DAIKIN

SiUS39 - 602

Service Manual

VRV®

REYQ72, 96, 144, 168, 192MTJU
R-410A Heat Recovery 60Hz

REYQ72MTJU

REYQ96MTJU

REYQ144MTJU

REYQ168MTJU

REYQ192MTJU

VRV® R-410A Heat Recovery 60Hz

1. Introduction

1.1 Safety Cautions

Cautions and Warnings

- Be sure to read the following safety cautions before conducting repair work.
- The caution items are classified into "⚠ **Warning**" and "⚠ **Caution**". The "⚠ **Warning**" items are especially important since they can lead to death or serious injury if they are not followed closely. The "⚠ **Caution**" items can also lead to serious accidents under some conditions if they are not followed. Therefore, be sure to observe all the safety caution items described below.
- About the pictograms

△ This symbol indicates an item for which caution must be exercised.
The pictogram shows the item to which attention must be paid.

◯ This symbol indicates a prohibited action.
The prohibited item or action is shown inside or near the symbol.

● This symbol indicates an action that must be taken, or an instruction.
The instruction is shown inside or near the symbol.

- After the repair work is complete, be sure to conduct a test operation to ensure that the equipment operates normally, and explain the cautions for operating the product to the customer

1.1.1 Caution in Repair

⚠ Warning	
Be sure to disconnect the power cable plug from the plug socket before disassembling the equipment for a repair. Working on the equipment that is connected to a power supply can cause an electrical shook. If it is necessary to supply power to the equipment to conduct the repair or inspecting the circuits, do not touch any electrically charged sections of the equipment.	
If the refrigerant gas discharges during the repair work, do not touch the discharging refrigerant gas. The refrigerant gas can cause frostbite.	
When disconnecting the suction or discharge pipe of the compressor at the welded section, release the refrigerant gas completely at a well-ventilated place first. If there is a gas remaining inside the compressor, the refrigerant gas or refrigerating machine oil discharges when the pipe is disconnected, and it can cause injury.	
If the refrigerant gas leaks during the repair work, ventilate the area. The refrigerant gas can generate toxic gases when it contacts flames.	
The step-up capacitor supplies high-voltage electricity to the electrical components of the outdoor unit. Be sure to discharge the capacitor completely before conducting repair work. A charged capacitor can cause an electrical shock.	
Do not start or stop the air conditioner operation by plugging or unplugging the power cable plug. Plugging or unplugging the power cable plug to operate the equipment can cause an electrical shock or fire.	

⚠ Caution	
Do not repair the electrical components with wet hands. Working on the equipment with wet hands can cause an electrical shock.	
Do not clean the air conditioner by splashing water. Washing the unit with water can cause an electrical shock.	
Be sure to provide the grounding when repairing the equipment in a humid or wet place, to avoid electrical shocks.	
Be sure to turn off the power switch and unplug the power cable when cleaning the equipment. The internal fan rotates at a high speed, and cause injury.	
Do not tilt the unit when removing it. The water inside the unit can spill and wet the furniture and floor.	
Be sure to check that the refrigerating cycle section has cooled down sufficiently before conducting repair work. Working on the unit when the refrigerating cycle section is hot can cause burns.	
Use the welder in a well-ventilated place. Using the welder in an enclosed room can cause oxygen deficiency.	

1.1.2 Cautions Regarding Products after Repair

⚠ Warning	
Be sure to use parts listed in the service parts list of the applicable model and appropriate tools to conduct repair work. Never attempt to modify the equipment. The use of inappropriate parts or tools can cause an electrical shock, excessive heat generation or fire.	
When relocating the equipment, make sure that the new installation site has sufficient strength to withstand the weight of the equipment. If the installation site does not have sufficient strength and if the installation work is not conducted securely, the equipment can fall and cause injury.	
Be sure to install the product correctly by using the provided standard installation frame. Incorrect use of the installation frame and improper installation can cause the equipment to fall, resulting in injury.	For integral units only
Be sure to install the product securely in the installation frame mounted on a window frame. If the unit is not securely mounted, it can fall and cause injury.	For integral units only

⚠ Warning	
Be sure to use an exclusive power circuit for the equipment, and follow the technical standards related to the electrical equipment, the internal wiring regulations and the instruction manual for installation when conducting electrical work. Insufficient power circuit capacity and improper electrical work can cause an electrical shock or fire.	
Be sure to use the specified cable to connect between the indoor and outdoor units. Make the connections securely and route the cable properly so that there is no force pulling the cable at the connection terminals. Improper connections can cause excessive heat generation or fire.	
When connecting the cable between the indoor and outdoor units, make sure that the terminal cover does not lift off or dismount because of the cable. If the cover is not mounted properly, the terminal connection section can cause an electrical shock, excessive heat generation or fire.	
Do not damage or modify the power cable. Damaged or modified power cable can cause an electrical shock or fire. Placing heavy items on the power cable, and heating or pulling the power cable can damage the cable.	
Do not mix air or gas other than the specified refrigerant (R-410A) in the refrigerant system. If air enters the refrigerating system, an excessively high pressure results, causing equipment damage and injury.	
If the refrigerant gas leaks, be sure to locate the leak and repair it before charging the refrigerant. After charging refrigerant, make sure that there is no refrigerant leak. If the leak cannot be located and the repair work must be stopped, be sure to perform pump-down and close the service valve, to prevent the refrigerant gas from leaking into the room. The refrigerant gas itself is harmless, but it can generate toxic gases when it contacts flames, such as fan and other heaters, stoves and ranges.	
When replacing the coin battery in the remote controller, be sure to disposed of the old battery to prevent children from swallowing it. If a child swallows the coin battery, see a doctor immediately.	

⚠ Caution	
Installation of a leakage breaker is necessary in some cases depending on the conditions of the installation site, to prevent electrical shocks.	
Do not install the equipment in a place where there is a possibility of combustible gas leaks. If a combustible gas leaks and remains around the unit, it can cause a fire.	
Be sure to install the packing and seal on the installation frame properly. If the packing and seal are not installed properly, water can enter the room and wet the furniture and floor.	For integral units only

1.1.3 Inspection after Repair

⚠ Warning	
Check to make sure that the power cable plug is not dirty or loose, then insert the plug into a power outlet all the way. If the plug has dust or loose connection, it can cause an electrical shock or fire.	

⚠ Warning	
If the power cable and lead wires have scratches or deteriorated, be sure to replace them. Damaged cable and wires can cause an electrical shock, excessive heat generation or fire.	
Do not use a joined power cable or extension cable, or share the same power outlet with other electrical appliances, since it can cause an electrical shock, excessive heat generation or fire.	

⚠ Caution	
Check to see if the parts and wires are mounted and connected properly, and if the connections at the soldered or crimped terminals are secure. Improper installation and connections can cause excessive heat generation, fire or an electrical shock.	
If the installation platform or frame has corroded, replace it. Corroded installation platform or frame can cause the unit to fall, resulting in injury.	
Check the grounding, and repair it if the equipment is not properly grounded. Improper grounding can cause an electrical shock.	
Be sure to measure the insulation resistance after the repair, and make sure that the resistance is 1 Mohm or higher. Faulty insulation can cause an electrical shock.	
Be sure to check the drainage of the indoor unit after the repair. Faulty drainage can cause the water to enter the room and wet the furniture and floor.	

1.1.4 Using Icons

Icons are used to attract the attention of the reader to specific information. The meaning of each icon is described in the table below:

1.1.5 Using Icons List

Icon	Type of Information	Description
Note:	Note	A “note” provides information that is not indispensable, but may nevertheless be valuable to the reader, such as tips and tricks.
Caution	Caution	A “caution” is used when there is danger that the reader, through incorrect manipulation, may damage equipment, loose data, get an unexpected result or has to restart (part of) a procedure.
Warning	Warning	A “warning” is used when there is danger of personal injury.
	Reference	A “reference” guides the reader to other places in this binder or in this manual, where he/she will find additional information on a specific topic.

1.2 PREFACE

Thank you for your continued patronage of Daikin products.

This is the new service manual for Daikin's Year 2006 VRV series Heat Recovery System. Daikin offers a wide range of models to respond to building and office air conditioning needs. We are confident that customers will be able to find the models that best suit their needs.

This service manual contains information regarding the servicing of VRV series Heat Recovery System.

Oct., 2006

After Sales Service Division

Part 1
General Information

1. Model Names of Indoor/Outdoor Units

Indoor Units

Type		Model Name								Power Supply
Ceiling Mounted Cassette Type (Multi Flow)	FXFQ	—	—	12M	18M	24M	30M	36M	—	VJU
Slim Ceiling Mounted Duct Type	FXDQ	07M	09M	12M	18M	24M	—	—	—	
Ceiling Mounted Built-In Type	FXSQ	—	—	12M	18M	24M	30M	36M	48M	
Ceiling Mounted Duct Type	FXMQ	—	—	—	—	—	30M	36M	48M	
Ceiling Suspended Type	FXHQ	—	—	12M	—	24M	—	36M	—	
Wall Mounted Type	FXAQ	07M	09M	12M	18M	24M	—	—	—	
Floor Standing Type	FXLQ	—	—	12M	18M	24M	—	—	—	
Concealed Floor Standing Type	FXNQ	—	—	12M	18M	24M	—	—	—	

BS Units

Type		Model Name		Power Supply
Heat Recovery Series	BSVQ	36M	60M	VJU

Outdoor Units (Inverter Series)

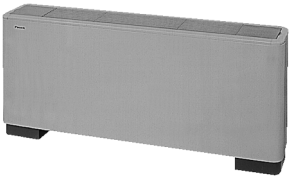
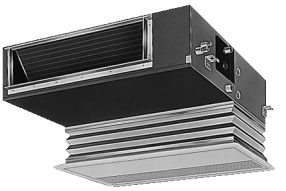
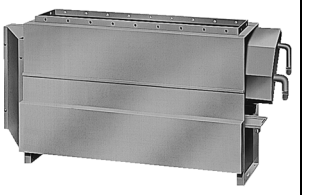
Series		Model Name						Power Supply
Inverter	Heat Recovery	REYQ	72M	96M	144M	168M	192M	TJU

VJU: 1ϕ, 208~230V, 60Hz
TJU: 3ϕ, 208~230V, 60Hz

This time we publish SiUS39-602 (New information: REYQ 72, 144, 168MTJU Wall Mounted Type FXAQ07, 09M) as shown by .

2. External Appearance

2.1 Indoor Units

Ceiling mounted cassette type (Multi flow) FXFQ12MVJU FXFQ18MVJU FXFQ24MVJU FXFQ30MVJU FXFQ36MVJU 	Wall mounted type FXAQ07MVJU FXAQ09MVJU FXAQ12MVJU FXAQ18MVJU FXAQ24MVJU 
Slim ceiling mounted duct type FXDQ07MVJU FXDQ09MVJU FXDQ12MVJU FXDQ18MVJU FXDQ24MVJU 	Floor standing type FXLQ12MVJU FXLQ18MVJU FXLQ24MVJU 
Ceiling mounted built-in type FXSQ12MVJU FXSQ18MVJU FXSQ24MVJU FXSQ30MVJU FXSQ36MVJU FXSQ48MVJU 	Concealed floor standing type FXNQ12MVJU FXNQ18MVJU FXNQ24MVJU 
Ceiling mounted duct type FXMQ30MVJU FXMQ36MVJU FXMQ48MVJU 	BS Units BSVQ36MVJU BSVQ60MVJU 
Ceiling suspended type FXHQ12MVJU FXHQ24MVJU FXHQ36MVJU 	

2.2 Outdoor Units

REYQ72MTJU **REYQ96MTJU** **REYQ144MTJU** **REYQ168MTJU** **REYQ192MTJU**

3. Model Selection

VRV Heat Recovery Series

Connectable indoor units number and capacity

HP	6ton	8ton	12ton	14ton	16ton
System name	REYQ72M	REYQ96M	REYQ144M	REYQ168M	REYQ192M
Outdoor unit 1	REYQ72M	REYQ96M	REYQ72M	REYQ72M	REYQ96M
Outdoor unit 2	—	—	REYQ72M	REYQ96M	REYQ96M
Total number of connectable indoor units	12	16	20	20	20
Total Capacity Index of Indoor Units to be Connected	50.5~93.5	67.5~124.5	101~187	118~218	134.5~249.5

Connectable indoor unit

Type		Model Name								Power Supply
Capacity Range		0.6ton	0.8ton	1ton	1.5ton	2ton	2.5ton	3ton	4ton	VJU
Capacity Index		7.5	9.5	12	18	24	30	36	48	
Ceiling Mounted Cassette Type (Multi Flow)	FXFQ	—	—	12M	18M	24M	30M	36M	—	
Slim ceiling Mounted Duct Type	FXDQ	07M	09M	12M	18M	24M	—	—	—	
Ceiling Mounted Built-in Type	FXSQ	—	—	12M	18M	24M	30M	36M	48M	
Ceiling Mounted Duct Type	FXMQ	—	—	—	—	—	30M	36M	48M	
Ceiling Suspended Type	FXHQ	—	—	12M	—	24M	—	36M	—	
Wall Mounted Type	FXAQ	07M	09M	12M	18M	24M	—	—	—	
Floor Standing Type	FXLQ	—	—	12M	18M	24M	—	—	—	
Connected Floor Standing Type	FXNQ	—	—	12M	18M	24M	—	—	—	

Indoor unit capacity

New refrigerant model code	07 type	09 type	12 type	18 type	24 type	30 type	36 type	48 type
Selecting model capacity	7,500 Btu/h	9,500 Btu/h	12,000 Btu/h	18,000 Btu/h	24,000 Btu/h	30,000 Btu/h	36,000 Btu/h	48,000 Btu/h
Equivalent output	0.6 ton	0.8 ton	1 ton	1.5 ton	2 ton	2.5 ton	3 ton	4 ton

Use the above tables to determine the capacities of indoor units to be connected. Make sure the total capacity of indoor units connected to each outdoor unit is within the specified value (kW).

- The total capacity of connected indoor units must be within a range of 70 to 130% of the rated capacity of the outdoor unit.
- In some models, it is not possible to connect the maximum number of connectable indoor units. Select models so the total capacity of connected indoor units conforms to the specification.

Unit number and capacity of indoor unit connectable to BS unit

Capacity of BS unit	BSVQ36M	BSVQ60M
Unit number of connectable indoor unit	Five units or less	Eight units or less
Total capacity of connectable indoor unit	Less than 36000 Btu/h	36000 Btu/h or more, less than 60000 Btu/h
Connectable indoor unit	Types 07M to 36M	Types 07M to 48M

Part 2
Specifications

1. Specifications

1.1 Outdoor Units

Model Name			REYQ72MTJU
★1 Cooling Capacity		Btu / h	72,000
★2 Heating Capacity		Btu / h	81,000
Casing Color			Ivory White (5Y7.5/1)
Dimensions: (H×W×D)		in	64 × 48-7/8 × 30-1/8
Heat Exchanger			Cross Fin Coil
Comp.	Type		Hermetically Sealed Scroll Type
	Piston Displacement	m³/h	13.72+10.47
	Number of Revolutions	r.p.m	6480, 2900
	Motor Output × Number of Units	kW	(2.7+4.5) × 1
	Starting Method		Direct on line
Fan	Type		Propeller Fan
	Motor Output	kW	0.75 × 1
	Air Flow Rate	cfm	7,400
	Drive		Direct Drive
Connecting Pipes	Liquid Pipe	in	3/8 in C1220T (Flare Connection)
	Gas Pipe	in	3/4 in C1220T (Brazing Connection)
	Discharge Gas Pipe	in	5/8 in C1220T (Brazing Connection)
Machine Weight (Mass)		Lbs	666
★3 Sound Level (Reference Value)		dBA	60
Safety Devices			High Pressure Switch, Fan Driver Overload Protector, Over Current Relay, Inverter Overload Protector, Fusible Plugs, Ground fault circuit interrupter
Defrost Method			Deicer
Capacity Control		%	14~100
Refrigerant	Refrigerant Name		R-410A Series
	Charge	Lbs	27.3
	Control		Electronic Expansion Valve
Refrigerator Oil			Synthetic (ether) oil
	Charge Volume	L	1.9+1.6
Standard Accessories			Installation Manual, Operation Manual, Connection Pipes, Clamps
Drawing No.			4D053303A

Notes:
- ★1 Indoor temp. : 80°FDB or 67°FWB / outdoor temp. : 95°FDB / Equivalent piping length : 25 ft, level difference: 0.
- ★2 Indoor temp. : 70°FDB / outdoor temp. : 47°FDB or 43°FWB / Equivalent piping length : 25 ft, level difference: 0.
- ★3 Anechoic chamber conversion value, measured under JISB8616 conditions. During actual operation, these values are normally somewhat higher as a result of ambient conditions.

Model Name			REYQ96MTJU
★1 Cooling Capacity		Btu / h	96,000
★2 Heating Capacity		Btu / h	108,000
Casing Color			Ivory White (5Y7.5/1)
Dimensions: (H×W×D)		in	64 × 48-7/8 × 30-1/8
Heat Exchanger			Cross Fin Coil
Comp.	Type		Hermetically Sealed Scroll Type
	Piston Displacement	m³/h	13.72+10.47
	Number of Revolutions	r.p.m	6480, 2900
	Motor Output × Number of Units	kW	(2.7+4.5) × 1
	Starting Method		Direct on line
Fan	Type		Propeller Fan
	Motor Output	kW	0.75 × 1
	Air Flow Rate	cfm	7,400
	Drive		Direct Drive
Connecting Pipes	Liquid Pipe	in	3/8 in C1220T (Flare Connection)
	Gas Pipe	in	7/8 in C1220T (Brazing Connection)
	Discharge Gas Pipe	in	3/4 in C1220T (Brazing Connection)
Machine Weight (Mass)		Lbs	666
★3 Sound Level (Reference Value)		dBA	60
Safety Devices			High Pressure Switch, Fan Driver Overload Protector, Over Current Relay, Inverter Overload Protector, Fusible Plugs
Defrost Method			Deicer
Capacity Control		%	14~100
Refrigerant	Refrigerant Name		R-410A Series
	Charge	Lbs	27.3
	Control		Electronic Expansion Valve
Refrigerator Oil			Synthetic (ether) oil
	Charge Volume	L	1.9+1.6
Standard Accessories			Installation Manual, Operation Manual, Connection Pipes, Clamps
Drawing No.			4D045327A

Notes:

★1 Indoor temp. : 80°FDB or 67°FWB / outdoor temp. : 95°FDB / Equivalent piping length : 25 ft, level difference: 0.

★2 Indoor temp. : 70°FDB / outdoor temp. : 47°FDB or 43°FWB / Equivalent piping length : 25 ft, level difference: 0.

★3 Anechoic chamber conversion value, measured under JISB8616 conditions. During actual operation, these values are normally somewhat higher as a result of ambient conditions.

Model Name (Combination Unit)			**REYQ144MTJU**
Model Name (Independent Unit)			**REYQ72MTJU+REYQ72MTJU**
★1 Cooling Capacity		Btu / h	144,000
★2 Heating Capacity		Btu / h	162,000
Casing Color			Ivory White (5Y7.5/1)
Dimensions: (H×W×D)		in	(64 × 48-7/8 × 30-1/8) + (64 × 48-7/8 × 30-1/8)
Heat Exchanger			Cross Fin Coil
Comp.	Type		Hermetically Sealed Scroll Type
	Piston Displacement	m³/h	(13.72+10.47) × 2
	Number of Revolutions	r.p.m	(6480, 2900) × 2
	Motor Output × Number of Units	kW	(2.7+4.5) × 2
	Starting Method		Direct on line
Fan	Type		Propeller Fan
	Motor Output	kW	0.75 × 2
	Air Flow Rate	cfm	7,400 + 7,400
	Drive		Direct Drive
Connecting Pipes	Liquid Pipe ★3	in	5/8 in C1220T (Brazing Connection) — Main line —
	Suction Gas Pipe ★3	in	1-1/8 in C1220T (Brazing Connection) — Main line —
	Discharge Gas Pipe ★3	in	7/8 in C1220T (Brazing Connection) — Main line —
	Oil Equalizing Pipe	in	1/4 in C1220T (Flare Connection)
Machine Weight (Mass)		Lbs	666+666
Safety Devices			High Pressure Switch, Fan Driver Overload Protector, Over Current Relay, Inverter Overload Protector, Fusible Plugs, Ground fault circuit interrupter
Defrost Method			Deicer
Capacity Control		%	10~100
Refrigerant	Refrigerant Name		R-410A Series
	Charge	Lbs	27.3+27.3
	Control		Electronic Expansion Valve
Refrigerator Oil			Synthetic (ether) oil
	Charge Volume	L	(1.9+1.6) + (1.9+1.6)
Standard Accessories			Installation Manual, Operation Manual, Connection Pipes, Clamps
Drawing No.			4D053304

Notes:

★1 Indoor temp. : 80°FDB or 67°FWB / outdoor temp. : 95°FDB / Equivalent piping length : 25 ft, level difference: 0.

★2 Indoor temp. : 70°FDB / outdoor temp. : 47°FDB or 43°FWB / Equivalent piping length : 25 ft, level difference: 0.

★3 BHFP26M90V is necessary for the connection.
Concerning about the piping connection for each outdoor unit to the main line as shown above, use REFNET.

Model Name (Combination Unit)			REYQ168MTJU
Model Name (Independent Unit)			**REYQ72MTJU+REYQ96MTJU**
★1 Cooling Capacity		Btu / h	168,000
★2 Heating Capacity		Btu / h	189,000
Casing Color			Ivory White (5Y7.5/1)
Dimensions: (H×W×D)		in	(64 × 48-7/8 × 30-1/8) + (64 × 48-7/8 × 30-1/8)
Heat Exchanger			Cross Fin Coil
Comp.	Type		Hermetically Sealed Scroll Type
	Piston Displacement	m³/h	(13.72+10.47) × 2
	Number of Revolutions	r.p.m	(6480, 2900) × 2
	Motor Output × Number of Units	kW	(2.7+4.5) × 2
	Starting Method		Direct on line
Fan	Type		Propeller Fan
	Motor Output	kW	0.75 × 2
	Air Flow Rate	cfm	7,400 + 7,400
	Drive		Direct Drive
Connecting Pipes	Liquid Pipe ★3	in	5/8 in C1220T (Brazing Connection) — Main line —
	Suction Gas Pipe ★3	in	1-1/8 in C1220T (Brazing Connection) — Main line —
	Discharge Gas Pipe ★3	in	7/8 in C1220T (Brazing Connection) — Main line —
	Oil Equalizing Pipe	in	1/4 in C1220T (Flare Connection)
Machine Weight (Mass)		Lbs	666+666
Safety Devices			High Pressure Switch, Fan Driver Overload Protector, Over Current Relay, Inverter Overload Protector, Fusible Plugs, Ground fault circuit interrupter
Defrost Method			Deicer
Capacity Control		%	7~100
Refrigerant	Refrigerant Name		R-410A Series
	Charge	Lbs	27.3+27.3
	Control		Electronic Expansion Valve
Refrigerator Oil			Synthetic (ether) oil
	Charge Volume	L	(1.9+1.6) + (1.9+1.6)
Standard Accessories			Installation Manual, Operation Manual, Connection Pipes, Clamps
Drawing No.			4D053305

Notes:

★1 Indoor temp. : 80°FDB or 67°FWB / outdoor temp. : 95°FDB / Equivalent piping length : 25 ft, level difference: 0.

★2 Indoor temp. : 70°FDB / outdoor temp. : 47°FDB or 43°FWB / Equivalent piping length : 25 ft, level difference: 0.

★3 BHFP26M90V is necessary for the connection.
Concerning about the piping connection for each outdoor unit to the main line as shown above, use REFNET.

Model Name (Combination Unit)			**REYQ192MTJU**
Model Name (Independent Unit)			**REYQ96MTJU+REYQ96MTJU**
★1 Cooling Capacity		Btu / h	192,000
★2 Heating Capacity		Btu / h	216,000
Casing Color			Ivory White (5Y7.5/1)
Dimensions: (H×W×D)		in	(64 × 48-7/8 × 30-1/8) + (64 × 48-7/8 × 30-1/8)
Heat Exchanger			Cross Fin Coil
Comp.	Type		Hermetically Sealed Scroll Type
	Piston Displacement	m³/h	(13.72+10.47) × 2
	Number of Revolutions	r.p.m	(6480, 2900) × 2
	Motor Output × Number of Units	kW	(2.7+4.5) × 2
	Starting Method		Direct on line
Fan	Type		Propeller Fan
	Motor Output	kW	0.75 × 2
	Air Flow Rate	cfm	7,400 + 7,400
	Drive		Direct Drive
Connecting Pipes	Liquid Pipe ★3	in	5/8 in C1220T (Brazing Connection) — Main line —
	Suction Gas Pipe ★3	in	1-1/8 in C1220T (Brazing Connection) — Main line —
	Discharge Gas Pipe ★3	in	7/8 in C1220T (Brazing Connection) — Main line —
	Oil Equalizing Pipe	in	1/4 in (Flare Connection)
Machine Weight (Mass)		Lbs	666+666
Safety Devices			High Pressure Switch, Fan Driver Overload Protector, Over Current Relay, Inverter Overload Protector, Fusible Plugs
Defrost Method			Deicer
Capacity Control		%	7~100
Refrigerant	Refrigerant Name		R-410A Series
	Charge	Lbs	27.3+27.3
	Control		Electronic Expansion Valve
Refrigerator Oil			Synthetic (ether) oil
	Charge Volume	L	(1.9+1.6) + (1.9+1.6)
Standard Accessories			Installation Manual, Operation Manual, Connection Pipes, Clamps
Drawing No.			4D050356

Notes:
- ★1 Indoor temp. : 80°FDB or 67°FWB / outdoor temp. : 95°FDB / Equivalent piping length : 25 ft, level difference: 0.
- ★2 Indoor temp. : 70°FDB / outdoor temp. : 47°FDB or 43°FWB / Equivalent piping length : 25 ft, level difference: 0.
- ★3 BHFP26M90V is necessary for the connection.
  Concerning about the piping connection for each outdoor unit to the main line as shown above, use REFNET.

1.2 Indoor Units

Ceiling Mounted Cassette Type (Multi-flow)

Model			FXFQ12MVJU	FXFQ18MVJU	FXFQ24MVJU
★1 Cooling Capacity		Btu/h	12,000	18,000	24,000
★2 Heating Capacity		Btu/h	13,500	20,000	27,000
Casing / Color			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)		in	9-1/8×33-1/8×33-1/8	9-1/8×33-1/8×33-1/8	9-1/8×33-1/8×33-1/8
Coil (Cross Fin Coil)	Rows × Stages × FPI		2×8×17	2×8×17	2×8×17
	Face Area	ft²	3.56	3.56	3.56
Fan	Model		QTS45B14M	QTS45B14M	QTS45B14M
	Type		Turbo Fan	Turbo Fan	Turbo Fan
	Motor Output	HP	0.06	0.06	0.06
	Air Flow Rate (H/L)	cfm	460/350	570/390	670/490
	Drive		Direct Drive	Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Foamed Polystyrene / Foamed Polyethylene	Foamed Polystyrene / Foamed Polyethylene	Foamed Polystyrene / Foamed Polyethylene
Piping Connections	Liquid Pipes	in	ϕ1/4 (Flare Connection)	ϕ1/4 (Flare Connection)	ϕ3/8 (Flare Connection)
	Gas Pipes	in	ϕ1/2 (Flare Connection)	ϕ1/2 (Flare Connection)	ϕ5/8 (Flare Connection)
	Drain Pipe	in	VP25 (External Dia. 1-1/4 Internal Dia. 1)	VP25 (External Dia. 1-1/4 Internal Dia. 1)	VP25 (External Dia. 1-1/4 Internal Dia. 1)
Machine Weight (Mass)		Lbs	55	55	55
★4 Sound Level (H/L)		dBA	31/28	33/28	34/29
Safety Devices			Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Connectable outdoor unit			R-410A Series	R-410A Series	R-410A Series
Decoration Panels (Option)	Model		BYC125K-W1	BYC125K-W1	BYC125K-W1
	Color		White (10Y9/0.5)	White (10Y9/0.5)	White (10Y9/0.5)
	Dimensions: (H×W×D)	in	1-5/8×37-3/8×37-3/8	1-5/8×37-3/8×37-3/8	1-5/8×37-3/8×37-3/8
	Air Filter		Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)
	Weight	Lbs	11	11	11
Standard Accessories			Operation manual, Installation manual, Paper pattern for installation, Drain hose, Clamp metal, Washers, Sealing pads, Clamps, Screws, Insulation for fitting.	Operation manual, Installation manual, Paper pattern for installation, Drain hose, Clamp metal, Washers, Sealing pads, Clamps, Screws, Insulation for fitting.	Operation manual, Installation manual, Paper pattern for installation, Drain hose, Clamp metal, Washers, Sealing pads, Clamps, Screws, Insulation for fitting.
Drawing No.			C:3D042686		

Notes:

★1 Nominal cooling capacities are based on the following conditions:
Return air temperature: 80°FDB, 67°FWB
Outdoor temperature: 95°FDB
Equivalent ref. piping length: 25ft (Horizontal)

★2 Nominal heating capacities are based on the following conditions:
Return air temperature: 70°FDB.
Outdoor temperature: 47°FDB, 43°FWB
Equivalent ref. piping length: 25ft (Horizontal)

3 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.

★4 Anechoic chamber conversion value, measured under JISB8616 conditions. During actual operation, these values are normally somewhat higher as a result of installation conditions.

Ceiling Mounted Cassette Type (Multi-flow)

Model			FXFQ30MVJU	FXFQ36MVJU
★1 Cooling Capacity		Btu/h	30,000	36,000
★2 Heating Capacity		Btu/h	34,000	40,000
Casing / Color			Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)		in	11-3/8×33-1/8×33-1/8	11-3/8×33-1/8×33-1/8
Coil (Cross Fin Coil)	Rows × Stages × FPI		2×12×17	2×12×17
	Face Area	ft²	5.35	5.35
Fan	Model		QTS45A17M	QTS45A17M
	Type		Turbo Fan	Turbo Fan
	Motor Output	HP	0.12	0.12
	Air Flow Rate (H/L)	cfm	990/710	990/740
	Drive		Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Foamed Polystyrene / Foamed Polyethylene	Foamed Polystyrene / Foamed Polyethylene
Piping Connections	Liquid Pipes	in	ϕ3/8 (Flare Connection)	ϕ3/8 (Flare Connection)
	Gas Pipes	in	ϕ5/8 (Flare Connection)	ϕ5/8 (Flare Connection)
	Drain Pipe	in	VP25 (External Dia. 1-1/4 / Internal Dia. 1)	VP25 (External Dia. 1-1/4 / Internal Dia. 1)
Machine Weight (Mass)		Lbs	66	66
★4 Sound Level (H/L)		dBA	38/32	40/33
Safety Devices			Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve
Connectable outdoor unit			R-410A Series	R-410A Series
Decoration Panels (Option)	Model		BYC125K-W1	BYC125K-W1
	Color		White (10Y9/0.5)	White (10Y9/0.5)
	Dimensions: (H×W×D)	in	1-5/8×37-3/8×37-3/8	1-5/8×37-3/8×37-3/8
	Air Filter		Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)
	Weight	Lbs	11	11
Standard Accessories			Operation manual, Installation manual, Paper pattern for installation, Drain hose, Clamp metal, Washers, Sealing pads, Clamps, Screws, Insulation for fitting.	Operation manual, Installation manual, Paper pattern for installation, Drain hose, Clamp metal, Washers, Sealing pads, Clamps, Screws, Insulation for fitting.
Drawing No.			C:3D042686	

Notes:

★1 Nominal cooling capacities are based on the following conditions:
Return air temperature: 80°FDB, 67°FWB
Outdoor temperature: 95°FDB
Equivalent ref. piping length : 25ft (Horizontal)

★2 Nominal heating capacities are based on the following conditions:
Return air temperature: 70°FDB.
Outdoor temperature: 47°FDB, 43°FWB
Equivalent ref. piping length: 25ft (Horizontal)

3 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.

★4 Anechoic chamber conversion value, measured under JISB8616 conditions. During actual operation, these values are normally somewhat higher as a result of installation conditions.

Slim Ceiling Mounted Duct Type

Model			FXDQ07MVJU	FXDQ09MVJU	FXDQ12MVJU
★1 Cooling Capacity		Btu/h	7,500	9,500	12,000
★2 Heating Capacity		Btu/h	8,500	10,500	13,500
Casing / Color			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)		in	7-7/8×27-9/16×24-7/16	7-7/8×27-9/16×24-7/16	7-7/8×27-9/16×24-7/16
Coil (Cross Fin Coil)	Rows × Stages × FPI		2×12×17	2×12×17	3×12×17
	Face Area	ft²	1.36	1.36	1.36
Fan	Model		—	—	—
	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan
	Motor Output	HP	0.08	0.08	0.08
	Air Flow Rate (H/L)	cfm	280/226 (H/L)	280/226 (H/L)	280/226 (H/L)
	External Static Pressure ★4	Pa	30-10	30-10	30-10
	Drive		Direct Drive	Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Foamed Polyethylene	Foamed Polyethylene	Foamed Polyethylene
Air Filter			Removal, Washable, Mildew Proof	Removal, Washable, Mildew Proof	Removal, Washable, Mildew Proof
Piping Connections	Liquid Pipes	in	ϕ1/4 (Flare Connection)	ϕ1/4 (Flare Connection)	ϕ1/4 (Flare Connection)
	Gas Pipes	in	ϕ1/2 (Flare Connection)	ϕ1/2 (Flare Connection)	ϕ1/2 (Flare Connection)
	Drain Pipe	in	VP20 (External Dia. 1-1/32 Internal Dia. 25/32)	VP20 (External Dia. 1-1/32 Internal Dia. 25/32)	VP20 (External Dia. 1-1/32 Internal Dia. 25/32)
Machine Weight (Mass)		Lbs	51	51	51
★5 Sound Level (H/L)		dBA	33/29	33/29	33/29
Safety Devices			Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Connectable outdoor unit			R-410A Series	R-410A Series	R-410A Series
Standard Accessories			Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers, Conduit Mounting Plate, Insulation Tube.	Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers, Conduit Mounting Plate, Insulation Tube.	Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers, Conduit Mounting Plate, Insulation Tube.
Drawing No.			C:3D051780A		

Notes:

★1 Nominal cooling capacities are based on the following conditions:
Return air temperature: 80°FDB, 67°FWB
Outdoor temperature: 95°FDB
Equivalent ref. piping length: 25ft (Horizontal)

★2 Nominal heating capacities are based on the following conditions:
Return air temperature: 70°FDB.
Outdoor temperature: 47°FDB, 43°FWB
Equivalent ref. piping length: 25ft (Horizontal)

3 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.

★4 External static pressure is changeable to change over the connectors inside electrical box, this pressure means
"High static pressure – Standard".

★5 Anechoic chamber conversion value, measured under JISB8616 conditions. During actual operation, these values are normally somewhat higher as a result of installation conditions.

6 Refer to page 14 for Power Input.

Slim Ceiling Mounted Duct Type

Model			FXDQ18MVJU	FXDQ24MVJU
★1 Cooling Capacity		Btu/h	18,000	24,000
★2 Heating Capacity		Btu/h	20,000	27,000
Casing / Color			Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)		in	7-7/8×35-7/16×24-7/16	7-7/8×43-5/16×24-7/16
Coil (Cross Fin Coil)	Rows × Stages × FPI		3×12×17	3×12×17
	Face Area	ft²	1.89	2.44
Fan	Model		—	—
	Type		Sirocco Fan	Sirocco Fan
	Motor Output	HP	0.17	0.17
	Air Flow Rate (H/L)	cfm	440/350 (H/L)	580/460 (H/L)
	External Static Pressure ★4	Pa	44-15	44-15
	Drive		Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Foamed Polyethylene	Foamed Polyethylene
Air Filter			Removal, Washable, Mildew Proof	Removal, Washable, Mildew Proof
Piping Connections	Liquid Pipes	in	ϕ1/4 (Flare Connection)	ϕ3/8 (Flare Connection)
	Gas Pipes	in	ϕ1/2 (Flare Connection)	ϕ5/8 (Flare Connection)
	Drain Pipe	in	VP20 (External Dia. 1-1/32 Internal Dia. 25/32)	VP20 (External Dia. 1-1/32 Internal Dia. 25/32)
Machine Weight (Mass)		Lbs	63	71
★5 Sound Level (H/L)		dBA	35/31	36/32
Safety Devices			Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve
Connectable outdoor unit			R-410A Series	R-410A Series
Standard Accessories			Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers, Conduit Mounting Plate, Insulation Tube.	Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers, Conduit Mounting Plate, Insulation Tube.
Drawing No.			C:3D051780A	

Notes:

★1 Nominal cooling capacities are based on the following conditions:
Return air temperature: 80°FDB, 67°FWB
Outdoor temperature: 95°FDB
Equivalent ref. piping length: 25ft (Horizontal)

★2 Nominal heating capacities are based on the following conditions:
Return air temperature: 70°FDB.
Outdoor temperature: 47°FDB, 43°FWB
Equivalent ref. piping length: 25ft (Horizontal)

3 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.

★4 External static pressure is changeable to change over the connectors inside electrical box, this pressure means
"High static pressure – Standard".

★5 Anechoic chamber conversion value, measured under JISB8616 conditions. During actual operation, these values are normally somewhat higher as a result of installation conditions.

6 Refer to page 14 for Power Input.

Ceiling Mounted Built-in Type

Model			FXSQ12MVJU	FXSQ18MVJU	FXSQ24MVJU
★1 Cooling Capacity		Btu/h	12,000	18,000	24,000
★2 Heating Capacity		Btu/h	13,500	20,000	27,000
Casing / Color			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)		in	11-7/8×21-5/8×31-1/2	11-7/8×27-1/2×31-1/2	11-7/8×39-3/8×31-1/2
Coil (Cross Fin Coil)	Rows × Stages × FPI		3×14×14	3×14×14	3×14×14
	Face Area	ft²	0.95	1.42	2.38
Fan	Model		D18H3A	D18H2A	2D18H2A
	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan
	Motor Output	HP	0.07	0.11	0.17
	Air Flow Rate (H/L)	cfm	340/230	530/390	740/490
	External Static Pressure ★4	in. Aq	0.37-0.19-0.06	0.38-0.19-0.06	0.51-0.29-0.06
	Drive		Direct Drive	Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Glass Fiber	Glass Fiber	Glass Fiber
Air Filter			Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)
Piping Connections	Liquid Pipes	in	ϕ1/4 (Flare Connection)	ϕ1/4 (Flare Connection)	ϕ3/8 (Flare Connection)
	Gas Pipes	in	ϕ1/2 (Flare Connection)	ϕ1/2 (Flare Connection)	ϕ5/8 (Flare Connection)
	Drain Pipe	in	VP25 (External Dia. 1-1/4 Internal Dia. 1)	VP25 (External Dia. 1-1/4 Internal Dia. 1)	VP25 (External Dia. 1-1/4 Internal Dia. 1)
Machine Weight (Mass)		Lbs	69	73	95
★5 Sound Level (H/L)		dBA	41/35	44/38	44/38
Safety Devices			Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Connectable outdoor unit			R-410A Series	R-410A Series	R-410A Series
Decoration Panel (Option)	Model		BYBS32DJW1	BYBS45DJW1	BYBS71DJW1
	Panel Color		White (10Y9/0.5)	White (10Y9/0.5)	White (10Y9/0.5)
	Dimensions: (H×W×D)	in	2-1/8×25-5/8×19-5/8	2-1/8×31-1/2×19-5/8	2-1/8×43-1/4×19-5/8
	Weight	Lbs	6.6	7.7	9.9
Standard Accessories			Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers.	Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers.	Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers.
Drawing No.			C:3D042684		

Notes:

★1 Nominal cooling capacities are based on the following conditions:
Return air temperature: 80°FDB, 67°FWB
Outdoor temperature: 95°FDB
Equivalent ref. piping length: 25ft (Horizontal)

★2 Nominal heating capacities are based on the following conditions:
Return air temperature: 70°FDB.
Outdoor temperature: 47°FDB, 43°FWB
Equivalent ref. piping length: 25ft (Horizontal)

3 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.

