pin4	
Fin temperature	RT64	Between CN642 pin1 and pin2	
Ambient temperature	RT65	Between CN643 pin1 and pin2	
Outdoor heat exchanger temperature	RT68	Between CN644 pin1 and pin3	

MUZ-GL24, MUY-GL24

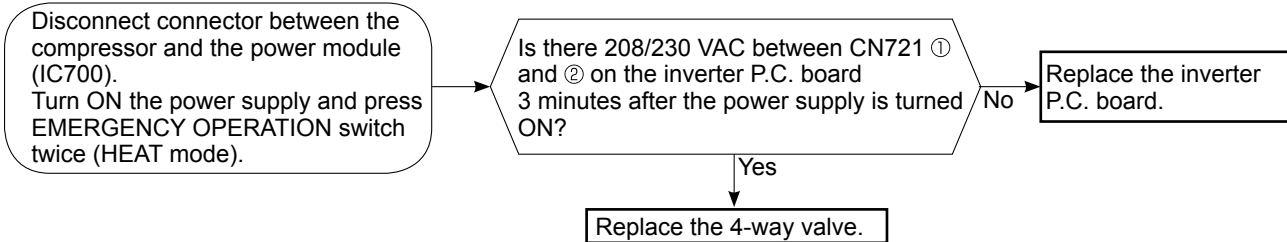
Thermistor	Symbol	Connector, Pin No.	Board
Defrost (MUZ)	RT61	Between CN671 pin1 and pin2	Inverter P.C. board
Discharge temperature	RT62	Between CN671 pin3 and pin4	
Fin temperature	RT64	Between CN673 pin1 and pin2	
Ambient temperature	RT65	Between CN672 pin1 and pin2	
Outdoor heat exchanger temperature	RT68	Between CN671 pin5 and pin6	

H Check of R.V. coil (MUZ)

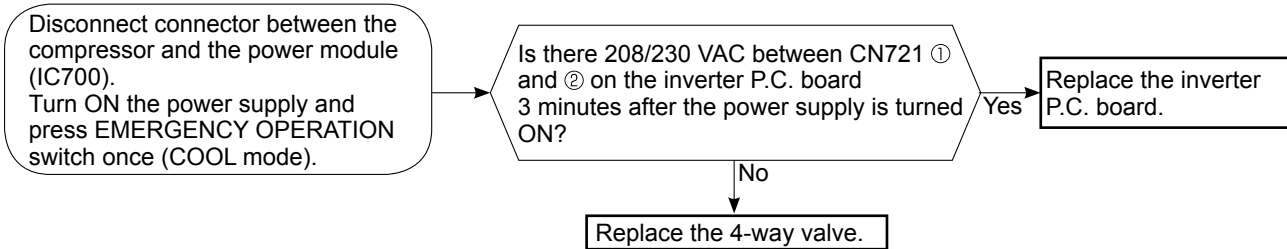
MUZ-GL09/12/15/18NA MUZ-GL09/12/15/18NAH

- ※ First of all, measure the resistance of R.V. coil to check if the coil is defective. Refer to 10-4.
- ※ In case CN721 is disconnected or R.V. coil is open, voltage is generated between the terminal pins of the connector although no signal is being transmitted to R.V. coil.
Check if CN721 is connected.

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



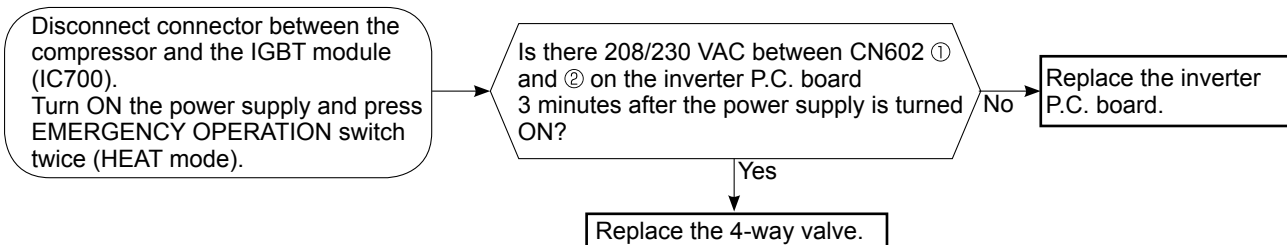
Unit operates HEAT mode even if it is set to COOL mode.



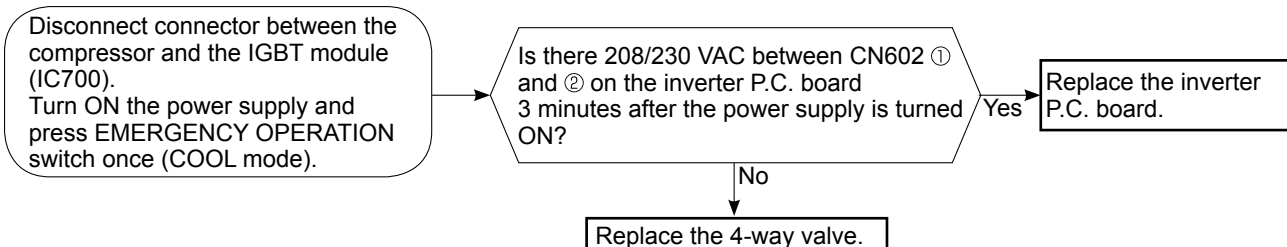
MUZ-GL24NA MUZ-GL24NAH

- ※ First of all, measure the resistance of R.V. coil to check if the coil is defective. Refer to 10-4.
- ※ In case CN602 is disconnected or R.V. coil is open, voltage is generated between the terminal pins of the connector although no signal is being transmitted to R.V. coil.
Check if CN602 is connected.

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



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



① Check of outdoor fan motor

Check the connection between the connector CN931 and CN932. Disconnect the connectors CN931 and CN932 from the inverter P.C. board.

Is the resistance between each terminal of outdoor fan motor normal? (Refer to 10-4.)

Yes

Disconnect CN932 from the inverter P.C. board, and turn on the power supply.

Rotate the outdoor fan motor manually and measure the voltage of CN931.
Between 1(+) and 5(-)
Between 2(+) and 5(-)
Between 3(+) and 5(-)

Does the voltage between each terminal become 5 and 0 VDC repeatedly?

No

(Fixed to either 5 or 0 VDC)

Yes

Does the outdoor fan motor rotate smoothly?

No

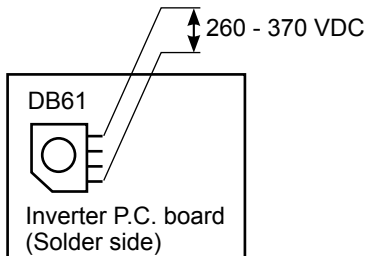
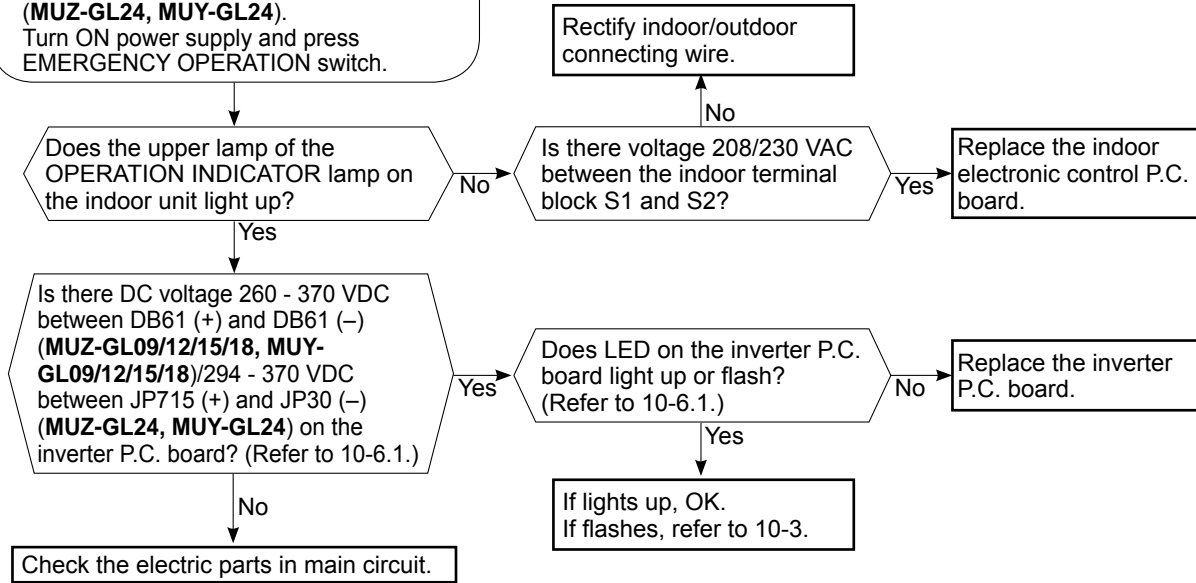
Yes

Replace the outdoor fan motor.

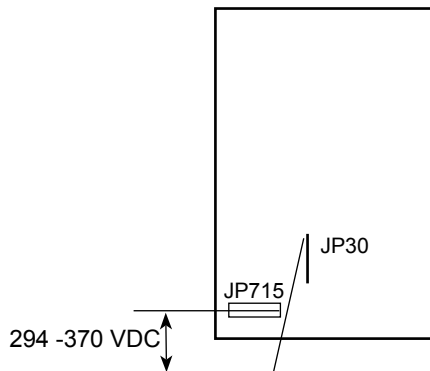
Replace the inverter P.C. board.

J Check of power supply

Disconnect the connector between the compressor and the power module (IC700) (MUZ-GL09/12/15/18, MUY-GL09/12/15/18)/IGBT module (IC700) (MUZ-GL24, MUY-GL24).
Turn ON power supply and press EMERGENCY OPERATION switch.



MUZ-GL09/12/15/18NA
MUZ-GL09/12/15/18NAH
MUY-GL09/12/15/18NA



MUZ-GL24NA
MUZ-GL24NAH
MUY-GL24NA

K Check of LEV (Expansion valve)

Turn ON the power supply.

<Preparation of the remote controller>

- 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.
Hold down the other 2 buttons for another 3 seconds.
Make sure that the indicators on the LCD screen shown in the right figure are all displayed. Then release the buttons.

Press STOP/OPERATE (OFF/ON) button of the remote controller (the set temperature is displayed) with the remote controller headed towards the indoor unit. ※1

Expansion valve operates in full-opening direction.

Do you hear the expansion valve "click, click....." ?
Do you feel the expansion valve vibrates when touching it ?

Yes

OK

No

Is LEV coil properly fixed to the expansion valve?

No

Properly fix the LEV coil to the expansion valve.

Yes

Does the resistance of LEV coil have the characteristics? (Refer to 10-4.)

Yes

Measure each voltage between connector pins of CN724 on the inverter P.C. board.

1. Pin③(-) — Pin①(+)
2. Pin④(-) — Pin①(+)
3. Pin⑤(-) — Pin①(+)
4. Pin⑥(-) — Pin①(+)

Is there about 3 - 5 VAC between each?
NOTE: Measure the voltage by an analog tester.

