Service/ Parts Manual

FRIEDRICH

Floating Air Select

MM09Y1J - 9,000 BTU Single Zone - 110V
MM12Y1J - 12,000 BTU Single Zone - 110V
MM18Y3J - 18,000 BTU Single Zone - 230V
MM24Y3J - 24,000 BTU Single Zone - 230V
MM36Y3J - 36,000 BTU Single Zone - 230V

96601400_01

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

INTRODUCTION

IMPORTANT SAFETY INFORMATION

The information in this manual is intended for use by a qualified technician who is familiar with the safety procedures required for installation and repair, and who is equipped with the proper tools and test instruments required to service this product.

Installation or repairs made by unqualified persons can result in subjecting the unqualified person making such repairs as well as the persons being served by the equipment to hazards resulting in injury or electrical shock which can be serious or even fatal.

Safety warnings have been placed throughout this manual to alert you to potential hazards that may be encountered. If you install or perform service on equipment, it is your responsibility to read and obey these warnings to guard against any bodily injury or property damage which may result to you or others.

Your safety and the safety of others is very important.

We have provided many important safety messages in this manual and on your appliance. Always read and obey all safety messages.

This is a safety Alert symbol.
This symbol alerts you to potential hazards that can kill or hurt you and others.

All safety messages will follow the safety alert symbol with the word "WARNING" or "CAUTION". These words mean:

⚠ WARNING Indicates a hazard which, if not avoided, can result in severe personal injury or death and damage to product or other property.

CAUTION Indicates a hazard which, if not avoided, can result in personal injury and damage to product or other property.

All safety messages will tell you what the potential hazard is, tell you how to reduce the chance of injury, and tell you what will happen if the instructions are not followed.

NOTICE Indicates property damage can occur if instructions are not followed.

⚠ WARNING

Refrigeration system under high pressure

Do not puncture, heat, expose to flame or incinerate.

Only certified refrigeration technicians should service this equipment.

R410A systems operate at higher pressures than R22 equipment. Appropriate safe service and handling practices must be used.

Only use gauge sets designed for use with R410A. Do not use standard R22 gauge sets.

INTRODUCTION

IMPORTANT SAFETY INFORMATION

CAUTION

DO NOT OPERATE EQUIPMENT DURING ACTIVE STAGES OF CONSTRUCTION

To ensure proper operation, Friedrich requires that all equipment is not operated during active construction phases. This includes active stages of completing framing, drywalling, spackling, sanding, painting, flooring, and moulding in the equipment's designated conditioning space. The use of this equipment during construction could result in premature failure of the components and/or system and is in violation of our standard warranty guidelines. The operation of newly installed equipment during construction will accelerate the commencement and/or termination of the warranty period.

⚠ WARNING

Please read this manual thoroughly prior to equipment installation or operation. It is the installer's responsibility to properly apply and install the equipment. Installation must be in conformance with the NFPA 70-2008 National Electric Code or current edition, International Mechanic code 2009 or current edition and any other applicable local
or national codes.

⚠ WARNING

Refrigeration system under high pressure. Do not puncture, heat, expose to flame or incinerate. Only certified refrigeration technicians should service this equipment. R410A systems operate at higher pressures than R22 equipment. Appropriate safe service and handling practices must be used. Only use gauge sets designed for use with R410A. Do not use R22 gauge sets. Failure to do so can result in property damage, personal injury, or death.

⚠ WARNING

Electrical shock hazard.

Turn OFF electric power before service or installation.

Unit must be properly grounded.

Unit must have correct fuse or circuit breaker protection. Unit's supply circuit must have the correct wire conductor size. All electrical connections and wiring must be installed by a qualified electrician and conform to the National Electrical Code and all local codes which have jurisdiction. Failure to do so can result in property
damage, personal injury and/or death.

Your safety and the safety of others are very important.

We have provided many important safety messages in this manual and on your appliance. Always read and obey all safety messages.

This is the safety Alert symbol. This symbol alerts you to potential hazards that can kill or hurt you and others.
All safety messages will follow the safety alert symbol with the word "WARNING" or "CAUTION".
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Indicates a hazard which, if not avoided, can result in severe personal injury or death and damage to product or other property.

CAUTION

Indicates a hazard which, if not avoided, can result in personal injury and damage to product or other property. All safety messages will tell you how to reduce the chance of injury, and tell you what will happen if the instructions are not followed.

NOTICE

Indicates property damage can occur if instructions are not followed.

INTRODUCTION

PERSONAL INJURY OR DEATH HAZARDS

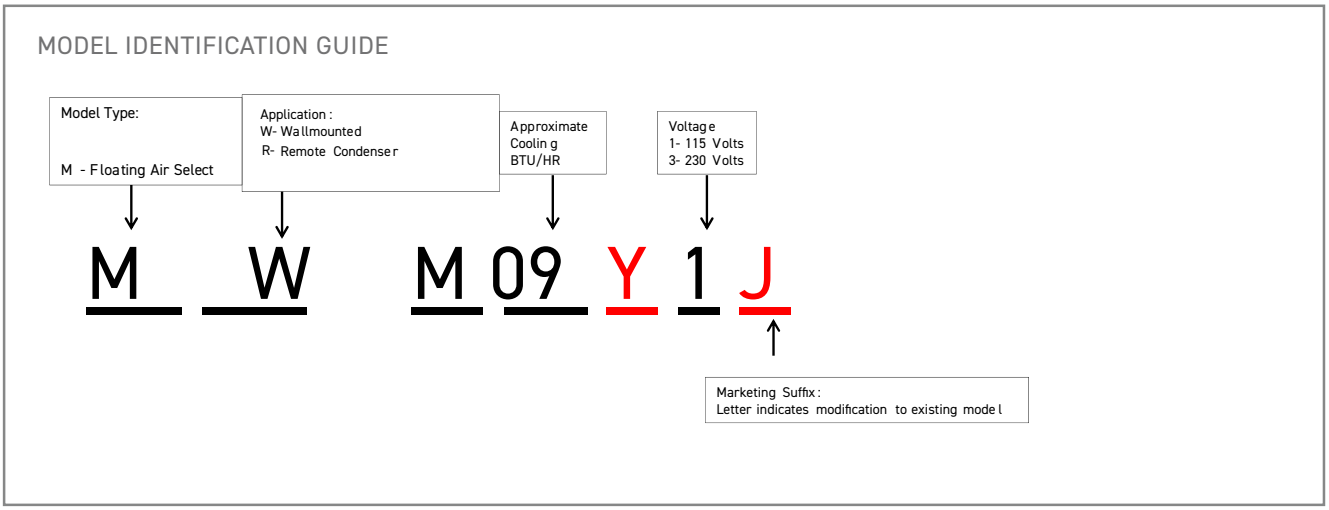
	⚠ WARNING	⚠ AVER-TISSEMENT	⚠ ADVER-TENCIA
SAFETY FIRST	Do not remove, disable or bypass this unit's safety devices. Doing so may cause fire, Doing so may cause fire, injuries, or death.	Ne pas supprime, désactiver ou contourner cette l´unité des dispositifs de sécurité, faire vous risqueriez de provoquer le feu, les blessures ou la mort.	No eliminar, desactivar o pasar por alto los dispositivos de seguridad de la unidad. Si lo hace podría producirse fuego, lesiones o muerte.

ELECTRICAL HAZARDS:

- Unplug and/or disconnect all electrical power to the unit before performing inspections, maintenance, or service.
- Make sure to follow proper lockout/tag out procedures.
- Always work in the company of a qualified assistant if possible.
- Capacitors, even when disconnected from the electrical power source, retain an electrical charge potential capable of causing electric shock or electrocution.
- Handle, discharge, and test capacitors according to safe, established, standards, and approved procedures.
- Extreme care, proper judgment, and safety procedures must be exercised if it becomes necessary to test or troubleshoot equipment with the power on to the unit.
- Do not spray water on the air conditioning unit while the power is on.
- Electrical component malfunction caused by water could result in electric shock or other electrically unsafe conditions when the power is restored and the unit is turned on, even after the exterior is dry.
- Use air conditioner on a single dedicated circuit within the specified amperage rating.
- Use on a properly grounded outlet only.
- Do not cut or modify the power supply cord or remove the ground prong of the plug.
- Never operate the unit on an extension cord.
- Follow all safety precautions and use proper and adequate protective safety aids such as: gloves, goggles, clothing, properly insulated tools, and testing equipment etc.
- Failure to follow proper safety procedures and/or these warnings can result in serious injury or death.

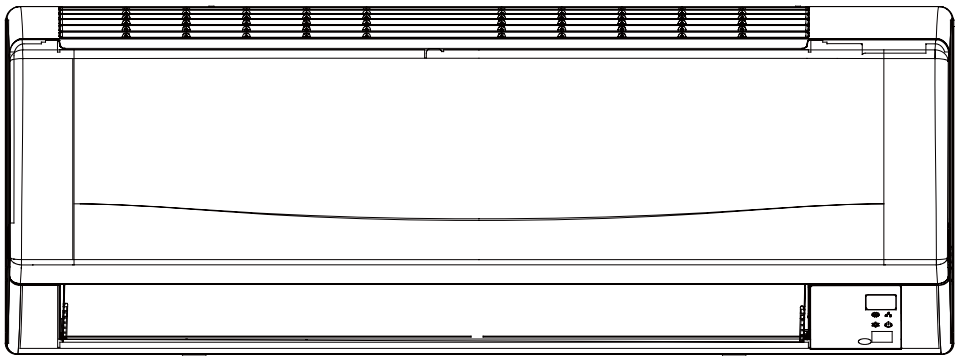
INTRODUCTION

MODEL IDENTIFICATION GUIDE



INTRODUCTION

MWM09Y1J
MWM12Y1J



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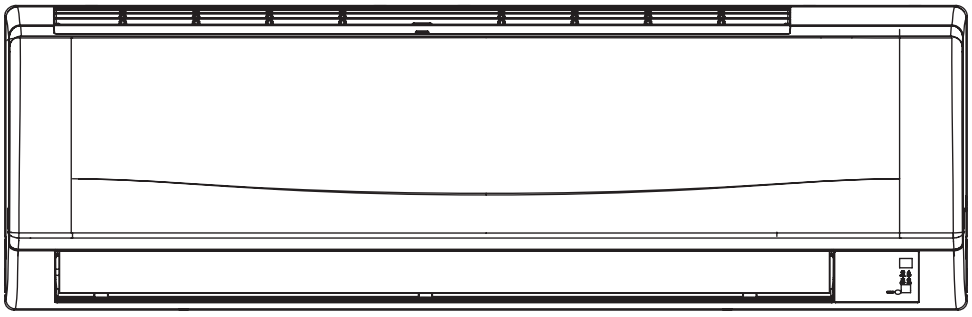
MWM24Y3J



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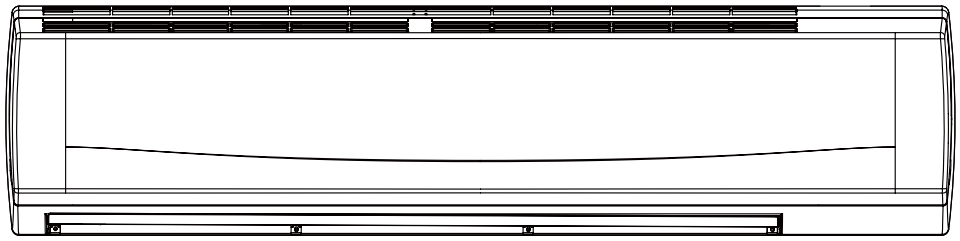


Figure 101

Indoor Units

INTRODUCTION

MRM09Y1J
MRM12Y1J
MRM18Y3J
MRM24Y3J
MRM36Y3J

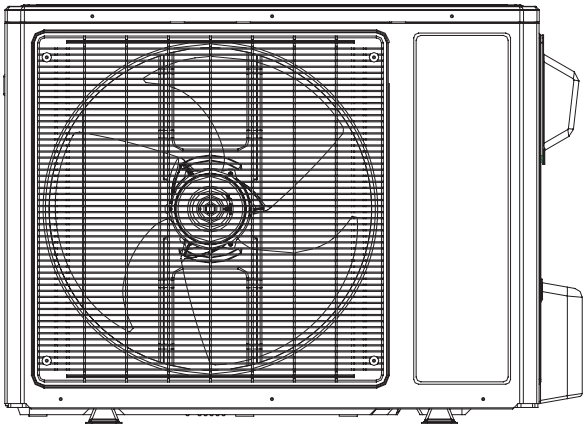


Figure 102
Outdoor Units

MRM09Y1J
MRM12Y1J
MRM18Y3J
MRM24Y3J
MRM36Y3J

Figure 103
Remote Control

SPECIFICATIONS

		UNIT OF MEASURE	MWM09Y1J MRM09Y1J	MWM12Y1J MRM12Y1J	MWM18Y3J MRM18Y3J	MWM24Y3J MRM24Y3J	MWM36Y3J MRM36Y3J
Product Code			CB146035101_L13396	CB146035001_L13396	CB146032301B/13396	CB146032101B/13396	CB471000100_L13396
Power Supply	Rated Voltage	V~	115	115	208/230	208/230	208/230
	Rated Frequency	Hz	60	60	60	60	60
	Phases		1	1	1	1	1
Power Supply Mode			Outdoor	Outdoor	Outdoor	Outdoor	Outdoor
Rated Cooling Capacity (Min~Max)		Btu/h	9000(3500~11000)	11800(3300~12500)	18000(4500~21000)	22000(6400~24000)	33600(7404~35997)
Rated Heating Capacity (Min~Max)		Btu/h	9800(2500~11000)	13000(3400~13500)	19200(4000~23000)	24200(4100~26600)	34600(14979~35997)
Cooling Power Input (Min~Max)		W	750(220~1100)	1260(260~1340)	1700(200~2600)	2200(300~2550)	4100(450~4300)
Heating Power Input (Min~Max)		W	830(230~1230)	1320(250~1360)	2400(300~2600)	2800(320~2800)	3800(560~4300)
Cooling Power Current		A	9	15	8.3/7.5	11.5/10.5	17
Heating Power Current		A	9.5	15.5	11.77/10.65	13.0/12.8	16.5
Rated Input		W	1230	1360	2600	2800	4300
Rated Current		A	17.0	18.2	11.8/10.9	13.0/12.8	20
Air Flow Volume(SH/H/M/L/SL)		CFM	330/277/224/188/-	341/288/235/200/-	471/400/330/371/-	589/441/306/206/-	736/647/530/412
Dehumidifying Volume		Pint/h	1.69	2.96	3.80	5.00	7.4
EER		(Btu/h)/W	12	9.4	10.59	10.0	8.20
COP		(Btu/h)/W	12	9.8	8.0	9.5	9.11
SEER		(Btu/h)/W	16	16	16	16	18.00
HSPF		(Btu/h)/W	8.6	8.6	8.5	9.5	9.00
Typical Application Area		sq ft	144-215	191-287	207-384	353-502	501-837
INDOOR UNIT	Model of indoor unit		MWM09Y1J	MWM12Y1J	MWM18Y3J	MWM24Y3J	MWM36Y3J
	Product Code		CB146N35100_L13396	CB146N35000_L13396	CB146N32300_L13396	CB146N32101_L13396	CB471N00100_L13396
	Fan Type		Cross-flow	Cross-flow	Cross-flow	Cross-flow	Cross-flow
	Diameter Length(DXL)	inch	3 5/8 X 23 3/8 rounded to the nearest 1/8	3 5/8 X 23 3/8 rounded to the nearest 1/8	3 7/8 X 25 5/8 rounded to the nearest 1/8	3 7/8 X 30 1/8 rounded to the nearest 1/8	4 1/4 X 20 9/16 rounded to the nearest 1/8
	Fan Motor Cooling Speed (SH/H/M/L/SL)	r/min	1300/1100/900/700/-	1350/1150/950/750/-	1400/1150/1000/850/-	1350/1150/1000/850/-	1400/1250/1000/800
	Fan Motor Heating Speed (SH/H/M/L/SL)	r/min	1300/1150/980/820/-	1350/1200/1000/850/-	1450/1250/1100/950/-	1350/1150/1000/900/-	1400/1250/1050/850
	Output of Fan Motor	W	15	15	20	35	70
	Fan Motor RLA	A	0.38	0.38	0.32	0.45	0.4
	Fan Motor Capacitor	μF	4	4	1.5	2.5	/
	Evaporator Form		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube	Aluminum Fin-copper Tube	Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
	Pipe Diameter	inch	1/4	1/4	1/4	1/4	9/32
	Row-fin Gap	inch	1/4	1/4	1/4	1/4	2-1/16
	Coil Length (LXDXW)	inch	24X17/18X11 4/7	24X17/18X11 4/7	25 7/8 X 1 X 12	30 1/8 X 1 X 13 1/2	42 9/32 X 1 X 15
	Swing Motor Model		MP24BA	MP24BA	MP28VB	MP35XX	MP24BA
	Output of Swing Motor	W	2.4	2.4	2	2.5	1.5
	Fuse	A	3.15	3.15	3.15	3.15	5
	Sound Pressure Level (SH/H/M/L/SL)	dB (A)	41/37/35/32/-	43/39/35/32/-	48/43/38/34/-	49/43/39/34/-	54/49/44/37
	Sound Power Level (SH/H/M/L/SL)	dB (A)	51/47/45/42/-	53/49/45/42/-	58/53/48/44/-	59/53/49/44/-	64/59/54/47
	Dimension (WXHXD)	inch	30 1/3X11 1/7X8	30 1/3X11 1/7X8	34 1/7;12;8 1/2	39 5/7;12 5/9;8 2/3	53 9/64;12 53/64;10
	Dimension of Carton Box (LXWXH)	inch	33 2/9X13 1/2X10 2/7	33 2/9X13 1/2X10 2/7	37 1/5;14 9/10;11 3/5	42 1/4;15 5/9;12 1/3	56 19/32;16 1/2;13 1/2
	Dimension of Package (LXWXH)	inch	33 1/3X13 4/7X10 6/7	33 1/3X13 4/7X10 6/7	37 1/3;15;12 1/5	42 1/3;15 2/3;13	56 3/4;16 9/16;14
	Net Weight	lb	19	19	26	33	19
	Gross Weight	lb	23	23	33	39	23.5

Figure 201

Product Specifications

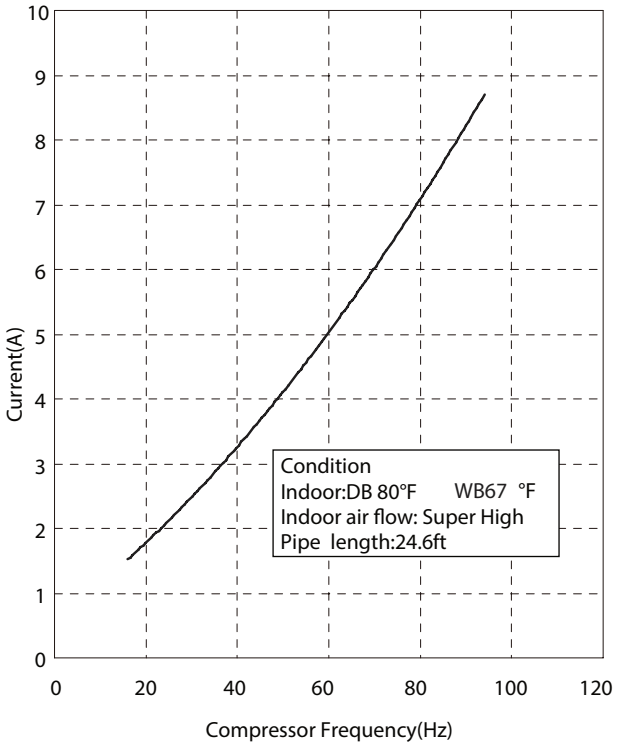
SPECIFICATIONS

	Model of Outdoor Unit	UNIT OF MEASURE	MWM09Y1J MRM09Y1J	MWM12Y1J MRM12Y1J	MWM18Y3J MRM18Y3J	MWM24Y3J MRM24Y3J	MWM36Y3J MRM36Y3J
OUT-DOOR UNIT	Product Code		CB146W0431_L13396	CB146W0451_L13396	CB146W17401_L13396	CB146W01401_L13396	CB146W10800_L13396
	Compressor Manufacturer/ Trademark		ZHUHAI LANDA COMPRESSOR	ZHUHAI LANDA COMPRESSOR	MITSUBISHI ELECTRIC (GUANG ZHOU) COMPRESSOR CO. LTD	China Resources (Shenyang) Sanyo CO., LTD	MITSUBISHI ELECTRIC (GUANG ZHOU) COMPRESSOR CO. LTD
	Compressor Model		QXA-A091ZE190	QXA-A091ZE190	SNB130FGYMC	C-6RZ146H1A	TNB306FPGMC
	Compressor Oil		FVC68D	FVC68D	FV50S	FV50S	FV50S
	Compressor Type		Rotary	Rotary	Rotary	Rotary	Rotary
	Compressor L.R.A.		/	/	10.86	12.5	67.00
	Compressor RLA	A	6	6	1245	1630	17.50
	Compressor Power Input	W	980	980	1245	1630	3010
	Overload Protector Model		1NT11L-6233	1NT11L-6233	11711/-6578	11711/-3979	CS-7C-1595
	Throttling Method		Capillary	Capillary	Capillary	Electron Expansion Valve	Electron Expansion Valve
	Operation temp	ºF	61~86	61~86	61-86	61-86	61~86
	Outdoor Min-Max Temp (cooling)	ºF	64~113	64~113	5-115	5-115	0~109
	Outdoor Min-Max Temp (heating)	ºF	5~75	5~75	5-75	5-75	-4-75
	Condenser Form	ºF	Aluminum Fin-copper Tube	Aluminum Fin-copper Tube	Aluminum Fin-copper Tube	Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
	Pipe Diameter	inch	1/4	1/4	1/4	1/4	3/8
	Rows-fin Gap		2 1/8	2 1/8	2 1/8	2 1/8	2-1/16
	Coil Length (LXDXW)		29 8/11X1X19 8/17	29 8/11X1X19 8/17	32 3/5X1 1/2X26	32 4/7X1 1/2X26	37X1 3/4X30
	Fan Motor Speed	rpm	900	900	690	690	890
	Output of Fan Motor	W	30	30	60	60	170
	Fan Motor RLA	A	0.17	0.17	0.62	0.62	0.73
	Fan Motor Capacitor	μF	/	/	3.5	3.5	/
	Air Flow Volume of Outdoor Unit	CFM	1059	1059	1883	1883	2589
	Fan Type		Axial-flow	Axial-flow	Axial-flow	Axial-flow	Axial-flow
	Fan Diameter	inch	15 10/13	15 10/13	20 1/2	20 1/2	21 21/32
	Defrosting Method		Auto Defrosting	Auto Defrosting	Auto Defrosting	Auto Defrosting	Auto Defrosting
	Climate Type		T1	T1	T1	T1	T1
	Moisture Protection		IP24	IP24	IP24	IP24	IP24
	Design Pressure(High)	PSIG	550	550	550	550	550
	Design Pressure(Low)	PSIG	240	240	240	240	240
	Sound Pressure Level (H/M/L)	dB (A)	53	55	56	53	65/-/-
	Sound Power Level (H/M/L)	dB (A)	63	65	66	63	75/-/-
	Dimension (WXHXD)	inch	33 2/5X21 1/4X12 3/5	33 2/5X21 1/4X12 3/5	38;27 5/9;15 3/5	38;27 5/9;15 3/5	39 1/2;31 7/64;16 13/16
	Dimension of Carton Box (LXWXH)	inch	34 4/7X14 1/6X22 5/6	34 4/7X14 1/6X22 5/6	40 2/5;18;29	40 2/5;18;29	42 1/2;19;33
	Dimension of Package (LXWXH)	inch	34 2/3X14 2/7X23 3/7	34 2/3X14 2/7X23 3/7	40 1/2;18 1/32;29 1/2	40 1/2;18 1/32;29 1/2	42 21/32;19 13/64;33 21/32
	Net Weight	lb	68	68	106	115	161
	Gross Weight	lb	77	77	117	126	172
	Refrigerant		R-410A	R-410A	R-410A	R-410A	R410A
	Refrigerant Charge	oz	35.28	35.28	45.86	54.67	91.71
Connec-tion Pipe	Length	ft	24.6	24.6	24.6	24.6	24.6
	Gas Additional Charge	oz/ft	0.21	0.21	0.2	0.2	0.2
	Outer Diameter Liquid Pipe	inch	1/4	1/4	1/4	1/4	1/4
	Outer Diameter Gas Pipe	inch	3/8	3/8	1/2	1/2	5/8
	Max Distance Height	ft	32.8	32.8	32.8	32.8	32.8
	Max Distance Length	ft	49.2	49.2	82.0	82.0	98.2

Figure 202
Product Specifications

SPECIFICATIONS

Cooling



Heating

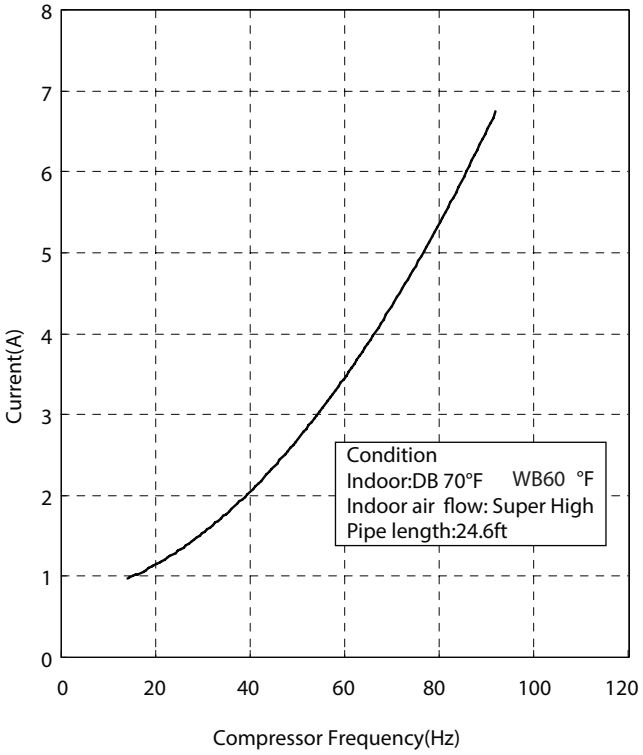
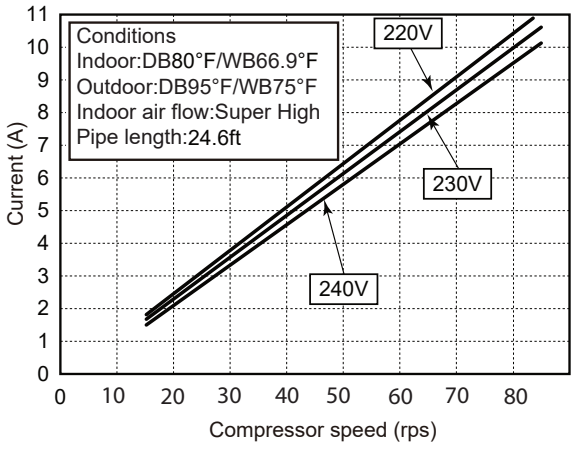


Figure 203

9-12K Operation Characteristics curve

MWM18Y3J/MRM18Y3J

Cooling



Heating

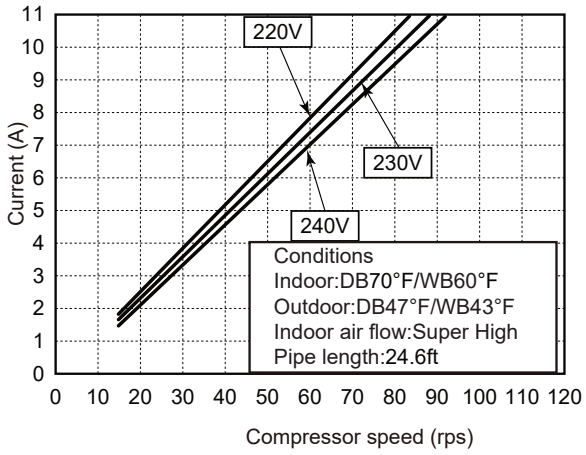


Figure 204

18K Operation Characteristics curve

SPECIFICATIONS

MWM24Y3J/MRM24Y3J

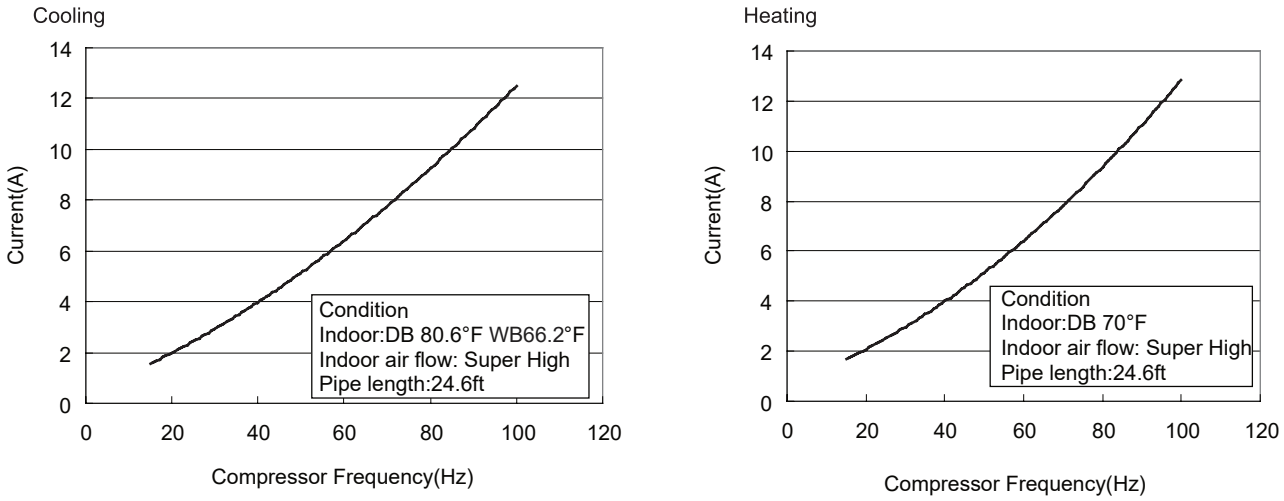


Figure 205

24K Operation Characteristics curve

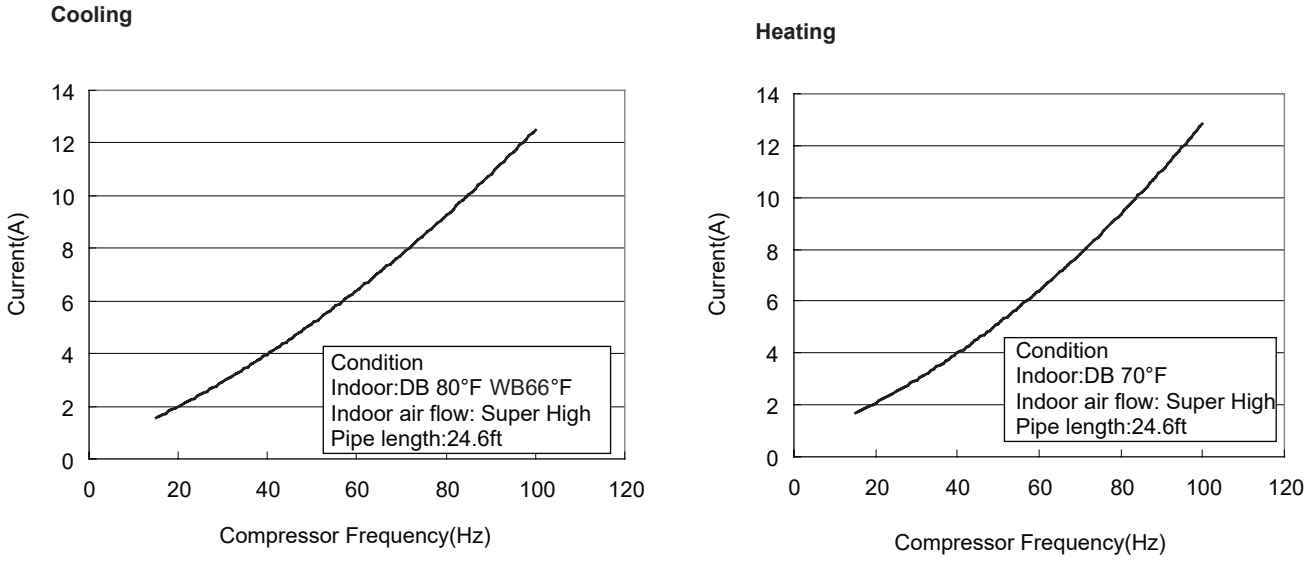


Figure 205

36K Operation Characteristics curve

SPECIFICATIONS

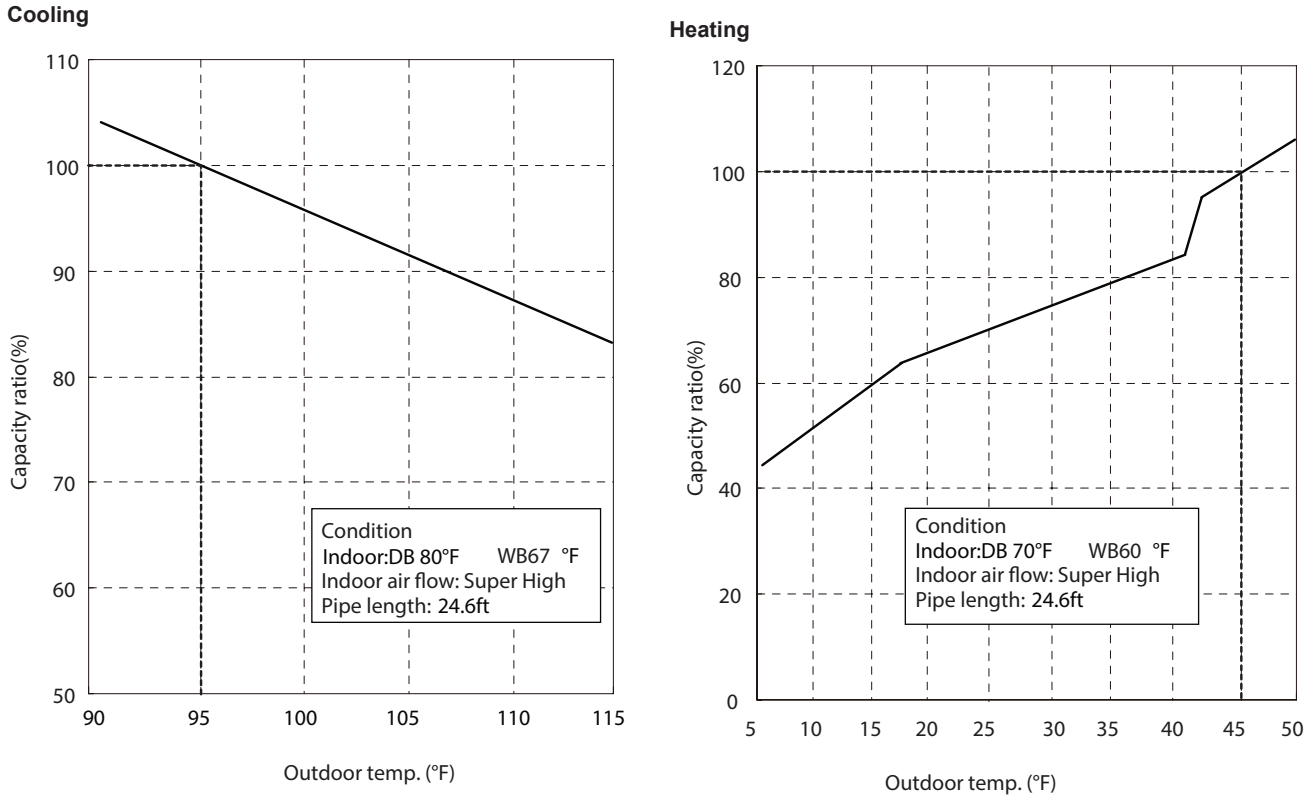


Figure 206

9-12K Capacity Variation Ratio According to Temperature

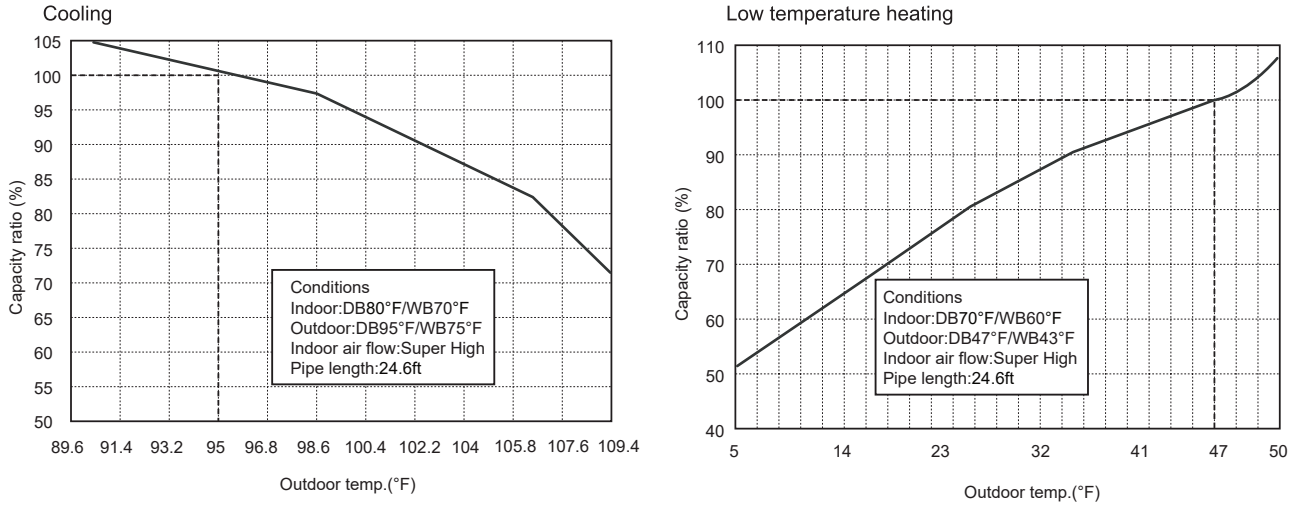


Figure 207

18-24 K Capacity Variation Ratio According to Temperature

SPECIFICATIONS

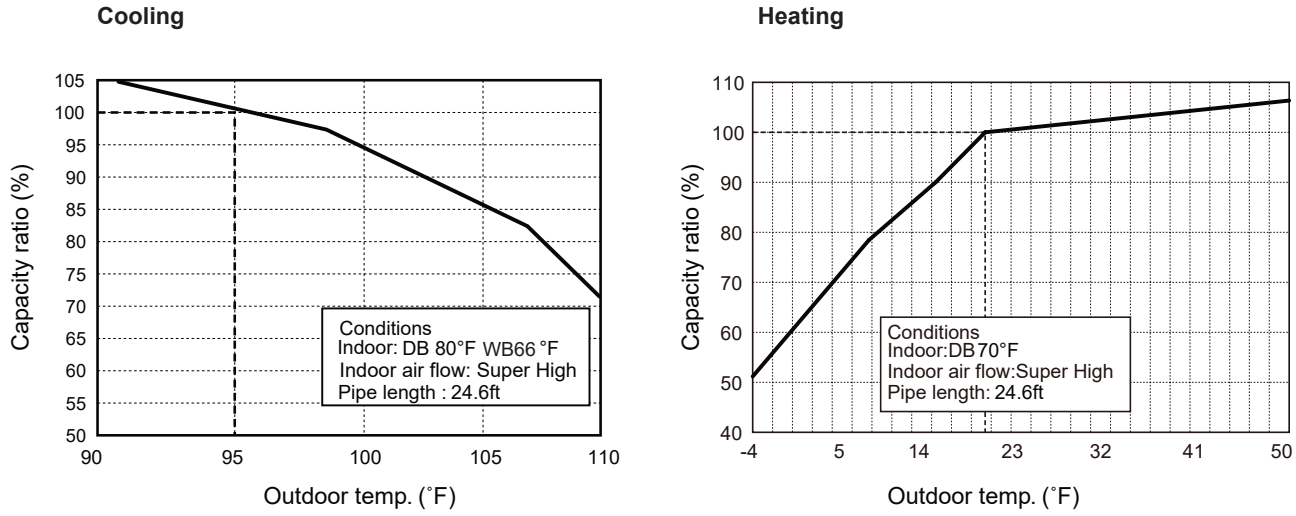


Figure 208

36K Capacity Variation Ratio According to Temperature

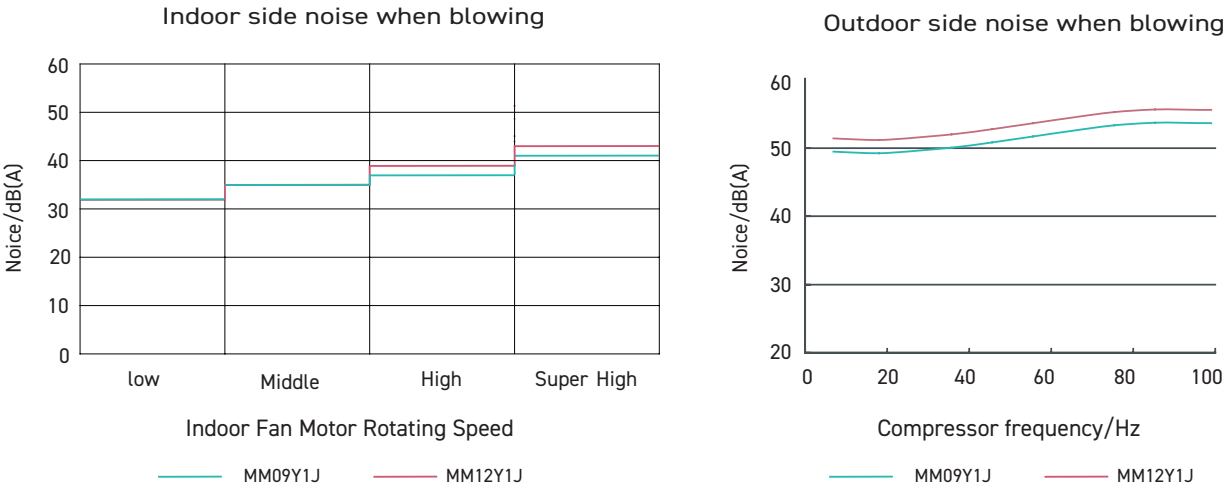


Figure 209

9-12K Noise Curve

SPECIFICATIONS

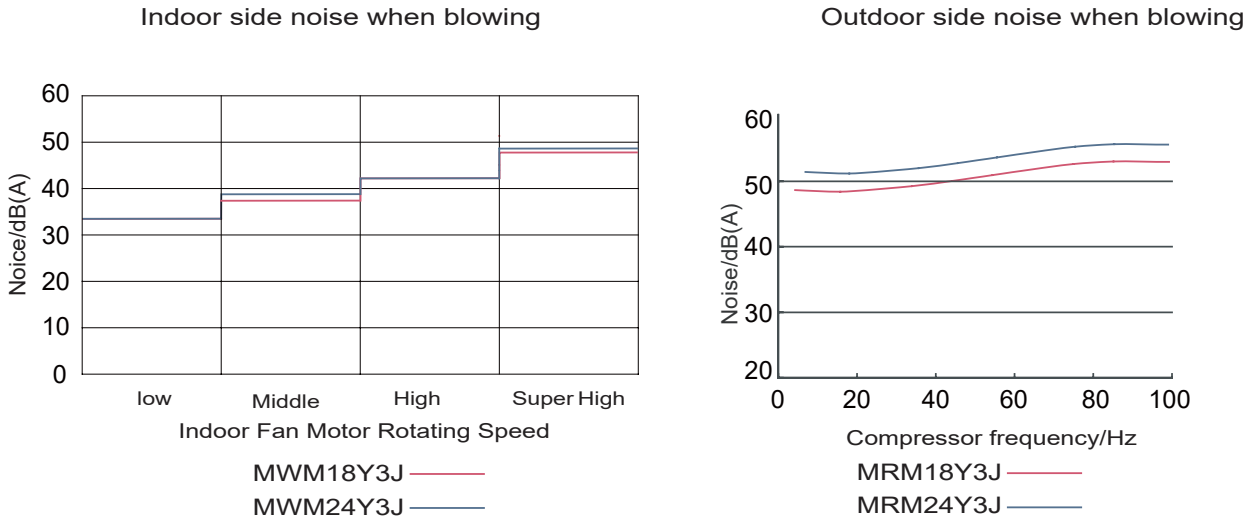


Figure 210

18-24K Noise Curve

Figure 211

36K Noise Curve

SPECIFICATIONS

Rated cooling connecting indoor and (DB/WB)		Model	Pressure of gas pipe connecting indoor and outdoor unit	Inlet and outlet pipe temperature of heat exchanger		Fan speed of indoor unit	Fan speed of outdoor unit	Compressor frequency (Hz)
Indoor	Outdoor		PSI	T1 (°F)	T2 (°F)			
80/67	95/75	MMW09Y1J	116-160 PSI	54 to 57	106 to 109	Super High	High	48
		MM12Y1J	116-160 PSI	50 to 54	109 to 113	Super High	High	77
80/67	95/75	MM18Y3J	130-160 PSI	54 TO 57	176 TO 104	Super High	High	75
80/67	95/75	MM24Y3J	130-160 PSI	54 TO 57	176 TO 104	Super High	High	87
80/66	95/75	MM36Y3J	130-145 PSI	46.8 TO 56.8	127 TO 96.8	Super High	High	60
T1: Inlet and outlet pipe temperature of evaporator T2: Inlet and outlet pipe temperature of condenser P: Pressure at the side of big valve Connection pipe length: 24.6ft.								

Figure 212

Cooling Data Sheet in Rated Frequency

Rated Heating connecting indoor and (DB/WB)		Model	Pressure of gas pipe connecting indoor and outdoor unit	Inlet and outlet pipe temperature of heat exchanger		Fan speed of indoor unit	Fan speed of outdoor unit	Compressor frequency (Hz)
Indoor	Outdoor		PSI	T1 (oF)	T2 (oF)			
70/60	47/53	MMW09Y1J	536-551	98 to 100	36 to 39	Super High	High	54
		MM12Y1J		107 to 111	32 to 37	Super High	High	78
70/60	47/43	MM18Y3J	362-391	158 to 104	34 to 31	Super High	High	90
70/60	47/43	MM24Y3J		158 to 104	34 to 31	Super High	High	87
70/-	20/19	MM36Y3J	507 - 550	134.4 to 102	36 to 39	Super High	High	58
T1: Inlet and outlet pipe temperature of evaporator T2: Inlet and outlet pipe temperature of condenser P: Pressure at the side of big valve Connection pipe length: 24.6ft.								