★4 External static pressure is changeable to change over the connectors inside electrical box, this pressure means
"High static pressure – Standard – Low static pressure".

★5 Anechoic chamber conversion value, measured under JISB8616 conditions. During actual operation, these values are normally somewhat higher as a result of installation conditions.

Ceiling Mounted Built-in Type

Model			FXSQ30MVJU	FXSQ36MVJU	FXSQ48MVJU
★1 Cooling Capacity		Btu/h	30,000	36,000	48,000
★2 Heating Capacity		Btu/h	34,000	40,000	54,000
Casing / Color			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)		in	11-7/8×55-1/8×31-1/2	11-7/8×55-1/8×31-1/2	11-7/8×55-1/8×31-1/2
Coil (Cross Fin Coil)	Rows × Stages × FPI		3×14×14	3×14×14	3×14×14
	Face Area	ft²	3.64	3.64	3.64
Fan	Model		3D18H2A	3D18H2A	3D18H2A
	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan
	Motor Output	HP	0.30	0.30	0.30
	Air Flow Rate (H/L)	cfm	950/720	990/740	1,300/950
	External Static Pressure ★4	in. Aq	0.57-0.39	0.57-0.35	0.34-0.10
	Drive		Direct Drive	Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Glass Fiber	Glass Fiber	Glass Fiber
Air Filter			Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)
Piping Connections	Liquid Pipes	in	ϕ3/8 (Flare Connection)	ϕ3/8 (Flare Connection)	ϕ3/8 (Flare Connection)
	Gas Pipes	in	ϕ5/8 (Flare Connection)	ϕ5/8 (Flare Connection)	ϕ5/8 (Flare Connection)
	Drain Pipe	in	VP25 (External Dia. 1-1/4 Internal Dia. 1)	VP25 (External Dia. 1-1/4 Internal Dia. 1)	VP25 (External Dia. 1-1/4 Internal Dia. 1)
Machine Weight (Mass)		Lbs	119	119	122
★5 Sound Level (H/L)		dBA	45/39	45/39	48/43
Safety Devices			Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Connectable outdoor unit			R-410A Series	R-410A Series	R-410A Series
Decoration Panel (Option)	Model		BYBS125DJW1	BYBS125DJW1	BYBS125DJW1
	Panel Color		White (10Y9/0.5)	White (10Y9/0.5)	White (10Y9/0.5)
	Dimensions: (H×W×D)	in	2-1/8×59×19-5/8	2-1/8×59×19-5/8	2-1/8×59×19-5/8
	Weight	Lbs	14	14	14
Standard Accessories			Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers.	Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers.	Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers.
Drawing No.			C:3D042684		

Notes:

★1 Nominal cooling capacities are based on the following conditions:
Return air temperature: 80°FDB, 67°FWB
Outdoor temperature: 95°FDB
Equivalent ref. piping length: 25ft (Horizontal)

★2 Nominal heating capacities are based on the following conditions:
Return air temperature: 70°FDB.
Outdoor temperature: 47°FDB, 43°FWB
Equivalent ref. piping length: 25ft (Horizontal)

3 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.

★4 External static pressure is changeable to change over the connectors inside electrical box, this pressure means
"High static pressure – Standard".

★5 Anechoic chamber conversion value, measured under JISB8616 conditions. During actual operation, these values are normally somewhat higher as a result of installation conditions.

Ceiling Mounted Duct Type

Model			FXMQ30MVJU	FXMQ36MVJU	FXMQ48MVJU
★1 Cooling Capacity		Btu/h	30,000	36,000	48,000
★2 Heating Capacity		Btu/h	34,000	40,000	54,000
Casing / Color			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)		in	15-3/8×28-3/8×27-1/8	15-3/8×43-3/4×27-1/8	15-3/8×43-3/4×27-1/8
Coil (Cross Fin Coil)	Rows × Stages × FPI		3×16×13	3×16×13	3×16×13
	Face Area	ft²	1.95	3.43	3.43
Fan	Model		D11/2D3AA1VE	2D11/2D3AG1VE	2D11/2D3AF1VE
	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan
	Motor Output	HP	0.21	0.36	0.58
	Air Flow Rate (H/L)	cfm	690/565	1,020/810	1,270/1,020
	External Static Pressure ★4	in. Aq	0.66-0.43	0.71-0.43	1.0-0.72
	Drive		Direct Drive	Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Glass Fiber	Glass Fiber	Glass Fiber
Air Filter			★5	★5	★5
Piping Connections	Liquid Pipes	in	ϕ3/8 (Flare Connection)	ϕ3/8 (Flare Connection)	ϕ3/8 (Flare Connection)
	Gas Pipes	in	ϕ5/8 (Flare Connection)	ϕ5/8 (Flare Connection)	ϕ5/8 (Flare Connection)
	Drain Pipe	in	VP25 (External Dia. 1-1/4 Internal Dia. 1)	VP25 (External Dia. 1-1/4 Internal Dia. 1)	VP25 (External Dia. 1-1/4 Internal Dia. 1)
Machine Weight (Mass)		Lbs	99	139	144
★6 Sound Level (H/L)		dBA	45/41	45/41	48/45
Safety Devices			Fuse, Thermal Fuse for Fan Motor	Fuse, Thermal Fuse for Fan Motor	Fuse, Thermal Fuse for Fan Motor
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Connectable outdoor unit			R-410A Series	R-410A Series	R-410A Series
Standard Accessories			Operation Manual, Installation Manual, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws.	Operation Manual, Installation Manual, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws.	Operation Manual, Installation Manual, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws.
Drawing No.			C:3D042685		

Notes:

★1 Nominal cooling capacities are based on the following conditions:
Return air temperature: 80°FDB, 67°FWB
Outdoor temperature: 95°FDB
Equivalent ref. piping length: 25ft (Horizontal)

★2 Nominal heating capacities are based on the following conditions:
Return air temperature: 70°FDB.
Outdoor temperature: 47°FDB, 43°FWB
Equivalent ref. piping length: 25ft (Horizontal)

3 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.

★4 External static pressure is changeable to change over the connectors inside electrical box, this pressure means
"High static pressure – Standard".

★5 Air filter is not standard accessory, but please mount it in the duct system of the suction side.
Select its colorimetric method (gravity method) 50% or more.

★6 Anechoic chamber conversion value, measured under JISB8616 conditions. During actual operation, these values are normally somewhat higher as a result of installation conditions.

Ceiling Suspended Type

Model			FXHQ12MVJU	FXHQ24MVJU	FXHQ36MVJU
★1 Cooling Capacity		Btu/h	12,000	24,000	36,000
★2 Heating Capacity		Btu/h	13,500	27,000	40,000
Casing Color			White (10Y9/0.5)	White (10Y9/0.5)	White (10Y9/0.5)
Dimensions: (H×W×D)		in	7-11/16×37-13/16×26-3/4	7-11/16×55-1/8×26-3/4	7-11/16×62-5/8×26-3/4
Coil (Cross Fin Coil)	Rows × Stages × FPI		2×12×15	3×12×15	2×12×15+2×10×15
	Face Area	ft²	1.96	3.15	3.66+2.95
Fan	Model		3D12K1AA1	3D12K2AA1	3D12K2AA1
	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan
	Motor Output	W	62	130	130
	Air Flow Rate (H/L)	CFM	410/340	710/600	830/670
	Drive		Direct Drive	Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Glass Wool	Glass Wool	Glass Wool
Air Filter			Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)
Piping Connections	Liquid Pipes	in	ϕ1/4 (Flare Connection)	ϕ3/8 (Flare Connection)	ϕ3/8 (Flare Connection)
	Gas Pipes	in	ϕ1/2 (Flare Connection)	ϕ5/8 (Flare Connection)	ϕ5/8 (Flare Connection)
	Drain Pipe	in	VP20 (External Dia. 1, Internal Dia. 3/4)	VP20 (External Dia. 1, Internal Dia. 3/4)	VP20 (External Dia. 1, Internal Dia. 3/4)
Machine Weight (Mass)		Lbs	55	80	90
★4 Sound Level (H)		dBA	42	44	46
Safety Devices			Fuse Thermal Protector for Fan Motor	Fuse Thermal Protector for Fan Motor	Fuse Thermal Protector for Fan Motor
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Connectable Outdoor Unit			R-410A Series	R-410A Series	R-410A Series
Standard Accessories			Operation Manual, Installation Manual, Drain Hose, Paper Pattern for Installation, Clamp Metal, Insulation for Fitting, Clamps, Washers.	Operation Manual, Installation Manual, Drain Hose, Paper Pattern for Installation, Clamp Metal, Insulation for Fitting, Clamps, Washers.	Operation Manual, Installation Manual, Drain Hose, Paper Pattern for Installation, Clamp Metal, Insulation for Fitting, Clamps, Washers.
Drawing No.			4D049326		

Notes:

★1 Nominal cooling capacities are based on the following conditions:
Return air temperature: 80°FDB, 67°FWB
Outdoor temperature: 95°FDB
Equivalent ref. piping: 25ft (Horizontal)

★2 Nominal heating capacities are based on the following conditions:
Return air temperature: 70°FDB.
Outdoor temperature: 47°FDB, 43°FWB
Equivalent ref. piping: 25ft (Horizontal)

3 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.

★4 Anechoic chamber conversion value, measured under JISB8616 conditions. During actual operation, these values are normally somewhat higher as a result of ambient conditions.

Wall Mounted Type

Model			FXAQ07MVJU	FXAQ09MVJU	FXAQ12MVJU
★1 Cooling Capacity		Btu/h	7,500	9,500	12,000
★2 Heating Capacity		Btu/h	8,500	10,500	13,500
Casing Color			White (3.0Y8.5/0.5)	White (3.0Y8.5/0.5)	White (3.0Y8.5/0.5)
Dimensions: (H×W×D)		in	11–3/8×31–1/4×9	11–3/8×31–1/4×9	11–3/8×31–1/4×9
Coil (Cross Fin Coil)	Rows × Stages × FPI		2×14×17	2×14×17	2×14×17
	Face Area	ft²	1.73	1.73	1.73
Fan	Model		QCL9661M	QCL9661M	QCL9661M
	Type		Cross Flow Fan	Cross Flow Fan	Cross Flow Fan
	Motor Output	HP	0.054	0.054	0.054
	Air Flow Rate (H/L)	cfm	260/160	280/175	300/180
	Drive		Direct Drive	Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Foamed Polystyrene / Foamed Polyethylene	Foamed Polystyrene / Foamed Polyethylene	Foamed Polystyrene / Foamed Polyethylene
Air Filter			Resin Net (Washable)	Resin Net (Washable)	Resin Net (Washable)
Piping Connections	Liquid Pipes	in	ϕ1/4 (Flare Connection)	ϕ1/4 (Flare Connection)	ϕ1/4 (Flare Connection)
	Gas Pipes	in	ϕ1/2 (Flare Connection)	ϕ1/2 (Flare Connection)	ϕ1/2 (Flare Connection)
	Drain Pipe	in	VP13 (External Dia. 11/16 Internal Dia. 1/2)	VP13 (External Dia. 11/16 Internal Dia. 1/2)	VP13 (External Dia. 11/16 Internal Dia. 1/2)
Machine Weight (Mass)		Lbs	25	25	25
★4 Sound Level (H)		dBA	36	37	38
Safety Devices			Fuse	Fuse	Fuse
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Connectable outdoor unit			R-410A Series	R-410A Series	R-410A Series
Standard Accessories			Operation Manual, Installation Manual, Installation Panel, Paper Pattern for Installation, Insulation Tube, Clamps, Screws.	Operation Manual, Installation Manual, Installation Panel, Paper Pattern for Installation, Insulation Tube, Clamps, Screws.	Operation Manual, Installation Manual, Installation Panel, Paper Pattern for Installation, Insulation Tube, Clamps, Screws.
Drawing No.			C:3D046038A		

Notes:

★1 Nominal cooling capacities are based on the following conditions:
Return air temperature: 80°FDB, 67°FWB
Outdoor temperature: 95°FDB
Equivalent ref. piping length: 25ft (Horizontal)

★2 Nominal heating capacities are based on the following conditions:
Return air temperature: 70°FDB.
Outdoor temperature: 47°FDB, 43°FWB
Equivalent ref. piping length: 25ft (Horizontal)

3 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.

★4 Anechoic chamber conversion value, measured under JISB8616 conditions. During actual operation, these values are normally somewhat higher as a result of installation conditions.

Wall Mounted Type

Model			FXAQ18MVJU	FXAQ24MVJU
★1 Cooling Capacity		Btu/h	18,000	24,000
★2 Heating Capacity		Btu/h	20,000	27,000
Casing Color			White (3.0Y8.5/0.5)	White (3.0Y8.5/0.5)
Dimensions: (H×W×D)		in	11–3/8×41–3/8×9	11–3/8×41–3/8×9
Coil (Cross Fin Coil)	Rows × Stages × FPI		2×14×17	2×14×17
	Face Area	ft²	2.29	2.29
Fan	Model		QCL9686	QCL9686
	Type		Cross Flow Fan	Cross Flow Fan
	Motor Output	HP	0.058	0.058
	Air Flow Rate (H/L)	cfm	500/400	635/470
	Drive		Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Foamed Polystyrene / Foamed Polyethylene	Foamed Polystyrene / Foamed Polyethylene
Air Filter			Resin Net (Washable)	Resin Net (Washable)
Piping Connections	Liquid Pipes	in	ϕ1/4 (Flare Connection)	ϕ3/8 (Flare Connection)
	Gas Pipes	in	ϕ1/2 (Flare Connection)	ϕ5/8 (Flare Connection)
	Drain Pipe	in	VP13 (External Dia. 11/16 Internal Dia. 1/2)	VP13 (External Dia. 11/16 Internal Dia. 1/2)
Machine Weight (Mass)		Lbs	31	31
★4 Sound Level (H)		dBA	43	47
Safety Devices			Fuse	Fuse
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve
Connectable outdoor unit			R-410A Series	R-410A Series
Standard Accessories			Operation Manual, Installation Manual, Installation Panel, Paper Pattern for Installation, Insulation Tube, Clamps, Screws.	Operation Manual, Installation Manual, Installation Panel, Paper Pattern for Installation, Insulation Tube, Clamps, Screws.
Drawing No.			C:3D046038A	

Notes:

★1 Nominal cooling capacities are based on the following conditions:
Return air temperature: 80°FDB, 67°FWB
Outdoor temperature: 95°FDB
Equivalent ref. piping length: 25ft (Horizontal)

★2 Nominal heating capacities are based on the following conditions:
Return air temperature: 70°FDB.
Outdoor temperature: 47°FDB, 43°FWB
Equivalent ref. piping length: 25ft (Horizontal)

3 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.

★4 Anechoic chamber conversion value, measured under JISB8616 conditions. During actual operation, these values are normally somewhat higher as a result of installation conditions.

Floor Standing Type

Model			FXLQ12MVJU	FXLQ18MVJU	FXLQ24MVJU
★1 Cooling Capacity		Btu/h	12,000	18,000	24,000
★2 Heating Capacity		Btu/h	13,500	20,000	27,000
Casing Color			Ivory White (5Y7.5/1)	Ivory White (5Y7.5/1)	Ivory White (5Y7.5/1)
Dimensions: (H×W×D)		in	23–5/8×44–7/8×8–3/4	23–5/8×55–7/8×8–3/4	23–5/8×55–7/8×8–3/4
Coil (Cross Fin Coil)	Rows × Stages × FPI		3×14×17	3×14×17	3×14×17
	Face Area	ft²	2.15	3.04	3.04
Fan	Model		2D14B13	2D14B20	2D14B20
	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan
	Motor Output	HP	0.034	0.047	0.047
	Air Flow Rate (H/L)	cfm	280/210	490/380	560/420
	Drive		Direct Drive	Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Glass Fiber/ Urethane Foam	Glass Fiber/ Urethane Foam	Glass Fiber/ Urethane Foam
Air Filter			Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)
Piping Connections	Liquid Pipes	in	ϕ1/4 (Flare Connection)	ϕ1/4 (Flare Connection)	ϕ3/8 (Flare Connection)
	Gas Pipes	in	ϕ1/2 (Flare Connection)	ϕ1/2 (Flare Connection)	ϕ5/8 (Flare Connection)
	Drain Pipe	in	ϕ27/32 O.D (Vinyl Chloride)	ϕ27/32 O.D (Vinyl Chloride)	ϕ27/32 O.D (Vinyl Chloride)
Machine Weight (Mass)		Lbs	66	80	80
★4 Sound Level (H/L)		dBA	36	40	41
Safety Devices			Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Connectable Outdoor Unit			R-410A Series	R-410A Series	R-410A Series
Standard Accessories			Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw.	Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw.	Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw.
Drawing No.			3D045640		

Notes:

★1 Nominal cooling capacities are based on the following conditions:
Return air temperature: 80°FDB, 67°FWB
Outdoor temperature: 95°FDB
Equivalent ref. piping length: 25ft (Horizontal)

★2 Nominal heating capacities are based on the following conditions:
Return air temperature: 70°FDB.
Outdoor temperature: 47°FDB, 43°FWB
Equivalent ref. piping length: 25ft (Horizontal)

3 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.

★4 Anechoic chamber conversion value, measured under JISB8616 conditions. During actual operation, these values are normally somewhat higher as a result of installation conditions.

Concealed Floor Standing Type

Model			FXNQ12MVJU	FXNQ18MVJU	FXNQ24MVJU
★1 Cooling Capacity		Btu/h	12,000	18,000	24,000
★2 Heating Capacity		Btu/h	13,500	20,000	27,000
Casing Color			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)		in	24×42–1/8×8–5/8	24×53–1/8×8–5/8	24×53–1/8×8–5/8
Coil (Cross Fin Coil)	Rows × Stages × FPI		3×14×17	3×14×17	3×14×17
	Face Area	ft²	2.15	3.04	3.04
Fan	Model		2D14B13	2D14B20	2D14B20
	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan
	Motor Output	HP	0.034	0.047	0.047
	Air Flow Rate (H/L)	cfm	280/210	490/380	560/420
	Drive		Direct Drive	Direct Drive	Direct Drive
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material			Glass Fiber/ Urethane Foam	Glass Fiber/ Urethane Foam	Glass Fiber/ Urethane Foam
Air Filter			Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)
Piping Connections	Liquid Pipes	in	ϕ1/4 (Flare Connection)	ϕ1/4 (Flare Connection)	ϕ3/8 (Flare Connection)
	Gas Pipes	in	ϕ1/2 (Flare Connection)	ϕ1/2 (Flare Connection)	ϕ5/8 (Flare Connection)
	Drain Pipe	in	ϕ27/32 O.D (Vinyl Chloride)	ϕ27/32 O.D (Vinyl Chloride)	ϕ27/32 O.D (Vinyl Chloride)
Machine Weight (Mass)		Lbs	66	80	80
★4 Sound Level (H/L)		dBA	36	40	41
Safety Devices			Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor	Fuse, Thermal Protector for Fan Motor
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Connectable Outdoor Unit			R-410A Series	R-410A Series	R-410A Series
Standard Accessories			Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw.	Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw.	Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw.
Drawing No.			C: 3D045640		

Notes:

★1 Nominal cooling capacities are based on the following conditions:
Return air temperature: 80°FDB, 67°FWB
Outdoor temperature: 95°FDB
Equivalent ref. piping length: 25ft (Horizontal)

★2 Nominal heating capacities are based on the following conditions:
Return air temperature: 70°FDB.
Outdoor temperature: 47°FDB, 43°FWB
Equivalent ref. piping length: 25ft (Horizontal)

3 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.

★4 Anechoic chamber conversion value, measured under JISB8616 conditions. During actual operation, these values are normally somewhat higher as a result of installation conditions.

1.3 BS Units

Model				BSVQ36MVJU	BSVQ60MVJU
Power Supply				60Hz 208~230V	60Hz 208~230V
Total Capacity Index of Connectable Indoor Unit				Less than 36	Less than 60
No. of Connectable Indoor Units				Max. 3	Max. 5
Casing				Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (H×W×D)			in	7-1/4 × 12-1/4 × 11	7-1/4 × 12-1/4 × 11
Sound Absorbing Thermal Insulation Material				Flame and Heat Resistant Foamed Polyethylene	Flame and Heat Resistant Foamed Polyethylene
Piping Connection	Indoor Unit	Liquid Pipes		ϕ 3/8 (Flare Connection) ★1	ϕ 3/8 (Flare Connection)
		Gas Pipes		ϕ 5/8 (Flare Connection) ★1	ϕ 5/8 (Flare Connection)
	Outdoor Unit	Liquid Pipes		ϕ 3/8 (Flare Connection) ★1	ϕ 3/8 (Flare Connection)
		Suction Gas Pipes		ϕ 5/8 (Flare Connection) ★1	ϕ 5/8 (Flare Connection)
		Discharge Gas Pipes		ϕ 1/2 (Flare Connection) ★1	ϕ 1/2 (Flare Connection)
Machine Weight (Mass)			Lbs	18	18
Standard Accessories				Installation Manual, Attached Pipe, Insulation pipe cover, Clamps	Installation Manual, Insulation pipe cover, Clamps
Drawing No.				4D045334	4D045339

Notes: ★1 If the total capacity of all indoor units connected to the system is less than 24,000 Btu/h, connect the attached pipe to the field pipe.
(Braze the connection between the attached pipe and field pipe.)

Connection Range for BS Unit

Components	Outdoor unit/BS unit model name	Total capacity of connectable indoor units	Number of connectable indoor units	
Indoor unit total capacity	REYQ72M	50.5~93.5	12	Same number of BS units
	REYQ96M	67.5~124.5	16	
	REYQ144M	101~187	20	
	REYQ168M	118~218	20	
	REYQ192M	134.5~249.5	20	

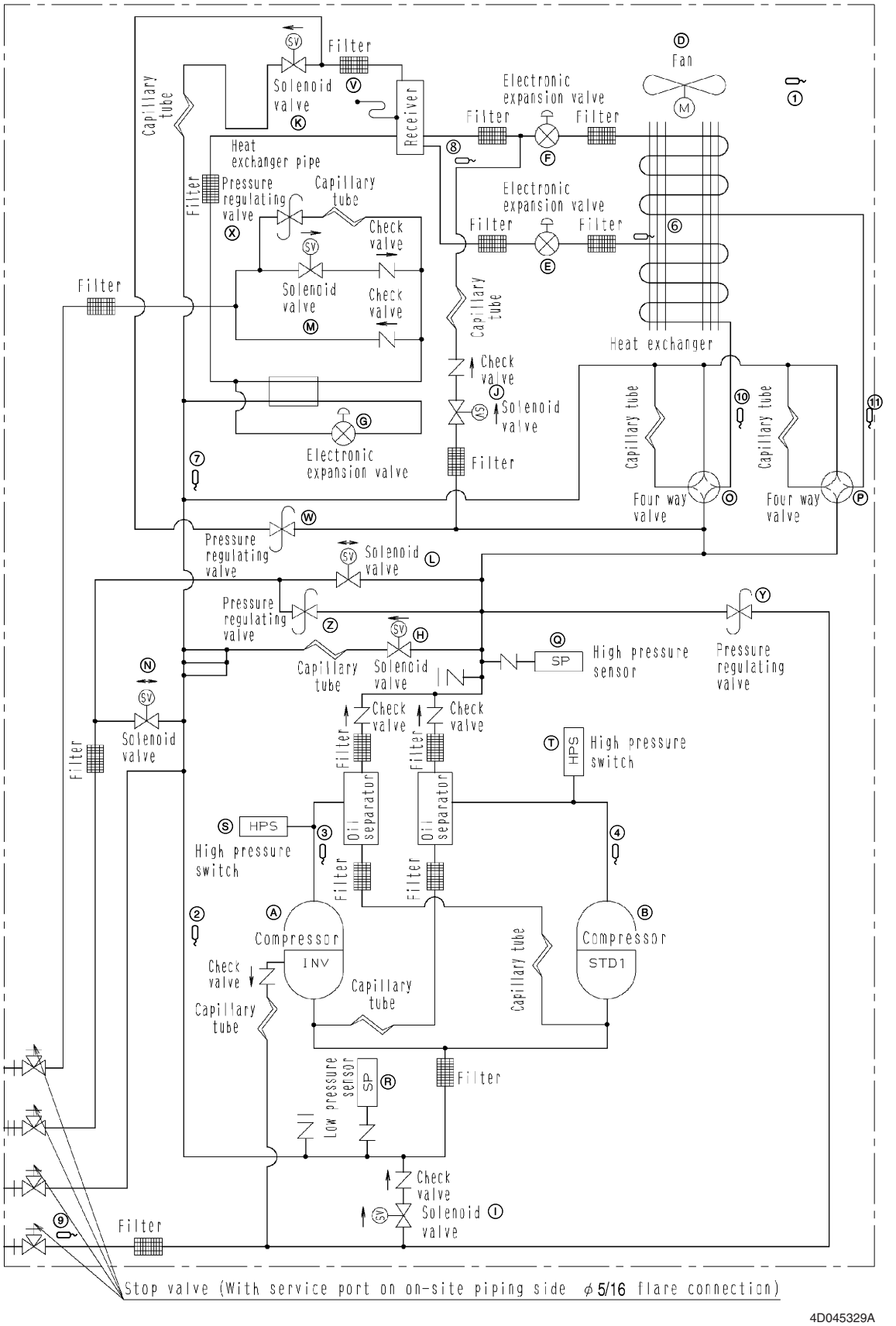
Part 3
Refrigerant Circuit

1. Refrigerant Circuit

1.1 REYQ72M, 96M

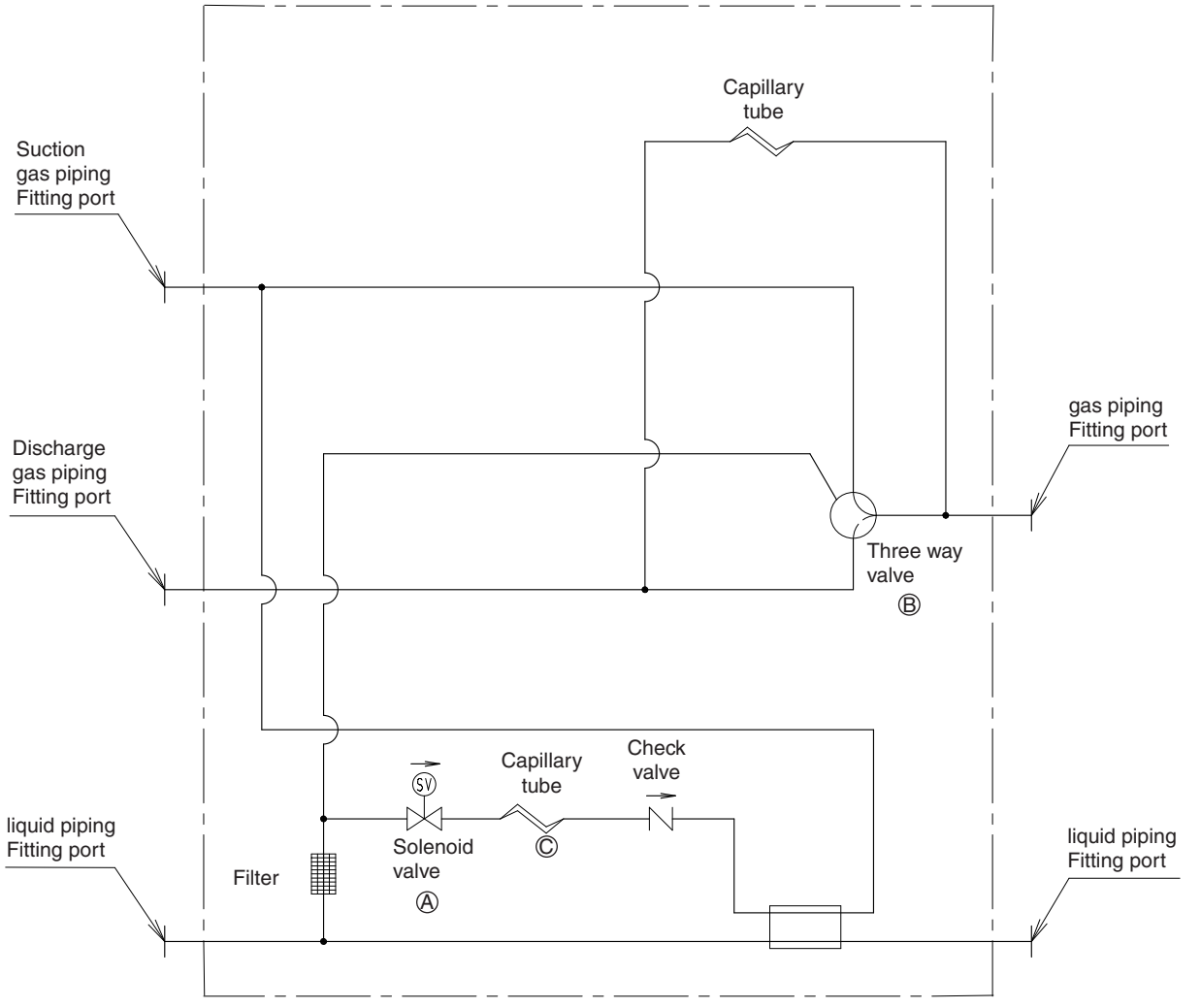
No. in refrigerant system diagram	Symbol	Name	Major Function
A	M1C	Inverter compressor (INV)	Inverter compressor is operated on frequencies between 52 Hz and 210 Hz by using the inverter, while Standard compressor is operated with commercial power supply only. The number of operating steps is as follows when Inverter compressor is operated in combination with Standard compressor. REYQ96M : 29 steps
B	M2C	Standard compressor 1(STD1)	
D	M1F	Inverter fan	Since the system is of air heat exchanging type, the fan is operated at 8-step rotation speed by using the inverter.
E	Y1E	Electronic expansion valve (Main: EV1)	Conducts PI control to make the outlet superheat degree constant when the air heat exchanger is used at the evaporating side during heating operation and cooling/heating simultaneous operation.
F	Y2E	Electronic expansion valve (Sub: EV2)	
G	Y3E	Electronic expansion valve (Subcool: EV3)	PI control is applied to keep the outlet superheated degree of sub-cooling heat exchanger constant.
H	Y1S	Solenoid valve (Hot gas: SVP)	Used to prevent the low pressure from transient falling.
I	Y2S	Solenoid valve (Oil equalization: SVO)	Used for oil equalizing among outdoor units in multiple-outdoor-unit system.
J	Y3S	Solenoid valve (Receiver gas charging: SVL)	Used to maintain high pressure while in cooling operation at low outdoor temperature.
K	Y4S	Solenoid valve (Receiver gas discharging: SVG)	Used to collect refrigerant to receiver when the 4 way valve changes over.
L	Y5S	Solenoid valve (Discharge gas pipe closing: SVR)	Used to change the discharge gas pipe to high pressure high temperature gas line during heating operation and cooling/heating simultaneous operation.
M	Y6S	Solenoid valve (Non-operating unit liquid pipe closing: SVSL)	Used to open the liquid line to outdoor unit during heating and cooling/ heating simultaneous operation mode C.
N	Y7S	Solenoid valve (High pressure gas pipe pressure reduction: SVC)	Used to change the discharge gas pipe to low pressure suction gas line during cooling operation. And also used to equalize high and low pressure by opening SVC during pressure equalizing control.
O	Y8S	4-way selector valve (Main: 20S1)	Changes the main air heat exchanger into condenser or evaporator.
P	Y9S	4-way selector valve (Sub: 20S2)	Changes the sub air heat exchanger into condenser or evaporator.
Q	S1NPH	High pressure sensor	Used to detect high pressure.
R	S2NPL	Low pressure sensor	Used to detect low pressure.
S	S1PH	HP pressure switch (For INV compressor)	In order to prevent the increase of high pressure when a malfunction occurs, this switch is activated at high pressure of 550 psi or more to stop the compressor operation.
T	S2PH	HP pressure switch (For STD compressor 1)	
V	–	Fusible plug	In order to prevent the increase of pressure when abnormal heating is caused by fire or others, the fusible part of the plug is molten at a temperature of 158 to 167°F to release the pressure into the atmosphere.
W	–	Pressure regulating valve 1 (Receiver to discharge pipe)	This valve opens at a pressure of 290 to 390 psi or more for prevention of pressure increase, thus resulting in no damage of functional parts due to the increase of pressure in transportation or storage.
X	–	Pressure regulating valve 2 (Liquid pipe to receiver)	
Y	–	Pressure regulating valve 3 (Oil equalizing pipe to discharge pipe)	
Z	–	Pressure regulating valve 4 (Discharge to discharge pipe)	
1	R1T	Thermistor (Outdoor air: Ta)	Used to detect outdoor temperature, correct discharge pipe temperature, and others.
2	R2T	Thermistor (Suction pipe: Ts)	Used to detect suction pipe temperature, keep the suction superheated degree constant in heating operation, and others.
3	R31T	Thermistor (INV discharge pipe: Tdi)	Used to detect discharge pipe temperature, make the temperature protection control of compressor, and others.
4	R32T	Thermistor (STD1 discharge pipe: Tds1)	
6	R4T	Thermistor (Heat exchanger deicer: Tb)	Used to detect liquid pipe temperature of air heat exchanger, determine defrosting operation, and others.
7	R5T	Thermistor (Sub-cooling heat exchanger gas pipe: Tsh)	Used to detect gas pipe temperature on the evaporation side of sub-cooling heat exchanger, keep the superheated degree at the outlet of sub-cooling heat exchanger constant, and others.
8	R6T	Thermistor (Receiver outlet liquid pipe: Tl)	Used to detect receiver outlet liquid pipe temperature, prevent the drift between outdoor units while in heating operation in the case of multiple-outdoor-unit system, and others.
9	R7T	Thermistor (Oil equalizing pipe: To)	Used to detect oil equalizing pipe temperature, opening/closing of the oil equalizing pipe stop valve, and others.
10	R81T	Thermistor (Main heat exchanger gas pipe: Tg1)	Detects the gas pipe temperature of the main air heat exchanger. Used for the control making the outlet superheat degree of main air heat exchanger constant, etc.
11	R82T	Thermistor (Sub heat exchanger gas pipe: Tg2)	Detects the gas pipe temperature of the sub air heat exchanger. Used for the control making the outlet superheat degree of sub air heat exchanger constant, etc.

REYQ72M, 96M


Filter
Solenoid valve
Receiver
Capillary tube
Heat exchanger pipe
Pressure regulating valve
Check valve
Electronic expansion valve
Fan
Heat exchanger
Four way valve
Pressure regulating valve
High pressure sensor
High pressure switch
Oil separator
Compressor
INV
STD1
Low pressure sensor
Stop valve (With service port on on-site piping side φ5/16 flare connection)
4D045329A

1.2 BSVQ36, 60M

No.	Symbol	Name	Major function
A	Y1S	Solenoid valve (20RT)	Used to sub-cool the liquid refrigerant
B	Y3S	Solenoid valve (20RH)	Used to changeover the cooling and heating operation of indoor units
C	—	Capillary tube	Used to lower the pressure and temperature of high pressure and high temperature liquid refrigerant and then sub-cool the liquid refrigerant through the heat exchanger.