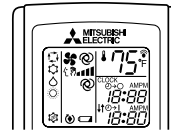
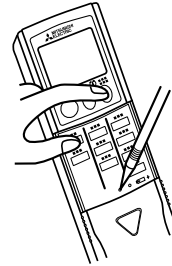
No

Replace the inverter P.C. board.

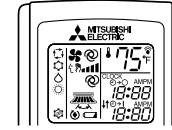
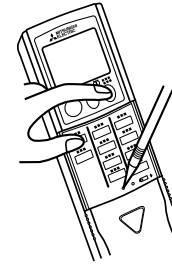
No

Replace the LEV coil.

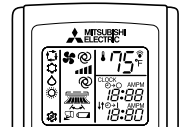
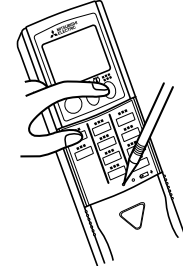
MSZ-GL06/09/12/15NA
MSY-GL09/12/15NA



MSZ-GL18NA
MSY-GL18NA



MSZ-GL24NA
MSY-GL24NA



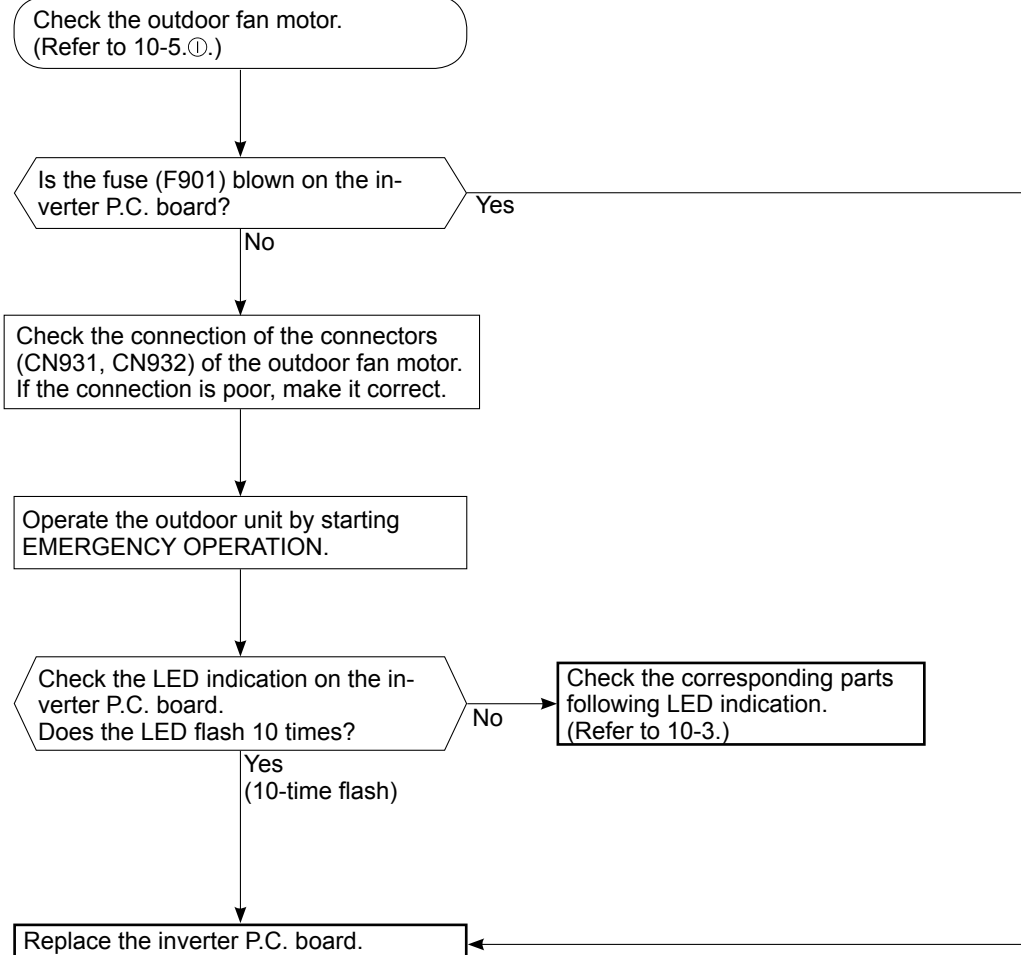
E.g.: MSZ type

※1. Regardless of normal or abnormal condition, a short beep is emitted once the signal is received.

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

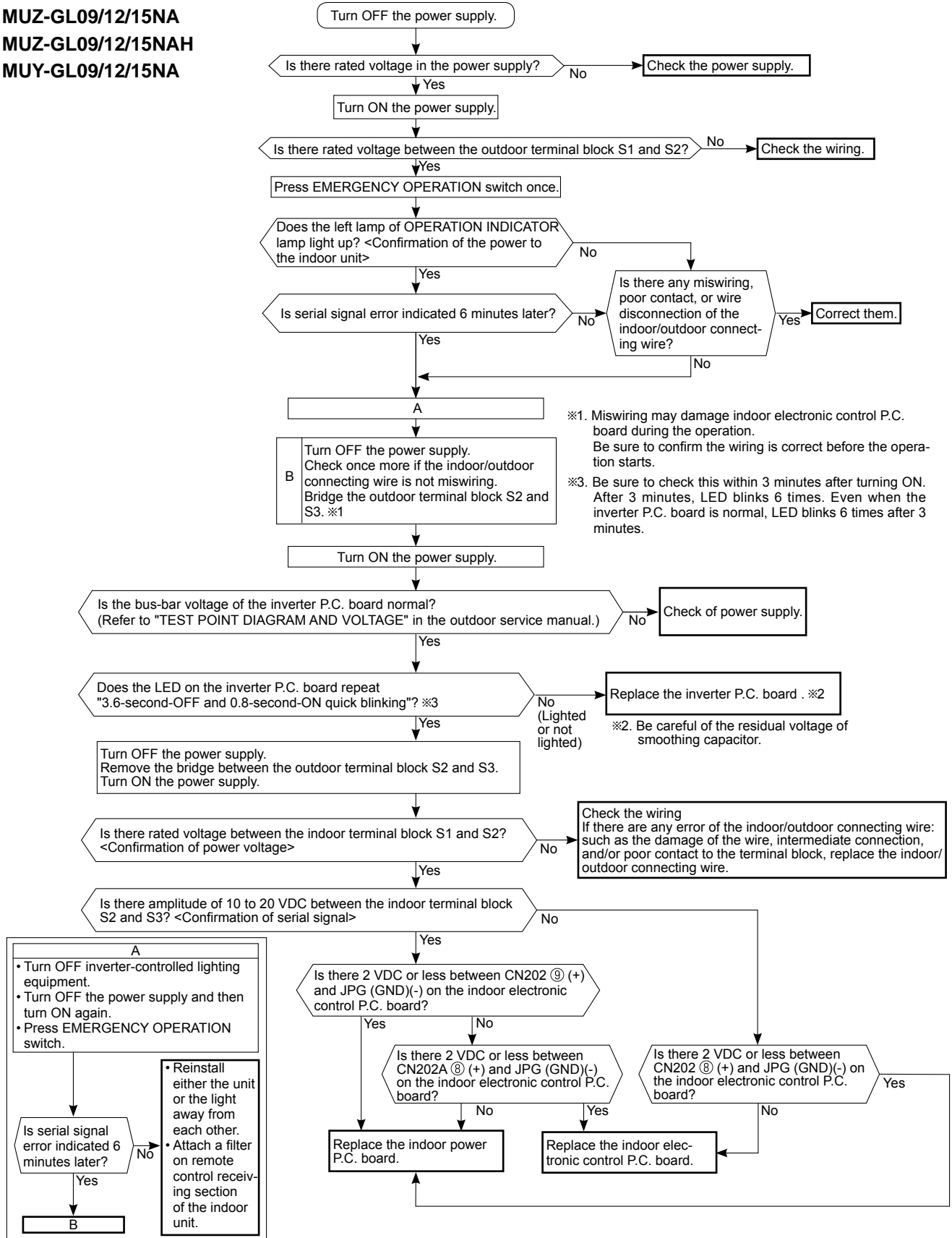
1. Turn OFF the power supply and turn it ON again.
2. Press RESET button on the remote controller.

L Check of inverter P.C. board

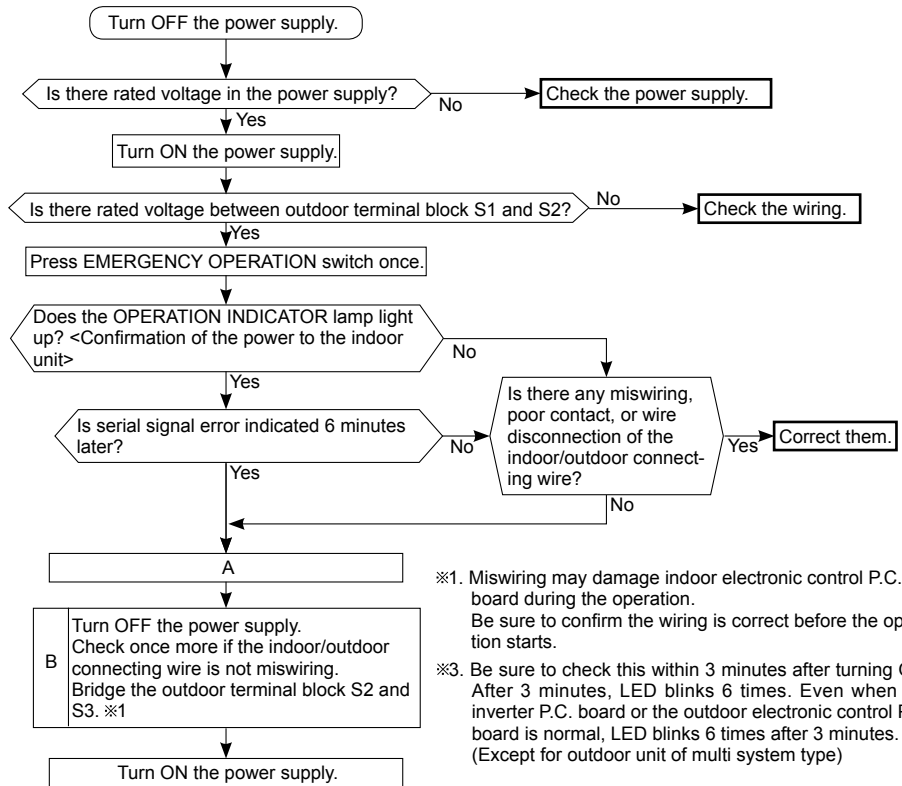


M How to check miswiring and serial signal error

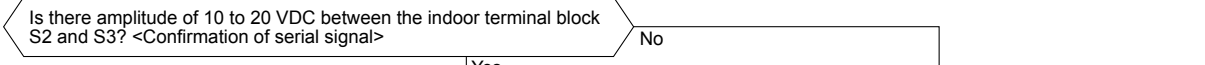
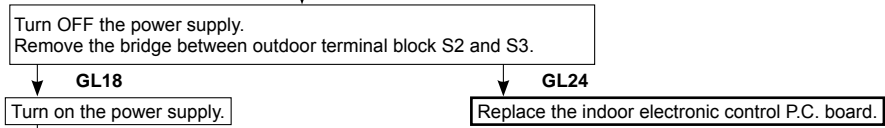
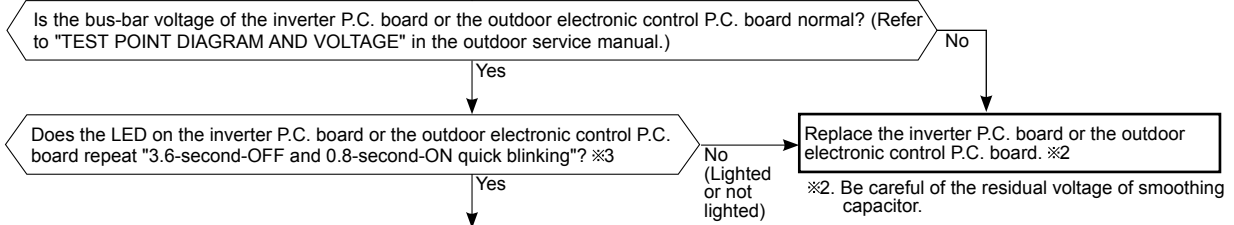
MUZ-GL09/12/15NA
 MUZ-GL09/12/15NAH
 MUY-GL09/12/15NA