Figure 213

Heating Data Sheet in Rated Frequency

SPECIFICATIONS

Outdoor Air Temp.	MM09YJ Indoor Air Temperature :DB / WB																				
	64 / 53			68 / 57			72 / 61			77 / 64			**80 / 67**			86 / 72			90 / 75		
DB	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
14	5.63	4.59	0.25	6.11	5.03	0.26	6.56	5.32	0.27	7.01	5.68	0.28	7.52	6.00	0.29	7.68	6.24	0.30	7.94	6.76	0.30
17	5.72	4.64	0.26	6.41	5.17	0.27	6.75	5.46	0.28	7.16	5.83	0.29	7.80	6.24	0.30	8.12	6.50	0.31	8.13	6.95	0.31
23	6.30	5.04	0.28	6.77	5.42	0.30	7.25	5.80	0.30	7.71	6.17	0.31	8.41	6.64	0.32	8.64	6.93	0.33	9.23	7.30	0.34
59	7.63	6.10	0.35	8.20	6.56	0.38	8.77	7.01	0.39	9.43	7.47	0.40	9.60	7.68	0.41	10.48	8.38	0.43	11.05	8.84	0.42
70	9.78	7.40	0.50	10.39	7.90	0.52	11.24	8.39	0.54	11.48	8.72	0.55	11.80	8.73	0.57	12.67	9.63	0.60	13.53	10.28	0.61
75	9.46	7.19	0.53	10.10	7.68	0.55	10.74	8.16	0.56	11.18	8.50	0.58	11.50	8.51	0.60	12.31	9.35	0.62	13.20	10.03	0.64
80	9.06	6.61	0.57	9.69	7.07	0.59	10.23	7.53	0.60	10.78	7.87	0.62	11.20	8.06	0.64	11.93	8.71	0.66	12.77	9.32	0.69
85	8.18	5.92	0.60	8.65	6.32	0.62	9.32	6.74	0.64	9.69	7.07	0.66	10.07	7.25	0.68	10.79	7.88	0.71	11.52	8.41	0.74
90	7.12	5.60	0.79	8.70	6.01	0.82	9.30	6.42	0.84	9.80	6.76	0.86	10.20	7.04	0.89	10.98	7.58	0.93	11.77	8.05	0.95
95	7.94	5.48	0.85	8.54	5.89	0.88	9.13	6.30	0.90	9.73	6.71	0.93	**10.11**	**6.90**	**0.96**	10.92	7.53	1.00	11.51	7.94	1.03
100	7.54	5.13	0.88	8.01	5.53	0.92	8.59	5.92	0.95	9.26	6.32	0.98	9.50	6.56	1.01	10.31	7.11	1.05	10.77	7.51	1.08
105	7.19	4.96	0.93	7.85	5.35	0.96	8.23	5.74	0.99	8.89	6.14	1.02	9.30	6.42	1.05	10.03	6.92	1.09	10.59	7.31	1.13
110	6.89	4.82	1.05	7.55	5.21	1.07	8.12	5.61	1.10	8.76	6.00	1.14	9.10	6.28	1.18	9.82	6.78	1.22	10.35	7.17	1.26
115	5.05	3.82	0.79	5.45	4.14	0.81	5.78	4.46	0.84	6.29	4.78	0.86	6.60	4.95	0.89	7.14	5.43	0.93	7.56	5.74	0.95
118	4.26	3.51	0.65	4.77	3.81	0.68	5.08	4.07	0.70	5.47	4.37	0.71	5.72	4.58	0.74	6.21	4.96	0.77	6.55	5.24	0.79

Figure 215

9K Cooling Capacity Charts

Outdoor Air Temp.	MM12YJ Indoor Air Temperature :DB / WB																				
	64 / 53			68 / 57			72 / 61			77 / 64			**80 / 67**			86 / 72			90 / 75		
DB	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
14	6.52	4.95	0.33	7.12	5.42	0.33	7.53	5.72	0.37	8.04	6.11	0.38	8.50	6.46	0.39	8.84	6.72	0.41	9.58	7.28	0.42
17	6.54	4.97	0.38	7.31	5.54	0.39	7.70	5.85	0.38	8.22	6.25	0.40	8.80	6.69	0.41	9.17	6.97	0.43	9.80	7.45	0.44
23	7.06	5.37	0.48	7.65	5.77	0.50	8.12	6.17	0.51	8.64	6.57	0.53	9.30	7.07	0.54	9.70	7.38	0.56	10.23	7.77	0.58
59	8.12	6.17	0.60	8.67	6.63	0.65	9.32	7.09	0.65	9.93	7.55	0.67	10.21	7.76	0.69	11.15	8.47	0.72	11.75	8.93	0.74
70	11.10	7.66	0.74	11.58	8.17	0.78	12.59	8.68	0.80	13.08	9.03	0.82	13.45	9.28	0.85	14.44	9.96	0.89	15.42	10.64	0.91
75	10.67	7.36	0.81	11.23	7.86	0.86	12.11	8.35	0.87	12.60	8.69	0.89	12.96	8.94	0.92	13.86	9.56	0.95	14.88	10.27	0.99
80	10.22	7.05	0.88	10.93	7.54	0.91	11.63	8.03	0.93	12.16	8.39	0.96	12.63	8.71	0.99	13.46	9.28	1.03	14.40	9.94	1.06
85	9.66	6.66	0.89	10.35	7.14	0.92	11.03	7.61	0.95	11.58	7.99	0.98	12.04	8.31	1.01	12.90	8.90	1.05	13.78	9.51	1.08
90	10.38	7.06	1.05	11.10	7.58	1.08	11.90	8.10	1.11	12.55	8.54	1.14	13.06	8.88	1.18	14.07	9.57	1.23	14.93	10.15	1.26
95	10.04	6.83	10.90	10.79	7.34	1.11	11.54	7.85	1.14	12.30	8.36	1.18	**12.64**	**8.60**	**1.22**	13.80	9.38	1.27	14.55	9.89	1.30
100	9.29	6.32	1.15	10.23	6.80	1.19	10.72	7.29	1.21	11.44	7.78	1.25	11.86	8.06	1.29	12.87	8.75	1.34	13.58	9.24	1.38
105	8.83	6.00	1.21	9.52	6.48	1.26	10.22	6.95	1.29	10.92	7.42	1.33	11.42	7.77	1.36	12.31	8.37	1.42	13.01	8.85	1.46
110	8.48	5.76	1.26	9.25	6.22	1.27	9.85	6.70	1.31	10.54	7.16	1.35	11.03	7.50	1.40	11.91	8.10	1.45	12.60	8.57	1.49
115	6.65	5.06	0.98	7.22	5.49	1.03	7.78	5.91	1.05	8.33	6.33	1.09	8.74	6.64	1.12	9.45	7.18	1.17	10.00	7.60	1.20
118	5.80	4.64	0.86	6.31	5.04	0.91	6.72	5.38	0.93	7.22	5.78	0.96	7.56	6.05	0.99	8.19	6.55	1.02	8.65	6.92	1.06

Figure 214

12K Cooling Capacity Charts

Symbol
DB : Dry Bulb Temperature [°F}
WB :Wet Bulb Temperature [°F}
TC: Total Capacity [kBtu/h]
SHC: Sensible Heating Capacity [kBtu/h]
PI: Power Input [kW]
(Comp + indoor fan motor +outdoor fan motor)
Notes
1. All capacities are net, evaporator fan motor heat is deducted.
2. Indicates reference data. When operating at this temperature, these values can be different by operation.
3. Direct interpolation is permissible. Do not extrapolate.
4. Capacities are based on the following conditions:
Interconnecting Piping length 7.5m (24.6 ft) - Level difference of 0 FT
Indoor Air Temperature: 80°F (26.7°C) DB / 67°F (19.4°C) WB
Outdoor Air Temperature: 95°F (35.0°C) DB 75°F (23.9°C) WB

SPECIFICATIONS

Outdoor Air Temp.	MM18YJ Indoor Air Temperature :DB /WB (F°)																				
	64 / 53			68 / 57			72 / 61			77 / 64			**80 / 67**			86 / 72			90 / 75		
DB (F°)	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
14	10.48	8.22	0.69	11.48	9.01	0.71	12.13	9.51	0.73	12.95	10.16	0.75	13.69	10.74	0.78	14.24	11.17	0.81	15.43	12.1	0.83
17	10.57	8.29	0.69	11.78	9.24	0.71	12.44	9.75	0.73	13.28	10.42	0.76	14.21	11.15	0.78	14.8	11.61	0.81	15.82	12.41	0.83
23	11.71	9.18	0.69	12.58	9.87	0.71	13.46	10.56	0.73	14.33	11.24	0.75	15.42	12.09	0.77	16.09	12.62	0.8	16.96	13.3	0.83
59	14.2	11.13	0.79	15.26	11.97	0.82	16.32	12.8	0.84	17.38	13.63	0.86	17.87	14.01	0.89	19.51	15.3	0.93	20.57	16.14	0.96
70	16.2	12.71	1.16	17.28	13.55	1.2	18.36	14.4	1.24	19.08	14.96	1.27	19.62	15.39	1.31	21.06	16.52	1.37	22.5	17.65	1.4
75	15.99	12.54	1.19	17.08	13.39	1.23	18.16	14.25	1.27	18.9	14.82	1.31	19.44	15.25	1.35	20.79	16.31	1.4	22.32	17.5	1.45
80	15.58	12.22	1.25	16.66	13.06	1.29	17.74	13.91	1.33	18.54	14.54	1.37	19.26	15.11	1.41	20.52	16.09	1.46	21.96	17.22	1.51
85	15.16	11.89	1.33	16.24	12.73	1.38	17.32	13.58	1.42	18.18	14.26	1.46	18.9	14.82	1.51	20.25	15.88	1.57	21.63	16.96	1.61
90	14.74	11.57	1.39	15.82	12.41	1.44	16.9	13.25	1.48	17.82	13.98	1.52	18.54	14.54	1.57	19.98	15.67	1.64	21.2	16.63	1.68
95	14.3	11.21	1.44	15.37	12.05	1.48	16.44	12.89	1.52	17.51	13.74	1.57	**18**	**14.12**	**1.62**	19.65	15.41	1.68	20.72	16.25	1.73
100	13.92	10.92	1.46	14.99	11.76	1.5	16.06	12.6	1.55	17.14	13.44	1.6	17.77	13.94	1.65	19.28	15.12	1.71	20.35	15.96	1.77
105	13.55	10.62	1.48	14.62	11.47	1.53	15.69	12.31	1.58	16.76	13.15	1.63	17.53	13.75	1.67	18.9	14.82	1.74	19.97	15.66	1.79
110	13.18	10.33	1.5	14.24	11.17	1.54	15.32	12.01	1.59	16.39	12.85	1.64	17.16	13.46	1.7	18.53	14.53	1.76	19.6	15.37	1.81
115	12.8	10.04	1.51	13.87	10.88	1.56	14.94	11.72	1.61	16.01	12.56	1.66	16.79	13.16	1.71	18.16	14.24	1.78	19.22	15.08	1.83
118	12.42	9.74	1.53	13.5	10.59	1.58	14.4	11.29	1.63	15.48	12.14	1.67	16.2	12.71	1.73	17.55	13.77	1.79	18.54	14.54	1.85

Figure 215

18K Cooling Capacity Charts

Outdoor Air Temp.	MM24YJ Indoor Air Temperature :DB /WB (F°)																				
	64 / 53			68 / 57			72 / 61			77 / 64			**80 / 67**			86 / 72			90 / 75		
DB	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
14	12.81	10.04	0.93	14.04	11.01	0.96	14.83	11.62	0.99	15.83	12.42	1.02	16.73	13.13	1.06	17.41	13.65	1.1	18.86	14.79	1.13
17	12.92	10.13	0.93	14.4	11.29	0.96	15.2	11.92	0.99	16.24	12.74	1.03	17.37	13.62	1.06	18.08	14.19	1.1	19.34	15.17	1.13
23	14.31	11.22	0.93	15.38	12.06	0.96	16.45	12.9	0.99	17.52	13.74	1.02	18.85	14.78	1.05	19.66	15.42	1.09	20.73	16.26	1.12
59	17.35	13.61	1.07	18.65	14.63	1.11	19.95	15.64	1.14	21.24	16.66	1.17	21.85	17.13	1.21	23.85	18.7	1.26	25.15	19.72	1.3
70	19.8	15.53	1.58	21.12	16.56	1.63	22.44	17.6	1.68	23.32	18.29	1.73	23.98	18.81	1.78	25.74	20.19	1.86	27.5	21.57	1.91
75	19.54	15.33	1.62	20.87	16.37	1.67	22.2	17.41	1.72	23.1	18.12	1.78	23.76	18.64	1.83	25.41	19.93	1.91	27.28	21.39	1.97
80	19.04	14.93	1.69	20.36	15.96	1.75	21.68	17	1.8	22.66	17.78	1.86	23.54	18.47	1.91	25.08	19.67	1.99	26.84	21.05	2.05
85	18.53	14.53	1.81	19.84	15.56	1.87	21.16	16.6	1.93	22.22	17.43	1.99	23.1	18.12	2.05	24.75	19.41	2.13	26.44	20.73	2.19
90	18.02	14.14	1.89	19.34	15.17	1.95	20.65	16.19	2.01	21.78	17.08	2.07	22.66	17.78	2.13	24.42	19.15	2.22	25.91	20.32	2.29
95	17.48	13.7	1.95	18.78	14.73	2.01	20.09	15.75	2.07	21.4	16.79	2.13	**22**	**17.26**	**2.2**	24.02	18.84	2.29	25.32	19.86	2.35
100	17.01	13.35	1.98	18.33	14.37	2.04	19.63	15.4	2.1	20.94	16.42	2.17	21.71	17.03	2.24	23.56	18.48	2.32	24.87	19.51	2.4
105	16.56	12.98	2.01	17.87	14.02	2.08	19.18	15.04	2.14	20.48	16.07	2.21	21.43	16.81	2.27	23.1	18.12	2.36	24.41	19.14	2.43
110	16.1	12.63	2.04	17.41	13.65	2.1	18.72	14.68	2.16	20.03	15.71	2.23	20.97	16.45	2.3	22.65	17.76	2.39	23.95	18.79	2.46
115	15.64	12.27	2.05	16.95	13.3	2.12	18.26	14.32	2.19	19.57	15.35	2.25	20.52	16.09	2.32	22.19	17.4	2.41	23.5	18.43	2.49
118	15.18	11.91	2.08	16.5	12.94	2.14	17.6	13.8	2.21	18.92	14.84	2.27	19.8	15.53	2.35	21.45	16.82	2.43	22.66	17.78	2.51

Figure 216

24K Cooling Capacity Charts

Symbol
DB : Dry Bulb Temperature [°F}
WB :Wet Bulb Temperature [°F}
TC: Total Capacity [kBtu/h]
SHC: Sensible Heating Capacity [kBtu/h]
PI: Power Input [kW]
(Comp + indoor fan motor +outdoor fan motor)
Notes
1. All capacities are net, evaporator fan motor heat is deducted.
2. Indicates reference data. When operating at this temperature, these values can be different by operation.
3. Direct interpolation is permissible. Do not extrapolate.
4. Capacities are based on the following conditions:
Interconnecting Piping length 7.5m (24.6 ft) - Level difference of 0PSI
Indoor Air Temperature: 80°F (26.7°C) DB / 67°F (19.4°C) WB
Outdoor Air Temperature: 95°F (35.0°C) DB 75°F (23.9°C) WB

SPECIFICATIONS

Indoor Coil Temperature																
Outdoor	65F DB (18C)		68F DB (20C)		73F DB (23C)		79F DB (26C)		80F DB (27C)		82F DB (28C)		86F DB (30C)		90F DB (32C)	
Coil air	55F WB (13C)		57F WB (14C)		61F WB (16C)		64F WB (18C)		67F WB (19C)		68F WB (20C)		72F WB (22C)		75F WB (24C)	
DB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
5F(-15C)	17848.85	13991.68	19555.07	15336.94	20658.49	16195.97	23081.73	18103.48	23314.87	18286.34	23664.60	18560.64	24254.83	19021.14	26277.76	20604.55
14F(-10C)	18988.14	14884.77	20803.27	16315.89	21977.12	17229.76	24555.03	19259.02	24803.06	19453.55	25175.10	19745.36	25803.01	20235.25	27955.07	21919.73
23F(-5C)	21205.42	16624.24	22792.29	17879.18	24379.17	19123.24	27654.00	21689.56	27933.33	21908.64	28352.33	22237.27	29139.79	22855.44	30726.66	24099.51
32F(0C)	22265.69	17455.46	23931.91	18773.14	25598.13	20079.41	29036.70	22774.03	29330.00	23004.08	29769.95	23349.14	30596.78	23998.21	32263.00	25304.48
41F(5C)	23378.97	18328.23	25128.50	19711.79	26878.03	21083.38	30488.53	23912.74	30796.50	24154.28	31258.44	24516.59	32126.62	25198.12	33876.15	26569.71
50F(10C)	24547.92	19244.64	26384.93	20697.38	28221.93	22137.55	32012.96	25108.37	32336.32	25361.99	32821.37	25742.42	33732.95	26458.03	35569.95	27898.19
59F(15C)	25716.05	20169.17	27639.87	21677.46	29563.68	23185.75	32054.96	25133.82	32378.75	25387.70	32864.43	25768.52	35345.99	27721.60	37269.80	29229.89
68F(20C)	29346.30	23020.54	31302.72	24550.90	33259.14	26081.25	35186.21	27596.97	35541.63	27875.72	36074.75	28293.86	38150.19	29923.44	40758.75	31971.16
77F(25C)	28965.89	22723.27	30933.17	24264.61	32900.46	25805.94	34863.40	27346.25	35215.56	27622.48	35743.79	28036.81	37661.09	29538.14	40432.68	31707.05
86F(30C)	27465.96	21534.42	29411.51	23064.67	31367.93	24605.89	33894.98	26583.35	34237.35	26851.86	34750.91	27254.64	36682.88	28767.53	39182.75	30727.21
95F(35C)	25900.83	20312.31	27835.51	21831.58	29781.06	23350.96	32280.93	25319.01	32607.00	25574.76	33096.11	25958.38	35595.98	27919.74	37530.66	29439.01
104F(40C)	24542.20	19244.43	26487.75	20774.68	28422.44	22293.95	31441.63	24665.00	31759.22	24914.14	32235.61	25287.85	34237.35	26851.86	36182.90	28371.24
113F(45C)	23183.58	18187.42	25129.13	19706.80	27063.81	21226.07	30107.35	23607.90	30411.46	23846.37	30867.63	24204.06	32889.59	25794.96	34824.28	27314.23
122F(50C)	22048.85	17295.04	23966.15	18794.78	25563.89	20046.35	28471.78	22334.53	28759.37	22560.13	29190.76	22898.53	31155.99	24437.48	32913.51	25818.46
TC = TOTAL CAPACITY																
SHC = SENSIBLE HEAT CAPACITY																
BF = BYPASS FACTOR																

Figure 217

36K Cooling Capacity Charts

SPECIFICATIONS

Outdoor Air Temp.		MM09YJ (Heating) Indoor Air Temperature :DB													
		60		64		68		70		72		75		86	
°F DB	°F WB	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
-3	-4	7.28	1.20	7.09	1.23	7.01	1.26	6.94	1.27	6.89	1.29	6.77	1.30	6.61	1.35
-0.4	-1	7.83	1.23	7.59	1.25	7.53	1.30	7.46	1.30	7.40	1.34	7.26	1.33	7.10	1.39
6	5	8.23	1.25	8.00	1.28	7.92	1.33	7.85	1.32	7.79	1.35	7.64	1.36	7.47	1.41
10	9	8.75	1.28	8.49	1.30	8.42	1.35	8.34	1.35	8.28	1.38	8.12	1.38	7.94	1.44
16	14	9.83	1.29	9.55	1.31	9.45	1.35	9.36	1.36	9.30	1.39	9.11	1.39	8.91	1.44
19	17	10.22	1.31	9.92	1.34	9.83	1.37	9.61	1.39	9.67	1.41	9.48	1.42	9.27	1.47
24	23	10.38	1.33	10.12	1.36	10.02	1.41	9.82	1.42	9.87	1.45	9.70	1.45	9.51	1.50
32	30	12.13	1.37	11.83	1.39	11.75	1.43	11.54	1.45	11.59	1.47	11.41	1.48	11.21	1.53
41	38	11.82	0.98	11.56	1.00	11.49	1.03	11.30	1.04	11.35	1.06	11.20	1.06	11.02	1.10
43	40	11.89	1.02	11.64	1.04	11.56	1.07	11.38	1.08	11.43	1.10	11.28	1.10	11.10	1.14
47	43	12.81	1.07	12.42	1.09	12.29	1.12	**12.17**	**1.13**	12.08	1.15	11.84	1.16	11.55	1.20
53	50	11.15	0.89	10.81	0.90	10.70	0.93	10.58	0.94	10.51	0.96	10.30	0.96	10.06	1.00
59	55	10.62	0.66	10.30	0.68	10.20	0.70	10.11	0.70	10.02	0.72	9.82	0.72	9.59	0.75
64	60	10.73	0.70	10.40	0.72	10.30	0.74	10.00	0.74	10.12	0.76	9.91	0.76	9.68	0.79
70	66	9.03	0.59	8.77	0.60	8.67	0.62	8.59	0.62	8.52	0.64	8.35	0.63	8.15	0.66
75	71	7.52	0.49	7.28	0.50	7.22	0.52	7.14	0.52	7.09	0.54	6.95	0.53	6.79	0.56
78	75	7.66	0.50	7.44	0.51	7.35	0.53	7.30	0.53	7.22	0.55	7.08	0.54	6.91	0.57

Figure 218

9K Heating Capacity Charts

Outdoor Air Temp.		MM12YJ (Heating) Indoor Air Temperature :DB													
		60		64		68		70		72		75		86	
°F DB	°F WB	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
-3	-4	7.71	1.23	7.49	1.26	7.42	1.28	7.35	7.52	7.29	1.31	7.16	1.33	7.00	1.37
-0.4	-1	8.35	1.24	8.10	1.26	8.03	1.29	7.96	8.17	7.90	1.33	7.74	1.34	7.57	1.38
6	5	8.60	1.25	8.35	1.28	8.27	1.31	8.19	8.36	8.13	1.34	7.98	1.36	7.80	1.40
10	9	8.98	1.29	8.72	1.31	8.64	1.34	8.56	8.78	8.50	1.38	8.33	1.39	8.14	1.44
16	14	9.95	1.31	9.66	1.33	9.57	1.36	9.48	9.73	9.42	1.40	9.23	1.41	9.02	1.46
19	17	10.28	1.35	9.99	1.38	9.89	1.40	9.67	10.10	9.73	1.44	9.54	1.46	9.32	1.50
24	23	10.77	1.36	10.48	1.39	10.39	1.42	10.18	10.60	10.24	1.46	10.06	1.48	9.86	1.52
32	30	11.65	1.37	11.37	1.39	11.28	1.42	11.08	11.49	11.13	1.46	10.96	1.48	10.76	1.52
41	38	12.89	1.41	12.61	1.44	12.53	1.47	12.33	12.75	12.38	1.51	12.21	1.53	12.01	1.57
43	40	13.58	1.42	13.30	1.45	13.21	1.48	13.01	13.44	13.06	1.52	12.89	1.54	12.69	1.58
47	43	14.68	1.44	14.23	1.47	14.09	1.50	**13.95**	**14.33**	13.85	1.54	13.57	1.56	13.25	1.61
53	50	13.34	1.31	12.94	1.34	12.81	1.36	12.68	13.03	12.58	1.40	12.33	1.42	12.04	1.46
59	55	12.11	1.08	11.75	1.11	11.63	1.13	11.52	11.82	11.42	1.16	11.19	1.17	10.93	1.21
64	60	11.06	1.09	10.73	1.11	10.62	1.13	10.51	10.79	10.43	1.16	10.22	1.18	9.98	1.21
70	66	9.94	0.87	9.64	0.89	9.54	0.91	9.45	9.69	9.37	0.94	9.19	0.95	8.97	0.98
75	71	7.65	0.51	7.41	0.52	7.34	0.53	7.27	7.46	7.21	0.54	7.07	0.55	6.90	0.57
78	75	7.77	0.52	7.54	0.53	7.46	0.54	7.39	7.58	7.33	0.55	7.18	0.56	7.01	0.58

Figure 219

12K Heating Capacity Charts

SPECIFICATIONS

Outdoor Air Temp.		MM18YJ (Heating) Indoor Air Temperature :DB													
		60		64		68		70		72		75		86	
DB	°F WB	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
-3	-4	12.58	1.49	12.23	1.52	12.11	1.55	11.99	1.57	11.9	1.59	11.69	1.61	11.42	1.66
-0.4	-1	13.64	1.63	13.24	1.66	13.12	1.7	13	1.73	12.9	1.75	12.65	1.77	12.37	1.82
6	5	14.39	1.7	13.97	1.74	13.84	1.78	13.71	1.8	13.61	1.82	13.35	1.85	13.05	1.9
10	9	14.99	1.76	14.56	1.79	14.42	1.83	14.28	1.86	14.18	1.88	13.91	1.9	13.59	1.96
16	14	15.44	1.78	14.99	1.81	14.85	1.85	14.71	1.88	14.61	1.9	14.32	1.92	14	1.98
19	17	15.74	1.83	15.29	1.87	15.14	1.9	14.8	1.94	14.89	1.96	14.6	1.98	14.27	2.04
24	23	17.45	1.89	16.99	1.93	16.84	1.97	16.5	2.01	16.59	2.03	16.3	2.05	15.98	2.11
32	30	19.43	2.05	18.97	2.09	18.82	2.13	18.49	2.17	18.57	2.19	18.28	2.22	17.96	2.28
41	38	21.69	2.18	21.23	2.22	21.09	2.27	20.75	2.31	20.84	2.33	20.55	2.36	20.22	2.43
43	40	22.26	2.22	21.8	2.26	21.65	2.31	21.32	2.35	21.4	2.37	21.12	2.4	20.79	2.47
47	43	24.52	2.27	23.77	2.31	23.53	2.36	**23.3**	**2.4**	23.13	2.43	22.66	2.46	22.12	2.53
53	50	24.76	2.29	24.01	2.34	23.77	2.38	23.53	2.42	23.35	2.45	22.88	2.48	22.34	2.55
59	55	25.32	2.31	24.56	2.36	24.31	2.41	24.07	2.45	23.88	2.47	23.4	2.5	22.85	2.58
64	60	25.86	2.36	25.08	2.4	24.83	2.45	24.58	2.49	24.39	2.52	23.9	2.55	23.34	2.63
70	66	26.36	2.39	25.56	2.44	25.3	2.49	25.05	2.53	24.86	2.56	24.36	2.59	23.78	2.67
75	71	26.72	2.43	25.91	2.48	25.65	2.53	25.4	2.57	25.2	2.6	24.7	2.63	24.11	2.71
78	75	26.97	2.45	26.15	2.5	25.88	2.55	25.63	2.59	25.43	2.62	24.92	2.65	24.33	2.73

Figure 220

18K Heating Capacity Charts

Outdoor Air Temperature		MM24YJ (Heating) Indoor Air Temperature :DB													
		60		64		68		70		72		75		86	
°F DB	°F WB	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
-3	-4	14.36	1.73	13.96	1.77	13.82	1.8	13.69	1.83	13.59	1.85	13.34	1.88	13.04	1.93
-0.4	-1	15.57	1.9	15.12	1.94	14.98	1.98	14.84	2.01	14.73	2.04	14.45	2.06	14.12	2.12
6	5	16.43	1.99	15.95	2.03	15.8	2.07	15.65	2.1	15.54	2.13	15.25	2.15	14.9	2.22
10	9	17.12	2.05	16.62	2.09	16.46	2.13	16.3	2.17	16.18	2.19	15.88	2.22	15.52	2.28
16	14	17.63	2.07	17.12	2.12	16.96	2.16	16.79	2.19	16.67	2.22	16.35	2.25	15.98	2.31
19	17	17.97	2.13	17.46	2.18	17.28	2.22	16.9	2.26	17	2.28	16.67	2.31	16.29	2.38
24	23	19.92	2.21	19.39	2.26	19.23	2.3	18.84	2.34	18.94	2.37	18.61	2.39	18.24	2.47
32	30	22.18	2.39	21.65	2.44	21.49	2.49	21.11	2.53	21.2	2.56	20.87	2.59	20.5	2.67
41	38	24.76	2.54	24.24	2.6	24.07	2.65	23.69	2.69	23.79	2.72	23.46	2.75	23.08	2.84
43	40	25.41	2.59	24.89	2.64	24.72	2.69	24.34	2.74	24.43	2.77	24.11	2.8	23.73	2.88
47	43	27.99	2.65	27.14	2.7	26.87	2.76	**26.6**	**2.8**	26.4	2.83	25.87	2.86	25.25	2.95
53	50	28.27	2.67	27.41	2.73	27.13	2.78	26.87	2.83	26.66	2.86	26.13	2.89	25.5	2.98
59	55	28.91	2.7	28.04	2.75	27.76	2.81	27.48	2.85	27.27	2.89	26.72	2.92	26.08	3.01
64	60	29.53	2.75	28.64	2.8	28.35	2.86	28.06	2.91	27.85	2.94	27.29	2.98	26.64	3.06
70	66	30.09	2.79	29.18	2.85	28.88	2.91	28.6	2.95	28.38	2.99	27.81	3.02	27.15	3.11
75	71	30.51	2.83	29.58	2.89	29.28	2.95	28.99	3	28.77	3.03	28.2	3.07	27.52	3.16
78	75	30.79	2.86	29.86	2.92	29.55	2.98	29.26	3.03	29.04	3.06	28.45	3.1	27.78	3.19

Figure 221

24K Heating Capacity Charts

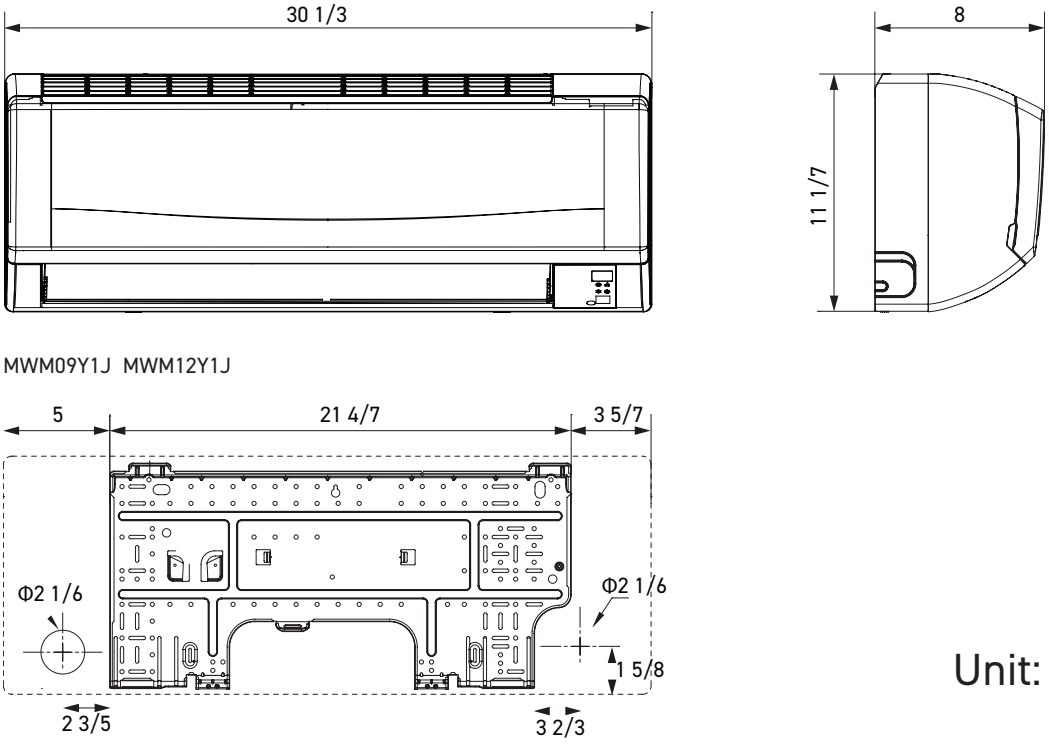
SPECIFICATIONS

Indoor Coil Temperature														
Outdoor	65F DB (18C)		68F DB (20C)		73F DB (23C)		79F DB (26C)		80F DB (27C)		82F DB (28C)		86F DB (30C)	
Coil air	55F WB (13C)		57F WB (14C)		61F WB (16C)		64F WB (18C)		67F WB (19C)		68F WB (20C)		72F WB (22C)	
DB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
-4F	17683.54	17683.54	17515.03	17515.03	17220.13	17220.13	16735.12	16735.12	16718.38	16718.38	16651.51	16651.51	16525.00	16525.00
0F	19158.05	19158.05	18979.00	18979.00	18663.04	18663.04	18121.89	18121.89	18103.77	18103.77	18031.36	18031.36	17894.19	17894.19
6F	20211.27	20211.27	20021.69	20021.69	19684.66	19684.66	19122.87	19122.87	19103.75	19103.75	19027.33	19027.33	18873.68	18873.68
10F	21053.84	21053.84	20853.73	20853.73	20506.17	20506.17	19915.31	19915.31	19895.40	19895.40	19815.82	19815.82	19663.59	19663.59
16F	21685.77	21685.77	21485.66	21485.66	21127.57	21127.57	20509.64	20509.64	20489.14	20489.14	20407.18	20407.18	20253.40	20253.40
19F	22117.59	22117.59	21896.42	21896.42	21538.32	21538.32	20905.87	20905.87	20884.96	20884.96	20801.42	20801.42	20643.09	20643.09
24F	24571.59	24571.59	24360.95	24360.95	23992.32	23992.32	23345.75	23345.75	23322.41	23322.41	23229.12	23229.12	23107.62	23107.62
32F	27436.35	27436.35	27225.70	27225.70	26857.08	26857.08	26181.86	26181.86	26155.68	26155.68	26051.06	26051.06	25972.37	25972.37
41F	30711.86	30711.86	30501.22	30501.22	30143.12	30143.12	29424.61	29424.61	29395.19	29395.19	29277.61	29277.61	29247.88	29247.88
43F	31533.37	31533.37	31322.73	31322.73	30954.10	30954.10	30237.91	30237.91	30207.67	30207.67	30086.84	30086.84	30069.40	30069.40
47F	34387.59	34387.59	34040.03	34040.03	33450.23	33450.23	32448.41	32448.41	32415.96	32415.96	32286.29	32286.29	31996.79	31996.79
53F	34735.15	34735.15	34377.06	34377.06	33776.73	33776.73	32771.64	32771.64	32738.87	32738.87	32607.91	32607.91	32312.75	32312.75
59F	35525.07	35525.07	35166.97	35166.97	34545.58	34545.58	33511.95	33511.95	33478.43	33478.43	33344.52	33344.52	33050.00	33050.00
64F	36283.39	36283.39	35914.76	35914.76	35282.83	35282.83	34231.40	34231.40	34197.17	34197.17	34060.38	34060.38	33755.66	33755.66
70F	36967.98	36967.98	36588.82	36588.82	35956.89	35956.89	34877.87	34877.87	34842.99	34842.99	34703.62	34703.62	34398.12	34398.12
75F	37484.06	37484.06	37104.90	37104.90	36451.90	36451.90	35367.93	35367.93	35332.56	35332.56	35191.23	35191.23	34872.07	34872.07
78F	37831.62	37831.62	37441.93	37441.93	36788.93	36788.93	35691.16	35691.16	35655.47	35655.47	35512.85	35512.85	35198.57	35198.57
TC = TOTAL CAP[ACITY														
SHC = SENSIBLE HEAT CAPACITY														
BF = BYPASS FACTOR														

Figure 222

36K Heating Capacity Charts

SPECIFICATIONS



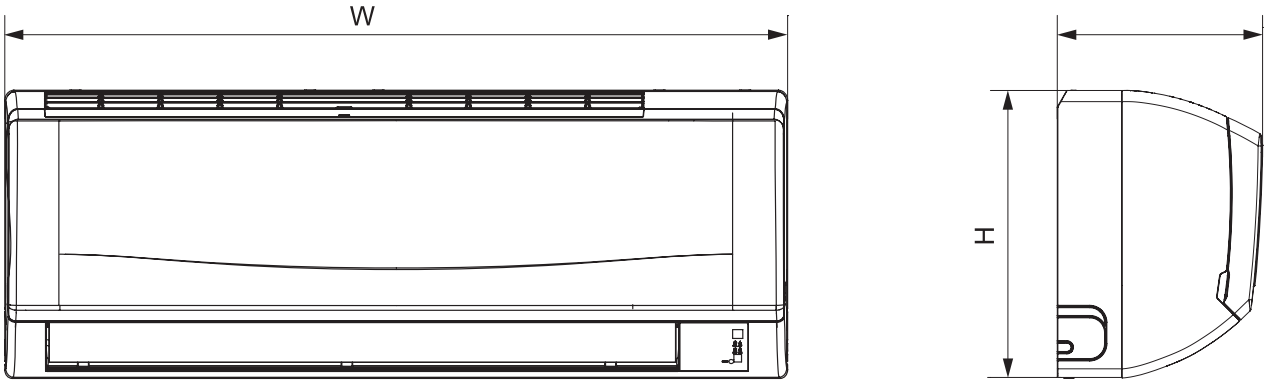
Unit: inches(")

Figure 223

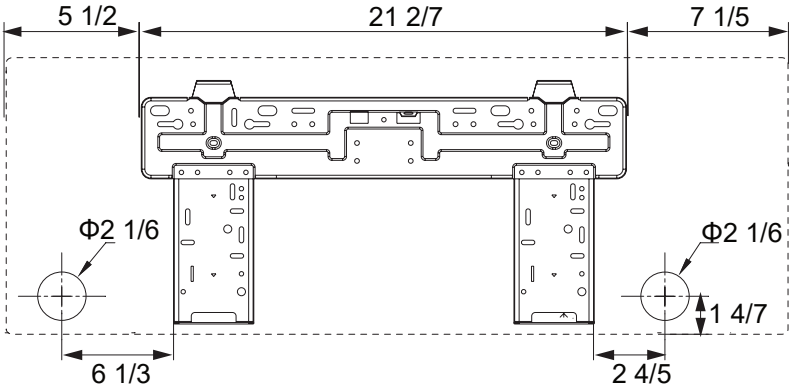
9-12K Indoor Unit Dimensions

SPECIFICATIONS

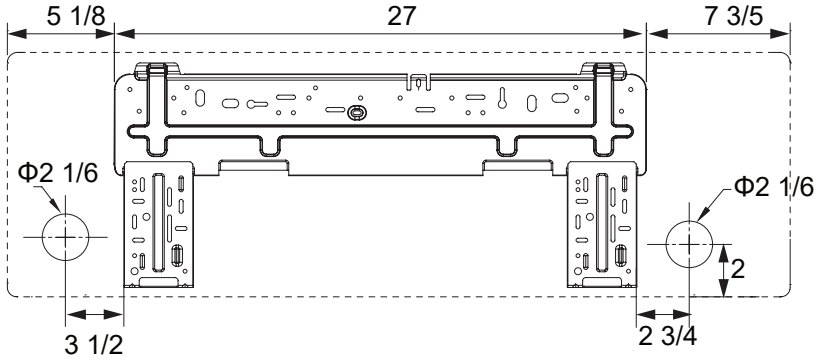
Unit: inches(")



MWM18Y3J



MWM24Y3J



Model	W	H	D
MWM18Y3J	34 1/7	12	8 1/2
MWM24Y3J	39 5/7	12 5/9	8 2/3

Figure 224

18-24K Indoor Unit Dimensions

SPECIFICATIONS

Unit: inches(″)

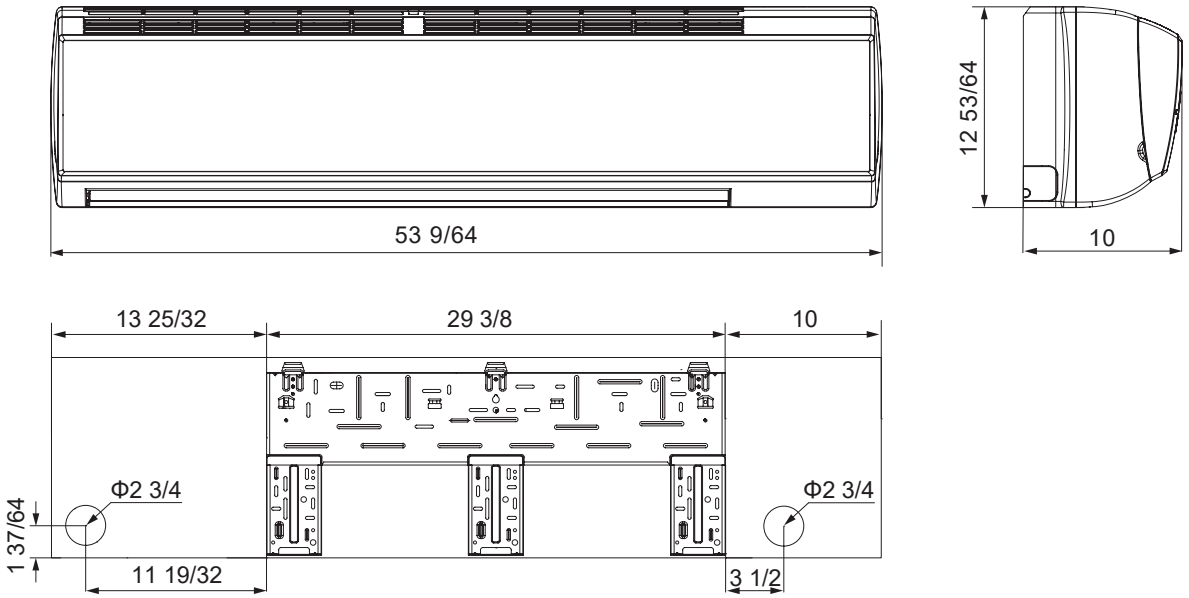


Figure 225

36K indoor Unit DimensionsK Indoor Unit Dimensions

Unit: inches(″)

MRM09Y1J MRM12Y1J

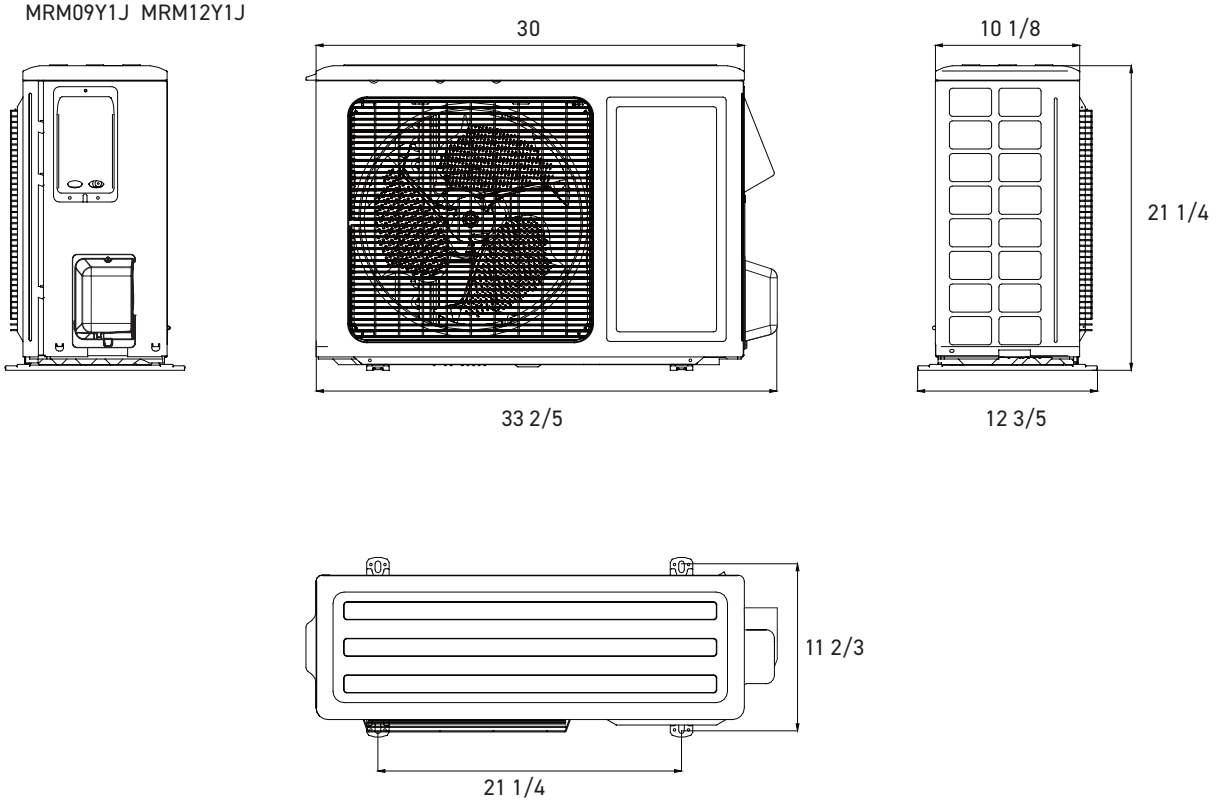


Figure 226

9-12K Outdoor Unit Dimensions

SPECIFICATIONS

Unit: inches(")

MRM18Y3J MRM24Y3J

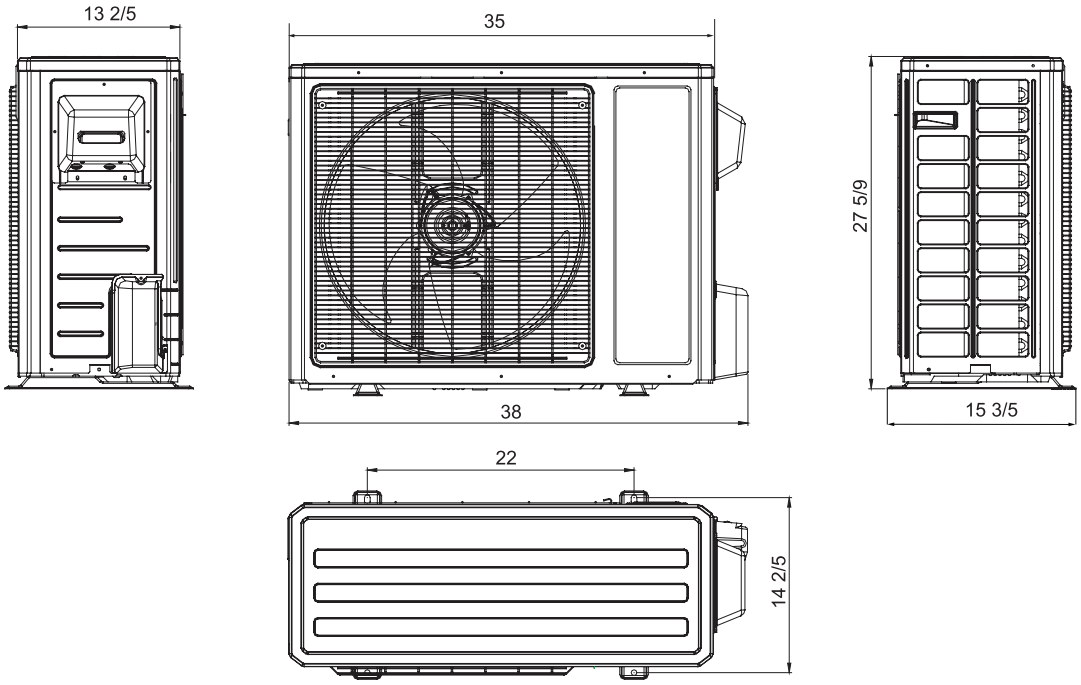


Figure 227

18-24K Outdoor Unit Dimensions

Unit: inches(")

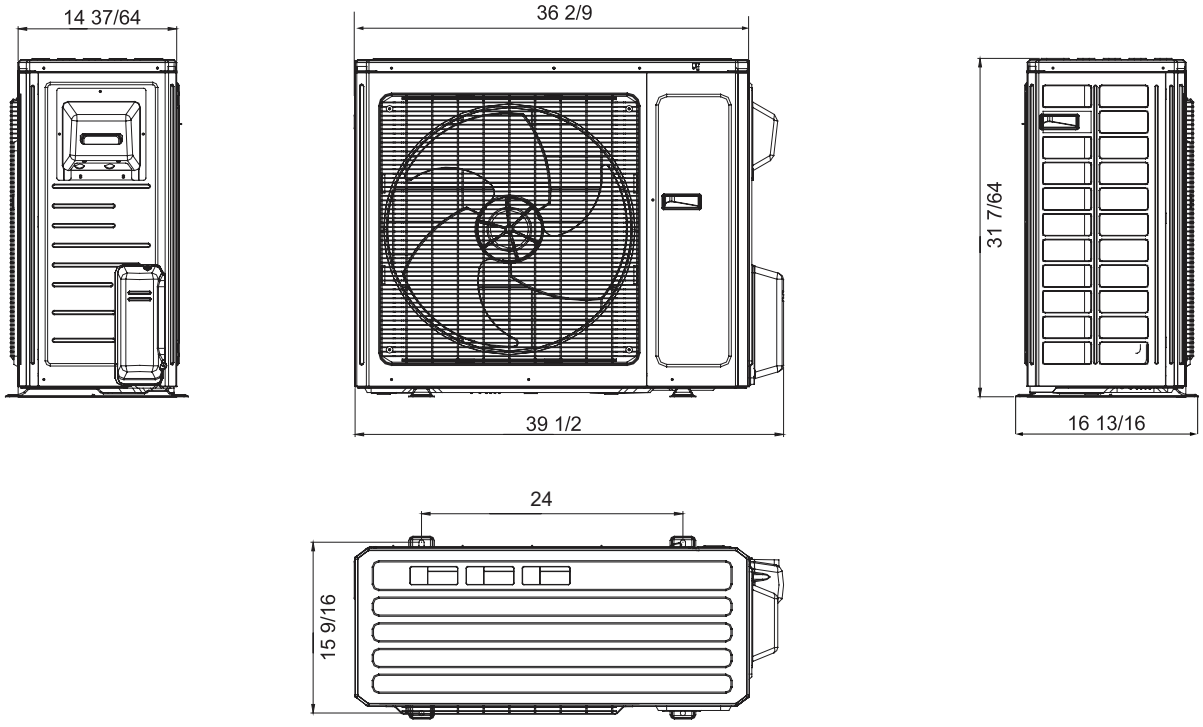


Figure 228

36K Outdoor Unit Dimensions

OPERATION

Remote Control (PN 69700657)

Buttons on Remote Controller

1 START / STOP:Press to start or stop operation.

2 ▼ :Press to decrease temperature setting.

3 ▲ :Press to increase temperature setting.

4 FAN AUTO: Press to set fan speed.

5 MODE: Press to select operation mode (AUTO/COOL/DRY/FAN/HEAT).

6 SENSOR

7 CLOCK: Press it set clock.

8 TIMER ON: Press it to set auto-on timer.

9 AIR SWEEP:Press it set swing angle.

10 EXTEND

11 TEMP

12 TIMER OFF:Press it to set auto-off timer.

13 TURBO

14 SLEEP

15 LIGHT:Press it to turn on/off the light .

16 MODE icon:If MODE button is pressed, current operation mode icon (AUTO), (COOL), (DRY), (FAN) or (HEAT)(only for heat pump models) will show.

17 SLEEP icon : is displayed by pressing the SLEEP button. Press this button again to clear the display.

18 TEMP icon:Pressing TEMP button, (set temperature), (indoor ambient temperature), (outdoor ambient temperature) and blank is displayed circularly.

19 AIR SWEEP icon: is displayed when pressing the AIR SWEEP button.Press this button again to clear the display.

20 LIGHT icon: is displayed by pressing the LIGHT button. Press LIGHT button again to clear the display.

21 LOCK icon: is displayed by pressing "▼" and "▲" buttons simultaneously. Press them again to clear the display.

22 SET TIME display:After pressing TIMER button, ON or OFF will blink.This area will show the set time.

23 TURBO icon: is displayed when pressing the TURBO button.Press this button again to clear the display.

24 DIGITAL display:This area will show the set temperature.

25 SENSOR icon: is displayed when pressing the SENSOR button. Press this button again to clear the display.

26 FAN SPEED display:Press FAN button to select the desired fan speed setting (AUTO-Low-Med-High).Your selection will be displayed in the LCD windows , except the AUTO fan speed.

27 EXTEND icon: displayed when pressing the EXTEND button. Press this button again to clear the display.

Introduction for Icons on Display Screen

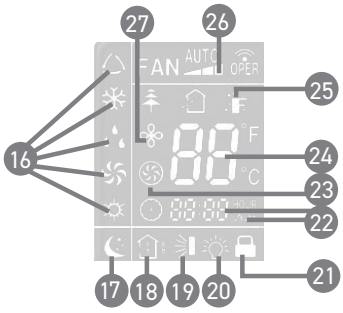


Figure 301

Remote Control Button Identification

OPERATION

Remote Control (PN 69700657)

Introduction for Buttons on Remote Controller

1. START / STOP: button

Press this button to turn on the unit .Press this button again to turn off the unit.

2. " ▼ " :

Press this button to decrease set temperature. Hold it down for 2 seconds or more to rapidly decrease set temperature. In AUTO mode, set temperature is not adjustable.

3. " ▲" :

Press this button to increase set temperature. Hold it down for 2 seconds or more to rapidly increase set temperature. In AUTO mode, set temperature is not adjustable.

4. FAN AUTO button

This button is used for setting Fan Speed in the sequence that goes from AUTO, to , to , to , then back to Auto.

Low speed Medium speed High speed

5. MODE button

Each time you press this button, a mode is selected in a sequence that goes from AUTO, COOL, DRY, FAN, and HEAT , as the following:

Note: Only for models with heating function.

After energization, AUTO mode is defaulted. In AUTO mode, the set temperature will not be displayed on the LCD, and the unit will automatically select the suitable operationn mode in accordance with the room temperature to make indoor room comfortable.

6. SENSOR (SAVE) button

Press this button to turn on SENSOR(SAVE) function. Saves room ambient temperature and automatically adjusts maintaining that room ambient until pressed again which cancels the SENSOR(SAVE) function.

7. CLOCK button

Pressing CLOCK button, blinks. Within 5 seconds, pressing + or - button adjusts the present time. Holding down either button above 2 seconds increases or decreases the time by 1 minute every 0.5 second and then by 10 minutes every 0.5 second. During blinking after setting, press CLOCK button again to confirm the setting, and then will be constantly displayed.

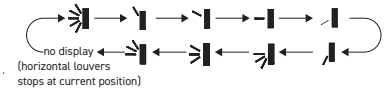
8. TIMER ON button

Press this button to initiate the auto-ON timer. To cancel the auto-timer program, simply press this button again.

After pressing this button, disappears and " ON " blinks. 00:00 is displayed for ON time setting. Within 5 seconds, press ▲or ▼button to adjust the time value. Every press of either button changes the time setting by 1 minute. Holding down either button rapidly changes the time setting by 1 minute and then 10 minutes. Within 5 seconds after setting, press TIMER ON button to confirm.

9. AIR SWEEP button

Press this button to set up & down swing angle, which circularly changes as below:



This remote controller is universal. If any command , or is sent out, the unit will carry out the command as . indicates the guide louver swings as:

10. EXTEND(DRY) button

Pressing EXTEND button in COOL or DRY mode, the icon is displayed and the indoor fan will continue operation for 10 minutes in order to dry the indoor unit even though you have turned off the unit.

After energization, EXTEND OFF is defaulted. EXTEND is not available in AUTO, FAN or HEAT mode.

11. TEMP button

By pressing this button you can display the indoor setting temperature or indoor ambient temperature.When the indoor unit is first powered on it will display the setting temperature. If the temperature's display status is changed from other status to", it displays the ambient temperature within 5 seconds. If another remote signal is received, it will return to display the setting temperature. If the users haven't set up the temperature displaying status, it will display the setting temperature. (This function is not applicable for some models).

12. TIMER OFF button

Press this button to initiate the auto-off timer. To cancel the auto-timer program, simply press the button again.TIMER OFF setting is the same as TIMER ON.

OPERATION

Remote Control (PN 69700657)

13. TURBO button

Press this button to activate / deactivate the Turbo function which enables the unit to reach the preset temperature in the shortest time. In COOL mode, the unit will blow strong cooling air at super high fan speed. In HEAT mode, the unit will blow strong heating air at super high fan speed. (This function is not applicable for some models).

14. SLEEP button

Press this button to go into the SLEEP operation mode. Press it again to cancel this function. This function is available in COOL or DRY mode to maintain the most comfortable temperature for you.

15. LIGHT button

Press LIGHT button to turn on the display's light and press this button again to turn off the display's light. If the light is turned on, is displayed. If the light is tunrned off, disappears.

Lock Controller: Combination

Press " ▲ " and " ▼" buttons simultaneously to lock or unlock the keypad. If the remote controller is locked, is displayed. In this case, pressing any button, blinks three times.

Switching Between °C and °F

When the unit is OFF, press "MODE"and " ▼ " buttons simultaneously to switch between ℃ and °F .

Replacement of Batteries in Remote Controller

1.Press the back side of remote controller marked with" OPEN "as shown in the fig, and then push out the cover of battery box along the arrow direction.

2. Replace two 7# (AAA 1.5V) dry batteries, and make sure the position of "+" polar and "-" polar are correct.

3. Reinstall the cover of battery box.

Note:

During operation, point the remote control signal sender at t he receiving window on indoor unit.

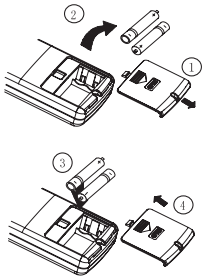
The distance between signal sender and receiving window should be no more than 8m, and there should be no obstacles between them.

Signal may be interfered easily in the room where there is fluorescent lamp or wireless telephone; remote controller should be close to indoor unit during operation.

Replace new batteries of the same model when replacement is required.

When you don't use remote controller for a long time, please take out the batteries.

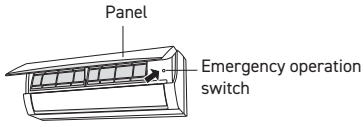
If the display on remote controller is fuzzy or there's no display, please replace batteries.



Sketch map for replacing batteries

Emergency Operation

If remote controller is lost or damaged, please use auxiliary button to turn on or turn off the air conditioner. The operation in details are as below: As shown in the fig. Open panel, press aux. button to turn on or turn off the air conditioner. When the air conditioner is turned on, it will operate under auto mode.



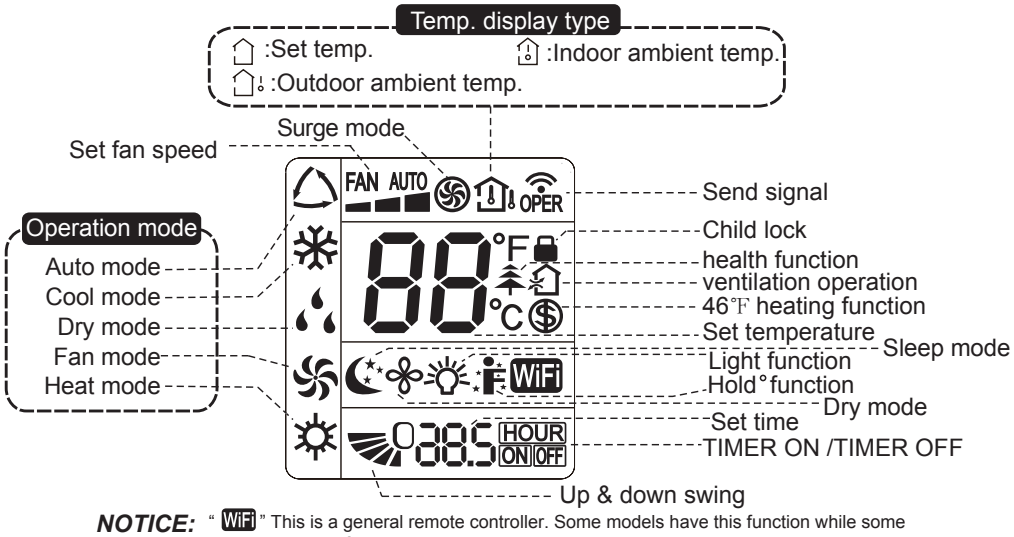
OPERATION

Remote Control (PN 69700623)

Buttons on remote controller

1. On/Off button
2. Mode button
3. Fan button
4. ▲/ ▼ button
5. Swing button
6. Sleep button
7. Temp button
8. Surge button
9. Hold° button
10. Timer button
11. Dry button
12. Light button

Introduction for buttons on remote controller



NOTICE: " WiFi " This is a general remote controller. Some models have this function while some do not. Please refer to the actual models.

OPERATION

Remote Control (PN 69700623)

Introduction for buttons on remote controller

Note:

- Once power is supplied to unit, unit will chime. Operation indicator "⏻" is ON (red indicator, the colour is different for different models). After that, you can operate the air conditioner by using remote controller.
- In operation mode, button presses on the remote will cause the "📶" to blink. This means that the remote is sending signals to the unit. The air conditioner responds to button presses with a chiming sound.
- In stand-by mode, set temperature and clock icon will be displayed on the display of remote controller (If timer on, timer off and light functions are set, the corresponding icons will be displayed on the display of remote controller at the same time); Under on status, the display will show the corresponding set function icons.