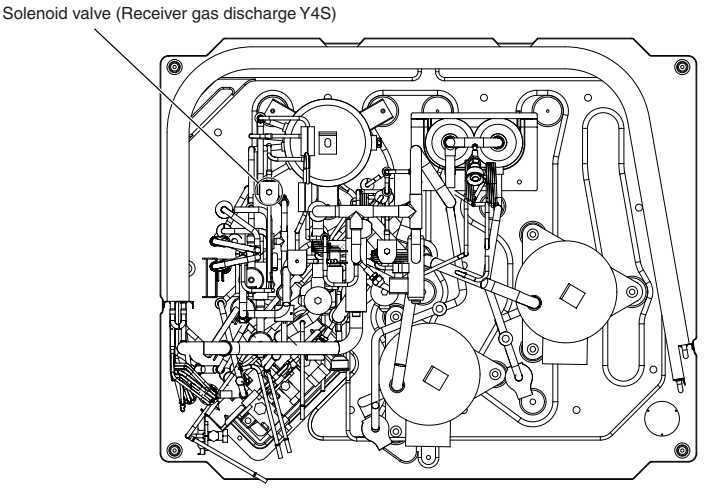


2. Functional Parts Layout

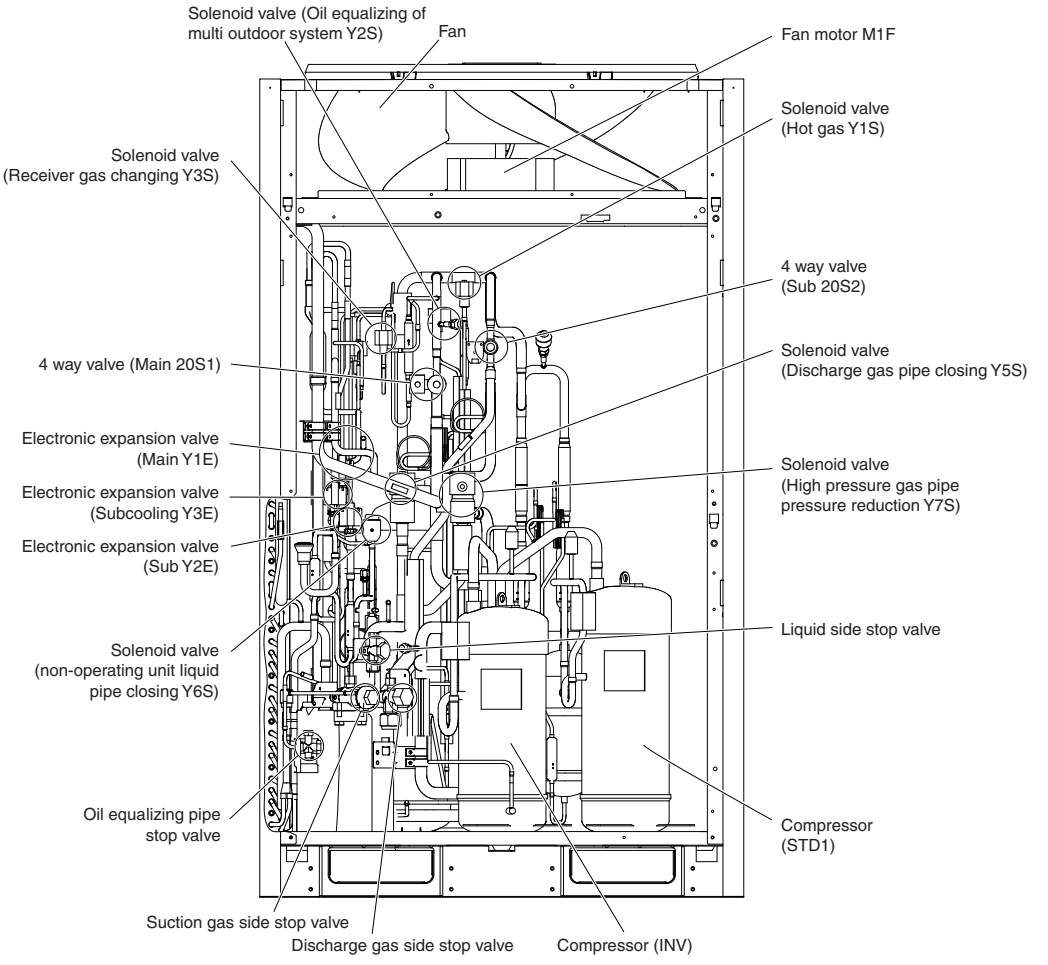
2.1 REYQ72M, 96M

2.1.1 Functional Parts Layout (Solenoid Valve etc.)

Plan

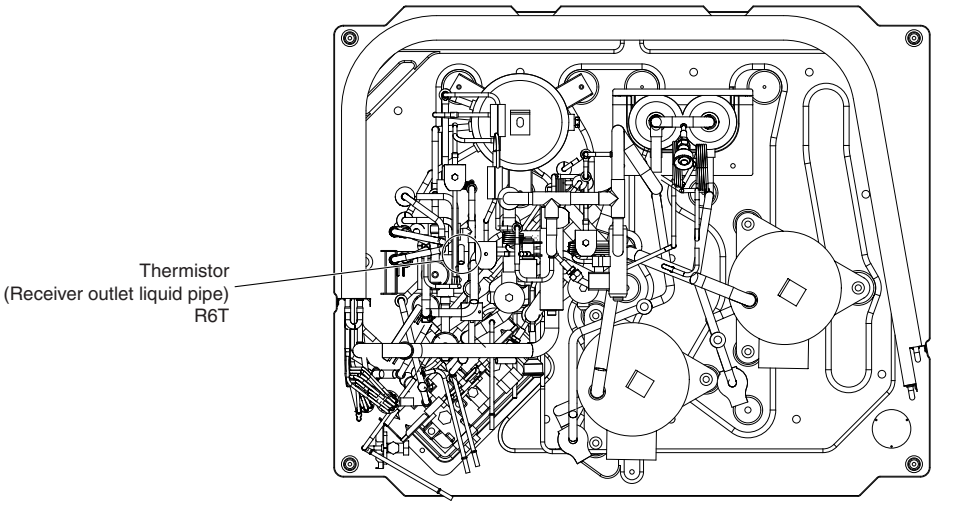


Front view

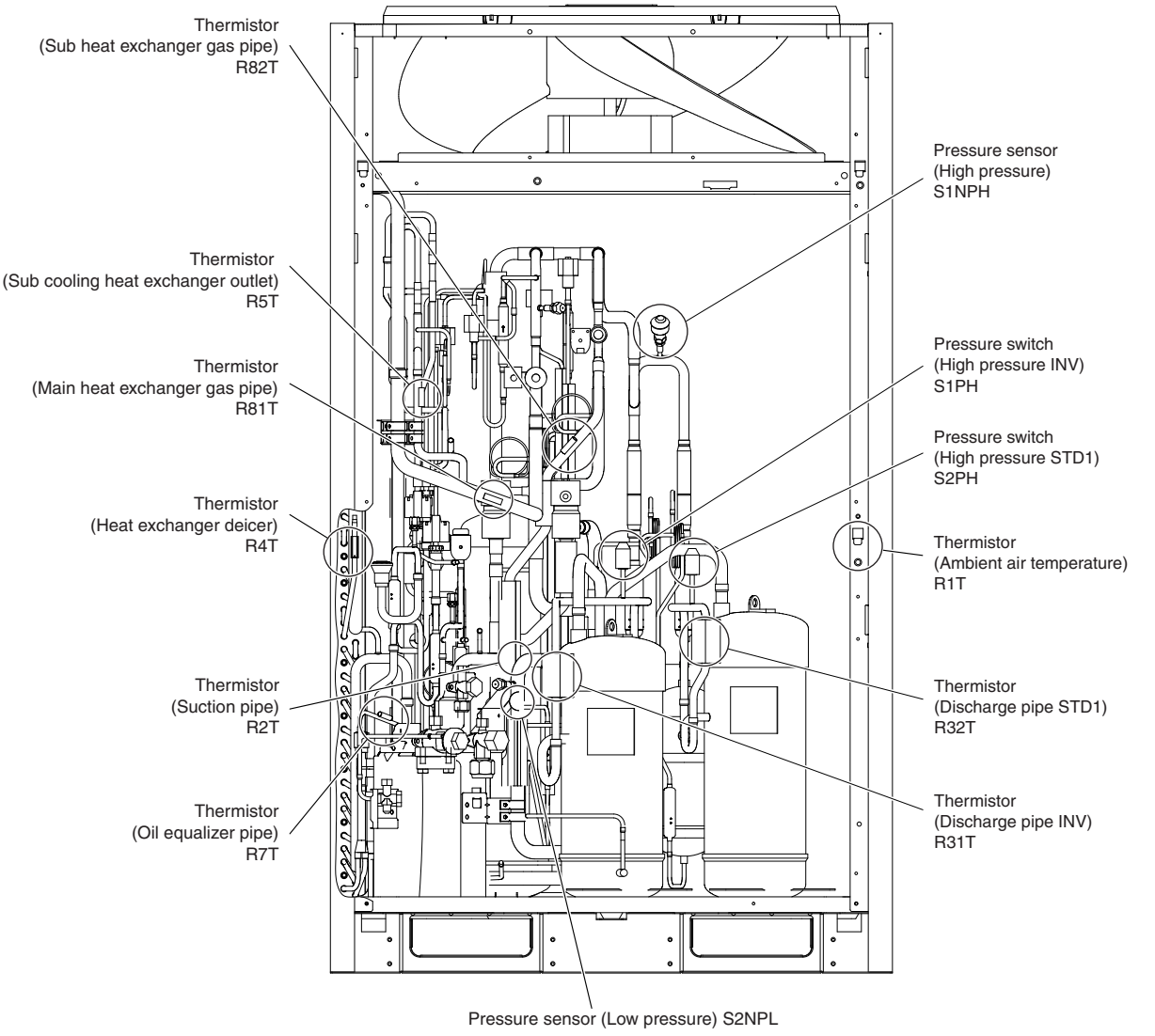


2.1.2 Sensor, Pressure Switch Relating

Plan

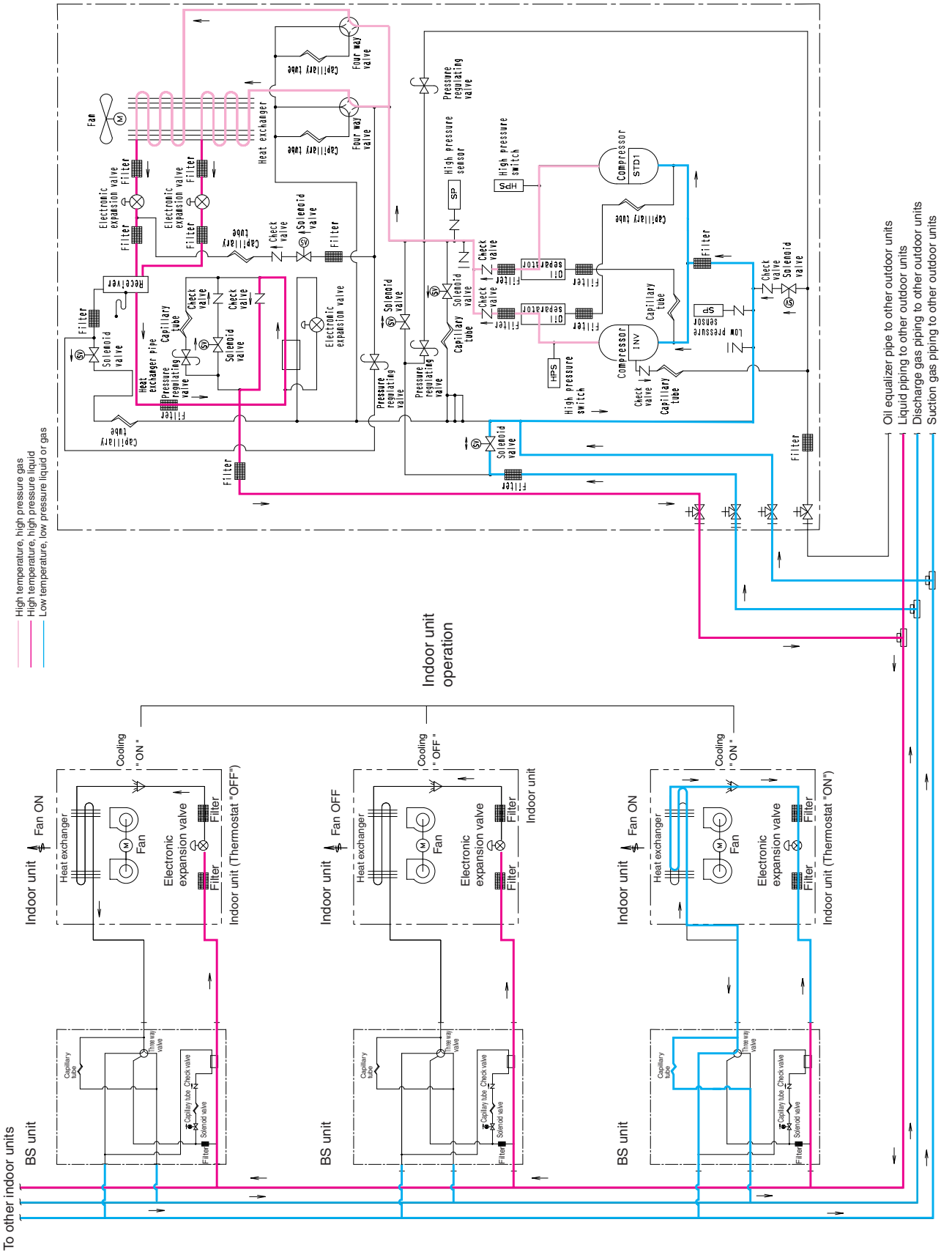


Front View

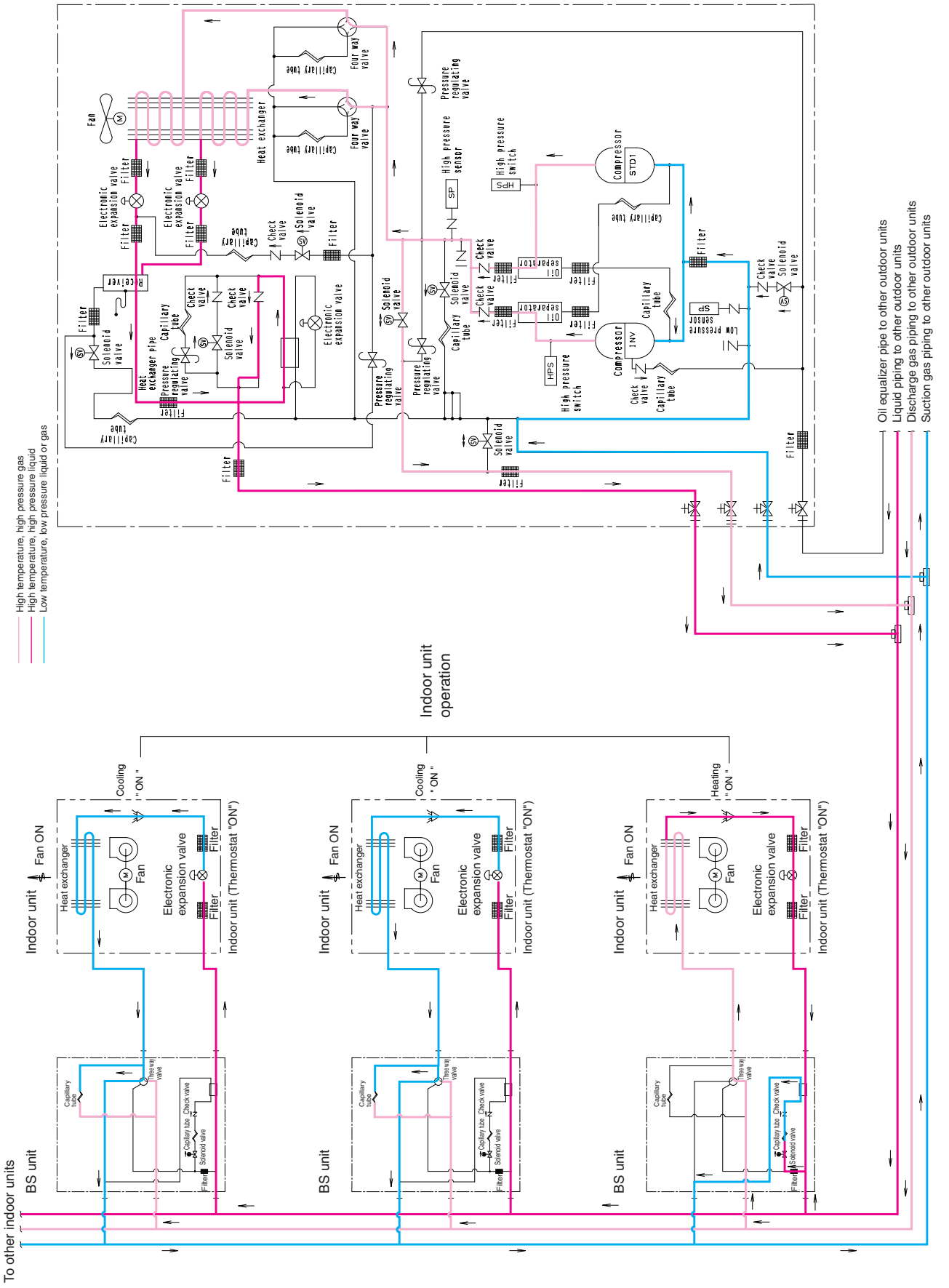


3. Refrigerant Flow for Each Operation Mode

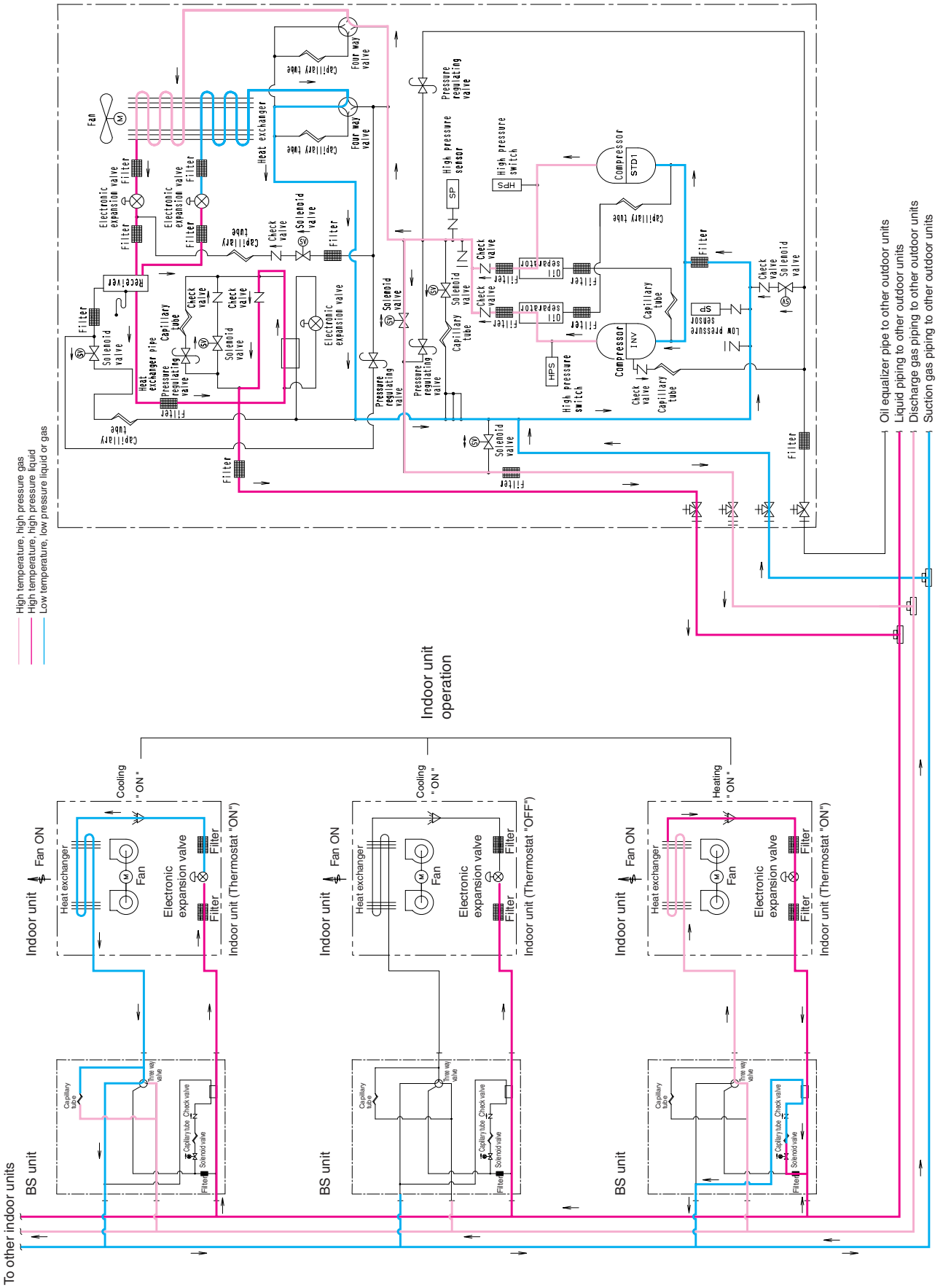
Cooling Operation



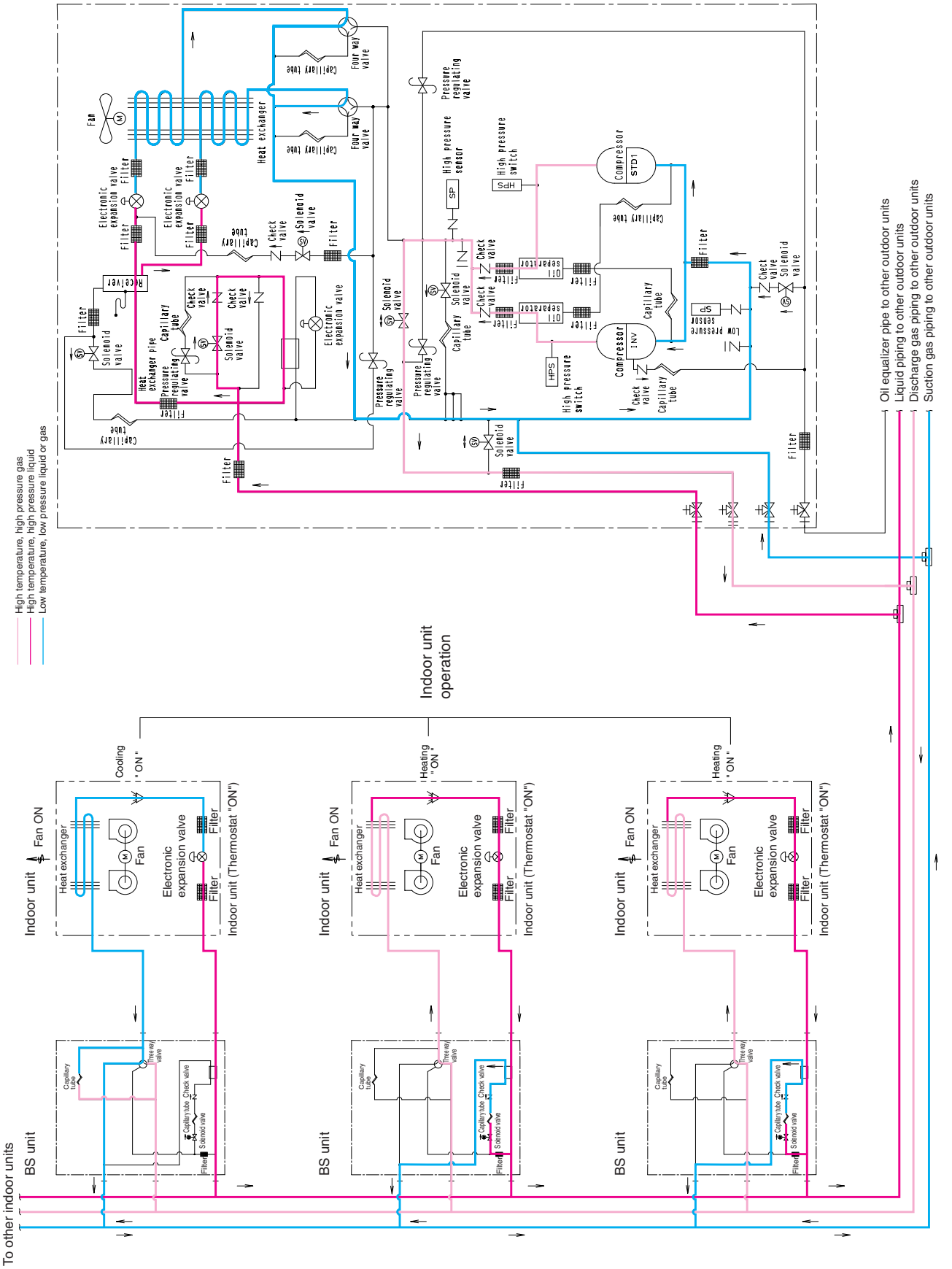
Simultaneous Cooling/Heating Operation-MODE A



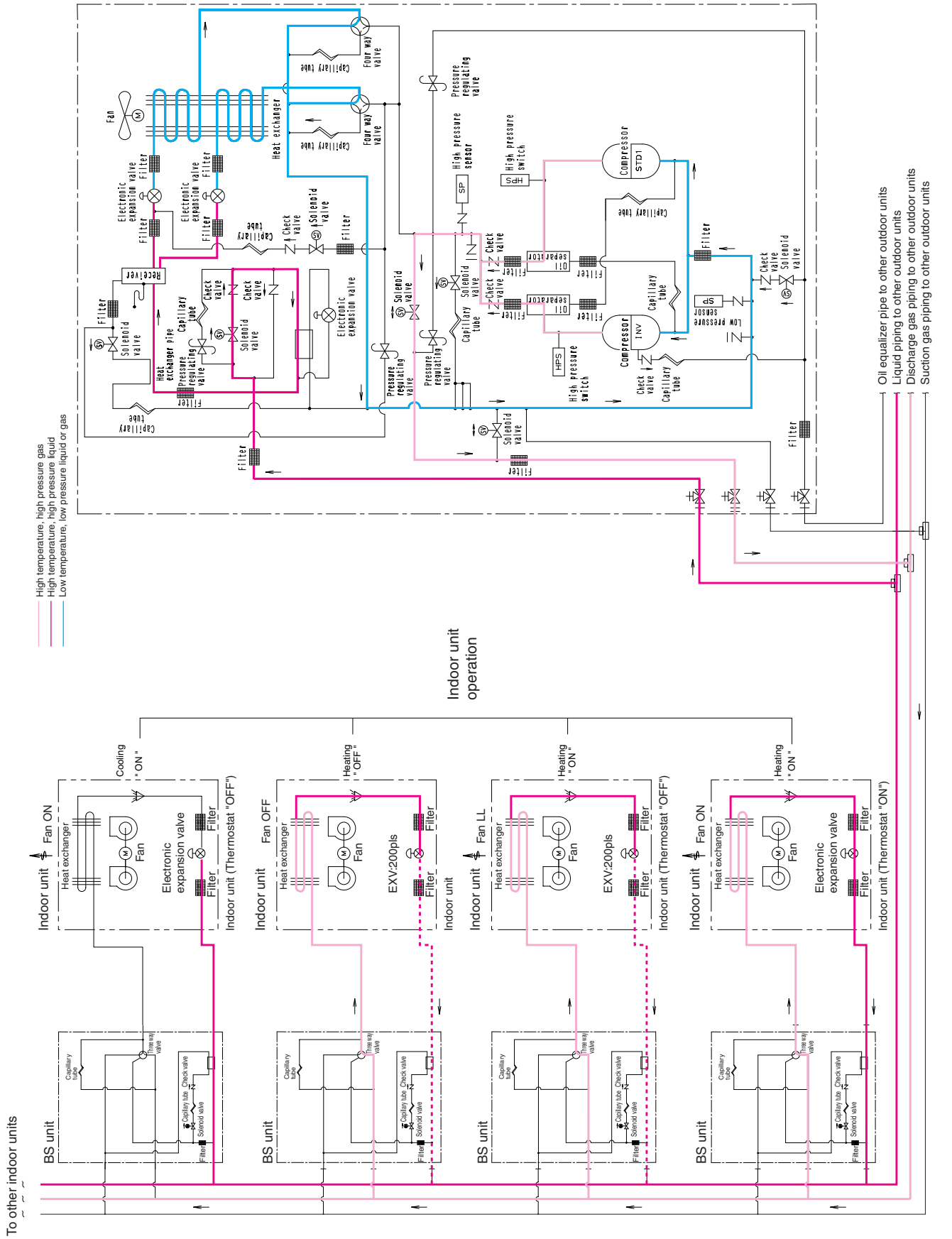
Simultaneous Cooling/Heating Operation-MODE B



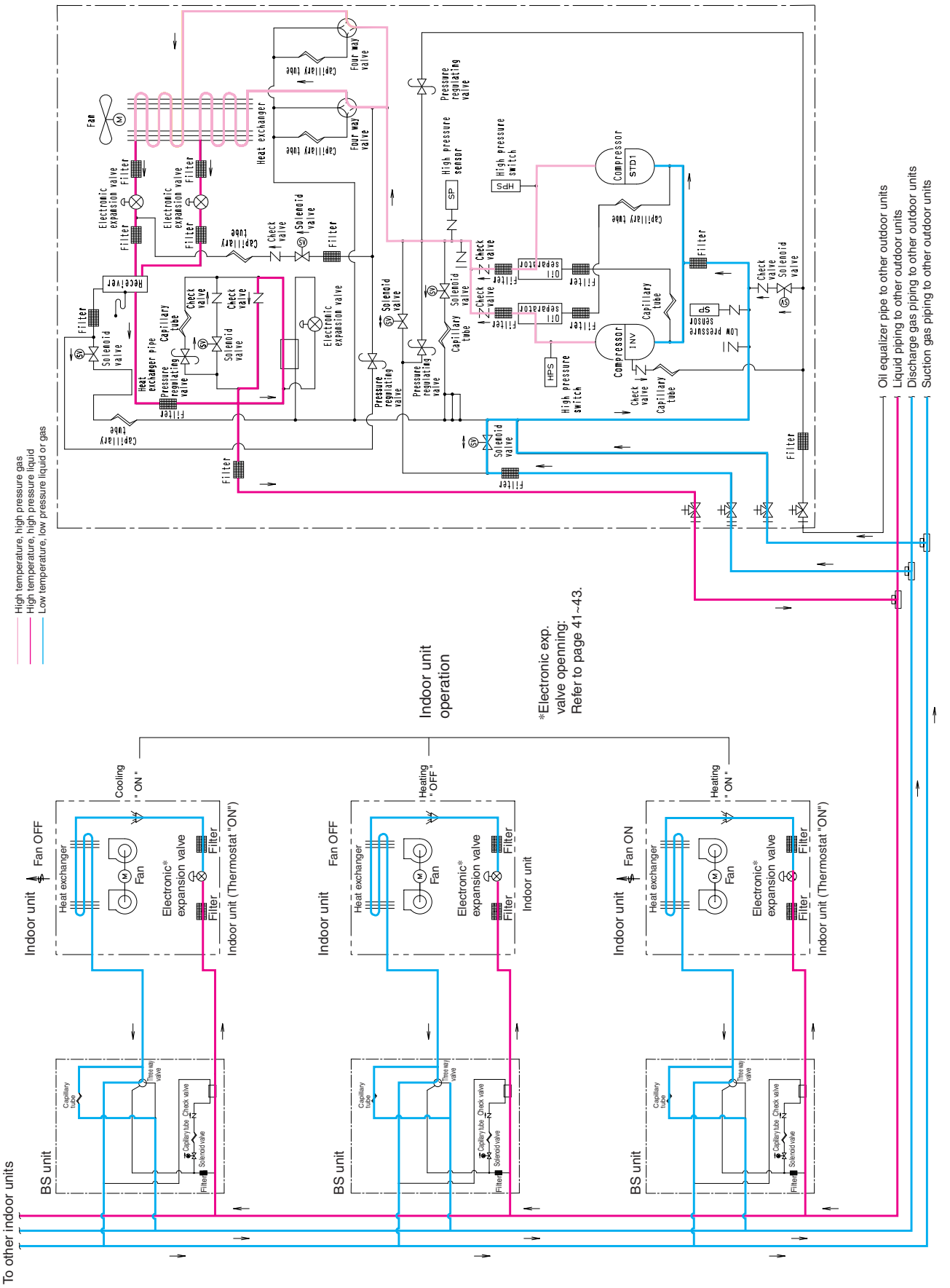
Heating or Simultaneous Cooling/Heating Operation-MODE C (In case there are indoor units operating with cooling thermostat “ON”.)



Heating or Simultaneous Cooling/Heating Operation-MODE C (In case there are indoor units operating all heating or not operation by cooling thermostat “OFF”.)



Oil Return or Defrost Operation



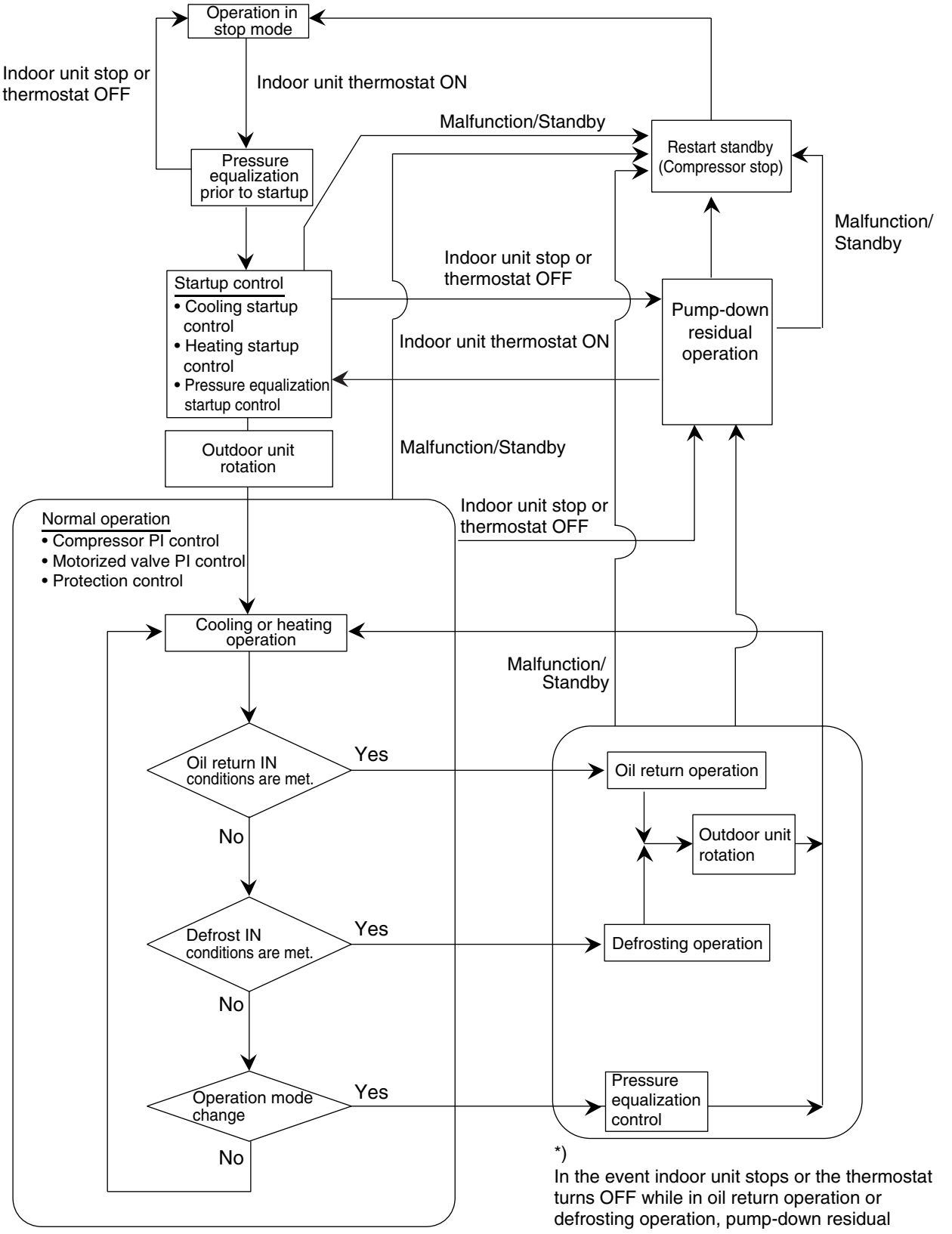
Part 4
Function

1. Function General

1.1 Symbol

Symbol	Electric symbol	Name and function
20S1	(Y1R)	Fore way changeover valve (Main)
20S2	(Y2R)	Fore way changeover valve (Sub)
DSH	(—)	Discharge pipe superheated degree
DSHi	(—)	Discharge pipe superheated degree of inverter compressor
DSHs	(—)	Discharge pipe superheated degree of standard compressor
EV	(Y1E,Y2E,Y3E)	Opening of electronic expansion valve
EV1	(Y1E)	Electronic expansion valve of main heat exchanger
EV2	(Y2E)	Electronic expansion valve of sub heat exchanger
EV3	(Y3E)	Electronic expansion valve of sub-cooling heat exchanger
HTDi	(—)	Value of INV compressor discharge pipe temperature (R31T) compensated with outdoor air temperature
HTDs	(—)	Value of STD compressor discharge pipe temperature (R32T,R33T) compensated with outdoor air temperature
Pc	(S1NPH)	Pressure value detected by high pressure sensor
Pe	(S1NPL)	Pressure value detected by low pressure sensor
SH	(—)	Evaporator outlet superheat
SHS	(—)	Target evaporator outlet superheat
SVC	(Y7S)	Solenoid valve for reducing pressure in high pressure gas pipe
SVG	(Y4S)	Solenoid valve for discharging receiver gas
SVL	(Y3S)	Solenoid valve for charging receiver gas
SVO	(Y2S)	Solenoid valve for Oil equalization
SVP	(Y1S)	Solenoid valve for hot gas
SVR	(Y5S)	Solenoid valve for discharge gas pipe closing
SVSL	(Y6S)	Solenoid valve for non-operating unit liquid pipe closing
Tb	(R4T)	Heat exchanger outlet (during cooling) temperature
Tc	(—)	High pressure equivalent saturation temperature
Tcs	(—)	Target Tc temperature
Te	(—)	Low pressure equivalent saturation temperature
TeS	(—)	Target Te temperature
Tfin	(R1T)	Inverter fin temperature
Ts	(R2T)	Suction pipe temperature detected by R2T
Tsh	(R5T)	Temperature detected by R5T
Tp	(—)	Calculated value of compressor port temperature

1.2 Operation Mode



*)
In the event indoor unit stops or the thermostat turns OFF while in oil return operation or defrosting operation, pump-down residual operation is performed on completion of the oil return operation or defrosting operation.

2. Basic Control

2.1 Normal Operation

■ Cooling Operation

Actuator	Operation	Remarks
Compressor	Compressor PI control	Used for high pressure control, low pressure protection control,discharge pipe temperature protection control, and compressor operating frequency upper limit control with inverter protection control.
Outdoor unit fan	Cooling fan control	—
Four way valve 1 (20S1)	OFF	—
Four way valve 2 (20S2)	OFF	—
Main motorized valve (EV1)	1400 pls	—
Sub motorized valve (EV2)	1400 pls	—
Sub-cooling motorized valve (EV3)	PI control	(EV3 control)
Hot gas bypass valve (SVP)	Protection control	This valve turns on with low pressure protection control.
Oil equalization valve (SVO)	Oil level equalizing control	In the case of multi-outdoor-unit system, this valve repeats ON/OFF operation at regular intervals of time.
Receiver gas charging valve (SVL)	OFF	This valve turns on when outdoor temperature is low.
Receiver gas discharge valve (SVG)	ON	—
Discharge pipe stop valve (SVR)	OFF	—
Non-operating unit liquid pipe stop valve (SVSL)	OFF	—
High pressure gas pipe pressure reduction valve (SVC)	ON	—

■ In heating operation, or heating / cooling operation

Actuator	Operation	Remarks
Compressor	Compressor PI control	Used for high pressure control, low pressure protection control,discharge pipe temperature protection control, and compressor operating frequency upper limit control with inverter protection control.
Outdoor unit fan	Cooling fan control	—
Four way valve 1 (20S1)	Depend on heat exchanger mode (heating, simultaneous cooling / heating operation)	—
Four way valve 2 (20S2)	Depend on heat exchanger mode (heating, simultaneous cooling / heating operation)	—
Main motorized valve (EV1)	Depend on heat exchanger mode (heating, simultaneous cooling / heating operation)	—
Sub motorized valve (EV2)	Depend on heat exchanger mode (heating, simultaneous cooling / heating operation)	—
Sub-cooling motorized valve (EV3)	PI control	(EV3 control)
Hot gas bypass valve (SVP)	OFF	This valve turns on with low pressure protection control.
Oil equalization valve (SVO)	Oil level equalizing control	In the case of multi-outdoor-unit system, this valve repeats ON/OFF operation at regular intervals of time.
Receiver gas charging valve (SVL)	OFF	This valve turns on when outdoor temperature is low.
Receiver gas discharge valve (SVG)	ON	—
Discharge pipe stop valve (SVR)	OFF	—
Non-operating unit liquid pipe stop valve (SVSL)	OFF	—
High pressure gas pipe pressure reduction valve (SVC)	ON	—

★Heating operation is not functional at an outdoor air temperature of 77°F or more.

2.2 Compressor PI Control

Compressor PI Control

Carries out the compressor capacity PI control to maintain Te at constant during cooling operation and Tc at constant during heating operation to ensure stable unit performance.

[Cooling operation]

Controls compressor capacity to adjust Te to achieve target value (TeS).

Te : Low pressure equivalent saturation temperature (°F)

Te setting

L	M (Normal) (factory setting)	H
37.5	43	48

TeS : Target Te value
(Varies depending on Te setting, operating frequency, etc.)

[Heating operation]

Controls compressor capacity to adjust Tc to achieve target value (TcS).

Tc : High pressure equivalent saturation temperature (°F)

Tc setting

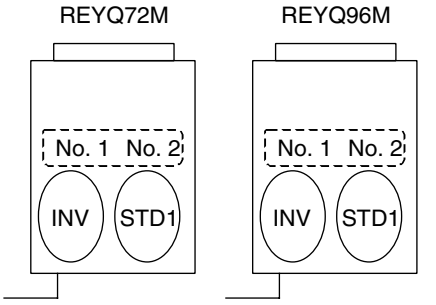
L	M (Normal) (factory setting)	H
109.5	115	120

TcS : Target Tc value
(Varies depending on Tc setting, operating frequency, etc.)

■ Compressor Operating Priority

Each compressor operates in the following order of priority.