MUZ-GL18/24NA
MUZ-GL18/24NAH
MUY-GL18/24NA



※1. Miswiring may damage indoor electronic control P.C. board during the operation. Be sure to confirm the wiring is correct before the operation starts.
 ※3. Be sure to check this within 3 minutes after turning ON. After 3 minutes, LED blinks 6 times. Even when the inverter P.C. board or the outdoor electronic control P.C. board is normal, LED blinks 6 times after 3 minutes. (Except for outdoor unit of multi system type)



A

- Turn OFF inverter-controlled lighting equipment.
- Turn OFF the power supply and then turn ON again.
- Press EMERGENCY OPERATION switch.

↓

Is serial signal error indicated 6 minutes later?

Yes → **B**

No →

- Reinstall either the unit or the light away from each other.
- Attach a filter on remote control receiving section of the indoor unit.

Ⓝ Check of defrost heater (base pan heater) (MUZ-GL•NAH)

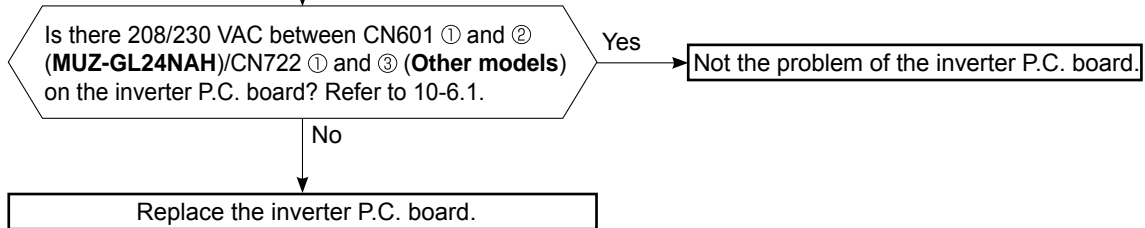
MUZ-GL09/12/15/18/24NAH

Check the following points before checking electric continuity.

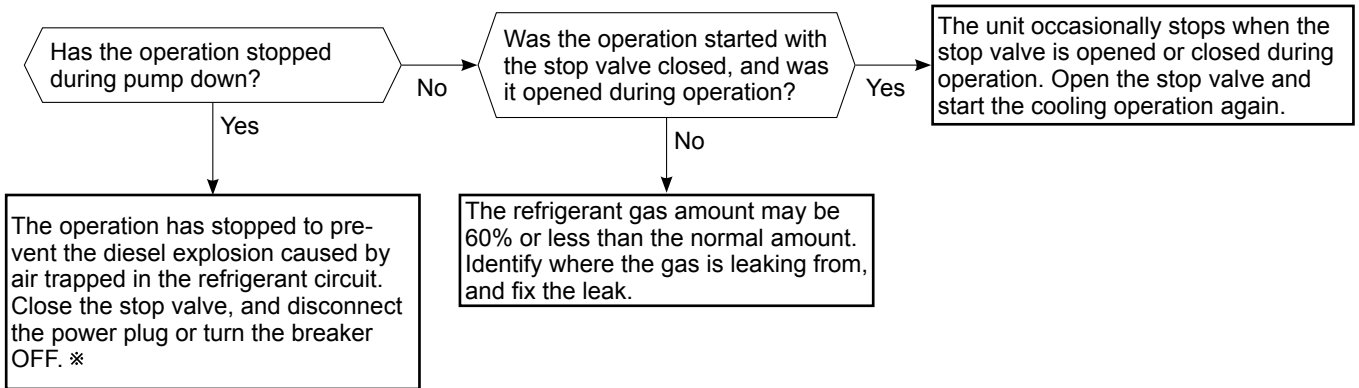
1. Does the resistance of ambient temperature thermistor have the characteristics? Refer to 10-6.1.
2. Is the resistance of defrost heater normal? Refer to 10-4.
3. Does the heater protector remain conducted (not open)?
4. Are both ambient temperature thermistor and circuit of defrost heater securely connected to connectors?

In HEAT mode, for more than 5 minutes, let the ambient temperature thermistor continue to read 32°F (0°C) or below, and let the defrost thermistor continue to read 30°F (-1°C) or below.

NOTE: In case both thermistors are more than the above temperature, cool them with cold water etc...

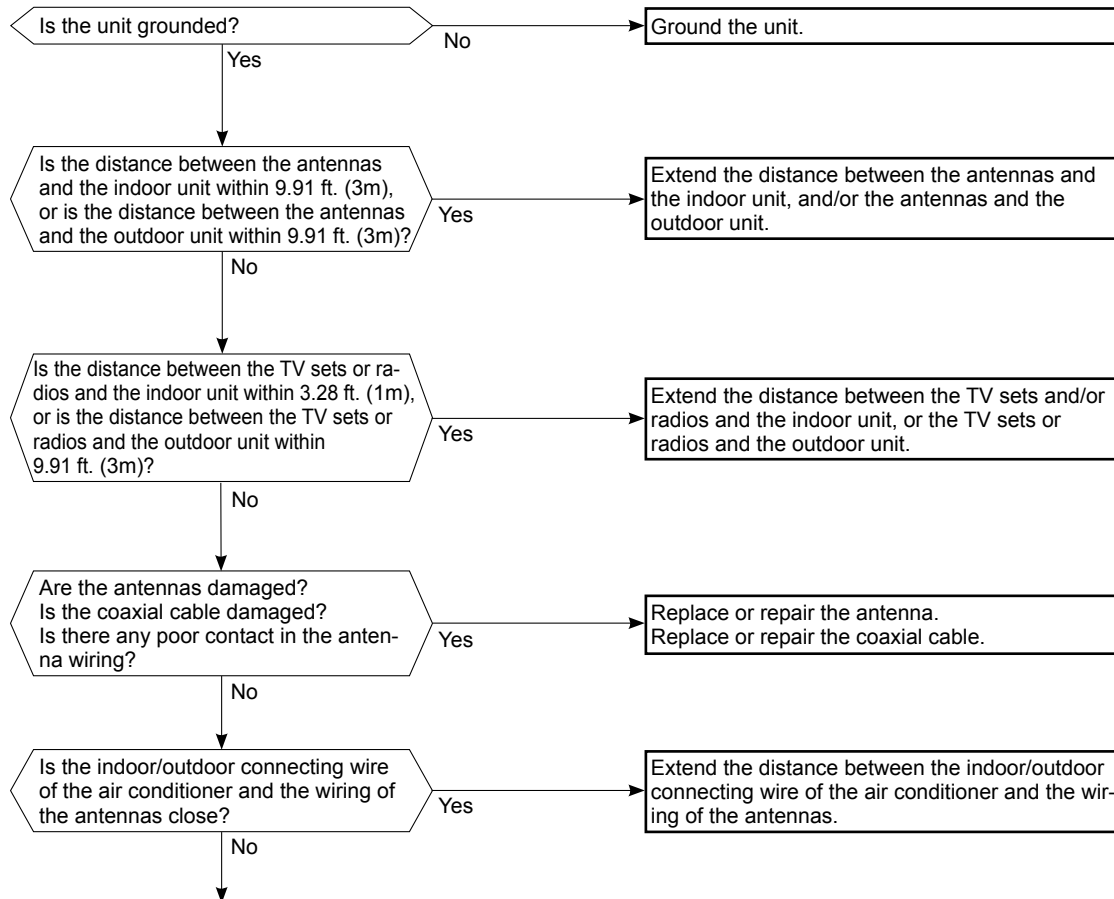


Ⓞ Check of outdoor refrigerant circuit



*** CAUTION :** Do not start the operation again to prevent hazards.

P Electromagnetic noise enters into TV sets or radios



Even if all of the above conditions are fulfilled, the electromagnetic noise may enter, depending on the electric field strength or the installation condition (combination of specific conditions such as antennas or wiring).
 Check the following before asking for service.

1. Devices affected by the electromagnetic noise
 TV sets, radios (FM/AM broadcast, shortwave)
2. Channel, frequency, broadcast station affected by the electromagnetic noise
3. Channel, frequency, broadcast station unaffected by the electromagnetic noise
4. Layout of:
 indoor/outdoor unit of the air conditioner, indoor/outdoor wiring, ground wire, antennas, wiring from antennas, receiver
5. Electric field intensity of the broadcast station affected by the electromagnetic noise
6. Presence or absence of amplifier such as booster
7. Operation condition of air conditioner when the electromagnetic noise enters in
 - 1) Turn OFF the power supply once, and then turn ON the power supply. In this situation, check for the electromagnetic noise.
 - 2) Within 3 minutes after turning ON the power supply, press STOP/OPERATE (OFF/ON) button on the remote controller for power ON, and check for the electromagnetic noise.
 - 3) After a short time (3 minutes later after turning ON), the outdoor unit starts running. During operation, check for the electromagnetic noise.
 - 4) Press STOP/OPERATE (OFF/ON) button on the remote controller for power OFF, when the outdoor unit stops but the indoor/outdoor communication still runs on. In this situation, check for the electromagnetic noise.