1 On/Off button

Press this button to turn on the unit. Press this button again to turn off the unit.

2 Mode button

Each time you press this button, a mode is selected in a sequence that goes from AUTO, COOL, DRY, FAN, and HEAT , as the following:

AUTO ▶ COOL ▶ DRY ▶ FAN ▶HEAT*

3 Fan button

This button is used for setting Fan Speed in the sequence that goes from AUTO, ◢ ◢◢ , to ◢◢◢ , then back to Auto.

Note:

- In DRY mode fan speed is set only to low speed, for maximum dehumidification.

4 ▲ / ▼ button

Press ▲/ ▼button to increase/decrease set temperature. In AUTO mode, set temperature is not adjustable. When setting Timer On or Timer Off, press "▲" or "▼" button to adjust the time.

OPERATION

Remote Control (PN 69700623)

Introduction for buttons on remote controller

5 Swing button

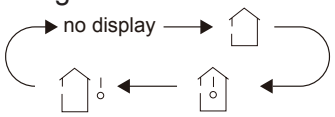
Press this button to set up & down swing angle.

6 Sleep button

Under Cool or Heat mode, press this button to turn on Sleep function. Press this button again to cancel Sleep function. Under Fan、Dry and Auto modes, this function is unavailable.

7 Temp button

Press this button, you can see indoor set temperature, indoor ambient temperature on indoor unit's display. The setting on remote controller is selected circularly as below:



Note:

- Outdoor temperature display is not available for some models. At that time, indoor unit receives " " signal, while it displays indoor set temperature.

8 Surge button

Under COOL or HEAT mode, press this button to activate / deactivate the Surge function.
Note: Not applicable for this unit.

9 Hold ° button

Press this button to start Hold ° function and " " will be displayed on the remote controller. After this function is set, the remote controller will send the detected ambient temperature to the controller and the unit will automatically adjust the indoor temperature according to the detected temperature. Press this button again to close Hold ° function and " " will disappear. When Hold ° function is turned on, the remote controller should be put within the area where indoor unit can receive the signal sent by the remote controller.

10 Timer button

- Under ON status, press this button to set timer OFF; Under OFF status, press this button to set timer ON.
- Press this button once and the characters of HOUR ON (OFF) will flash to be displayed. Meanwhile, press "▲" button or "▼" button to adjust timer setting (time will change quickly if holding "▲" or "▼" button). Time setting range is 0.5~24hours. Press this button again to confirm timer setting and the characters of HOUR ON (OFF)will stop flashing.
  If the characters are flashing but you haven't press timer button,timer setting status will be quit after 5s.If timer is confirmer, press this button again to cancel timer.

11 Dry button

Press this button in COOL or DRY mode to turn on Dry function.
When this function is started up, indoor fan will still operate at low fan speed for a while after turning off the unit by remote controller.

OPERATION

Remote Control (PN 69700623)

Introduction for buttons on remote controller

12 Light button

Press this button to turn on the display's light and press this button again to turn off the display's light.

Function introduction for combination buttons

Combination of "▲" and "▼" buttons: Remote Control lock

Press "▲" and "▼" buttons simultaneously 3s to lock or unlock the keypad. If the remote controller is locked, 🔒 is displayed. In this case, pressing any button, 🔒 blinks three times.

Combination of "MODE" and "▼" buttons: About switch between F° and C°

At unit OFF, press "MODE" and "▼" buttons simultaneously to switch between ℃ and ℉.

Combination of "TEMP" and "TIMER" buttons: Energy-saving Function

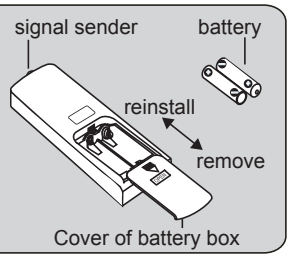
Press "TEMP" and "TIMER" simultaneously in COOL mode to start energy-saving function. Indoor unit displays "SE". Repeat the operation to quit the function.

Combination of "TEMP" and "TIMER" buttons: About 46° F Heating Function

Press "TEMP" and "TIMER" simultaneously in HEAT mode to start 46° F Heating Function indoor unit displays" Ⓢ" and a selected temperature of "46° F". (8° C if Celsius is adopted). Repeat the operation to quit the function.

Replacement of batteries in remote controller

1. Press the back side of remote controller marked with "OPEN", as shown in the fig, and then push out the cover of battery box along the arrow direction.
2. Replace two 7# (AAA 1.5V) dry batteries, and make sure the "+" and "-" are positioned correctly.
3. Reinstall the cover of battery box.



OPERATION

9-12k Sequence of Operation

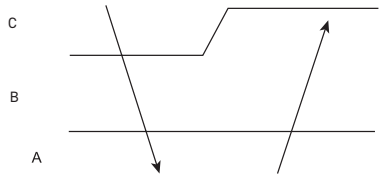
(1)Cooling Mode

1. When room temperature set point is <-3.6°F , cooling will stop; Outdoor fan will stop later and indoor fan will operate at set speed;

2. When room temperature set point is ＞ 3.6°F for a period of time, cooling operation will be started. In that case, indoor fan, outdoor fan and compressor will operate and the indoor fan will operate at set speed.

* In this mode, fan and swing motor will operate at set status and the temperature range setting is 61~86°F.

* If there is malfunction of outdoor unit or the unit stops for protection, the indoor unit will keep its operation status but the error will be displayed.



Indoor temperature-object temperature

(2) Dry Mode

1. In this mode, the fan motor runs at low fan speed while swing works according to setting state. The range of setting temperature is 61~86°F.

2. When outdoor unit has malfunction or stopped for protection, the indoor fan will keep the original running state and the error will be displayed.

(3) Fan Mode

1. In this mode, the indoor fan may run at high, medium, low and automatic speed. The compressor, outdoor fan and 4-way valve all stop running.

2. In this mode, the range of setting temperature is 61~86°F.

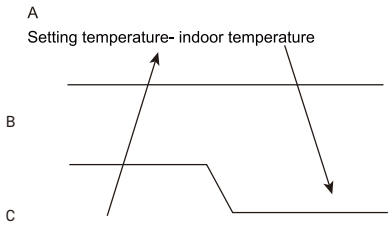
(4) Heat Mode

1.Heating mode

When setting temperature-indoor temperature≤ 84.7°F.the unit will stop heating. Both outdoor fan and indoor fan will stop later.

When setting temperature-indoor temperature>84.7°F and it lasts for a certain period, the unit will start heating. In that case, indoor fan, outdoor fan and compressor will start running. The indoor fan works according to the anti-cold air.

* In this mode, the range of setting temperature is 61~86°F.



2. Protection function: in heating mode, when the compressor stops as a result of malfunction, the indoor fan blows residual heat.

3. Defrosting control: when the defrosting signal is received, defrosting Code H1 will be shown. Theindoor fan stops.

*Anti-cold air function

The rotational speed of indoor electromotor is decided based on the indoor pipe temperature. The indoor fan can run at low speed or stop running if neccesary to maintain operation This function will terminate after the unit runs for 3min or the pipe temperature reached certain value. During heating, if the indoor pipe temperature is lower than certain value.The speed of the indoor fan will decrease automatically based on the pipe temperature and ensures that the outlet air is warm.

*Residual heat blowing function

During heating, when the setpoint condition for the indoor unit is reached,the compressor and the outdoor fan motor stop running and the air deflectors will rotate upward. The indoor fan will stop after one minute.

(5)Auto Changeover Mode

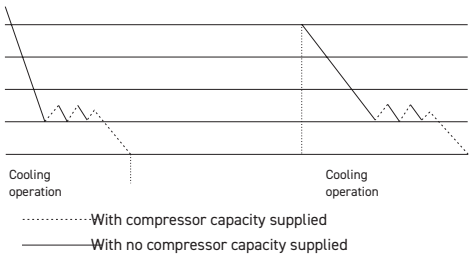
In this mode, the system selects the operation mode (cooling and fan) automatically according to the ambient temperature. The display shows the actual operation mode and setting temperature.

Ther will be a 30 second delay for mode conversion. The protection function is the same as that of other modes:

1. When $T_{amb.}$ ≥77°F , the cooling mode is selected.

2. For cooling only unit: when $T_{amb.}$ < 71.6°F, the unit runs in f mode.

3. When 71.6°F<$T_{indoor\ amb.}$< 77°F , upon initial startup, the unit will enter auto mode and run in automatic fan mode. If the other mode changes to auto mode, the previous operation mode will remain.



(6)Auto fan speed Mode

In auto fan mode, the rotational speed of the fan for indoor unit is decided by the differential temperature between ambient temperature and set temperature. In dry mode, the automatic fan speed is forced to be low.

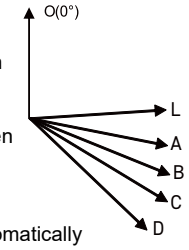
Unit type	Mode	Turbo	High fan speed	Medium fan speed	Low fan speed
09K	Rotational speed during cooling	1300	1100	900	700
	Rotational speed during heating	1300	1150	980	820
12K	Rotational speed during cooling	1350	1150	950	750
	Rotational speed during heating	1350	1200	1000	850

(7) Louver Control

After energization, the swing motor will open the horizontal louver to be open and then be close completely. The air outlet will close.

In heating mode, if the swing function is not set, the horizontal louver will rotate to maximum in clockwise direction. Then it will

OPERATION
9-12k Sequence of Operation



rotate to position D. Under other state, the horizontal louver will rotate to vain position L. If the swing function is set when starting the unit, the horizontal louver will swing between position L and position D. There are 7 states for the louver: in Position L, Position A, Position B, Position C, Position D, and swing between Position Land position D, stop in any position between Position L and position D. When the unit is turned off, the louver will stay in position 0. The swing is available only when the swing function is set and the indoor fan is running.
Note: When position L to B, position A to C, and position B and D is set, the horizontal louver will swing between position L to D. L<------>A<------>B<------>C<------>D
(8)Sleep Function
Sleeping mode is available only in cooling and heating modes;
Cooling mode: at the base of initial set temperature by remote controller, the set temperature will increase automatically according to set point within several hours after setting sleep function.
Heating mode: at the base of initial set temperature by remote controller, the set temperature will decrease automatically according to Set point within several hours after setting sleep function.

(9)Timer Function
0(00)
The main board has general timer function and clock function. The timer function can be selected by remote controller with different function
1.General timer: Timer accuracy is +/- 60 seconds
Timer on: after setting timer on, the unit will run at setting time according to the original setting mode. The timing interval is 0.5 hour, and the setting range is 0.5-24hours.
Timer off: the timer off function can be set when the unit is on. When the setting time for timer off is reached, the unit will stop. The timing interval is 0.5 hour, and the setting range is 0.5-24 hours.
2.Clock:Start of stop at a specific time. Accuracy is +/- 60 seconds. For example; timer on at 8:00 a.m., timer off at 17:30 p.m.
Timer on: if the timer on function is set when the system is on, the system will run. If the timer on function is set when the system is off, the system will start running in the previously set mode when the setting time is reached.
Timer off: if the timer off function is set when the system is off, the system will keep off even though the setting time is reached. If the timer off function is set when the system is on, the system will stop running when the setting time is reached.
Timer modification: when the system is in timer state, start or stop of the unit can be set via remote ON/OFF button and the timer can be reset. The system runs according to the latest setting state.
When both the timer on and timer off are set: the system runs according to the current mode setting. When the inputted time is reached, the unit will start and stop running. In that case, the unit will run according to the previously setting mode when the setting time for timer on is reached. The unit will stop running while the setting time for timer off is reached.
If the setting time for timer on and timer off is the same, the unit will stop running no matter what the current state is.
(10)Auto-Restart Function
The following settings are stored in the unit's EEPROM in the event of a power loss and Auto-Restart is active:
Mode, up and down swing, light, setting temperature, setting fan speed, general timer (not clock), Fahrenheit/ Celsius. After de-energized, the unit can run according to internal memory once power is restored. If the time function is not set in the last remote control command or previously before power loss, the system will run according to the last selected mode. If the timer function is set control before it is de-energized, the system will memorize the inputted timer setting. The setting time is recalculated once power is restored to the unit. If the timer function is set and the setting time is reached before the unit is de-energized, the unit will run according to the previous running mode after power is restored, but the timer function will terminate and the clock will not be memorized.
(11)Turbo Function
In cooling and heating mode (not available in auto, dehumidify, fan mode), press the Turbo the fan speed displayed super high speed in the remote controller and the indoor fan rotates at super high speed.
(12)Dry Function
When the indoor fan motor is running, the Dry function is set by pressing remote controller.

OPERATION

9-12k Sequence of Operation

Frequency Control

When starting the compressor, or when room conditions change;

frequency will be initialized according to the △T value of the indoor unit and the Q value of the indoor unit. Q value: Indoor unit output determined from indoor unit size, air flow rate and other factors

1. PI Control
(Determine Frequency Up / Down by △P Signal)

2. P control
Calculate △P value every 20 seconds, and adjust the frequency according to its difference from the frequency previously calculated.

3. I control
If the operating frequency does not change more than a certain fixed time, adjust the frequency up and down according to the △D value,obtaining the fixed △D value.

When the △D value is smaller; lower the frequency.

When the △D value is larger; increase the frequency.

3.Frequency management when other controls are functioning. When frequency is droping; Frequency management is carried out only when the frequency drops. For limiting lower limit Frequency management is carried out only when the frequency rises.

4.Upper and lower limit of frequency by PI control. The frequency upper and lower limits are set depending on indoor unit. When lo w noise commands come from the indoor unit or when outdoor unit low noise or quiet commands come from indoor unit, the upper limit frequency must be lowered than the usual setting.

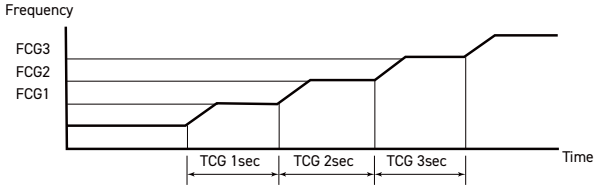
3-minutes Standby

Prohibits compressor start for 3 minutes after turning it of f.(except when defrosting)

Compressor Protection Function

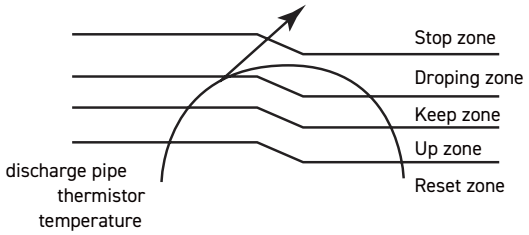
When turning the compressor from OFF to ON, the upper limit of frequency must be set as follows. (The function must not be used when defrosting.)

FCG 3	88
FCG 2	64
FCG 1	48
TCG1	240
TCG2	360
TCG3	180



Discharge Pipe Control

The discharge pipe temperature is used as the compressor's internal temperature. If the discharge pipe temperature rises above a certain level, the operating frequency upper limit is set to keep this temperature from going up further .



OPERATION

9-12k Sequence of Operation

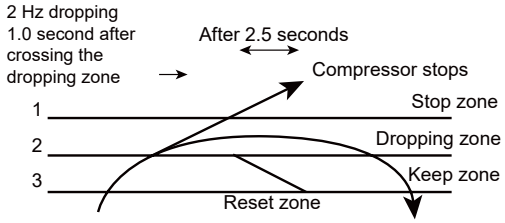
Key

Zone	Control contents
Stop zone	When the temperature reaches the stop zone, stop the compressor and correct abnormality.
Dropping zone	Start the timer, and the frequency will be dropping.
Keep zone	Keep the upper limit of frequency.
Return / Reset zone	Cancel the upper limit of frequency.

Input Current Control

Detect an input current by the CT during the compressor is running, and set the frequency upper limit from such input current.
In case of heat pump model, this control is the upper limit control function of the frequency which takes priority of the lower limit reversing valve operation activating compensation.

The frequency control will be made within the following zones.

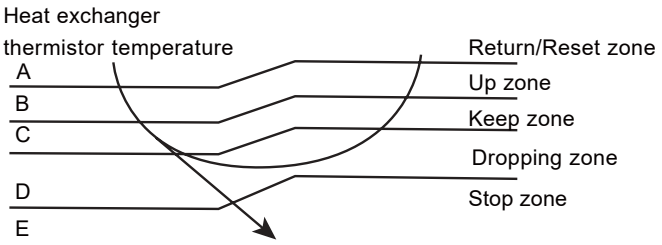


When a “stop current” continues for 3 seconds after crossing the stop zone, the compressor operation stops.
If a “dropping current” continues for 1.0 second after crossing the dropping zone, the frequency will be 2 Hz drop.
Repeating the above dropping continues until the current crosses the dropping zone without change.
In the keep zone, the frequency limit will remain.
In the return / reset zone, the frequency limit will be cancelled.
Limitation of current dropping and stop value according to the outdoor air temperature
1. In case the operation mode is cooling
* The current drops when outdoor air temperature becomes higher than a certain level (varies by model).
2. In case the operation mode is heating
* The current drops when outdoor air temperature becomes higher than a certain level (varies by model).

Freeze Protection Control

During cooling operation, the signals being sent from the indoor unit allow the operating frequency limitation and then prevent freezing of the indoor heat exchanger. (The signal from the indoor unit is divided into the zones below.)

1.Conditions for starting freeze protection
Judge the controlling start with the indoor heat exchanger temperature after 2 seconds from operation start.
2.Control in Each Zone



OPERATION

9-12k Sequence of Operation

Overheating Control

Heat Pump Only

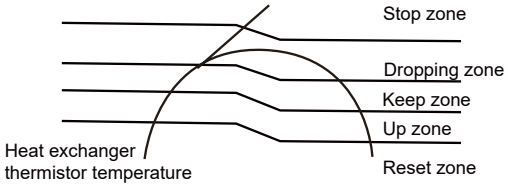
During heating operation, the signals being sent from the indoor unit allow the operating frequency limitation and prevent abnormal high pressure. (The signal from the indoor unit must be divided as follows.)

1.Conditions for Start Controlling

Judge the controlling start with the indoor heat exchanger temperature after 2 seconds from operation start.

2.Control in Each Zone

The heat exchange intermediate temperature of indoor unit controls the following.



Defrost Control

Heat Pump Only

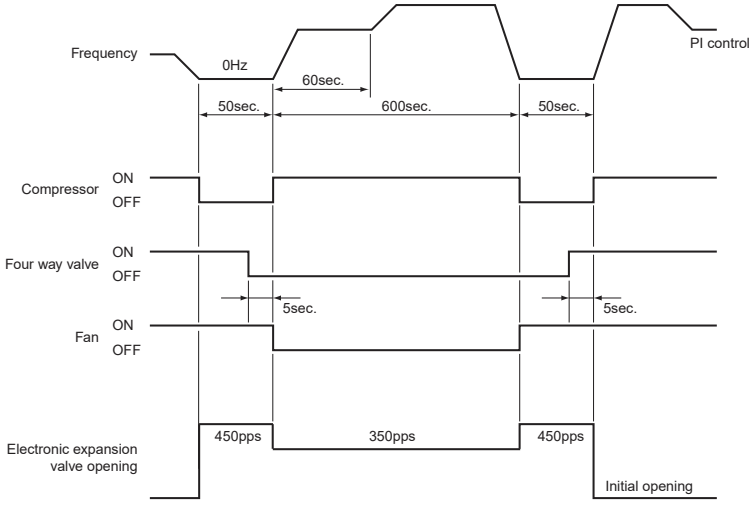
Defrosting is carried out by the cooling cycle (reverse cycle). The defrosting time or outdoor heat exchanger temperature is dependent on specific conditions being met or satisfied before releasing defrost.

1.Conditions for Starting Defrost

The starting conditions must be made with the outdoor ambient air sensor (outdoor air temperature) and indoor coil sensor (heat exchanger temperature). When the system is in heating operation for 6 minutes after the compressor is started or more than 45 minutes of accumulated time has passed since he start of operation or ending the defrost cycle

2.Conditions for Canceling Defrost

Current indoor coil sensor (heat exchanger temperature) is between 39°F~72°F)



OPERATION

9-12k Sequence of Operation

Fan Control

Fan control is carried out according to the following priority

1. Fan ON contol for electric component cooling fan
2. Fan control when defrosting
3. Fan OFF delay when stopped
4. ON/OFF control in cooling operation
5. Tap control when dropping function is working
6. Fan control in forced operation
7. Fan control in indoor/outdoor unit silent operation
8. Fan control in powerful mode
9. Fan control in normal operation

Fan OFF Control when Stopped

Fan OFF delay for 60 seconds must be made when the compressor is stopped.

1. When Cooling Operation

When the outdoor air temperature is lower than 99°F, the fan tap must be set to vane posiiton L.

2. When Heating Operation

When the outdoor air temperature is higher than 39°F, the fan tap must be turned to vane position L (only for heat pump model).

Refrigerant Recovery Function

(1) Enter refrigerant recovery function

Within 5 minutes after energizing (ON or OFF), continuously press LIGHT button for 3 times within 3 seconds to enter refrigerant recovery mode; Fo is displayed on the indoor unit and refrigerant recovery function is started. Close the liquis valve. After 5 minutes the large pipe valve should read 0 psi or less on a refrigerant manifold. If there is more than 25 ft of refrigerant lines set, the remaining refrigerant may need to be reclaimed with a refrigerant recovery machine. In either case, close the large pipe service valve and immediately set the mode to off on the indoor unit. Recover remaining refrigerant unti 0psi or less is achieved. Remove the refrigerant lines.

(2) Exit refrigerant recovery function

After entering refrigerant recovery mode, when receive any remote control signal or refrigerant recycling mode for 25min, the unit will exit refrigerant recovery mode automatically If the unit is in standby mode before refrigerant recovery, it will be in standby mode after finishing refrigerant recovery; if the unit is ON before refrigerant recovery, it will still return to it's original operation mode.

Compulsive Defrost Function

(1) Start up compulsory defrosting function

Turn unit on, set to heating mode with remote controller and adjust the temperature to 61℉(16℃). Press "+, -, +, -, +,-" buttons successively within 5 seconds and the unit will enter into compulsory defrost status. H1 will be shown on the indoor display
If the unit malfunctions or stops operation due to protection, compulsory defrost function can be resumed after malfunction or protection is released.

(2) Exit compulsory defrost mode

After compulsory defrost is started, the unit will exit defrost operation according to the defrost conditions listed above, and the unit will resume normal heating operation.

OPERATION

18-24k Sequence of Operation

Indoor Unit

Temperature Parameter

◆ Room setting temperature (T_{preset})
◆ Room ambient temperature ($T_{amb.}$) (temperature sensor :15K, partial pressure resistance:15K)
◆ Surface temperature of copper pipe for indoor heat exchanger ($T_{indoor\ tube}$) (temperature sensor: 20K, partial pressure resistance: 20K)

1. Basic Functions of System

(1) Cooling Mode

1. In this mode, indoor fan and swing will operate according to the setting status. The temperature setting range is 61~86°F).
2. When the unit stop operation due to malfunction of outdoor unit or protection, indoor unit will keep original operating status. Malfunction code will be displayed.
3. When 0°F≤(T_{preset}-$T_{amb.}$), if the indoor unit is operating at high fan speed, the speed of fan will change to medium fan speed; if the indoor unit is operating at medium or low fan speed, the speed of fan will keep the same; (This condition can only be carried out after the compressor is started up);
Theres no change for super-high fan speed; when ($T_{amb.}$-T_{preset})≥1.8°F, the fan speed will resume setting fan speed;

(2) Dry Mode

1. In this mode, fan will operate at low fan speed and swing will operate at setting status. The temperature setting range is 61~86°F.
2. When the unit stop operation due to malfunction of outdoor unit or protection, indoor unit will keep original operating status. Malfunction code will be displayed.

(3) Fan Mode

1. In this mode, indoor fan will operate at high, medium, low or auto fan speed. Compressor, indoor fan and the four-way valve will all stop operation.
2. In this mode, the temperature setting range is 61~86°F.

(4) Heating Mode

1. In this mode, the temperature setting range is 61~86°F.
2. Working condition and process of heating: when the unit is turned on in heating mode, indoor unit enters into anti-cold air condition; when the unit is tuned off, the unit will enter into the condition of blowing residual heat.
3. Protection function: in heating mode, when the compressor is stopped due to malfunction, indoor fan will operate at the condition of blowing residual heat.
4. Defrosting control: after receiving the defrosting signal from outdoor unit, the defrosting code H1 will be displayed.
5. Anti-cold function
6. Blowing residual heat function;
a. During heating operation, when the stopping condition for the compressor is reached, the compressor and the outdoor fan motor stop operation. The upper& down horizontal louver will rotate to the horizontal position L. The indoor fan will be stopped after operating for 60s at setting speed.
b. Due to the blockage of PG motor, horizontal louver will keep the stop position when the unit is turned off. (In other modes) When the unit is stopped due to other malfunctions, up&down horizontal louver will rotate to horizontal position L. The indoor fan will be stopped after operating for 60s at setting speed.
c. If the unit is turned off when the compressor is operating in heating mode or auto heating mode, up&down horizontal louver will rotate to horizontal position L. The indoor fan will be stopped after operating for 60s at setting speed.

(5) Auto Mode

1. When $T_{amb.}$≥78.8°F, the unit will operate in cooling mode. The implied setting temperature is 77°F.
2. Heat pump type: when $T_{amb.}$≤71.6°F, the unit will operate in heating mode. The implied setting temperature is 68°F.
3. Cooling only unit: when $T_{amb.}$≤77°F, the unit will operate in auto mode. The implied setting temperature is 77°F.
4. When 73.4°F≤$T_{indoor\ amb.}$ ≤77°F, the unit will operate in auto fan mode if the unit is turned on and enters into the auto mode for the fist time. If the unit is switched to auto mode from other mode, it will keep the previous operation mode (if the unit is switched to auto mode from dry mode, the unit will operate at auto fan mode).

2. Display Status of Indoor Indicator

(1) Status of Indoor Display Board
1. After energization, all the icons will be displayed and then only the power indicator is bright. When the unit is turned on by remote controller, the operation indicator will be bright. Meanwhile, the current setting operation mode will be displayed.
2. During defrosting, “dual-8” will display “H”.
3. “Dual-8” displays setting temperature.

➢Display of Operation Icon and Mode Icon
After energization, all the icons will be displayed for once. In standby status, the operation indicator will be in red. If turn on the unit by remote controller, the operating indication icon will be bright. Meanwhile, the current setting operation mode will be displayed (mode indicator: cooling indicator, heating indicator, dry indicator). If turn off the light button, all displays will be turned off.

➢Temperature display control mode for split type unit
1. When user set the remote controller as the setting temperature display status, the current setting temperature will be displayed on remote controller.
2. Only when the remote control signal is switched to indoor ambient temperature display status from other display status, controller will display the indoor ambient temperature for 5s and then turn back to display the setting temperature.
3. When user hasnt set the temperature displaying status, it will be displayed according to the setting temperature.

(2)Malfunction Display of Indoor Unit

OPERATION

18-24k Sequence of Operation

When multiple malfunctions occurred simultaneously, malfunction protection codes will be displayed in cycle.

3.Other Control Target

(1) Up&down swing function: the mode for swing motor is MP28VB.

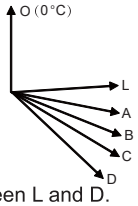
After energization, up & down swing motor will firstly let the horizontal louver anticlockwise rotate to position 0 to close air outlet.

If swing function has not been set after startup of the unit, up & down horizontal louver will clockwise turn to position D in HEAT mode, or clockwise turn to level position L in other modes.

If setting swing function while starting up the unit, the horizontal louver will swing between L and D.

There are 7 kinds of swing status of horizontal louver: Positions L, A, B, C and D, swing between L and D and stop at any position between L and D.

Upon turning off the unit, the horizontal louver will close at position 0. Swing function is available only when swing function set and indoor fan is operating.



Note: If the position is set between L and B, A and C or B and D by remote controller, the horizontal louver will swing between L and D.

L----A----B----C----D

(2) Buzzer

Upon energization and operation, the buzzer will give out sound.

(3) Auto Button

After pressing this button, the unit will operate in auto mode. Indoor fan will operate at auto fan speed and swing motor will operate. Press this button again to turn off the unit. The complete unit is energized when pressing the button and the complete unit will enter into fast testing status. After energization, if its detected that the auto button is pressed down and the complete unit is at fast testing status, the fast testing status will be exited.

(4) Sleep Function

This mode is only valid in cooling and heating mode. The unit will select the appropriate sleeping curve to operate according to the different setting temperature.

During cooling mode:

(1) When the initial temperature is set as 60.8~73.4°F, after starting up the sleep function, the temperature will increase by 1.8°F every hour.

After the temperature has increased by 4°F, the unit will keep this temperature. When the unit has operated for 7 hours, the temperature will decrease by 1.8°F and then the unit will operate at this temperature all the time;

(2) When the initial temperature is set as 75.2~80.6°F, after starting up the sleep function, the temperature will increase by 1.8 °F every one hour.

After the temperature has increased by 3.6°F, the unit will keep this temperature. When the unit has operated for 7 hours, the temperature will decrease by 1.8 °F and then the unit will operate at this temperature all the time;

(3) When the initial temperature is set as 82.4~84.2°F, after starting up the sleep function, the temperature will increase by 1.8 °F every one hour.

After the temperature has increased by 1.8°F, the unit will keep this temperature. When the unit has operated for 7 hours, the temperature will decrease by 1.8°F and then the unit will operate at this temperature all the time;

(4) When the initial temperature is set as 86°F, the unit will operate at this temperature. After the unit has operate for 7hours, the temperature will decrease by 1.8°F and then the unit will operate at this temperature all the time.

During Heating Mode:

(1) When the initial temperature is set at 61°F, the unit will operate at this temperature all the time;

(2)When the initial temperature is set as 17~20°F, after starting up the sleep function, the temperature will decrease by 1.8 °F every one hour.

After the temperature is decreased by 1.8 °F, the unit will operate at this temperature;

(3)When the initial temperature is set as 62.6~80.6°F, after starting up the sleep function, the temperature will decrease by 1.8°F every one hour.

After the temperature is decreased by °F, the unit will operate at this temperature;

(4)When the initial temperature is set as 82.4~86°F, after starting up the sleep function, the temperature will decrease by 1.8 °F every one hour.

After the temperature is decreased by 5.4 °F, the unit will operate at this temperature;

General timer and clock timer functions are compatible by equipping different functions of remote controller.

(5) Timer Function

General timer and clock timer functions are compatible by equipping different functions of remote controller.

General timer:

Timer ON

If timer ON is set during operation of the unit, the unit will continue to operate. If timer ON is set at unit OFF, upon ON time reaches the unit will start to operate according to previous setting status.

Timer OFF

If timer OFF is set at unit OFF, the system will keep standby status. If timer OFF is set at unit ON, upon OFF time reaches the unit will stop operation.

OPERATION

18-24k Sequence of Operation

(6) Blow Function

Blow function can be set in cooling and dry mode.

(7) Indoor Fan Control

Indoor fan can be set at super-high, high, medium or low. Meanwhile, the fan will operate at super-high, high, medium and low fan speed respectively and it can also set at auto fan speed.

(8) Memory Function

Memory content includes mode, up & down swing, light, set temperature and set fan speed, general timer (clock timer cant be memorized), Upon power failure, the unit after power recovery will automatically start operation according to memorized content. The unit, without timer setting before power failure, will operate according to the last setting after power recovery. The unit, with general timer setting which has not been fulfilled before power failure, will memorize the time setting and re-calculate the time after power recovery. If there is timer function in the last remote controller command but setting time has reached, the system will act as timer on/off setting before power failure. After power failure, the system memorizes the operation states before power failure without timer action. Clock timer can not be memorized.

(9) Locked protection to PG motor

If the indoor fan motors rotational speed after startup keeps slow for a continuous period of time, the unit will stop operation and display “H6”.

(10)Turbo Function

This function can be set in cooling or heating mode to quickly cool or heat the room(Turbo function is not available in auto, dry and fan mode). After pressing the turbo button, indoor fan will operate at super-high fan speed.

5. Malfunction Detection for Temperature sensor

(1) Indoor ambient temperature sensor:

Malfunction of temperature sensor will be detected at any time;

(2) Indoor tube temperature sensor

Malfunction of temperature sensor wont be detected during defrosting period. It starts detecting the malfunction of temperature sensor after defrosting is finished for 5 mins. Malfunction of temperature sensor will be detected at any other time.

(3) Protection of temperature sensor

1. When the temperature sensor is detected short circuit for 30s successively:

The detected temperature by the temperature sensor is too high and the complete unit will stop operation, meanwhile, the protection and malfunction of temperature sensor will be displayed accordingly.

2. When the temperature sensor is detected open circuit for 30s successively: The unit will stop operation due to protection and the corresponding malfunction of temperature sensor will be displayed directly.

6. Refrigerant Recovery Function (applicable when changing installation location or in maintenance)

(1) Enter refrigerant recovery function

Within 5min after energizing(unit ON or OFF status is ok),continuously press LIGHT button for 3 times within 3s to enter refrigerant recycling mode; Fo is displayed and refrigerant recycling function is started. At this moment, the maintenance people closs liquid valve. After 5min, stick the thimble of maintenance valve with a tool. If there is no refrigerant spraying out, close the gas valve immediately and then turn off the unit to remove the connection pipe.

(2) Exit refrigerant recovery function

After entering refrigerant recycling mode, when receive any remote control signal or enter refrigerant recycling mode for 25min, the unit will exit refrigerant recycling mode automatically if the unit is in standby mode before refrigerant recycling, it will be still in standby mode after finishing refrigerant recycling; if the unit is in ON status before refrigerant recycling, it will still run in original operation mode.

7.Compulsory Defrosting Function

(1) Start up compulsory defrosting function

Under ON status, set heating mode with remote controller and adjust the temperature to 61°F. Press “+, -, +, -, +,-” button successively within 5s and the complete unit will enter into compulsory defrosting status. Meanwhile, the defrosting code H1 will be displayed. (Note: If complete unit has malfunction or stops operation due to protection, compulsory defrosting function can be started up after malfunction or protection is resumed.

(2) Exit compulsory defrosting mode

After compulsory defrosting is started up, the complete unit will exit defrosting operation according to the actual defrosting result, and the complete unit will resume normal heating operation.

Outdoor Unit

1. Input Parameter Compensation and Calibration

(1) Check the input parameter compensation function

As the instruction feature of split unit, concerning the comfortable, in heating mode, the indoor ambient temperature of compressor stopping time is higher than preset temperature.

(2) Check effective judgment controls of parameters

Effective judgment function of the outdoor exhaust temperature thermo-bulb

When conditions a and b are satisfied, the outdoor exhaust temperature thermo-bulb is judged not to be connected into place, the

mainboard of outer units will display failure of the outdoor exhaust temperature thermo-bulb (not connected into place), stop the unit for repairing, and resume it by remote controls of ON/OFF.

2. Basic Functions

(1) Cooling Mode

1. Conditions and processes of cooling operation:

(1) If the compressor is stop, and [T_{preset} – ($T_{indoor\ ambient}$ – $\Delta T_{cooling\ indoor\ ambient\ temperature\ compensation}$)] ≤ 1°F, start up the unit for cooling, and start to cooling operation;

(2) During operations of cooling, if 0°F ≤ [T_{preset} – ($T_{indoor\ ambient}$ –$\Delta T_{cooling\ indoor\ ambient\ temperature\ compensation}$)] < 3.6°F, the cooling operation will be still running;

(3) During operations of cooling, if 0°F ≤ [T_{preset} – ($T_{indoor\ ambient}$ –$\Delta T_{cooling\ indoor\ ambient\ temperature\ compensation}$)], the cooling operation will stop after reaching to the temperature point.

2. Temperature setting range

(1) If $T_{outdoor\ ambient}$ ≥ [$T_{low\text{-}temperature\ cooling}$], the temperature can be set at: 61~86°F (Cooling at room temperature);

(2) If $T_{outdoor\ ambient}$ < [$T_{low\text{-}temperature\ cooling}$], the temperature can be set at: 77~86°F (Cooling at low temperature), that is, the minimum setting temperature for outdoor unit judgment is 77°F.

(2) Dry Mode

1. Conditions and processes of dry operations: Same as the cooling mode;
2. The temperature setting range is: 61~86°F;

(3) Fan Mode

1. The compressor, outdoor fan and four-way valve are switched off;
2. The temperature setting range is: 61~86°F.

(4) Heating Mode

1. Conditions and processes of heating operations: ($T_{indoor\ ambient}$ is the actual detection temperature of indoor environment thermo-bulb, $\Delta T_{heating\ indoor\ ambient\ temperature\ compensation}$ is the indoor ambient temperature compensation during heating operations)

(1) If the compressor is stop, and [($T_{indoor\ ambient}$ –$\Delta T_{heating\ indoor\ ambient\ temperature\ compensation}$) –$T_{preset}$] ≤ 1°F, start the machine to enter into heating operations for heating;

(2) During operations of heating, if 0°F ≤ [($T_{indoor\ ambient}$ –$\Delta T_{heating\ indoor\ ambient\ temperature\ compensation}$) –$T_{preset}$] < 3.6°F, the heating operation will be still running;

(3) During operations of heating, if 3.6°F ≤ [($T_{indoor\ ambient}$ –$\Delta T_{heating\ indoor\ ambient\ temperature\ compensation}$) –$T_{preset}$], the heating operation will stop after reaching the temperature point.

2. The temperature setting range in this mode is: 61~86°F.

(5) Defrosting Control

1. After the time for defrosting is judged to be satisfied, if the temperature for defrosting is satisfied after detections for continuous 3minutes, the defrosting operation will start.
2. Start to defrost: Compressor stops and starts up 55S later;
3. Defrosting finish: Compressor stops and starts up 55S later;
4. Conditions of finishing defrosting

The defrosting operation can exit when any of the conditions below is satisfied:

(1) $T_{outdoor\ pipe}$≥ 53.6°F;

(2) $T_{outdoor\ ambient}$<23°F, and the $T_{outdoor\ pipe}$≥ 42.8°F last more than 80S;

(3) The continuous running time of defrosting reaches to 8min.

(6) Compressor Control

1. The frequency of compressor will be controlled with the relationship of ambient temperature and preset temperature and changing speed of ambient temperature;
2. Start the compressor after starting cooling, heating, dry operations, and the outdoor fan start for 5s;
3. When the unit is off, in safety stops and switching to fan mode, the compressor will stop immediately;
4. In all modes: once the compressor starts up, it will not be allowed to stop until having run for the [$T_{min.\ Compressor\ running\ time}$] (Note: including cases of shutdown when the temperature point is reached; except the cases requiring stopping the compressor such as fault protection, remote shutdown, mode switching etc.);
5. In all modes: once the compressor stops, it will be allowed be restart after 3-minute delay (Note: The indoor units have a function of power memory, the machine can be restarted after remote shutdown and powering up again without delay).

(7) Outdoor Fan Control

1. When the unit is off by remote control, in safety stops and stop after reaching to the temperature point.
2. In fan mode: The outdoor fan stops;
3. Start to defrost: Outdoor fan will stop after compressor stops for 50S;
4. Defrosting finish: Outdoor fan will start up when the compressor is stopping.

OPERATION
18-24k Sequence of Operation

(8) 4-way valve control

1. The 4-way valve control under the modes of Cooling, dehumidification and fan: closing;
2. When the unit is on in heating mode, the 4-way valve is energized;
3. When the unit is on in heating mode and heating mode shift to other modes, the 4-way valve will be de-energized after compressor stops for 2min;
4. After protection stops, the 4-way valve will be de-energized after 4min;
5. Start to defrost: The power of 4-way valve will be de-energized after the compressor stops;
6. Defrosting finish: The 4-way valve will be energized after the compressor stops.

(9) Current protection

1. If 12A≤$I_{\text{alternating-current}}$, running frequency of compressor will be decreased or stop to increase will be occurred;
2. If 17A≤$I_{\text{alternating-current}}$, the unit will stop; and compressor has stopped for 3min, the unit will resume running;
3. If the unit stops as compressor discharge temperature for 6 times, it can not resume running automatically and display malfunction, it can resume by pressing ON/OFF. During operation, if the time exceeds compressor running time, the time of compressor discharge temperature stop will zero clearing.

(10) Drop off voltage

During compressor operation, the system will stop and malfunction of drop off voltage if voltage downward fluctuates rapidly, and it will re-start up automatically 3min later.

(11) Communication malfunction

If the unit does not receive correct signal from indoor unit for 3min continuously, the unit will stop as communication malfunction protection; if communication malfunction resume and compressor has stopped for 3min, the unit will resume running.

(12) IPM module protection

When the compressor starts, if there is overcurrent or control voltage low for IPM module as some abnormal results, IPM will detect module protection signal as the unit is on. Once the module protective signal is detected, stop the unit with module protection immediately. If the module protection is resumed and compressor has stopped for 3min, the unit will be allowed to operate. If the module protection continuously occurs for three times, it should not be resumed automatically, and you should press the ON/OFF button to resume. If the running time of compressor exceeds the [$t_{\text{Protection times clearing of module}}$], the module protection is cleared to recount.

(13) Compressor overload protection

1. If the switch of compressor overload de-energized is detected for 3S continuously, the system will stop as protection;
2. If the overload protection is resumed and compressor has stopped for 3min, the unit will be allowed to operate.
3. If the unit stops as compressor overload protection occurred for 3 times continuously, it can not resume running automatically and display malfunction, it can resume by pressing ON/OFF; and the times of compressor overload protection will be cleared after the compressor has run for 30min.

OPERATION

36k Sequence of Operation

1. Temperature Parameters

Indoor preset temperature(Tpreset)

Indoor ambient temperature (Tamb.)

2. Basic Functions

Once energized, in no case should the compressor be restarted within less than 3 minutes. In the situation that memory function is available, for the first energization, if the compressor is at stop before de-energization, the compressor will be started withouta 3-minute lag; if the compressor is in operation before de-energization, the compressor will be started with a 3-minute lag; andonce started, the compressor will not be stopped within 6 minutes regardless of changes in room temperature;

(1) Cooling Mode

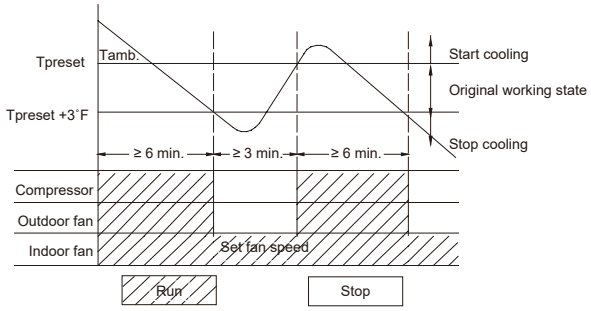
① Working conditions and process of cooling

When Tamb. ≥ Tpreset, the unit will enter cooling operation, in which case the indoor fan, the outdoor fan and the compressor willwork and the indoor fan will run at preset speed.

When Tamb. ≤ Tpreset -3.6°F, the compressor will stop, the outdoor fan will stop with a time lag of 60s, and the indoor fan will run atpreset speed.

When Tpreset-3.6°F < Tamb.< Tpreset+1.8°F, the unit will remain at its previous state.

Under this mode, the four-way valve will be de-energized and temperature can be set within a range from 61°F~86°F. If the compressor is shut down for some reason, the indoor fan and the swing device will operate at original state.



② Protection

Antifreeze protection

Under cooling and dehumidifying mode, 6 minutes after the compressor is started:

If Tevap ≤ 35.6°F, the compressor will operate at reduced frequency.

If Tevap ≤ 30.2°F is detected for durative 3 minutes, the compressor will stop, and after 60 seconds, the outdoor fan will stop;and under cooling mode, the indoor fan and the swing motor will remain at the original state.

If Tevap. ≥ 42.8°F and the compressor has remained at OFF for at least 3 minutes, the compressor will resume its original operation state.

Total current up and frequency down protection

If I_{total} ≤ 16A, frequency rise will be allowed; if I_{total} ≥ 17A, frequency rise will not be allowed; if I_{total} ≥ 18A, the compressor will run at reduced frequency; and if I_{total} ≥ 20A, the compressor will stop and the outdoor fan will stop with a time lag of 60s.

(2) Dehumidifying Mode

① Working conditions and process of dehumidifying

If Tamb. > Tpreset+1.8°F, the unit will enter cooling and dehumidifying mode, in which case the compressor and the outdoor fan will operate and the indoor fan will run at low speed.

If Tpreset -3.6°F ≤ Tamb. ≤ Tpreset+1.8°F, the compressor remains at its original operation state.

If Tamb.< Tpreset-3.6°F , the compressor will stop, the outdoor fan will stop with a time lag of 60s, and the indoor fan will operate at low speed.

② Protection

Protection is the same as that under the cooling mode.

(3) Heating Mode

① Working conditions and process of heating

If Tamb. ≤ Tpreset+3.6°F, the unit enters heating mode, in which case the four-way valve, the compressor and the outdoor fan willoperate simultaneously, and the indoor fan will run at preset speed in the condition of preset cold air prevention.

If Tamb. ≥ Tpreset+9°F, the compressor will stop, the outdoor fan will stop with a time lag of 60s, and the indoor fan will stop after 60-second blow at low speed.

If Tpreset+3.6°F < Tamb. < Tpreset+9°F, the unit will maintain its original operating status.

Under this mode, the four-way valve is energized and temperature can be set within a range of 61°F~86°F. The operatingsymbol, the heating symbol and preset temperature are revealed on the display.

② Condition and process of defrost

OPERATION

36k Sequence of Operation

When duration of successive heating operation is more than 45 minutes, or accumulated heating time more than 90 minutes, andone of the following conditions is reached, the unit will enter the defrost mode after 3 minutes.

a. Toutdoor amb. ≥ 41°F, Toutdoor pipe ≤ 28.4°F; b. 28.4°F ≤ Toutdoor amb.

c. 23.4°F < Toutdoor amb. ≤ 28.4°F, Toutdoor pipe ≤ 17.6°F;

d. 14°F < Toutdoor amb. < 23°F, Toutdoor pipe- Tcompensation ≤ Toutdoor amb.-5.4°F;

e. Toutdoor amb. < 14°F, Toutdoor pipe- Tcompensation ≤ Toutdoor amb.-5.4°F;

After energization, when defrosting for the first time Tcompensation=0°F. If it is not the firstly time for defrosting, the Tcompensation is determined by the Toutdoor pipe of last time quitting defrosting.

a. Toutdoor pipe > 35.6°F, Tcompensation=0°F; b. Toutdoor pipe ≤ 35.6°F, Tcompensation=5.4°F.

At that time, the indoor fan stops and the compressor stops, and after 60 seconds the outer fan will stop, and then after 30seconds, the four-way valve will stop. After 30 seconds, the compressor is initiated for raising the frequency to defrost frequency.

When the compressor has operated under defrost mode for 10 minutes, or Touter tube ≥ 50°F, the compressor will be converted to 46Hz operation.After 30 seconds, the compressor will stop. And after another 30 seconds, the four-way valve will be opened, and after60 seconds, the compressor and the outer fan will be started, the indoor fan will run under preset cold air prevention conditions,and H1 will be displayed at temperature display area on the display panel. Defrost frequency is 70 Hz.

3.Protection

Cold air prevention

The unit is started under heating mode (the compressor is ON):

① In the case of Tindoor amb. < 75°F: if T tube ≤ 104°F and the indoor fan is at stop state, the indoor fan will begin to run at low speed witha time lag of 2 minutes. Within 2 minutes, if T tube > 104°F, the indoor fan also will run at low speed; and after 1 minute operation atlow speed, the indoor fan will be converted to operation at preset speed. Within 1 minute low speed operation or 2 minute non-operation, if T tube > 108°F, the fan will run at present speed.

② In the case of Tindoor amb. < 75°F: if Ttube ≤ 108°F, the indoor fan will run at low speed, and after one minute, the indoor fan will beconverted to preset speed. Within 1 minute low speed operation, if Ttube > 104°F, the indoor fan will be converted to preset speed.Note: Tindoor amb. indicated in ① and ② refers to, under initially heating mode, the indoor ambient temperature before the command to start the compressor is performed according to the program, or after the unit is withdrawn from defrost, the indoor ambient temperature before the defrost symbol is cleared.

Total current up and frequency down protection

If the total current I_{total} ≤ 16A, frequency rise will be allowed; if I_{total} ≥ 17A,frequency rise will not be allowed; if Itotal18A,the compressorwill run at reduced frequency; and if Itotal20A, the compressor will stop and the outdoor fan will stop with a time lag of 60s.

(4) Fan Mode

Under the mode, the indoor fan will run at preset speed and the compressor, the outdoor fan, the four-way valve and the electricheater will stop.

Under the mode, temperature can be set within a range of 61°F~86°F.

(5) AUTO Mode

① Working conditions and process of AUTO mode

Under AUTO mode, standard cooling temperature Tpreset is 77°F and standard heating temperature Tpreset is 68°F.

a. Once energized, if Tamb. ≤ 71.6°F, the unit will be started under heating mode; if 71.6°F < Tamb.< 78.8°F, the unit will run under fanmode and the run indicator will be bright; and if Tamb. ≥ 78.8°F, the unit will be started under cooling mode.

b.Under AUTO mode,if Tamb. ≥ Tpreset +1.8ºF is detected,the unit will select to run under cooling mode,in which case implicit presettemperature is 77°F; if Tamb. ≤ Tpreset-1.8°F, the compressor will stop, the outdoor fan will stop with a time lag of 1 minute, andtheindoor fan will run at preset speed; and if Tpreset-1.8°F < Tamb. < Tpreset+1.8ºF, the unit will remain at its original state.

c.Under AUTO mode, if Tamb. ≤ Tpreset+3.6°F is detected, the unit will select to run under heating mode, in which case implicit preset temperature is 64°F; if Tamb. ≥ Tpreset+9°F, the compressor will stop, the outdoor fan will stop with a time lag of 1 minute,and the indoor fan will run under the mode of residue heat blowing; and if Tpreset+3.6°F < Tamb.< Tpreset+41°F, the unit will remainatits original state. The cooling-only unit will run under fan mode.

d.Under AUTO mode, if 71.6°F < Tamb.< 78.8°F, the unit will remain at its original state.

② Protection

a. In cooling operation, protection is the same as that under the cooling mode;

b. In heating operation, protection is the same as that under the heating mode;

c. When ambient temperature changes, operation mode will be converted preferentially. Once started, the compressor willremain unchanged for at least 6 minutes.

(6) Common Protection Functions and Fault Display under COOL, HEAT, DRY and AUTO Modes

① Overload protection

Ttube:measured temperature of outdoor heat exchanger under cooling mode; and measured temperature of indoor heat ex-changer under heating mode.

1) Cooling overloada.

a. If Ttube ≤ 126°F, the unit will return to its original operation state.

b. If Ttube ≥ 131°F, frequency rise is not allowed.

OPERATION

36k Sequence of Operation

c. If Ttube ≥ 136°F, the compressor will run at reduced frequency.

d. If Ttube ≥ 144°F, the compressor will stop and the indoor fan will run at preset speed.

2) Heating overload

a. If Ttube ≤ 126°F, the unit will return to its original operation state.

b. If Ttube ≥ 131°F, frequency rise is not allowed.

c. If Ttube ≥ 136°F, the compressor will run at reduced frequency.

d. If Ttube ≥ 144°F,the compressor will stop and the indoor fan will blow residue heat and then stop.

② Exhaust temperature protection of compressor

If exhaust temperature ≥ 208°F, frequency is not allowed to rise.

If exhaust temperature ≥ 217°F, the compressor will run at reduced frequency.

If exhaust temperature ≥ 230°F, the compressor will stop.

If exhaust temperature ≤ 194°F, the compressor has stayed at stop for at least 3 minutes, the compressor will resume itsoperation.

③ Communication fault

If the unit fails to receive correct signals for durative 3 minutes, communication fault can be justified and the whole system will stop.

④ Module protection

Under module protection mode, the compressor will stop. When the compressor remains at stop for at least 3 minutes, thecompressor will resume its operation. If module protection occurs six times in succession, the compressor will not be startedagain.

⑤ Overload protection

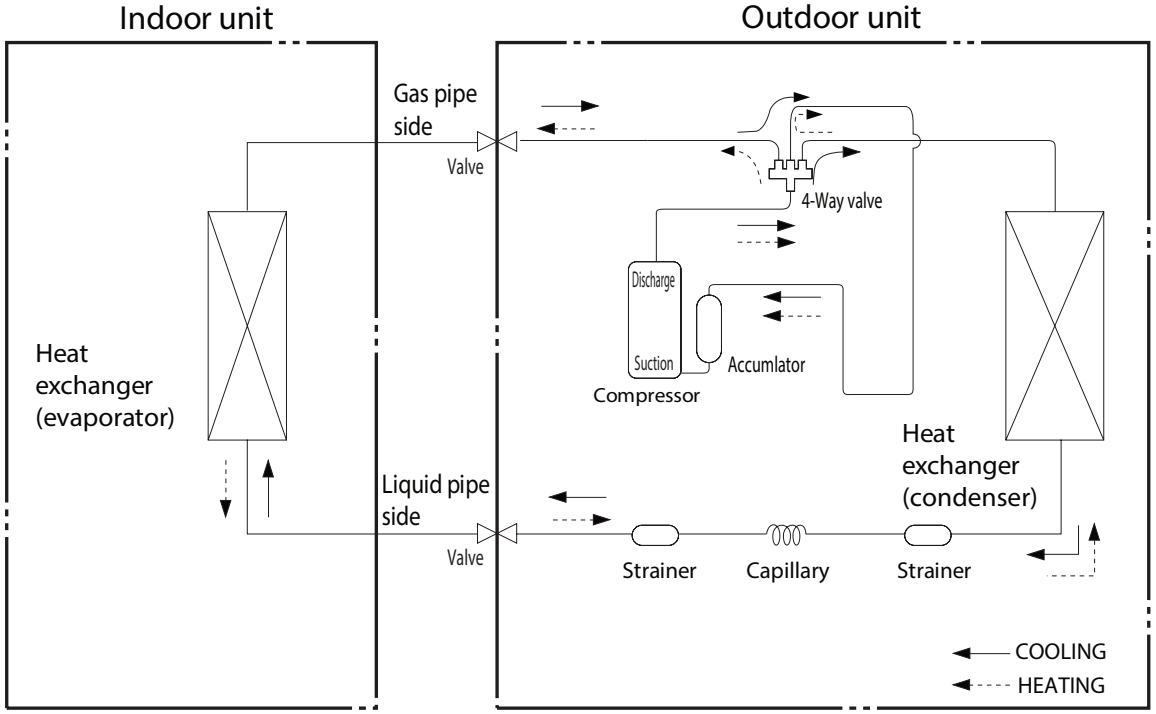
If temperature sensed by the overload sensor is over 239°F, the compressor will stop and the outdoor fan will stop with atime lag of 30 seconds. If temperature is below 203°F, the overload protection will be relieved.