INV: Inverter compressor
STD1: Standard compressor 1



REYQ72M

STEP	INV	STD1
1	52Hz	OFF
2	57Hz	OFF
3	62Hz	OFF
4	68Hz	OFF
5	74Hz	OFF
6	81Hz	OFF
7	88Hz	OFF
8	96Hz	OFF
9	104Hz	OFF
10	110Hz	OFF
11	116Hz	OFF
12	124Hz	OFF
13	133Hz	OFF
14	143Hz	OFF
15	158Hz	OFF
16	165Hz	OFF
17	177Hz	OFF
18	189Hz	OFF
19	202Hz	OFF
20	210Hz	OFF
21	52Hz	ON
22	74Hz	ON
23	96Hz	ON
24	116Hz	ON
25	133Hz	ON
26	158Hz	ON
27	177Hz	ON
28	202Hz	ON
29	210Hz	ON

REYQ96M

STEP	INV	STD1
1	52Hz	OFF
2	57Hz	OFF
3	62Hz	OFF
4	68Hz	OFF
5	74Hz	OFF
6	81Hz	OFF
7	88Hz	OFF
8	96Hz	OFF
9	104Hz	OFF
10	110Hz	OFF
11	116Hz	OFF
12	124Hz	OFF
13	133Hz	OFF
14	143Hz	OFF
15	158Hz	OFF
16	165Hz	OFF
17	177Hz	OFF
18	189Hz	OFF
19	202Hz	OFF
20	210Hz	OFF
21	52Hz	ON
22	74Hz	ON
23	96Hz	ON
24	116Hz	ON
25	133Hz	ON
26	158Hz	ON
27	177Hz	ON
28	202Hz	ON
29	210Hz	ON

*

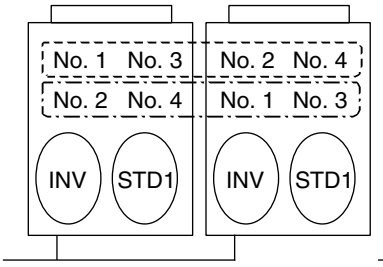
- Compressors are operated in the order of descending priorities.
- Compressors may operate in a pattern other than those listed in above tables subject to the operating conditions.
- “Master unit”, and “slave unit” in this section are the names for control, and they will be transferred according to the priority of rotation system.

■ Compressor Operating Priority

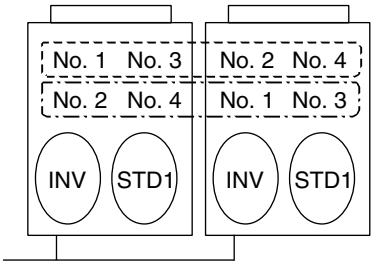
Each compressor operates in the following order of priority.

INV: Inverter compressor
STD1: Standard compressor 1

REYQ144M



REYQ168M



REYQ144M

STEP	Master unit INV	Slave unit INV	STD unit No.1	STD unit No.2
1	52Hz	OFF	OFF	OFF
2	57Hz	OFF	OFF	OFF
3	62Hz	OFF	OFF	OFF
4	68Hz	OFF	OFF	OFF
5	74Hz	OFF	OFF	OFF
6	81Hz	OFF	OFF	OFF
7	88Hz	OFF	OFF	OFF
8	96Hz	OFF	OFF	OFF
9	104Hz	OFF	OFF	OFF
10	110Hz	OFF	OFF	OFF
11	116Hz	OFF	OFF	OFF
12	124Hz	OFF	OFF	OFF
13	133Hz	OFF	OFF	OFF
14	143Hz	OFF	OFF	OFF
15	158Hz	OFF	OFF	OFF
16	165Hz	OFF	OFF	OFF
17	177Hz	OFF	OFF	OFF
18	189Hz	OFF	OFF	OFF
19	202Hz	OFF	OFF	OFF
20	210Hz	OFF	OFF	OFF
21	52Hz	189Hz	OFF	OFF
22	74Hz	189Hz	OFF	OFF
23	96Hz	189Hz	OFF	OFF
24	116Hz	189Hz	OFF	OFF
25	133Hz	189Hz	OFF	OFF
26	158Hz	189Hz	OFF	OFF
27	177Hz	189Hz	OFF	OFF
28	202Hz	189Hz	OFF	OFF
29	210Hz	189Hz	OFF	OFF
30	52Hz	189Hz	ON	OFF
31	88Hz	189Hz	ON	OFF
32	124Hz	189Hz	ON	OFF
33	158Hz	189Hz	ON	OFF
34	189Hz	189Hz	ON	OFF
35	210Hz	189Hz	ON	OFF
36	52Hz	189Hz	ON	ON
37	88Hz	189Hz	ON	ON
38	124Hz	189Hz	ON	ON
39	158Hz	189Hz	ON	ON
40	189Hz	189Hz	ON	ON
41	210Hz	189Hz	ON	ON
42	210Hz	210Hz	ON	ON

REYQ168M

STEP	Master unit INV	Slave unit INV	STD unit No.1	STD unit No.2
1	52Hz	OFF	OFF	OFF
2	57Hz	OFF	OFF	OFF
3	62Hz	OFF	OFF	OFF
4	68Hz	OFF	OFF	OFF
5	74Hz	OFF	OFF	OFF
6	81Hz	OFF	OFF	OFF
7	88Hz	OFF	OFF	OFF
8	96Hz	OFF	OFF	OFF
9	104Hz	OFF	OFF	OFF
10	110Hz	OFF	OFF	OFF
11	116Hz	OFF	OFF	OFF
12	124Hz	OFF	OFF	OFF
13	133Hz	OFF	OFF	OFF
14	143Hz	OFF	OFF	OFF
15	158Hz	OFF	OFF	OFF
16	165Hz	OFF	OFF	OFF
17	177Hz	OFF	OFF	OFF
18	189Hz	OFF	OFF	OFF
19	202Hz	OFF	OFF	OFF
20	210Hz	OFF	OFF	OFF
21	52Hz	189Hz	OFF	OFF
22	74Hz	189Hz	OFF	OFF
23	96Hz	189Hz	OFF	OFF
24	116Hz	189Hz	OFF	OFF
25	133Hz	189Hz	OFF	OFF
26	158Hz	189Hz	OFF	OFF
27	177Hz	189Hz	OFF	OFF
28	202Hz	189Hz	OFF	OFF
29	210Hz	189Hz	OFF	OFF
30	52Hz	189Hz	ON	OFF
31	88Hz	189Hz	ON	OFF
32	124Hz	189Hz	ON	OFF
33	158Hz	189Hz	ON	OFF
34	189Hz	189Hz	ON	OFF
35	210Hz	189Hz	ON	OFF
36	52Hz	189Hz	ON	ON
37	88Hz	189Hz	ON	ON
38	124Hz	189Hz	ON	ON
39	158Hz	189Hz	ON	ON
40	189Hz	189Hz	ON	ON
41	210Hz	189Hz	ON	ON
42	210Hz	210Hz	ON	ON

*

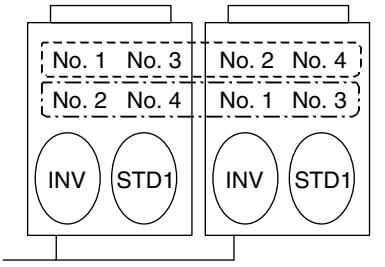
- Compressors are operated in the order of descending priorities.
- Compressors may operate in a pattern other than those listed in above tables subject to the operating conditions.
- “Master unit”, and “slave unit” in this section are the names for control, and they will be transferred according to the priority of rotation system.

■ Compressor Operating Priority

Each compressor operates in the following order of priority.

INV: Inverter compressor
STD1: Standard compressor 1

REYQ192M



REYQ192M

STEP	Master unit INV	Slave unit INV	STD unit No.1	STD unit No.2
1	52Hz	OFF	OFF	OFF
2	57Hz	OFF	OFF	OFF
3	62Hz	OFF	OFF	OFF
4	68Hz	OFF	OFF	OFF
5	74Hz	OFF	OFF	OFF
6	81Hz	OFF	OFF	OFF
7	88Hz	OFF	OFF	OFF
8	96Hz	OFF	OFF	OFF
9	104Hz	OFF	OFF	OFF
10	110Hz	OFF	OFF	OFF
11	116Hz	OFF	OFF	OFF
12	124Hz	OFF	OFF	OFF
13	133Hz	OFF	OFF	OFF
14	143Hz	OFF	OFF	OFF
15	158Hz	OFF	OFF	OFF
16	165Hz	OFF	OFF	OFF
17	177Hz	OFF	OFF	OFF
18	189Hz	OFF	OFF	OFF
19	202Hz	OFF	OFF	OFF
20	210Hz	OFF	OFF	OFF
21	52Hz	189Hz	OFF	OFF
22	74Hz	189Hz	OFF	OFF
23	96Hz	189Hz	OFF	OFF
24	116Hz	189Hz	OFF	OFF
25	133Hz	189Hz	OFF	OFF
26	158Hz	189Hz	OFF	OFF
27	177Hz	189Hz	OFF	OFF
28	202Hz	189Hz	OFF	OFF
29	210Hz	189Hz	OFF	OFF
30	52Hz	189Hz	ON	OFF
31	88Hz	189Hz	ON	OFF
32	124Hz	189Hz	ON	OFF
33	158Hz	189Hz	ON	OFF
34	189Hz	189Hz	ON	OFF
35	210Hz	189Hz	ON	OFF
36	52Hz	189Hz	ON	ON
37	88Hz	189Hz	ON	ON
38	124Hz	189Hz	ON	ON
39	158Hz	189Hz	ON	ON
40	189Hz	189Hz	ON	ON
41	210Hz	189Hz	ON	ON
42	210Hz	210Hz	ON	ON

*

- Compressors are operated in the order of descending priorities.
- Compressors may operate in a pattern other than those listed in above tables subject to the operating conditions.
- “Master unit”, and “slave unit” in this section are the names for control, and they will be transferred according to the priority of rotation system.

2.3 Electronic Expansion Valve PI Control

Main Motorized Valve EV1 Control, Sub Motorized Valve EV2 Control

Carries out the motorized valve (Y1E, Y2E) PI control to maintain the evaporator outlet superheated degree (SH) at constant during heating operation to make maximum use of the outdoor unit heat exchanger (evaporator).

SH = Ts - Te

SH : Evaporator outlet superheated degree (°F)

Ts : Suction pipe temperature detected by thermistor R2T (°F)

Te : Low pressure equivalent saturation temperature (°F)

The optimum initial value of the evaporator outlet superheated degree is 9°F, but varies depending on the discharge pipe superheated degree of inverter compressor.

Sub-cooling Motorized Valve EV3 Control

Makes PI control of the motorized valve (Y3E) to keep the superheated degree of the outlet gas pipe on the evaporator side for the full use of the sub-cooling heat exchanger.

SH = Tsh -Te

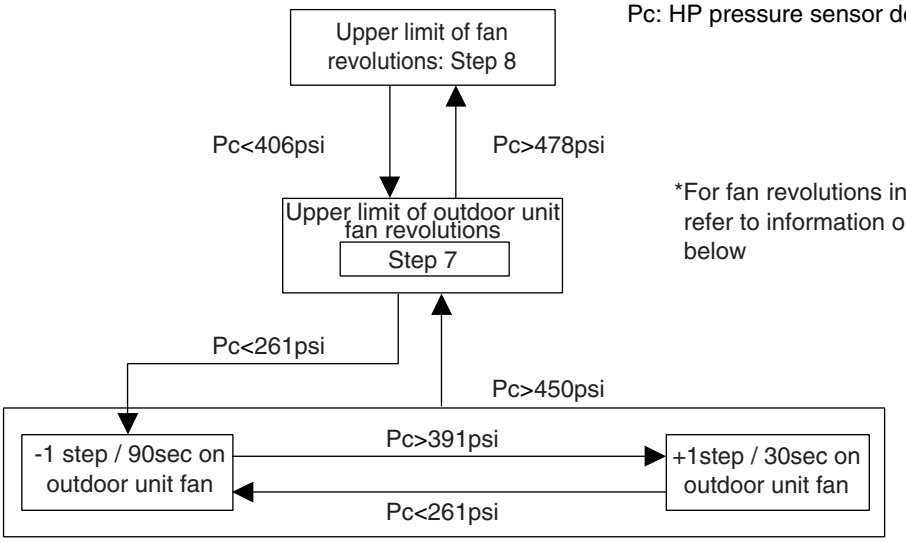
SH : Outlet superheated degree of evaporator (°F)

Tsh : Suction pipe temperature detected with the thermistor R5T (°F)

Te : Low pressure equivalent saturation temperature (°F)

2.4 Cooling Operation Fan Control

In cooling operation with low outdoor air temperature, this control is used to provide the adequate amount of circulation air with liquid pressure secured by high pressure control using outdoor unit fan.



Pc: HP pressure sensor detection value

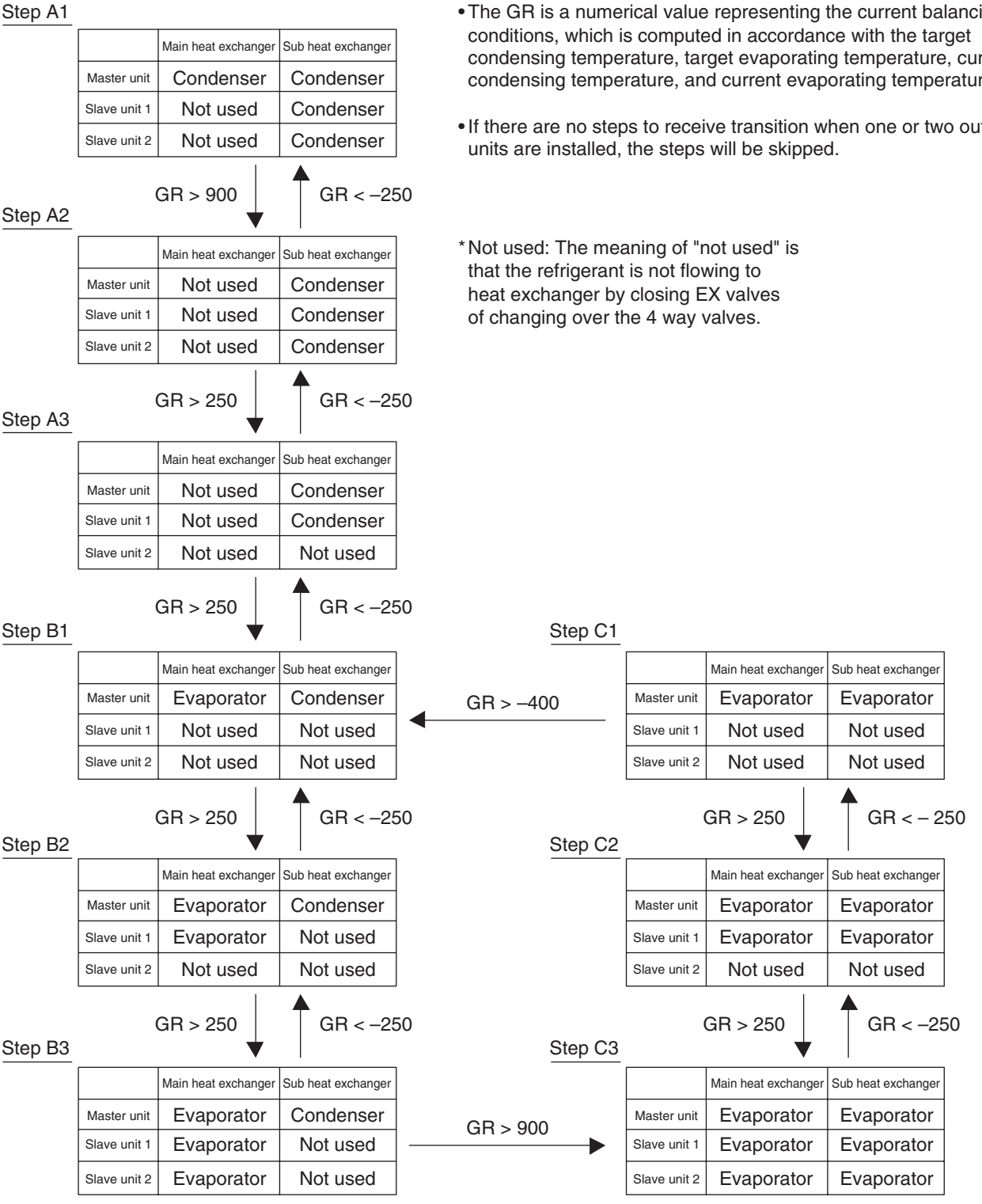
*For fan revolutions in each step, refer to information on the chart below

Fan Steps

	REYQ72M, 96M
STEP0	0rpm
STEP1	300rpm
STEP2	325rpm
STEP3	355rpm
STEP4	400rpm
STEP5	500rpm
STEP6	630rpm
STEP7	880rpm
STEP8	920rpm

2.5 Heat Exchange Mode in Heating Operation or Simultaneous Cooling / Heating Operation

In heating or simultaneous cooling / heating operation, a target condensing and evaporating temperature can be secured by switching the air heat exchanger of the outdoor unit (main, sub) into evaporator or condenser with load.



*

- The GR is a numerical value representing the current balancing conditions, which is computed in accordance with the target condensing temperature, target evaporating temperature, current condensing temperature, and current evaporating temperature.
- If there are no steps to receive transition when one or two outdoor units are installed, the steps will be skipped.

* Not used: The meaning of "not used" is that the refrigerant is not flowing to heat exchanger by closing EX valves of changing over the 4 way valves.

3. Special Control

3.1 Startup Control

This startup control is used to provide the following control to reduce the compressor load resulting from liquid return or else during compressor startup, and also determine the position of four way valves.

3.1.1 Startup Control in Cooling Operation

Actuator	Pressure equalization before start-up	Starting control	
		Step1	Step2
Compressor	OFF	52Hz + OFF	Compressor operating frequency increases by 2 step/20 sec. until Pc - Pe > 58 psi
Outdoor unit fan	OFF	OFF	1-step/15 sec. increases with Pc > 319 psi 1-step/15 sec. decreases with Pc < 261 psi
Four way valve 1	OFF	OFF	OFF
Four way valve 2	Hold *Note 1	OFF	OFF
Main motorized valve (EV1)	0 pls	1400 pls	1400 pls
Sub motorized valve (EV2)	0 pls	1400 pls	1400 pls
Sub-cooling motorized valve (EV3)	0 pls	0 pls	0 pls
Hot gas bypass valve (SVP)	OFF	ON	ON
Oil equalization valve (SVO)	OFF	ON	ON *Note 3
Receiver charging valve (SVL)	OFF	OFF	OFF
Receiver discharge valve (SVG)	OFF	OFF	OFF
Discharge pipe stop valve (SVR)	Hold	Hold	OFF
Non-operating unit liquid pipe stop valve (SVSL)	ON	OFF	OFF
High pressure gas pipe pressure reduction valve (SVC)	Hold *Note 2	OFF	OFF
Ending conditions	1 min.	5 sec.	or • 320 sec. • Pc - Pe > 58 psi

Note 1. Hold : maintain the previous position before entering this operation.
Note 2. ON at starting immediately after power is on.
Note 3. SVO is open even independent outdoor unit installation.

3.1.2 Startup Control in Heating Operation

Actuator	Pressure equalization before start-up	Starting control	
		Step1	Step2
Compressor	OFF	52Hz + OFF	52Hz + OFF
Outdoor unit fan	STEP 4	STEP 7	STEP 7
Four way valve 1	ON	ON	ON
Four way valve 2	Hold	Hold	OFF
Main motorized valve (EV1)	0 pls	180 pls	180 pls
Sub motorized valve (EV2)	0 pls	0 pls	1000 pls
Sub-cooling motorized valve (EV3)	0 pls	0 pls	0 pls
Hot gas bypass valve (SVP)	OFF	ON	ON
Oil equalization valve (SVO)	OFF	OFF	OFF
Receiver gas charging valve (SVL)	OFF	ON	ON → OFF
Receiver gas discharge valve (SVG)	OFF	OFF	OFF → ON
Discharge pipe stop valve (SVR)	Hold	ON	OFF → ON
Non-operating unit liquid pipe stop valve (SVSL)	ON	ON	ON
High pressure gas pipe pressure reduction valve (SVC)	Hold *Note	OFF	OFF
Ending conditions	1 min.	5 sec.	or • 230 sec. • Pc - Pe > 58 psi

Note: ON at starting immediately after power is on.

3.2 Oil Return Operation

In order to prevent the running-out of refrigerating machine oil in the compressor, the oil flowing out from the compressor to the system side is collected through the oil return operation.

3.2.1 Oil Return Operation in Cooling Operation

[Starting conditions]

Start oil return operation in cooling operation referring to the following conditions.

* Cumulative oil return amount
* Timer

Cumulative compressor operating time after power supply turns on exceeds 2 hours and the time after the completion of previous oil return operation exceeds 8 hours.

Furthermore, the cumulative oil return is calculated according to Tc, Te, and compressor load.

Actuator	Oil return preparation operation	Oil return operation	Post-oil-return operation
Compressor	Upper limit control	124 Hz + ON	52 Hz + OFF
Outdoor unit fan	Fan control	Fan control	Fan control
Four way valve 1	OFF	OFF	OFF
Four way valve 2	OFF	OFF	OFF
Main motorized valve (EV1)	1400 pls	1400 pls	1400 pls
Sub motorized valve (EV2)	1400 pls	1400 pls	1400 pls
Sub-cooling motorized valve (EV3)	SH control	0 pls	0 pls
Hot gas bypass valve (SVP)	OFF	ON	ON
Oil equalization valve (SVO)	ON	ON	ON
Receiver gas charging valve (SVL)	OFF	OFF	OFF
Receiver gas discharge valve (SVG)	OFF	OFF	OFF
Discharge pipe stop valve (SVR)	OFF	OFF	OFF
Non-operating unit liquid pipe stop valve (SVSL)	OFF	OFF	OFF
High pressure gas pipe pressure reduction valve (SVC)	ON	ON	ON
Ending conditions	1 min.	or • 6 min. • Ts - Te<9	30 sec.

Indoor unit actuator		Cooling oil return operation
Fan	Thermostat ON unit	Set Air Volume
	Stopping unit	OFF
	Thermostat OFF unit	OFF
Electronic expansion valve	Thermostat ON unit	Normal opening
	Stopping unit	200 pls
	Thermostat OFF unit	200 pls

3.2.2 Oil Return Operation in Heating Operation

[Starting conditions]

Start oil return operation in heating operation referring to the following conditions.
Cumulative compressor operating time after power supply turns on exceeds 2 hours and the time after the completion of previous oil return operation exceeds 8 hours. And cumulative oil return is calculated based on Tc, Te compressor load.

Actuator	Oil return preparation operation	Oil return operation	Post-oil-return operation
Compressor	Upper limit control	124 Hz + ON	1-step increase from (74Hz + OFF) to (Pc - Pe > 0.4 MPa) time.
Outdoor unit fan	STEP7 or STEP8	OFF	STEP8
Four way valve 1	Depend on previous heat exchange mode	OFF	ON
Four way valve 2	Depend on previous heat exchange mode	OFF	OFF
Main motorized valve (EV1)	Four way valve 1 OFF:1400 pls ON:SH control	1400 pls	180 pls
Sub motorized valve (EV2)	Four way valve 2 OFF:1400 pls ON:SH control	1400 pls	1400 pls
Sub-cooling motorized valve (EV3)	0 pls	0 pls	0 pls
Hot gas bypass (SVP)	OFF	ON	ON
Oil equalization valve (SVO)	ON	ON	ON
Receiver gas charging valve (SVL)	OFF	OFF	OFF
Receiver gas discharge valve (SVG)	OFF	OFF	OFF
Discharge gas stop valve (SVR)	ON	OFF	OFF
Non-operating unit liquid pipe stop valve (SVSL)	ON	OFF	OFF
High pressure gas pipe pressure reduction valve (SVC)	OFF	ON	ON
Ending conditions	2 min.	or • 6 min. • Ts - Te<9	or • 160 sec. • Pc - Pe>58 psi

Indoor unit actuator		Heating oil return operation
Fan	Cooling Thermostat ON unit	Set Fan Speed
	Heating Thermostat ON unit	OFF
	Stopping unit	OFF
	Thermostat OFF unit	OFF
Electronic expansion valve	Thermostat ON unit	512 pls
	Stopping unit	512 pls
	Thermostat OFF unit	512 pls

<In condition of oil return operation>
Compressor cumulative operation time > 8 hours
(However, 2 hours after turning power on first time.)

3.3 Defrosting Operation

In order to melt the frost accumulated on the heat exchanger during heating operation, Defrost operation is performed to restore the heating capacity.

[Starting conditions]

Start defrosting operation referring to the following conditions.

* Heat conductivity of outdoor heat exchangers
* Heat exchange temperature (Tb)
* Timer (Min. 2 hours)

The heat conductivity of outdoor heat exchangers is calculated based on Tc, Te, and compressor load.

Actuator	Defrost preparation operation	Defrost operation	Post-defrost operation
Compressor	Upper limit control	143 Hz + ON	1-step increase from (74Hz + OFF) to (Pc - Pe > 0.4 MPa)
Outdoor unit fan	STEP7 or STEP8	OFF	STEP8
Four way valve 1	Depend on previous heat exchange mode	OFF	ON
Four way valve 2	Depend on previous heat exchange mode	OFF	OFF
Main motorized valve (EV1)	Four way valve 1 OFF:1400 pls ON:SH control	1400 pls	180 pls
Sub motorized valve (EV2)	Four way valve 2 OFF:1400 pls ON:SH control	1400 pls	1400 pls
Sub-cooling motorized valve (EV3)	0 pls	0 pls	0 pls
Hot gas bypass valve (SVP)	OFF	ON	ON
Oil equalization valve (SVO)	ON	ON	ON
Receiver gas charging valve (SVL)	OFF	OFF	OFF
Receiver gas discharge valve (SVG)	OFF	OFF	OFF
Discharging pipe stop valve (SVR)	ON	OFF	OFF
Non-operating unit liquid pipe stop valve (SVSL)	ON	OFF	OFF
High pressure gas pipe pressure reduction valve (SVC)	OFF	ON	ON
Ending conditions	2 min.	or • 12 min. • Tb > 52°F	or • 160 sec. • Pc - Pe>58 psi

Indoor unit actuator		During defrost
Fan	Cooling Thermostat ON unit	Set Fan Speed
	Heating Thermostat ON unit	OFF
	Stopping unit	OFF
	Cooling Thermostat OFF unit	Set Fan Speed
	Heating Thermostat OFF unit	OFF
Electronic expansion valve	Thermostat ON unit	512 pls
	Stopping unit	512 pls
	Thermostat OFF unit	512 pls

<Defrost starting condition>

Defrost operation is started when the outdoor heat exchanger temperature becomes lower than deicer temperature.
Defrost operation is conducted once in max. 2 hours.

3.4 Pressure Equalizing Control

This pressure equalization control is used to equalize the pressure of discharge piping and suction piping in order to reduce refrigerant passing noise when changing over the BS units.

[Starting conditions]

The temperature control of indoor units with thermostat ON does not match up with the state of the BS unit changeover valve to which the indoor units are connected.

Actuator	Pressure equalizing preparation operation	Equalization operation
Compressor	PI control	74 Hz + OFF
Outdoor unit fan	Depend on previous heat exchange mode	STEP7
Four way valve 1	Depend on previous heat exchange mode	ON
Four way valve 2	Depend on previous heat exchange mode	OFF
Main motorized valve (EV1)	Four way valve 1 OFF:1400 pls ON:SH control	180 pls
Sub motorized valve (EV2)	Four way valve 2 OFF:1400 pls ON:SH control	1400 pls
Sub-cooling motorized valve (EV3)	0 pls	0 pls
Hot gas bypass valve (SVP)	OFF	OFF
Oil equalization valve (SVO)	ON	ON
Receiver gas charging valve (SVL)	OFF	OFF
Receiver gas discharge valve (SVG)	OFF	OFF
Discharging gas pipe stop valve (SVR)	ON	OFF
Non-operating unit liquid pipe stop valve (SVSL)	ON	ON
High pressure gas pipe pressure reduction valve (SVC)	OFF	ON
Ending conditions	2 min.	or • 200 sec. • Pc - Pe>58 psi

3.5 Pump-down Residual Operation

If any liquid refrigerant remains in the heat exchanger during compressor startup, the liquid refrigerant will enter the compressor, resulting in the dilution of the refrigerating machine oil in the compressor and the degradation of lubricating capacity.
Therefore, before the compressor stops, pump-down operation is performed to collect the refrigerant in the heat exchanger.

3.5.1 Pump-down Residual Operation in Cooling Operation

Actuator	Operation
Compressor	210 Hz + OFF
Outdoor unit fan	Fan control
Four way valve 1	OFF
Four way valve 2	OFF
Main motorized valve (EV1)	1400 pls
Sub motorized valve (EV2)	1400 pls
Sub-cooling motorized valve (EV3)	0 pls
Hot gas bypass valve (SVP)	ON
Oil equalization valve (SVO)	ON
Receiver gas charging valve (SVL)	OFF
Receiver gas discharge valve (SVG)	OFF
Discharge pipe stop valve (SVR)	OFF
Non-operating unit liquid pipe stop valve (SVSL)	OFF
High pressure gas pipe pressure reduction valve (SVC)	OFF
Ending conditions	or • 5 min. • Pe < 72.5 psi • Td > 230°F

Indoor unit EV opening	0 pls

3.5.2 Pump-down Residual Operation in Heating Operation

Actuator	Operation
Compressor	124 Hz + OFF
Outdoor unit fan	STEP8
Four way valve 1	Holds *Note 1
Four way valve 2	Holds *Note 1
Main motorized valve (EV1)	Four way valve 1 OFF:1400 pls ON:0 pls
Sub motorized valve (EV2)	Four way valve 2 OFF:1400 pls ON:0 pls
Sub-cooling motorized valve (EV3)	0 pls
Hot gas bypass valve (SVP)	ON
Oil equalization valve (SVO)	ON
Receiver gas charging valve (SVL)	OFF
Receiver gas discharge valve (SVG)	OFF
Discharge pipe stop valve (SVR)	ON
Non-operating unit liquid pipe stop valve (SVSL)	ON
High pressure gas pipe pressure reduction valve (SVC)	OFF
Ending conditions	or • 30 sec. • Pe < 36 psi • Td > 230°F

Indoor unit EV opening	Heating:Fully open Cooling:0 pls

Note 1. Hold: maintain the previous position (mode) before entering this operation.

3.6 Restart Standby

Forced standby is performed to prevent frequent repetition of ON/OFF of the compressor, and to equalize pressure in the refrigerant system.

Actuator	Operation
Compressor	OFF
Outdoor unit fan	Ta > 86°F: STEP5 Ta ≤ 86°F: OFF
Four way valve 1	Holds *Note 1
Four way valve 2	Holds *Note 1
Main motorized valve (EV1)	0 pls
Sub motorized valve (EV2)	0 pls
Sub-cooling motorized valve (EV2)	0 pls
Hot gas bypass valve (SVP)	OFF
Oil equalization valve (SVO)	ON
Receiver gas charging valve (SVL)	OFF
Receiver gas discharge valve (SVG)	OFF
Discharge pipe stop valve (SVR)	Holds
Non-operating unit liquid pipe stop valve (SVSL)	ON
High pressure gas pipe pressure reduction valve (SVC)	Holds
Ending conditions	4 min.

Note 1. Hold: maintain the previous position (mode) before entering this operation.

3.7 Stopping Operation

This operation is used to define the operation of the actuator while the system stops.

3.7.1 When System is in Stop Mode

Actuator	Operation
Compressor	OFF
Outdoor unit fan	OFF
Four way valve 1	Holds *Note 1
Four way valve 2	Holds *Note 1
Main motorized valve (EV1)	0 pls
Sub motorized valve (EV2)	0 pls
Sub-cooling motorized valve (EV3)	0 pls
Hot gas bypass valve (SVP)	OFF
Oil equalization valve (SVO)	OFF
Receiver gas charging valve (SVL)	OFF
Receiver gas discharge valve (SVG)	OFF
Discharge pipe stop valve (SVR)	Holds *Note 1
Non-operating unit liquid pipe stop valve (SVSL)	ON
High pressure gas pipe pressure reduction valve (SVC)	Holds *Note 1
Ending conditions	Indoor unit thermostat turned ON.

Note 1. Hold: maintain the previous position (mode) before entering this operation.

3.7.2 Stopping Operation of Slave Units During Master Unit is in Operation With Multi-Outdoor-Unit System

In cooling operation: The system operates in Mode A or Mode B listed in the table below.

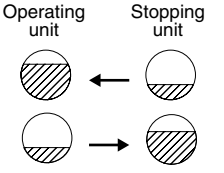
Actuator	Mode-A operation	Mode-B operation
Compressor	OFF	OFF
Outdoor unit fan	STEP4	OFF
Four way valve	OFF	Holds
Main motorized valve (EV1)	150 pls to 300 pls	0 pls
Subcooling motorized valve (EV2)	0 pls	0 pls
Hot gas bypass valve (SVP)	ON	ON
Oil equalization valve (SVO)	OFF	OFF
Receiver gas discharging valve (SVG)	OFF	OFF
Non-operating unit liquid pipe stop valve (SVSL)	OFF	ON
Mode transition conditions	To Mode B when Tc−Tl >0.27×(Tc − Ta) +6	To Mode A when gas shortage signal is sent from indoor unit
Ending conditions	Slave units are required to operate.	

In heating operation: The system operates in Mode A or Mode B listed in the table below.

Actuator	Mode-A operation	Mode-B operation
Compressor	OFF	OFF
Outdoor unit fan	STEP2	STEP2
Four way valve	ON	ON
Main motorized valve (EV1)	0 pls	0 pls
Subcooling motorized valve (EV2)	0 pls	0 pls
Hot gas bypass valve (SVP)	OFF	OFF
Oil equalization valve (SVO)	OFF	OFF
Receiver gas discharging valve (SVG)	OFF	OFF
Non-operating unit liquid pipe stop valve (SVSL)	OFF	ON
Mode transition conditions	To Mode B when Tc−mean temperature of indoor unit liquid pipes>10°C	To Mode A when motorized valve of operating outdoor unit fully opens.
Ending conditions	Slave units are required to operate.	

∗ Mode A or B operation

Mode A : Operating unit collects refrigerant.
Mode B : Stopping unit storage refrigerant.



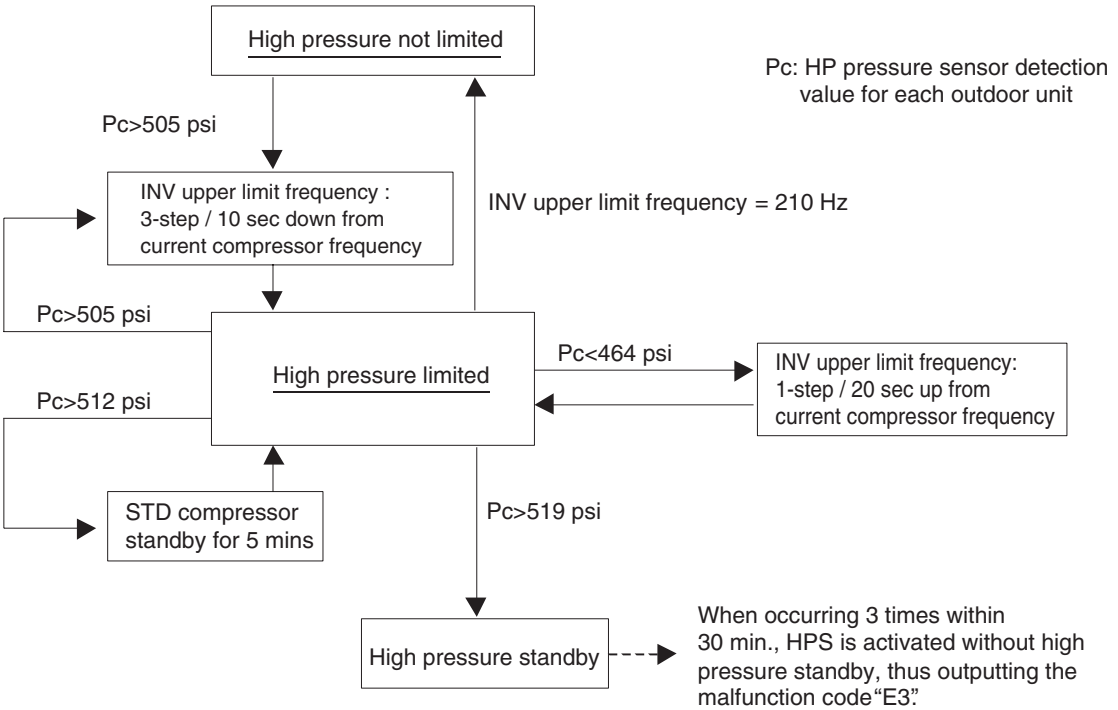
The changeover operation for mode A and B is performed for the reason that the required refrigerant amount varies depending on the indoor unit operation capacity.

4. Protection Control

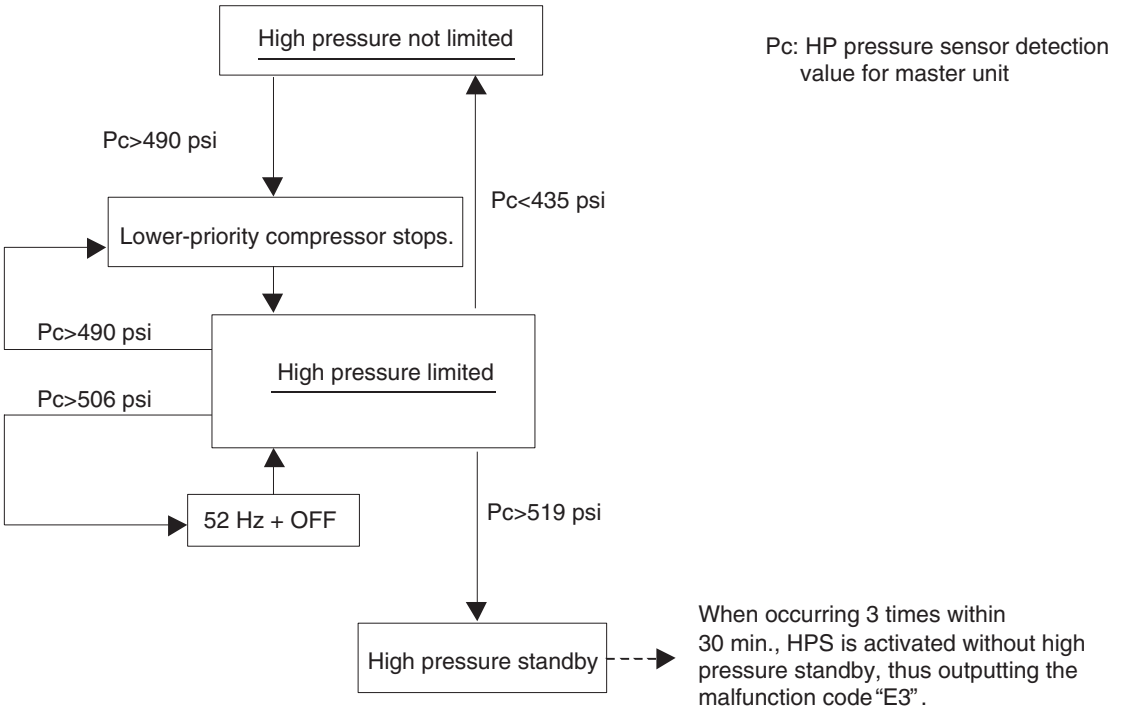
4.1 High Pressure Protection Control

This high pressure protection control is used to prevent the activation of protection devices due to abnormal increase of high pressure and to protect compressors against the transient increase of high pressure.