10-6. TEST POINT DIAGRAM AND VOLTAGE

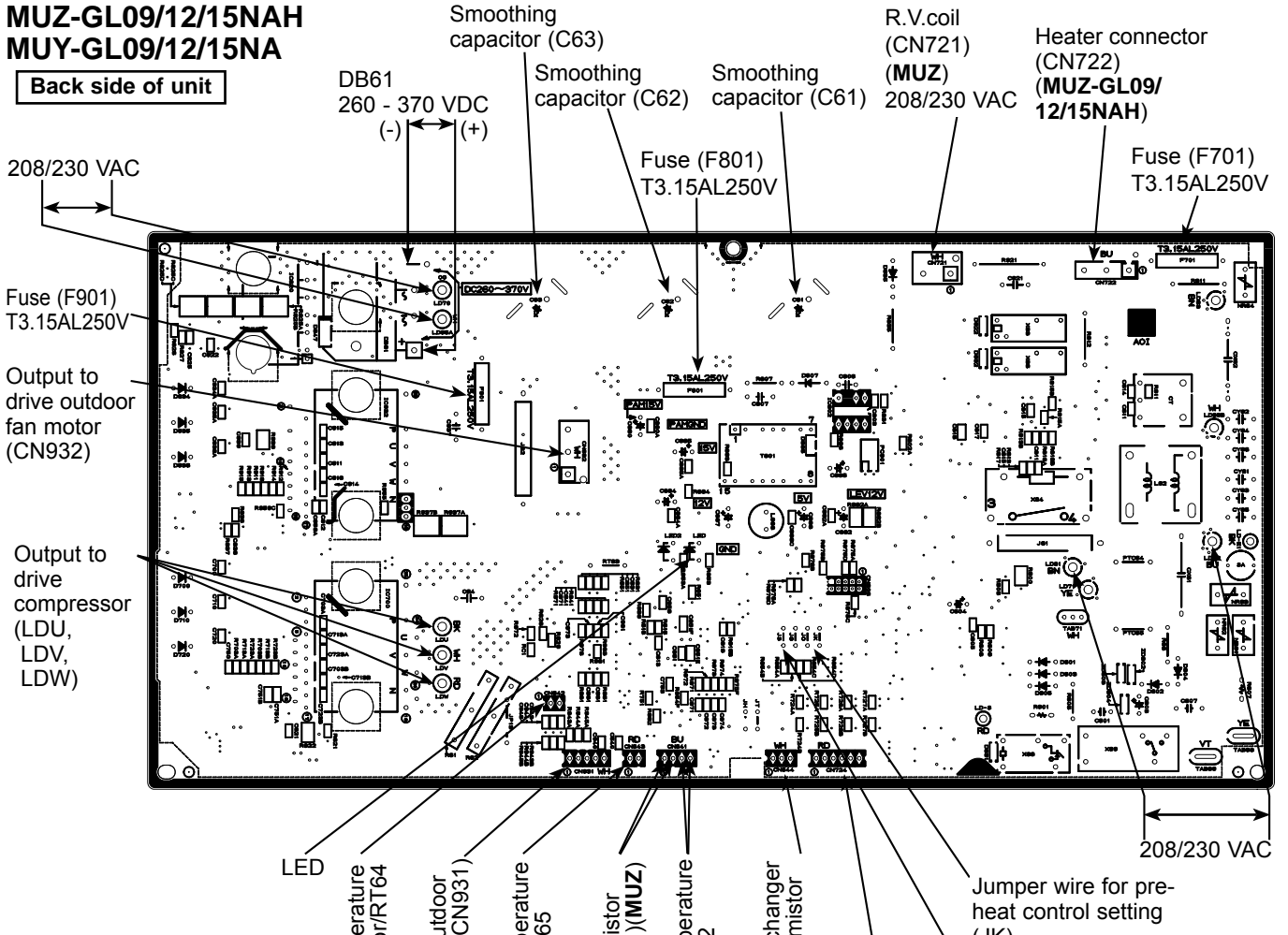
1. Inverter P.C. board

MUZ-GL09/12/15NA

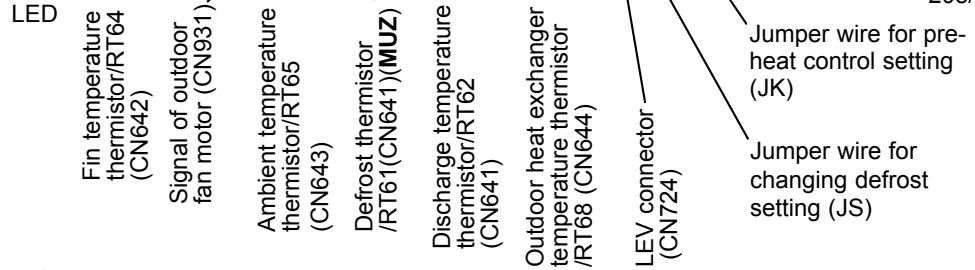
MUZ-GL09/12/15NAH

MUY-GL09/12/15NA

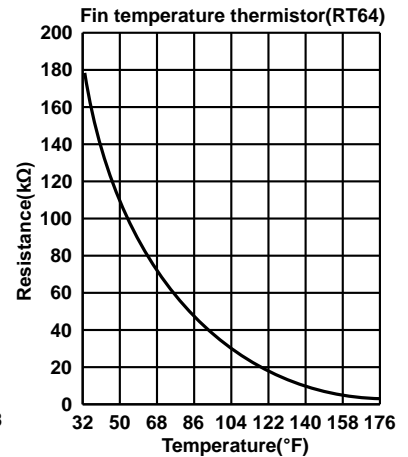
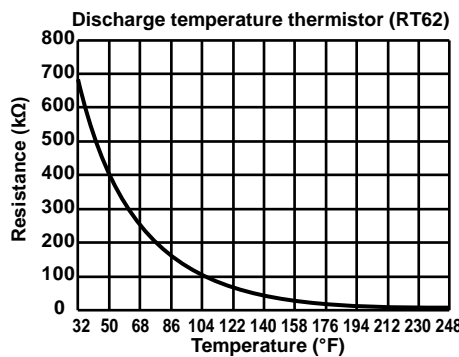
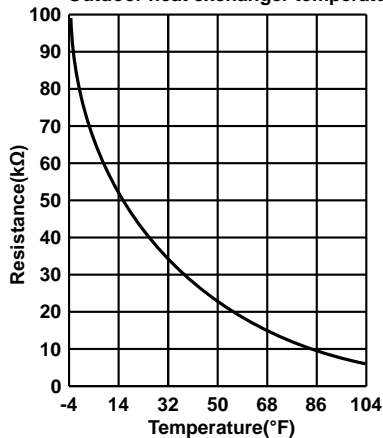
Back side of unit



Front side of unit

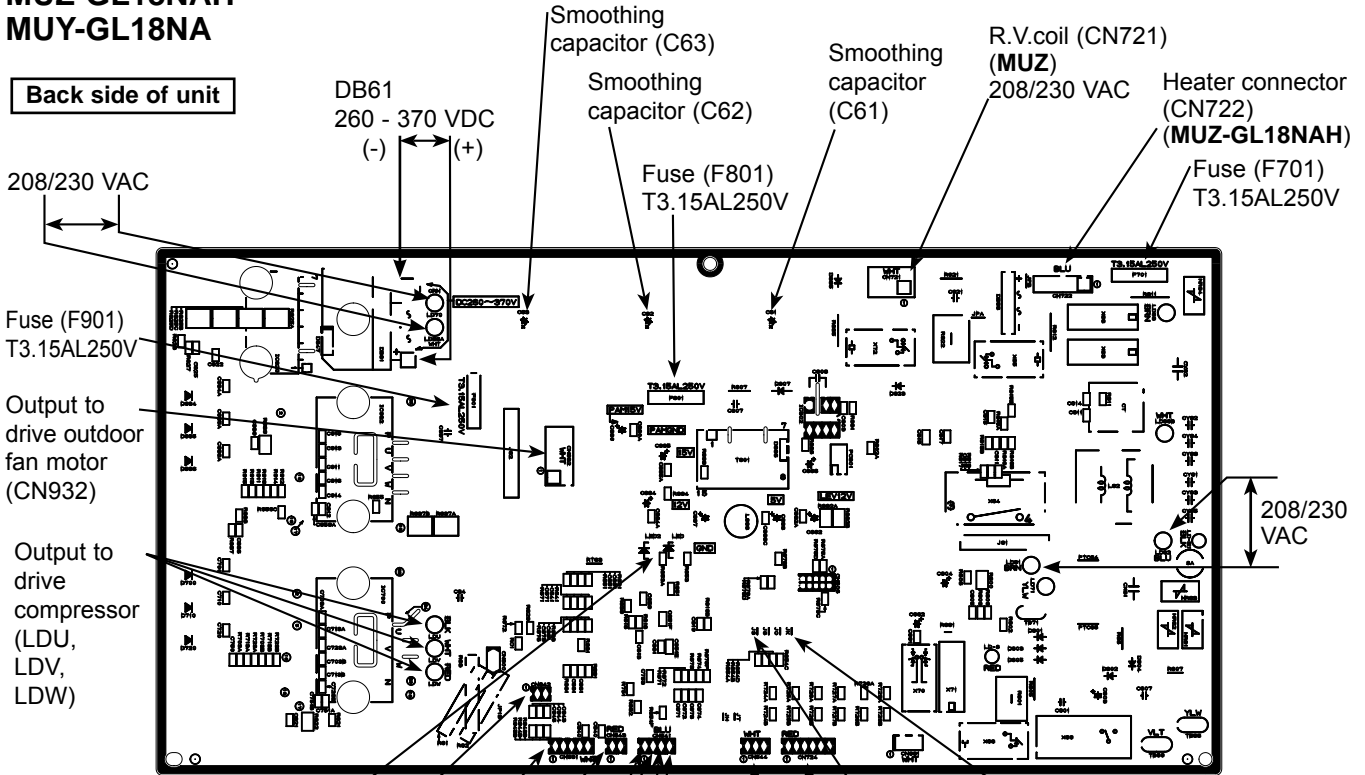


Defrost thermistor (RT61)
Ambient temperature thermistor (RT65)
Outdoor heat exchanger temperature thermistor (RT68)



**MUZ-GL18NA
MUZ-GL18NAH
MUY-GL18NA**

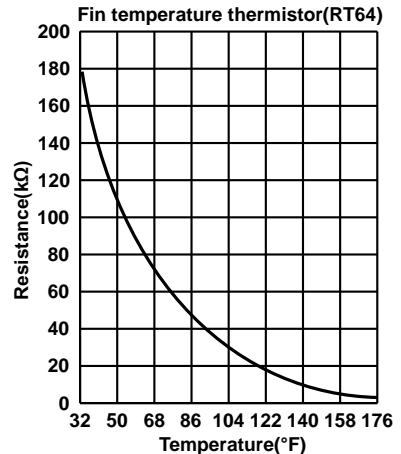
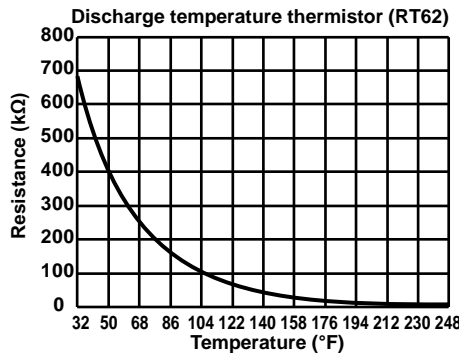
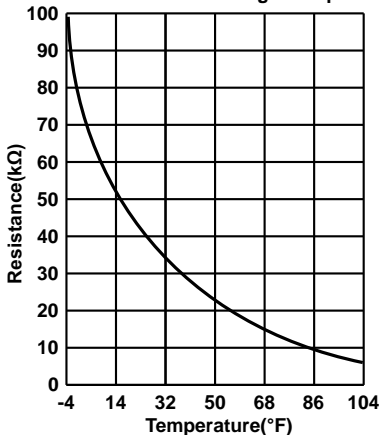
Back side of unit