If voltage on the DC bus is below 150V or over 420V, the compressor will stop and the outdoor fan will stop with a timelag of 30 seconds. When voltage on the DC bus returns to its normal value and the compressor has stayed at stop for at least3 minutes, the compressor will resume its operation.

⑥ Faults of temperature sensors

Diagostic code	Designation of Sensors	Faults
F1	Indoor ambient temperature	The sensor is detected to be open-circuited or short-circuited for successive 5 seconds
F2	Indoor tube temperature	The sensor is dected to be open-circuited or short-circuited for succesive 5 seconds
F3	Outdoor ambient temperature	The sensor is detected to be open-circuited or short-circuited for successive 30 seconds
F4	Outdoor tube temperature	The sensor is detected to be open-circuited or short circuited for successive 30 seconds, and no detection is performed is performed within 10 minutes after defrost begins
F5	Exhaust	After the compressor has operated for 3 minutes, the sensor is detected to be open circuited or short circuited for 30 successive seconds
F6	Overload	After the compresor has operated for 3 minutes, the sensor is detected to be open circuited or short circuited for 30 successive seconds.

OPERATION



Refrigerant pipe diameter
Liquid :1/4" Gas : 3/8"

Figure 302

9-12K Refrigerant System Diagram

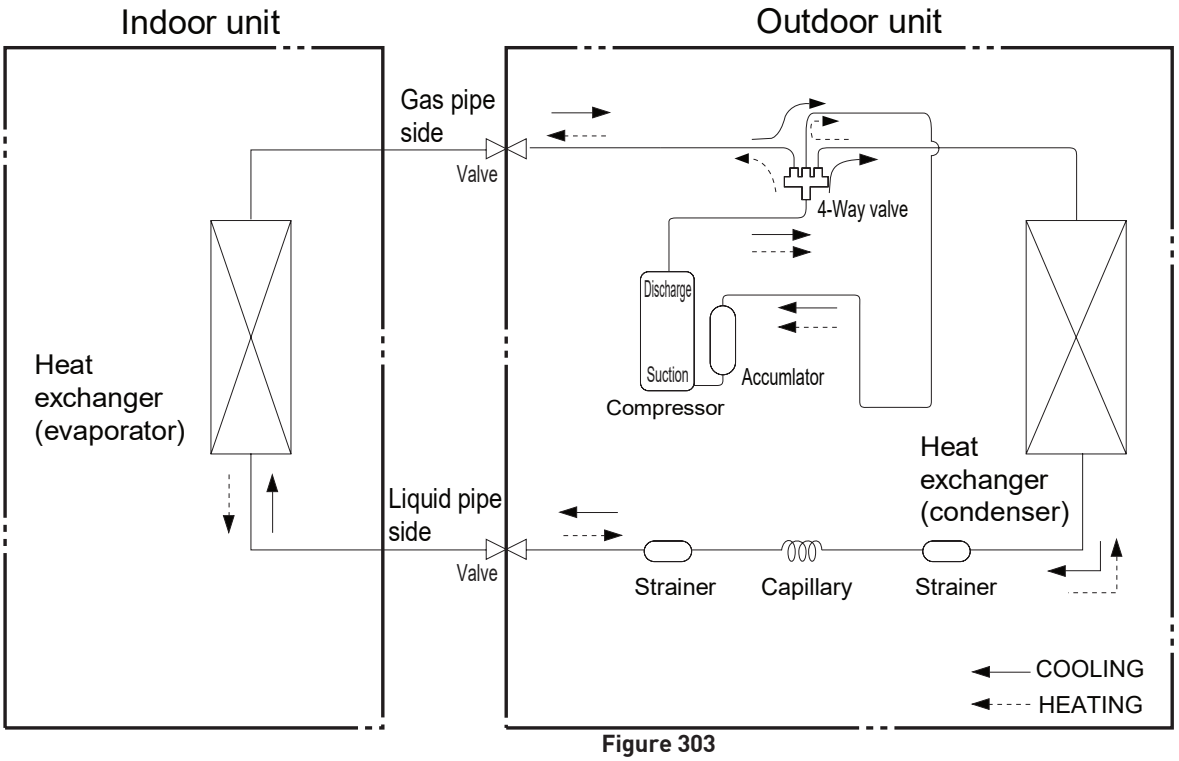


Figure 303

18K Refrigerant System Diagram

OPERATION

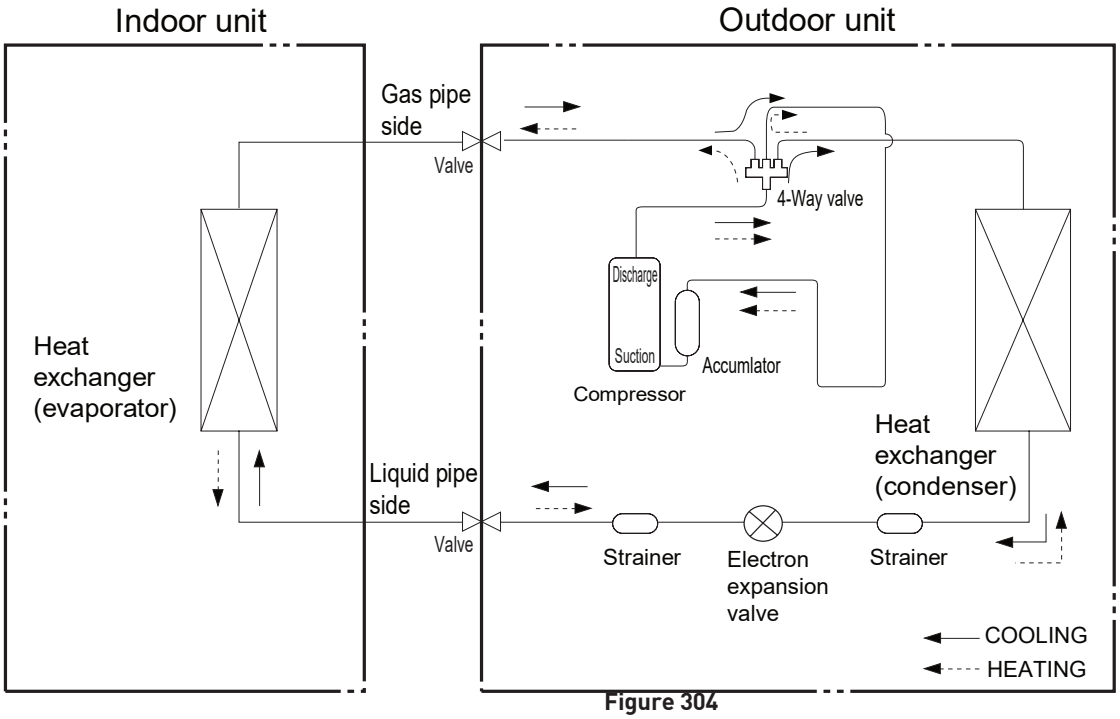
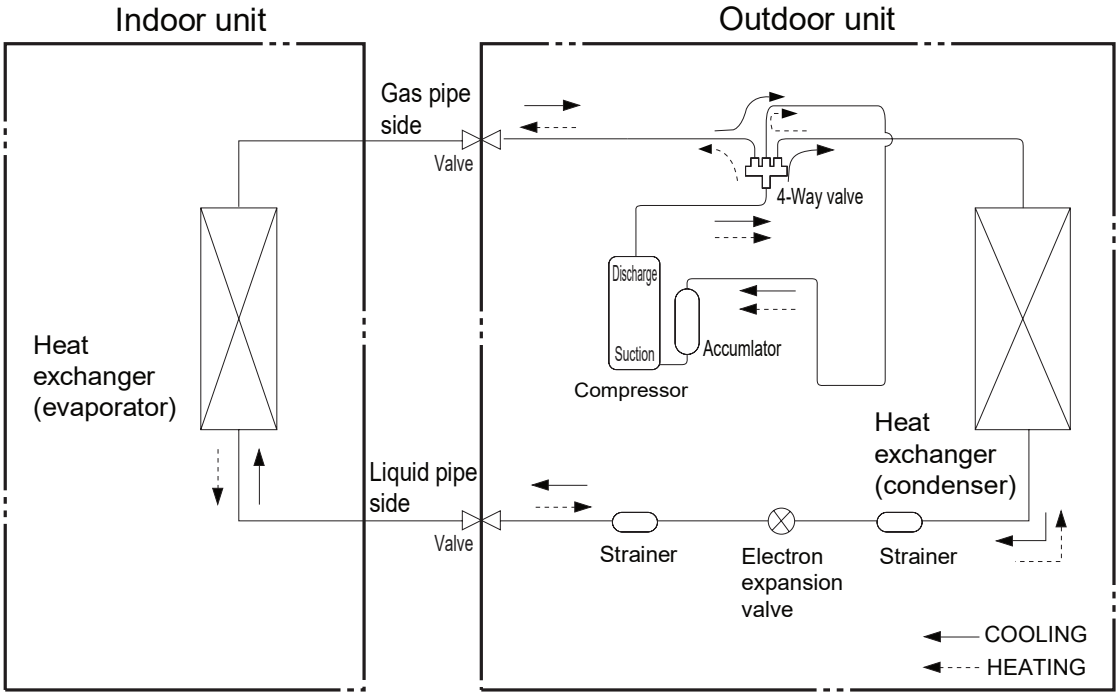


Figure 304

24K Refrigerant System Diagram

Cooling and heating model



Connection pipe specification:

Liquid pipe:Φ1/4 inch

Gas pipe:Φ5/8 inch

Figure 305

36K Refrigerant System Diagram

INSTALLATION

Safety Precautions: Important!

Please read the safety precautions carefully before installation and maintenance.
The following contents are very important for installation and maintenance.

Please follow the instructions below.

●The installation or maintenance must accord with the instructions.
●Comply with all national electrical codes and local electrical codes.
●Pay attention to the warnings and cautions in this manual.
●All installation and maintenance shall be performed by distributor or qualified person.
●All electric work must be performed by a licensed technician according to local regulations and the instructions given in this manual.
●Be caution during installation and maintenance. Prohibit incorrect operation to prevent electric shock, casualty and other accidents.

Warnings

Electrical Safety Precautions:

1. Cut off the power supply of air conditioner before checking and maintenance.
2. The air condition must apply specialized circuit and prohibit share the same circuit with other appliances.
3. The air conditioner should be installed in suitable location and ensure the power plug is touchable.
4. Make sure each wiring terminal is connected firmly during installation and maintenance.
5. Have the unit adequately grounded. The grounding wire can't be used for other purposes.
6. Must apply protective accessories such as protective boards, cable-cross loop and wire clip.
7. The live wire, neutral wire and grounding wire of power supply must be corresponding to the live wire, neutral wire and grounding wire of the air conditioner.
8. The power cord and power connection wires can't be pressed by hard objects.
9. If power cord or connection wire is broken, it must be replaced by a qualified person.
10. If the power cord or connection wire is not long enough, please get the specialized power cord or connection wire from the manufacture or distributor. Prohibit prolong the wire by yourself.
11. For the air conditioner without plug, an air switch must be installed in the circuit. The air switch should be all-pole parting and the contact parting distance should be more than 1/8 inch.
12. Make sure all wires and pipes are connected properly and the valves are opened before energizing.
13. Check if there is electric leakage on the unit body. If yes, please eliminate the electric leakage.
14. Replace the fuse with a new one of the same specification if it is burnt down; don't replace it with a cooper wire or conducting wire.
15. If the unit is to be installed in a humid place, the circuit breaker must be installed.

Installation Safety Precautions:

1. Select the installation location according to the requirement of this manual.(See the requirements in installation part)
2. Handle unit transportation with care; the unit should not be carried by only one person if it is more than 44.09lb.
3. When installing the indoor unit and outdoor unit, a sufficient fixing bolt must be installed; make sure the installation support is firm.
4. Ware safety belt if the height of working is above 78 3/4 inch.
5. Use equipped components or appointed components during installation.
6. Make sure no foreign objects are left in the unit after finishing installation.

Refrigerant Safety Precautions:

1. Avoid contact between refrigerant and fire as it generates poisonous gas; Prohibit prolong the connection pipe by welding.
2. Apply specified refrigerant only. Never have it mixed with any other refrigerant. Never have air remain in the refrigerant line as it may lead to rupture or other hazards.
3. Make sure no refrigerant gas is leaking out when installation is completed.
4. If there is refrigerant leakage, please take sufficient measure to minimize the density of refrigerant.
5. Never touch the refrigerant piping or compressor without wearing glove to avoid scald or frostbite.

Improper installation may lead to fire hazard, explosion, electric shock or injury.

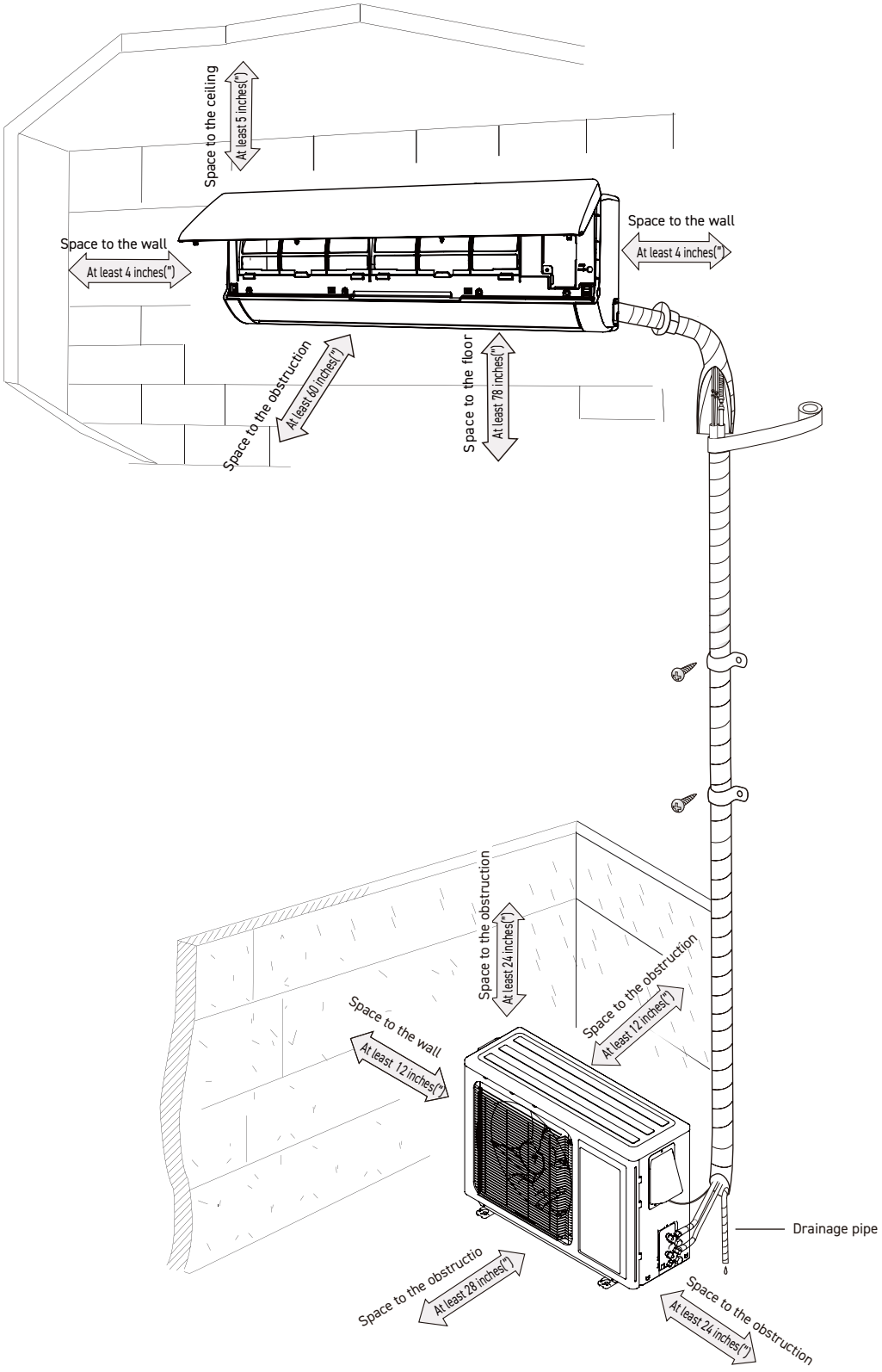
INSTALLATION

Installation Tools

1. Level meter, measuring tape 	2. Screw driver 	3. Impact drill, drill head, electric drill 
4. Electroprobe 	5. Universal meter 	6. Torque wrench, open-end wrench, inner hexagon spanner 
7. Electronic leakage detector 	8. Vacuum pump 	9. Pressure meter 
10. Pipe pliers, pipe cutter   	11. Pipe expander, pipe bender  	12. Soldering appliance, refrigerant container  

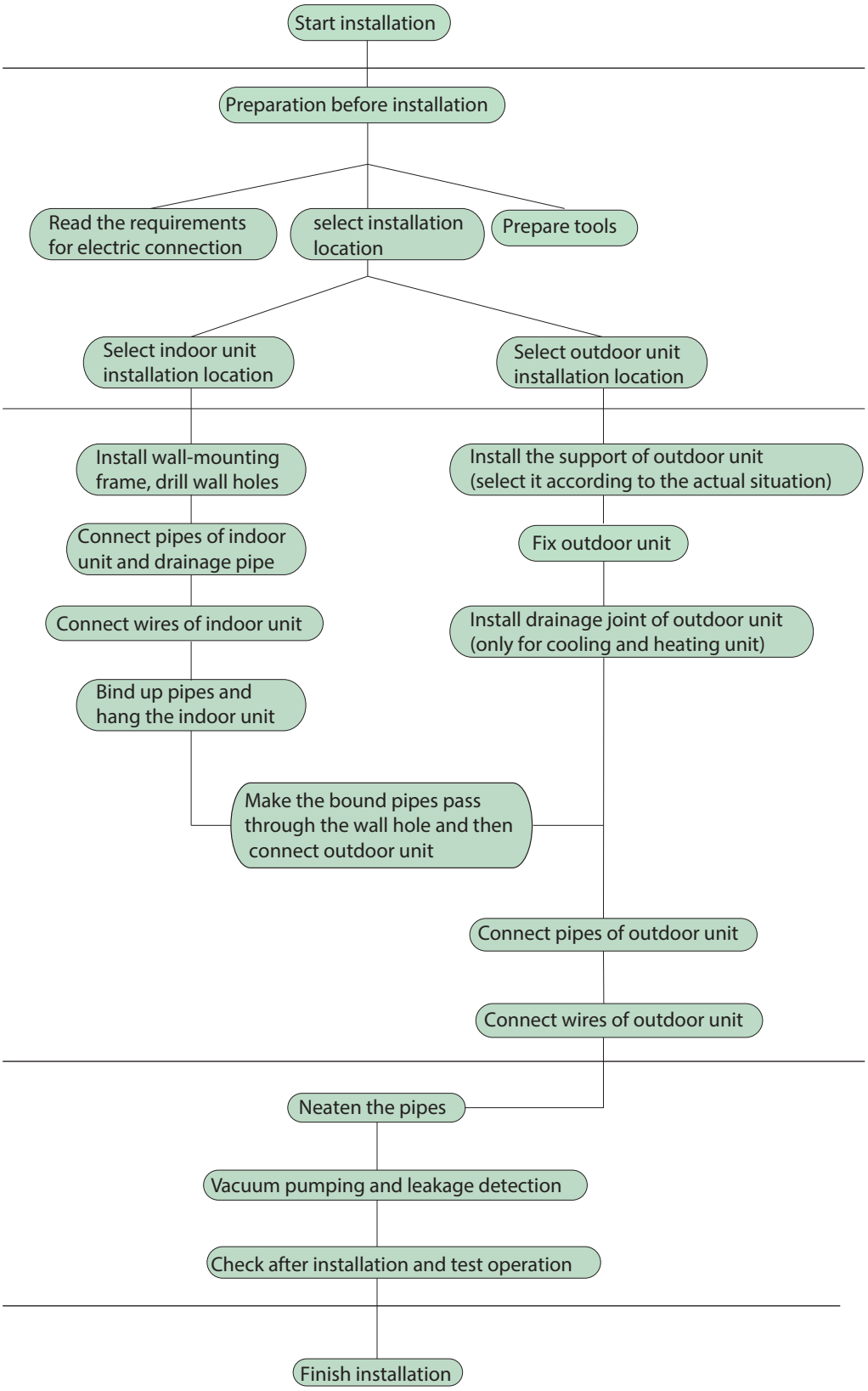
INSTALLATION

Installation Dimension Diagram



INSTALLATION

Installation Work Flow



INSTALLATION

Installation Parts Checklist

1. Indoor Unit
2. Outdoor Unit
3. Connection Pipe
4. Drainage pipe
5. Wall Mounting Frame
6. Connecting Cable (power cord)
7. Wall Pipe
8. Sealing gim
9. Wrapping Tape
10. Outdoor unit support
11. Fixing screw
12. Drainage plug (cooling and heating unit)
13. Owner's Manual
14. Remote Control

Selection of Installation Location

Basic Requirement

Installing the unit in the following places may cause malfunction. If it is unavoidable, please consult the local dealer:

1. Places with strong heat sources, vapors, flammable or explosive gas, or volatile objects spread in the air.
2. Places with high-frequency devices (such as welding machine, medical equipment).
3. Places with oil or fumes in the air.
4. Places with sulfureted gas.

Indoor Unit

1. There should be no obstruction near air inlet and air outlet.
2. Select a location where the condensation water can be dispersed easily and won't affect other people.
3. Select a location which is convenient to connect the outdoor unit and near the power socket.
4. Select a location which is out of reach for children.
5. The location should be able to withstand the weight of indoor unit and won't increase noise and vibration.
6. The appliance must be installed 78 inches above the floor.
7. Don't install the indoor unit right above electric appliances.
8. The appliance shall not be installed in the laundry.

INSTALLATION

Outdoor Unit

1. Select a location where the noise and outflow air emitted by the outdoor unit will not affect neighborhood.
2. The location should be well ventilated and dry, in which the outdoor unit won't be exposed directly to sunlight or strong wind.
3. The location should be able to withstand the weight of outdoor unit.
4. Make sure that the installation follows the requirement of installation dimension diagram.
5. Select a location which is out of reach for children and far away from animals or plants.If it is unavoidable, please add fence for safety purpose.

Electrical connection Requirements

Safety Precaution

1. Must follow the electric safety regulations when installing the unit.
2. According to the local safety regulations, use qualified power supply circuit and air switch.
3. Make sure the power supply matches with the requirement of air conditioner. Unstable power supply or incorrect wiring may result in electric shock,fire hazard or malfunction. Please install proper power supply cables before using the air conditioner.
4. Properly connect the live wire, neutral wire and grounding wire of power socket.
5. Be sure to cut off the power supply before proceeding any work related to electricity and safety.
6. Do not put through the power before finishing installation.
7. For appliances with type Y attachment,the instructions shall contain the substance of thefollowing.If the supply cord is damaged,it must be replaced by the manufacturer,its service agent or similarly qualified persons in order to avoid a hazard.
8. The temperature of refrigerant circuit will be high, please keep the interconnection cable away from the copper tube.

Grounding Requirements

1. The air conditioner is first class electric appliance. It must be properly grounded with a specialized grounding device by a professional. Please make sure it is always grounded effectively, otherwise it may cause electric shock.
2. The yellow-green wire in air conditioner is grounding wire, which can't be used for other purposes.
3. The grounding resistance should comply with national electric safety regulations.
4. The appliance must be positioned so that the plug is accessible.
5. An all-pole disconnection switch having a contact separation of at least 3mm in all poles should be connected in fixed wiring.
6. Include an air switch with suitable capacity, please note the following table. Air switch should be included mag net buckle and heating buckle function, it can protect the circuit-short and overload.

CAUTION

Do not rely on the fuse alone for protection of the circuit

INSTALLATION

Installation of Indoor Unit

Install Wall Mounting Frame

1. Hang the wall-mounting frame on the wall; adjust it in horizontal position with the level meter and then point out the screw fixing holes on the wall.
2. Drill the screw fixing holes on the wall with impact drill (the specification of drill head should be the same as the plastic expan sion particle) and then fill the plastic expansion particles in the holes.
3. Fix the wall-mounting frame on the wall with tapping screws (ST4.2X25TA) and then check if the frame is firmly installed by p ulling the frame. If the plastic expansion particle is loose, please drill another fixing hole nearby.
4. Choose the position of piping hole according to the direction of outlet pipe. The position of piping hole should be a little lower than the wall-mounted frame.(As show in Fig.1)
5. Open a piping hole with the diameter of 2 1/6inch on the selected outlet pipe position.In order to drain smoothly, slant the piping hole on the wall slightly downward to the outdoor side with the gradient of 5-10°.(As show in Fig.2)

Note:

1. Pay attention to dust prevention and take relevant safety measures when opening the hole.
2. The plastic expansion particles are not provided and should be bought locally.

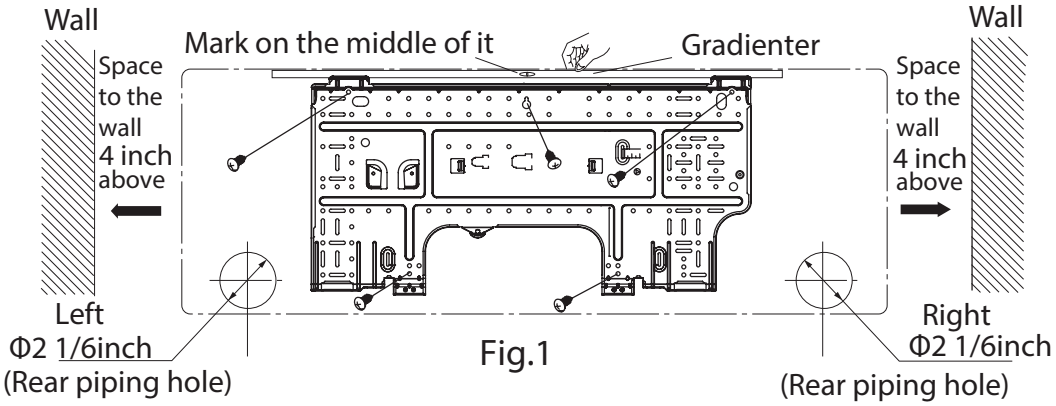


Fig.1

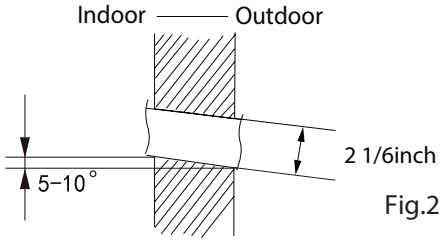
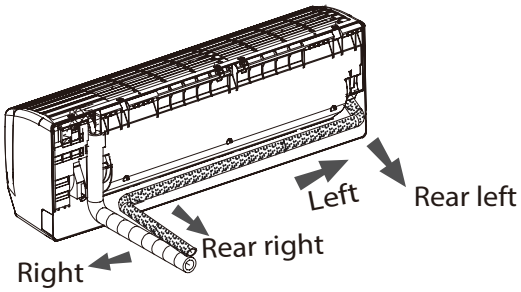
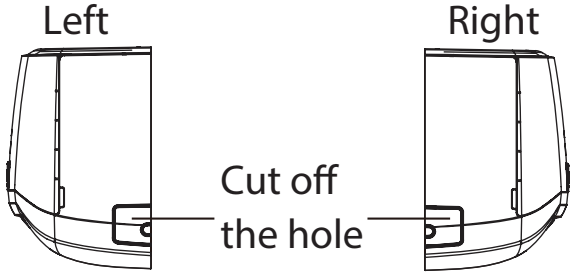


Fig.2

Outlet Pipe

1. The pipe can be led out in the direction of right, rear right, left or rear left.(As show in Fig.3)
2. When selecting leading out the pipe from left or right, please cut off the corresponding hole on the bottom case.(As show in Fig.4)





INSTALLATION

Installation of Indoor Unit

Connect the Pipe of the Indoor Unit

1. Aim the pipe joint at the corresponding bellmouth.(As show in Fig.5)
2. Pretightening the union nut with hand.
3. Adjust the torque force by referring to the following sheet. Place the open-end wrench on the pipe joint and place the torque wrench on the union nut. Tighten the union nut with torque wrench.(As show in Fig.6)
4. Wrap the indoor pipe and joint of connection pipe with insulating pipe, and then wrap it with tape.(As show in Fig.7)

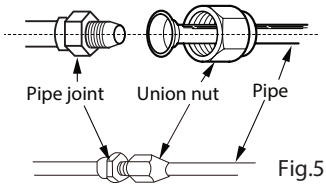


Fig.5

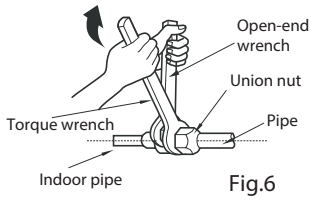


Fig.6

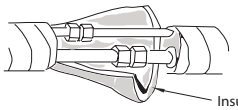


Fig.7

Refer to the following table for wrench moment of force :

Hex nut diameter(inch)	Tightening torque(ft·lbf)
Φ1/4	11~14.7
Φ3/8	22.8~29.5
Φ1/2	33.2~40.6
Φ5/8	44.3~47.9
Φ3/4	51.6~55.3

Install Drain Hose

1. Connect the drain hose to the outlet pipe of indoor unit.(As show in Fig.8)
2. Bind the joint with tape.(As show in Fig.9)

Note:

1. Add insulating pipe in the indoor drain hose in order to prevent condensation. (As show in Fig.10)
2. The plastic expansion particles are not provided.

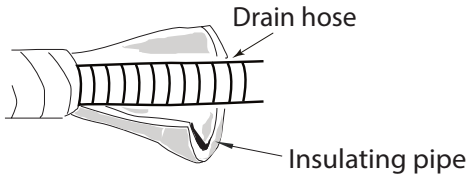


Fig.10

INSTALLATION

Installation of Indoor Unit

Connect Wire of Indoor Unit

1. Open the panel, remove the screw on the wiring cover and then take down the cover.(As show in Fig.11)
2. Fix the wire crossing board on connection wire sleeve at the bottom case; let the connection wire sleeve go through the wire crossing hole at the back of indoor unit, and then pull it out from the front.(As show in Fig.12)

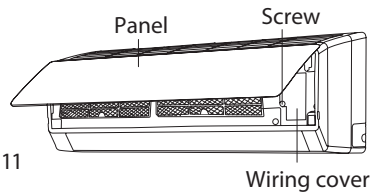


Fig.11

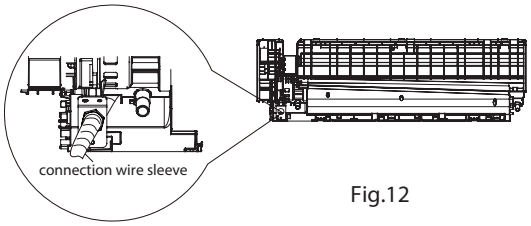


Fig.12

3. Remove the wire clip; connect the power connection wire to the wiring terminal; tighten the screw and then fix the power con nection wire with wire clip.(As show in Fig.13)
4. Put wiring cover back and then tighten the screw.
5. Close the panel.

NOTE:

All wires of indoor unit and outdoor unit should be connected by a professional.

If the length of power connection wire is insufficient, please contact the supplier for a new one. Avoid extending the wire by yourself.

For the air conditioner with plug, the plug should be reachable after finishing installation.

For the air conditioner without plug, an air switch must be installed in the line. The air switch should be all-pole part ing and the contact parting distance should be more than 1/8inch.

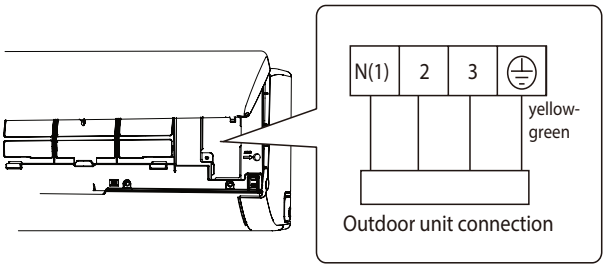


Fig.13

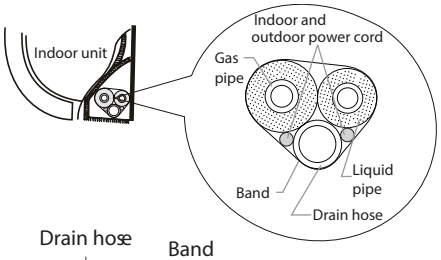


Fig.14

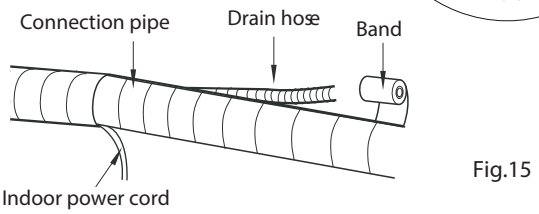


Fig.15

Bind Up Pipe

1. Bind up the connection pipe, power cord and drain hose with the band.(As show in Fig.14)
2. Reserve a certain length of drain hose and power cord for installation when binding them. When binding to a certain degree, separate the indoor power and then separate the drain hose.(As show in Fig.15)
3. Bind them evenly.
4. The liquid pipe and gas pipe should be bound separately at the end.
5. The power cord and control wire can't be crossed or winding.
6. The drain hose should be bound at the bottom.

INSTALLATION

Installation of Indoor Unit

Hang the Indoor Unit

1. Put the bound pipes in the wall pipe and then make them pass through the wall hole.
2. Hang the indoor unit on the wall-mounting frame.
3. Stuff the gap between pipes and wall hole with sealing gum.
4. Fix the wall pipe. (As show in Fig.16)
5. Check if the indoor unit is installed firmly and closed to the wall.(As show in Fig.17)

NOTE

Do not bend the drain hose too excessively in order to prevent blocking.

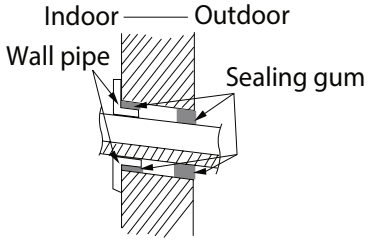
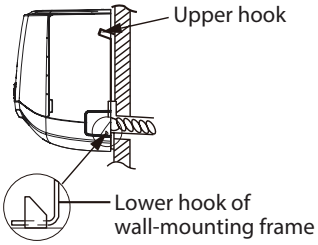


Fig.16

Fig.17



INSTALLATION

Installation of the Outdoor Unit

Install the Outdoor Support

1. Select installation location according to the house structure.
2. Fix the support of outdoor unit on the selected location with expansion screws.

Notes

1. Take sufficient protective measures when installing the outdoor unit.
2. Make sure the support can withstand at least four times the unit weight.
3. The outdoor unit should be installed at least 1 1/6inch above the floor in order to install drain joint.(As show in Fig.18)

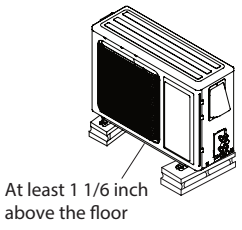


Fig.18

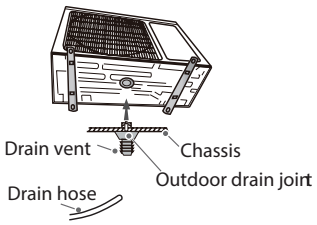


Fig.19

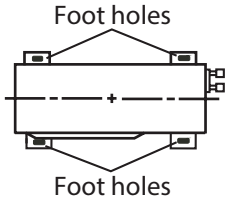


Fig.20

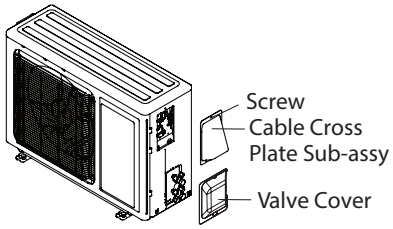


Fig.21

Install Drain Joint (For Colling and Heating Unit Only)

1. Connect the outdoor drain joint into the hole on the chassis.
2. Connect the drain hose into the drain vent. (As show in Fig.19)

Fix the Outdoor Unit

1. Place the outdoor unit on the support.
2. Fix the foot holes of outdoor unit with bolts.(As show in Fig.20)

Connect Indoor and Outdoor Pipes

1. Remove the screw on the right cable cross plate sub-assy and valve cover of outdoor unit and then remove the cable cross plate sub-assy and valve cover.(As show in Fig.21)
2. Remove the screw cap of valve and aim the pipe joint at the bellmouth of pipe.(As show in Fig.22)
3. Pretightening the union nut with hand.
4. Tighten the union nut with torque wrench .

Refer to the following table for wrench moment of force

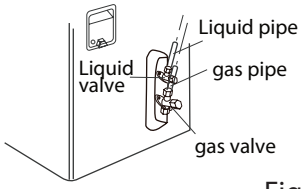
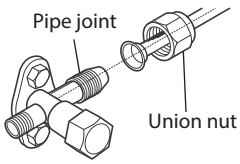


Fig.22



Hex nut diameter(inch)	Tightening torque(ft·lbf)
Φ1/4	11~14.7
Φ3/8	22.8~29.5
Φ1/2	33.2~40.6
Φ5/8	44.3~47.9
Φ3/4	51.6~55.3

INSTALLATION

Installation of the Outdoor Unit

Connect Outdoor Electric Wire

1. Put power connection wire and power wire through the wire--passing hole.
2. Remove the wire clip; connect the power connection wire and power wire to the wiring terminal; fix them with screws.(As show in Fig.23)
3. Fix the power connection wire and power wire with wire clip.
4. Install the cable cross plate sub-assy.

Notes

1. After tightening the screw, pull the power cord slightly to check if it is firm.
2. Never cut the power connection wire to prolong or shorten the distance.
3. The connecting wire and connection pipe cannnot touch each other.
4. Top cover of outdoor unit and electric box assembly should be fixed by the screw. Otherwise, it can cause a fire, or short circuit caused by water or dust.

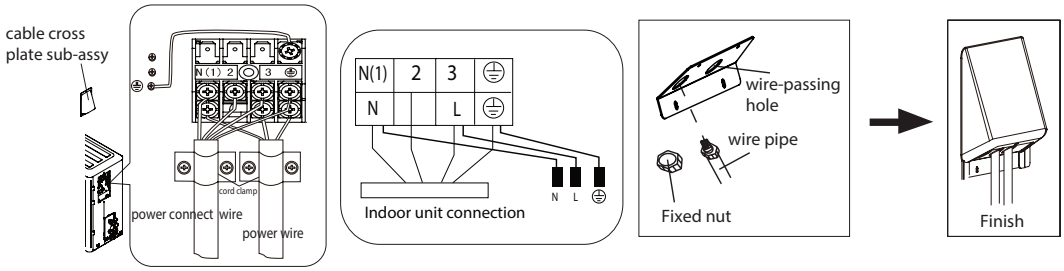


Fig.23

Neaten the Pipes

1. The pipes should be placed along the wall, bent reasonably and hidden possibly. Min. semidiameter of bending the pipe is 4inch.
2. If the outdoor unit is higher than the wall hole, you must set a U-shaped curve in the pipe before pipe goes into the room, in order to prevent rain from getting into the room. (As show in Fig.24)

Notes:

1. The through-wall height of drain hose shouldn't be higher than the outlet pipe hole of indoor unit.(As show in Fig.25)
2. Slant the drain hose slightly downwards. The drain hose can't be curved, raised and fluctuant, etc.(As show in Fig.26)
3. The water outlet can't be placed in water in order to drain smoothly.(As show in Fig.27)

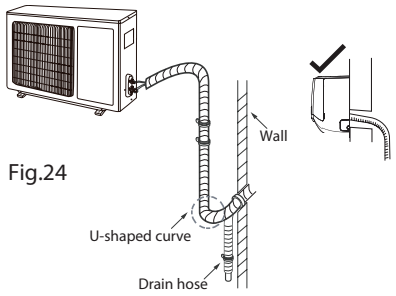


Fig.24

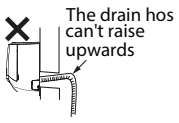


Fig.25

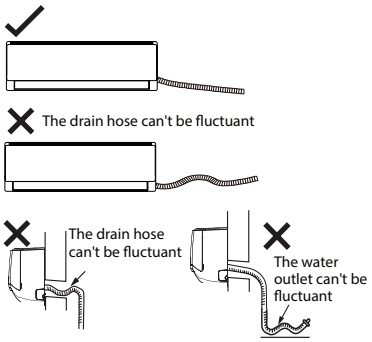


Fig.26

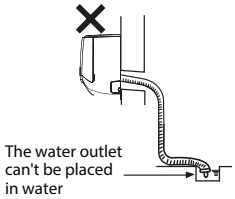


Fig.27

INSTALLATION

Leak Check, Evacuation, and Charging (Triple Evacuation)

Friedrich requires all installations are Leak Checked and Evacuated in accordance to the "triple evacuation" process. This process promotes a dry tight refrigeration system before opening the service valves. It recommended that a single port refrigeration manifold and hoses rated over 800psi be used. Refrigeration hose valves, along with a vacuum pump and micron gauge, must be used to ensure the system can be vacuumed and held under 500 microns. Check all equipment and hoses for proper usage and leaks before beginning.

1. 1st Nitrogen Pressure Test:
Ensure all refrigeration connections are properly flared, secured, and torqued to their respective settings. Pres surize the system with nitrogen to 550psi. Soap all connections with an approved refrigerant leak detection solu tion. The pressure in the system must hold for one hour respective to the environmental conditions and should not vary less than 540psi. If pressure can not be adequate held, check integrity of flares and torque specifications. Once pressure is held adequately, purge the nitrogen charge to system pressure of 5-10psi. DO NOT RETURN TO ATMOSPHERIC PRESSURE.

2. 1st Vacuum Micron Test:
Connect hoses and vacuum pump to the outdoor unit as shown in Fig.28. Start the vacuum pump and vacuum to 1000 microns. Close the valve to the vacuum pump and check for micron rise for 15 minutes. If microns rise to near atmo spheric pressure, there is a potential leak; follow Section 8.7.A. If microns rise over 5000, the system is very wet and will require further nitrogen purges.

3. 2nd Nitrogen Break:
Once the system holds below 5000 microns, reconnect the nitrogen tank break the system vacuum with 30-50psi of nitrogen. Wait 5 minutes, then purge to 5-10psi. DO NOT RETURN TO ATMOSPHERIC PRESSURE.

4. 2nd Vacuum Micron Test:
Reconnect vacuum pump and gauge and begin evacuation. Vacuum system to 500 microns. Close vacuum valve and check for micron rise. Vacuum should hold under 1000 microns. Repeat 8.7.C and 8.7.D until achieved.

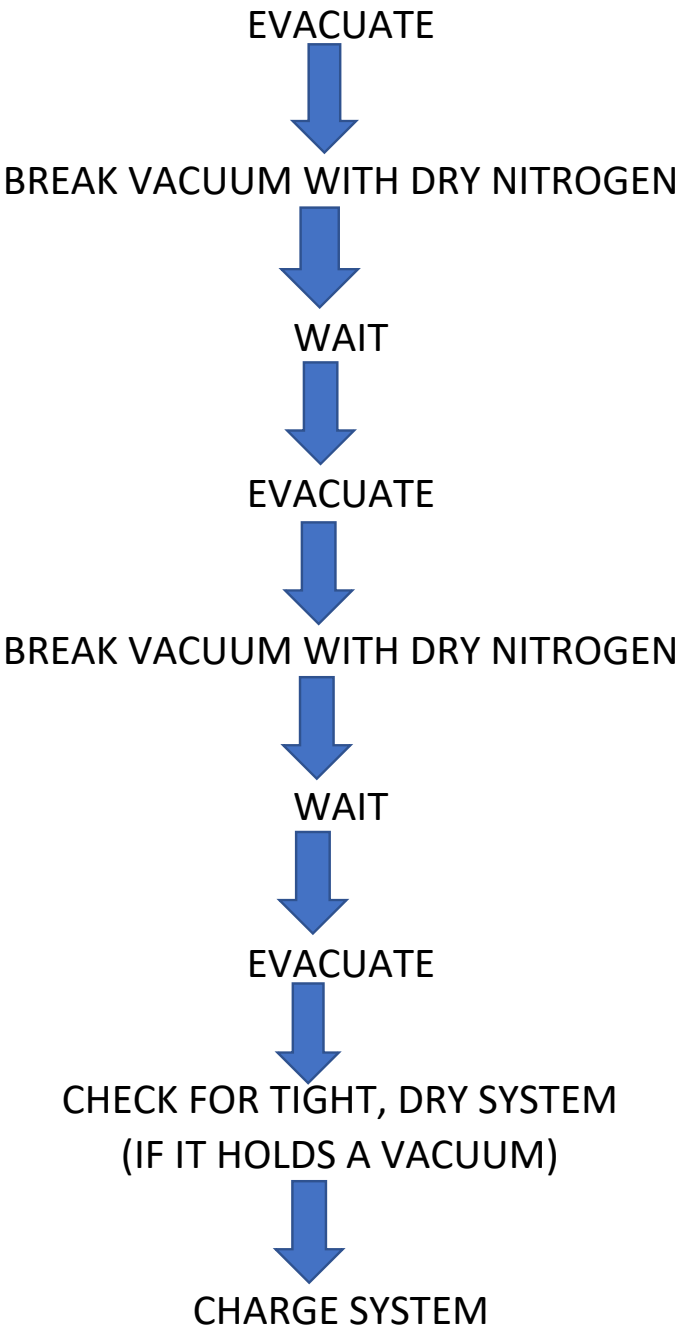
5. 3rd Nitrogen Break:
Once the system holds below 1000 microns, reconnect the nitrogen tank break the system vacuum with 30-50psi of nitrogen. Wait 5 minutes, then purge to 5-10psi. DO NOT RETURN TO ATMOSPHERIC PRESSURE.

6. 3rd Final Vacuum Micron Test:
Reconnect vacuum pump and gauge and begin evacuation. Vacuum system to 300 microns. Close vacuum valve and check for micron rise. Vacuum should hold under 500 microns. Repeat 8.7.C and 8.7.D until achieved. Once held under 500 microns, the system is considered dry and tight.

7. Charging the system:
Unscrew Service Valve Caps to expose the inner hexagon head. Use an allen-head spanner or service wrench with appropriate adapter to release the refrigerant into the system. If the calculated line set length is over 24.9ft, weight in the additional charge with an approved refrigerant scale as needed (Fig.28B).

INSTALLATION

Leak Check, Evacuation, and Charging (Triple Evacuation)



System Model	Calculated Oz/Ft of additional charge
MRM09YJ	0.2
MRM12YJ	
MRM18YJ	
MRM24YJ	
MRM36YJ	

INSTALLATION

Checklist and Operation Test
Check Unit following Installation

No.	Items to be checked	Possible malfunction
1	Has the unit been installed firmly?	The unit may drop, shake or emit noise.
2	Have you done the refrigerant leakage test?	It may cause insufficient cooling (heating) capacity.
3	Is heat insulation of pipeline sufficient?	It may cause condensation and water dripping.
4	Is water drained well?	It may cause condensation and water dripping.
5	Is the voltage of power supply according to the voltage marked on the nameplate?	It may cause malfunction or damage the parts.
6	Is electric wiring and pipeline installed correctly?	It may cause malfunction or damage the parts.
7	Is the unit grounded securely?	It may cause electric leakage.
8	Does the power cord follow the specification?	It may cause malfunction or damage the parts.
9	Is there any obstruction in air inlet and air outlet?	It may cause insufficient cooling (heating).
10	The dust and sundries caused during installation are removed?	It may cause malfunction or damaging the parts.
11	The gas valve and liquid valve of connection pipe are open completely?	It may cause insufficient cooling (heating) capacity.

Test Operation

1. Preparation of Test Operation

The client approves the air conditioner installation.

Specify the important notes for air conditioner to the client.

2, Method of test operation

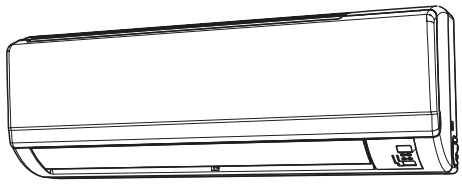
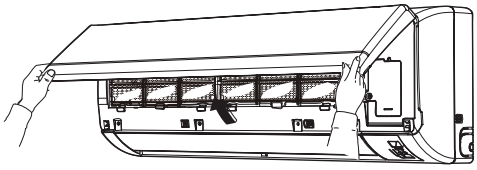
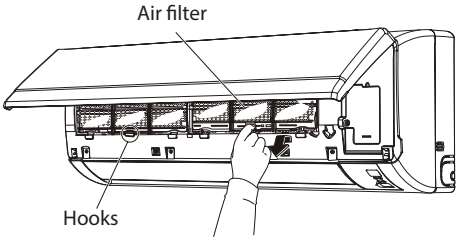
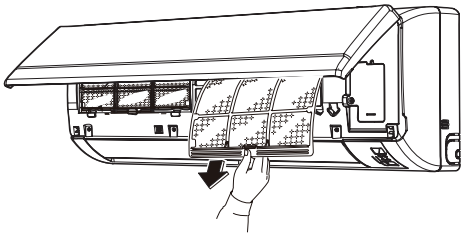
Turn on the power, press ON/OFF button on the remote controller to start operation.

Press MODE button to select AUTO, COOL, DRY, FAN and HEAT to check whether the operation is normal or not.

If the ambient temperature is lower than 60.8°F, the air conditioner can't start cooling.

REMOVAL

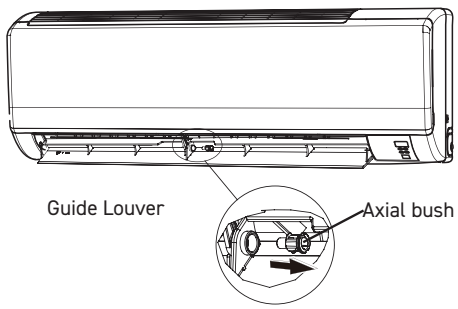
Indoor Unit

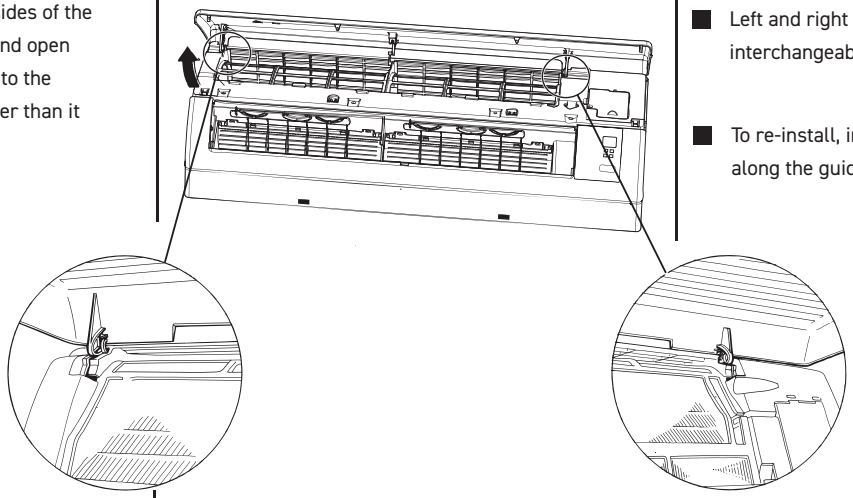
Steps		Procedure	Points
1. External features			■ If ON/OFF button is kept pushing for 5 seconds, a forced cooling operation will be carried out for approx. 15 minutes.
2. Removing air filters			
a	Pull protrusions on left and right sides of panel with fingers and open front panel all the way.		
b	Lift center section of air filter and disengage hooks.		■ Left and right filters are interchangeable. ■ To re-install, insert air filter along the guide.
c	Remove air filter by pulling forward.		

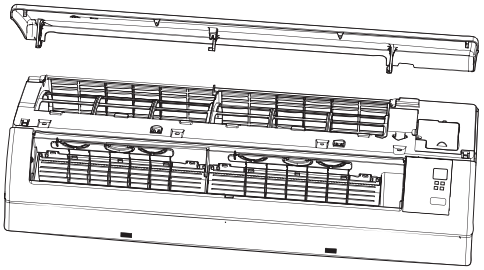
Removal

Indoor Unit

Steps	Procedure	Points
3. Opening and shutting front panel		
a	Draw out the axial bush. Bend the horizontal louver slightly and then remove it.	■ Support the front panel by one hand, while remove the rotation axis at the upper center by the other hand.
b	Hook a finger onto the projection part provided on the both sides of the units panel and open up the panel to the position higher than it will stop.	■ Left and right filters are interchangeable. ■ To re-install, insert air filter along the guide.
c	Remove the front panel from the unit.	