[In cooling operation]



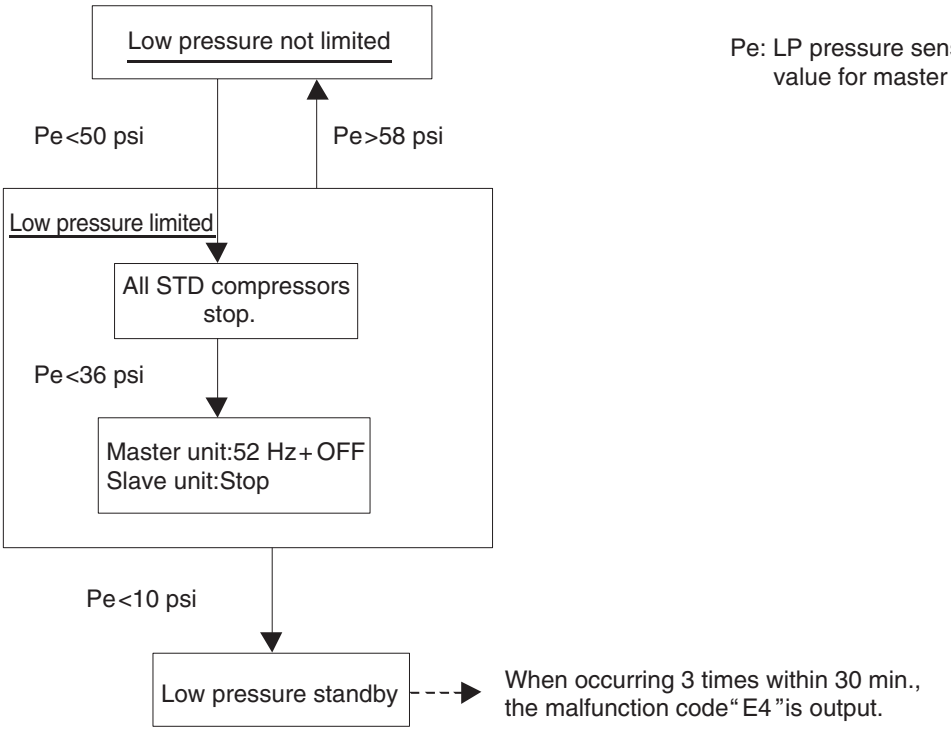
[In heating operation]



4.2 Low Pressure Protection Control

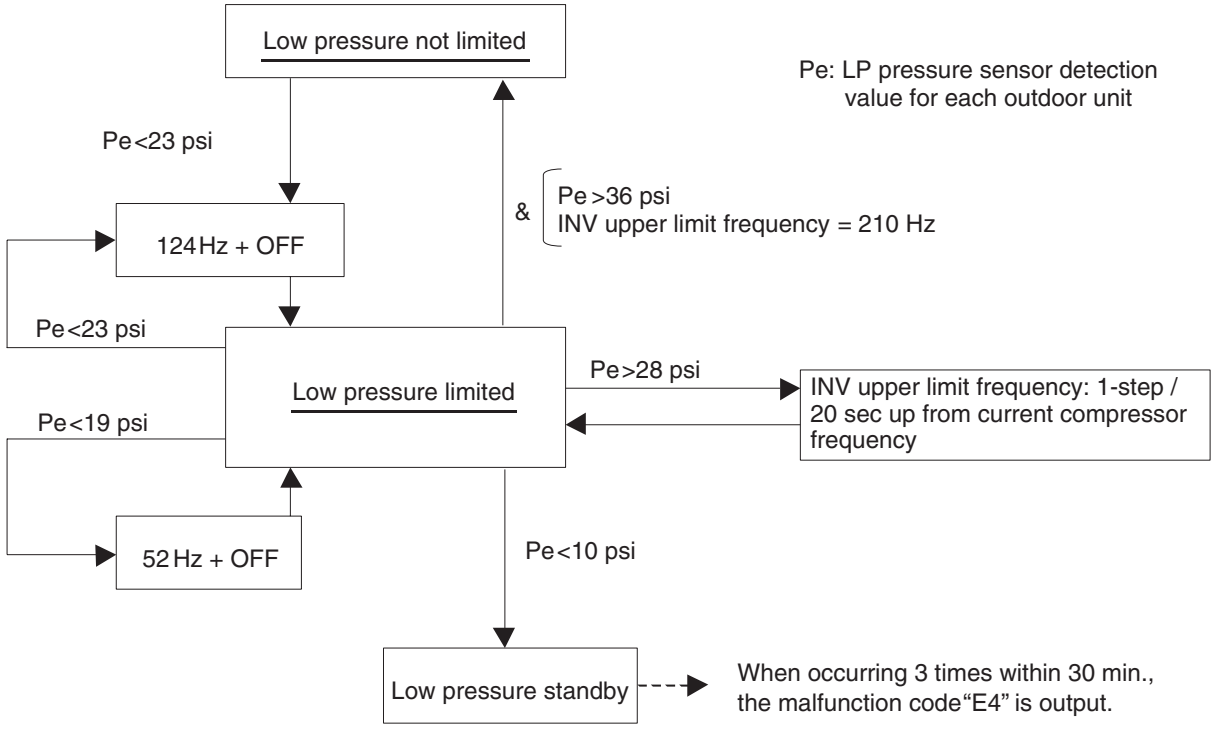
This low pressure protection control is used to protect compressors against the transient decrease of low pressure.

[In cooling operation]



Pe: LP pressure sensor detection value for master unit

[In heating operation]



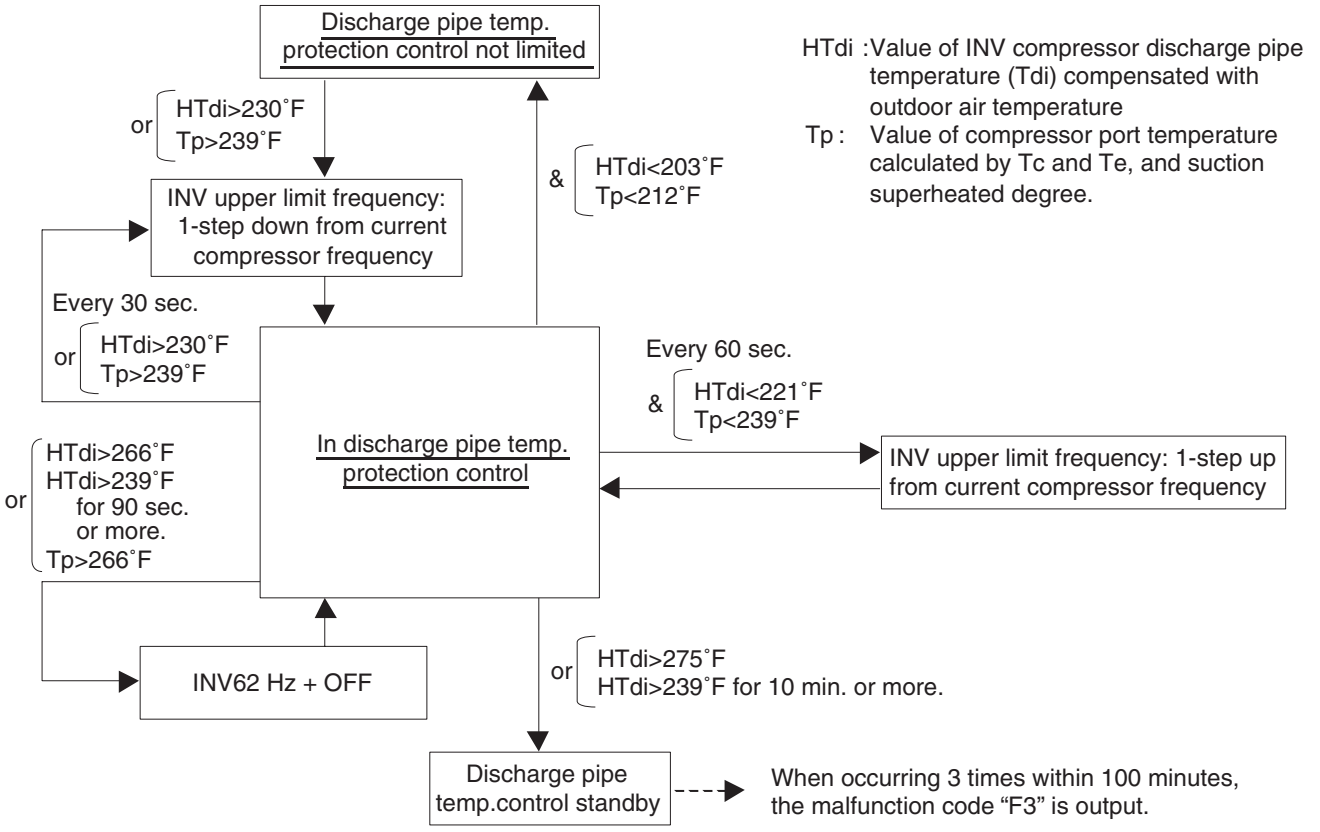
Pe: LP pressure sensor detection value for each outdoor unit

4.3 Discharge Pipe Protection Control

This discharge pipe protection control is used to protect the compressor internal temperature against a malfunction or transient increase of discharge pipe temperature.

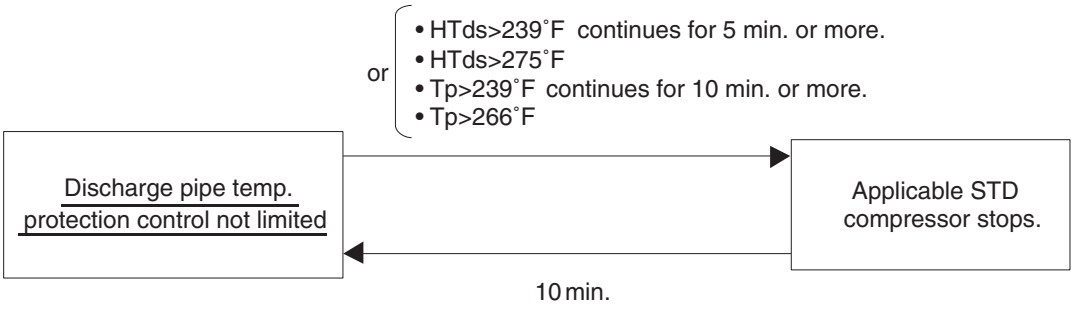
★ Each compressor performs the discharge pipe temperature protection control individually in the following sequence.

[INV compressor]



HTdi : Value of INV compressor discharge pipe temperature (Tdi) compensated with outdoor air temperature
Tp : Value of compressor port temperature calculated by Tc and Te, and suction superheated degree.

[STD compressor]

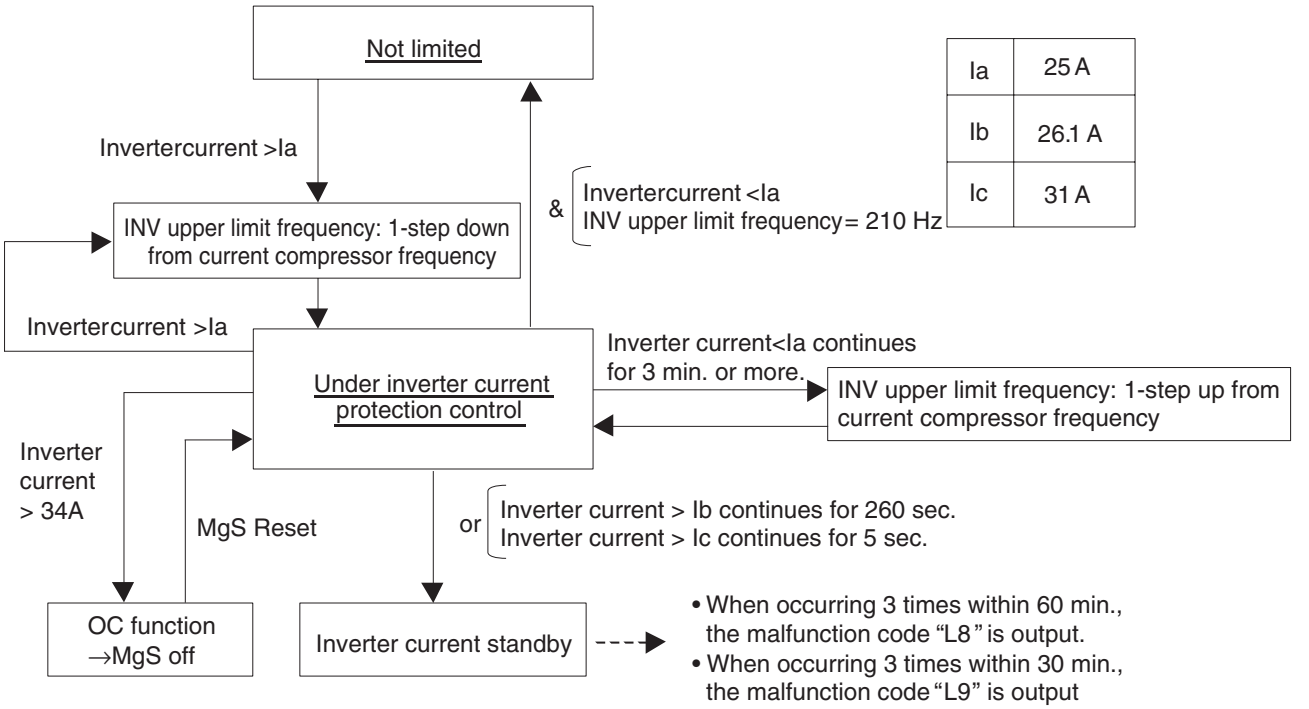


HTds : Value of STD compressor discharge pipe temperature (Tds) compensated with outdoor air temperature
Tp: Value of compressor port temperature calculated by Tc and Te, and suction superheated degree.

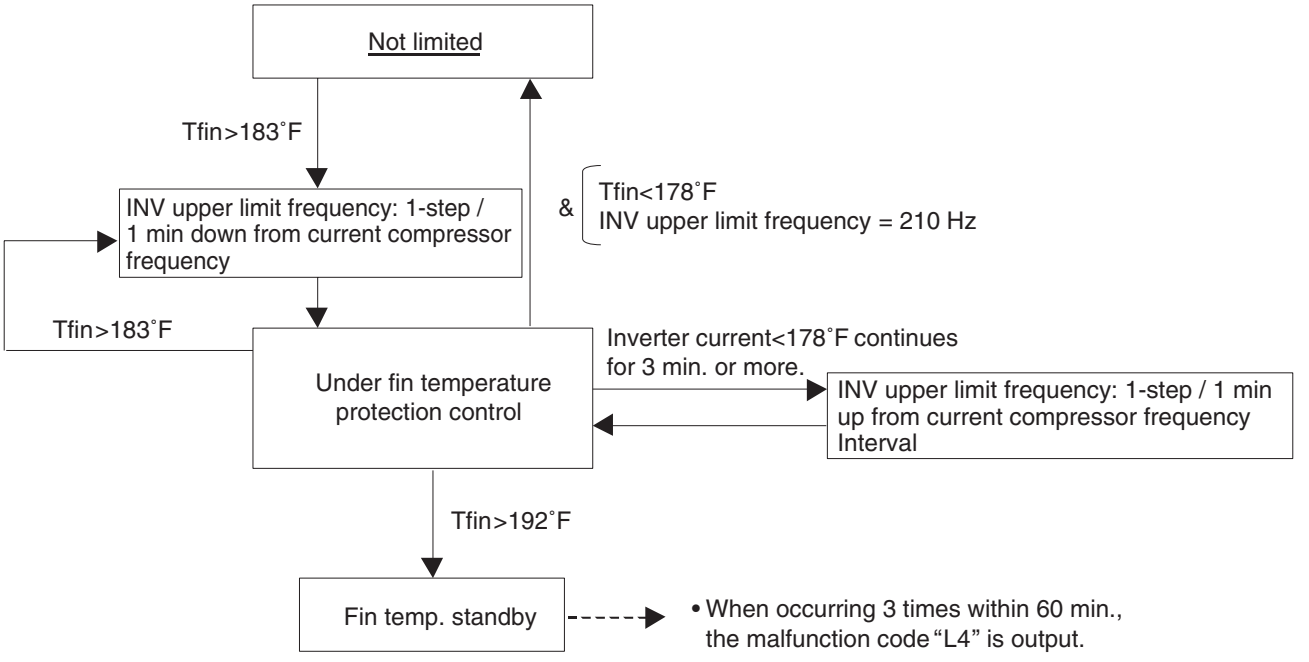
4.4 Inverter Protection Control

Inverter current protection control and inverter fin temperature control are performed to prevent tripping due to a malfunction, or transient inverter overcurrent, and fin temperature increase.

[Inverter overcurrent protection control]

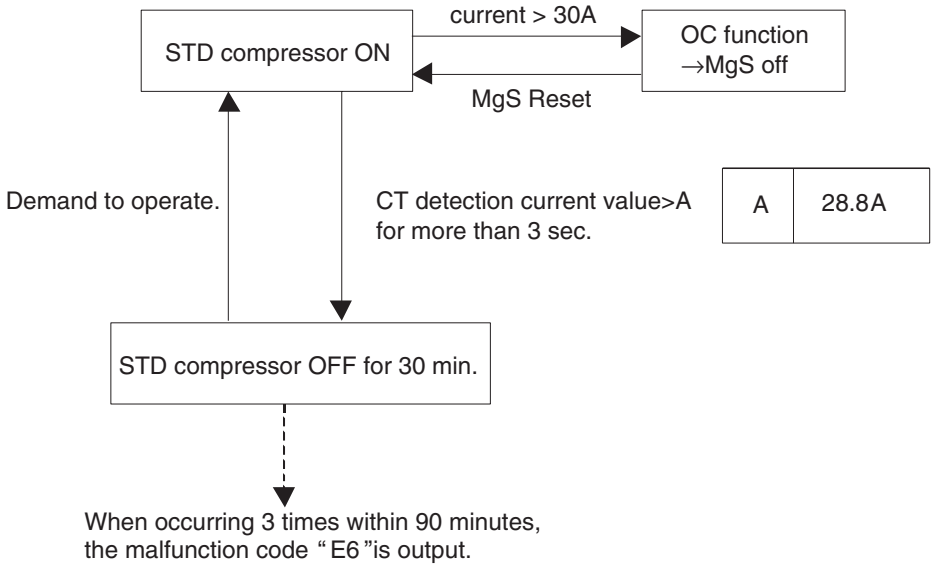


[Inverter fin temperature control]



4.5 STD Compressor Overload Protection

This control is used to prevent abnormal heating due to overcurrent to the compressor resulting from failures of STD compressor such as locking.



5. Other Control

5.1 Outdoor Unit Rotation

In the case of multi-outdoor-unit system, this outdoor unit rotation is used to prevent the compressor from burning out due to unbalanced oil level between outdoor units.

[Details of outdoor unit rotation]

In the case of multi-outdoor-unit system, each outdoor unit is given an operating priority for the control.

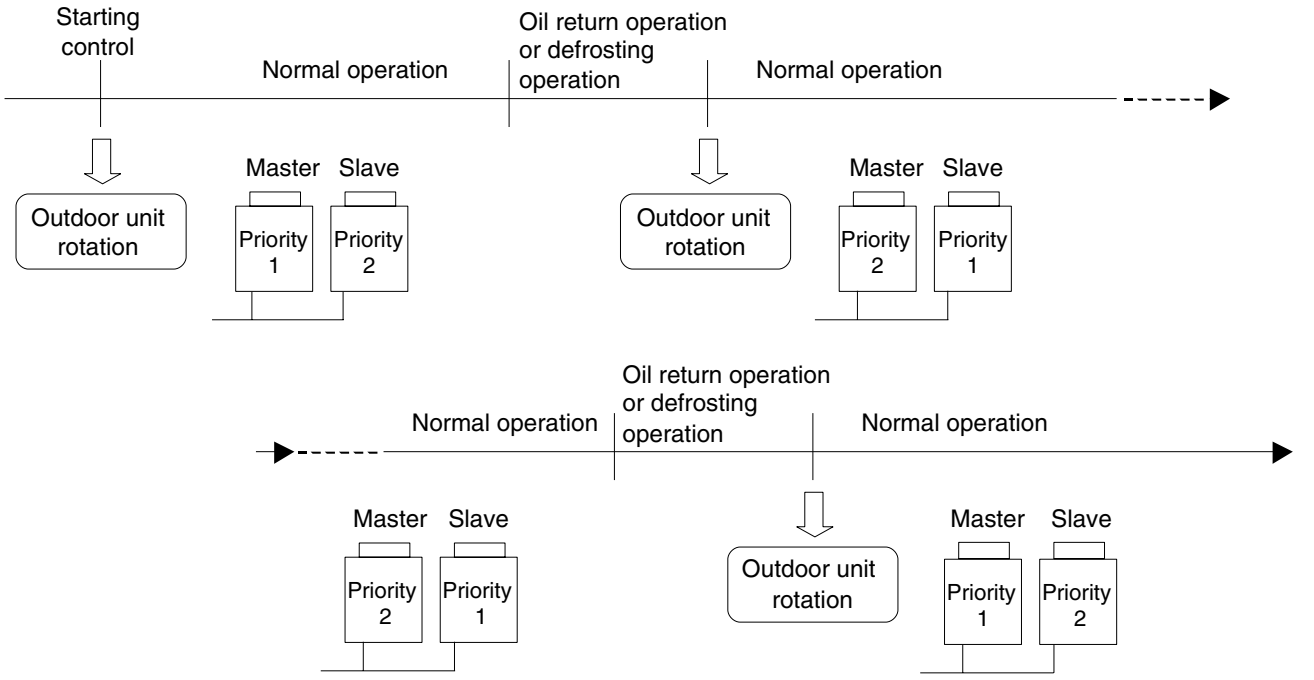
Outdoor unit rotation makes it possible to change the operating priority of outdoor units.

Thus, the system becomes free of compressors that stop over an extended period of time at the time of partial loading, preventing unbalanced oil level.

[Timing of outdoor unit rotation]

or
- After oil return operation
- After defrosting operation
- At the beginning of the starting control

Example) The following diagram shows outdoor unit rotation in combination of 3 outdoor units.



* "Master unit" and "slave unit" in this section are the names for installation.
They are determined in installation work, and not changed thereafter. (These names are different from "master unit" and "slave unit" for control.)
The outdoor unit connected the control wires (F1 and F2) for the indoor unit should be designated as master unit
Consequently, The LED display on the main PCB for "master unit" and "slave unit" do not change. (Refer to the page 66.)

5.2 Emergency Operation

If the compressor cannot operate, this control inhibits any applicable compressor or outdoor unit from operating to perform emergency operation only with the operative compressor or outdoor unit.

⚠ Caution

"For making a compressor unable to operate due to malfunction, etc., be sure to conduct the work with emergency operation setting.
Never execute work such as disconnection of the power cable from magnet contactor. (Otherwise, other normal compressors may malfunction.)
∗ Because the units will be operated in the combination with which oil pressure equalization between compressors cannot be performed.

5.2.1 Restrictions for Emergency Operation

- In the case of system with 1 outdoor unit installed and when the inverter compressor is set to operation prohibit, only when thermostats of indoor units having a capacity of 50% or more of the outdoor unit capacity turn ON, the emergency operation is functional. (If the total capacity of indoor units with thermostat ON is small, the outdoor unit cannot operate.)
- If the emergency operation is set while the outdoor unit is in operation, the outdoor unit stops once after pump-down residual operation (a maximum of 5 minutes elapsed).

5.2.2 In the Case of REYQ72M, 96M

- Emergency operation with settings in service mode

∗ "Inhibition of operation" is set with each compressor.

- To inhibit INV compressor from operating → Set setting mode 2 from No. 0 to No. 2.

(Procedure)

	LED display (○:ON ●:OFF ◑:Blink) H1P — — — H7P	
(1) Press and hold the MODE button (BS1) for 5 sec. or more.	○●●●●●●	
(2) Press the RETURN button (BS3) once.	○●●●●●◑	(Factory set)
(3) Press the SET button (BS2) one.	○●●●●◑●	
(4) Press the RETURN button (BS3) twice.	○●●●●●●	
(5) Press the MODE button (BS1) once.	●●○●●●●	

- To inhibit STD1 compressors from operating → Set setting mode 2 from No. 19 to No. 2.

(Procedure)

	LED display (○:ON ●:OFF ◑:Blink) H1P — — — H7P	
(1) Press and hold the MODE button (BS1) for 5 sec. or more.	○●●●●●●	
(2) Press the SET button (BS2) 19 times.	○●○●●○○	
(3) Press the RETURN button (BS3) once.	○●●●●●◑	(Factory set)
(4) Press the SET button (BS2) once.	○●●●●◑●	
(5) Press the RETURN button (BS3) twice.	○●●●●●●	
(6) Press the MODE button (BS1) once.	●●○●●●●	

5.2.3 In The Case of Multi-Outdoor-Unit System (REYQ144, 168, 192MTJU)

Automatic backup operation

With multi-outdoor-unit system, if a certain outdoor unit system malfunctions (i.e., the system stops and indoor unit remote controller displays the malfunction), by resetting the system with the indoor unit remote controller, the applicable outdoor unit is inhibited from operating for 8 hours, thus making it possible to perform emergency operation automatically.

However, in the event any of the following malfunctions occurs, automatic backup operation can be performed.

Malfunctions under which automatic backup operation can be performed:

- E3, E4, E5, E7
- F3
- H7, H9
- J2, J3, J5, J6, J7, J9, JA, JC
- L3, L4, L5, L8, L9, LC
- U2, UJ

• Emergency operation with settings in service mode

∗ "Inhibition of operation" is set with each outdoor unit.

Make the following settings with the master unit. (Setting with the slave unit becomes disabled.)

∗ Discriminate the operating status of the master unit/slave units through the following LED display.

	LED display (○:ON ●:OFF ◑:Blink) H1P — — — H7P H8P
Master:	●●○●●●● ○
Slave:	●●●●●●● ◑

(Factory set)

• To inhibit the master unit from operating → Set setting mode 2 from No. 38 to No. 2.

	LED display (○:ON ●:OFF ◑:Blink) H1P — — — H7P
(Procedure)	
(1) Press and hold the MODE button (BS1) for 5 sec. or more.	○●●●●●●
(2) Press the SET button (BS2) 38 times.	○○●●○○●
(3) Press the RETURN button (BS3) once.	○●●●●●◑ (Factory set)
(4) Press the SET button (BS2) once.	○●●●●◑●
(5) Press the RETURN button (BS3) twice.	○●●●●●●
(6) Press the MODE button (BS1) once.	●●○●●●●

• To inhibit the slave unit from operating → Set setting mode 2 from No. 39 to No. 2.

	LED display (○:ON ●:OFF ◑:Blink) H1P — — — H7P
(Procedure)	
(1) Press and hold the MODE button (BS1) for 5 sec. or more.	○●●●●●●
(2) Press the SET button (BS2) 39 times.	○○●●○○○
(3) Press the RETURN button (BS3) once.	○●●●●●◑ (Factory set)
(4) Press the SET button (BS2) once.	○●●●●◑●
(5) Press the RETURN button (BS3) twice.	○●●●●●●
(6) Press the MODE button (BS1) once.	●●○●●●●

5.3 Demand Operation

In order to save the power consumption, the capacity of outdoor unit is saved with control forcibly by using “Demand 1 Setting” or “Demand 2 Setting”.
To operate the unit with this mode, additional setting of “Continuous Demand Setting” or external input by external control adapter is required.

[Demand 1 setting]

Setting	Standard for upper limit of power consumption
Demand 1 setting 1	Approx. 80%
Demand 1 setting 2 (factory setting)	Approx. 70%
Demand 1 setting 3	Approx. 60%

[Demand 2 setting]

Setting	Standard for upper limit of power consumption
Demand 2 setting 2 (factory setting)	Approx. 40%

★ Other protection control functions have precedence over the above operation.

5.4 Heating Operation Prohibition

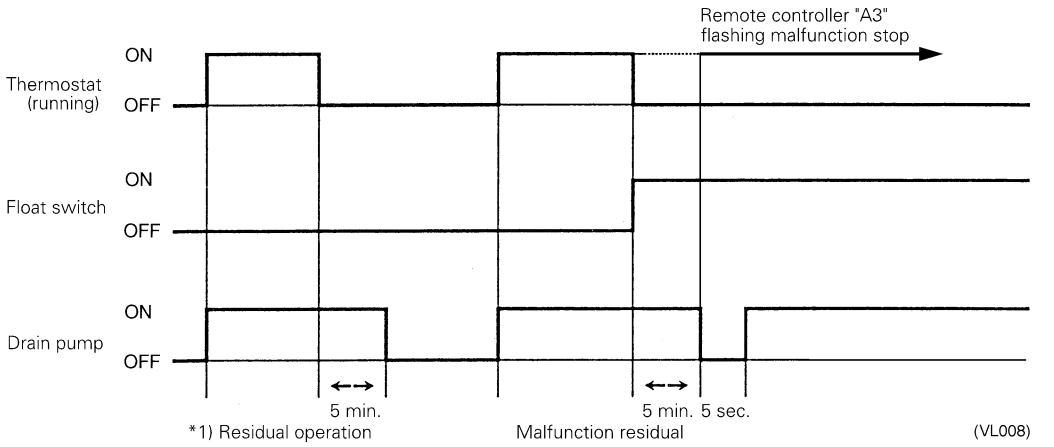
Heating operation is prohibited above 24°C ambient temperature.

6. Outline of Control (Indoor Unit)

6.1 Drain Pump Control

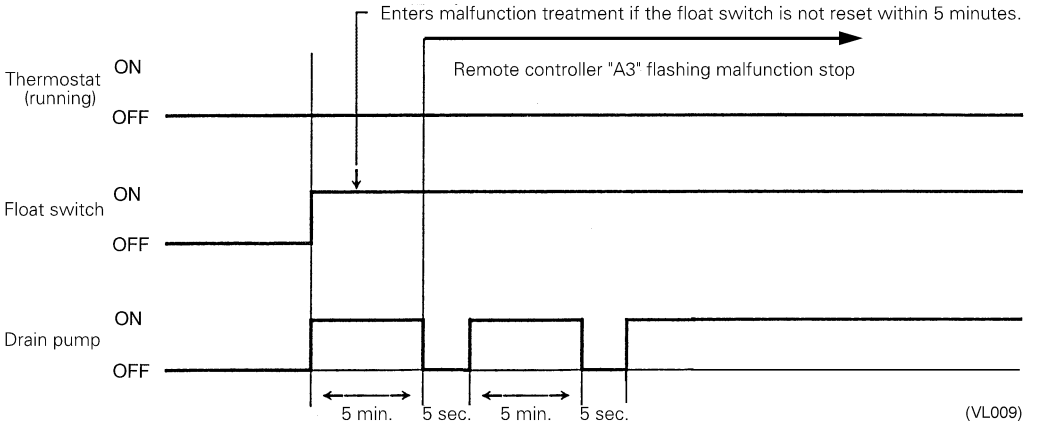
1. The drain pump is controlled by the ON/OFF buttons (4 button (1) - (4) given in the figure below).

6.1.1 When the Float Switch is Tripped While the Cooling Thermostat is ON:

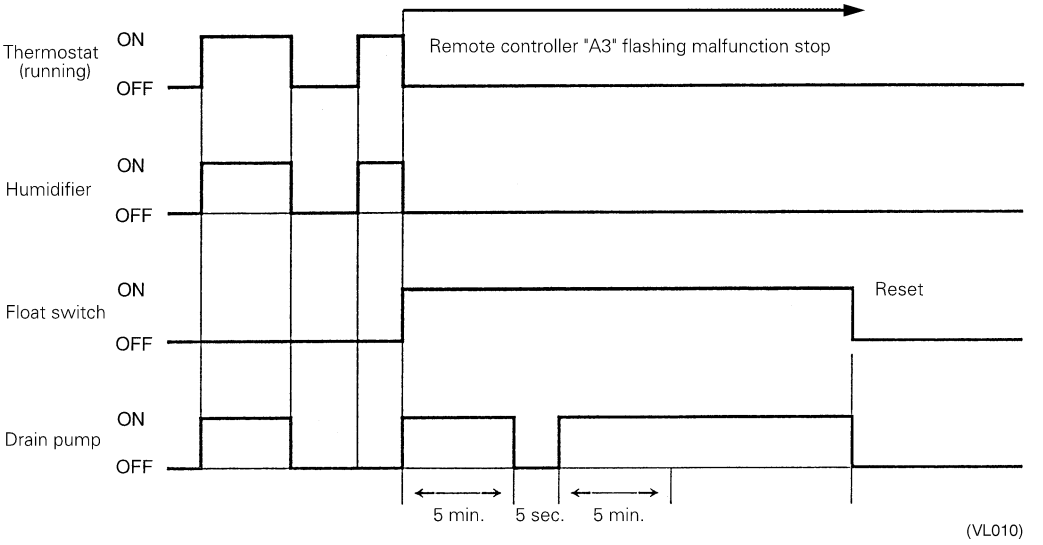


* 1. The objective of residual operation is to completely drain any moisture adhering to the fin of the indoor unit heat exchanger when the thermostat goes off during cooling operation.

6.1.2 When the Float Switch is Tripped While Cooling OFF by Thermostat:

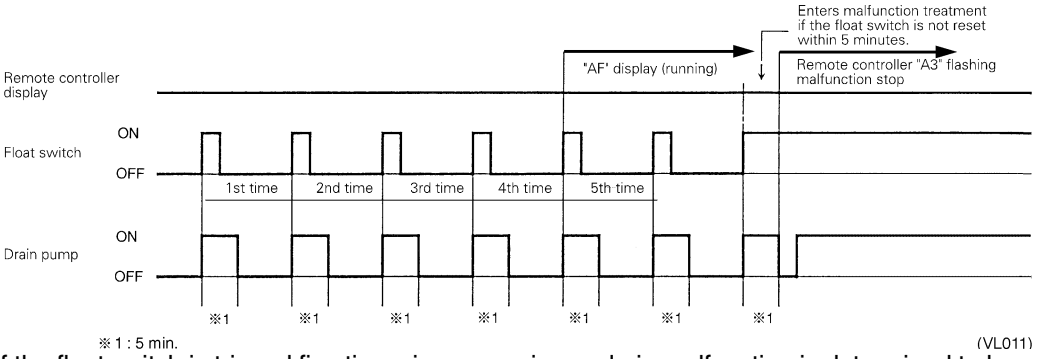


6.1.3 When the Float Switch is Tripped During Heating Operation:



During heating operation, if the float switch is not reset even after the 5 minutes operation, 5 seconds stop, 5 minutes operation cycle ends, operation continues until the switch is reset.

6.1.4 When the Float Switch is Tripped and “AF” is Displayed on the Remote Controller:



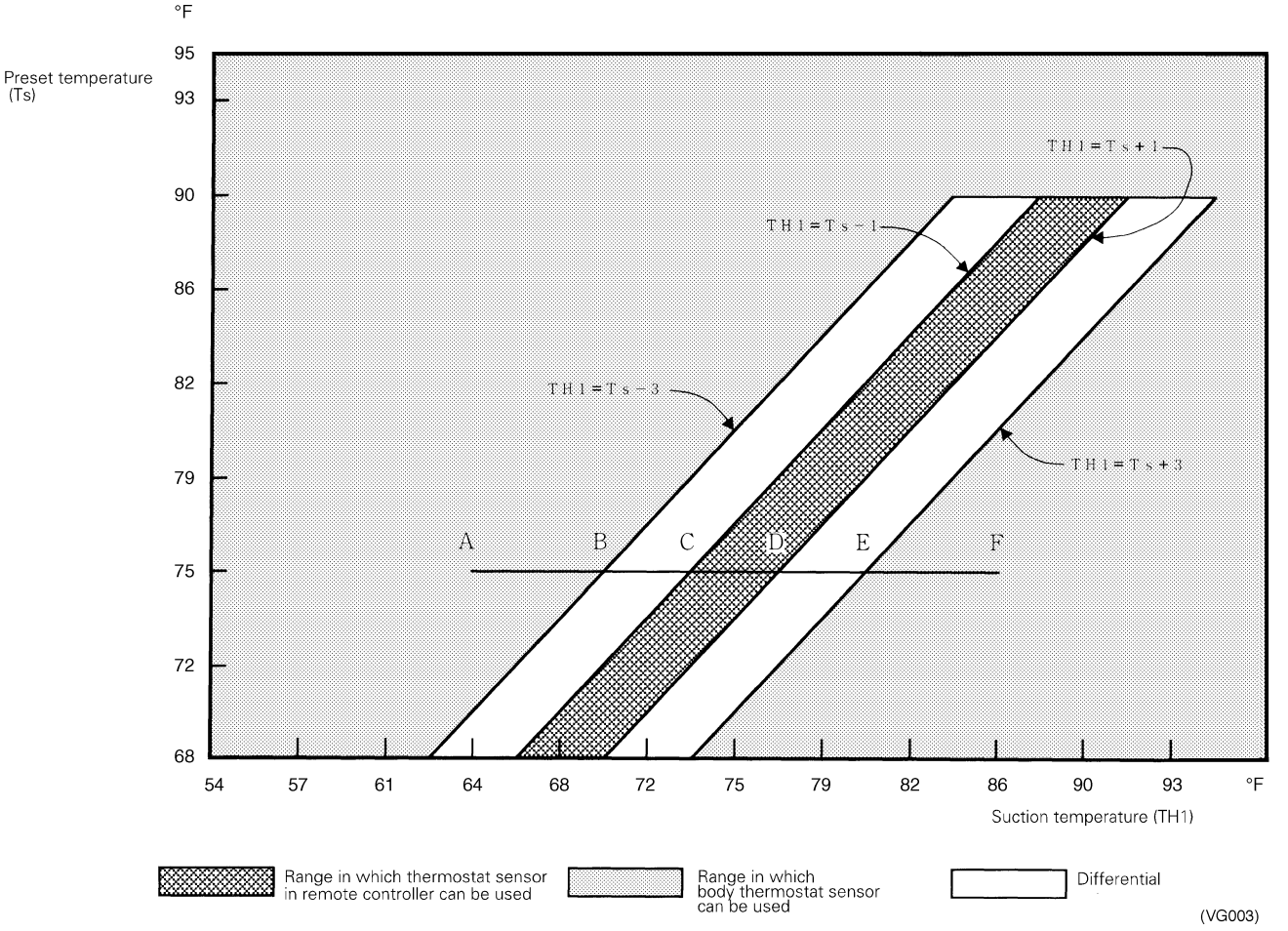
Note: If the float switch is tripped five times in succession, a drain malfunction is determined to have occurred. “AF” is then displayed as operation continues.

6.2 Thermostat Sensor in Remote Controller

Temperature is controlled by both the thermostat sensor in remote controller and air suction thermostat in the indoor unit. (This is however limited to when the field setting for the thermostat sensor in remote controller is set to “Use.”)

Cooling

If there is a significant difference in the preset temperature and the suction temperature, fine adjustment control is carried out using a body thermostat sensor, or using the sensor in the remote controller near the position of the user when the suction temperature is near the preset temperature.