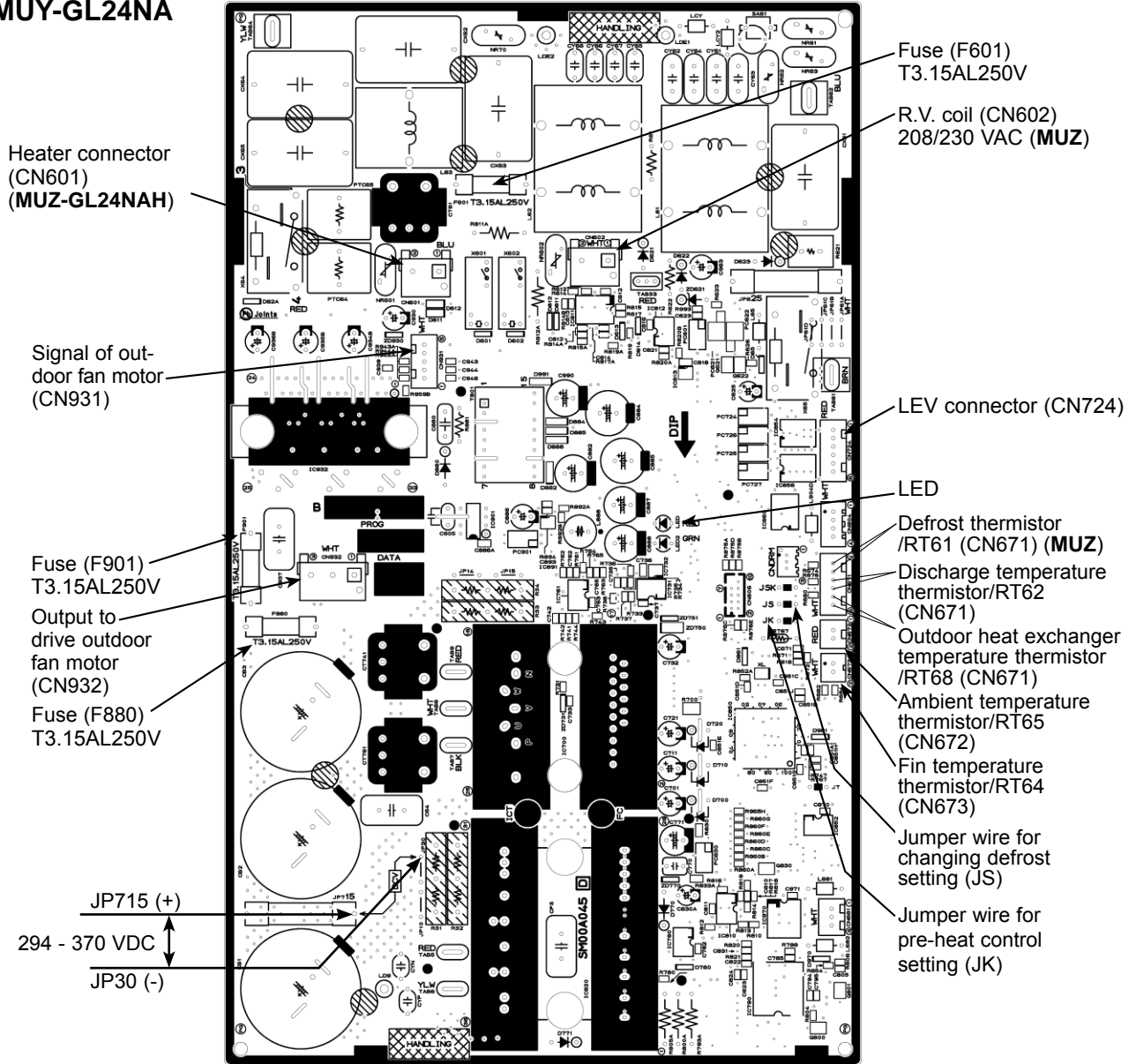
Front side of unit



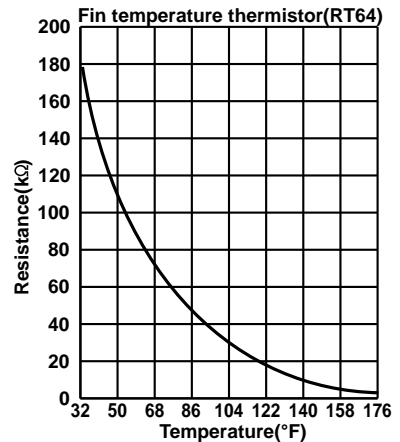
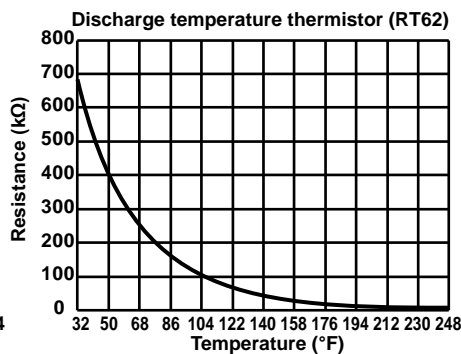
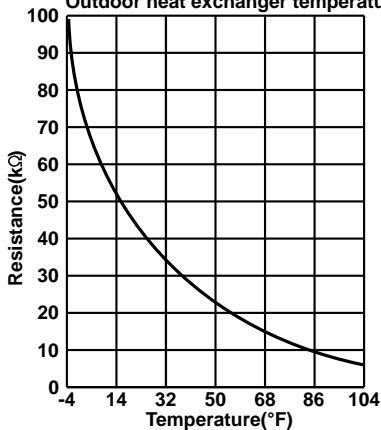
Defrost thermistor (RT61)
Ambient temperature thermistor (RT65)
Outdoor heat exchanger temperature thermistor (RT68)



**MUZ-GL24NA
MUZ-GL24NAH
MUY-GL24NA**



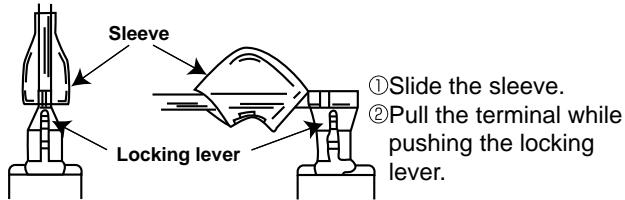
**Defrost thermistor(RT61) (MUZ)
Ambient temperature thermistor(RT65)
Outdoor heat exchanger temperature thermistor(RT68)**



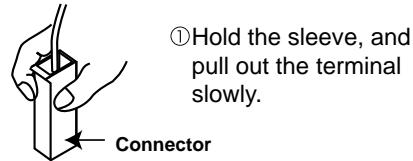
<"Terminal with locking mechanism" Detaching points>

The terminal which has the locking mechanism can be detached as shown below.
There are 2 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.



11-1. MUZ-GL09NA MUZ-GL09NAH MUY-GL09NA
MUZ-GL12NA MUZ-GL12NAH MUY-GL12NA
MUZ-GL15NA MUZ-GL15NAH MUY-GL15NA

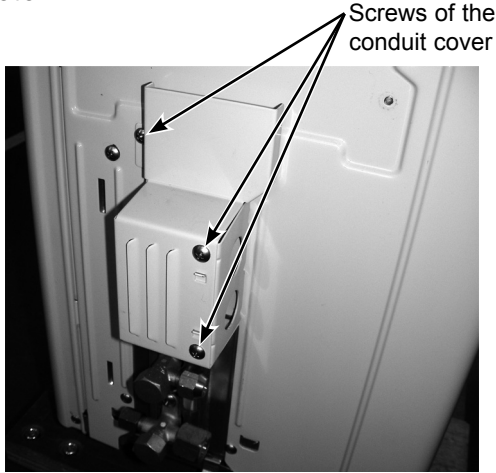
NOTE: Turn OFF the power supply before disassembly.

OPERATING PROCEDURE	PHOTOS
<p>1. Removing the cabinet</p> <ol style="list-style-type: none"> (1) Remove the screw fixing the service panel. (2) Pull down the service panel and remove it. (3) Remove the screws fixing the conduit cover. (4) Remove the conduit cover. (Photo 4) (5) Remove the screw fixing the conduit plate. (Photo 5) (6) Remove the conduit plate. (7) Disconnect the power supply wire and indoor/outdoor connecting wire. (8) Remove the screws fixing the top panel. (9) Remove the top panel. (10) Remove the screws fixing the cabinet. (11) Remove the cabinet. (12) Remove the screws fixing the back panel. (13) Remove the back panel. <p>Photo 2</p>	<p>Photo 1</p> <p>Photo 3</p>



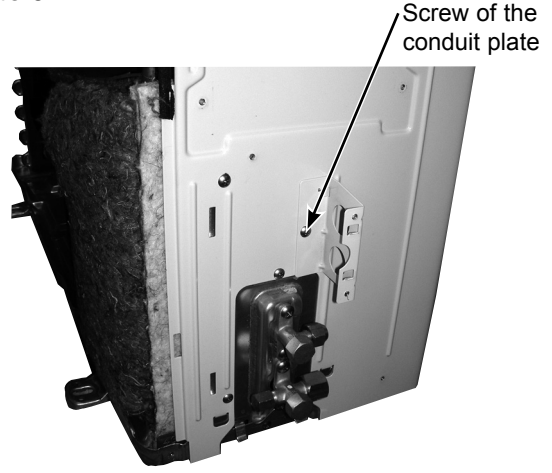
OPERATING PROCEDURE

Photo 4



PHOTOS

Photo 5

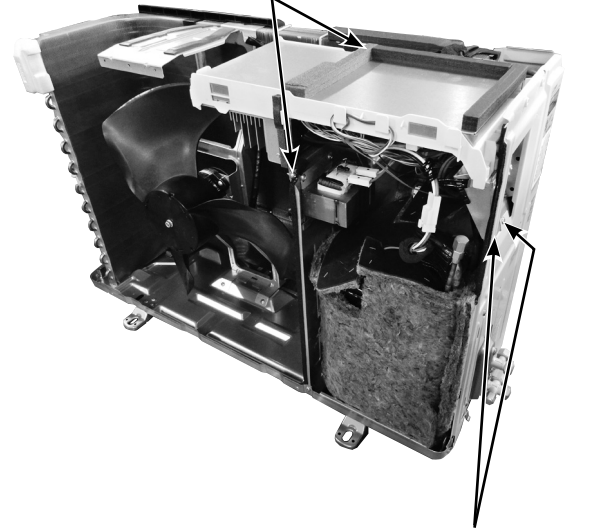


2. Removing the inverter assembly, inverter P.C. board

- (1) Remove the cabinet and panels. (Refer to 1.)
- (2) Disconnect the lead wire to the reactor and the following connectors:
 - <Inverter P.C. board>
 - CN721 (R.V. coil) **(MUZ)**
 - CN722 (Defrost heater and heater protector) **(MUZ-GL09/12/15NAH)**
 - CN931, CN932 (Fan motor)
 - CN641 (Defrost thermistor **(MUZ)** and discharge temperature thermistor)
 - CN643 (Ambient temperature thermistor)
 - CN644 (Outdoor heat exchanger temperature thermistor)
 - CN724 (LEV)
- (3) Remove the compressor connector (CN61).
- (4) Remove the screws fixing the heat sink support and the separator.
- (5) Remove the fixing screws of the terminal block support and the back panel.
- (6) Remove the inverter assembly.
- (7) Remove the screw of the ground wire and screw of the terminal block support.
- (8) Remove the heat sink support from the P.C. board support.
- (9) Remove the screw of the inverter P.C. board and remove the inverter P.C. board from the P.C. board support.