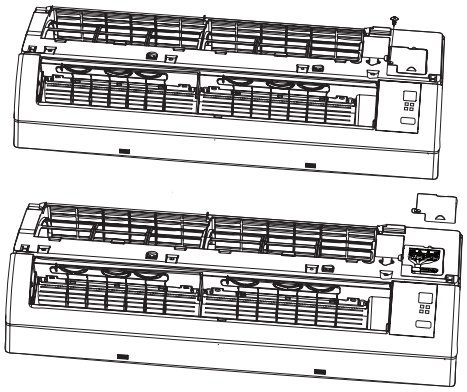
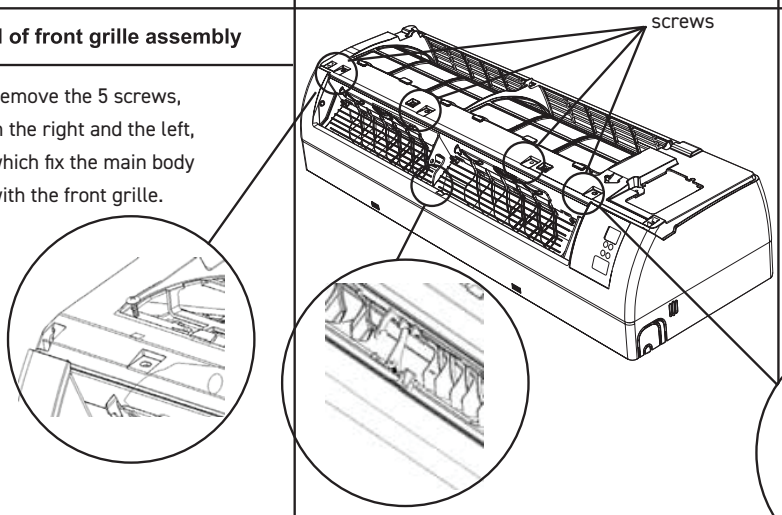
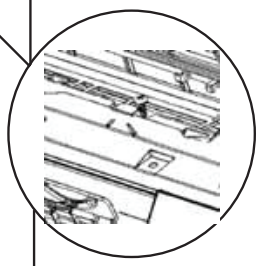
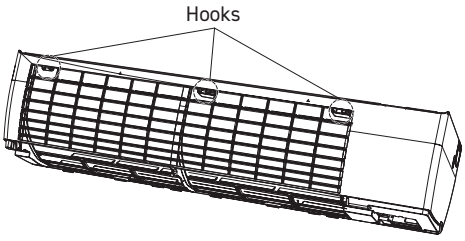
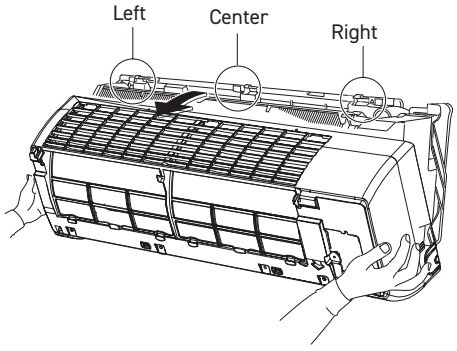






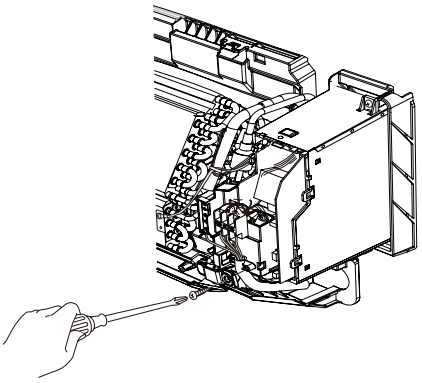
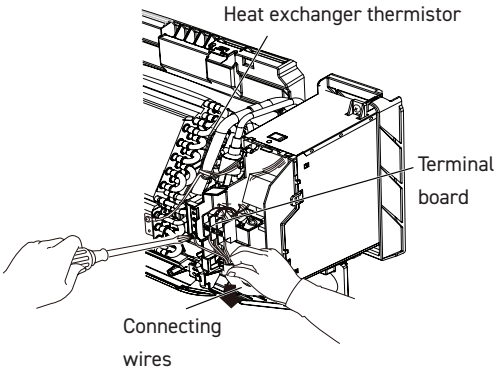
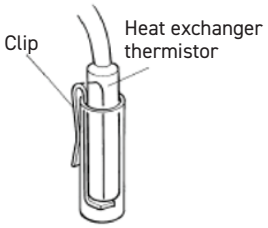
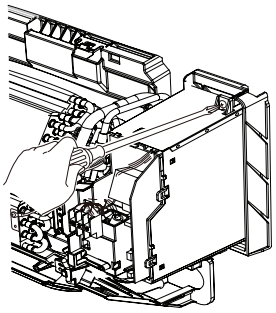
Removal

Indoor Unit

Steps	Procedure	Points
4. Opening and closing of service cover		
	Remove a service cover mounting screw. Open service cover upward.	 ■ A switch for field setting is not provided in particular.
5. Removal of front grille assembly		
a	Remove the 5 screws, in the right and the left, which fix the main body with the front grille.	 ■ Screw stoppers inside the flap which were equipped in the existing models are not provided. 
b	Disengage the 3 hooks on the upper part. In case that the hooks are not pressed from above, remove the front panel and then remove the grille while pushing the hook through a clearance between the front grille and the heat exchanger.	 ■ At the upper part there are 2 hooks in the left and the right.
c	The front grille can be removed in a manner to pull out the upper part forward and lift up the lower part.	 ■ Disengage the hooks by pressing knobs with a screwdriver.

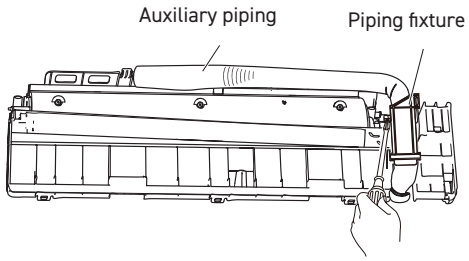
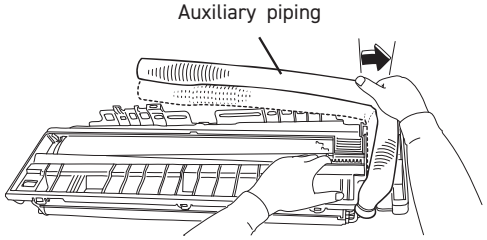
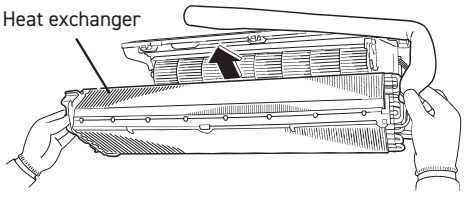
Removal

Indoor Unit

Steps		Procedure	Points
6. Remove electrical box			
a	Disconnect the Cable clamp		■ Pay attention to the direction of the retainer of the thermistor so that the retainer will not touch the harness (same as the existing models.)
b	Remove Temperature Sensor; Disconnect the connection wires. Twist off the earthing screw fixing the evaporator; Pull out the all the wiring terminals		Take care not to losw the clip of thermistor 
c	Remove a screw on the electrical box.		

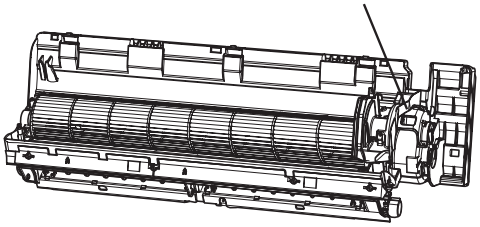
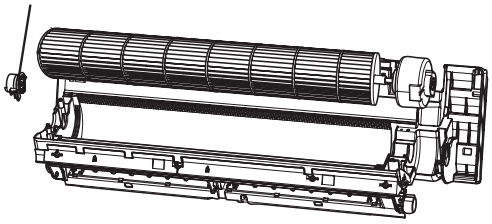
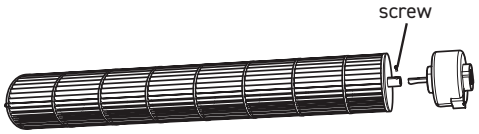
Removal

Indoor Unit

Steps		Procedure	Points
7. Remove piping fixture.			
a	Remove Pipe Clamp		
b	Adjust the pipeline slightly		
c	Loosen the screws, in the right and the left, which fix the Evaporator Assy. Remove Evaporator Assy		

Removal

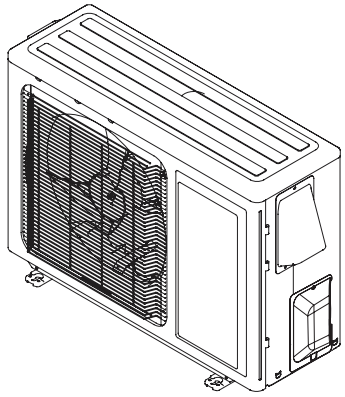
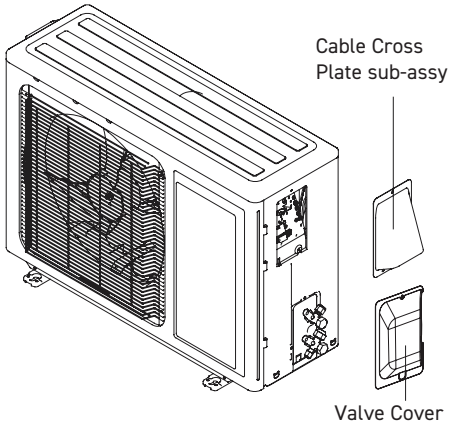
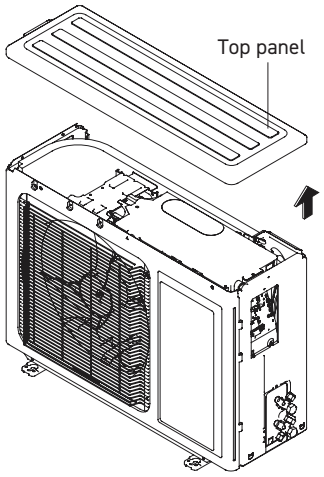
Indoor Unit

Steps	Procedure	Points
8. Remove the pressure plate of motor	pressure plate of motor 	
	Remove screws of motor press plate and then remove the motor press plate.	
9. Remove shaft cushion rubber base	Shaft cushion rubber base 	
a	Remove motor, blade and shaft cushion rubber base.	
	screw 	
b	Remove screws on cross flow blade and then remove the motor.	

Removal

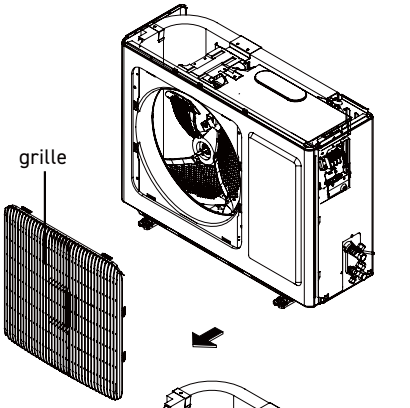
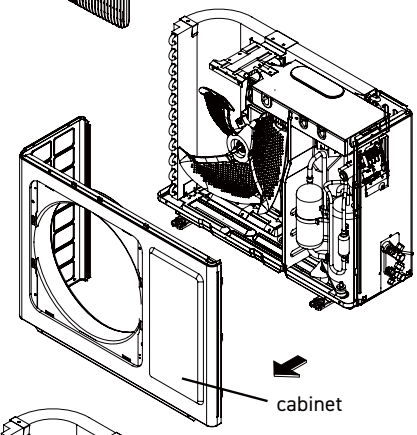
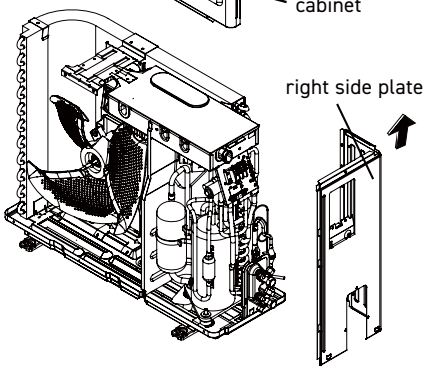
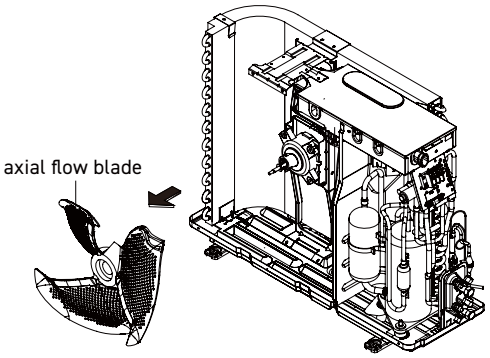
Outdoor Unit

⚠ Caution: discharge the refrigerant completely before removal.

Steps		Procedure	Points
1. Features			
a	Loosen the screw of the cable cross plate sub-assy and remove it. Pull down the stop valve cover and remove it.		
2. Remove top panel			
a	Loosen the 3 screws (right, left) and lift the top panel.		

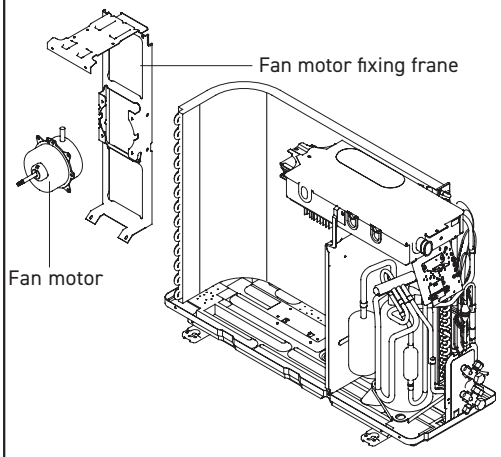
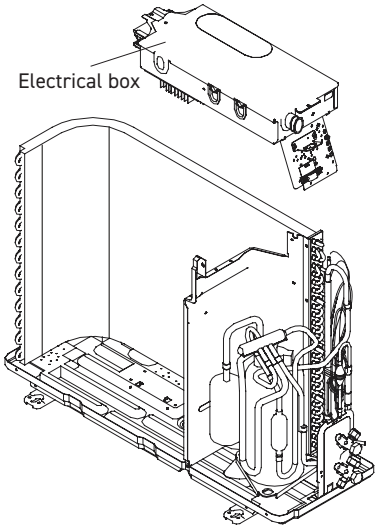
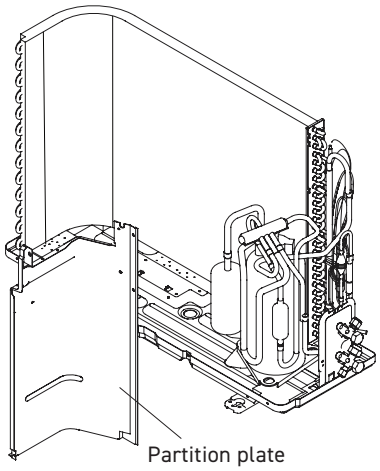
Removal

Outdoor Unit

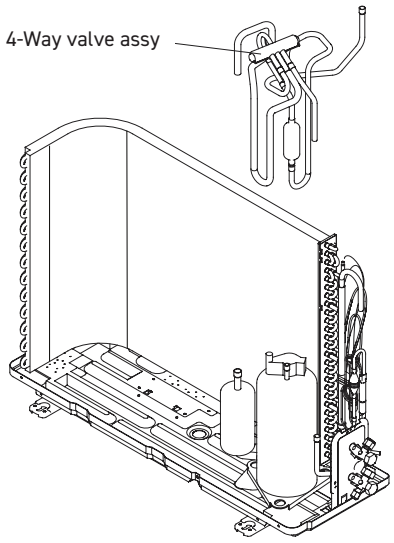
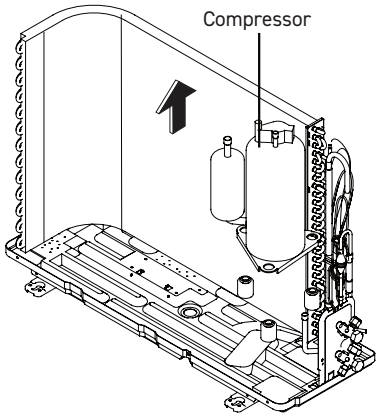
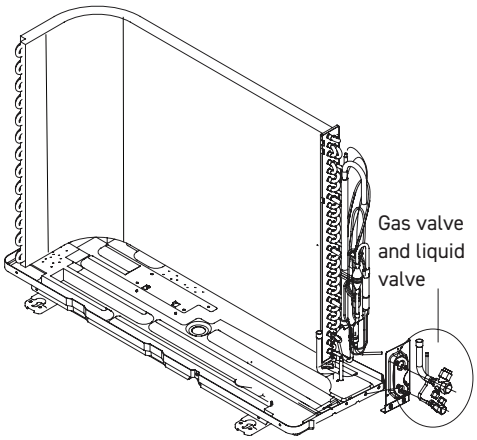
Steps	Procedure		Points
b	Twist off the screws connecting the grille and the panel with screwdriver and then remove the grille.		■ Lift the front panel and remove it while pushing the right side panel inwards. Step Procedure Points
c	Twist off the screws connecting the panel and the motor support, chassis and grille with screwdriver and then remove the outer case.		
d	Twist off the screws connecting right side plate and end plate of condenser, grille, valve support and electric box, and then remove the right side plate.		
3.Remove the fan motor			
a	Twist off the nut on blade with wrench and then remove the axial flow blade.		■ The screw has reverse winding. ■ Remove the propeller fan.

Removal

Outdoor Unit

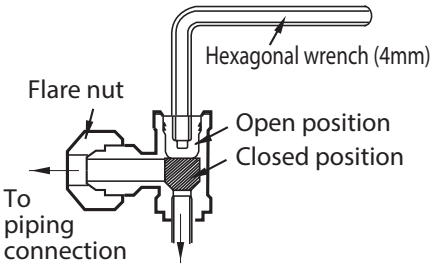
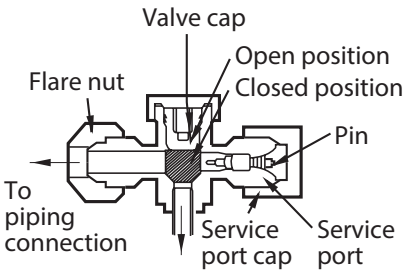
Steps		Procedure	Points
b	Twist off the 4 tapping screws fixing the motor, pull out the pin of leading wire of motor and then remove the motor. Twist off the 2 tapping screws on motor support and 1 screws on electric box, pull it upward and then remote the motor support.		
4.Remove the electric box.			
	Twist off the 2 screws fixing the electric box cover withscrewdriver, pull it upwardly and then remove the electric box cover. Twist off the screws fixing the electric box with screwdriver, loosen the tileline, pull out the wiring terminal, pull it upward and then remove the electric box.		
5.Remove the partition plate.			■ The partition plate is fixed to the bottom frame with a hook.
a	Loosen the 2 screws.		
b	The partition plate has a hook on the lower side. Lift and pull the partition plate to remove.		

Removal
Outdoor Unit

Steps	Procedure	Points
6. Remove compressor		
a	Unsolder the pipeline connected to the compressor. (Release all refrigerant before disassembling the pipeline)	
b	Twist off the 3 foot nuts on compressor and then remove the compressor. 	
c	Twist off the 2 bolts fixing the gas valve, unsolder the soldering joint between gas valve and air return pipe and then remove the gas valve. (note: When unsoldering the soldering joint, wrap the gas valve with wet cloth completely to avoid the damage to valve.) Twist off the 2 bolts fixing the liquid valve, unsolder the soldering joint between liquid valve and Y-type tube and then remove the liquid valve. 	

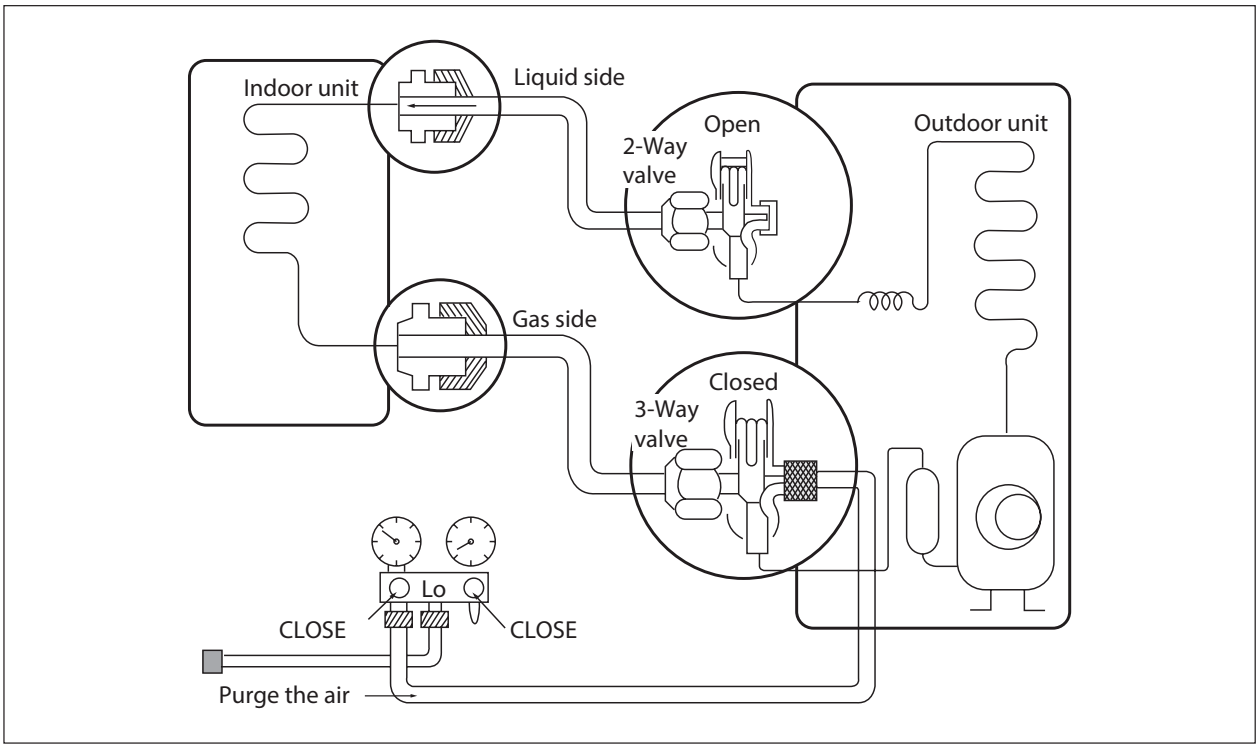
R-410A SEALED SYSTEM REPAIR

Service Valves Appearance

		2-way Valve (Liquid Side)	3-way Valve (Gas Side)	
		 To outdoor unit	 To outdoor unit	
	Works	Shaft position	Shaft position	Service port
	Shipping	Closed (with valve cap)	Closed (with valve cap)	Closed (with cap)
1.	Air purging (Installation)	Closed (clockwise)	Closed (clockwise)	Open (with vacumm pump)
	Operation	Open (with valve cap)	Open (with valve cap)	Closed (with cap)
2.	Pumping down (Transfering)	Closed (clockwise)	Open (counter-clockwise)	Open (connected manifold gauge)
3.	Evacuation (Servicing)	Open	Open	Open (with charging cylinder)
4.	Gas charging (Servicing)	Open	Open	Open (with charging cylinder)
5.	Pressure check (Servicing)	Open	Open	Open (with charging cylinder)
6.	Gas releasing (Servicing)	Open	Open	Open (with charging cylinder)

R-410A SEALED SYSTEM REPAIR

Pumping Down



• Procedure

(1) Confirm that both the 2-way and 3-way valves are set to the open position.

– Remove the valve stem caps and confirm that the valve stems are in the raised position.

– Be sure to use a hexagonal wrench to operate the valve stems.

(2) Operate the unit for 10 to 15 minutes.

(3) Stop operation and wait for 3 minutes, then connect the charge set to the service port of the 3-way valve.

– Connect the charge hose with the push pin to the service port.

(4) Air purging of the charge hose.

– Open the low-pressure valve on the charge set slightly to air purge from the charge hose.

(5) Set the 2-way valve to the closed position.

(6) Operate the air conditioner at the cooling cycle and stop it when the gauge indicates 1kg/cm^{2}g.

(7) Immediately set the 3-way valve to the closed position.

– Do this quickly so that the gauge ends up indicating 0-15 PSI.

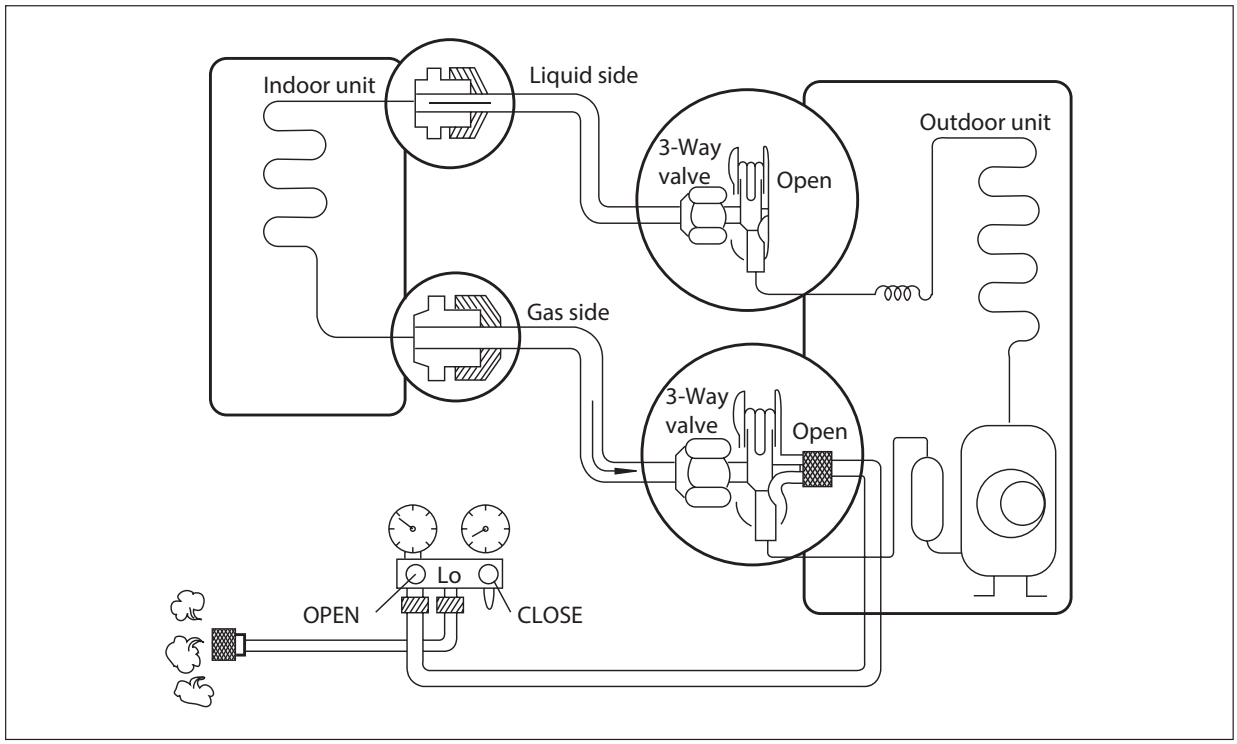
(8) Disconnect the charge set, and mount the 2-way and 3-way valves stem nuts and the service port nut.

– Tighten the service port nut.

– Be sure to check for gas leakage.

R-410A SEALED SYSTEM REPAIR

Gas Charging (After Repair)



• Procedure

(1) Connect the charge hose to the charging cylinder.

– Connect the charge hose which you dis-connected from the vacuum pump to the valve at the bottom of the cylinder.
– If you are using a gas cylinder, also use a scale and reverse the cylinder so that the system can be charged with liquid.

(2) Purge the air from the charge hose.

– Open the valve at the bottom of the cylinder and press the check valve on the charge set to purge the air. (Be careful of the liquid refrigerant).

(3) Open the valve (Lo side on the charge set and charge the system with liquid refrigerant.

- Weigh in the refrigerant amount listed on the rating plate, adding additional refrigerant as needed for long line set length.
- If the temperature does not allow full liquid charge, run the system in air conditioning and throttle refrigerant in at 0.2 oz/min. Allow the system pressure to stabilize each time.

This is different from previous procedures.
Because you are charging with liquid refrigerant from the gas side, absolutely do not attempt to charge with larger amounts of liquid refrigerant while operating the air conditioner.

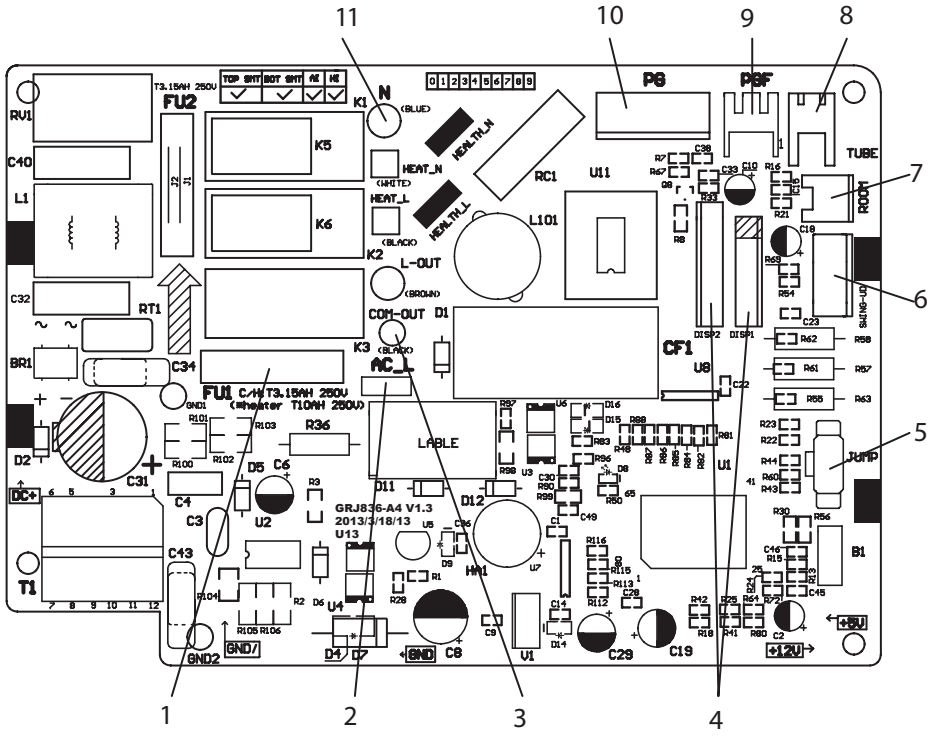
(4) Immediately disconnect the charge hose from the 3-way valves service port.

– Stopping partway will allow the gas to be discharged.
– If the system has been charged with liquid refrigerant while operating the air conditioner turn off the air conditioner before disconnecting the hose.

(5) Mount the valve stem nuts and the service port nut.

– Tighten the service port nut.
– Be sure to check for gas leakage.

COMPONENTS TESTING

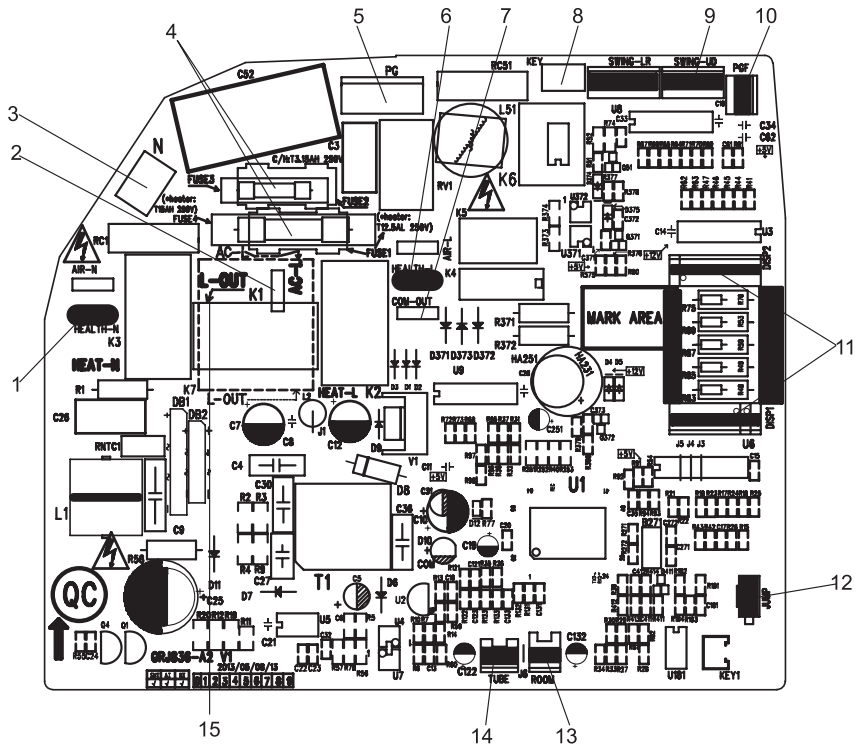


NO.	Name
1	Fuse
2	Live wire
3	Communication wire
4	Display interface
5	Jumper cap
6	Up and down swing
7	Ambient temperature sensor
8	Temperature sensor
9	PG feedback
10	PG motor
11	Neutral wire

Figure 701

9-12k Indoor Unit Printed Circuit Board Identification

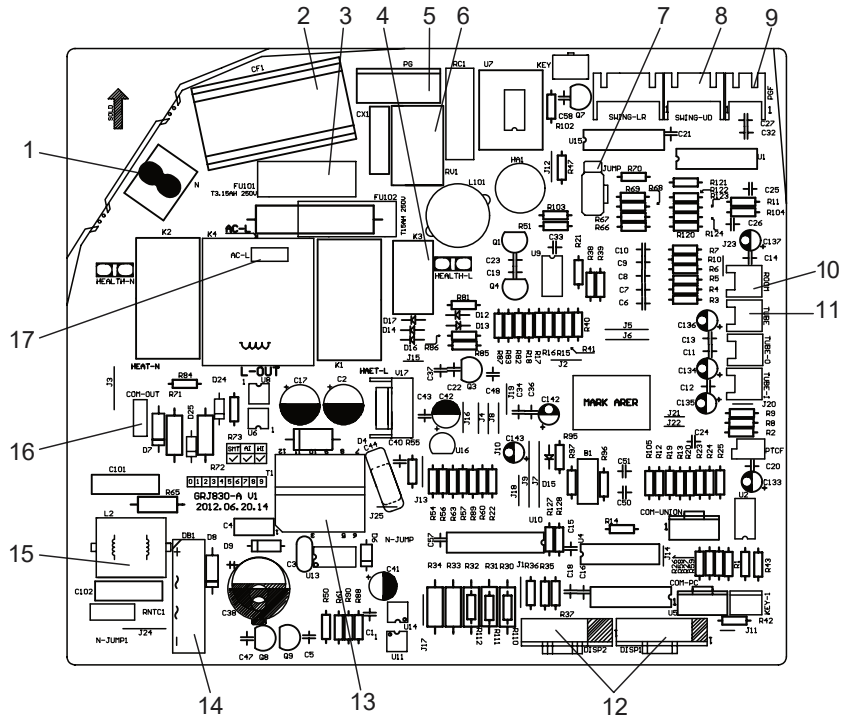
COMPONENTS TESTING



1	Neutral Wire of Health Function
2	Live Wire
3	Neutral Wire
4	Fuse
5	PG motor
6	Live Wire of Health Function
7	Communication terminal between indoor and outdoor units
8	Auto switch
9	Up&down swing
10	PG Feedback
11	Display Interface
12	Jumper cap
13	Ambient Temperature Sensor
14	Tube Temperature Sensor
15	Interface of outdoor live

Figure 702

18k Indoor Unit Printed Circuit Board Identification

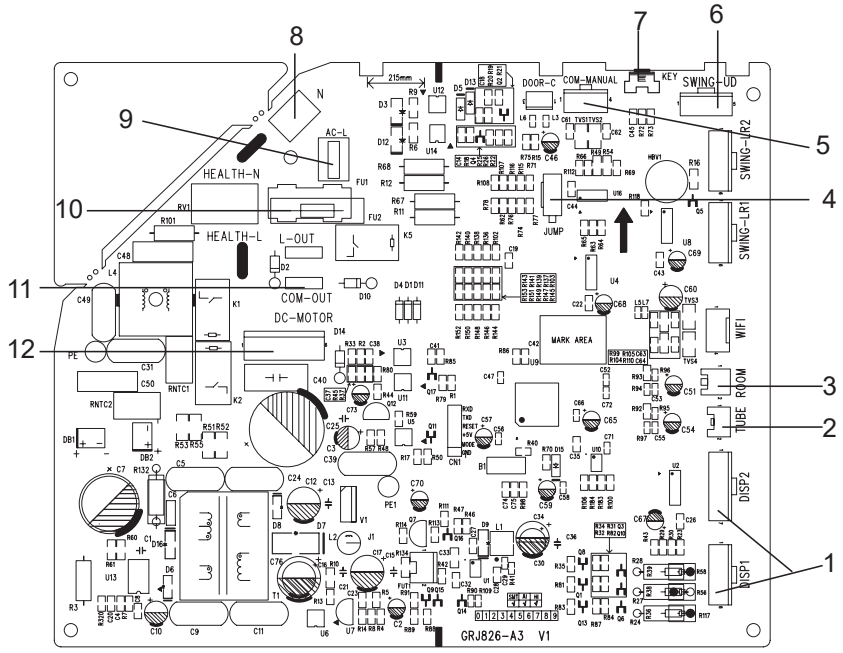


1	Copper pinterminal of neutral wire
2	Fan capacitor
3	Protective tube
4	Health relay K3
5	PG motor terminal
6	Piezoresistor
7	Jumper cap
8	Up&down swing terminal
9	PG feedback terminal
10	Terminal of ambient temperature sensor
11	Terminal of tube temperature sensor
12	Connect displayboard DISP1,DISP2 terminals
13	High-frequency transformer T1
14	Rectifier DB1
15	Strainer SF2022A-05220
16	Connect copper terminal of communication line for indoor fan
17	Power supply live wire connector

Figure 703

24k Indoor Unit Printed Circuit Board Identification

COMPONENTS TESTING

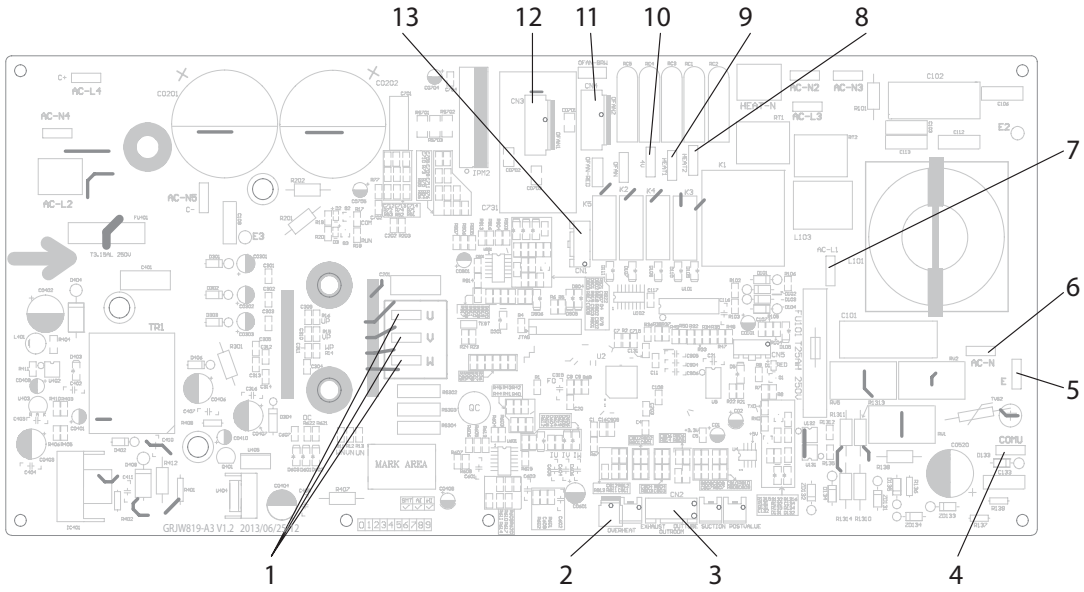


No.	Name
1	display interface
2	Inner tube temperature sensor
3	Ambient temperature sensor
4	Jumper cap
5	Wired Controller(Optional)
6	up&down swing interface
7	Auto button
8	Neutral wire
9	Live wire
10	Fuse
11	Communication interface
12	Wiring terminal for DC motor

Figure 704

36k Indoor Unit Printed Circuit Board Identification

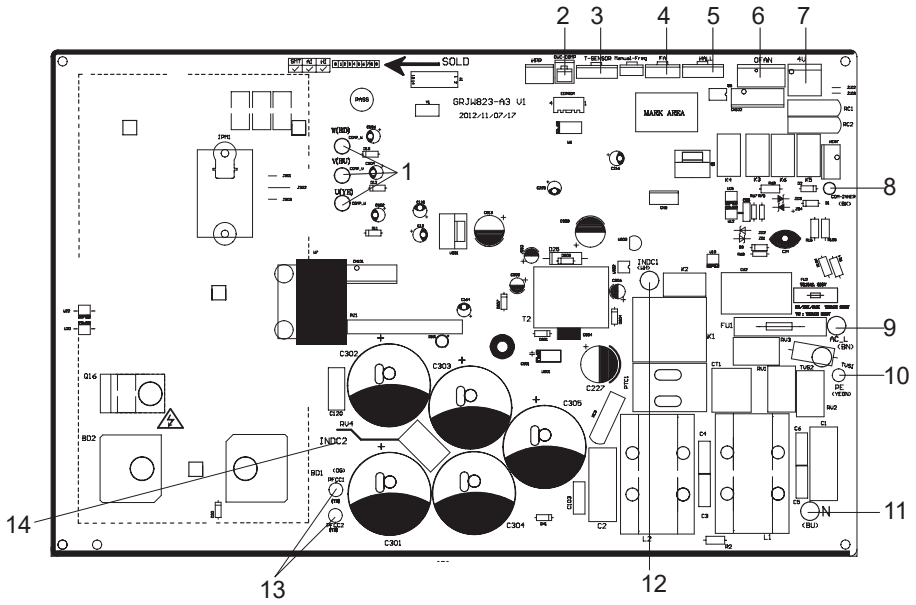
COMPONENTS TESTING



NO.	Name	NO.	Name	NO.	Name
1	Compressor output port	6	Port of power neutral wire	11	Port of AC fan motor
2	Overload port	7	Live wire	12	Port of DC fan motor
3	Temperature sensor port	8	Port of compressor electric heating belt	13	Port of electronic expansion valve
4	Communication wire port	9	Port of compressor electric heating belt	/	/
5	Earthing wire port	10	Port of AC fan motor	/	/

Figure 705

9-12k Outdoor Unit Printed Circuit Board Identification

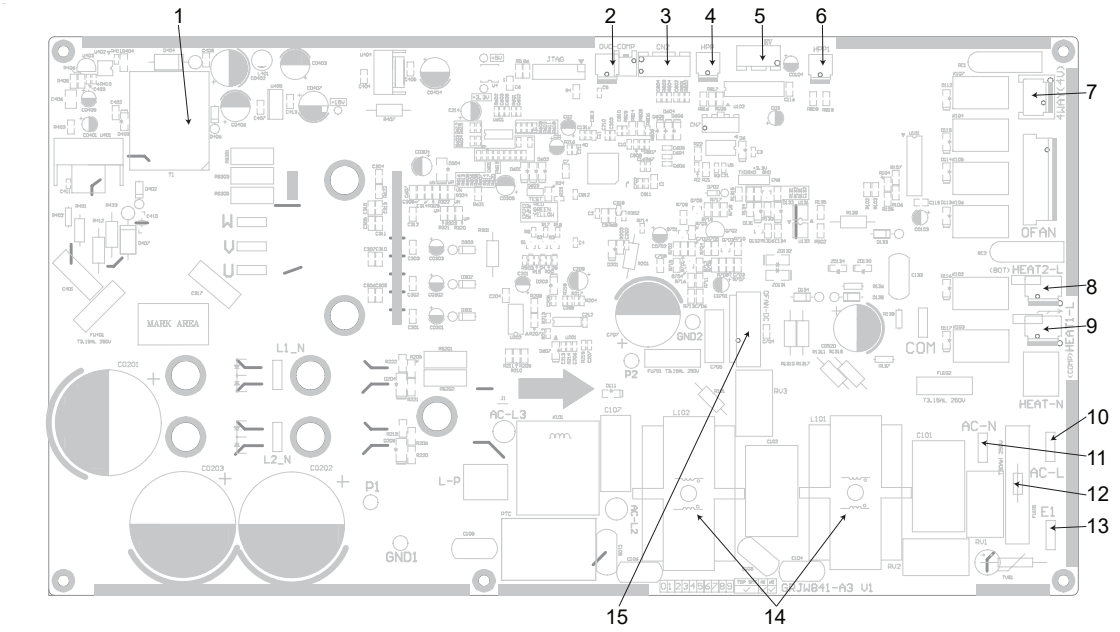


1	Compressor interface
2	Compressor overload protector
3	Temperature sensor
4	Electric expansion valve
5	Fan HALL interface
6	Outdoor fan
7	4-way valve
8	Communication interface with indoor unit
9	Live wire
10	Earthing wire
11	Neutral wire
12	Reactor interface 1
13	PFC capacitor interface
14	Reactor interface 2

Figure 706

18-24k Outdoor Unit Printed Circuit Board Identification

COMPONENTS TESTING



No.	Name	No.	Name	No.	Name
1	High-frequency transformer T1	6	High pressure protection terminal HPP1	11	Terminal of neutral wire
2	Overload protection terminal of compressor OVC-COMP	7	Terminal of 4-way valve	12	Protective tube FU101
3	Terminal of temp sensor CN2	8	Electric heater band of chassis HEAT2-L	13	Terminal of ground wire
4	High pressure protection terminal HPP	9	Electric heater band of compressor HEAT1-L	14	Choke L 101 and L102
5	Electronic expansion valve terminal EV	10	Terminal of live wire	15	Terminal of outdoor fan OFAN-DC

Figure 707

36k Outdoor Unit Printed Circuit Board Identification

TROUBLESHOOTING

Diagnostic Codes

No.	Malfunction Name	Display Method of Indoor Unit				Display Method of Outdoor Unit			A/C status	Possible Causes
		Dual-8 Code Display	Indicator Display (During blinking, ON 0.5s and OFF 0.5s)			Indicator has 3 kinds of display status and during blinking, ON 0.5s and OFF 0.5s				
			Power Indicator	Cool Indicator	Heating Indicator	Yellow Indicator	Red Indicator	Green Indicator		
1	High Pressure Protectioon Of System	E1	OFF 3s and blink once						During cooling and drying operation, except indoor fan operates, all loads stop operation. During heating operation, the complete unit stops.	Possible reasons: 1.Refrigerant was superabundant; 2.Poor heat exchange (including filth blockage of heat exchanger and bad radiating environment); Ambient temperature is too high.
2	Antifreezing protection	E2	OFF 3s and blink twice			OFF 1 s and blink 3 times			During cooling and drying operation, compressor and outdoor fan stop while indoor fan operates.	1.Poor air-return in indoor unit; 2.Fan speed is abnormal; 3.Evaporator is dirty.
3	In Defect of refrigerant	F0					OFF 1 s and blink 9 times		The Dual-8 Code Display will show F0 and the complete unit stops.	1.In defect of refrigerant; 2.Indoor evaporator temperature sensor works abnormally; 3. The unit has been plugged up somewhere.
4	Gathering Refrigerant	F0	OFF 3s and blink once	OFF 3s and blink once		OFF 1s and blink 17 times			When the outdoor unit receive signal of Gathering refrigerant ,the system will be forced to run under cooling mode for gathering refrigerant	Nominal cooling mode
5	High Discharge temperaature protection of compressor	E4	OFF 3s and blink 4 times			OFF 1s and blink 7 times			During cooling and drying operation, compressor and outdoor fan stop while indoor fan operates. During heating operation, all loads stop.	Please refer to the malfunction analysis (discharge protection, overload).
6	Overcurrent protection	E5	OFF 3s and blink 6 times			OFF 1s and blink 5 times			During cooling operation, compressor stops while indoor fan motor operates. During heating operation, the complete unit stops.	1. Supply voltage is unstable; 2. Supply voltage is too low andload is too high; 3. Evaporator is dirty.
7	Communication malfunction	E6	OFF 3s and blink 6 times			Always on			During cooling operation, compressor stops while indoor fan motor operates. During heating operation, the complete unit stops.	Refer to the corresponding malfunction analysis.
8	High temperature resistant prtoection	E8	OFF 3s and blink 8 times			OFF 1s and blink 6 times			During cooling operation: compressor will stop while indoor fan will operate. During heating operation, the complete unit stops.	Refer to the malfunction analysis (overload, high temperature resistant).

TROUBLESHOOTING

Diagnostic Codes

No.	Malfunction Name	Display Method of Indoor Unit				Display Method of Outdoor Unit			A/C status	Possible Causes
		Dual-8 Code Display	Indicator Display (During blinking, ON 0.5s and OFF 0.5s)			Indicator has 3 kinds of display status and during blinking, ON 0.5s and OFF 0.5s				
			Power Indicator	Cool Indicator	Heating Indicator	Yellow Indicator	Red Indicator	Green Indicator		
9	EEPROM malfunction	EE			OFF 3s and blink 15 times	OFF 1s and blink 11 times			During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop	Replace outdoor control panel AP1
10	Limit/ decrease frequency due to high temperature	EU		OFF 3s and blink 6 times	OFF 3s and blink 6 times				All loads operate normally, while operation frequency for compressor is decreased	Discharging after the complete unit is de-energized for 20mins, check whether the thermal grease on IPM Module of outdoor control the radiator is inserted tightly. If its no use, please replace control panel AP1.
11	Malfunction protection of jumper cap	C5	OFF 3s and blink 15 times						Wireless remote receiver and button are effective, but can not dispose the related command	1.No jumper cap insert on mainboard. 2.Incorrect insert of jumper cap. 3.Jumper cap damaged. 4.Abnormal detecting circuit of mainboard.
12	Indoor ambient temperature sensor is open/ short circuited	F2		OFF 3s and blink once					During cooling and drying operation, indoor unit operates while other loads will stop; during heating operation, the complete unit will stop operation.	1.Loosening or bad contact of indoor ambient temp. sensor and mainboard terminal. 2.Components in mainboard fell down leads short circuit. 3.Indoor ambient temp. sensor damaged.(check with sensor resistance value chart) 4.Mainboard damaged.

TROUBLESHOOTING

Diagnostic Codes

No.	Malfunction Name	Display Method of Indoor Unit				Display Method of Outdoor Unit			A/C status	Possible Causes
		Dual-8 Code Display	Indicator Display (During blinking, ON 0.5s and OFF 0.5s)			Indicator has 3 kinds of display status and during blinking, ON 0.5s and OFF 0.5s				
			Power Indicator	Cool Indicator	Heating Indicator	Yellow Indicator	Red Indicator	Green Indicator		
13	indoor evaporator temperature sensor is open/ short circuted	F2		OFF 3s and blink twice					AC stops operation once reaches the setting temperature. Cooling, drying: internal fan motor stops operation while other loads stop operation; heating: AC stop operation	1.Loosening or bad contact of Indoor evaporator temp. sensor and mainboard terminal. 2.Components on the mainboard fall down leads short circuit 3.Indoor evaporator temp. sensor damaged.(check temp. sensor value chart for testing) 4.Mainboard damaged.
14	outdoor ambient temperature sensor is open/ short circuted	F3		OFF 3s and blink 3 times			OFF 1s and blink 6 times		During cooling and drying operating, compressor stops while indoor fan operates; During heating operation, the complete unit will stop operation	Outdoor temperature sensor hasnt' been connected well or is damaged. Please check it by referring to the resistance table for temperature sensor)
15	outdoor condenser temperature sensor is open/ short circuted	F4		OFF 3s and blink 4 times			OFF 1s and blink 5 times		During cooling and drying operation, compressor stops while indoor fan will operate; During heating operation, the complete unit will stop operation.	Outdoor temperature sensor hasnt been connected well or is damaged. Please check it by referring to the resistance table for temperature sensor
16	outdoor discharge temperature sensor is open/ short circuted	F5		OFF 3s and blink for 5 times			OFF 1S and blink 7 times		During cooling and drying operation, compressor will sop after operating for about 3 mins, while indoor fan will operate; During heating operation, the complete unit will stop after operating for about 3 mins.	1. Outdoor temperature sensor hasnt been connected well or is damaged. Please check it by referring to the resistance table for temperature sensor 2. The head of temperature sensor hasnt been inserted into the copper tube
17	limit/ decrease frequency due to overload	F6		OFF 3s and blink for 6 times			OFF 1s and blink 3 times		All loads operate normally, while operation frequency for compressor is decreased	Refer to the malfunction analysis (overload, high temperature resistant)

TROUBLESHOOTING

Diagnostic Codes

No.	Malfunction Name	Display Method of Indoor Unit				Display Method of Outdoor Unit			A/C status	Possible Causes
		Dual-8 Code Display	Indicator Display (During blinking, ON 0.5s and OFF 0.5s)			Indicator has 3 kinds of display status and during blinking, ON 0.5s and OFF 0.5s				
			Power Indicator	Cool Indicator	Heating Indicator	Yellow Indicator	Red Indicator	Green Indicator		
18	decrease frequency due to over-current	F8		OFF 3s and blink 8 times			OFF 1s and blink once		All loads operate normally, while operation frequency for compressor is decreased	The input supply voltage is too low; System pressure is too high and overload
19	decrease frequency due to high air discharge	F9		OFF 3s and blink 9 times			OFF 1s and blink twice		All loads operate normally, while operation frequency for compressor is decreased	Overload or temperature is too high; refrigerant is insufficent Malfunction of electric expansion valve (EKV)
20	limit/ decrease frequency due to anti-freezing	FH		OFF 3s and blink 2 times	OFF 3s and blink 2 times		OFF 1s and blink 4 times		All loads operate normally, while operation frequency for compressor is de-creased	Poor air-return in indoor unit or fan speed is too low
21	voltage for DC bus bar is too high high	PH		OFF 3s and blink 11 times		OFF 1s and blink 13 times			During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	1.Measure the voltage of position L and N on wiring board (XT), if the voltage is higher than 265VAC, turn on the unit after the supply voltage is increased to the normal range. 2.If the AC input is normal, measure the voltage of electrolytic capacitor C on control panel (AP1), if its normal, theres malfunc-tion for the circuit, please replace the control panel (AP1)
22	voltage of DC bus- bar is too low	PL			OFF 3s and blink 21 times	OFF 1s and blink 12 times			During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop	1.Measure the voltage of position L and N on wiring board (XT), if the voltage is higher than 150VAC, turn on the unit after the supply voltage is increased to the normal range. 2.If the AC input is normal, measure the voltage of electrolytic capacitor C on control panel (AP1), if its normal, there is a malfunc-tion for the circuit, replace the control panel (AP1)

TROUBLESHOOTING

Diagnostic Codes

No.	Malfunction Name	Display Method of Indoor Unit				Display Method of Outdoor Unit			A/C status	Possible Causes
		Dual-8 Code Display	Indicator Display (During blinking, ON 0.5s and OFF 0.5s)			Indicator has 3 kinds of display status and during blinking, ON 0.5s and OFF 0.5s				
			Power Indicator	Cool Indicator	Heating Indicator	Yellow Indicator	Red Indicator	Green Indicator		
23	compressor min frequence in test state	P0		during blinking ON 0.25s and OFF 0.25s	during blinking ON 0.25s and OFF 0.25s					Showing during nominal cooling or nominal heating test
24	compressor rated frequence in test state	P1		during blinking ON 0.25s and OFF 0.25s	during blinking ON 0.25s and OFF 0.25s					Showing during middle cooling or middle heating test
25	compressor maximum frequence in test state	P2		during blinking ON and 0.25s and OFF and 0.25s	during blinking ON and 0.25s and OFF and 0.25s					Showing during max. cooling or max. heating test
26	compressor intermediate frequence in test state	P3		during blinking ON and 0.25s and OFF and 0.25s	during blinking ON and 0.25s and OFF and 0.25s					Showing during middle cooling or middle heating test
27	overcurrent protection of phase current for compressor	P5		OFF 3s and blink 15 times					During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	Refer to the malfunction analysis (IPM protection, loss of synchronism protection and overcurrent protection of phase current for compressor).
28	charging malfunction of capacitor	PU			OFF 3s and blink 17 times				During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop	Refer to the part three—charging malfunction analysis of capacitor
29	malfunction of module temperature sensor circuit	P7			OFF 3s and blink 18 times	s			During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop	Replace outdoor control panel AP1

TROUBLESHOOTING

Diagnostic Codes

No.	Malfunction Name	Display Method of Indoor Unit				Display Method of Outdoor Unit			A/C status	Possible Causes
		Dual-8 Code Display	Indicator Display (During blinking, ON 0.5s and OFF 0.5s)			Indicator has 3 kinds of display status and during blinking, ON 0.5s and OFF 0.5s				
			Power Indicator	Cool Indicator	Heating Indicator	Yellow Indicator	Red Indicator	Green Indicator		
30	module high temperature protection	P8			OFF 3s and blink 19 times				During cooling operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop	After the complete unit is de-energized for 20mins, check whether the thermal grease on IPM Module of outdoor control panel AP is sufficient and whether the radiator is inserted tightly. If no faults found, replace control panel AP1
31	decrease frequency due to high temperature resistant during heating operation	H0			OFF 3s and blink 10 times				All loads operate normally, while operation frequency for compressor is decreased	Refer to the malfunction analysis (overload, high temperature resistant)
32	static dedusting protection	H2			OFF 3s and blink twice					
33	overload protection for compressor	H3			OFF 3s and blink 3 times	OFF 1s and blink 8 times			During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	1.Wiring terminal OVC-COMP is loosened. In normal state, the resistance for this terminal should be less than 1ohm. 2.Refer to the malfunction analysis (discharge protection, overload)
34	system is abnormal	H4		OFF 3s and blink 4 times	OFF 1s and blink 6 times				During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	Refer to the malfunction analysis (overload, high temperature resistant)
35	IPM protection	H5		OFF 3S and blink 5 times	OFF 1s and blink 4 times				During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	Refer to the malfunction analysis (IPM protection, loss of synchronism protection and overcurrent protection of phase current for compressor.