■ **Ex: When cooling**

Assuming the preset temperature in the figure above is 75°F, and the suction temperature has changed from 64°F to 86°F (A → F):

(This example also assumes there are several other air conditioners, the VRV system is off, and that temperature changes even when the thermostat sensor is off.)

Body thermostat sensor is used for temperatures from 64°F to 73°F (A → C).

Remote controller thermostat sensor is used for temperatures from 73°F to 81°F (C → E).

Body thermostat sensor is used for temperatures from 81°F to 86°F (E → F).

And, assuming suction temperature has changed from 86°F to 64°F (F → A):

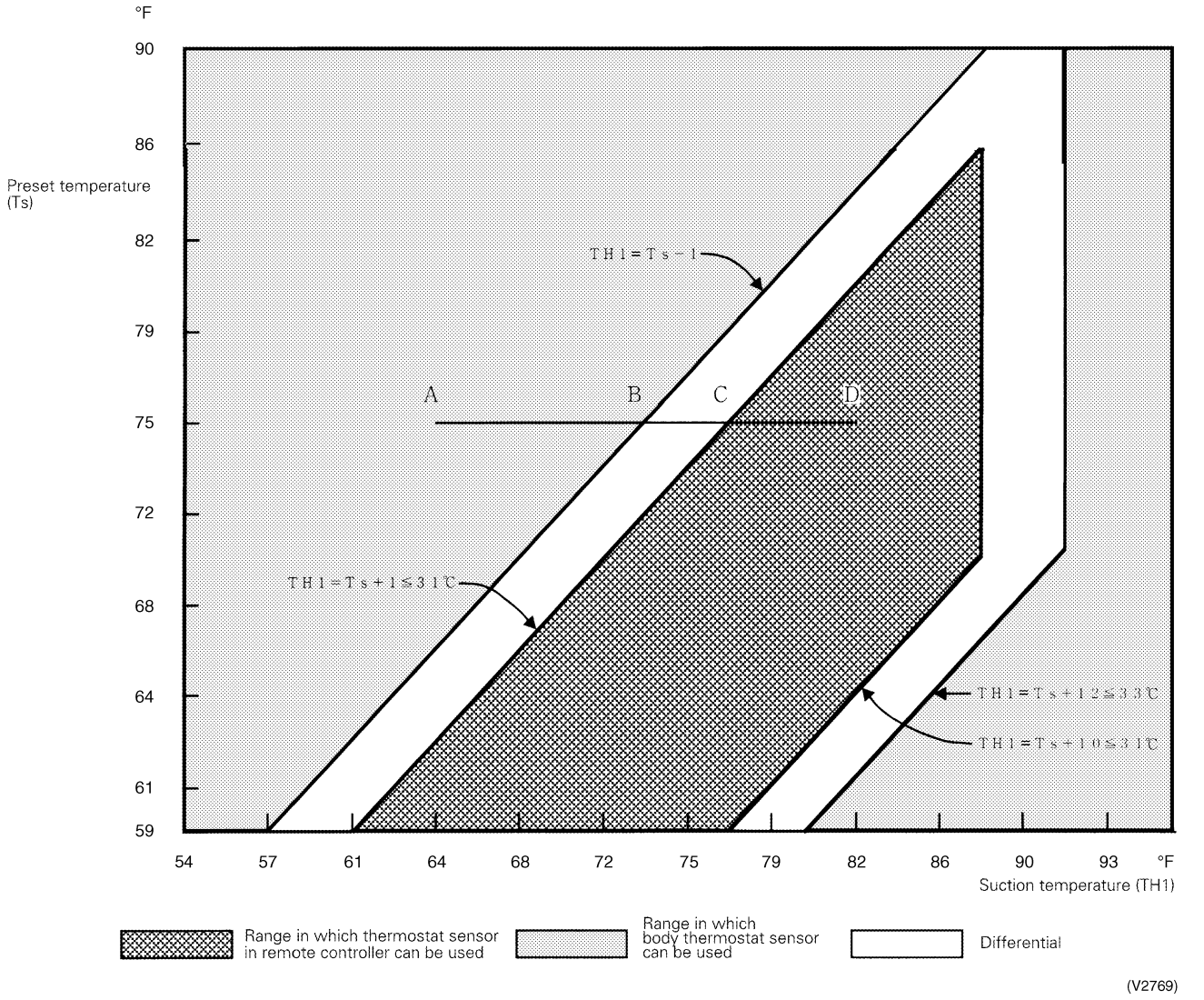
Body thermostat sensor is used for temperatures from 86°F to 77°F (F → D).

Remote controller thermostat sensor is used for temperatures from 77°F to 70°F (D → B).

Body thermostat sensor is used for temperatures from 70°F to 64°F (B → A).

Heating

When heating, the hot air rises to the top of the room, resulting in the temperature being lower near the floor where the occupants are. When controlling by body thermostat sensor only, the unit may therefore be turned off by the thermostat before the lower part of the room reaches the preset temperature. The temperature can be controlled so the lower part of the room where the occupants are doesn't become cold by widening the range in which thermostat sensor in remote controller can be used so that suction temperature is higher than the preset temperature.



■ **Ex: When heating**

Assuming the preset temperature in the figure above is 75°F, and the suction temperature has changed from 64°F to 82°F (A → D):

(This example also assumes there are several other air conditioners, the VRV system is off, and that temperature changes even when the thermostat sensor is off.)

Body thermostat sensor is used for temperatures from 64°F to 77°F (A → C).

Remote controller thermostat sensor is used for temperatures from 77°F to 82°F (C → D).

And, assuming suction temperature has changed from 82°F to 64°F (D → A):

Remote controller thermostat sensor is used for temperatures from 82°F to 73°F (D → B).

Body thermostat sensor is used for temperatures from 73°F to 64°F (B → A).

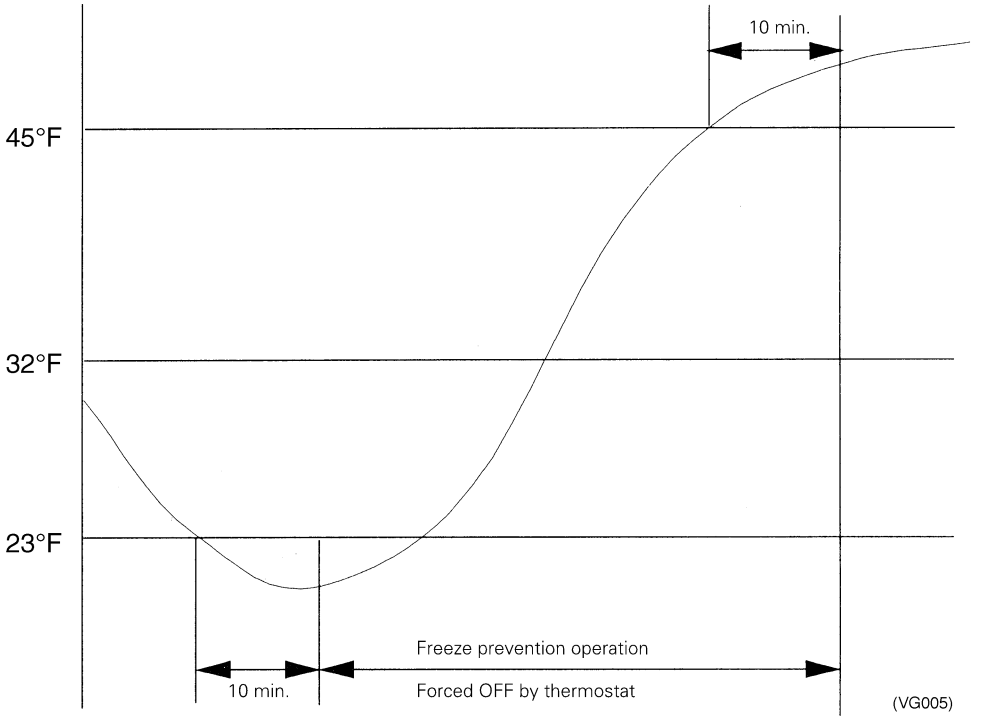
6.3 Freeze Prevention

Freeze Prevention by Off Cycle (Indoor Unit)

When the temperature detected by liquid pipe temperature thermistor (R2T) of the indoor unit heat exchanger drops too low, the unit enters freeze prevention operation in accordance with the following conditions, and is also set in accordance with the conditions given below.

Conditions for starting freeze prevention: Temperature is 30°F or less for total of 40 min., or temperature is 23°F or less for total of 10 min.
Conditions for stopping freeze prevention: Temperature is 45°F or more for 10 min. continuously

Ex: Case where temperature is 23°F or less for total of 10 min.



Part 5
Test Operation

1. Test Operation

1.1 Procedure and Outline

Follow the following procedure to conduct the initial test operation after installation.

1.1.1 Check Work Prior to Turn Power Supply On

Check the below items.
- Power wiring
- Control transmission wiring between units
- Earth wire

⇩

Check on refrigerant piping

⇩

Check on amount of refrigerant charge

- ○ Is the wiring performed as specified?
- ○ Are the designated wires used?
- ○ Is the grounding work completed?
  Use a 500V electrical insulation tester to measure the insulation.
  - Do not use a electrical insulation tester for other circuits than 200V (or 240v) circuit.
- ○ Are the setscrews of wiring not loose?

- ○ Is pipe size proper? (The design pressure of this product is 3.8MPa.)
- ○ Are pipe insulation materials installed securely?
  Liquid and gas pipes need to be insulated. (Otherwise causes water leak.)
- ○ Are respective stop valves on liquid, gas and oil equalizing lines securely open?

- ○ Is refrigerant charged up to the specified amount?
  If insufficient, charge the refrigerant from the service port of stop valve on the liquid side with outdoor unit in stop mode after turning power on.
- ○ Has the amount of refrigerant charge been recorded on “Record Chart of Additional Refrigerant Charge Amount”?

(V3055)

1.1.2 Turn Power On

Turn outdoor unit power on.

⇩

Carry out field setting on outdoor PC board

⇩

Turn indoor unit power on.

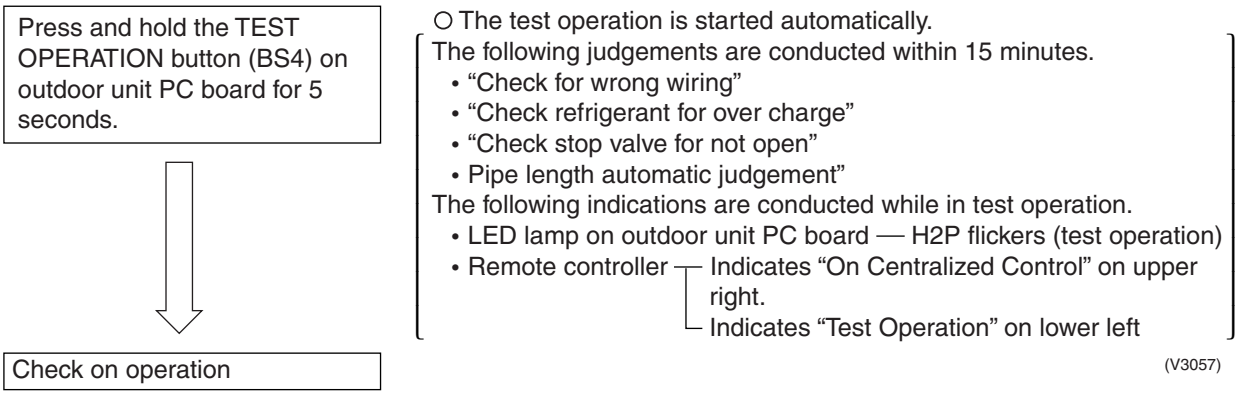
- ○ Be sure to turn the power on 6 hours before starting operation to protect compressors. (to power on clankcase heater)

- ○ For field settings, refer to “Field Settings” on and after P91.
  After the completion of field settings, set to “Setting mode 1”.

(V3056)

1.1.3 Check Operation

* During check operation, mount front panel to avoid the misjudging.
* Check operation is mandatory for normal unit operation.
  (When the check operation is not executed, alarm code "U3" will be displayed.)



Refer the detail of check operation function to page 108.

On completion of test operation, LED on outdoor unit PC board displays the following.
H3P ON: Normal completion
H2P and H3P ON: Abnormal completion →Check the indoor unit remote controller for abnormal display and correct it.

In the case of multi-outdoor-unit system, make setting on the master unit PC board. (Setting with the slave unit is disabled.)
[LED display in the case of multi-outdoor-unit system] (Same as that in emergency operation)

* Discriminate the operating status of the master unit/slave units through the following LED display.

LED display (○:ON ●:OFF ◑:Blink)
H1P — — — H7P H8P

Master: ●●○●●●● ○
Slave: ●●●●●●● ◑
(Factory set)

Malfunction code
In case of an alarm code displayed on remote controller:

Cause of trouble due to faulty installation work	Alarm code	Countermeasure
Closed stop valve of outdoor unit	E3 E4 F3 UF	Liquid side stop valve : Open Gas side stop valve : Open Oil equalizing pipe stop valve : Close Liquid side stop valve : Open Gas side stop valve : Open Oil equalizing pipe stop valve : Open
Reversed phase in power cable connection for outdoor unit	U1	Change connection of two wires among three for correct phasing.
Electric power for outdoor or indoor unit is not supplied. (Including open phase)	U4	Check that the power cable for outdoor unit is connected properly.
Incorrect wiring between units	UF	Check that the wiring between units corresponds correctly to refrigerant piping system.
Refrigerant overcharge	E3 F6 UF	Compute again optimum amount of refrigerant to be added based on the piping length, then, collect the excessive amount by using refrigerant collector to make the refrigerant amount proper.
Insufficient refrigerant	E4 F3	- Check that additional charging has been carried out. - Compute again the refrigerant amount to be added based on the piping length, and charge proper amount of refrigerant additionally.

1.1.4 Confirmation on Normal Operation

- Conduct normal unit operation after the check operation has been completed.
  (When outdoor air temperature is 75°F or higher, the unit can not be operated with heating mode. See the instruction manual attached.)
  Confirm that the indoor/outdoor units can be operated normally.
  (When an abnormal noise due to liquid compression by the compressor can be heard, stop the unit immediately, and turn on the crankcase heater to heat up it sufficiently, then start operation again.)
- Operate indoor unit one by one to check that the corresponding outdoor unit operates.
- Confirm that the indoor unit discharges cold air (or warm air).
- Operate the air direction control button and flow rate control button to check the function of the devices.

1.2 Operation When Power is Turned On

1.2.1 When Turning On Power First Time

The unit cannot be run for up to 12 minutes to automatically set the master power and address (indoor-outdoor address, etc.).

Status

Outdoor unit	Test lamp H2P .... Blinks Can also be set during operation described above.
Indoor unit	If ON button is pushed during operation described above, the “UH” malfunction indicator blinks. (Returns to normal when automatic setting is complete.)

1.2.2 When Turning On Power the Second Time and Subsequent

Tap the RESET button on the outdoor unit PC board. Operation becomes possible for about 2 minutes. If you do not push the RESET button, the unit cannot be run for up to 10 minutes to automatically set master power.

Status

Outdoor unit	Test lamp H2P .... Blinks Can also be set during operation described above.
Indoor unit	If ON button is pushed during operation described above, the operation lamp lights but the compressor does not operate. (Returns to normal when automatic setting is complete.)

1.2.3 When an Indoor Unit or Outdoor Unit Has Been Added, or Indoor or Outdoor Unit PC Board Has Been Changed

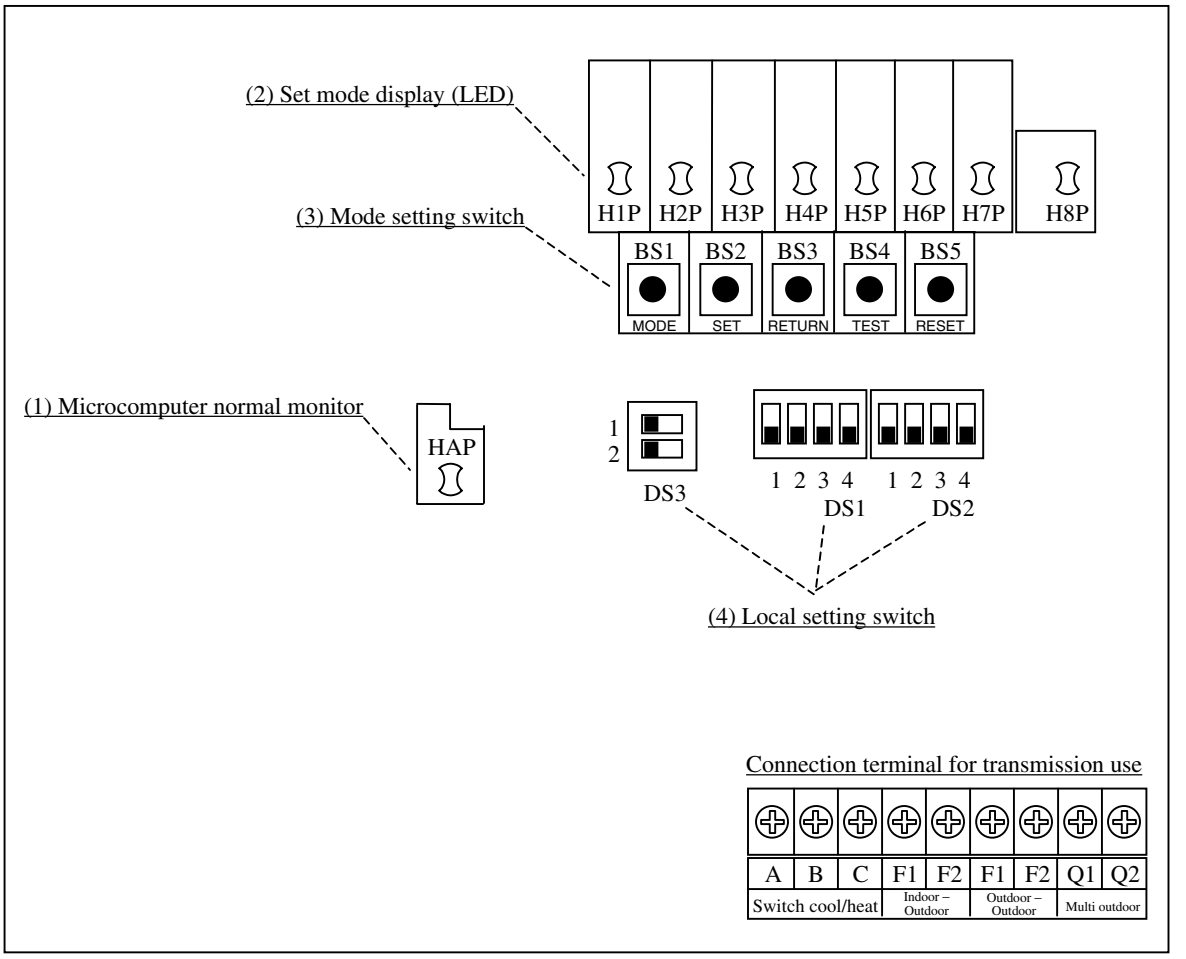
Be sure to push and hold the RESET button for 5 seconds. If not, the addition cannot be recognized. In this case, the unit cannot be run for up to 12 minutes to automatically set the address (indoor-outdoor address, etc.)

Status

Outdoor unit	Test lamp H2P .... ON Can also be set during operation described above.
Indoor unit	If ON button is pushed during operation described above, the “UH” or “U4” malfunction indicator blinks. (Returns to normal when automatic setting is complete.)

2. Outdoor Unit PC Board Layout

Outdoor unit PC board



(V3054)

(1) Microcomputer normal monitor
This monitor blinks while in normal operation, and turns on or off when a malfunction occurs.

(2) Set mode display (LED)
LEDs display mode according to the setting.

(3) Mode setting switch
Used to change mode.

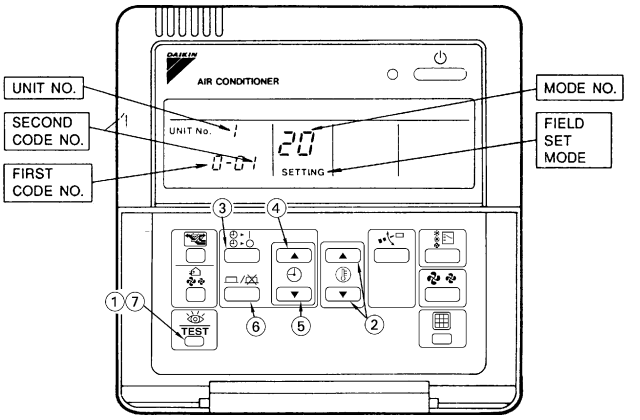
(4) Local setting switch
Used to make local settings.

3. Field Setting

3.1 Field Setting from Remote Controller

Individual function of indoor unit can be changed from the remote controller. At the time of installation or after service inspection / repair, make the local setting in accordance with the following description.
Wrong setting may cause malfunction.
(When optional accessory is mounted on the indoor unit, setting for the indoor unit may be required to change. Refer to information in the option handbook.)

3.1.1 Wired Remote Controller <BRC1C71>



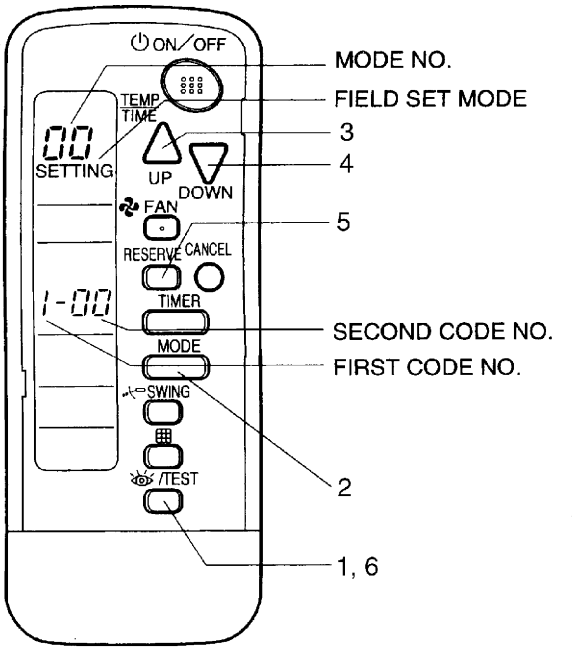
(VL042)

1. When in the normal mode, push the TEST button for 4 seconds or more, and operation then enters the “field set mode.”
2. Select the desired “mode No.” with the button.
3. During group control and you want to set by each individual indoor unit (when mode No. 20, 21, 22, 23, 25 has been selected), push the time mode button and select the “indoor unit No.” to be set.
   Note: This operation is not required when setting as a group.
4. Push the button and select the first code No.
5. Push the button and select the second code No.
6. Push the timer button one time and “define” the currently set contents.
7. Push the TEST button to return to the normal mode.

(Example)
When setting the filter sign time to “Filter Dirtiness-High” in all group unit setting, set the Mode No. to “10”, Mode setting No. to “0” and setting position No. to “02”.

3.1.2 Wireless Remote Controller - Indoor Unit

BRC7C812
BRC4C82
BRC7E818
BRC7E83



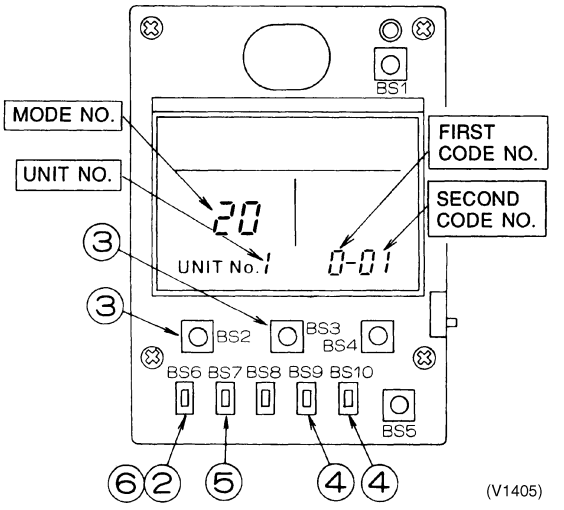
(V2770)

1. When in the normal mode, push the /TEST button for 4 seconds or more, and operation then enters the “field set mode.”
2. Select the desired “mode No.” with the MODE button.
3. Pushing the UP button, select the first code No.
4. Pushing the DOWN button, select the second code No.
5. Push the timer RESERVE button and check the settings.
6. Push the /TEST button to return to the normal mode.

(Example)
When setting the filter sign time to “Filter Dirtiness-High” in all group unit setting, set the Mode No. to “10”, Mode setting No. to “0” and setting position No. to “02”.

3.1.3 Simplified Remote Controller

BRC2A71



■ Group No. setting by simplified remote controller.

1. Remove the cover of remote controller.
2. While in normal mode, press the [BS6] BUTTON (field set) to enter the FIELD SET MODE.
3. Select the mode No. [00] with [BS2] BUTTON (temperature setting ▲) and [BS3] BUTTON (temperature setting ▼).
4. Select the group No. with [BS9] BUTTON (set A) and [BS10] BUTTON (set B). (Group Nos. increase in the order of 1-00, 1-01.....1-15, 2-00,.....4-15. However, the unified ON/OFF controller displays only group No. set within the range of control.)
5. Press [BS7] BUTTON (set/cancel) to set group No.
6. Press [BS6] BUTTON (field set) to return to the NORMAL MODE.

3.1.4 Setting Contents and Code No. – VRV Unit

VRV system indoor unit settings	Mode No. Note 2	Setting Switch No.	Setting Contents		Second Code No.(Note 3)							
					01		02		03		04	
	10(20)	0	Filter contamination heavy/ light (Setting for display time to clean air filter) (Sets display time to clean air filter to half when there is heavy filter contamination.)	Super long life filter	Light	Approx. 10,000 hrs.	Heavy	Approx. 5,000 hrs.	—		—	
				Long life filter		Approx. 2,500 hrs.		Approx. 1,250 hrs.				
				Standard filter		Approx. 200 hrs.		Approx. 100 hrs.				
		1	Long life filter type		Long life filter		Super long life filter		—		—	
		2	Thermostat sensor in remote controller		Use		No use		—			
		3	Display time to clean air filter calculation (Set when filter sign is not to be displayed.)		Display		No display		—			
	12(22)	0	Optional accessories output selection (field selection of output for adaptor for wiring)		Indoor unit turned ON by thermostat				Operation output		Malfunction output	
		1	ON/OFF input from outside (Set when ON/OFF is to be controlled from outside.)		Forced OFF		ON/OFF control		External protection device input		—	
		2	Thermostat differential changeover (Set when remote sensor is to be used.) Note6		2°F		1°F		—		—	
		3	OFF by thermostat fan speed		LL		Set fan speed		—		—	
		4	Automatic mode differential (automatic temperature differential setting for VRV system heat recovery series cool/heat)		01:0	02:1	03:2	04:3	05:4	06:5	07:6	08:7
		5	Power failure automatic reset		Not equipped		Equipped		—		—	
	13(23)	0	High air outlet velocity (Set when installed in place with ceiling higher than 2.7 m.)		N		H		S		—	
		1	Selection of air flow direction (Set when a blocking pad kit has been installed.)		F (4 directions)		T (3 directions)		W (2 directions)		—	
		3	Air flow direction adjustment (Set at installation of decoration panel.)		Equipped		Not equipped				—	
		4	Field set air flow position setting		Draft prevention		Standard		Ceiling Soiling prevention		—	
		5	Field set fan speed selection (fan speed control by air discharge outlet for phase control)		Standard		Optional accessory 1		Optional accessory 2		—	
	15(25)	1	Thermostat OFF excess humidity		Not equipped		Equipped		—		—	
		2	Direct duct connection (when the indoor unit and heat reclaim ventilation unit are connected by duct directly.) ∗Note 6		Not equipped		Equipped		—		—	
		3	Drain pump humidifier interlock selection		Not equipped		Equipped		—		—	
		5	Field set selection for individual ventilation setting by remote controller		Not equipped		Equipped		—		—	
		6	Field set selection for individual ventilation setting by remote controller		Not equipped		Equipped		—		—	

Note:
1. Settings are made simultaneously for the entire group, however, if you select the mode No. inside parentheses, you can also set by each individual unit. Setting changes however cannot be checked except in the individual mode for those in parentheses.
2. The mode numbers inside parentheses cannot be used by wireless remote controllers, so they cannot be set individually. Setting changes also cannot be checked.
3. Marked ▭ are factory set.
4. Do not make settings other than those described above. Nothing is displayed for functions the indoor unit is not equipped with.
5. “88” may be displayed to indicate the remote controller is resetting when returning to the normal mode.
6. This setting is only applicable to FXFQ and FXHQ type.
7. If the setting mode to “Equipped”, heat reclaim ventilation fan conducts the fan residual operation by linking to indoor unit.

3.1.5 Applicable Range of Field Setting

	Ceiling mounted cassette type Multi flow	Slim Ceiling mounted duct type	Ceiling mounted built-in type	Ceiling mounted duct type	Ceiling suspended type	Wall mounted type	Floor standing type	Concealed Floor standing type
	FXFQ	FXDQ	FXSQ	FXMQ	FXHQ	FXAQ	FXLQ	FXNQ
Filter sign	○	○	○	○	○	○	○	○
Ultra long life filter sign	○	—	—	—	—	—	—	—
Remote controller thermostat sensor	○	○	○	○	○	○	○	○
Set fan speed when thermostat OFF	○	○	○	○	○	○	○	○
Air flow adjustment Ceiling height	○	—	—	—	○	○	—	—
Air flow direction	○	—	—	—	—	—	—	—
Air flow direction adjustment (Down flow operation)	—	—	—	—	—	—	—	—
Air flow direction adjustment range	○	○*1	—	—	—	—	—	—

*1. Static pressure selection

3.1.6 Detailed Explanation of Setting Modes

Filter Sign Setting

If switching the filter sign ON time, set as given in the table below.

Set Time

Filter Specs. / Setting	Standard	Long Life	Ultra Long Life Filter
Contamination Light	200 hrs.	2,500 hrs.	10,000 hrs.
Contamination Heavy	100 hrs.	1,250 hrs.	5,000 hrs.

Ultra-Long-Life Filter Sign Setting

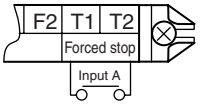
When a Ultra-long-life filter is installed, the filter sign timer setting must be changed.

Setting Table

Mode No.	Setting Switch No.	Setting Position No.	Setting
10 (20)	1	01	Long-Life Filter
		02	Ultra-Long-Life Filter (1)
		03	—

External ON/OFF input

This input is used for "ON / OFF operation" and "Protection device input" from the outside. The input is performed from the T1-T1 terminal of the operation terminal block (X1A) in the electric component box.



Setting Table

Mode No.	Setting Switch No.	Setting Position No.	Operation by input of the signal A
12 (22)	1	01	ON: Forced stop (prohibition of using the remote controller) OFF: Permission of using the remote controller
		02	OFF → ON: Permission of operation ON → OFF: Stop
		03	ON: Operation OFF: The system stops, then the applicable unit indicates "A0". The other indoor units indicate "U9".

Fan Speed Changeover When Thermostat is OFF

By setting to “Set Fan Speed,” you can switch the fan speed to the set fan speed when the heating thermostat is OFF.

∗ Since there is concern about draft if using “fan speed up when thermostat is OFF,” you should take the setup location into consideration.

Setting Table

Mode No.	First Code No.	Second Code No.	Setting
12(22)	3	01	LL Fan Speed
		02	Set Fan Speed

Auto restart after power failure reset

For the air conditioners with no setting for the function (same as factory setting), the units will be left in the stop condition when the power supply is reset automatically after power failure reset or the main power supply is turned on again after once turned off. However, for the air conditioners with the setting, the units may start automatically after power failure reset or the main power supply turned on again (return to the same operation condition as that of before power failure).

For the above reasons, when the unit is set enabling to utilize “Auto restart function after power failure reset”, utmost care should be paid for the occurrence of the following situation.

Caution

1. The air conditioner starts operation suddenly after power failure reset or the main power supply turned on again. Consequently, the user might be surprised (with question for the reason why).

2. In the service work, for example, turning off the main power switch during the unit is in operation, and turning on the switch again after the work is completed start the unit operation (the fan rotates).

Air Flow Adjustment - Ceiling height

Make the following setting according to the ceiling height. The setting position No. is set to “01” at the factory.

■ **In the Case of FXAQ07~24, FXHQ12~36**

Mode No.	Setting Switch No.	Setting Position No.	Setting
13(23)	0	01	Wall-mounted type: Standard
		02	Wall-mounted type: Slight increase
		03	Wall-mounted type: Normal increase

■ **In the Case of FXFQ12~36**

Mode No.	First code No.	Second code No.	Setting	Ceiling height		
				4-way Outlets	3-way Outlets	2-way Outlets
13 (23)	0	01	Standard (N)	Lower than 2.7 m	Lower than 3.0 m	Lower than 3.5 m
		02	High Ceiling (H)	Lower than 3.0 m	Lower than 3.3 m	Lower than 3.8 m
		03	Higher Ceiling (S)	Lower than 3.5 m	Lower than 3.5 m	—

Air Flow Direction Setting

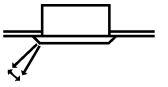
Set the air flow direction of indoor units as given in the table below. (Set when optional air outlet blocking pad has been installed.) The second code No. is factory set to “01.”

Setting Table

Mode No.	First Code No.	Second Code No.	Setting
13 (23)	1	01	F : 4-direction air flow
		02	T : 3-direction air flow
		03	W : 2-direction air flow

Setting of Air Flow Direction Adjustment Range

Make the following air flow direction setting according to the respective purpose.



(S2537)

Setting Table

Mode No.	First Code No.	Second Code No.	Setting
13 (23)	4	01	Upward (Draft prevention)
		02	Standard
		03	Downward (Ceiling soiling prevention)

Air flow rate switching at discharge grille for field air flow rate switching

When the optional parts (high performance filter, etc.) is installed, sets to change fan speed for securing air flow rate.

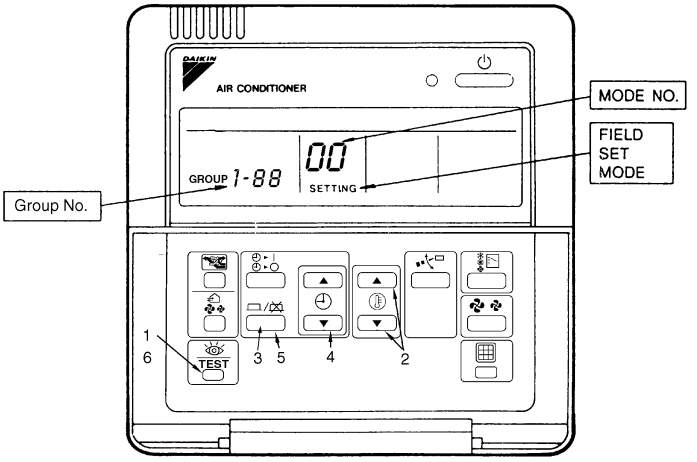
Follow the instruction manual for the optional parts to enter the setting numbers.

3.1.7 Centralized Control Group No. Setting

BRC1C Type

- If carrying out centralized control by central remote controller or unified ON/OFF controller, group No. must be set for each group individually by remote controller.
- Group No. setting by remote controller for centralized control

1. When in the normal mode, push the TEST button for 4 seconds or more, and operation then enters the “field setting mode.”
2. Set mode No. “00” with the button. *
3. Push the button to inspect the group No. display.
4. Set the group No. for each group with the button (The group No. increases in the manner of 1-00, 1-01, ...,1-15, 2-00,...4-15. However, the unified ON/OFF controller displays only the group No. within the range selected by the switch for setting each address.)
5. Push the timer button to define the selected group No.
6. Push the TEST button to return to the normal mode.



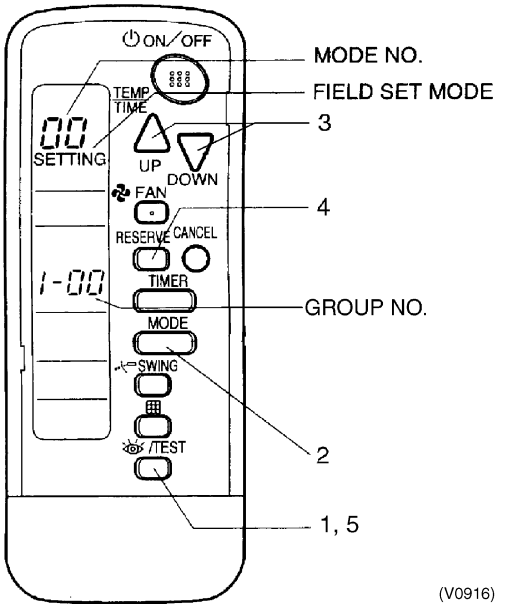
(S1095)

- Even if not using a remote controller, connect the remote controller when setting the group No., set the group No. for centralized control, and disconnect after making the setting.
- Set the group No. after turning on the power supply for the central remote controller, unified ON/OFF controller, and indoor unit.

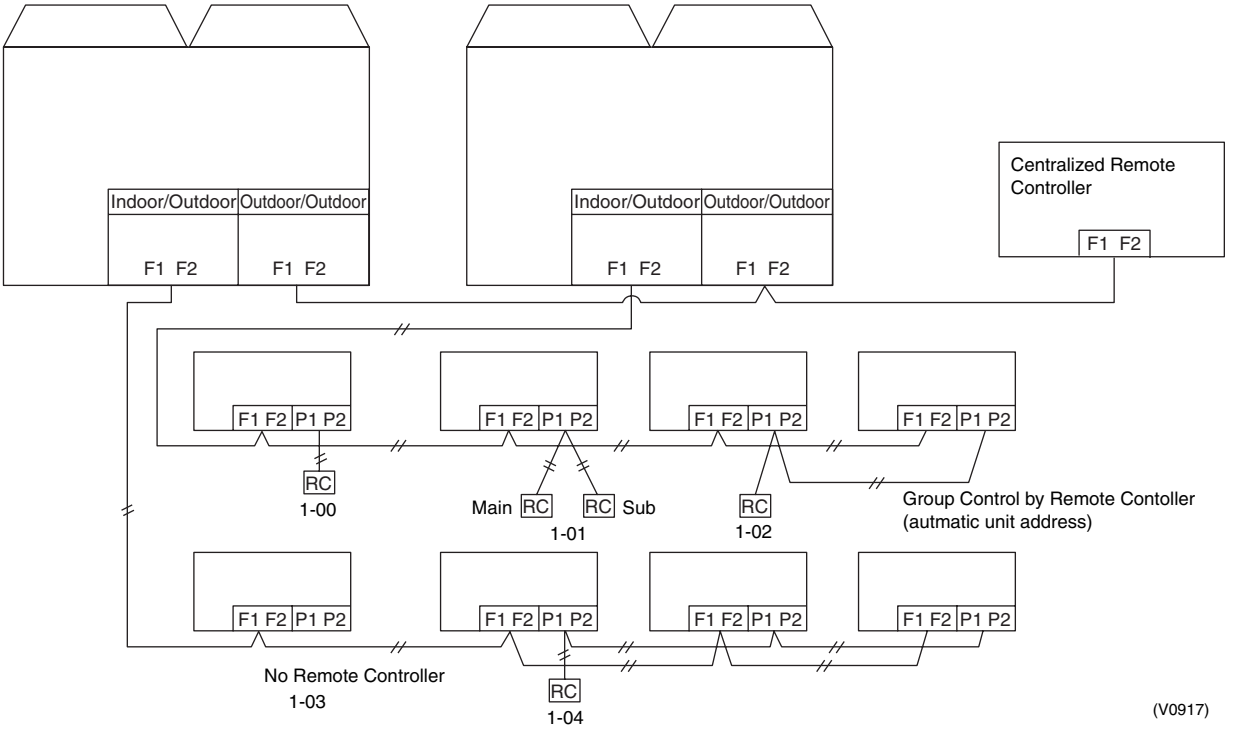
BRC7C Type
BRC4C Type
BRC7E Type

■ Group No. setting by wireless remote controller for centralized control

1. When in the normal mode, push /TEST button for 4 seconds or more, and operation then enters the “field set mode.”
2. Set mode No. “00” with MODE button.
3. Set the group No. for each group with UP DOWN button (advance/backward).
4. Enter the selected group numbers by pushing RESERVE button.
5. Push /TEST button and return to the normal mode.