Photo 6

Screws of the heat sink support and the separator

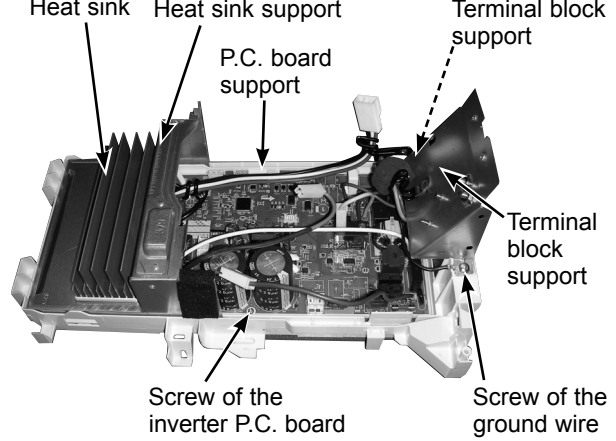


Screws of the terminal block support and the back panel

3. Removing R.V. coil

- (1) Remove the cabinet and panels. (Refer to 1.)
- (2) Disconnect the following connectors:
 - <Inverter P.C. board>
 - CN721 (R.V. coil) **(MUZ)**
- (3) Remove the R.V. coil.

Photo 7



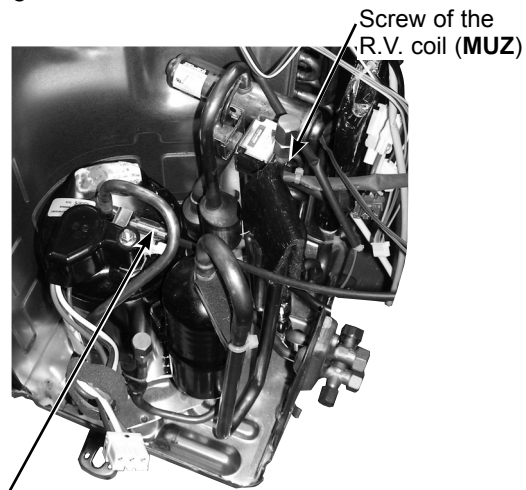
OPERATING PROCEDURE

4. Removing the discharge temperature thermistor, defrost thermistor, outdoor heat exchanger temperature thermistor and ambient temperature thermistor

- (1) Remove the cabinet and panels. (Refer to 1.)
- (2) Disconnect the lead wire to the reactor and the following connectors:
<Inverter P.C. board>
CN641 (Defrost thermistor **(MUZ)** and discharge temperature thermistor)
CN643 (Ambient temperature thermistor)
CN644 (Outdoor heat exchanger temperature thermistor)
- (3) Pull out the discharge temperature thermistor from its holder.
- (4) Pull out the defrost thermistor from its holder.
- (5) Pull out the outdoor heat exchanger temperature thermistor from its holder.
- (6) Pull out the ambient temperature thermistor from its holder.

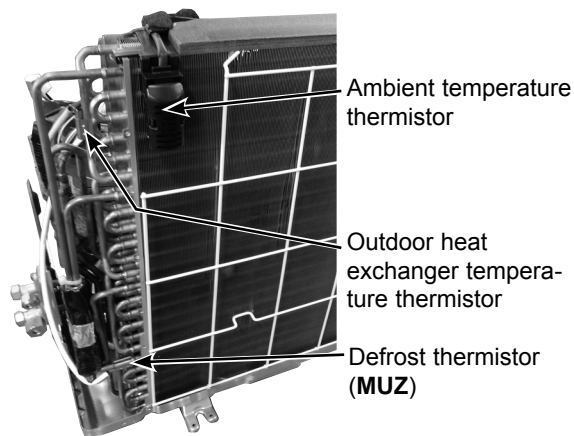
PHOTOS

Photo 8



Discharge temperature thermistor

Photo 9



Ambient temperature thermistor

Outdoor heat exchanger temperature thermistor

Defrost thermistor **(MUZ)**

OPERATING PROCEDURE

5. Removing outdoor fan motor

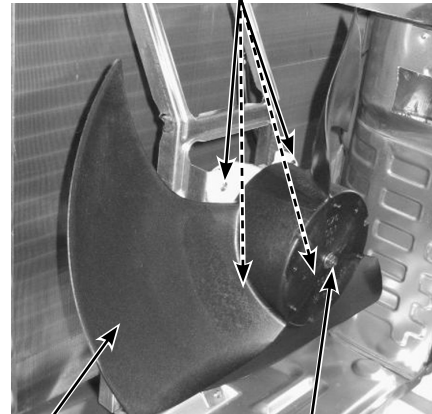
- (1) Remove the cabinet and panels. (Refer to 1.)
- (2) Disconnect the following connectors:
<Inverter P.C. board>
CN931, CN932 (Fan motor)
- (3) Remove the propeller fan nut.
- (4) Remove the propeller fan.
- (5) Remove the screws fixing the fan motor.
- (6) Remove the fan motor.

NOTE: The propeller fan nut is a revers thread.

PHOTOS

Photo 10

Screws of the outdoor fan motor



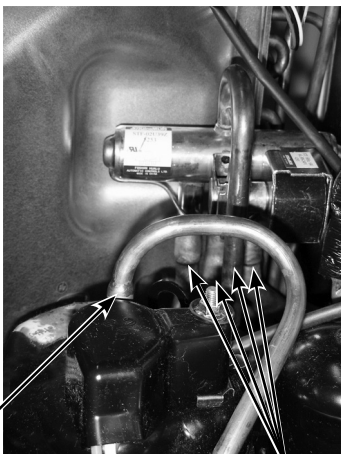
Propeller fan

Propeller fan nut

6. Removing the compressor and 4-way valve

- (1) Remove the cabinet and panels. (Refer to 1.)
- (2) Remove the inverter assembly. (Refer to 2.)
- (3) Remove the screws fixing the reactor.
- (4) Remove the reactor.
- (5) Remove the soundproof felt.
- (6) Recover gas from the refrigerant circuit.
NOTE: Recover gas from the pipes until the pressure gauge shows 0 PSIG.
- (7) Detach the brazed part of the suction and the discharge pipe connected with compressor.
- (8) Remove the nuts fixing the compressor.
- (9) Remove the compressor.
- (10) Detach the brazed part of pipes connected with 4-way valve.

Photo 12



Discharge pipe
brazed part

Brazed parts of
4-way valve

Photo 11

Screws of
the reactor

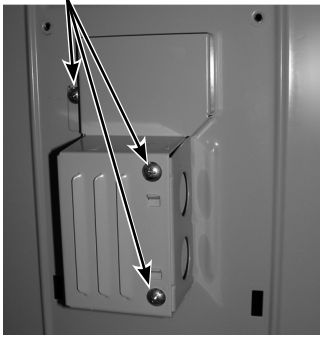

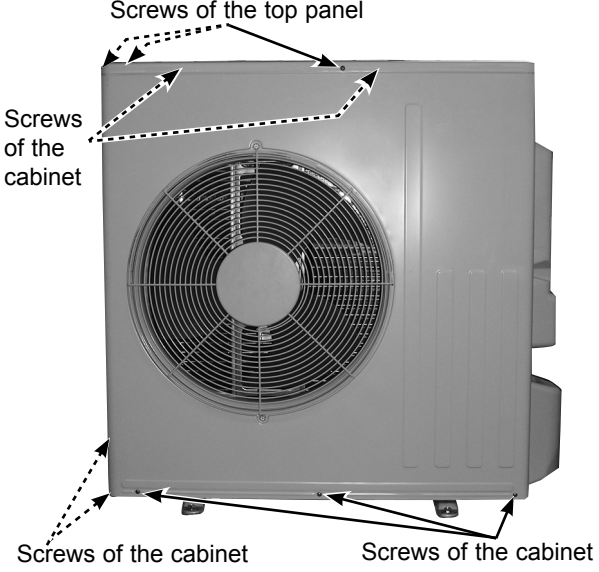
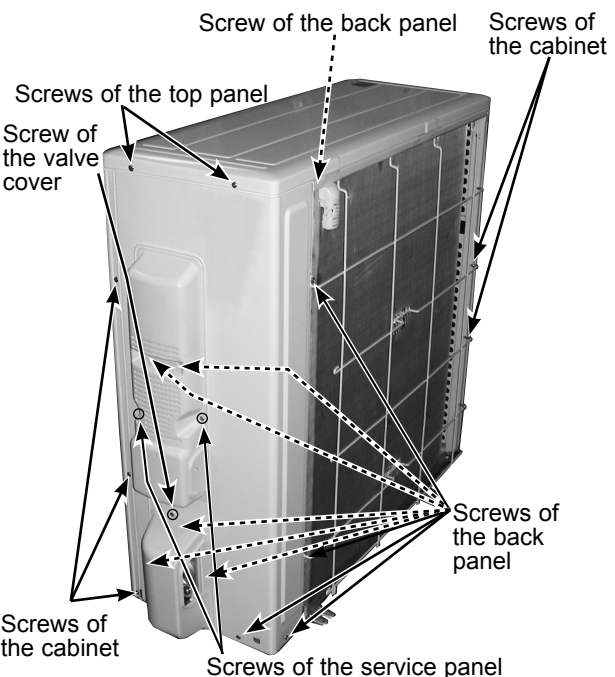


Soundproof
felt

Suction pipe
brazed part

11-2. MUZ-GL18NA MUZ-GL18NAH MUY-GL18NA

NOTE: Turn OFF the power supply before disassembly.