TROUBLESHOOTING

Diagnostic Codes

No.	Malfunction Name	Display Method of Indoor Unit				Display Method of Outdoor Unit			A/C status	Possible Causes
		Dual-8 Code Display	Indicator Display (During blinking, ON 0.5s and OFF 0.5s)			Indicator has 3 kinds of display status and during blinking, ON 0.5s and OFF 0.5s				
			Power Indicator	Cool Indicator	Heating Indicator	Yellow Indicator	Red Indicator	Green Indicator		
36	module temperate is too high	H5		OFF 3s and blink 5 times	OFF 1s and blink 10 times					
37	internal motor (fan motor) does not operate	H6	OFF 3s and blink 11 times						Internal fan motor, external fan motor, compressor and electric heater stop operation,guide louver stops at present location.	1. Bad contact of DC motor feedback terminal. 2. Bad contact of DC motor control end. 3.Fan motor is stalling. 4. Motor malfunction. 5. Malfunction of mainboard rev detecting circuit.
38	desynchronizing of compressor	H7			OFF 3s and blink 7 times				During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	Refer to the malfunction analysis (IPM protection, loss of synchronism protection and overcurrent protection of phase current for compressor.
39	PFC protection	HC			OFF 3s and blink 6 times	OFF 1s and blink 14 times			During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	Refer to the malfunction analysis
40	outdoor DC fan motor malfunction	L3	OFF 3s and blink 23 times				OFF 1s and blink 14 times		Outdoor DC fan motor malfunction lead to compressor stop operation,	DC fan motor malfunction or system blocked or the connector loosed
41	power protection	L9	OFF 3s and blink 20 times			OFF 1s and blink 9 times			compressor operation stops and Outdoor fan motor will stop 30s later , 3 minutes later fan motor and compressor will restart	To protect the electronical components when detect high power
42	indoor unit and outdoor unit don't match	LP	OFF 3s and blink 19 times			OFF 1s and blink 16 times			compressor and Outdoor fan motor don't work	Indoor unit and outdoor unit don't match
43	failure start up	LC			OFF 3s and blink 11 times				During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	Refer to the malfunction analysis

TROUBLESHOOTING

Diagnostic Codes

No.	Malfunction Name	Display Method of Indoor Unit				Display Method of Outdoor Unit			A/C status	Possible Causes
		Dual-8 Code Display	Indicator Display (During blinking, ON 0.5s and OFF 0.5s)			Indicator has 3 kinds of display status and during blinking, ON 0.5s and OFF 0.5s				
			Power Indicator	Cool Indicator	Heating Indicator	Yellow Indicator	Red Indicator	Green Indicator		
44	malfunction of phase current detection circuit for compressor	U1			OFF 3s and blink 13 times				During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop	Replace outdoor control panel AP1
45	malfunction of voltage dropping for DC bus bar	U3			OFF 3s and blink 20 times				During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop	Supply voltage is unstable
46	malfunction of complete units current detention	U5		OFF 3s and blink 13 times					During cooling and drying operation, the compressor will stop while indoor fan will operate; During heating operating, the complete unit will stop operation.	There's a circuit malfunction on outdoor units control panel AP1, replace the outdoor units control panel AP1.
47	the four-way valve is abnormal	U7		OFF 3s and blink 20 times					If this malfunction occurs during heating operation, the complete unit will stop operation.	1.Supply voltage is lower than AC175V; 2.Wiring terminal 4V is loosened or broken; 3.4V is damaged, please replace 4V.
48	zero crossing malfunction of outdoor unit	U9	OFF 3s and blink 18 times						During cooling operation, compressor will stop while indoor fan will operate; during heating,the complete unit will stop operation.	Replace outdoor control panel AP1
49	frequency limiting (power)						OFF 1 and blink 13 times			
50	compressor running					OFF 1s and blink 13 times				
51	the temperature for turning on the unit is reached						OFF 1s and blink 8 times			
52	frequency limiting (module temperature)						OFF 1s and blink 11 times			

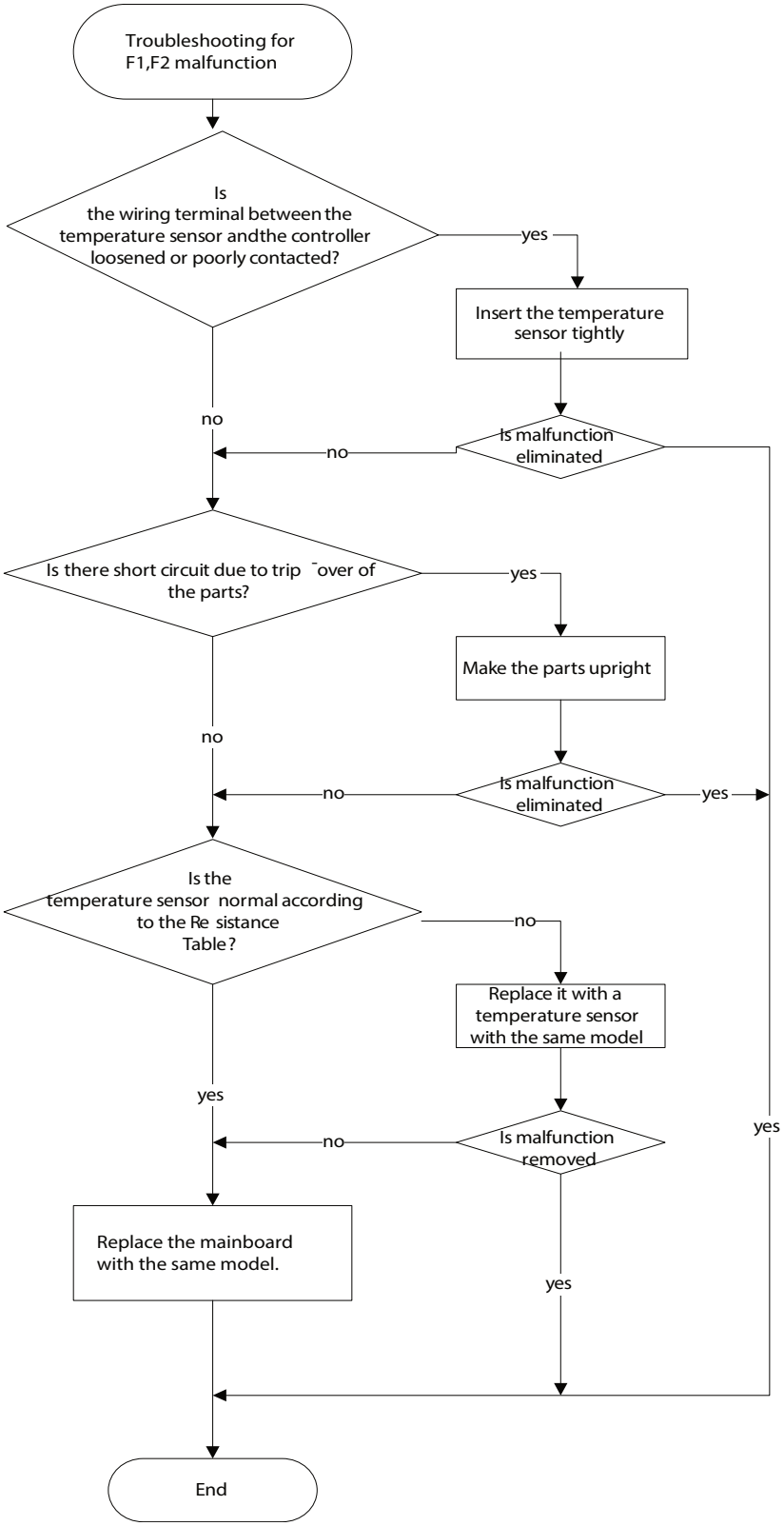
TROUBLESHOOTING

Diagnostic Codes

No.	Malfunction Name	Display Method of Indoor Unit				Display Method of Outdoor Unit			A/C status	Possible Causes
		Dual-8 Code Display	Indicator Display (During blinking, ON 0.5s and OFF 0.5s)			Indicator has 3 kinds of display status and during blinking, ON 0.5s and OFF 0.5s				
			Power Indicator	Cool Indicator	Heating Indicator	Yellow Indicator	Red Indicator	Green Indicator		
53	normal communication							OFF 0.5s and blink once		
54	defrosting	H1		OFF 3s and blink once (during blinking, ON 10S AND OFF 0.5S	OFF 1s and blink twice				Defrosting will occur in heating mode. Compressor will operate while indoor fan will stop operation.	Its the normal state
55	malfunction of zero-cross detection circuit	U8							The Complete Unit Stops	1. Power supply is abnormal 2. Detection circuit of indoor control mainboard is abnormal.
56	Malfunction of detecting plate (WIFI)	JF								

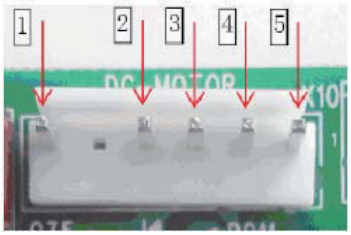
TROUBLESHOOTING

Malfunction of Temperature Sensor F1, F2



TROUBLESHOOTING

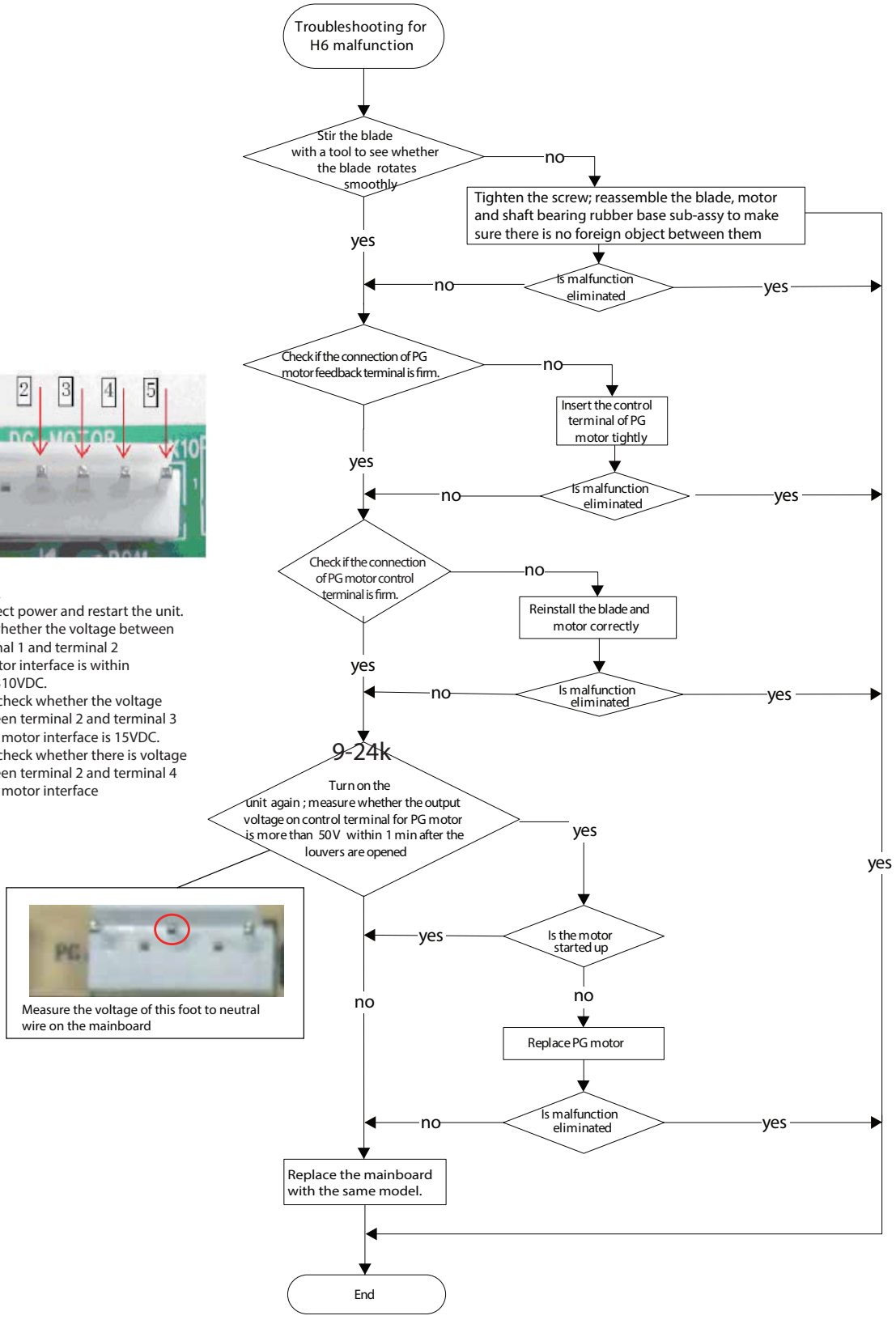
Malfunction of blocked Protection of IDU Fan Motor H6



36k

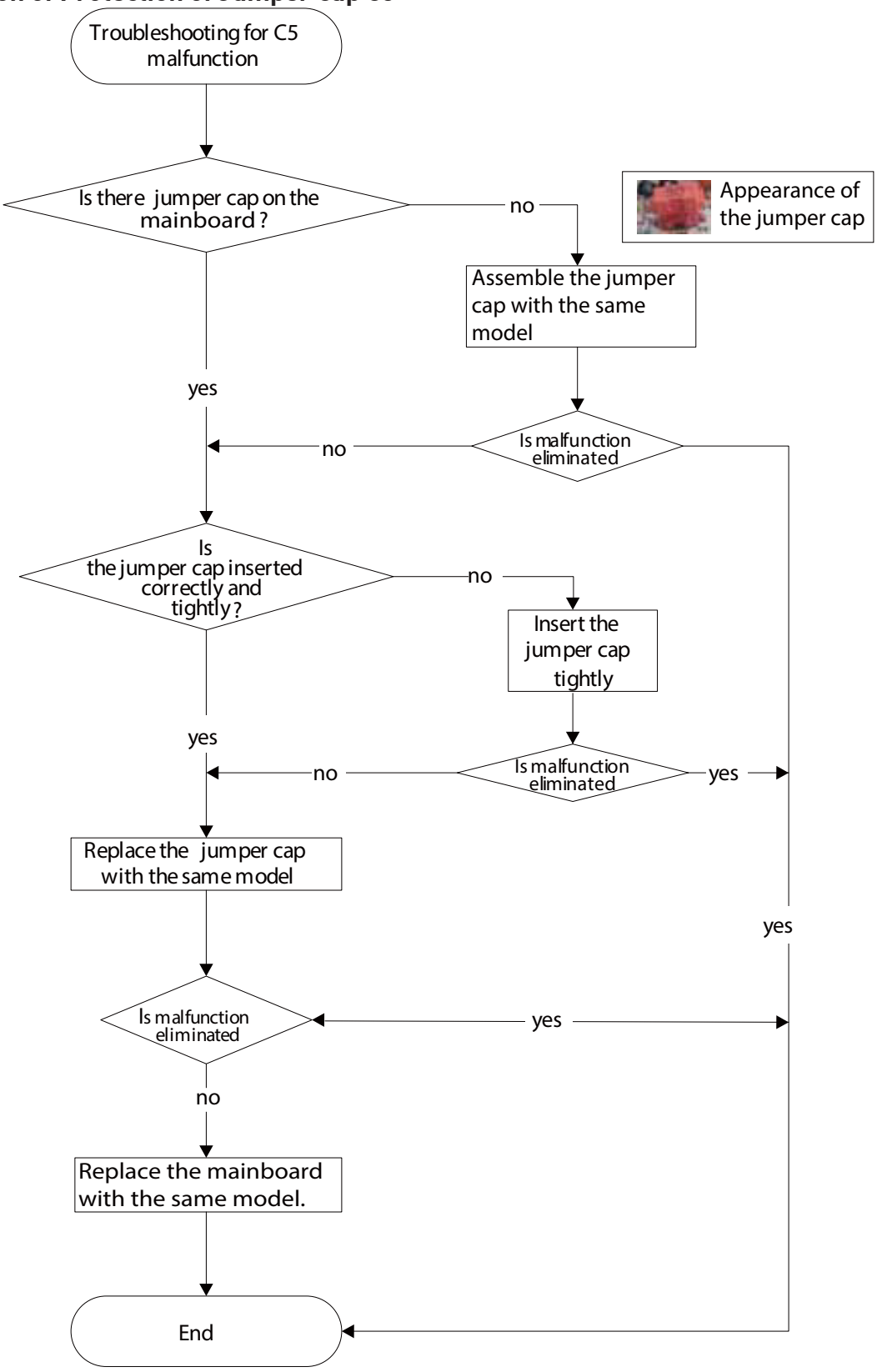
Connect power and restart the unit.
Test whether the voltage between terminal 1 and terminal 2 of motor interface is within 280~310VDC.
Then check whether the voltage between terminal 2 and terminal 3 of the motor interface is 15VDC.
Then check whether there is voltage between terminal 2 and terminal 4 of the motor interface

Measure the voltage of this foot to neutral wire on the mainboard



TROUBLESHOOTING

Malfunction of Protection of Jumper Cap C5



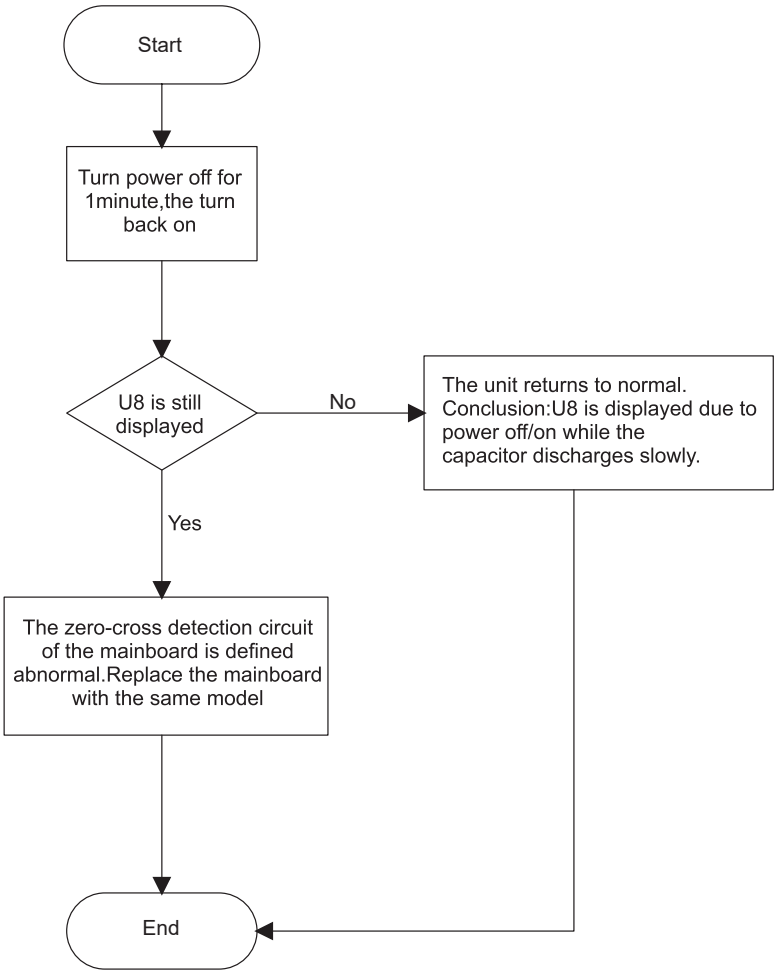
TROUBLESHOOTING

Malfunction of IDU Fan Motor U8

Main detection points:

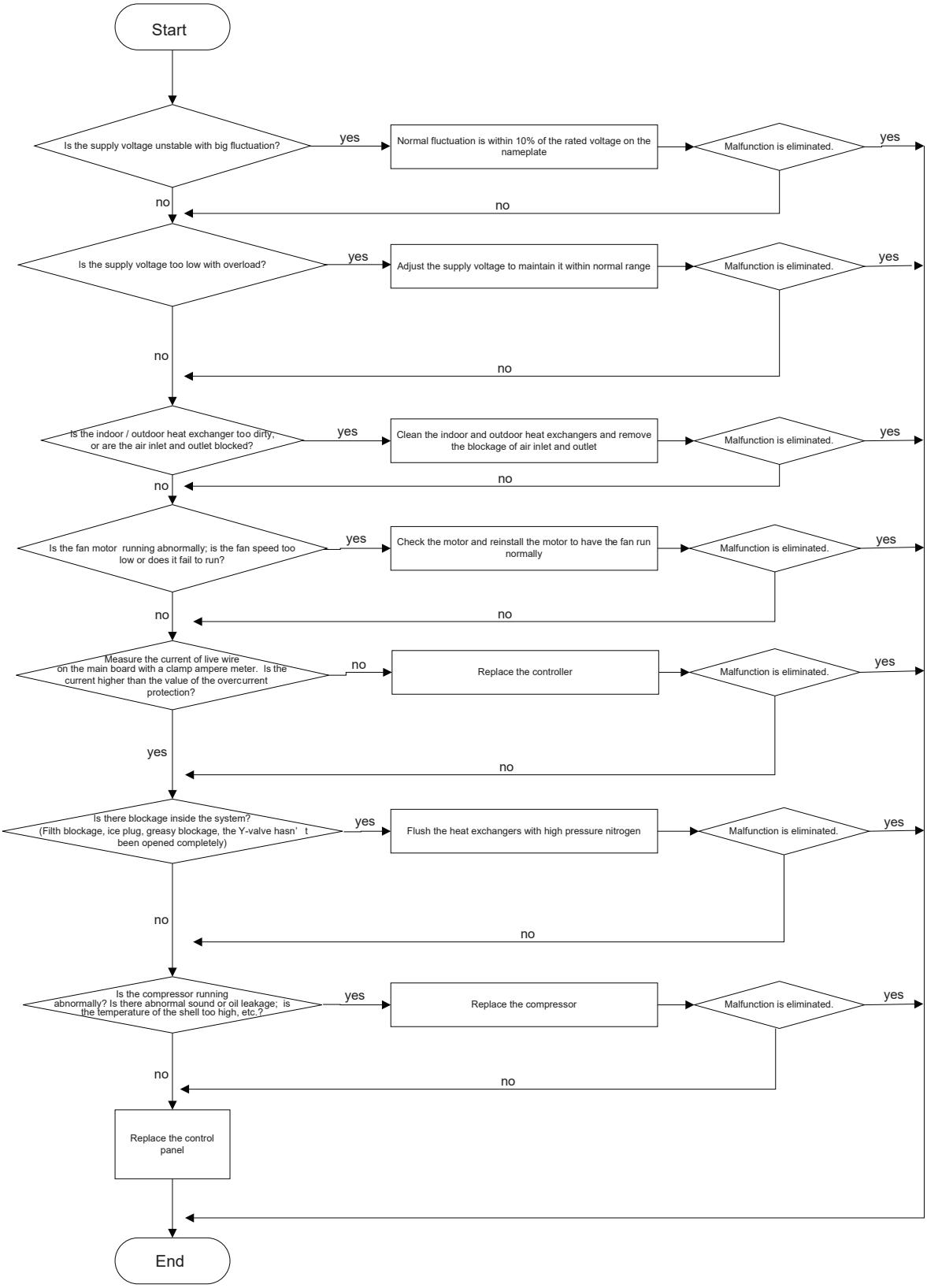
- Instant energization afte de-energization while the capacitordischarges slowly?
- The zero-cross detectioncircuit of the mainboard is defined abnormal?

Malfunction diagnosis process:



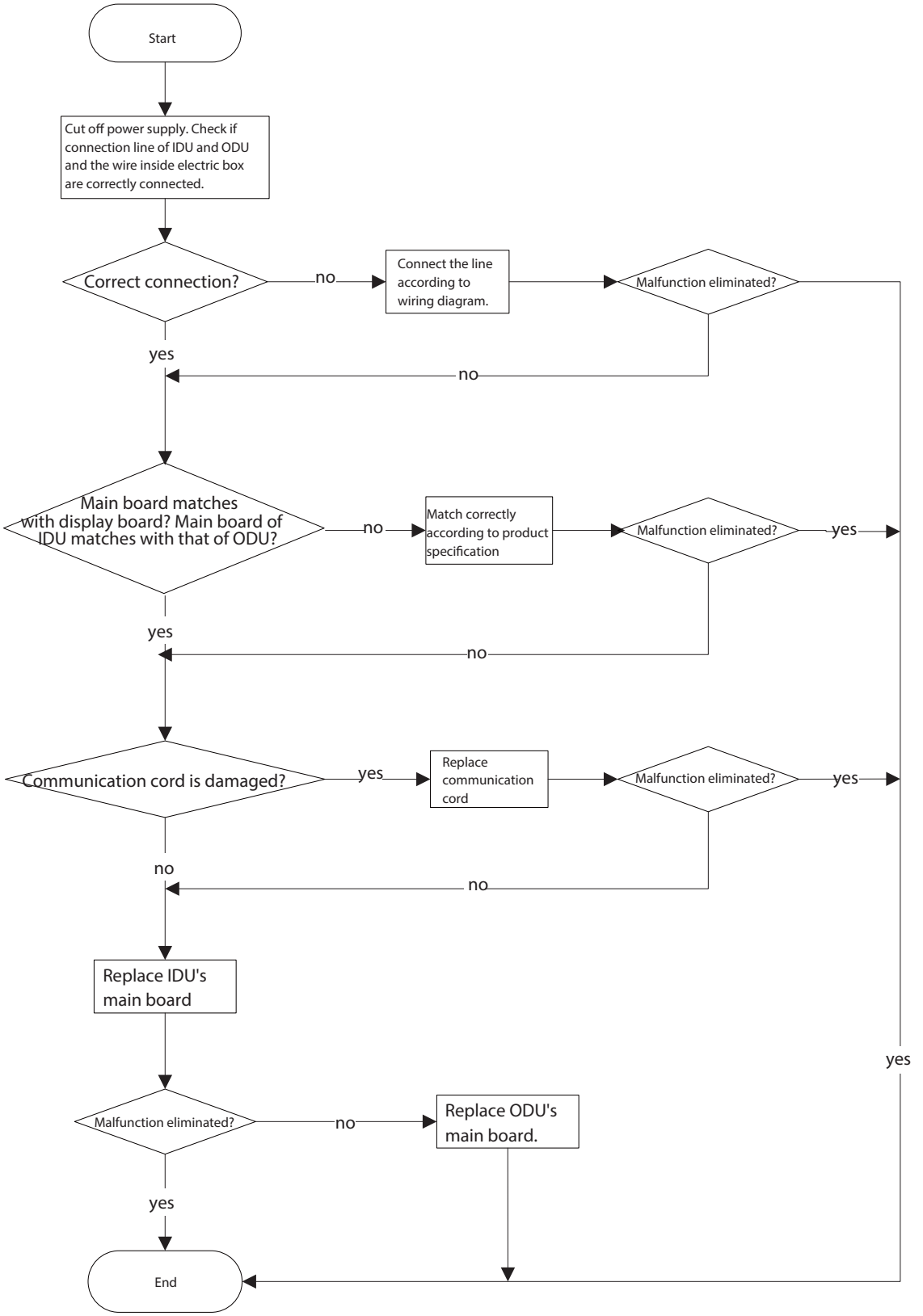
TROUBLESHOOTING

Overcurrent Protection E5



TROUBLESHOOTING

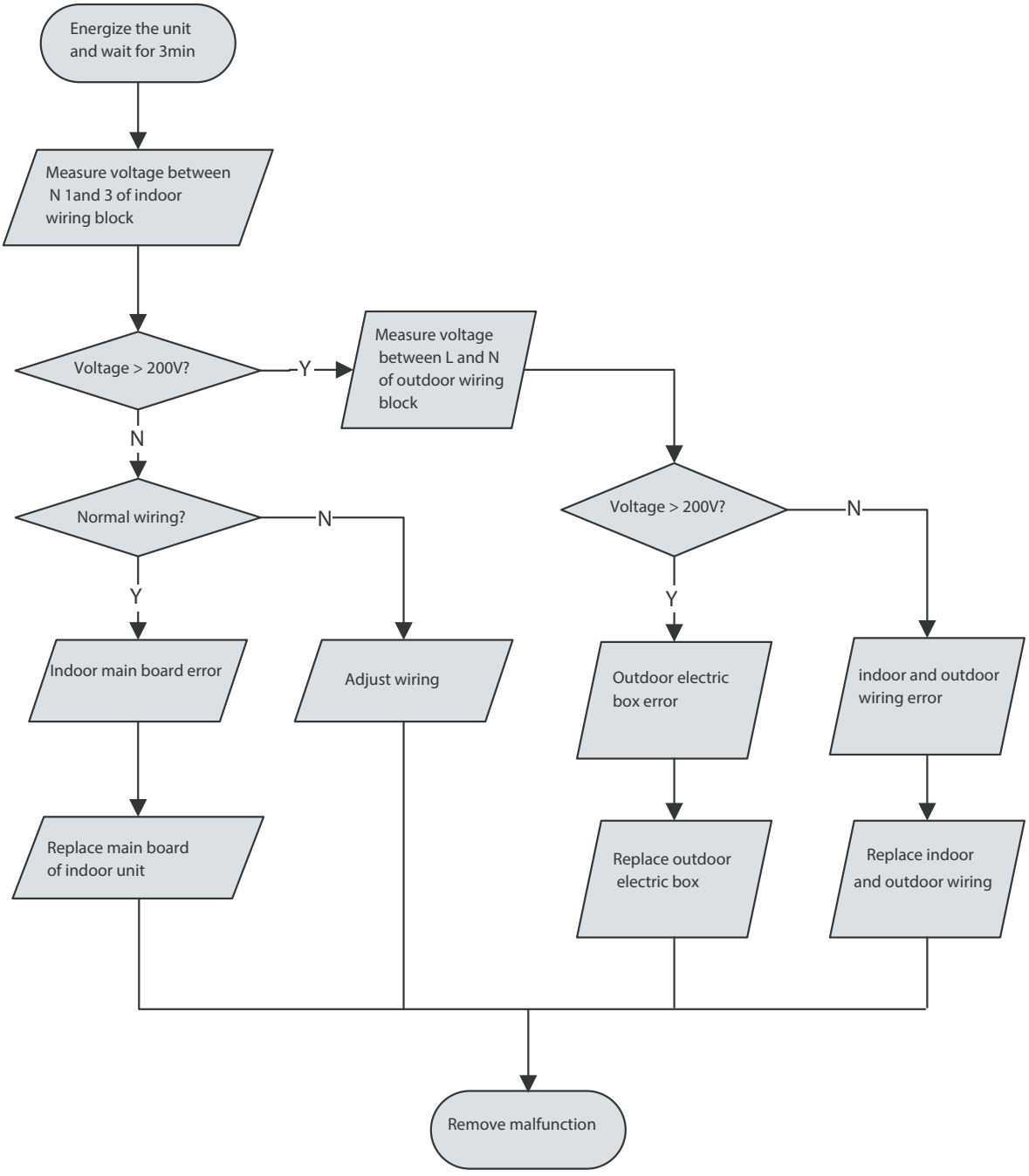
Malfunction of Communication E6



TROUBLESHOOTING

Malfunction of Power Supply from Indoor to Outdoor Unit

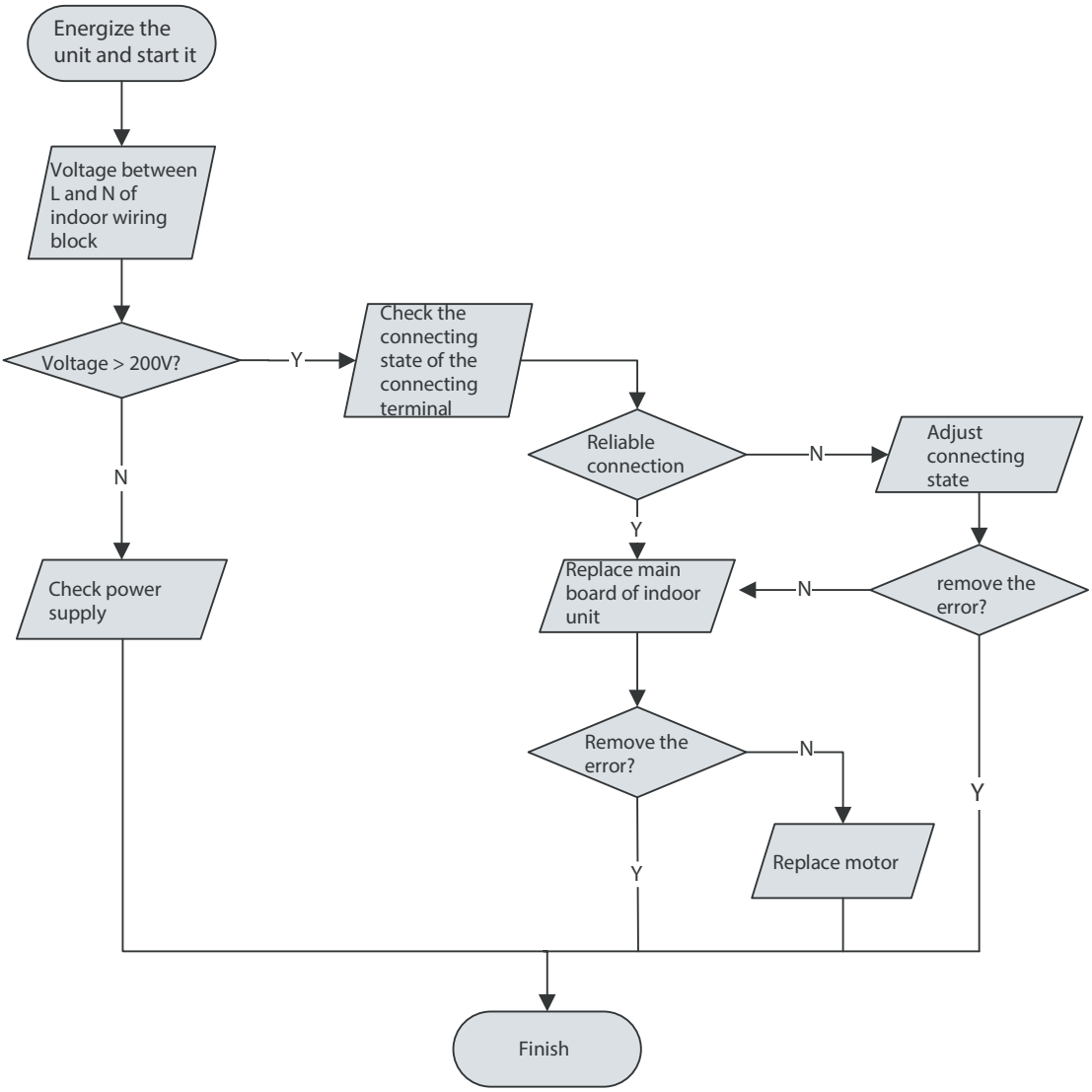
Inspect the power supply plug seat wit hAC voltage guage to check if voltage between L and N is within 200VAC-240 VAC.
Check with AC voltage gauge if the voltage between N1 and 3 of indoor wiring block is within 200 VAC-240AC



TROUBLESHOOTING

Indoor fan does not rotate and there is no Feedback

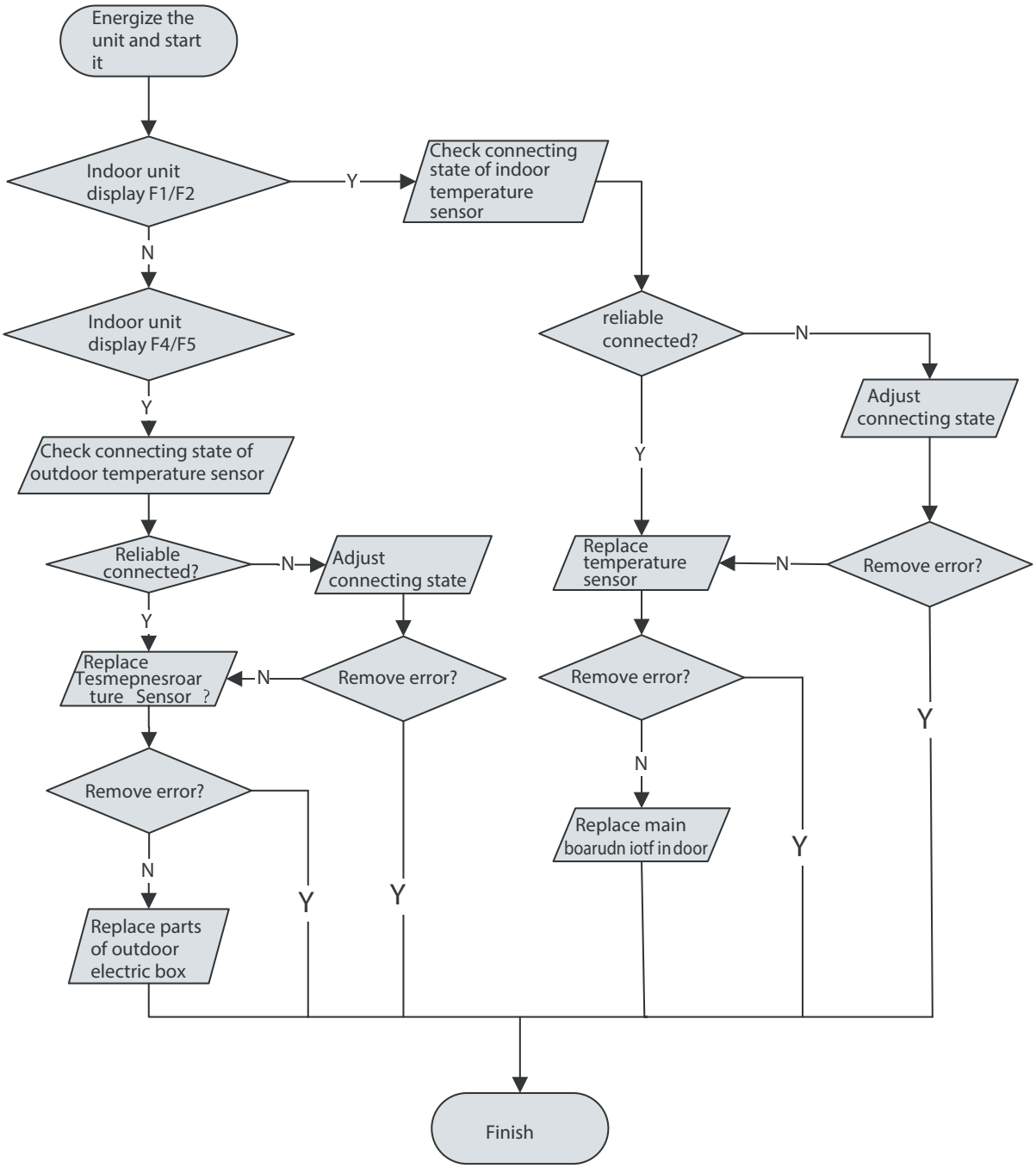
Is the control panel reliably connected with the motor? Is it loose? Is the connecting sequence correct?
Is the input voltage within the normal range (measure the voltage between L and N of the wiring block XT with AC voltage gauge.)?



TROUBLESHOOTING

Temperature sensor malfunction

Is outdoor ambient temperature within the normal range?
Is indoor and outdoor fan running normally?
Is the radiating environment inside and outside the unit good enough?



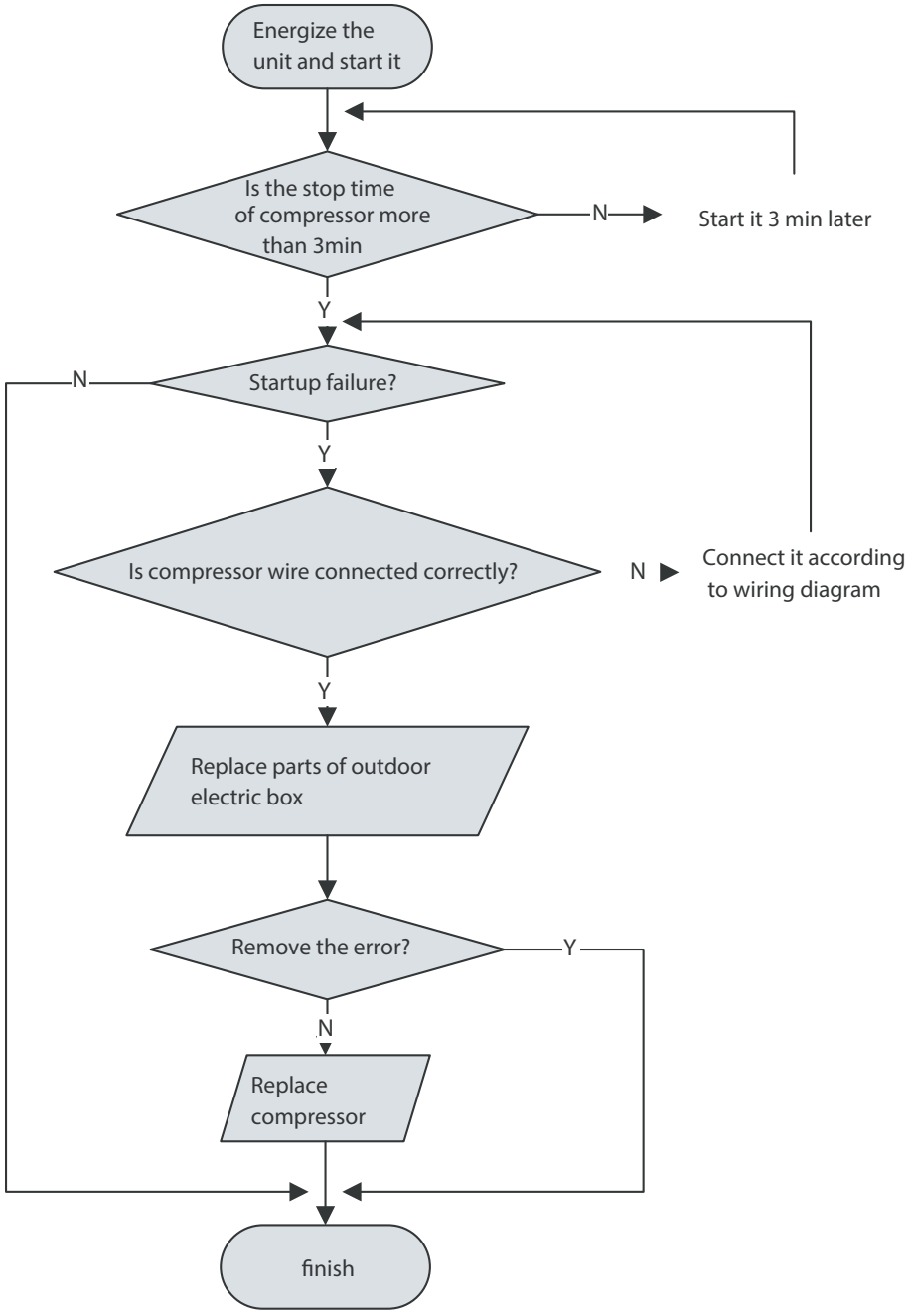
TROUBLESHOOTING

Malfunction diagnosis of startup failure

Is wiring of compressor correct.

Is the stop time of compressor enough?

Is compressor damaged?

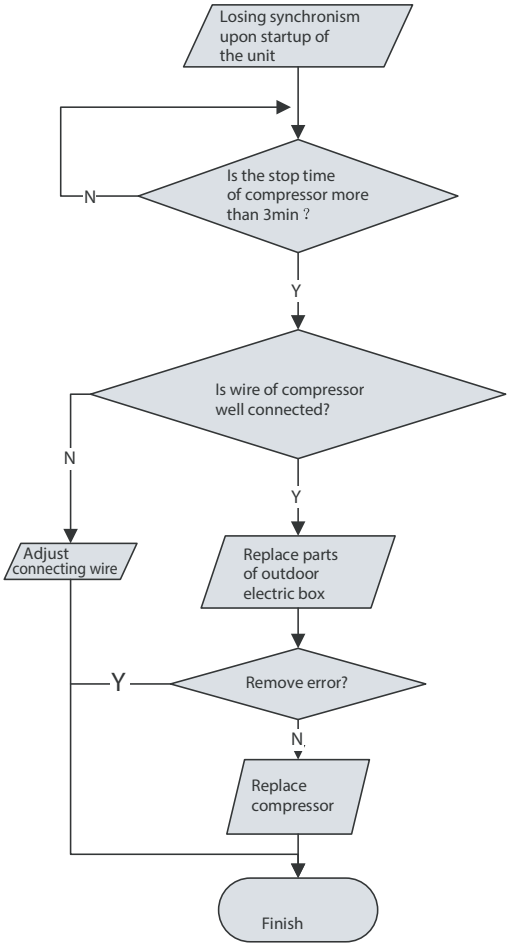


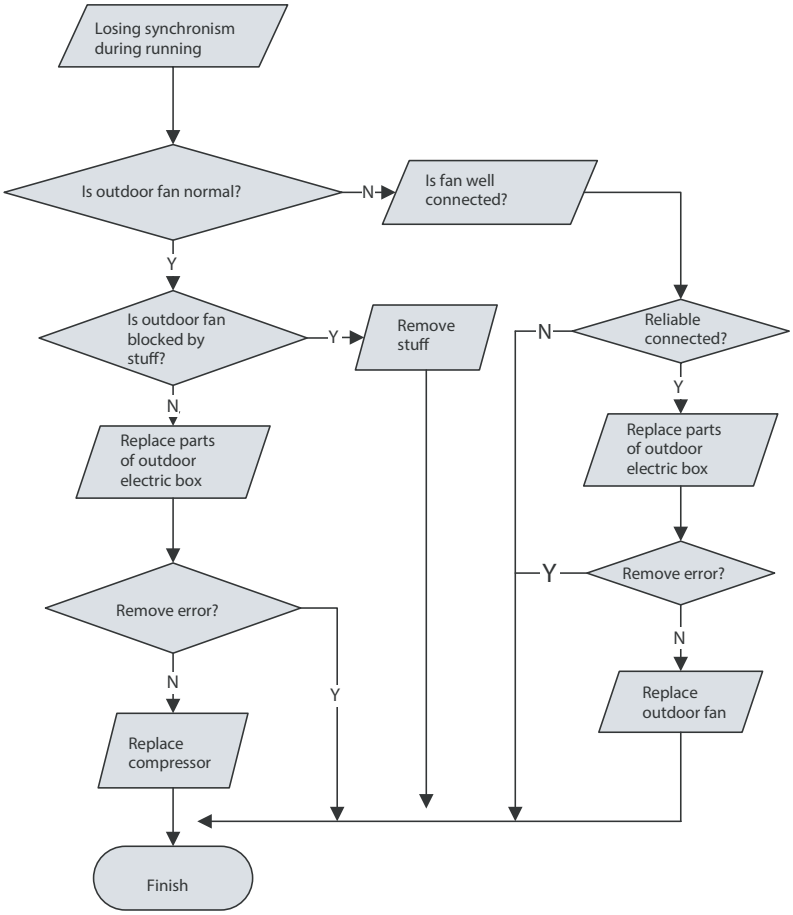
TROUBLESHOOTING

Diagnosis of losing synchronism for compressor

Is pressure of the system too high?

Is voltage too low?

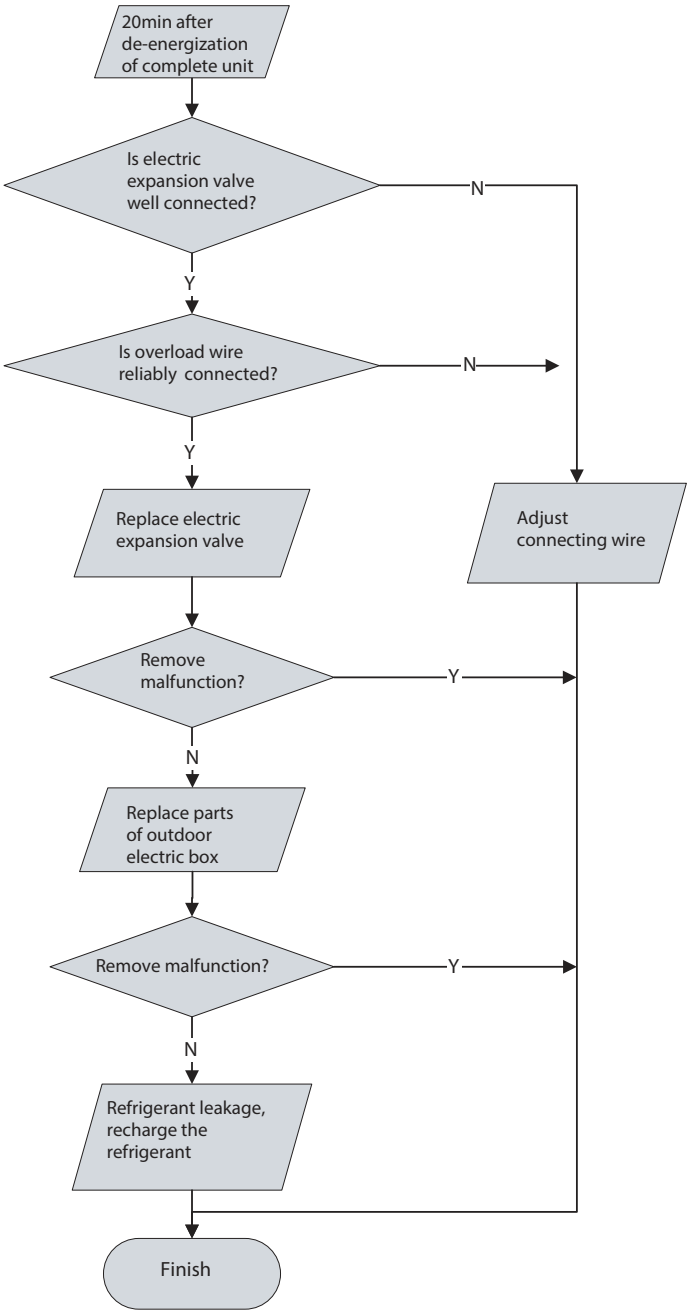




TROUBLESHOOTING

Diagnosis of overload and discharge malfunction

Is electric expansion valve well connected? Is it damaged?
Is refrigerant leaked?
Is overload wire connection normal?
Are resistances between the first four pins close to the terminal hole and the 5th pin almost the same.? They should be less than 100 ohm.