Group No. Setting Example



Caution When turning the power supply on, the unit may often not accept any operation while "88" is displaying after all indications were displayed once for about 1 minute on the liquid crystal display. This is not an operative fault.

3.1.8 Setting of Operation Control Mode from Remote Controller (Local Setting)

The operation control mode is compatible with a variety of controls and operations by limiting the functions of the operation remote controller. Furthermore, operations such as remote controller ON/OFF can be limited in accordance with the combination conditions. (Refer to information in the table below.)
Centralized controller is normally available for operations. (Except when centralized monitor is connected)

3.1.9 Contents of Control Modes

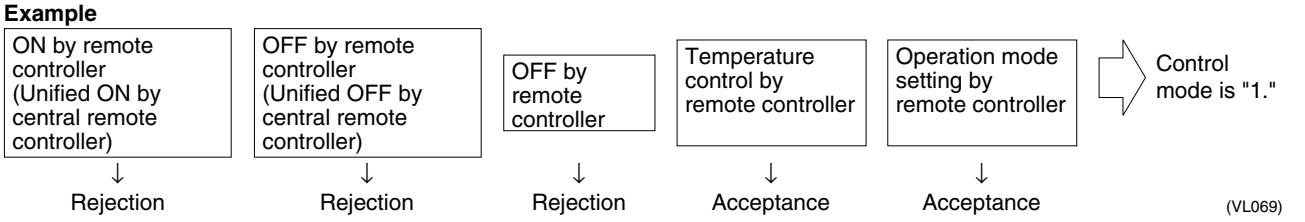
Twenty modes consisting of combinations of the following five operation modes with temperature and operation mode setting by remote controller can be set and displayed by operation modes 0 through 19.

- ON/OFF control impossible by remote controller
  Used when you want to turn on/off by central remote controller only.
  (Cannot be turned on/off by remote controller.)
- OFF control only possible by remote controller
  Used when you want to turn on by central remote controller only, and off by remote controller only.
- Centralized
  Used when you want to turn on by central remote controller only, and turn on/off freely by remote controller during set time.
- Individual
  Used when you want to turn on/off by both central remote controller and remote controller.
- Timer operation possible by remote controller
  Used when you want to turn on/off by remote controller during set time and you do not want to start operation by central remote controller when time of system start is programmed.

How to Select Operation Mode

Whether operation by remote controller will be possible or not for turning on/off, controlling temperature or setting operation mode is selected and decided by the operation mode given on the right edge of the table below.

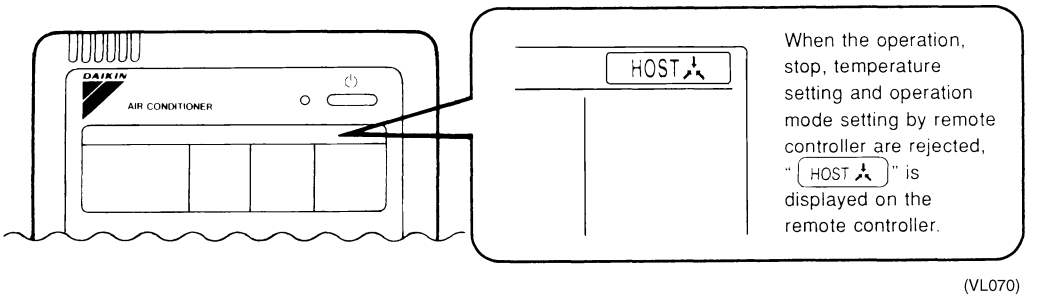
Example



Control mode	Control by remote controller					Control mode
	Operation		OFF	Temperature control	Operation mode setting	
	Unified operation, individual operation by central remote controller, or operation controlled by timer	Unified OFF, individual stop by central remote controller, or timer stop				
ON/OFF control impossible by remote controller	Rejection (Example)	Rejection (Example)	Rejection (Example)	Rejection	Acceptance	0
					Rejection	10
				Acceptance (Example)	Acceptance (Example)	1(Example)
					Rejection	11
OFF control only possible by remote controller			Acceptance	Rejection	Acceptance	2
					Rejection	12
				Acceptance	Acceptance	3
					Rejection	13
Centralized	Acceptance			Rejection	Acceptance	4
					Rejection	14
				Acceptance	Acceptance	5
					Rejection	15
Individual		Acceptance		Rejection	Acceptance	6
					Rejection	16
				Acceptance	Acceptance	7 ∗1
					Rejection	17
Timer operation possible by remote controller	Acceptance (During timer at ON position only)	Acceptance (During timer at ON position only)		Rejection	Acceptance	8
					Rejection	18
				Acceptance	Acceptance	9
					Rejection	19

Do not select “timer operation possible by remote controller” if not using a remote controller. Operation by timer is impossible in this case.

∗1. Factory setting



(VL070)

3.2 Field Setting from Outdoor Unit

3.2.1 Field Setting from Outdoor Unit

■ **Setting by dip switches**

The following field settings are made by dip switches on PC board.

Dipswitch		Setting item	Description
No.	Setting		
DS1-1	ON OFF (Factory set)	Not used	Do not change the factory settings.
DS1-2 ~DS1-4	ON OFF (Factory set)	Not used	Do not change the factory settings.
DS2-1 ~4	ON OFF (Factory set)	Not used	Do not change the factory settings.
DS3-1, 2	ON OFF (Factory set)	Not used	Do not change the factory settings.

Caution

DIP switch Setting after changing the main P.C.Board(A1P) to spare parts P.C.B.

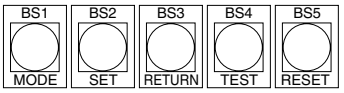
When you change the main P.C.Board(A1P) to spare parts P.C.B., please carry out the following setting.

DIP Switch Detail

DS No.	Item	Contents	
DS1-1	—	—	
DS1-2	Power supply setting	ON	3 phase 200 Volt area
		OFF	3 phase 400 Volt area
DS1-3	—	—	
DS1-4 DS2-1	Refrigerant classification (Do not set)	R-410A DS1-4 OFF DS2-1 ON	
DS2-2 DS2-3 DS2-4	Capacity setting	72, 96 DS2-2 OFF DS2-3 OFF DS2-4 ON	

■ Setting by pushbutton switches

The following settings are made by pushbutton switches on PC board.



There are the following three setting modes.

① **Setting mode 1 (H1P off)**

Initial status (when normal) : Indicates during “abnormal”, “low noise control” and “demand control”.

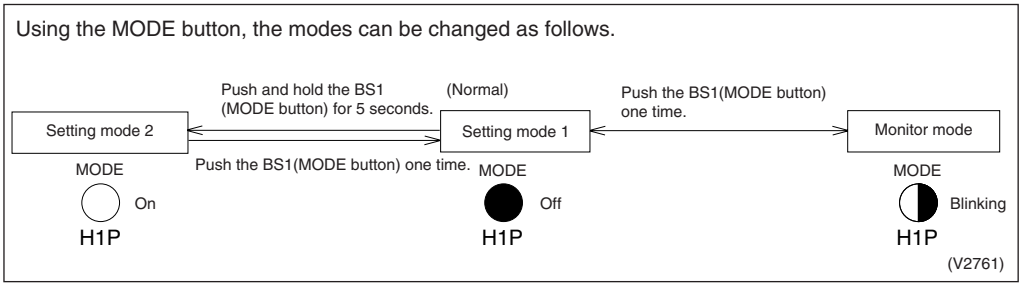
② **Setting mode 2 (H1P on)**

Used to modify the operating status and to set program addresses, etc. Usually used in servicing the system.

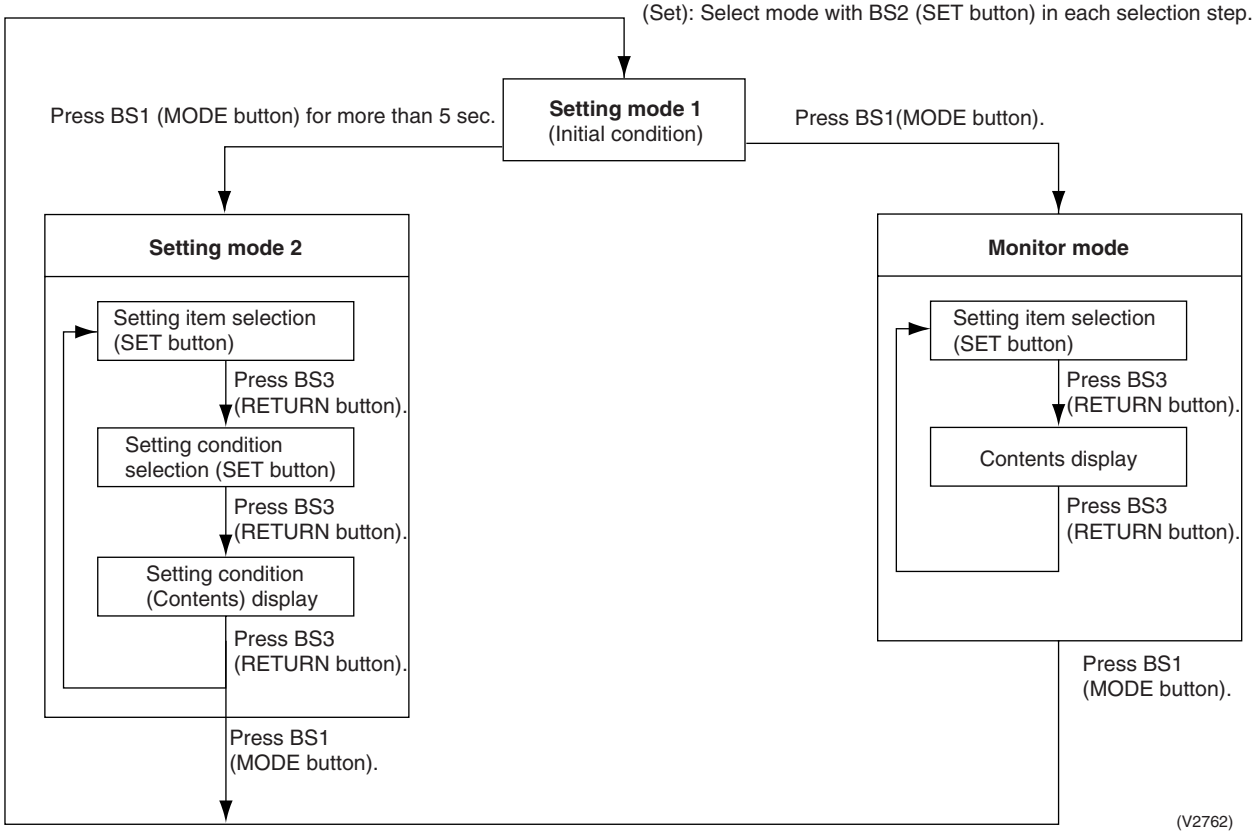
③ **Monitor mode (H1P blinks)**

Used to check the program made in Setting mode 2.

■ Mode changing procedure



■ Mode changing procedure



a. “Setting mode 1”

Normally, “Setting mode 1” is set. In case of other status, push MODE button (BS1) one time and set to “Setting mode 1”.

<Selection of setting items>

Push the SET button (BS2) and set LED display to a setting item you want.

- Regarding setting item No. 1,5,6, only the present status is displayed. For the respective description, refer to the table shown on lower right.

When the RETURN button (BS3) is pushed, the status becomes the initial status of “Setting mode 1”.

(V2763)

No.	Setting (displaying) item	LED display example						
		H1P	H2P	H3P	H4P	H5P	H6P	H7P
1	Display for malfunction / preparing / test run *	●	●	○	●	●	●	●
2	C/H selector (individual)	●	●	○	●	●	●	●
3	—							
4	—							
5	Low noise operation *	●	●	○	●	●	●	●
6	Demand operation *	●	●	○	●	●	●	●

* Setting No. 1, 5, 6 are the present status display only.

Display for malfunction/preparing/test-run

Normal	●	●	○	●	●	●	●
Malfunction	●	○	○	●	●	●	●
Preparing/Test-run	●	◑	○	●	●	●	●

Display during low noise operation

Normal	●	●	○	●	●	●	●
During low noise operation	●	●	○	●	●	○	●

Display during demand operation

Normal	●	●	○	●	●	●	●
During demand operation	●	●	○	●	●	●	○

○ : ON
● : OFF
◑ : Blinking

b. “Setting mode 2”

Push and hold the MODE button (BS1) for 5 seconds and set to “Setting mode 2”.

<Selection of setting items>

Push the SET button (BS2) and set the LED display to a setting item shown in the table on the right.
↓
Push the RETURN button (BS3) and decide the item. (The present setting condition is blinked.)

<Selection of setting conditions>

Push the SET button (BS2) and set to the setting condition you want.
↓
Push the RETURN button (BS3) and decide the condition.

Push the RETURN button (BS3) and set to the initial status of “Setting mode 2”.

∗ If you become unsure of how to proceed, push the MODE button (BS1) and return to setting mode 1.

(V2764)

No.	Setting item	Description
0	EMG (Emergency operation 1)	Operates by Standard compressor only when inverter compressor malfunctions. Temporary operation until the compressor is replaced. Since the comfortableness is extremely deteriorated, immediately replace the compressor.
1	—	—
2	Low noise/demand address	Address for low noise/demand operation
5	Indoor unit forced fan H	Allows forced operation of indoor unit fan while unit is stopped. (H tap)
6	Indoor unit forced operation	Allows forced operation of indoor unit.
8	Te setting	Target evaporation temperature for cooling
9	Tc setting	Target condensation temperature for heating
10	Defrost changeover setting	Changes the temperature condition for defrost and sets to quick defrost or slow defrost.
11	Sequential operation setting	Sets sequential operation
12	External low noise setting / Demand setting	Reception of external low noise or demand signal
13	AIRNET address	Set address for AIRNET.
18	High static pressure setting	Make this setting in the case of operating in high static pressure mode with diffuser duct mounted.
19	Emergency operation (STD compressor operation prohibited)	Used to operate system only with inverter compressor when STD compressor malfunctions. This is a temporary operation extremely impairing comfortable environment. Therefore, prompt replacement of the compressor is required.
20	Additional refrigerant charge operation setting	Carries out additional refrigerant charge operation.
21	Refrigerant recovery / vacuuming mode setting	Sets to refrigerant collection mode.
22	Night-time low noise setting	Sets automatic nighttime low noise operation in a simple way. The operating time is based on “Starting set” and “Ending set”.
25	Low noise setting	Sets low noise level when the low noise signal is input from outside.
26	Night-time low noise control starting setting	Sets starting time of nighttime low noise operation. (Nighttime low noise setting is also required.)
27	Night-time low noise control ending setting	Sets ending time of nighttime low noise operation. (Nighttime low noise setting is also required.)
28	Power transistor check mode ∗Check after disconnection of compressor wires	Used for trouble diagnosis of DC compressor. Since the waveform of inverter is output without wiring to the compressor, it is convenient to probe whether the trouble comes from the compressor or PC board.
29	Capacity precedence setting	If the capacity control is required, the low noise control is automatically released by this setting during carrying out low noise operation and nighttime low noise operation.
30	Demand setting 1	Changes target value of power consumption when demand control 1 is input.
32	Normal demand setting	Normally enables demand control 1 without external input. (Effective to prevent a problem that circuit breaker of small capacity is shut down due to large load.

○ : ON ● : OFF ◑ : Blink

No.	Setting item display								Setting condition display								
	Setting item	MODE H1P	TEST H2P	C/H selection IND H3P	C/H selection Master H4P	C/H selection Slave H5P	Low noise H6P	Demand H7P									✻ Factory set
0	EMG (emergency operation) INV compressor operation inhibited.	○	●	●	●	●	●	●	Normal operation		○	●	●	●	●	●	○ ✻
									Emergency operation		○	●	●	●	●	○	●
1	—																
2	Low noise/demand address	○	●	●	●	●	○	●	Address Binary number (6 digits)	0	○	●	●	●	●	●	● ✻
										1	○	●	●	●	●	●	○
										~							
										31	○	●	○	○	○	○	○
5	Indoor forced fan H	○	●	●	●	○	●	○	Normal operation		○	●	●	●	●	●	○ ✻
									Indoor forced fan H		○	●	●	●	●	○	●
6	Indoor forced operation	○	●	●	●	○	○	●	Normal operation		○	●	●	●	●	●	○ ✻
									Indoor forced operation		○	●	●	●	●	○	●
8	Te setting	○	●	●	○	●	●	●	High		○	●	●	●	○	●	●
									Normal (factory setting)		○	●	●	●	●	○	● ✻
									Low		○	●	●	●	●	●	○
9	Tc setting	○	●	●	○	●	●	○	High		○	●	●	●	○	●	●
									Normal (factory setting)		○	●	●	●	●	○	● ✻
									Low		○	●	●	●	●	●	○
10	Defrost setting	○	●	●	○	●	○	●	Quick defrost		○	●	●	●	○	●	●
									Normal (factory setting)		○	●	●	●	●	○	● ✻
									Slow defrost		○	●	●	●	●	●	○
11	Sequential operation setting	○	●	●	○	●	○	○	OFF		○	●	●	●	●	●	○
									ON		○	●	●	●	●	○	● ✻
12	External low noise/ demand setting	○	●	●	○	○	●	●	External low noise/demand: NO		○	●	●	●	●	●	○ ✻
									External low noise/demand: YES		○	●	●	●	●	○	●
13	Airnet address	○	●	●	○	○	●	○	Address Binary number (6 digits)	0	○	●	●	●	●	●	● ✻
										1	○	●	●	●	●	●	○
										~							
										63	○	●	○	○	○	○	○
18	High static pressure setting	○	●	○	●	●	○	●	High static pressure setting: OFF		○	●	●	●	●	●	○ ✻
									High static pressure setting: ON		○	●	●	●	●	○	●
19	Emergency operation (STD compressor is inhibited to operate.)	○	●	○	●	●	○	○	OFF		○	●	●	●	●	●	● ✻
									STD 1, 2 operation: Inhibited		○	●	●	●	●	●	○
									STD 2 operation: Inhibited		○	●	●	●	●	○	●
20	Additional refrigerant charge operation setting	○	●	○	●	○	●	●	Refrigerant charging: OFF /vacuuming		○	●	●	●	●	●	○ ✻
									Refrigerant charging: ON /vacuuming		○	●	●	●	●	○	●
21	Refrigerant recovery /vacuuming mode setting	○	●	○	●	○	●	○	Refrigerant recovery: OFF		○	●	●	●	●	●	○ ✻
									Refrigerant recovery: ON		○	●	●	●	●	○	●
22	Night-time low noise setting	○	●	○	●	○	○	●	OFF		○	●	●	●	●	●	● ✻
									Level 1 (outdoor fan with 6 step or lower)		○	●	●	●	●	●	○
									Level 2 (outdoor fan with 5 step or lower)		○	●	●	●	●	○	●
									Level 3 (outdoor fan with 4 step or lower)		○	●	●	●	●	○	○

○ : ON ● : OFF ◑ : Blink

No.	Setting item display								Setting condition display
	Setting item	MODE H1P	TEST H2P	C/H selection IND H3P	C/H selection Master H4P	C/H selection Slave H5P	Low noise H6P	Demand H7P	✻ Factory set
25	Low noise setting	○	●	○	○	●	●	○	Level 1 (outdoor fan with 6 step or lower) ○ ● ● ● ● ● ○ Level 2 (outdoor fan with 5 step or lower) ○ ● ● ● ● ○ ● ✻ Level 3 (outdoor fan with 4 step or lower) ○ ● ● ● ○ ● ●
26	Night-time low noise operation start setting	○	●	○	○	●	○	●	About 20:00 ○ ● ● ● ● ● ○ About 22:00 (factory ○ ● ● ● ● ○ ● ✻ About 24:00 ○ ● ● ● ○ ● ●
27	Night-time low noise operation end setting	○	●	○	○	●	○	○	About 6:00 ○ ● ● ● ● ● ○ About 7:00 ○ ● ● ● ● ○ ● About 8:00 (factory setting) ○ ● ● ● ○ ● ● ✻
28	Power transistor check mode	○	●	○	○	○	●	●	OFF ○ ● ● ● ● ● ○ ✻ ON ○ ● ● ● ● ○ ●
29	Capacity precedence setting	○	●	○	○	○	●	○	OFF ○ ● ● ● ● ● ○ ✻ ON ○ ● ● ● ● ○ ●
30	Demand setting 1	○	●	○	○	○	○	●	60 % demand ○ ● ● ● ● ● ○ 70 % demand ○ ● ● ● ● ○ ● ✻ 80 % demand ○ ● ● ● ○ ● ●
32	Normal demand setting	○	○	●	●	●	●	●	OFF ○ ● ● ● ● ● ○ ✻ ON ○ ● ● ● ● ○ ●
38	Emergency operation (Master unit with multi-outdoor-unit system is inhibited to operate.)	○	○	●	●	○	○	●	OFF ○ ● ● ● ● ● ○ ✻ Master unit operation: Inhibited ○ ● ● ● ● ○ ●
39	Emergency operation (Slave unit 1 with multi-outdoor-unit system is inhibited to operate.)	○	○	●	●	○	○	○	OFF ○ ● ● ● ● ● ○ ✻ Slave unit 1 operation: Inhibited ○ ● ● ● ● ○ ●

c. Monitor mode

To enter the monitor mode, push the MODE button (BS1) when in "Setting mode 1".

<Selection of setting item>

Push the SET button (BS2) and set the LED display to a setting item.

<Confirmation on setting contents>

Push the RETURN button (BS3) to display different data of set items.

Push the RETURN button (BS3) and switches to the initial status of "Monitor mode".

∗ Push the MODE button (BS1) and returns to "Setting mode 1".

(V2765)

○ : ON ● : OFF ◑ : Blink

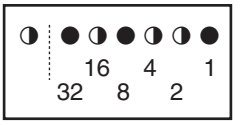
No.	Setting item	LED display							Data display
		H1P	H2P	H3P	H4P	H5P	H6P	H7P	
0	Number of units for sequential starting, and others	◑	●	●	●	●	●	●	See below
1	—								Lower 6 digits
2	Low noise/demand address	◑	●	●	●	●	○	●	
3	Not used	◑	●	●	●	●	○	○	
4	Airnet address	◑	●	●	●	○	●	●	
5	Number of connected indoor units	◑	●	●	●	○	●	○	
6	Number of connected BS units	◑	●	●	●	○	○	●	
7	Number of connected zone units (excluding outdoor and BS unit)	◑	●	●	●	○	○	○	
8	Number of outdoor units	◑	●	●	○	●	●	●	
9	Number of connected BS units	◑	●	●	○	●	●	○	Lower 4 digits: upper
10	Number of connected BS units	◑	●	●	○	●	○	●	Lower 4 digits: lower
11	Number of zone units (excluding outdoor and BS unit)	◑	●	●	○	●	○	○	Lower 6 digits
12	Number of terminal blocks	◑	●	●	○	○	●	●	Lower 4 digits: upper
13	Number of terminal blocks	◑	●	●	○	○	●	○	Lower 4 digits: lower
14	Contents of malfunction (the latest)	○	●	●	○	○	○	●	Malfunction code table
15	Contents of malfunction (1 cycle before)	○	●	●	○	○	○	○	Refer page 125, 126.
16	Contents of malfunction (2 cycle before)	○	●	○	●	●	●	●	
20	Contents of retry (the latest)	○	●	○	●	○	●	●	
21	Contents of retry (1 cycle before)	○	●	○	●	○	●	○	
22	Contents of retry (2 cycle before)	○	●	○	●	○	○	●	

Setting item 0 Display contents of "Number of units for sequential start, and others"

Number of units for sequential start	1 unit	◑	●	●	●	●	●	●
	2 units	◑	●	◑	●	●	●	●
	3 units	◑	●	○	●	●	●	●
EMG operation /backup operation setting	ON	◑	●	●	○	●	●	●
	OFF	◑	●	●	●	●	●	●
Defrost select setting	Short	◑	●	●	●	○	●	●
	Medium	◑	●	●	●	◑	●	●
	Long	◑	●	●	●	●	●	●
Te setting	H	◑	●	●	●	●	○	●
	M	◑	●	●	●	●	◑	●
	L	◑	●	●	●	●	●	●
Tc setting	H	◑	●	●	●	●	●	○
	M	◑	●	●	●	●	●	◑
	L	◑	●	●	●	●	●	●

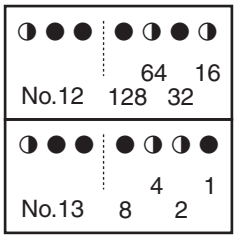
Push the SET button and match with the LEDs No. 1 - 15, push the RETURN button, and enter the data for each setting.

★ Data such as addresses and number of units is expressed as binary numbers; the two ways of expressing are as follows:



The No. 1 cool/heat unified address is expressed as a binary number consisting of the lower 6 digits. (0 - 63)

In ① the address is 010110 (binary number), which translates to 16 + 4 + 2 = 22 (base 10 number). In other words, the address is 22.



The number of terminal blocks for No. 12 and 13 is expressed as an 8-digit binary number, which is the combination of four upper, and four lower digits for No. 12 and 13 respectively. (0 - 128)
In ② the address for No. 12 is 0101, the address for No. 13 is 0110, and the combination of the two is 01010110 (binary number), which translates to 64 + 16 + 4 + 2 = 86 (base 10 number). In other words, the number of terminal block is 86.

★ See the preceding page for a list of data, etc. for No. 0 - 22.

3.2.2 Cool / Heat Mode Switching

Set Cool/Heat Separately for Each BS Unit by Cool/Heat Selector.

Set remote controller change over switch (SS1, SS2) as following:

- When using COOL/HEAT selector, turn this switch to the BS side.

NOTE: This setting must be completed before turning power supply ON.

When using cool/heat selector, connect to the terminal A, B and C on the EC of the electric parts box.

EXAMPLE OF TRANSMISSION LINE CONNECTION

- Example of connecting transmission wiring.
  Connect the transmission wirings as shown in the Fig. 1.

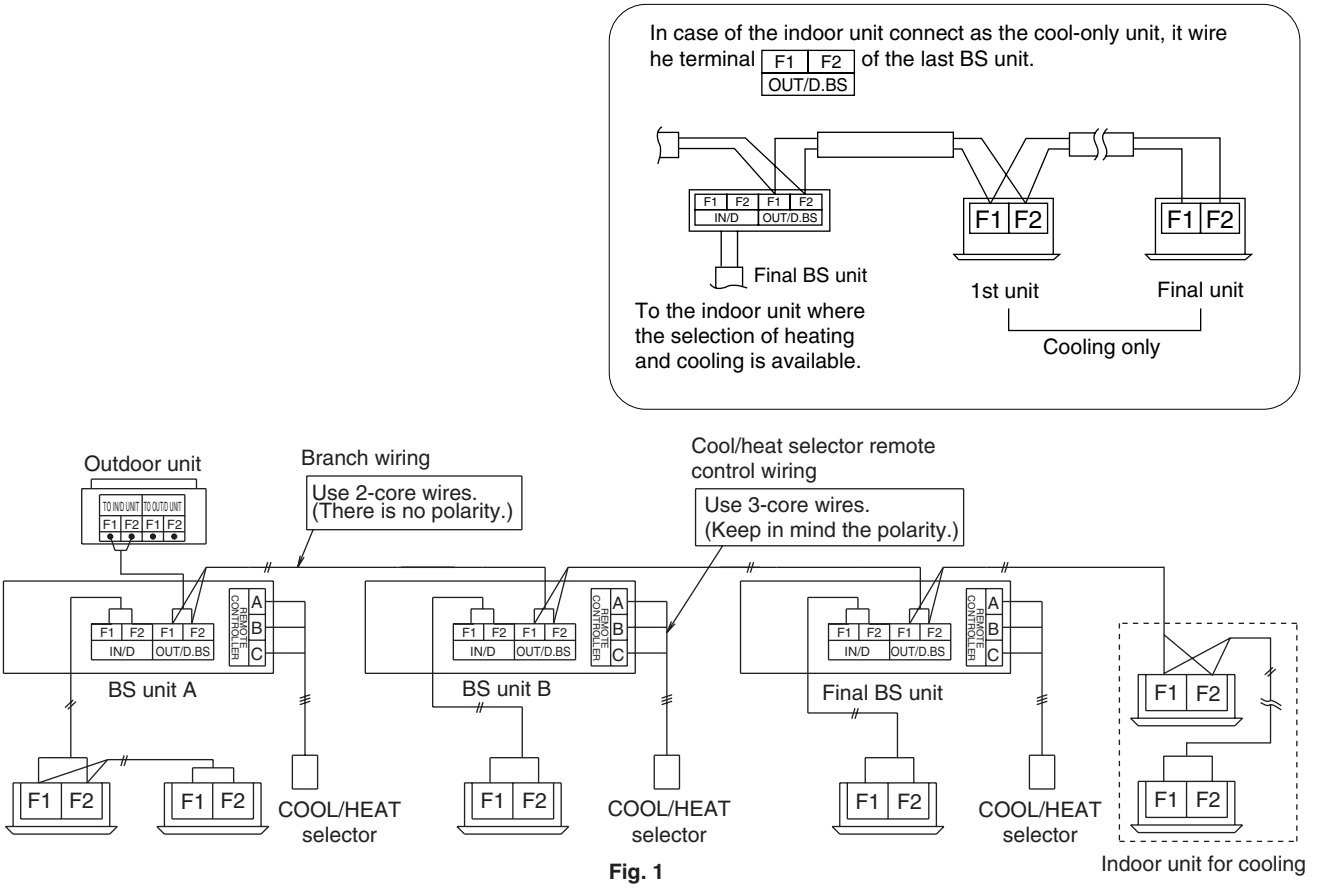


Fig. 1

3.2.3 Setting of Low Noise Operation and Demand Operation

Setting of Low Noise Operation

By connecting the external contact input to the low noise input of the external control adapter for outdoor unit (optional), you can lower operating noise by 2-3 dB.

A. When the low noise operation is carried out by external instructions (with the use of the external control adapter for outdoor unit)

1. Set “External low noise / Demand YES/NO setting” to “External low noise / Demand YES”. (Set by Setting Mode 2)
2. Set “External low noise level setting” on the outdoor unit PC board, as the need arises. (Lower noise operation can be carried out by “Mode 2” than by “Mode 1”, and by “Mode 3” than by “Mode 2”.)
3. Set “Capacity precedence setting” on the outdoor unit PC board, as the need arises. (If set to “ON”, when air conditioning load gets higher, the low noise instructions are neglected to switch to normal operation.) (Set by Setting Mode 2)

B. When the low noise operation is carried out automatically at night (The external control adapter for outdoor unit is not required)

1. Set “Night-time low noise setting” on the outdoor unit PC board. (Set by Setting Mode 2) (Lower noise operation can be carried out by “Mode 2” than by “Mode 1”, and by “Mode 3” than by “Mode 2”.)
2. Set “Night-time low noise start setting” on the outdoor unit PC board, as the need arises. (Set by Setting Mode 2)
   (Since the time is presumed in accordance with the outdoor temperature, the starting time is a target only.)
3. Set “Night-time low noise end setting” on the outdoor unit PC board, as the need arises. (Set by Setting Mode 2)
   (Since the time is presumed in accordance with the outdoor temperature, the ending time is a target only.)
4. Set “Capacity precedence setting” on the outdoor unit PC board, as the need arises. (Set by Setting Mode 2)
   (If set to “ON”, when air conditioning load gets higher, the status is switched to normal operation even at night.)

Image of operation in the case of A

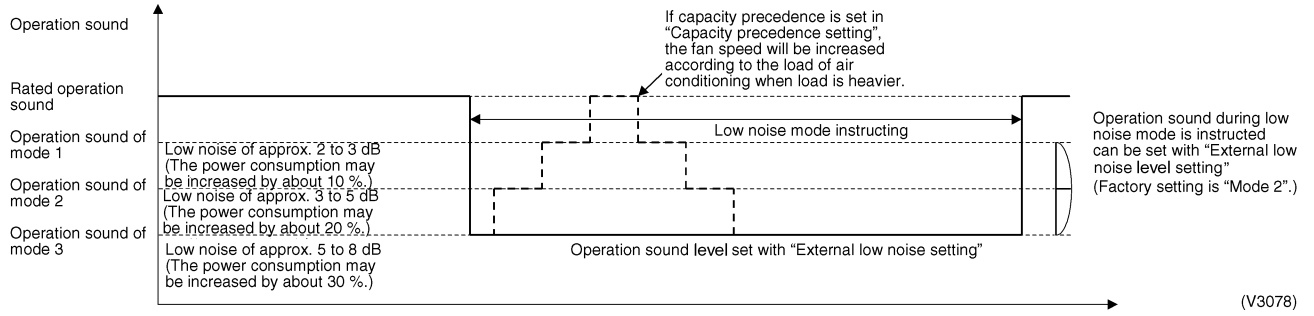


Image of operation in the case of B

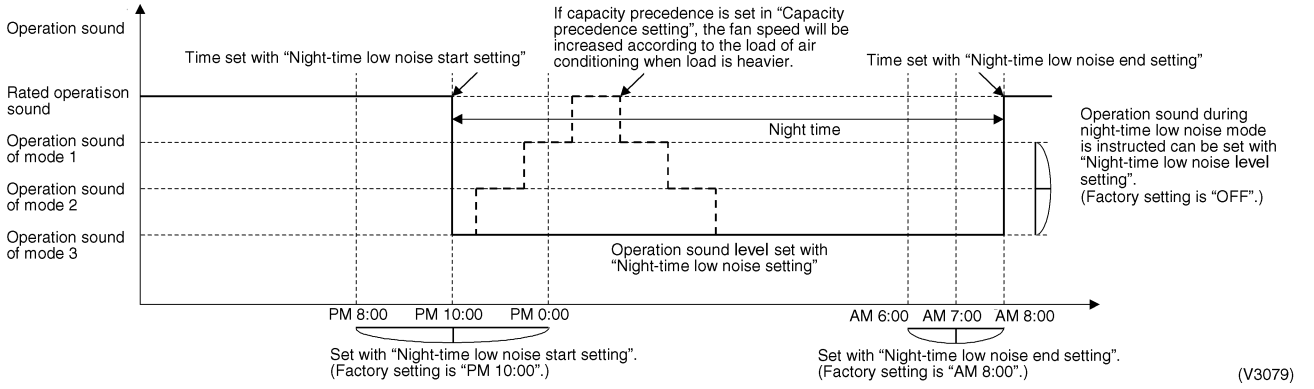
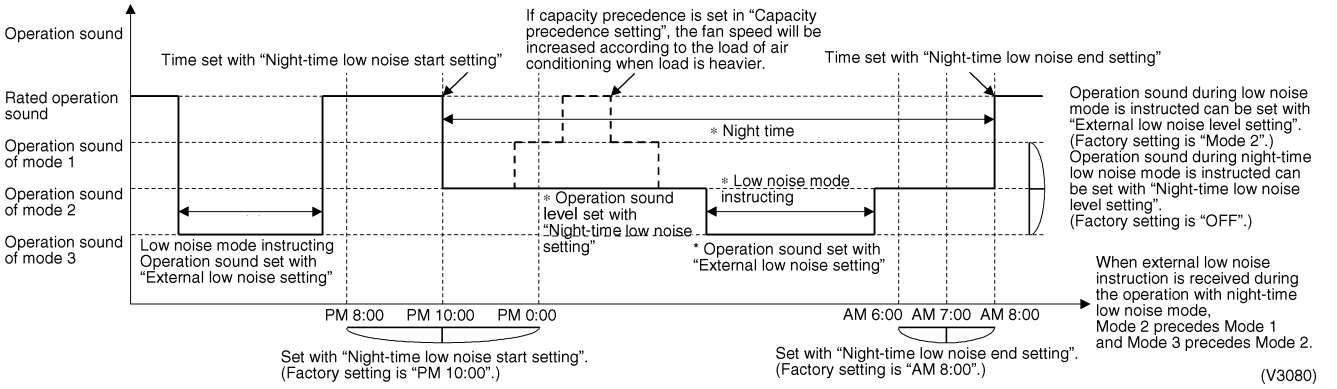


Image of operation in the case of A and B



Setting of Demand Operation

By connecting the external contact input to the demand input of the outdoor unit external control adapter (optional), the power consumption of unit operation can be saved suppressing the compressor operating condition.

A. When the demand operation is carried out by external instructions (with the use of the external control adapter for outdoor unit).

1. Set the "External low noise/Demand YES/NO setting" switch on the outdoor unit PC board to the "External low noise/Demand YES".
   (Set by Setting Mode 2)
2. Set the "Demand 1 level setting" on the outdoor unit PC board, as the need arises.
   (During the demand level 1 instruction, the power consumption can be saved to 80 %, 70 % or 60 % of the rated value respectively.)

B. When the normal demand operation is carried out. (Use of the external control adapter for outdoor unit is not required.)

1. Set the "Normal demand setting" on the outdoor unit PC board.
2. Set the "Demand 1 setting" on the outdoor unit PC board, as the need arises.
   (During the normal demand setting operation, the power consumption can be saved to 80%, 70 % or 60 % of the rated value respectively.)