OPERATING PROCEDURE	PHOTOS
<p>1. Removing the cabinet</p> <ol style="list-style-type: none"> (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 screws fixing the conduit cover. (6) Remove the conduit cover. (7) Remove the screw of fixing the conduit plate. (8) Remove the conduit plate. (9) Remove the top panel. (10) Remove the valve cover. (11) Disconnect the power supply and indoor/outdoor connecting wire. (12) Remove the screws of the cabinet. (13) Remove the cabinet. (14) Remove the screws of the back panel. (15) Remove the back panel. <p>Photo 3</p> <p>Screws of the conduit cover</p>  <p>Photo 4</p> <p>Screw of the conduit plate</p> 	<p>Photo 1</p>  <p>Screws of the top panel</p> <p>Screws of the cabinet</p> <p>Screws of the cabinet</p> <p>Photo 2</p>  <p>Screw of the back panel</p> <p>Screws of the cabinet</p> <p>Screws of the top panel</p> <p>Screw of the valve cover</p> <p>Screws of the cabinet</p> <p>Screws of the back panel</p> <p>Screws of the service panel</p>

OPERATING PROCEDURE

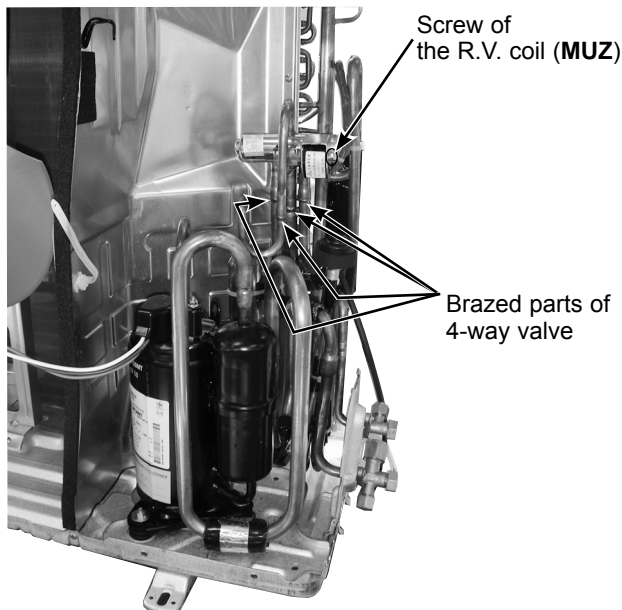
2. Removing the inverter assembly, inverter P.C. board

- (1) Remove the cabinet and panels. (Refer to 1.)
- (2) Disconnect the lead wire to the reactor and the following connectors:
<Inverter P.C. board>
CN721 (R.V. coil) (**MUZ**)
CN722 (Defrost heater) (**MUZ-GL18NAH**)
CN931, CN932 (Fan motor)
CN641 (Defrost thermistor (**MUZ**) and discharge temperature thermistor)
CN643 (Ambient temperature thermistor)
CN644 (Outdoor heat exchanger temperature thermistor)
CN724 (LEV)
- (3) Remove the compressor connector.
- (4) Remove the screw fixing the heat sink support and the separator.
- (5) Remove the fixing screws of the terminal block support and the back panel.
- (6) Remove the inverter assembly.
- (7) Remove the screw of the ground wire, screw of the P.C. board cover and screws of the terminal block support.
- (8) Remove the heat sink support from the P.C. board support.
- (9) Remove the screw of the inverter P.C. board and the inverter P.C. board from the P.C. board support.

3. Removing R.V. coil (**MUZ**)

- (1) Remove the cabinet and panels. (Refer to 1.)
- (2) Disconnect the following connector:
<Inverter P.C. board>
CN721 (R.V. coil) (**MUZ**)
- (3) Remove the R.V. coil.

Photo 7



PHOTOS

Photo 5

Screw of the heat sink support and the separator

Screws of the terminal block support and the back panel

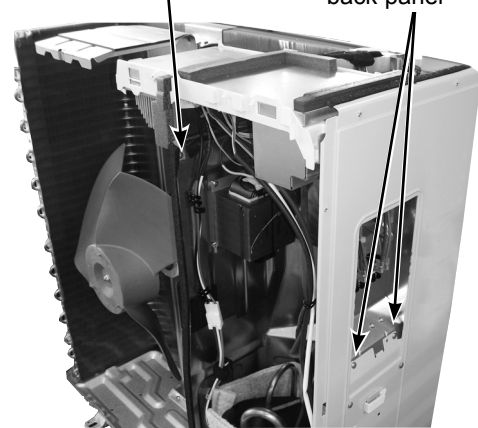
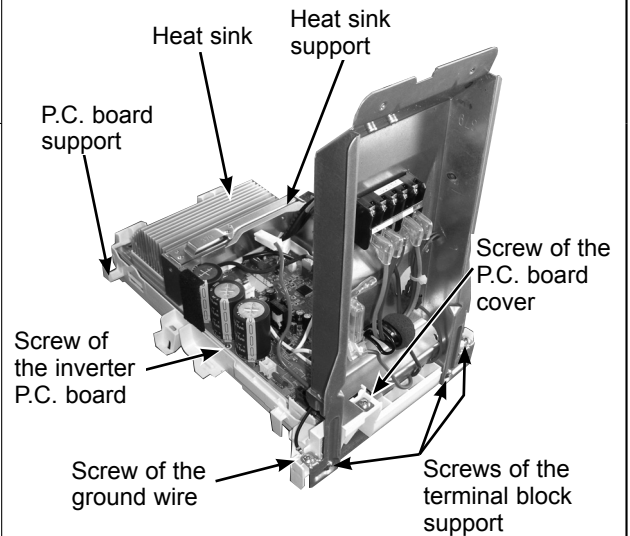


Photo 6



OPERATING PROCEDURE

4. Removing the discharge temperature thermistor, defrost thermistor (MUZ), outdoor heat exchanger temperature thermistor and ambient temperature thermistor

- (1) Remove the cabinet and panels. (Refer to 1.)
- (2) Disconnect the lead wire to the reactor and the following connectors:
<Inverter P.C. board>
CN641 (Defrost thermistor (MUZ) and discharge temperature thermistor)
CN643 (Ambient temperature thermistor)
CN644 (Outdoor heat exchanger temperature thermistor)
- (3) Pull out the discharge temperature thermistor from its holder.
- (4) Pull out the defrost thermistor from its holder.
- (5) Pull out the outdoor heat exchanger temperature thermistor from its holder.
- (6) Pull out the ambient temperature thermistor from its holder.

5. Removing outdoor fan motor

- (1) Remove the top panel, cabinet and service panel. (Refer to 1.)
 - (2) Disconnect the following connectors:
<Inverter P.C. board>
CN931 and CN932 (Fan motor)
 - (3) Remove the propeller fan nut.
 - (4) Remove the propeller fan.
 - (5) Remove the screws fixing the fan motor.
 - (6) Remove the fan motor.
- NOTE:** The propeller fan nut is a revers thread.

6. Removing the compressor and 4-way valve

- (1) Remove the top panel, cabinet and service panel. (Refer to 1.)
 - (2) Remove the back panel. (Refer to 1.)
 - (3) Remove the inverter assembly. (Refer to 2.)
 - (4) Recover gas from the refrigerant circuit.
- NOTE:** Recover gas from the pipes until the pressure gauge shows 0 PSIG.
- (5) Detach the brazed part of the suction and the discharge pipe connected with compressor.
 - (6) Remove the compressor nuts.
 - (7) Remove the compressor.
 - (8) Detach the brazed part of 4-way valve and pipe. (Photo 7)

PHOTOS

Photo 8

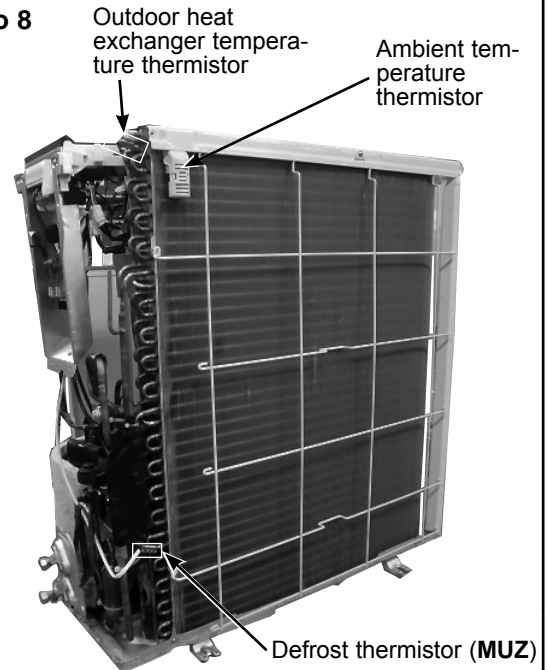


Photo 9

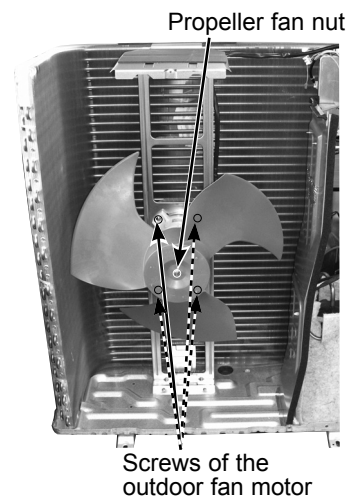
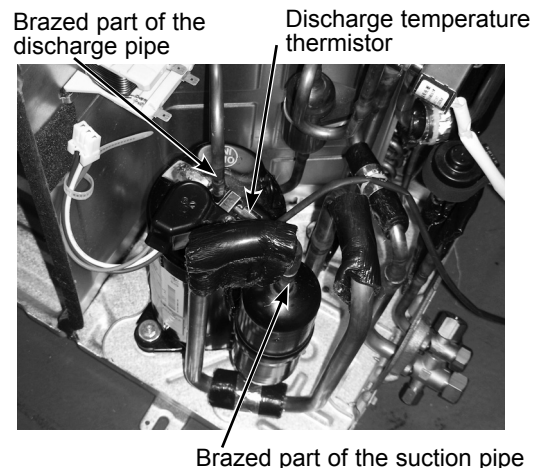
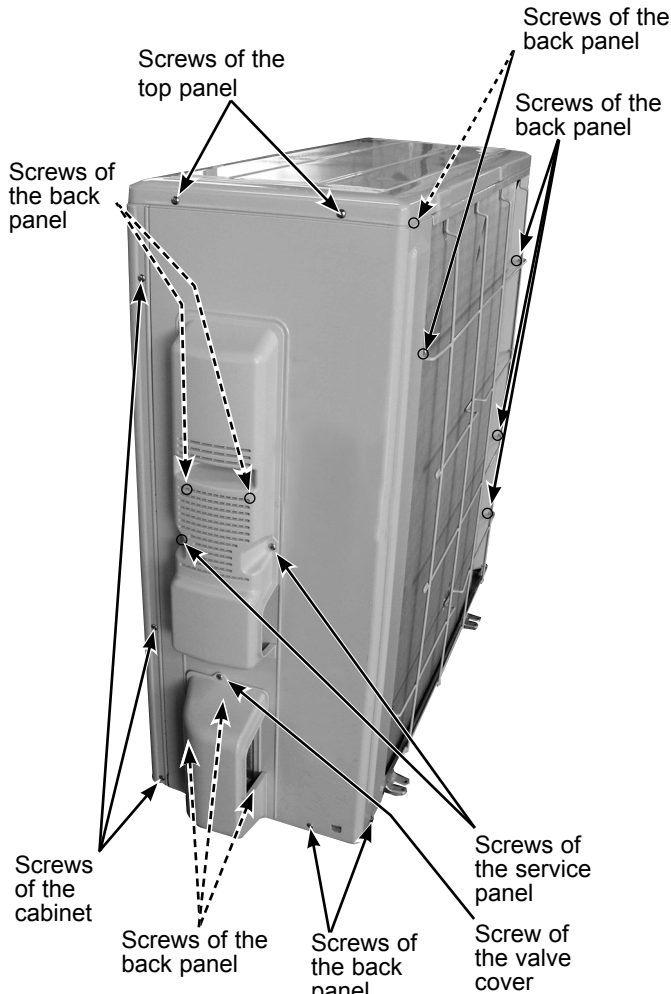
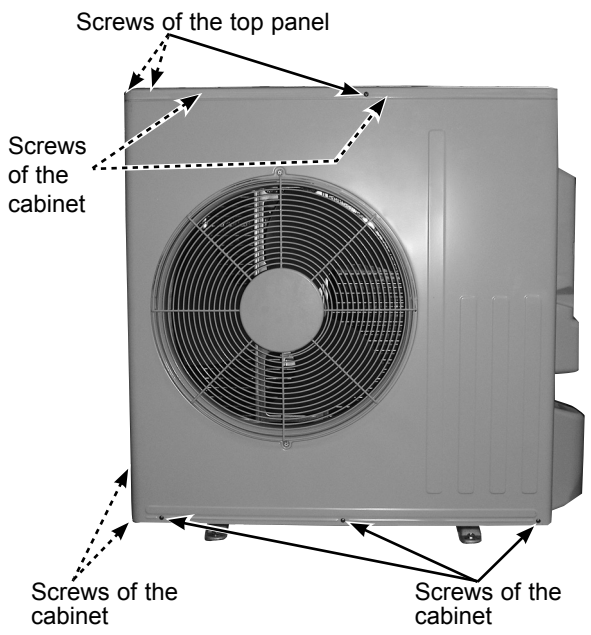
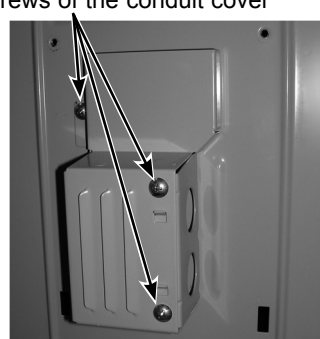