TROUBLESHOOTING

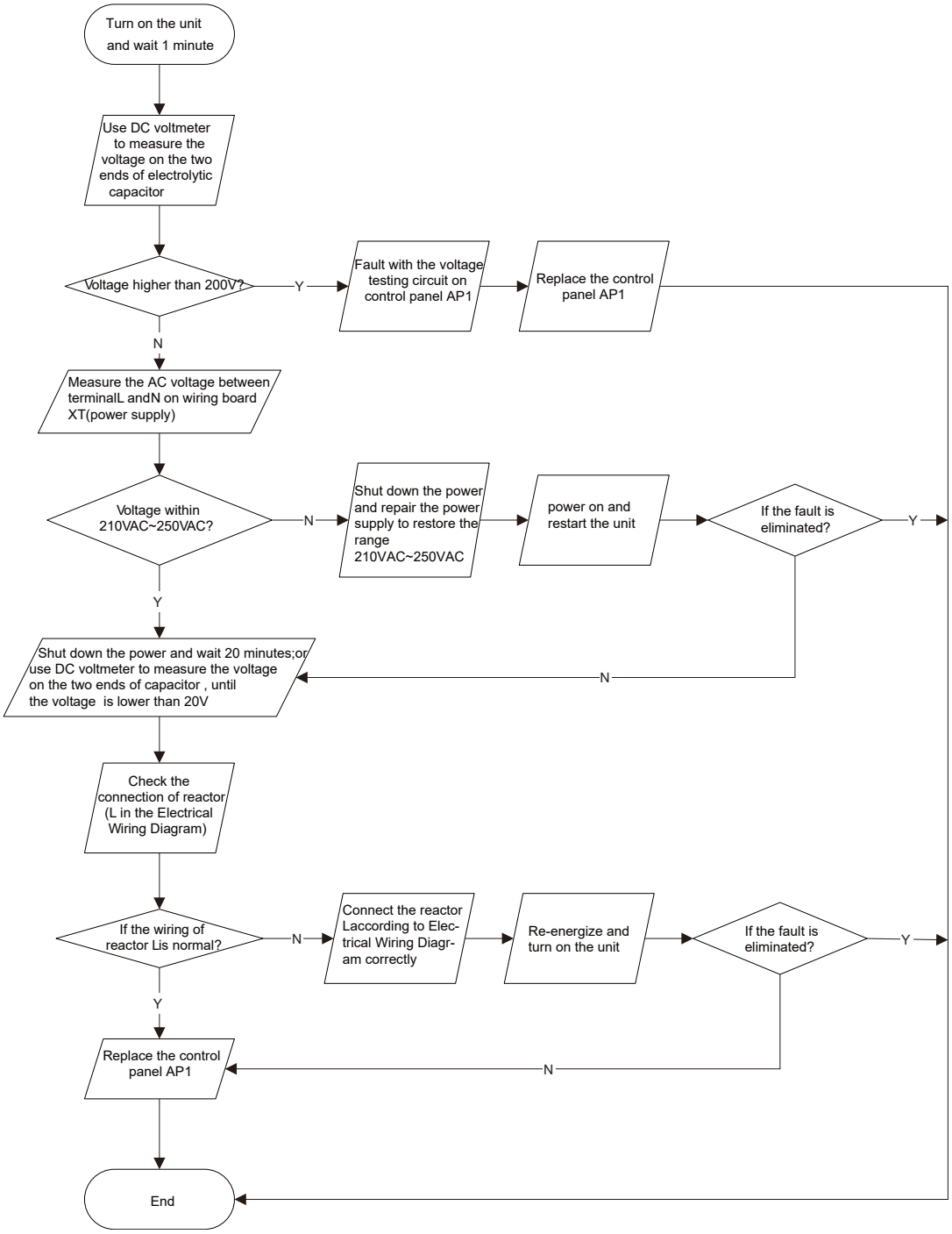
Capacity Charging malfunction (Outdoor unit;18k, 24k, and 36k)

1) Capacitor charge fault (Fault with outdoor unit) (AP1 below refers to the outdoor control panel)

Main Check Points:

Use AC voltmeter to check if the voltage between terminal L and N on the wiring board is within 210VAC~240VAC.

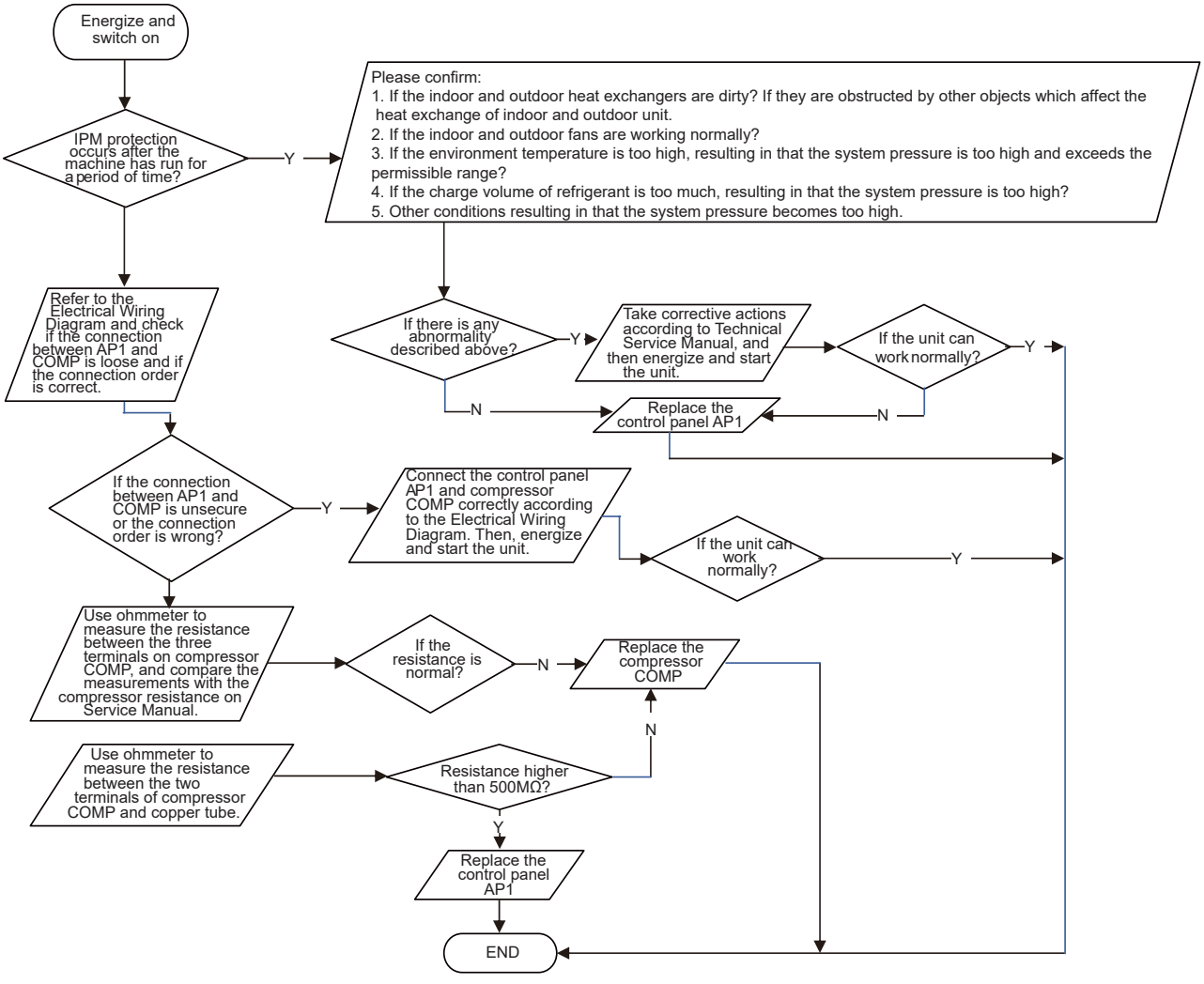
If the reactor (L) is correctly connected? If the connection is loose or fallen? If the reactor (L) is damaged?



TROUBLESHOOTING

IPM Protection, Out-of-Step Fault, Compressor Phase Overcurrent

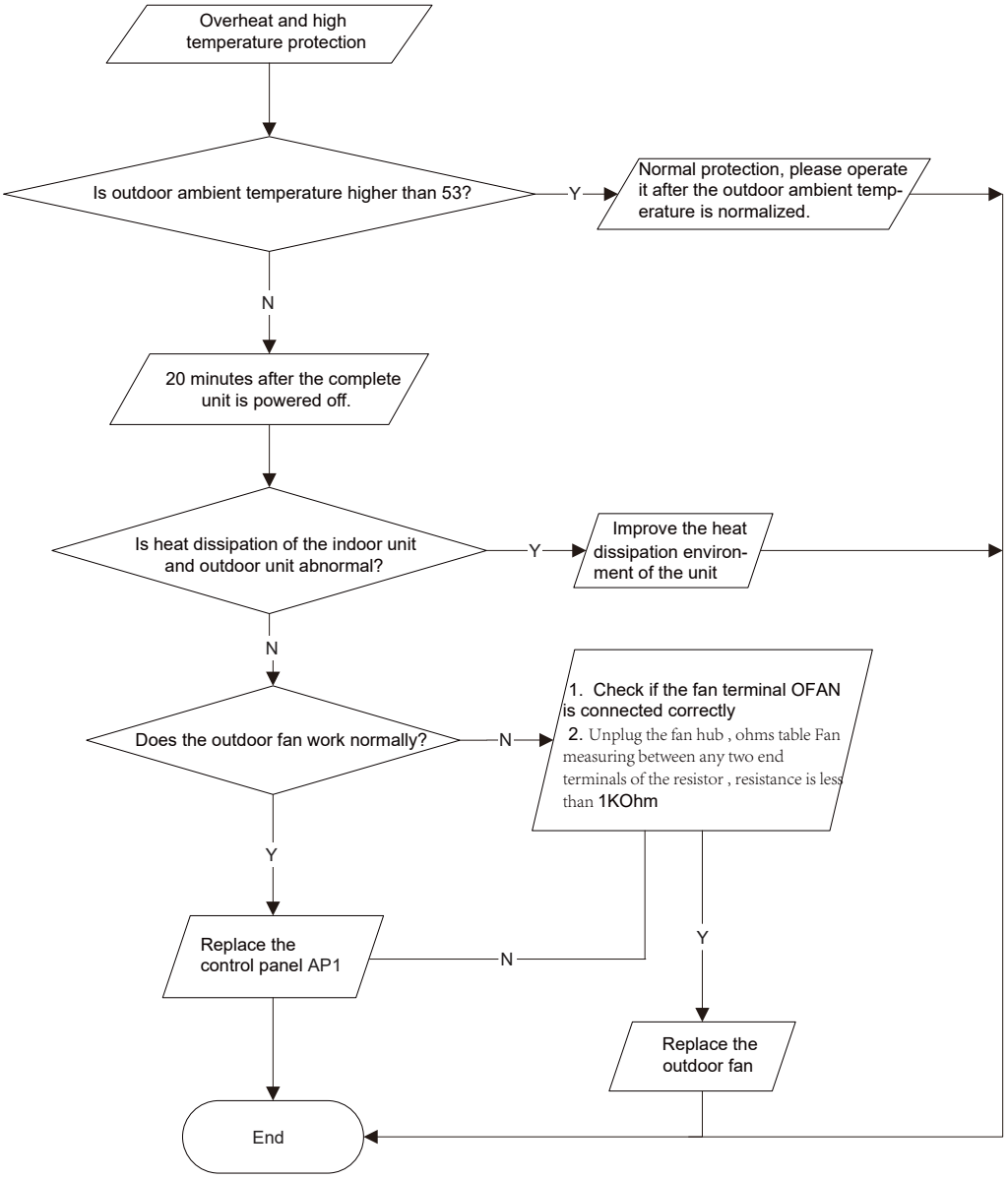
If the connection between control panel AP1 and compressor COMP is secure? If loose? If the connection is in correct order?
If the voltage input of the machine is within normal range? (Use AC voltmeter to measure the voltage between terminal L and N on the wiring board XT)
If the compressor coil resistance is normal? If the insulation of compressor coil against the copper tube is in good condition?If the working load of the machine are too high? If the radiation is good?
If the charge volume of refrigerant is correct?
(AP1 below refers to the outdoor control panel)



TROUBLESHOOTING

High temperature and Overload Protection Diagnosis

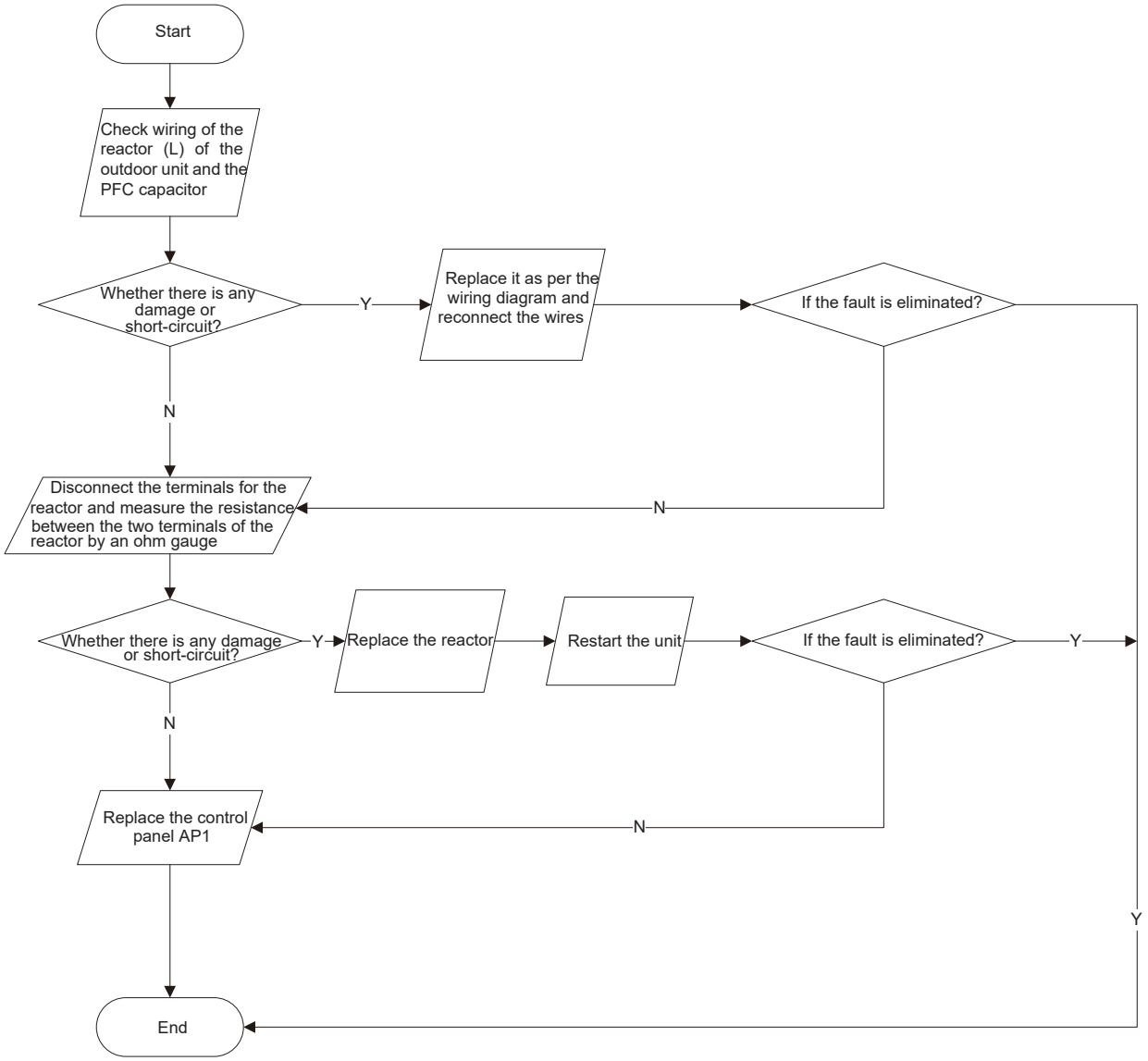
Is outdoor ambient temperature in normal range?
Are the outdoor and indoor fans operating normally?
Is the heat dissipation environment inside and outside the unit is good?
(AP1 below refers to the outdoor control panel)



TROUBLESHOOTING

PFC (Correction Power Factor) Outdor Unit Malfuction

AP1 hereinafter refers to the control board of the outdoor unit
Check if the reactor (L) of the outdoor unit and the PFC capacitor are broken



TROUBLESHOOTING

Troubleshooting for Normal Malfunction

Possible Causes	Discriminating Method (Air conditioner Status)	Troubleshooting
Air Conditioner will not start up		
No power supply, or poor connection for power plug	After energization, operation indicator isn't bright and the buzzer can't give out sound	Confirm whether it's due to power failure. If yes, wait for power recovery. If not, check power supply circuit and make sure the power plug is connected well.
"Wrong wire connection between indoor unit and outdoor unit, or poor connection for wiring terminals"	Under normal power supply circumstances, operation indicator isn't bright after energization	Check the circuit according to circuit diagram and connect wires correctly. Make sure all wiring terminals are connected firmly
Electric leakage for air conditioner	After energization, room circuit breaker trips off at once	"Make sure the air conditioner is grounded reliably Make sure wires of air conditioner is connected correctly Check the wiring inside air conditioner. Check whether the insulation layer of power cord is damaged; if yes, place the power cord."
Model selection for air switch is improper	After energization, air switch trips off	Select proper air switch
Malfunction of remote controller	After energization, operation indicator is bright, while no display on remote controller or buttons have no action.	Replace batteries for remote controller Repair or replace remote controller
Poor Cooling (Heating) for Air Conditioner		
Set temperature is improper	Observe the set temperature on remote controller	Adjust the set temperature
Rotation speed of the IDU fan motor is set too low	Small wind blow	Set the fan speed at high or medium
Filter of indoor unit is blocked	Check the filter to see it's blocked	Clean the filter
Installation position for indoor unit and outdoor unit is improper	Check whether the installation postion is proper according to installation requirement for air conditioner	Adjust the installation position, and install the rainproof and sunproof for outdoor unit
Refrigerant is leaking	Discharged air temperature during cooling is higher than normal discharged wind temperature; Discharged air temperature during heating is lower than normal discharged wind temperature; Unit's pressure is much lower than regulated range	Find out the leakage causes and deal with it. Add refrigerant.
Malfunction of 4-way valve	Blow cold wind during heating	Replace the 4-way valve
Malfunction of capillary	Discharged air temperature during cooling is higher than normal discharged wind temperature; Discharged air temperature during heating is lower than normal discharged wind temperature; Unit't pressure is much lower than regulated range. If refrigerant isn't leaking, part of capillary is blocked	Replace the capillary

TROUBLESHOOTING

Troubleshooting for normal Malfunction

Possible Causes	Discriminating Method (Air conditioner Status)	Troubleshooting
Flow volume of valve is insufficient	The pressure of valves is much lower than that stated in the specification	Open the valve completely
Malfunction of horizontal louver	Horizontal louver can't swing	Refer to point 3 of maintenance method for details
Malfunction of the IDU fan motor	The IDU fan motor can't operate	Refer to troubleshooting for H6 for maintenance method in details
Malfunction of the ODU fan motor	The ODU fan motor can't operate	Refer to point 4 of maintenance method for details
Malfunction of compressor	Compressor can't operate	Refer to point 5 of maintenance method for details
Horizontal Louver Will Not Swing		
Wrong wire connection, or poor connection	Check the wiring status according to circuit diagram	Connect wires according to wiring diagram to make sure all wiring terminals are connected firmly
Stepping motor is damaged	Stepping motor can't operate	Repair or replace stepping motor
Main board is damaged	Others are all normal, while horizontal louver can't operate	Replace the main board with the same model
ODU Fan Moto Can't Operate		
Wrong wire connection, or poor connection	Check the wiring status according to circuit diagram	"Connect wires according to wiring diagram to make sure all wiring terminals are connected firmly"
Capacity of the ODU fan motor is damaged	"Measure the capacity of fan capacitor with an universal meter and find that the capacity is out of the deviation range indicated on the nameplate of fan capacitor."	Replace the capacity of fan
"Power voltage is a little low or high"	"Use universal meter to measure the power supply voltage. The voltage is a little high or low"	Suggest to equip with voltage regulator
Motor of outdoor unit is damaged	"When unit is on, cooling/heating performance is bad and ODU compressor generates a lot of noise and heat."	Change compressor oil and refrigerant. If no better, replace the compressor with a new one
Compressor Can't operate		
Wrong wire connection, or poor connection	Check the wiring status according to circuit diagram	"Connect wires according to wiring diagram to make sure all wiring terminals are connected firmly"

TROUBLESHOOTING

Troubleshooting for normal Malfunction

Possible Causes	Discriminating Method (Air conditioner Status)	Troubleshooting
Capacity of compressor is damaged	"Measure the capacity of fan capacitor with an universal meter and find that the capacity is out of the deviation range indicated on the nameplate of fan capacitor."	Replace the compressor capacitor
"Power voltage is a little low or high"	"Use universal meter to measure the power supply voltage. The voltage is a little high or low"	Suggest to equip with voltage regulator
Coil of compressor is burnt out	"Use universal meter to measure the resistance between compressor terminals and it's 0"	Repair or replace compressor
Cylinder of compressor is blocked	Compressor can't operate	Repair or replace compressor
Air Conditioner is Leaking		
Drain pipe is blocked	Water leaking from indoor unit	"Eliminate the foreign objects inside the drain pipe"
Drain pipe is broken	Water leaking from drain pipe	Replace drain pipe
Wrapping is not tight	"Water leaking from the pipe connection place of indoor unit"	Wrap it again and bundle it tightly
Abnormal Sound and vibration		
"When turn on or turn off the unit, the panel and other parts will expand and there's abnormal sound"	There's the sound of "PAPA"	Normal phenomenon. Abnormal sound will disappear after a few minutes.
"When turn on or turn off the unit, there's abnormal sound due to flow of refrigerant inside air conditioner"	Water-running sound can be heard	Normal phenomenon. Abnormal sound will disappear after a few minutes.
"Foreign objects inside the indoor unit or there're parts touching together inside the indoor unit"	There's abnormal sound fro indoor unit	"Remove foreign objects. Adjust all parts' position of indoor unit, tighten screws and stick damping plaster between connected parts"
"Foreign objects inside the outdoor unit or there're parts touching together inside the outdoor unit"	There's abnormal sound fro outdoor unit	"Remove foreign objects. Adjust all parts' position of outdoor unit, tighten screws and stick damping plaster between connected parts"
"Short circuit inside the magnetic coil"	"During heating, the way valve has abnormal electromagnetic sound"	Replace magnetic coil
Abnormal shake of compressor	Outdoor unit gives out abnormal sound	"Adjust the support foot mat of compressor, tighten the bolts"

TROUBLESHOOTING

Troubleshooting for normal Malfunction

Possible Causes	Discriminating Method (Air conditioner Status)	Troubleshooting
Abnormal sound inside the compressor	Abnormal sound inside the compressor	"If add too much refrigerant during maintenance, please reduce refrigerant properly. Replace ircumstances."

WIRING DIAGRAMS

Symbol	Symbol Color	Symbol	Symbol Color	Symbol	Name
WH	White	GN	Green	CAP	Jumper cap
YE	Yellow	BN	Brown	COMP	Compressor
RD	Red	BU	Blue	⏚	Grounding wire
YEGN	Yellow/Green	BK	Black	/	/
VT	Violet	OG	Orange	/	/

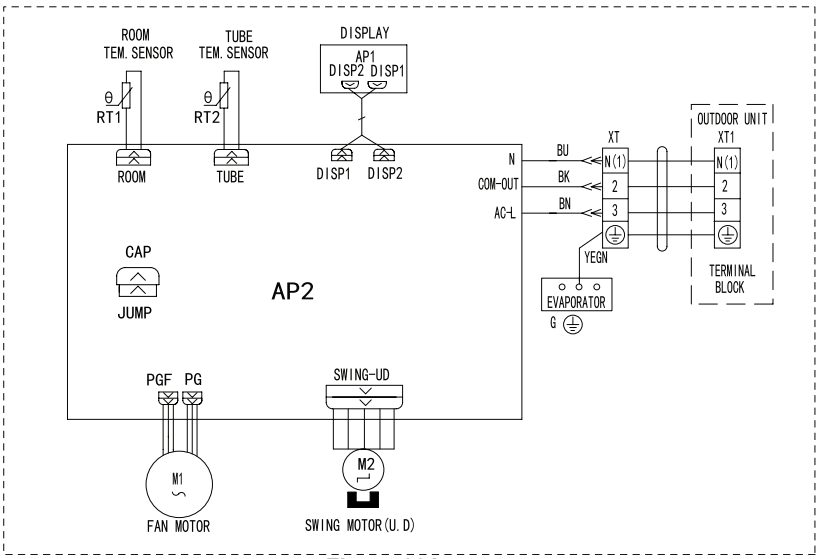


Figure 801

9-12K Indoor Unit Wiring Diagram

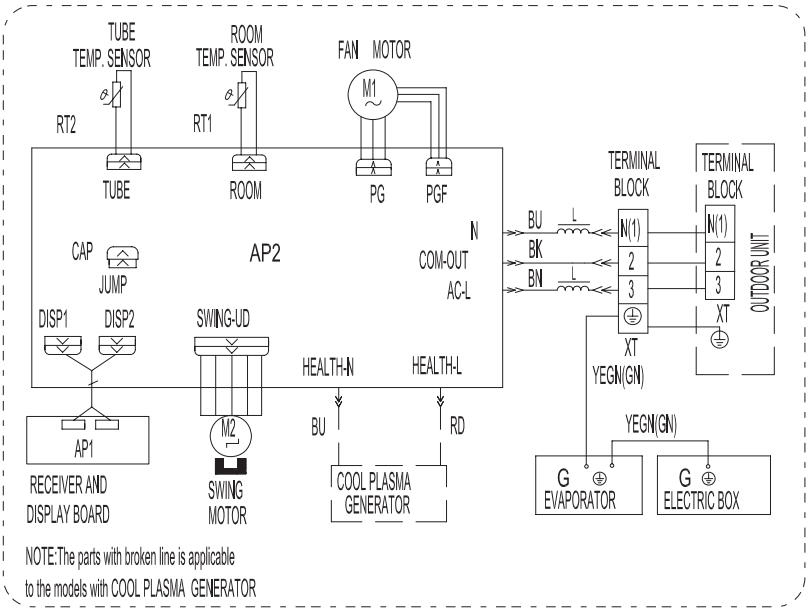


Figure 802

18K Indoor Unit Wiring Diagram

WIRING DIAGRAMS

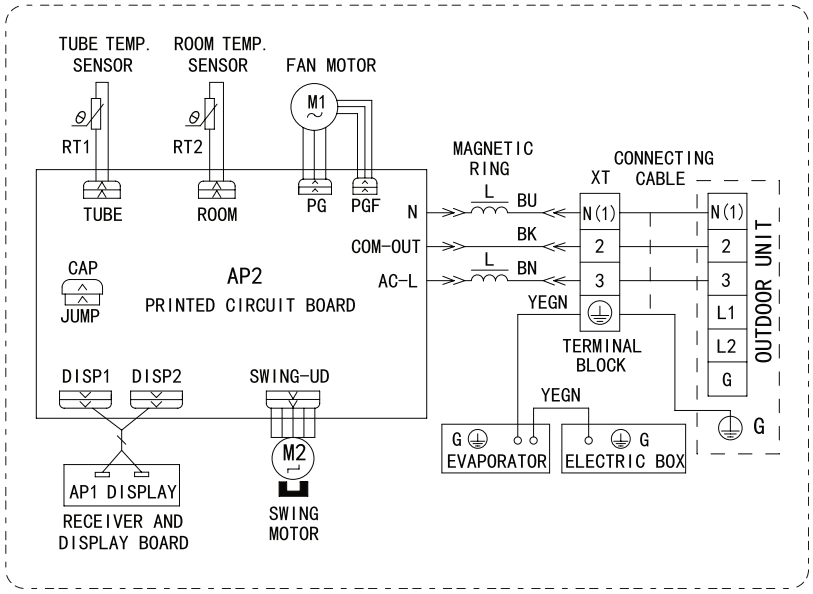


Figure 803

24K Indoor Unit Wiring Diagram

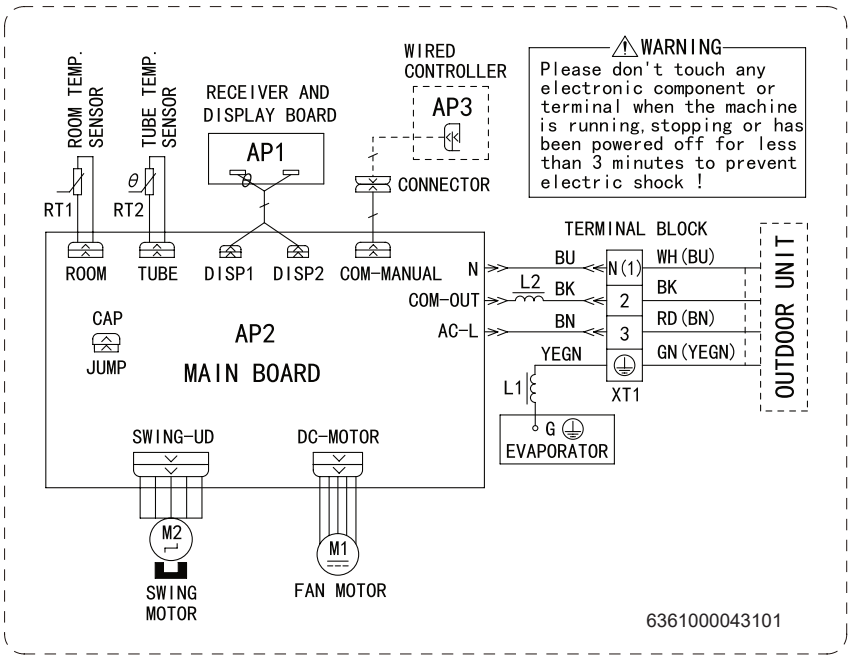


Figure 804

36K Indoor Unit Wiring Diagrams

WIRING DIAGRAMS

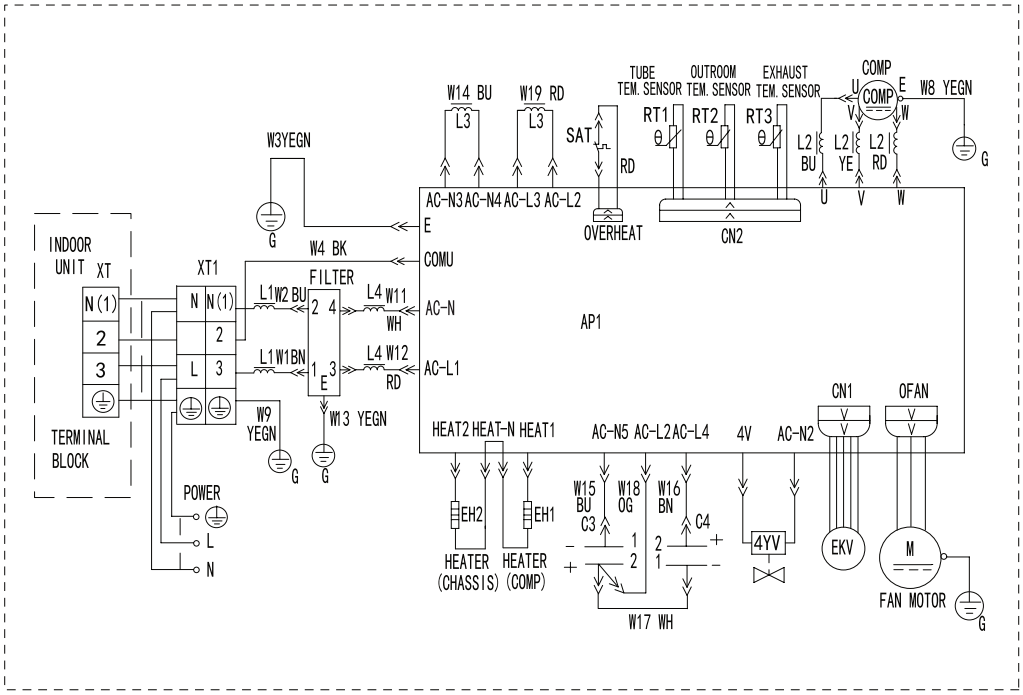


Figure 805

9-12K Outdoor Unit Wiring Diagrams

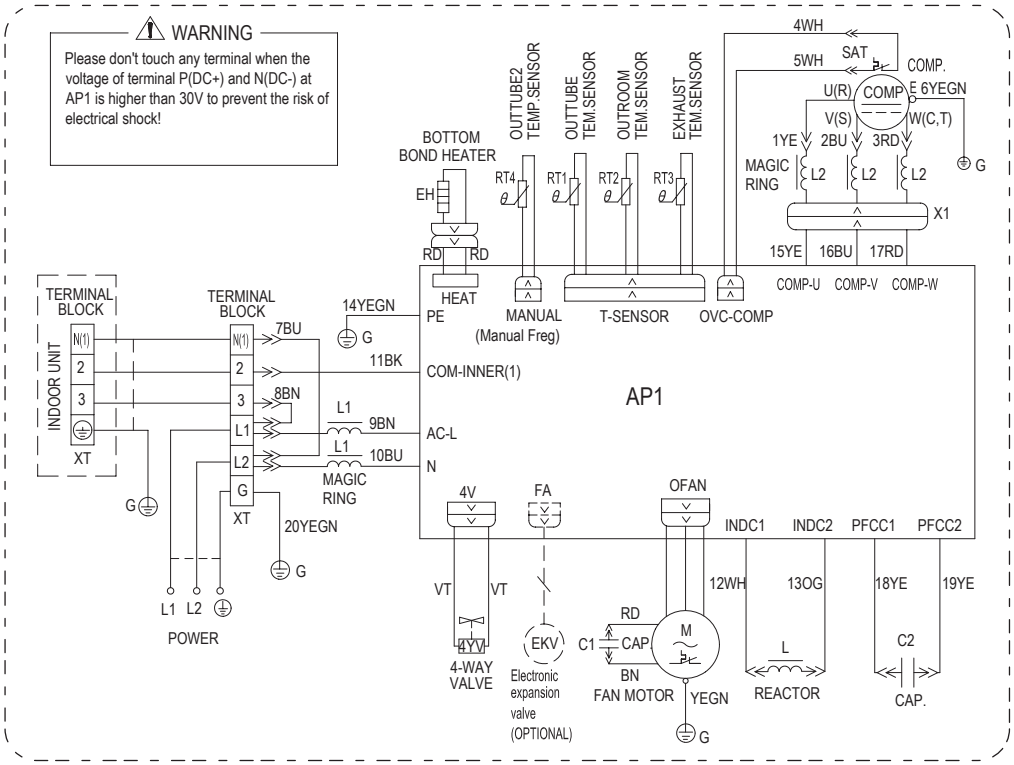


Figure 806

18k Outdoor Unit Wiring Diagrams

WIRING DIAGRAMS

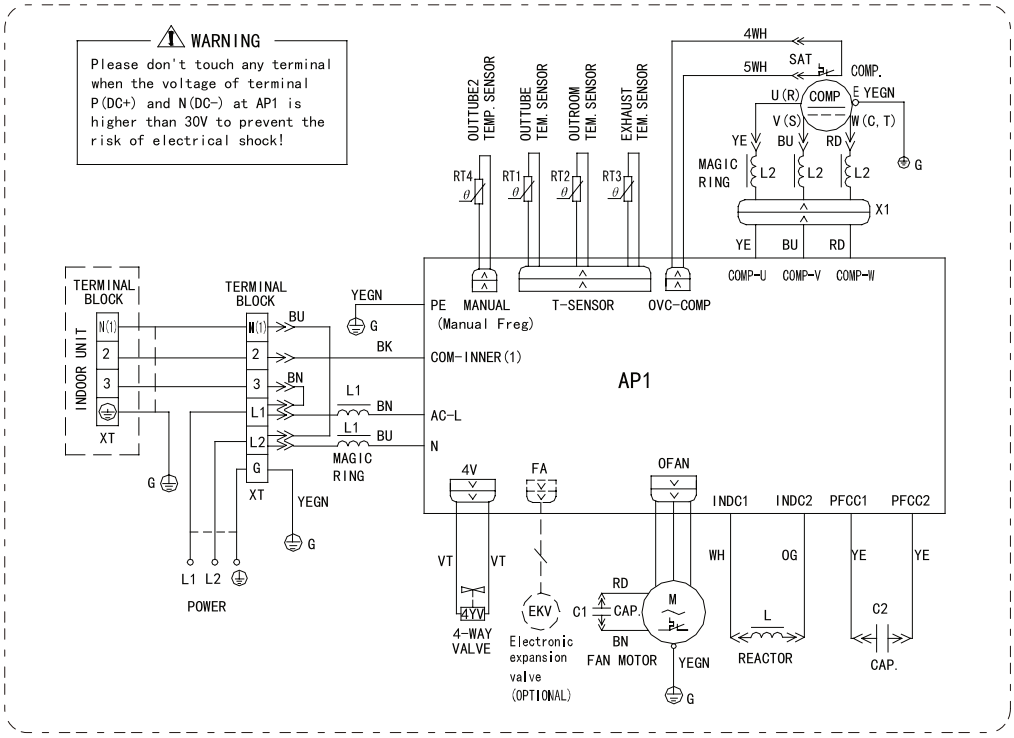


Figure 807

24k Outdoor Unit Wiring Diagrams

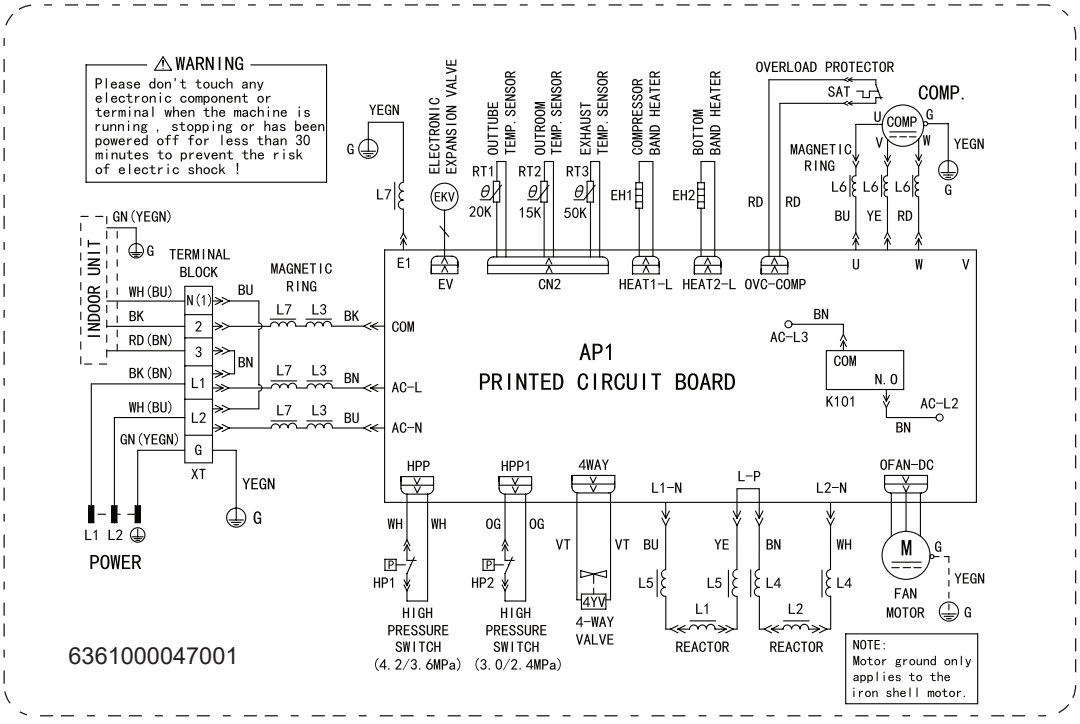


Figure 808

36k Outdoor Unit Wiring Diagrams

PARTS CATALOG

Indoor Unit MWM09Y1J, MWM12Y1J

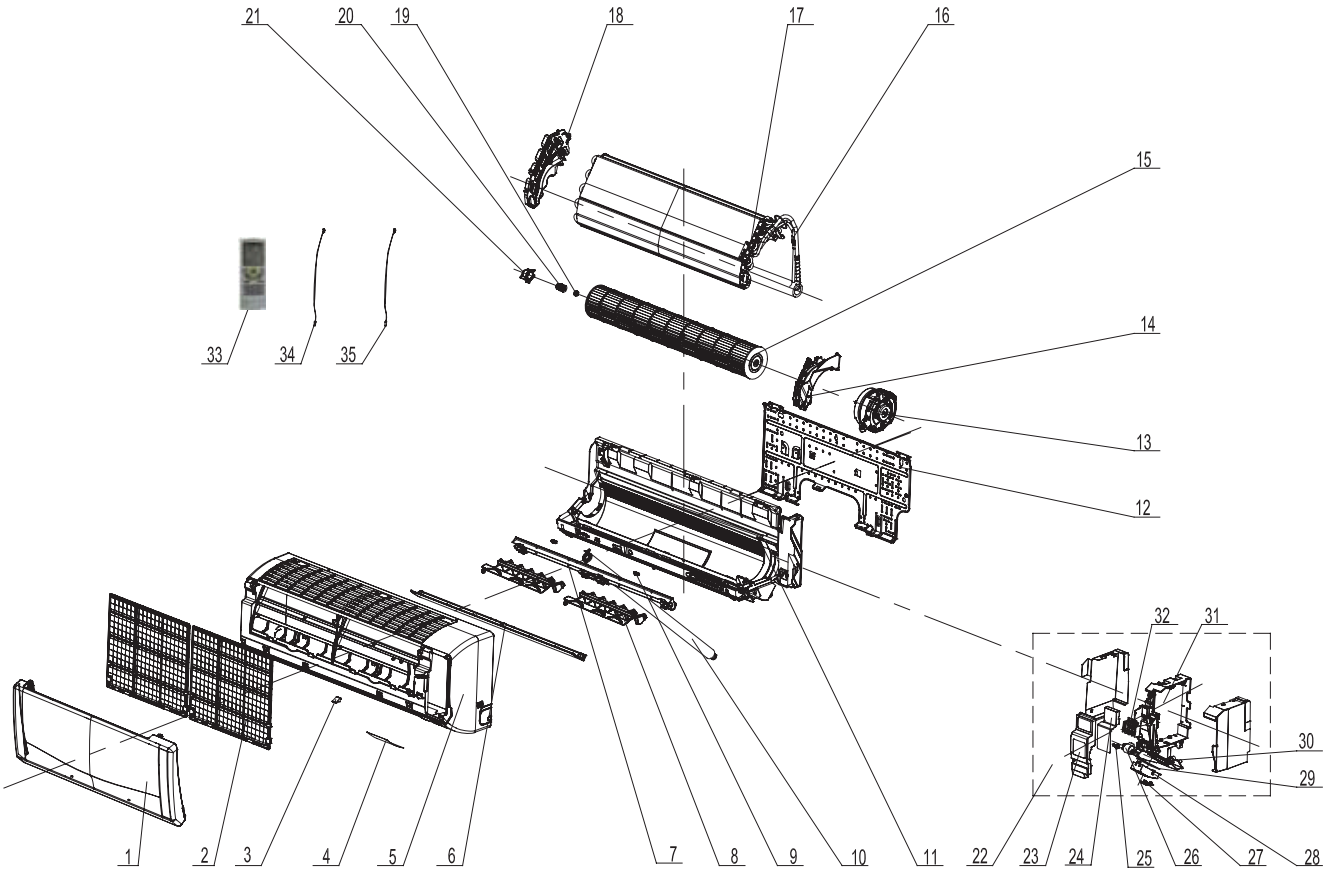


FIgure 901

PARTS CATALOG

Figure 901

Indoor Unit MWM09Y1J, MWM12Y1J

ITEM	PART NUMBER	PART DESCRIPTION	USED ON MODEL	QTY
1	69700336	Front Panel	MWM09Y1J, MWM12Y1J	1
2	69700337	Filter Sub-Assy	MWM09Y1J, MWM12Y1J	2
3	69700338	Screw Cover	MWM09Y1J, MWM12Y1J	1
4	69700339	Membrane	MWM09Y1J, MWM12Y1J	1
5	69700340	Front Case Assy	MWM09Y1J, MWM12Y1J	1
6	69700341	Guide Louver	MWM09Y1J, MWM12Y1J	1
7	69700342	Helicoid Tongue	MWM09Y1J, MWM12Y1J	1
8	69700330	Air Louver	MWM09Y1J, MWM12Y1J	2
9	69700343	Shaft of Guide Louver	MWM09Y1J, MWM12Y1J	2
10	69700344	Drainage Pipe Sub-assy	MWM09Y1J, MWM12Y1J	1
11	69700345	Rear Case assy	MWM09Y1J, MWM12Y1J	1
12	69700346	Wall Mounting Frame	MWM09Y1J, MWM12Y1J	1
13	69700347	Motor Sub-Assy	MWM09Y1J, MWM12Y1J	1
14	69700348	Motor Press Plate	MWM09Y1J, MWM12Y1J	1
15	69700349	Cross Flow Fan	MWM09Y1J, MWM12Y1J	1
16	69700366	Evaporator Assy	MWM09Y1J, MWM12Y1J	1
16	69700350	Evaporator Assy	MWM12Y1J	1
17	69700351	Temp Sensor Sleeving	MWM09Y1J, MWM12Y1J	1
18	69700352	Evaporator Support	MWM09Y1J, MWM12Y1J	1
19	68700159	Fan Bearing	MWM09Y1J, MWM12Y1J	1
20	69700353	Bearing Holder	MWM09Y1J, MWM12Y1J	1
21	69700354	Axil Bush Sub-assy	MWM09Y1J, MWM12Y1J	1
22	69700364	Electric Box Assy	MWM09Y1J, MWM12Y1J	1
23	69700356	Electric Box Cover Sub-Assy	MWM09Y1J, MWM12Y1J	1
24	69700357	Shield Cover	MWM09Y1J, MWM12Y1J	1
25	69700358	Crank	MWM09Y1J, MWM12Y1J	1
26	69700359	Stepping Motor	MWM09Y1J, MWM12Y1J	1
27	69700293	Indicator Shield Cover	MWM09Y1J, MWM12Y1J	1
28	69700294	Indicator Light Cover	MWM09Y1J, MWM12Y1J	1
29	69700295	Display Board	MWM09Y1J, MWM12Y1J	1
30	69700365	Electric Box Sub-Assy	MWM09Y1J	1
30a	69700360	Electric Box Sub-Assy	MWM12Y1J	1
31	69700361	Main Board	MWM09Y1J, MWM12Y1J	1
32	69700130	Terminal Board	MWM09Y1J, MWM12Y1J	1
33	69700657	Remote Controller	MWM09Y1J, MWM12Y1J	1
34	69700362	Tube Sensor	MWM09Y1J, MWM12Y1J	1
35	69700363	Ambient Temp Sensor	MWM09Y1J, MWM12Y1J	1

-ITEMS ARE NON- ILLUSTRATED
*ITEMS ARE NON-STOCKED, WILL NORMALLY REQUIRE 2-3 WEEKS LEAD TIME

PARTS CATALOG

Indoor Unit MWM18Y3J, MWM24Y3J

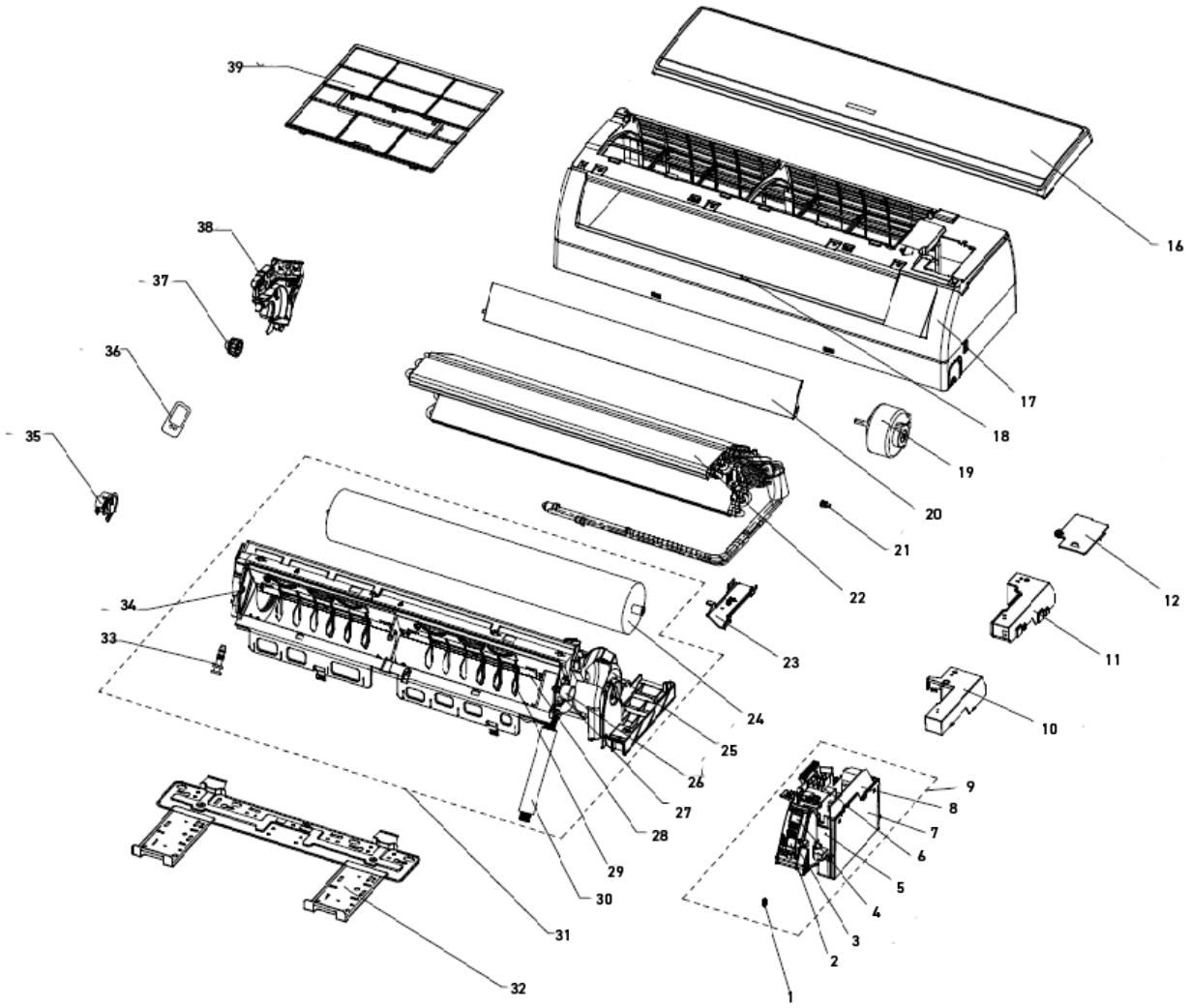


FIgure 902

PARTS CATALOG

Indoor Unit MWM18Y3J, MWM24Y3J

Figure 902

ITEM	PART NUMBER	PART DESCRIPTION	USED ON MODEL	QTY
1	69700315	Jumper	MWM18Y3J	1
1	69700464	Jumper	MWM24Y3J	1
2	69700293	Indicator Shield Gover	MWM18Y3J, MWM24Y3J	1
3	69700294	Indicator Light Cover	MWM18Y3J, MWM24Y3J	1
4	69700295	Display Board	MWM18Y3J, MWM24Y3J	1
5	69700296	Electric Box	MWM18Y3J, MWM24Y3J	1
6	69700130	Terminal Board	MWM18Y3J, MWM24Y3J	1
7	69700297	Electric Box Shield Cover	MWM18Y3J, MWM24Y3J	1
8	69700316	Main Board	MWM18Y3J	1
8	69700298	Main Board	MWM24Y3J	1
9	69700317	Electric Box Assy	MWM18Y3J	1
9	69700299	Electric Box Assy	MWM24Y3J	1
10	69700300	Electric Box Cover	MWM18Y3J	1
10	69700300	Electric Box Cover	MWM24Y3J	1
11	69700301	Electric Box Cover Shield	MWM18Y3J, MWM24Y3J	1
12	69700319	Electric Box Cover	MWM18Y3J	1
12	69700302	Electric Box Cover	MWM24Y3J	1
16	69700320	Front Panel	MWM18Y3J	1
16	69700303	Front Panel	MWM24Y3J	1
17	69700321	Front Case Assy	MWM18Y3J	1
17	69700304	Front Case Assy	MWM24Y3J	1
18	69700322	Screw Cover	MWM18Y3J	1
18	69700138	Screw Cover	MWM24Y3J	1
19	69700323	Fan Motor	MWM18Y3J	1
19	69700305	Fan Motor	MWM24Y3J	1
20	69700324	Louver Guide	MWM18Y3J	1
20	69700306	Louver Guide	MWM24Y3J	1
21	69700172	Axile Bush	MWM18Y3J, MWM24Y3J	1
22	69700325	Evaporator Assy	MWM18Y3J	1
22	69700307	Evaporator Assy	MWM24Y3J	1
23	69700118	Connecting pipe clamp	MWM18Y3J	1
23	69700308	Connecting pipe clamp	MWM24Y3J	1
24	69700326	Cross Fl ow Fan	MWM18Y3J	1
24	69700169	Cross Fl ow Fan	MWM24Y3J	1
25	69700327	Motor Press Plate	MWM18Y3J	1
25	69700185	Motor Press Plate	MWM24Y3J	1
26	69700328	Stepping Motor	MWM18Y3J	1