Photo 10



11-3. MUZ-GL24NA MUZ-GL24NAH MUY-GL24NA

NOTE: Turn OFF the power supply before disassembly.

OPERATING PROCEDURE	PHOTOS
<p>1. Removing the cabinet</p> <ol style="list-style-type: none"> (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 screws fixing the conduit cover. (6) Remove the conduit cover. (7) Remove the top panel. (8) Remove the valve cover. (9) Disconnect the power supply and indoor/outdoor connecting wire. (10) Remove the screws of the cabinet. (11) Remove the cabinet. (12) Remove the screws of the back panel. (13) Remove the back panel. <p>Photo 2</p> 	<p>Photo 1</p>  <p>Photo 3</p>  <p>Photo 4</p> 

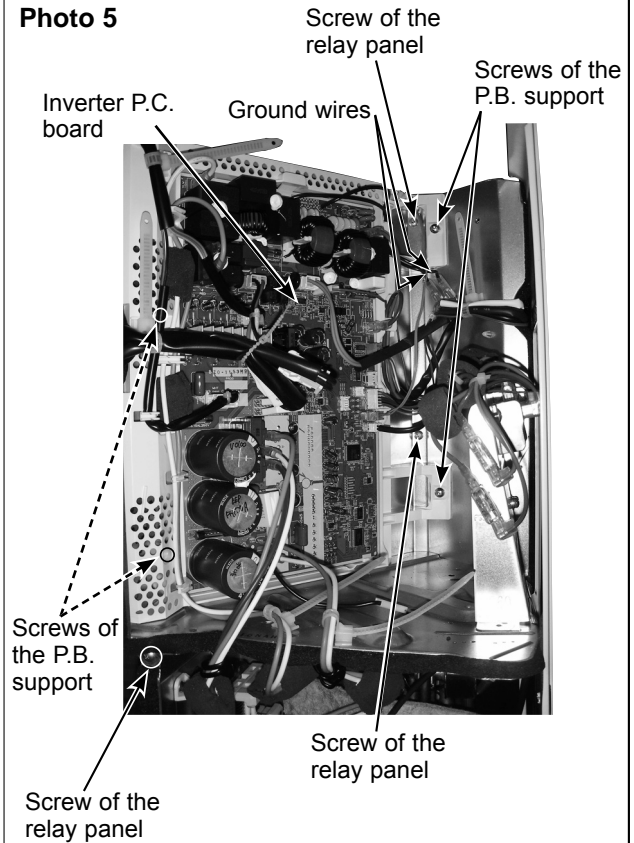
OPERATING PROCEDURE

2. Removing the inverter assembly, inverter P.C. board and relay P.C. board

- (1) Remove the cabinet and panels. (Refer to 1.)
- (2) Disconnect the lead wire to the reactor and the following connectors:
<Inverter P.C. board>
CN601 (Defrost heater) (**MUZ-GL24NAH**)
CN602 (R.V. coil) (**MUZ**)
CN931, CN932 (Fan motor)
CN671 (Defrost thermistor (**MUZ**), discharge temperature thermistor and outdoor heat exchanger temperature thermistor)
CN672 (Ambient temperature thermistor)
CN724 (LEV)
- (3) Remove the compressor connector.
- (4) Remove the screws fixing the relay panel.
- (5) Remove the relay panel.
- (6) Remove the ground wires and the lead wires of the inverter P.C. board.
- (7) Remove the screws of the P.B. support.
- (8) Remove the inverter P.C. board from the P.B. support.

PHOTOS

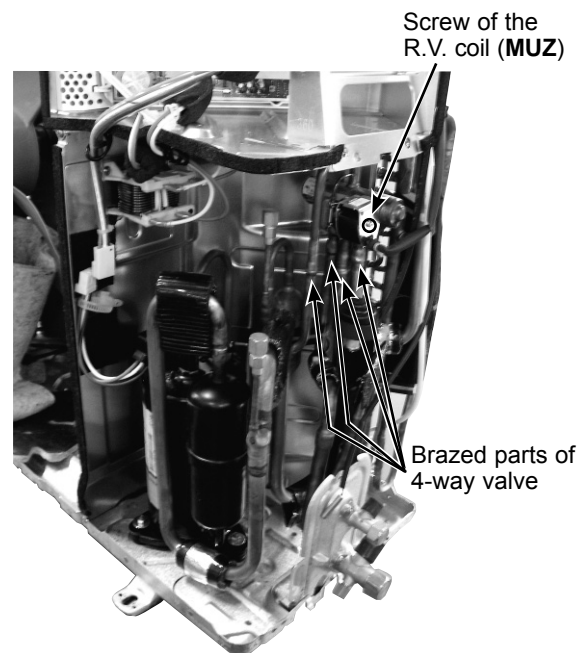
Photo 5



3. Removing R.V. coil (MUZ)

- (1) Remove the cabinet and panels. (Refer to 1.)
- (2) Disconnect the following connector:
<Inverter P.C. board>
CN602 (R.V. coil) (**MUZ**)
- (3) Remove the R.V. coil.

Photo 6





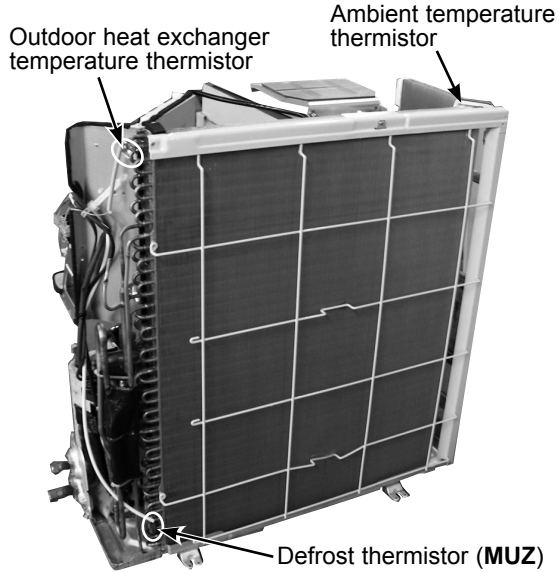
OPERATING PROCEDURE

PHOTOS

4. Removing the discharge temperature thermistor, defrost thermistor (MUZ), outdoor heat exchanger temperature thermistor and ambient temperature thermistor

- (1) Remove the cabinet and panels. (Refer to 1.)
- (2) Disconnect the lead wire to the reactor and the following connectors:
 <Inverter P.C. board>
 CN671 (Defrost thermistor (MUZ), discharge temperature thermistor and outdoor heat exchanger temperature thermistor)
 CN672 (Ambient temperature thermistor)
- (3) Pull out the discharge temperature thermistor from its holder.
- (4) Pull out the defrost thermistor from its holder.
- (5) Pull out the outdoor heat exchanger temperature thermistor from its holder.
- (6) Pull out the ambient temperature thermistor from its holder.

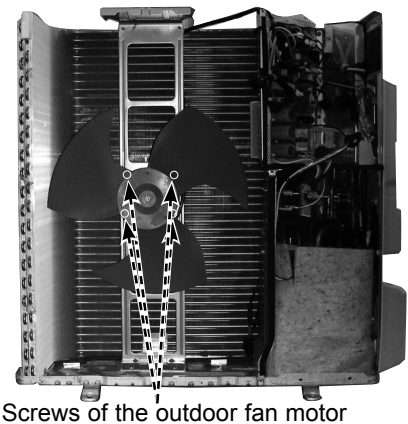
Photo 7



5. Removing outdoor fan motor

- (1) Remove the top panel, cabinet and service panel. (Refer to 1.)
 - (2) Disconnect the following connectors:
 <Inverter P.C. board>
 CN931 and CN932 (Fan motor)
 - (3) Remove the propeller.
 - (4) Remove the screws fixing the fan motor.
 - (5) Remove the fan motor.
- NOTE:** The propeller fan nut is a revers thread.

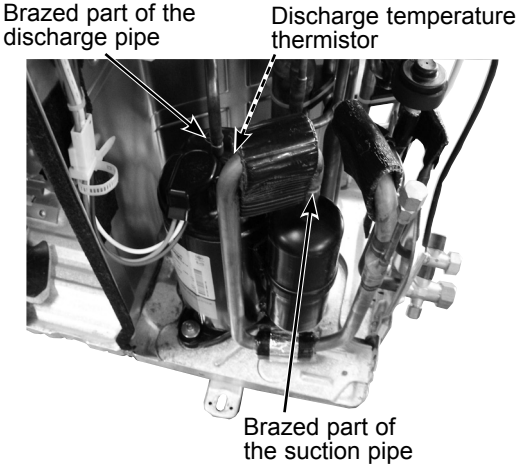
Photo 8



6. Removing the compressor and 4-way valve

- (1) Remove the top panel, cabinet and service panel. (Refer to 1.)
 - (2) Remove the back panel. (Refer to 1.)
 - (3) Remove the inverter assembly. (Refer to 2.)
 - (4) Recover gas from the refrigerant circuit.
- NOTE:** Recover gas from the pipes until the pressure gauge shows 0 PSIG.
- (5) Detach the brazed part of the suction and the discharge pipes connected with compressor.
 - (6) Remove the compressor nuts.
 - (7) Remove the compressor.
 - (8) Detach the brazed parts of 4-way valve and pipes. (Photo 6)

Photo 9



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