PARTS CATALOG

Indoor Unit MWM18Y3J, MWM24Y3J

Figure 902

ITEM	PART NUMBER	PART DESCRIPTION	USED ON MODEL	QTY
26	69700206	Stepping Motor	MWM24Y3J	1
27	69700124	Crank	MWM18Y3J, MWM24Y3J	1
28	69700329	Helicoid Tongue	MWM18Y3J, MWM24Y3J	1
28	69700309	Helicoid Tongue	MWM24Y3J	1
29	69700330	Air Louver	MWM18Y3J	2
29	69700310	Air Louver	MWM24Y3J	2
30	69700331	Drainage Hose	MWM18Y3J	1
30	69700311	Drainage Hose	MWM24Y3J	1
31	69700332	Rear Case Assy	MWM18Y3J	1
31	69700312	Rear Case Assy	MWM24Y3J	
32	69700333	Wall Mountiing Frame	MWM18Y3J	1
32	69700153	Wall Mountiing Frame	MWM24Y3J	1
33	69700115	Rubber Plug {Water Tra y)	MWM18Y3J, MWM24Y3J	1
34	69700111	Left Axile Bush	MWM18Y3J, MWM24Y3J	1
35	69700112	Ring of Bearing	MWM18Y3J	1
35	69700187	Ring of Bearing	MWM24Y3J	1
36	69700657	Remote Control	MWM18Y3J, MWM24Y3J	1
37	69700314	O-Gasket Sub-assy of Bearing	MWM18Y3J, MWM24Y3J	1
38	69700334	Evaporator Support	MWM18Y3J	1
38	69700182	Evaporator Support	MWM24Y3J	1
39	69700335	Filter Sub-Assy	MWM18Y3J	2
39	69700173	Filter Sub-Assy	MWM24Y3J	2
-40	69700363	Ambient Temp Sensor	MWM18Y3J, MWM24Y3J	1
-41	69700199	Tube Sensor	MWM18Y3J, MWM24Y3J	1

-ITEMS ARE NON- ILLUSTRATED
*ITEMS ARE NON-STOCKED, WILL NORMALLY REQUIRE 2-3 WEEKS LEAD TIME

PARTS CATALOG

Indoor Unit MWM36YJ3

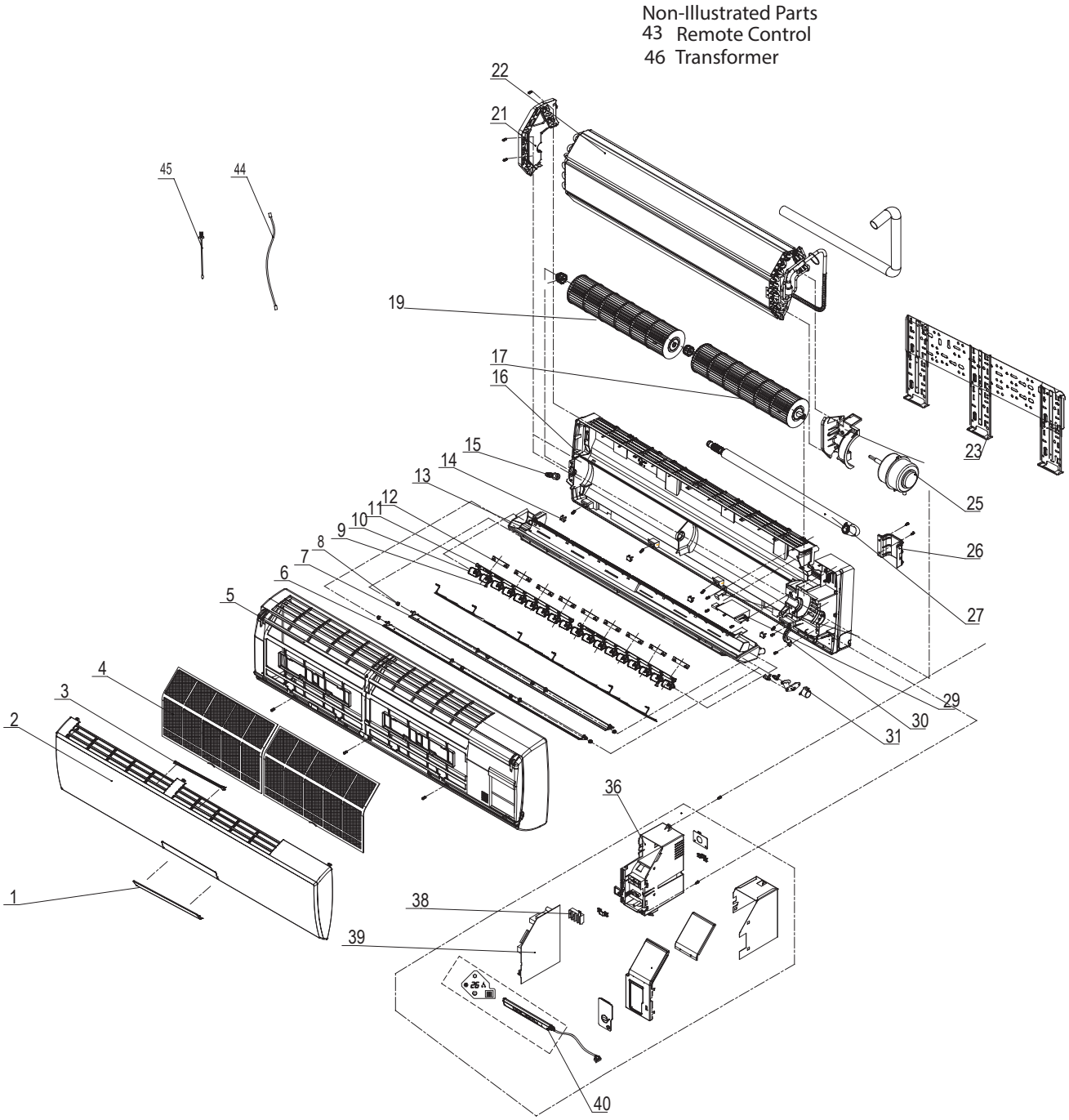


FIgure 903

PARTS CATALOG

Indoor Unit MWM36YJ3

Figure 903				
ITEM	**PART NUMBER**	**PART DESCRIPTION**	**USED ON MODEL**	**QTY**
1	69700467	Receiver Window	MWM36YJ3	1
2	69700468	Front Panel	MWM36YJ3	1
3	69700469	Stand bar	MWM36YJ3	1
4	69700470	Filter Sub-Assy	MWM36YJ3	2
5	69700471	Front Case Sub-Assy	MWM36YJ3	1
6	69700472	Upper Guide Louver	MWM36YJ3	1
7	69700473	Lower Guide Louver	MWM36YJ3	1
8	69700474	Axile Bush	MWM36YJ3	4
9	69700475	Air Louver 2	MWM36YJ3	2
10	69700476	Air Louver 1	MWM36YJ3	16
11	69700477	Connecting Rod	MWM36YJ3	2
12	69700478	Louver Clamp	MWM36YJ3	9
14	69700480	Screw Cover	MWM36YJ3	4
15	69700115	Rubber Plug (Water Tray)	MWM36YJ3	1
16	69700482	Rear Case Sub- Assy	MWM36YJ3	I
17	69700483	Cross Flow Fan 1	MWM36YJ3	1
19	69700485	Cross Flow Fan 2	MWM36YJ3	1
21	69700487	Left Evaporator Support	MWM36YJ3	1
22	69700488	Evaporator Assy	MWM36YJ3	1
23	69700489	Wall Mounting Frame	MWM36YJ3	1
25	69700490	Fan Motor	MWM36YJ3	1
26	69700491	Pipe Clamp	MWM36YJ3	1
27	69700492	Drainage Hose	MWM36YJ3	1
29	69700493	Cover Plate	MWM36YJ3	1
30	69700494	MotorFixed Clip/ Motor Retainer	MWM36YJ3	1
31	69700359	Step Motor	MWM36YJ3	1
36	69700500	Electric Box Assy/ PCB Board Box	MWM36YJ3	1
38	69700130	Terminal Board	MWM36YJ3	1
39	69700465	Main Board	MWM36YJ3	1
40	69700507	Display Board	MWM36YJ3	1
-43	69700623	Remote Control	MWM36YJ3	1
44	69700510	Tube Sensor	MWM36YJ3	1
45	69700363	Ambient Temp Sensor	MWM36YJ3	1
-46	69700619	Transformer	MWM36YJ3	1
-ITEMS ARE NON- ILLUSTRATED *ITEMS ARE NON-STOCKED, WILL NORMALLY REQUIRE 2-3 WEEKS LEAD TIME				

PARTS CATALOG

Outdoor Unit MRM09Y1J, MRM12Y1J

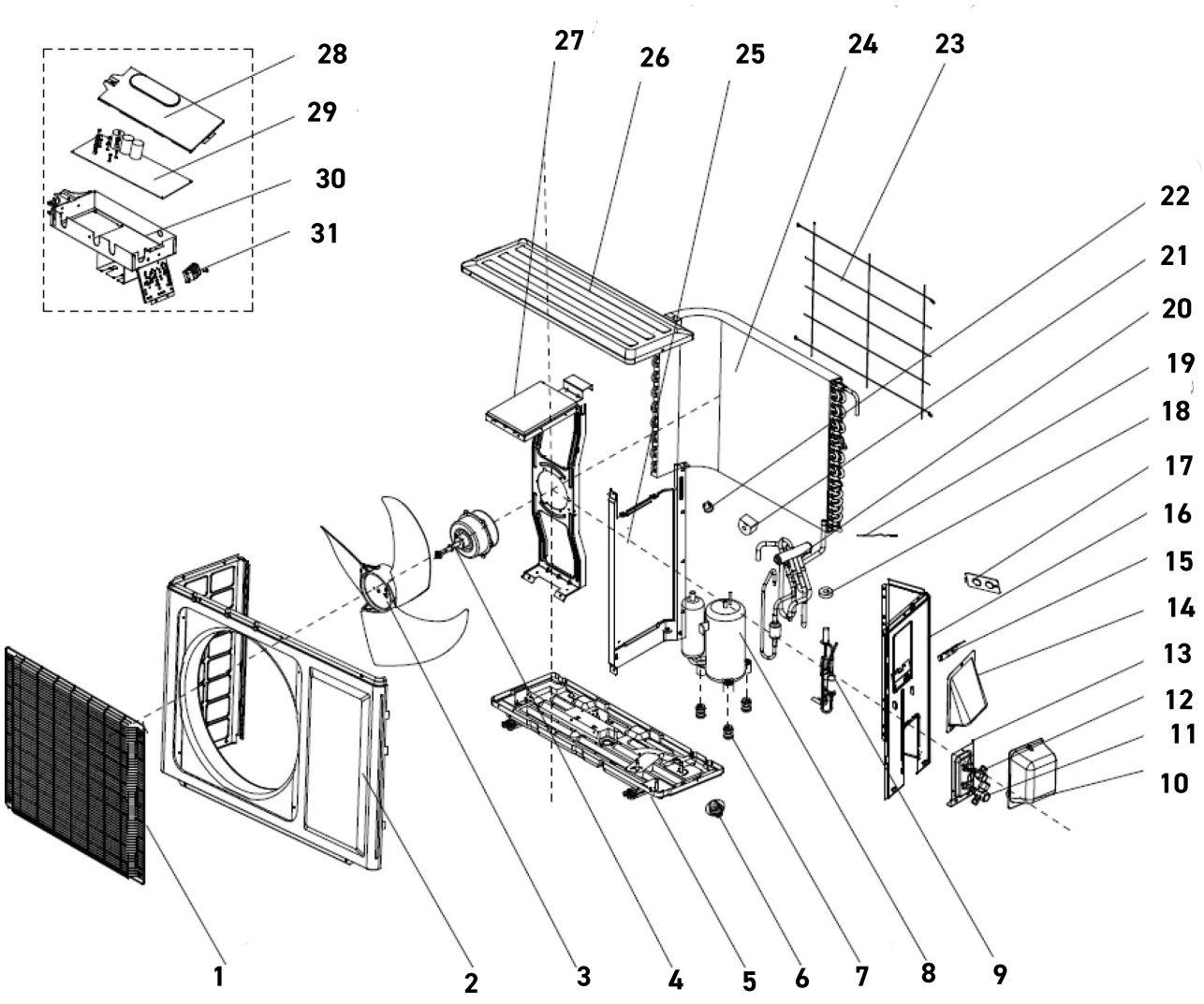


FIgure 904

PARTS CATALOG

Figure 904

Outdoor Unit MRM09Y1J, MRM12Y1J

ITEM	PART NUMBER	PART DESCRIPTION	USED ON MODEL	QTY
1	69700000	Front Grill	MRM09Y1J, MRM12Y1J	1
2	69700273	Cabinet	MRM09Y1J, MRM12Y1J	2
3	69700280	Axial Flow Fan	MRM09Y1J, MRM12Y1J	1
4	69700281	Fan Motor	MRM09Y1J, MRM12Y1J	1
5	69700270	Chassis Sub-assy	MRM09Y1J, MRM12Y1J	1
6	69700164	Drainage Connecter	MRM09Y1J, MRM12Y1J	1
7	69700284	Compressor Gasket	MRM09Y1J, MRM12Y1J	1
8	69700268	Compressor and Fittings	MRM09Y1J, MRM12Y1J	2
9	69700288	Electric Expansion Valve Sub	MRM09Y1J	2
9a	69700279	Capillary Tube	MRM12Y1J	2
10	69700289	Valve Cover	MRM09Y1J, MRM12Y1J	1
11	69700009	Valve	MRM09Y1J, MRM12Y1J	1
12	69700010	Valve	MRM09Y1J, MRM12Y1J	1
13	69700011	Valve Support	MRM09Y1J, MRM12Y1J	1
14	69700014	Electrical cover	MRM09Y1J, MRM12Y1J	1
15	69700276	Knockout Plate	MRM09Y1J, MRM12Y1J	1
16	69700272	Right Side Plate Assy	MRM09Y1J, MRM12Y1J	1
17	69700286	Knockout Plate	MRM09Y1J, MRM12Y1J	1
18	69700291	Electronic Expansion valve coil	MRM09Y1J	1
18a	69700213	Electronic Expansion valve coil	MRM12Y1J	1
19	69700822	Temperature Sensor 20KT/15KS/50KT	MRM09Y1J, MRM12Y1J	1
20	69700278	4-Way Valve Assy	MRM09Y1J, MRM12Y1J	1
21	69700213	4 way valve solenoid	MRM09Y1J	1
21	69700269	4 way valve solenoid	MRM12Y1J	1
22	69700285	Compressor Overload	MRM09Y1J	1
22	67700271	Compressor Overload	MRM12Y1J	1
23	69700274	Rear Grill	MRM09Y1J, MRM12Y1J	1
24	69700269	Condenser Assy	MRM09Y1J, MRM12Y1J	1
25	69700271	Clapboard Sub-Assy	MRM09Y1J, MRM12Y1J	1
26	69700025	Top Cover Plate	MRM09Y1J, MRM12Y1J	1
27	69700026	Motor Support Spot Weld	MRM09Y1J	1
27	69700275	Motor Support Spot Weld	MRM12Y1J	1
28	69700027	Electric Box Cover Sub-Assy	MRM09Y1J, MRM12Y1J	1
29	69700290	Main Board	MRM09Y1J	1
29a	69700282	Main Board	MRM12Y1J	1
30	69700287	Electric Box Assy	MRM09Y1J	1
30	69700277	Electric Box Assy	MRM12Y1J	1
31	69700196	Terminal Board	MRM09Y1J, MRM12Y1J	1
-ITEMS ARE NON- ILLUSTRATED *ITEMS ARE NON-STOCKED, WILL NORMALLY REQUIRE 2-3 WEEKS LEAD TIME				

PARTS CATALOG

Outdoor Unit MRM18Y3J

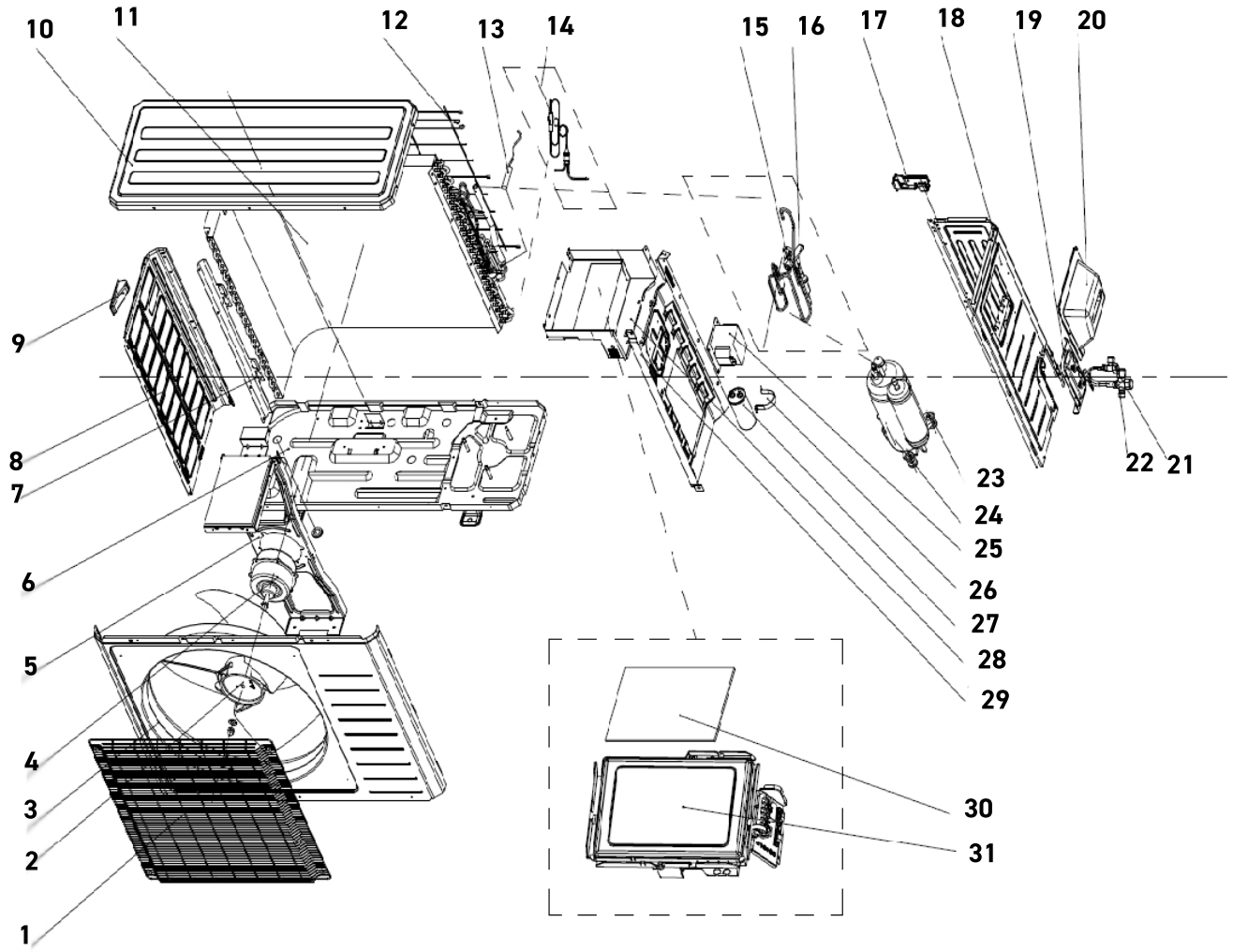


FIgure 905

PARTS CATALOG

Outdoor Unit MRM18Y3J

Figure 905

ITEM	PART NUMBER	PART DESCRIPTION	USED ON MODEL	QTY
1	69700240	Front Grill	MRM18Y3J	1
2	69700249	Axial Flow Fan	MRM18Y3J	1
3	69700238	Cabinet Assy	MRM18Y3J	1
4	69700250	Fan Motor	MRM18Y3J	1
5	69700241	Motor Support Sub-Assy	MRM18Y3J	1
6	69700263	Chassis Sub-assy	MRM18Y3J	1
7	69700261	Supporting Board(Condenser)	MRM18Y3J	1
8	69700235	Left Side Plate	MRM18Y3J	1
10	69700234	Coping	MRM18Y3J	1
11	69700259	Condenser Assy	MRM18Y3J	1
12	69700239	Rear Grill	MRM18Y3J	1
13	69700255	Temp Sensor Kit 20KT/15KS/50KT	MRM18Y3J	1
14	69700264	Capillary Sub-assy	MRM18Y3J	1
16	69700265	4-Way Valve Assy	MRM18Y3J	1
17	69700186	Wiring Clamp	MRM18Y3J	1
18	69700236	Right Side Plate	MRM18Y3J	1
19	69700242	Valve Support Assy	MRM18Y3J	1
20	69700243	Handle Assy	MRM18Y3J	1
21	69700247	Cut off Valve Sub-Assy	MRM18Y3J	1
22	69700266	Cut off Valve Sub-Assy	MRM18Y3J	1
23	69700258	Compressor and fittings	MRM18Y3J	1
24	69700267	Compressor Gasket	MRM18Y3J	1
25	69700257	Reactor	MRM18Y3J	1
26	69700260	Capacitor Clamp Sub-assy	MRM18Y3J	1
27	69700253	Capacitor CBB65	MRM18Y3J	1
28	69700237	Electric Box (Fireproofing)	MRM18Y3J	1
29	69700233	Clapboard Sub-Assy	MRM18Y3J	1
30	69700251	Insulated Board (Cover of Electric Box)	MRM18Y3J	1
31	69700262	Electric Box Assy	MRM18Y3J	1

-ITEMS ARE NON- ILLUSTRATED
*ITEMS ARE NON-STOCKED, WILL NORMALLY REQUIRE 2-3 WEEKS LEAD TIME

PARTS CATALOG

Outdoor Unit MRM24Y3J

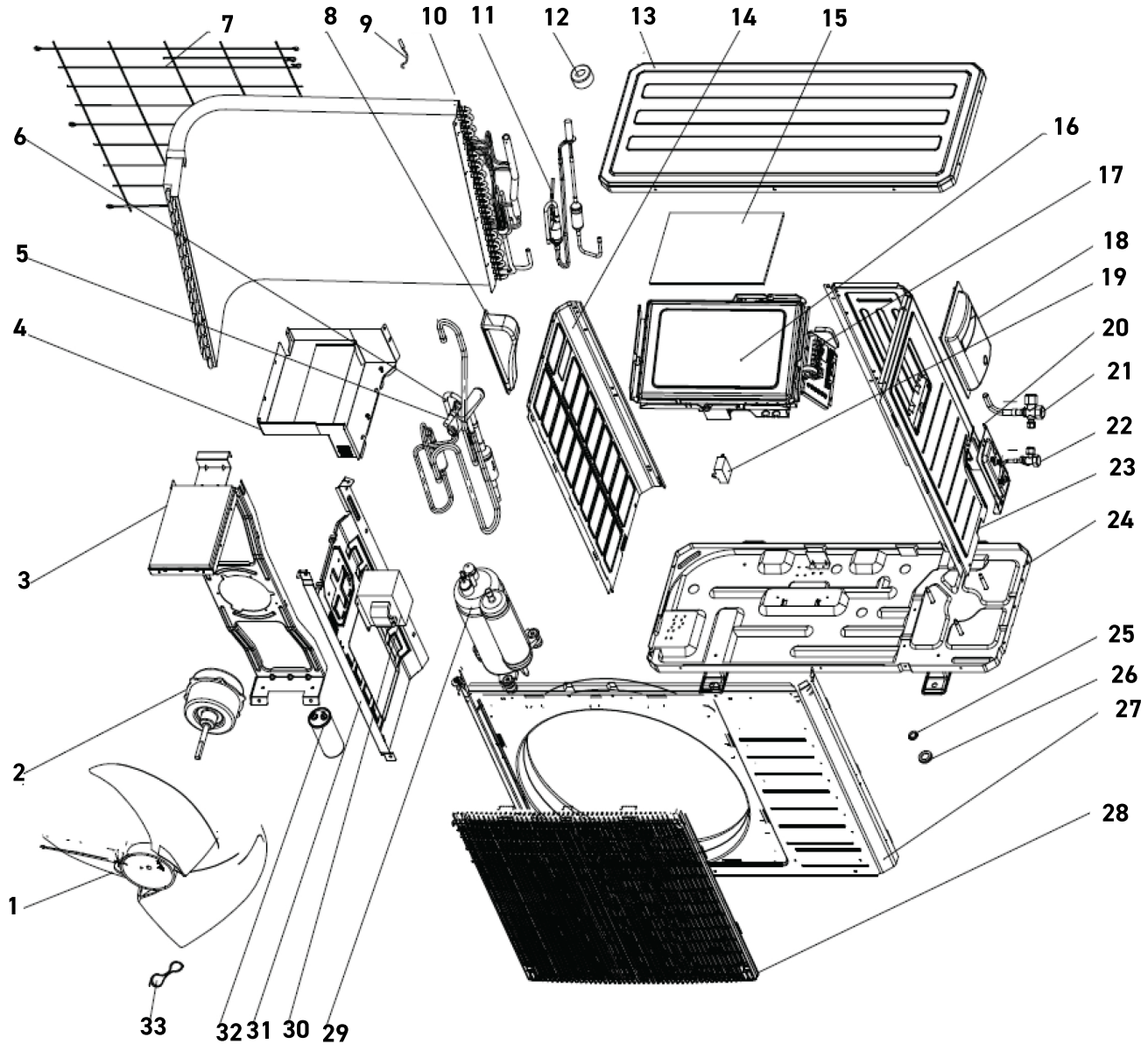


FIgure 906

PARTS CATALOG

Outdoor Unit MRM24Y3J

Figure 906

ITEM	PART NUMBER	PART DESCRIPTION	USED ON MODEL	QTY
1	69700249	Axial Flow Fan	MRM24Y3J	1
2	69700250	Fan Motor	MRM24Y3J	1
3	69700241	Motor Support Sub-Assy	MRM24Y3J	1
4	69700237	Electric Box (Fireproofing)	MRM24Y3J	1
6	69700246	4-Way Valve Assy	MRM24Y3J	1
7	69700239	Rear Grill	MRM24Y3J	1
9	69700255	Temp Sensor Kit 20KT/15KS/50KT	MRM24Y3J	1
10	69700232	Condenser Assy	MRM24Y3J	1
11	69700248	Electronic Expansion Valve assy	MRM24Y3J	1
12	69700256	Electric Expand Valve Fitting	MRM24Y3J	1
13	69700234	Coping	MRM24Y3J	1
14	69700235	Left Side Plate	MRM24Y3J	1
15	69700251	Insulated Board (Cover of Electric Box)	MRM24Y3J	1
16	69700244	Electric Box Assy	MRM24Y3J	1
17	69700030	Terminal Board	MRM24Y3J	1
18	69700243	Handle Assy	MRM24Y3J	1
19	69700254	Capacitor CBB61	MRM24Y3J	1
20	69700242	Valve Support Assy	MRM24Y3J	1
21	69700247	Cut off Valve Sub-Assy	MRM24Y3J	1
22	69700165	Cut off Valve	MRM24Y3J	1
23	69700236	Right Side Plate	MRM24Y3J	1
24	69700245	Chassis Sub-assy	MRM24Y3J	1
25	69700164	Drainage Connecter	MRM24Y3J	1
27	69700238	Cabinet Assy	MRM24Y3J	1
28	69700240	Front Grill	MRM24Y3J	1
29	69700231	Compressor and Fittings	MRM24Y3J	1
30	69700257	Reactor	MRM24Y3J	1
31	69700233	Clapboard Sub-Assy	MRM24Y3J	1
32	69700253	Capacitor CBB65	MRM24Y3J	1

-ITEMS ARE NON- ILLUSTRATED
*ITEMS ARE NON-STOCKED, WILL NORMALLY REQUIRE 2-3 WEEKS LEAD TIME

PARTS CATALOG

Outdoor Unit MRMY36J

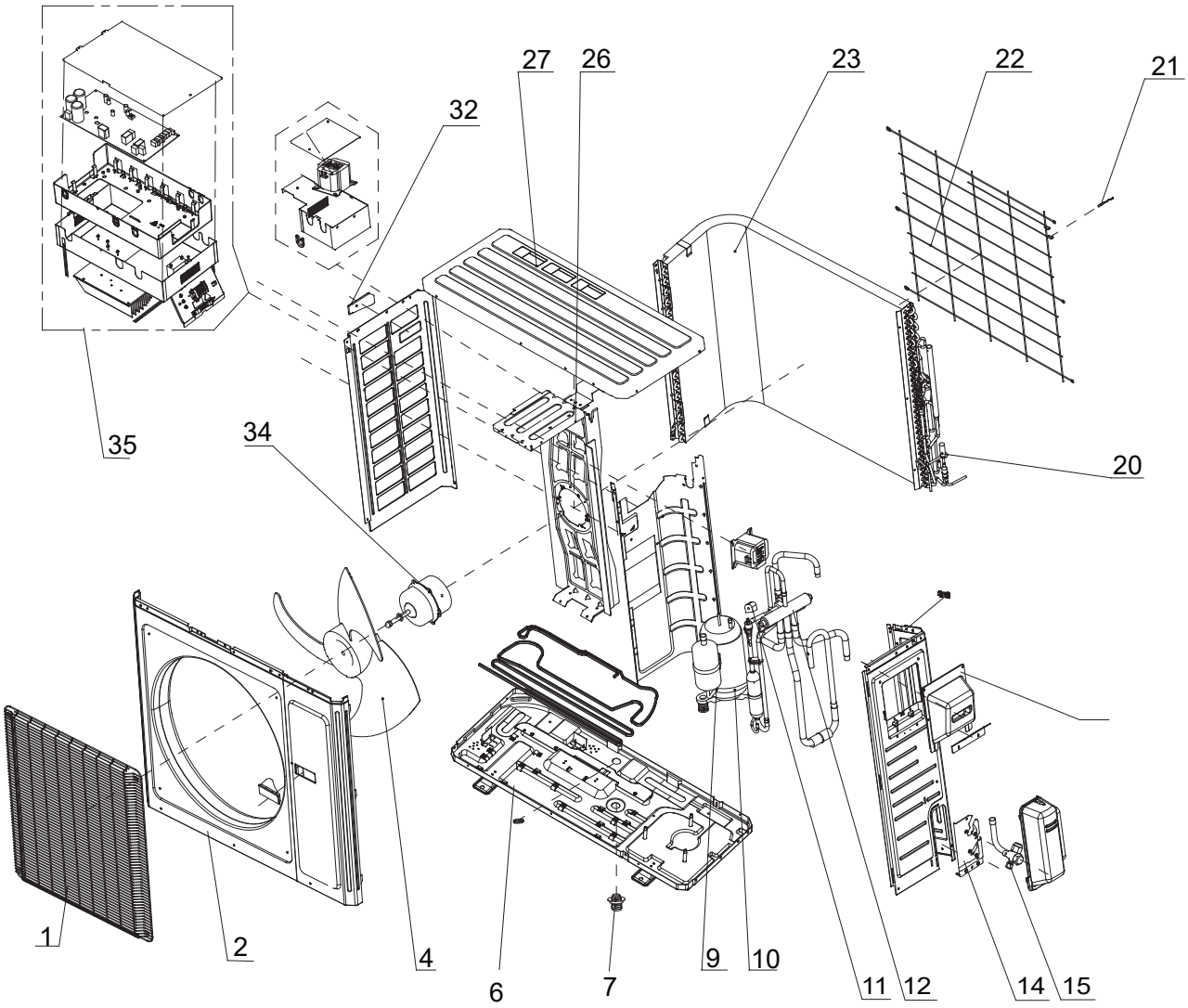


FIgure 907

PARTS CATALOG

Outdoor Unit MRM36Y3J

Figure 907

ITEM	PART NUMBER	PART DESCRIPTION	USED ON MODEL	QTY
1	69700572	Front Grill	MRM36Y3J	1
2	69700573	Front Panel Assy	MRM36Y3J	1
4	69700515	Axial Flow Fan	MRM36Y3J	1
6	69700516	Chassis Sub-assy	MRM36Y3J	1
7	69700164	Drainage Connecter	MRM36Y3J	1
9	69700575	Compressor	MRM36Y3J	1
10	69700519	Electrical Heater	MRM36Y3J	1
11	69700520	Magnet Coil	MRM36Y3J	1
12	69700521	4-Way Valve Assy	MRM36Y3J	1
14	69700523	Valve Support Sub-Assy	MRM36Y3J	1
15	69700524	Cut-Off Valve	MRM36Y3J	1
20	69700526	Electronic Expansion Valve Sub-Assy	MRM36Y3J	1
21	69700527	Temp Sensor Kit 20KT/15KS/50KT	MRM36Y3J	1
22	69700528	Rear Grill	MRM36Y3J	1
23	69700529	Condensor Assy	MRM36Y3J	1
26	69700530	Motor Support Sub-Assy	MRM36Y3J	1
27	69700531	Top Cover Sub-Assy	MRM36Y3J	1
32	69700589	Left Handle	MRM36Y3J	1
34	69700534	Fan Motor	MRM36Y3J	1
35	69700535	Electric Box Assy	MRM36Y3J	1

-ITEMS ARE NON- ILLUSTRATED
*ITEMS ARE NON-STOCKED, WILL NORMALLY REQUIRE 2-3 WEEKS LEAD TIME

APPENDIX

Appendix 1: Reference Sheet of Celsius and Farenheit

Conversion formula for Fahrenheit degree and Celsius degree: Tf=Tcx1.8+32

Set temperature

Fahrenheit display temperature (℉)	Fahrenheit (℉)	Celsius (℃)		Fahrenheit display temperature (℉)	Fahrenheit (℉)	Celsius (℃)		Fahrenheit display temperature (℉)	Fahrenheit (℉)	Celsius (℃)
61	60.8	16		69/70	69.8	21		78/79	78.8	26
62/63	62.6	17		71/72	71.6	22		80/81	80.6	27
64/65	64.4	18		73/74	73.4	23		82/83	82.4	28
66/67	66.2	19		75/76	75.2	24		84/85	84.2	29
68	68	20		77	77	25		86	86	30

Ambient temperature

Fahrenheit display temperature (℉)	Fahrenheit (℉)	Celsius (℃)		Fahrenheit display temperature (℉)	Fahrenheit (℉)	Celsius (℃)		Fahrenheit display temperature (℉)	Fahrenheit (℉)	Celsius (℃)
32/33	32	0		55/56	55.4	13		79/80	78.8	26
34/35	33.8	1		57/58	57.2	14		81	80.6	27
36	35.6	2		59/60	59	15		82/83	82.4	28
37/38	37.4	3		61/62	60.8	16		84/85	84.2	29
39/40	39.2	4		63	62.6	17		86/87	86	30
41/42	41	5		64/65	64.4	18		88/89	87.8	31
43/44	42.8	6		66/67	66.2	19		90	89.6	32
45	44.6	7		68/69	68	20		91/92	91.4	33
46/47	46.4	8		70/71	69.8	21		93/94	93.2	34
48/49	48.2	9		72	71.6	22		95/96	95	35
50/51	50	10		73/74	73.4	23		97/98	96.8	36
52/53	51.8	11		75/76	75.2	24		99	98.6	37
54	53.6	12		77/78	77	25				

Appendix 2: Configuration of Connection Pipe

1.Standard length of connection pipe
16.40ft, 24.61ft, 26.25ft.
2.Min. length of connection pipe is 9.84ft.
3.Max. length of connection pipe and max. high difference.

Cooling capacity	Max length of connection pipe	Max height difference
5000 Btu/h(1465 W)	49.21ft	16.40ft
7000 Btu/h(2051 W)	49.21ft	16.40ft
9000 Btu/h(2637 W)	49.21ft	32.81ft
12000 Btu/h(3516 W)	65.62ft	32.81ft
18000 Btu/h(5274 W)	80.02ft	32.81ft
24000 Btu/h(7032 W)	80.02ft	32.81ft
28000 Btu/h(8204 W)	98.43ft	32.81ft
36000 Btu/h(10548 W)	98.43ft	65.62ft
42000 Btu/h(12306 W)	98.43ft	65.62ft
48000 Btu/h(14064 W)	98.43ft	65.62ft

4.The additional refrigerant oil and refrigerant charging required after prolonging connection pipe

After the length of connection pipe is prolonged for 32.81ft at the basis of standard length, you should add 5ml of refrigerant oil for each additional 16.40ft of connection pipe.

The calculation method of additional refrigerant charging amo unt (on the basis of liquid pipe):

When the length of connection pipe is above 16.40ft, add refrigerant according to the prolonged length of liquid pipe. The additional refrigerant charging amount per meter is different according to the diameter of liquid pipe. See the following sheet.

Additional refrigerant charging amount = prolonged length of liquid pipe X additional refrigerant charging amount per meter

Additional refrigerant charging amount for R22, R407C, R410A and R134a			
Diameter of connection pipe		Outdoor unit throttle	
Liquid pipe(inch)	Gas pipe(inch)	Cooling only(oz/ft.)	Cooling and heating(oz/ft.)
Φ1/4	Φ3/8or Φ1/2	0.2	0.2
Φ1/4 or Φ3/8	Φ5/8 or Φ3/4	0.2	0.2
Φ1/2	Φ3/4 or Φ7/8	0.3	1.3
Φ5/8	Φ1 or Φ1 1/4	0.7	1.3
Φ3/4	/	2.7	2.7
Φ7/8	/	3.8	3.8

APPENDIX

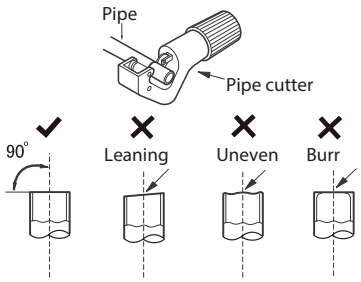
Appendix 3: Pipe Expanding Method

⚠ **Note:**

Improper pipe expanding is the main cause of refrigerant leakage.Please expand the pipe according to the following steps:

A:Cut the pip

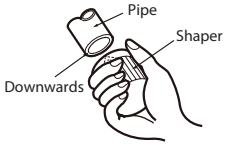
Confirm the pipe length according to the distance of indoor unit and outdoor unit.
Cut the required pipe with pipe cutter.



B:Remove the burrs

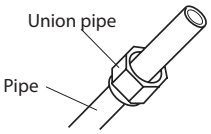
Remove the burrs with shaper and prevent the burrs from getting into the pipe.

C:Put on suitable insulating pipe



D:Put on the union nut

Remove the union nut on the indoor connection pipe and outdoor valve; install the union nut on the pipe.



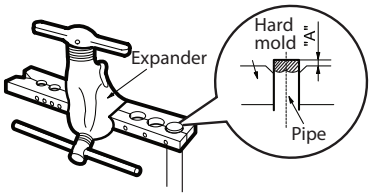
E:Expand the port

Expand the port with expander.

⚠ **Note:**

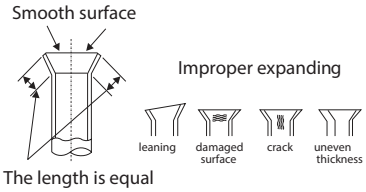
"A" is different according to the diameter, please refer to the sheet below:

Outer diameter(inch)	A(inch)	
	Max	Min
Φ1/4	2/39	1/36
Φ3/8	1/16	1/51
Φ1/2	1/14	1/51
Φ5/8	5/53	2/23



F:Inspection

Check the quality of expanding port. If there is any blemish, expand the port again according to the steps above.



APPENDIX

Resistance Table of Ambient Temperature Sensor for Indoor and Outdoor Units (15k)

Temp. (°F)	Resistance (kΩ)	Temp. (°F)	Resistance(kΩ)	Temp. (°F)	Resistance (kΩ)	Temp. (°F)	Resistance (kΩ)
-2.2	138.1	68	18.75	138.2	3.848	208.4	1.071
-0.4	128.6	69.8	17.93	140	3.711	210.2	1.039
1.4	121.6	71.6	17.14	141.8	3.579	212	1.009
3.2	115	73.4	16.39	143.6	3.454	213.8	0.98
5	108.7	75.2	15.68	145.4	3.333	215.6	0.952
6.8	102.9	77	15	147.2	3.217	217.4	0.925
8.6	97.4	78.8	14.36	149	3.105	219.2	0.898
10.4	92.22	80.6	13.74	150.8	2.998	221	0.873
12.2	87.35	82.4	13.16	152.6	2.896	222.8	0.848
14	82.75	84.2	12.6	154.4	2.797	224 3/5	0.825
15.8	78.43	86	12.07	156.2	2.702	226.4	0.802
17.6	74.35	87.8	11.57	158	2.611	228.2	0.779
19.4	70.5	89.6	11.09	159.8	2.523	230	0.758
21.2	66.88	91.4	10.63	161.6	2.439	231.8	0.737
23	63.46	93.2	10.2	163.4	2.358	233.6	0.717
24.8	60.23	95	9.779	165.2	2.28	235.4	0.697
26.6	57.18	96.8	9.382	167	2.206	237.2	0.678
28.4	54.31	98.6	9.003	168.8	2.133	239	0.66
30.2	51.59	100.4	8.642	170.6	2.064	240.8	0.642
32	49.02	102.2	8.297	172.4	1.997	242.6	0.625
33.8	46.6	104	7.967	174.2	1.933	244.4	0.608
35.6	44.31	105.8	7.653	176	1.871	246.2	0.592
37.4	42.14	107.6	7.352	177.8	1.811	248	0.577
39.2	40.09	109.4	7.065	179.6	1.754	249.8	0.561
41	38.15	111.2	6.791	181.4	1.699	251.6	0.547
42.8	36.32	113	6.529	183.2	1.645	253.4	0.532
44.6	34.58	114.8	6.278	185	1.594	255.2	0.519
46.4	32.94	116.6	6.038	186.8	1.544	257	0.505
48.2	31.38	118.4	5.809	188.6	1.497	258.8	0.492
50	29.9	120.2	5.589	190.4	1.451	260.6	0.48
51.8	28.51	122	5.379	192.2	1.408	262.4	0.467
53.6	27.18	123.8	5.197	194	1.363	264.2	0.456
55.4	25.92	125.6	4.986	195.8	1.322	266	0.444
57.2	24.73	127.4	4.802	197.6	1.282	267.8	0.433
59	23.6	129.2	4.625	199.4	1.244	269.6	0.422
60.8	22.53	131	4.456	201.2	1.207	271.4	0.412
62.6	21.51	132 4/5	4.294	203	1.171	273.2	0.401
64.4	20.54	134.6	4.139	204.8	1.136	275	0.391
66.2	19.63	136.4	3.99	206.6	1.103	276.8	0.382

APPENDIX

Resistance Table of Ambient Temperature Sensor for Indoor and Outdoor Units (20k)

Temp. (°F)	Resistance (kΩ)	Temp. (°F)	Resistance(kΩ)	Temp. (°F)	Resistance (kΩ)	Temp. (°F)	Resistance (kΩ)
-2.2	181.4	68	25.01	138.2	5.13	208.4	1.427
-0.4	171.4	69.8	23.9	140	4.948	210.2	1.386
1.4	162.1	71.6	22.85	141.8	4.773	212	1.346
3.2	153.3	73.4	21.85	143.6	4.605	213.8	1.307
5	145	75.2	20.9	145.4	4.443	215.6	1.269
6.8	137.2	77	20	147.2	4.289	217.4	1.233
8.6	129.9	78.8	19.14	149	4.14	219.2	1.198
10.4	123	80.6	18.13	150.8	3.998	221	1.164
12.2	116.5	82.4	17.55	152.6	3.861	222.8	1.131
14	110.3	84.2	16.8	154.4	3.729	224 3/5	1.099
15.8	104.6	86	16.1	156.2	3.603	226.4	1.069
17.6	99.13	87.8	15.43	158	3.481	228.2	1.039
19.4	94	89.6	14.79	159.8	3.364	230	1.01
21.2	89.17	91.4	14.18	161.6	3.252	231.8	0.983
23	84.61	93.2	13.59	163.4	3.144	233.6	0.956
24.8	80.31	95	13.04	165.2	3.04	235.4	0.93
26.6	76.24	96.8	12.51	167	2.94	237.2	0.904
28.4	72.41	98.6	12	168.8	2.844	239	0.88
30.2	68.79	100.4	11.52	170.6	2.752	240.8	0.856
32	65.37	102.2	11.06	172.4	2.663	242.6	0.833
33.8	62.13	104	10.62	174.2	2.577	244.4	0.811
35.6	59.08	105.8	10.2	176	2.495	246.2	0.77
37.4	56.19	107.6	9.803	177.8	2.415	248	0.769
39.2	53.46	109.4	9.42	179.6	2.339	249.8	0.746
41	50.87	111.2	9.054	181.4	2.265	251.6	0.729
42.8	48.42	113	8.705	183.2	2.194	253.4	0.71
44.6	46.11	114.8	8.37	185	2.125	255.2	0.692
46.4	43.92	116.6	8.051	186.8	2.059	257	0.674
48.2	41.84	118.4	7.745	188.6	1.996	258.8	0.658
50	39.87	120.2	7.453	190.4	1.934	260.6	0.64
51.8	38.01	122	7.173	192.2	1.875	262.4	0.623
53.6	36.24	123.8	6.905	194	1.818	264.2	0.607
55.4	34.57	125.6	6.648	195.8	1.736	266	0.592
57.2	32.98	127.4	6.403	197.6	1.71	267.8	0.577
59	31.47	129.2	6.167	199.4	1.658	269.6	0.563
60.8	30.04	131	5.942	201.2	1.609	271.4	0.549
62.6	28.68	132 4/5	5.726	203	1.561	273.2	0.535
64.4	27.39	134.6	5.519	204.8	1.515	275	0.521
66.2	26.17	136.4	5.32	206.6	1.47	276.8	0.509

APPENDIX

Resistance Table of Ambient Temperature Sensor for Indoor and Outdoor Units (50k)

Temp. (°F)	Resistance (kΩ)	Temp. (°F)	Resistance(kΩ)	Temp. (°F)	Resistance (kΩ)	Temp. (°F)	Resistance (kΩ)
-20.2	853.5	50	98	120.2	18.34	190.4	4.754
-18.4	799.8	51.8	93.42	122	17.65	192.2	4.609
-16.6	750	53.6	89.07	123.8	16.99	194	4.469
-14.8	703.8	55.4	84.95	125.6	16.36	195.8	4.334
-13	660.8	57.2	81.05	127.4	15.75	197.6	4.204
-11.2	620.8	59	77.35	129.2	15.17	199.4	4.079
-9.4	580.6	60.8	73.83	131	14.62	201.2	3.958
-7.6	548.9	62.6	70.5	132 4/5	14.09	203	3.841
-5.8	516.6	64.4	67.34	134.6	13.58	204.8	3.728
-4	486.5	66.2	64.33	136.4	13.09	206.6	3.619
-2.2	458.3	68	61.48	138.2	12.62	208.4	3.514
-0.4	432	69.8	58.77	140	12.17	210.2	3.413
1.4	407.4	71.6	56.19	141.8	11.74	212	3.315
3.2	384.5	73.4	53.74	143.6	11.32	213.8	3.22
5	362.9	75.2	51.41	145.4	10.93	215.6	3.129
6.8	342.8	77	49.19	147.2	10.54	217.4	3.04
8.6	323.9	78.8	47.08	149	10.18	219.2	2.955
10.4	306.2	80.6	45.07	150.8	9.827	221	2.872
12.2	289.6	82.4	43.16	152.6	9.489	222.8	2.792
14	274	84.2	41.34	154.4	9.165	224 3/5	2.715
15.8	259.3	86	39.61	156.2	8.854	226.4	2.64
17.6	245.6	87.8	37.96	158	8.555	228.2	2.568
19.4	232.6	89.6	36.38	159.8	8.268	230	2.498
21.2	220.5	91.4	34.88	161.6	7.991	231.8	2.431
23	209	93.2	33.45	163.4	7.726	233.6	2.365
24.8	198.3	95	32.09	165.2	7.47	235.4	2.302
26.6	199.1	96.8	30.79	167	7.224	237.2	2.241
28.4	178.5	98.6	29.54	168.8	6.998	239	2.182
30.2	169.5	100.4	28.36	170.6	6.761	240.8	2.124
32	161	102.2	27.23	172.4	6.542	242.6	2.069
33.8	153	104	26.15	174.2	6.331	244.4	2.015
35.6	145.4	105.8	25.11	176	6.129	246.2	1.963
37.4	138.3	107.6	24.13	177.8	5.933	248	1.912
39.2	131.5	109.4	23.19	179.6	5.746	249.8	1.863
41	125.1	111.2	22.29	181.4	5.565	251.6	1.816
42.8	119.1	113	21.43	183.2	5.39	253.4	1.77
44.6	113.4	114.8	20.6	185	5.222	255.2	1.725
46.4	108	116.6	19.81	186.8	5.06	257	1.682
48.2	102.8	118.4	19.06	188.6	4.904	258.8	1.64

Friedrich Air Conditioning Company
10001 Reunion Place, Suite 500
San Antonio, TX 78216
800-541-6645
www.friedrich.com

FLOATING AIR DUCTLESS SPLIT SYSTEMS LIMITED WARRANTY

1. A) FIVE YEAR WARRANTY - FRIEDRICH AIR CONDITIONING CO. (FRIEDRICH) warrants to the original end-user of this product that should it prove defective due to improper workmanship and/or material under normal use for a period of five years from the date of installation, FRIEDRICH will repair or replace, at its option, any defective part without charge for the part. Replacement parts are warranted for the remainder of the original warranty period.

B) THIS WARRANTY DOES NOT INCLUDE LABOR or other cost incurred for servicing, repairing, removing, installing, shipping, or handling of either defective or replacement parts, or complete unit. Such cost may be covered by a separate warranty provided by the installing contractor.

C) FIVE YEAR COMPRESSOR WARRANTY- During the five year warranty period from the date of installation, should the compressor prove defective due to improper workmanship and/or material, **FRIEDRICH** will furnish a replacement compressor, at no charge, which is warranted for the remainder of the original warranty period. **LABOR IS NOT INCLUDED FOR INSTALLING REPLACEMENT COMPRESSOR. These warranties apply only while the unit remains at the original site and only to units installed inside the continental United States, Alaska, Hawaii, Puerto Rico, Mexico and Canada. The warranty applies only if the unit is installed and operated in accordance with the printed instructions and in compliance with applicable local installation and building codes and good trade practices. For international warranty information, contact the Friedrich Air Conditioning Company - International Division.**

D) NOTICE: To obtain service and/or warranty parts replacement, you must notify an authorized FRIEDRICH Air Conditioning Co. distributor, dealer, or contractor of any defect within the applicable warranty period.

2. Any defective part to be replaced must be made available to **FRIEDRICH** in exchange for the replacement part. You must present proof of the original date of installation of the product in order to establish the effective date of the warranty. Otherwise, the effective date will be deemed to be the date of manufacture plus thirty days. The return of the owner registration card is not a condition of warranty coverage. However, please detach and return it so that we can contact you should a question of safety arise which could affect you.

3. **TO OBTAIN WARRANTY SERVICE,** please contact your authorized **FRIEDRICH** distributor, dealer, or the contractor who installed the equipment. If your dealer or contractor needs assistance, the authorized **FRIEDRICH** distributor is available for consultation, and **FRIEDRICH** supports the efforts of the distributor.

4. This limited warranty applies only to units remaining at the site of the original installation (except for mobile home installations) and only to units installed within the continental United States, Alaska, Hawaii, and Canada. This limited warranty applies only if the unit is installed and operated in accordance with FRIEDRICH instructions and in compliance with applicable local installation and building codes and good trade practices.

5. **THIS WARRANTY DOES NOT COVER** damages caused by: (a) accident, abuse, negligence, or misuse; (b) operating the product in a corrosive atmosphere containing chlorine, fluorine or any other damaging chemicals; (c) modification, alteration, poor service practices; (d) improper matching or application of the product or components; (e) failure to provide proper maintenance and service to the product according to manufacture's instructions; (f) installation or operating of the product in a manner contrary to the instructions of the manufacturer; (g) lightning, fluctuations in electrical power or other Acts of God. This LIMITED WARRANTY also excludes all cost of installation, disconnection or dismantling the product, parts used in connection with normal maintenance such as air filters or belts and owner-required maintenance. Consult the instructions enclosed with the product for information regarding recommended maintenance.

6. No one is authorized to change this **LIMITED WARRANTY** in any respect, or to create any other obligation or liability in connection with this product.

7. **YOUR ONLY REMEDIES ARE PROVIDED IN THIS LIMITED WARRANTY. ANY EXPRESS WARRANTY NOT PROVIDED HEREIN, AND ANY REMEDY WHICH, BUT FOR THIS PROVISION, MIGHT ARISE BY IMPLICATION OR OPERATION OF LAW, IS HEREBY EXCLUDED AND DISCLAIMED. THE IMPLIED WARRANTIES OF MERCHANTABILITY AND OF FITNESS FOR ANY PARTICULAR PURPOSE ARE EXPRESSLY LIMITED TO A TERM OF ONE YEAR FROM THE DATE OF ORIGINAL INSTALLATION. UNDER NO CIRCUMSTANCES SHALL FRIEDRICH BE LIABLE TO THE OWNER OR ANY OTHER PERSON FOR ANY INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES IN CONNECTION WITH THIS PRODUCT, WHETHER ARISING OUT OF BREACH OF WARRANTY, BREACH OF CONTRACT OR OTHERWISE.**

8. Some states do not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental, special or consequential damages, so the above limitations or exclusions may not apply to you.

9. This warranty gives you specific legal rights, and you may have other rights which vary from state to state and province to province.

CUSTOMER SATISFACTION and QUALITY ASSURANCE

Friedrich is a conscientious manufacturer, concerned about customer satisfaction, product quality, and controlling warranty costs. As an Authorized Service Provider you play a vital role in these areas. By adhering to the policies and procedures you provide us with vital information on each warranty repair you complete. This information is used to identify product failure trends, initiate corrective action, and improve product quality, thereby further reducing warranty expenses while increasing customer satisfaction levels.

FRIEDRICH AUTHORIZED PARTS DEPOTS

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877-813-7444

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Houston, Texas 77054

713-747-4110
800-458-4110

Johnstone Supply of Woodside
27-01 Brooklyn Queens Expway
Woodside, New York 11377

718-545-5464
800-431-1143

Reeve Air Conditioning, Inc.
2501 South Park Road
Hallandale, Florida 33009

954-962-0252
800-962-3383

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