Image of operation in the case of A

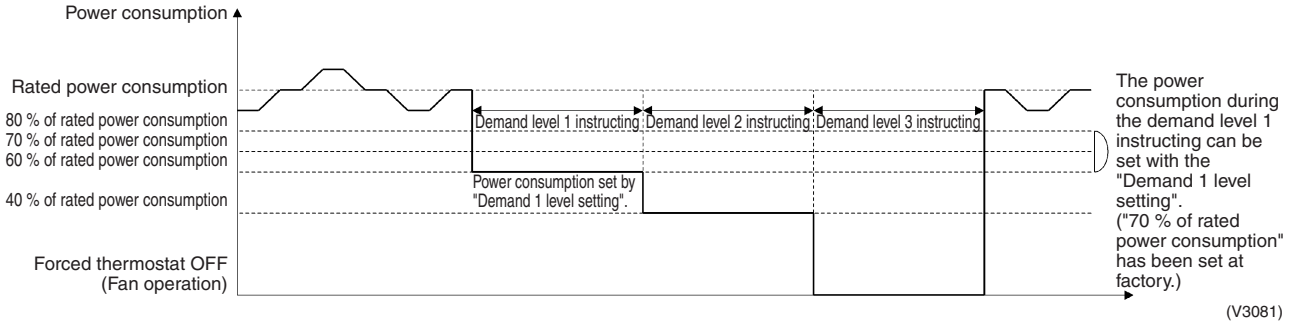


Image of operation in the case of B

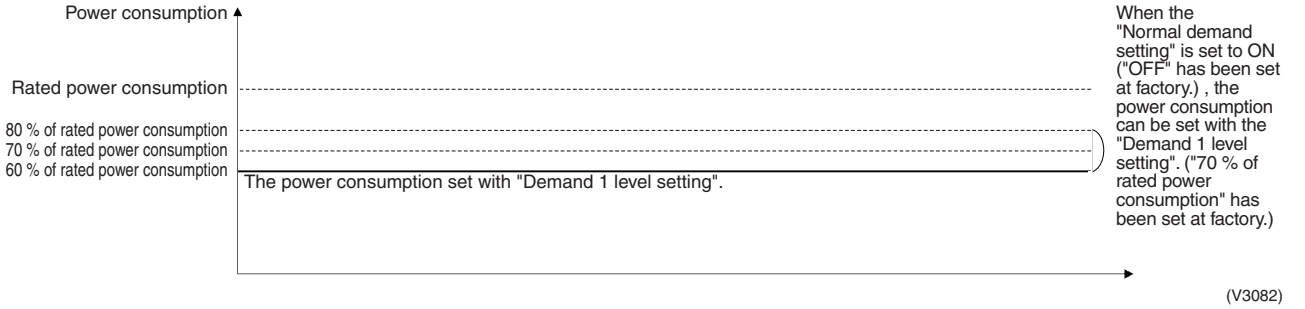
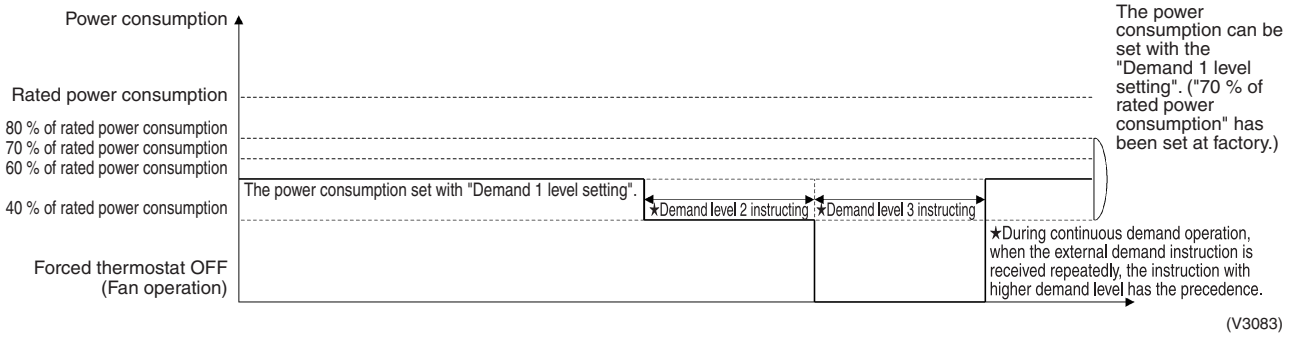


Image of operation in the case of A and B



Detailed Setting Procedure of Low Noise Operation and Demand Control

1. Setting mode 1 (H1P off)

① In setting mode 2, push the BS1 (MODE button) one time. → Setting mode 2 is entered and H1P lights.
During the setting mode 1 is displayed, “In low noise operation” and “In demand control” are displayed.

2. Setting mode 2 (H1P on)

① In setting 1, push and hold the BS1 (MODE button) for more than 5 seconds. → Setting mode 2 is entered and H1P lights.
② Push the BS2 (SET button) several times and match the LED display with the Setting No. you want.
③ Push the BS3 (RETURN button) one time, and the present setting content is displayed.
→ Push the BS2 (SET button) several times and match the LED display with the setting content (as shown below) you want.
④ Push the BS3 (RETURN button) two times. → Returns to ①.
⑤ Push the BS1 (MODE button) one time. → Returns to the setting mode 1 and turns H1P off.

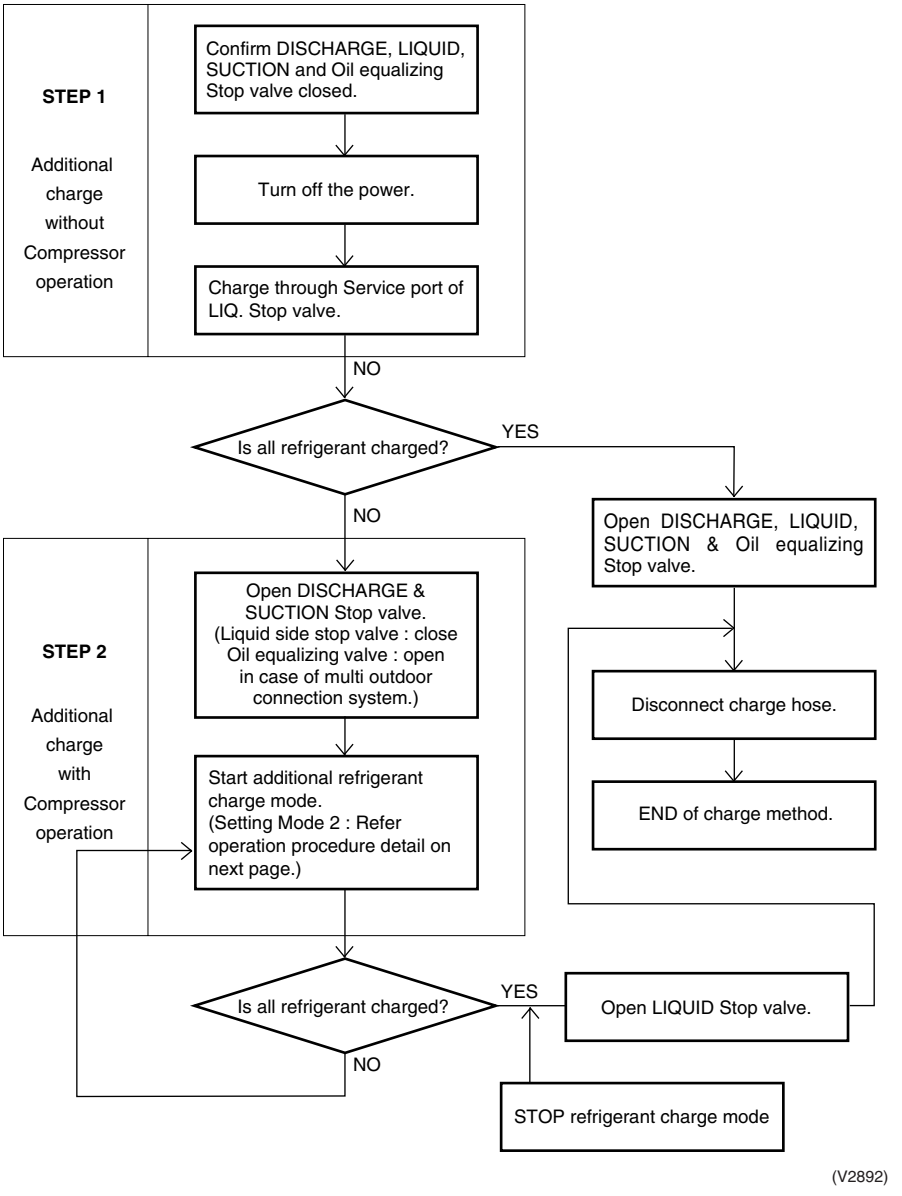
		①							②								③						
Setting No.	Setting contents	Setting No. indication							Setting No. indication							Setting contents	Setting contents indication (Initial setting)						
		H1P	H2P	H3P	H4P	H5P	H6P	H7P	H1P	H2P	H3P	H4P	H5P	H6P	H7P		H1P	H2P	H3P	H4P	H5P	H6P	H7P
12	External low noise / Demand setting								○	●	●	○	○	●	●	NO (Factory setting)	○	●	●	●	●	●	◑
																YES	○	●	●	●	●	◑	●
22	Night-time low noise setting	○	●	●	●	●	●	●	○	●	○	●	○	○	●	OFF (Factory setting)	○	●	●	●	●	●	●
																Mode 1	○	●	●	●	●	●	◑
																Mode 2	○	●	●	●	●	◑	●
																Mode 3	○	●	●	●	●	◑	◑
25	External low noise setting								○	●	○	○	●	●	○	Mode 1	○	●	●	●	●	●	◑
																Mode 2 (Factory setting)	○	●	●	●	●	◑	●
																Mode 3	○	●	●	●	◑	●	●
26	Night-time low noise start setting								○	●	○	○	●	○	●	PM 8:00	○	●	●	●	●	●	◑
																PM 10:00 (Factory setting)	○	●	●	●	●	◑	●
																PM 0:00	○	●	●	●	◑	●	●
27	Night-time low noise end setting								○	●	○	○	●	○	○	AM 6:00	○	●	●	●	●	●	◑
																AM 7:00	○	●	●	●	●	◑	●
																AM 8:00 (Factory setting)	○	●	●	●	◑	●	●
29	Capacity precedence setting								○	●	○	○	○	●	○	Low noise precedence (Factory setting)	○	●	●	●	●	●	◑
																Capacity precedence	○	●	●	●	●	◑	●
30	Demand setting 1								○	●	○	○	○	○	●	60 % of rated power consumption	○	●	●	●	●	●	◑
																70 % of rated power consumption (Factory setting)	○	●	●	●	●	◑	●
																80 % of rated power consumption	○	●	●	●	◑	●	●
32	Normal demand setting								○	●	●	●	●	●	●	OFF (Factory setting)	○	●	●	●	●	●	◑
																ON	○	●	●	●	●	◑	●

Setting mode indication section Setting No. indication section Set contents indication section

3.2.4 Setting of Refrigerant Additional Charging Operation

When additional refrigerant is not charged all with outdoor unit in stop mode, operate the outdoor unit and charge the liquid refrigerant from the service port of liquid stop value. The additional charging operation is activated by pushbutton switch on the outdoor unit PC board.

[Additional refrigerant charge total flow]



[Operation procedure detail]

① After turning the respective power supply switch of indoor and outdoor units off and charging the refrigerant, turn on the power of indoor and outdoor units.
Do not fail to turn the power off and charge the refrigerant with outdoor unit in stop mode before adding the refrigerant following this procedure, otherwise resulting in trouble.

② Fully open the stop valve on the gas side and oil equalizing valve for multi outdoor connection, and do not fail to fully close the stop valve on the liquid side. (If the stop valve on the liquid side is open, the refrigerant cannot be charged.)

③ In **Setting mode 2** (H1P : ON) with outdoor unit in stop mode, Set "Additional refrigerant charging operation" switch to ON to start the operation. (H2P turns to display TEST OPERATION (blinks), and "TEST OPERATION" and "UNDER CENTRALIZED CONTROL" are displayed on the remote controller.)

④ When the refrigerant is charged up to the specified amount, press the RETURN button (BS3) to stop charging.
The charging operation is automatically stopped after operating for a maximum of about 30 minutes.
If the charging is not complete within 30 minutes, set the Additional refrigerant charging operation again to start charging. When the charging immediately stops even by restarting, the refrigerant is charged excessively. The refrigerant cannot be charged any more.

⑤ **Do not fail to fully open the stop valve on the liquid side** as soon as disconnecting the refrigerant charging hose.
(The piping may be burst due to the liquid sealing.)

[Operation state]

- Compressor frequency : 210Hz
- Y4S, Y7S, Solenoid valve : Open Y1E, Y2E electronic expansion valve : 1400 pulse
- Outdoor unit fan : High pressure control
- Indoor unit expansion valve (All unit) : 1024 pulse
- Indoor unit fan : H tap

3.2.5 Setting of Refrigerant Recovery Mode

When carrying out the refrigerant collection on site, fully open the respective expansion valve of indoor and outdoor units
All indoor and outdoor unit's operation are prohibited.

[Operation procedure]

① In **setting mode 2** with units in stop mode, set "B Refrigerant Recovery / Vacuuming mode" to ON. The respective expansion valve of indoor and outdoor units are fully opened. (H2P turns to display "TEST OPERATION" (blinks), "TEST OPERATION" and "UNDER CENTRALIZED CONTROL" are displayed on the remote controller, and the all indoor and outdoor unit operation is prohibited.
After setting, do not cancel "Setting Mode 2" until completion of refrigerant recovery operation.

② Collect the refrigerant using a refrigerant recovery unit. (See the instruction attached to the refrigerant recovery unit for more detal.)

③ Press Mode button "BS1" once and reset "Setting Mode 2".

3.2.6 Setting of Vacuuming Mode

In order to perform vacuuming operation at site, fully open the expansion valves of indoor and outdoor units and turn on some solenoid valves.

[Operating procedure]

① With **Setting Mode 2** while the unit stops, set (B) Refrigerant recovery / Vacuuming mode to ON. The expansion valves of indoor and outdoor units fully open and some of solenoid valves open.
(H2P blinks to indicate the test operation, and the remote controller displays "Test Operation" and "under Centralized control", thus prohibiting operation.)
After setting, do not cancel “Setting Mode 2” until completion of Vacuuming operation.

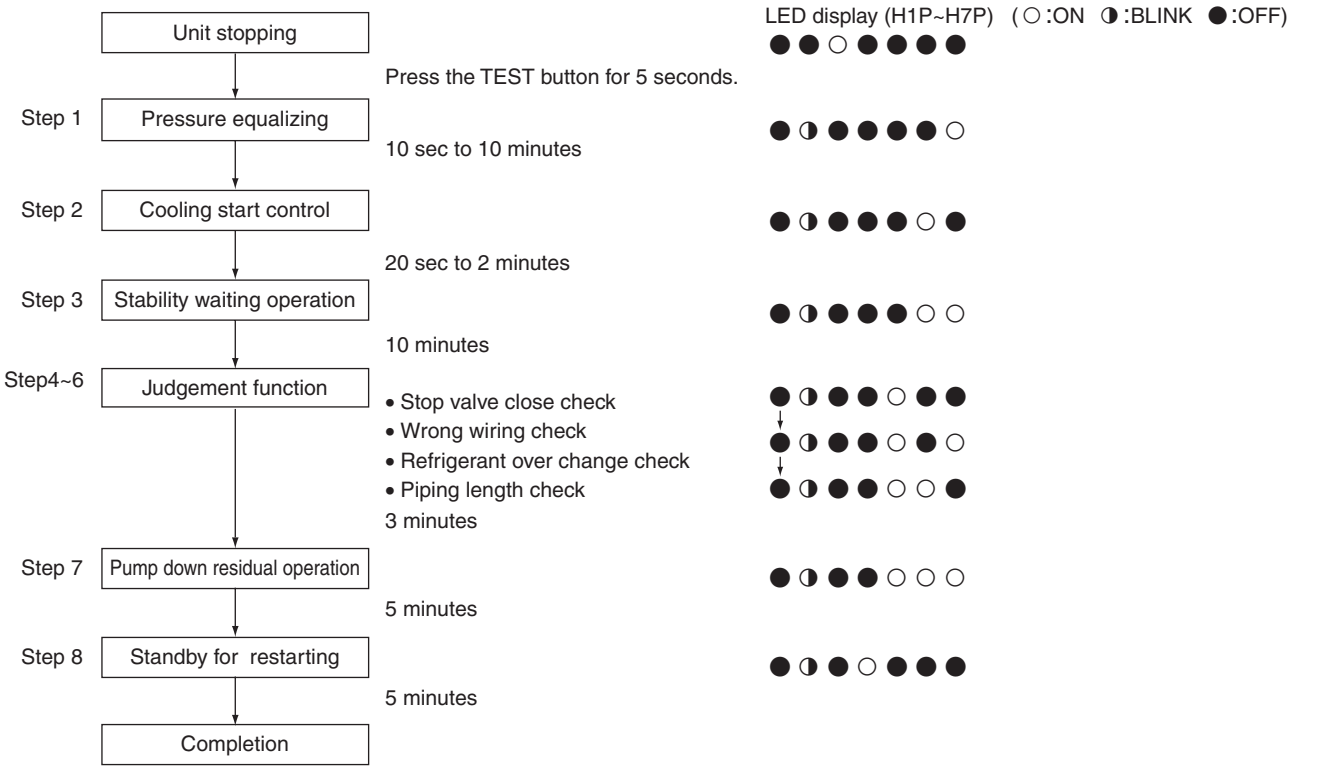
② Use the vacuum pump to perform vacuuming operation.

③ Press Mode button “BS1” once and reset “Setting Mode 2”.

3.2.7 Check Operation

To prevent any trouble in the period of installation at site, the system is provided with a test operation mode enabling check for incorrect wiring, stop valve left in closed, coming out (or misplacing with suction pipe thermistor) of discharge pipe thermistor and judgment of piping length, refrigerant overcharging, and learning for the minimum opening degree of motorized valve.

CHECK OPERATION FUNCTION



3.2.8 Power Transistor Check Operation

When the inverter system malfunctions (malfunction of inverter, INV compressor), to locate where the malfunction occurs, switching to the power transistor check mode of inverter in the service mode setting enables not to judge the position detection signal malfunction but to output waveform only during inverter operation. (The waveform can be checked by disconnecting the wiring of compressor.)
After the completion of checks, return the system to the previous mode and wait for 30 seconds or more until the discharge of capacitor is completed. Then, conduct a subsequent work.

Note: Be sure to disconnect the compressor wiring when conducting the check operation mentioned above.
When the output voltage is approx. 100~200 V (10 Hz) and the voltage balance between phases U-V, V-W, W-U is within ±5%, the inverter PCB is normal.

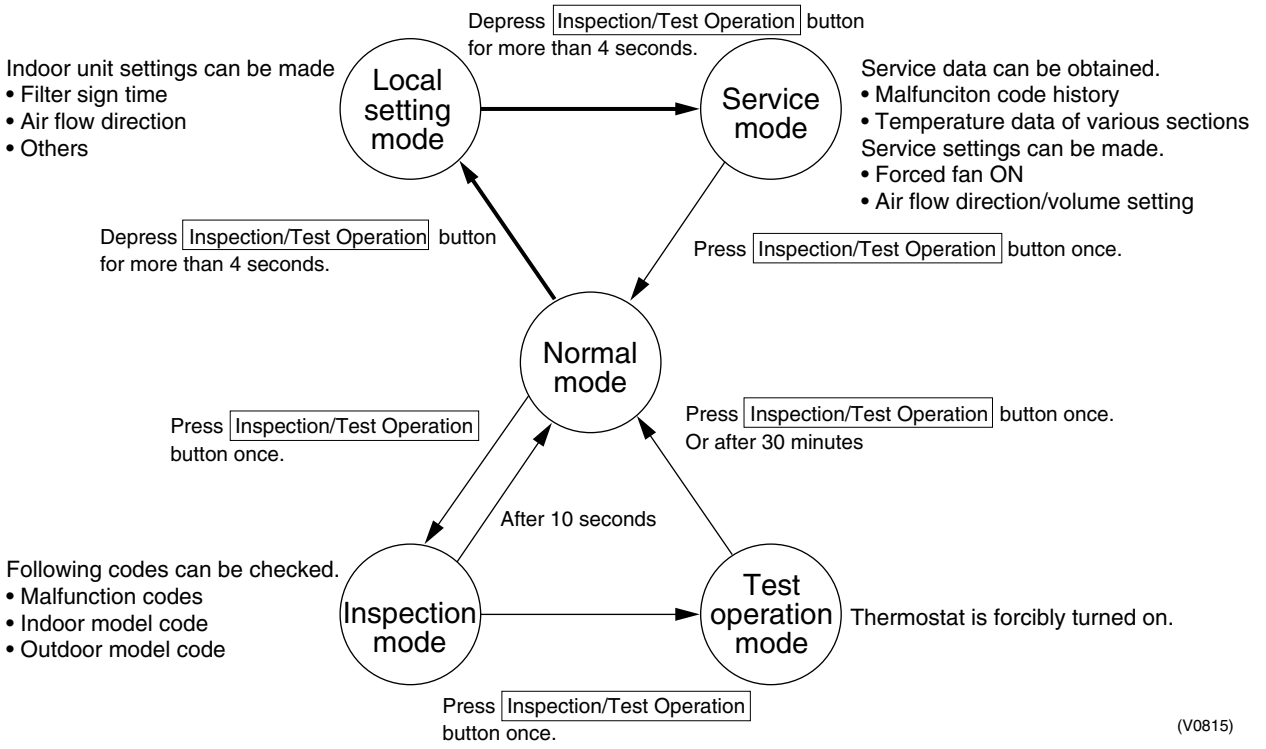
Refer the detail power transistor check to page 213.

Part 6
Troubleshooting

1. Troubleshooting by Remote Controller

1.1 The INSPECTION / TEST Button

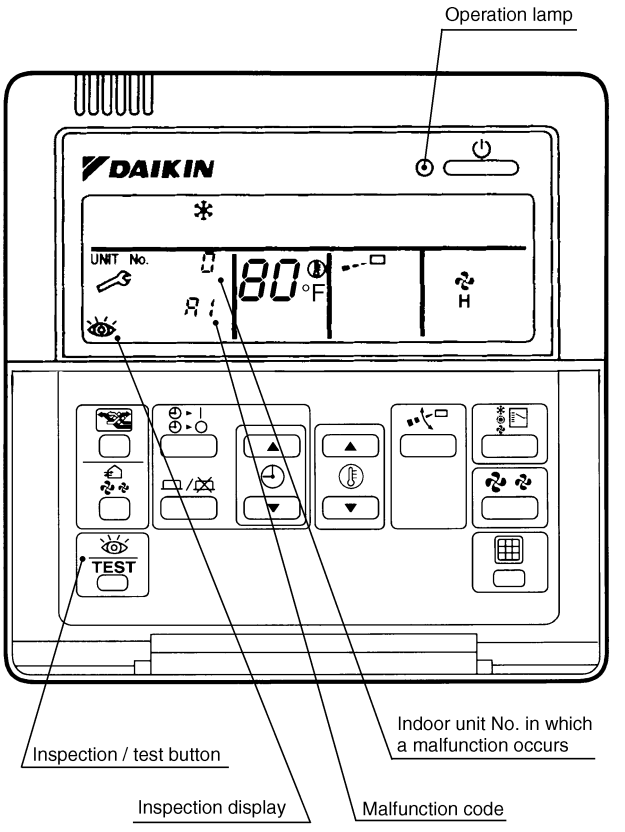
The following modes can be selected by using the [Inspection/Test Operation] button on the remote control.



1.2 Self-diagnosis by Wired Remote Controller

Explanation

If operation stops due to malfunction, the remote controller's operation LED blinks, and malfunction code is displayed. (Even if stop operation is carried out, malfunction contents are displayed when the inspection mode is entered.) The malfunction code enables you to tell what kind of malfunction caused operation to stop. See page 123 for malfunction code and malfunction contents.



(S1155)

1.3 Self-diagnosis by Wireless Remote Controller

In the Case of BRC7C Type BRC7E Type BRC4C Type

If equipment stops due to a malfunction, the operation indicating LED on the light reception section flashes.
The malfunction code can be determined by following the procedure described below. (The malfunction code is displayed when an operation error has occurred. In normal condition, the malfunction code of the last problem is displayed.)

1. Press the INSPECTION/TEST button to select “Inspection.”
   The equipment enters the inspection mode. The “Unit” indication lights and the Unit No. display shows flashing “0” indication.
2. Set the Unit No.
   Press the UP or DOWN button and change the Unit No. display until the buzzer (*1) is generated from the indoor unit.
   *1 Number of beeps
   3 short beeps : Conduct all of the following operations.
   1 short beep : Conduct steps 3 and 4.
   Continue the operation in step 4 until a buzzer remains ON. The continuous buzzer indicates that the malfunction code is confirmed.
   Continuous beep : No abnormality.
3. Press the MODE selector button.
   The left “0” (upper digit) indication of the malfunction code flashes.
4. Malfunction code upper digit diagnosis
   Press the UP or DOWN button and change the malfunction code upper digit until the malfunction code matching buzzer (*2) is generated.

■ The upper digit of the code changes as shown below when the UP and DOWN buttons are pressed.

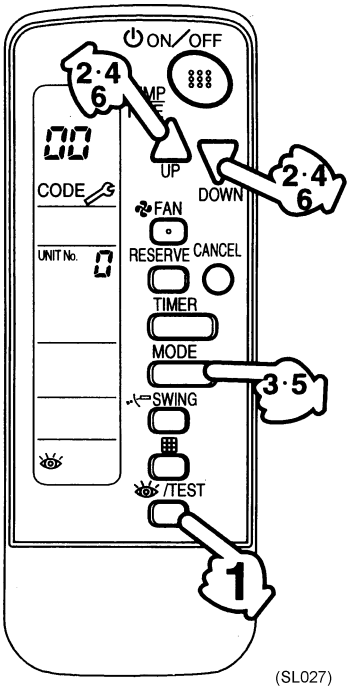
(SE006)

*2 Number of beeps
Continuous beep : Both upper and lower digits matched. (Malfunction code confirmed)
2 short beeps : Upper digit matched.
1 short beep : Lower digit matched.

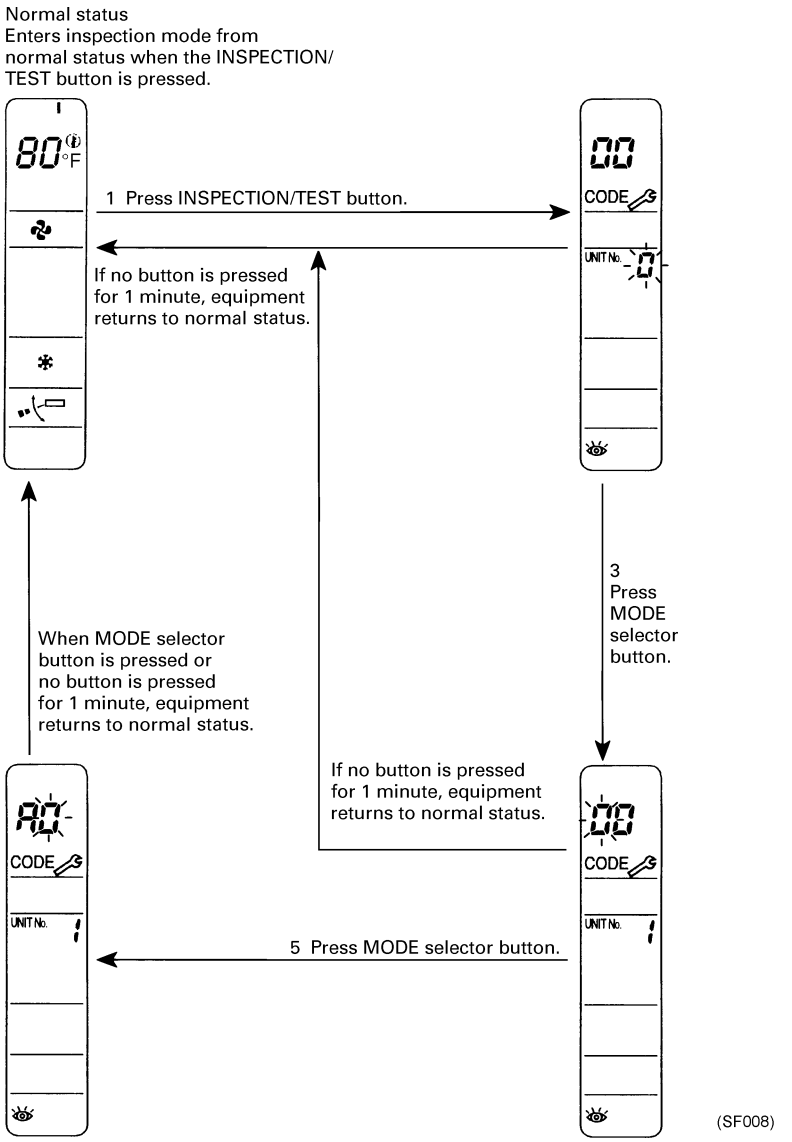
5. Press the MODE selector button.
   The right “0” (lower digit) indication of the malfunction code flashes.
6. Malfunction code lower digit diagnosis
   Press the UP or DOWN button and change the malfunction code lower digit until the continuous malfunction code matching buzzer (*2) is generated.

■ The lower digit of the code changes as shown below when the UP and DOWN buttons are pressed.

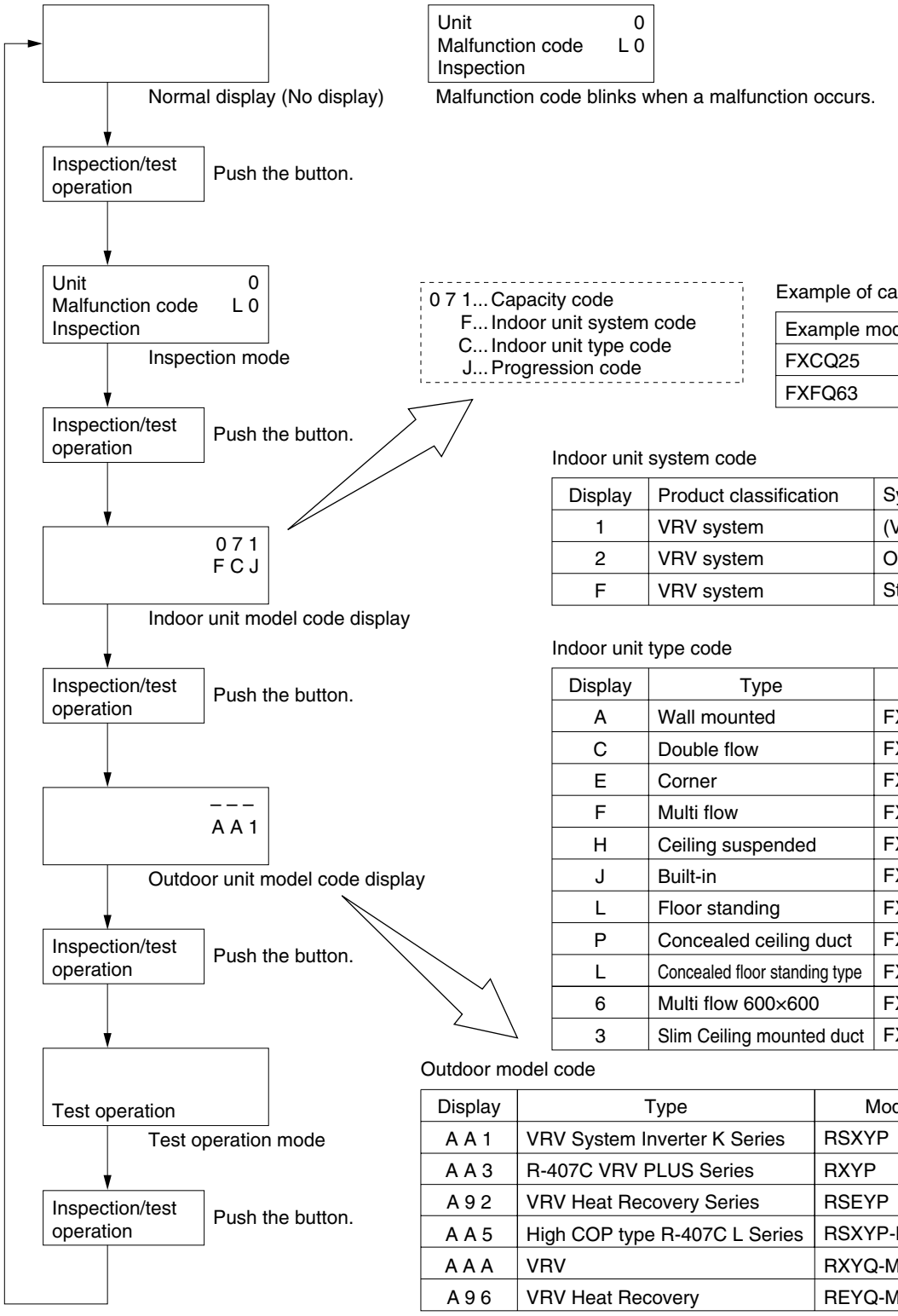
(SE007)



(SL027)


Normal status
Enters inspection mode from
normal status when the INSPECTION/
TEST button is pressed.
80 °F
00
CODE
UNIT No.
0
1 Press INSPECTION/TEST button.
If no button is pressed
for 1 minute, equipment
returns to normal status.
3
Press
MODE
selector
button.
When MODE selector
button is pressed or
no button is pressed
for 1 minute, equipment
returns to normal status.
If no button is pressed
for 1 minute, equipment
returns to normal status.
A0
CODE
UNIT No.
1
5 Press MODE selector button.
(SF008)

1.4 Operation of the Remote Controller's Inspection / Test Operation Button



0 7 1... Capacity code
F... Indoor unit system code
C... Indoor unit type code
J... Progression code

Example of capacity code display

Example model	Display
FXCQ25	028
FXFQ63	071

Indoor unit system code

Display	Product classification	System classification
1	VRV system	(VAV indoor unit)
2	VRV system	Outdoor air intake
F	VRV system	Standard indoor unit

Indoor unit type code

Display	Type	Model
A	Wall mounted	FXAQ
C	Double flow	FXCQ
E	Corner	FXKQ
F	Multi flow	FXFQ
H	Ceiling suspended	FXHQ
J	Built-in	FXSQ
L	Floor standing	FXLQ
P	Concealed ceiling duct	FXMQ
L	Concealed floor standing type	FXNQ
6	Multi flow 600×600	FXZQ
3	Slim Ceiling mounted duct	FXDQ

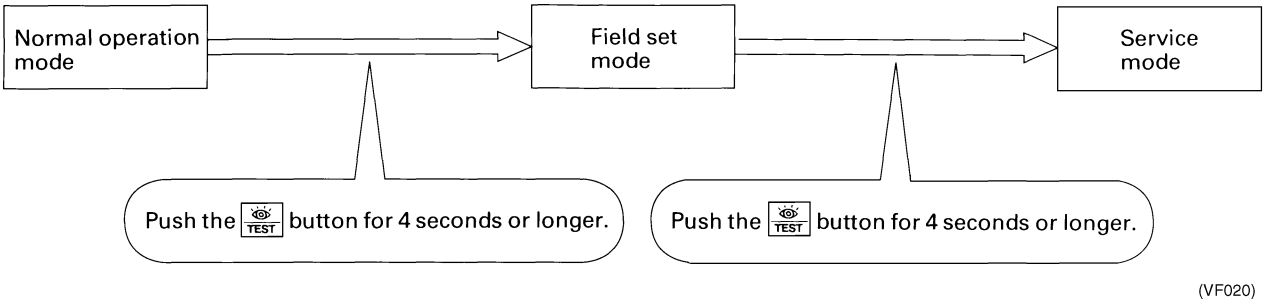
Outdoor model code

Display	Type	Model
A A 1	VRV System Inverter K Series	RSXYP
A A 3	R-407C VRV PLUS Series	RXYP
A 9 2	VRV Heat Recovery Series	RSEYP
A A 5	High COP type R-407C L Series	RSXYP-L
A A A	VRV	RXYQ-M
A 9 6	VRV Heat Recovery	REYQ-M

(V2775)

1.5 Remote Controller Service Mode

How to Enter the Service Mode



Service Mode Operation Method

1. Select the mode No.
Set the desired mode No. with the button.
(For wireless remote controller, Mode 43 only can be set.)

2. Select the unit No. (For group control only)
Select the indoor unit No. to be set with the time mode . (For wireless remote controller, button.)

3. Make the settings required for each mode. (Modes 41, 44, 45)
In case of Mode 44, 45, push button to be able to change setting before setting work. (LCD "code" blinks.)
For details, refer to the table in next page.

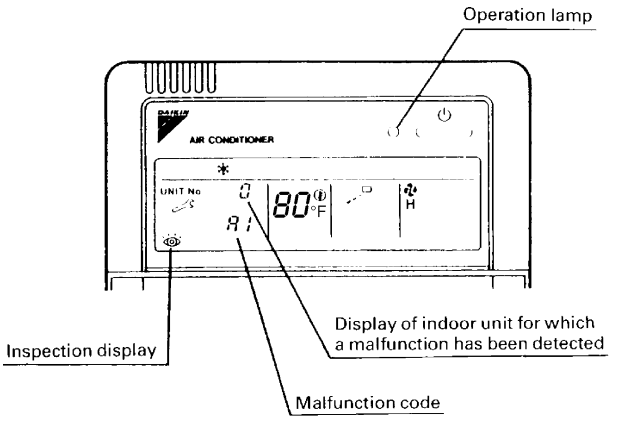
4. Define the setting contents. (Modes 44, 45)
Define by pushing the timer button.
After defining, LCD "code" changes blinking to ON.

5. Return to the normal operation mode.
Push the button one time.

Mode No	Function	Contents and operation method	Remote controller display example
40	Malfunction hysteresis display	Display malfunction hysteresis. The history No. can be changed with the button.	Unit 1 Malfunction code 40 2-U4 Malfunction code Hystory No: 1 - 9 1: Latest (VE007)
41	Display of sensor and address data	Display various types of data. Select the data to be displayed with the button. Sensor data 0: Thermostat sensor in remote controller. 1: Suction 2: Liquid pipe 3: Gas pipe Address data 4: Indoor unit address 5: Outdoor unit address 6: BS unit address 7: Zone control address 8: Cool/heat group address 9: Demand / low noise address	Sensor data display Unit No. Sensor type 1 1 2 7 41 Temperature °C Address display Unit No. Address type 1 8 1 41 Address (VE008)
43	Forced fan ON	Manually turn the fan ON by each unit. (When you want to search for the unit No.) By selecting the unit No. with the button, you can turn the fan of each indoor unit on (forced ON) individually.	Unit 1 43 (VE009)
44	Individual setting	Set the fan speed and air flow direction by each unit Select the unit No. with the time mode button. Set the fan speed with the button. Set the air flow direction with the button.	Unit 1 Code 44 1 3 Fan speed 1: Low 3: High Air flow direction P0 - P4 (VE010)
45	Unit No. transfer	Transfer unit No. Select the unit No. with the button. Set the unit No. after transfer with the button.	Present unit No. Unit 1 Code 0 2 45 Unit No. after transfer (VE011)
46 47	This function is not used by VRV R-410A Heat Pump 50Hz.		

1.6 Remote Controller Self-Diagnosis Function

The remote controller switches are equipped with a self diagnosis function so that more appropriate maintenance can be carried out. If a malfunction occurs during operation, the operation lamp, malfunction code and display of malfunctioning unit No. let you know the contents and location of the malfunction.
When there is a stop due to malfunction, the contents of the malfunction given below can be diagnosed by a combination of operation lamp, INSPECTION display of the liquid crystal display and display of malfunction code. It also lets you know the unit No. during group control.



(VL050)

○: ON ●: OFF ◑: Blink

	Malfunction code	Operation lamp	Inspection display	Unit No.	Malfunction contents	Page Referred
Indoor Unit	A0	◑	◑	◑	Error of external protection device	127
	A1	◑	◑	◑	PC board defect, E^2 PROM defect	128
	A3	◑	◑	◑	Malfunction of drain level control system (S1L)	129
	A6	◑	◑	◑	Fan motor (MIF) lock, overload	131
	A7	○	●	◑	Malfunction of swing flap motor (MA)	132
	A9	◑	◑	◑	Malfunction of moving part of electronic expansion valve (20E)	134
	AF	○	●	◑	Drain level above limit	136
	AH	○	●	◑	Malfunction of air filter maintenance	—
	AJ	◑	◑	◑	Malfunction of capacity setting	137
	C4	◑	◑	◑	Malfunction of thermistor (R2T) for heat exchange (loose connection, disconnection, short circuit, failure)	138
	C5	◑	◑	◑	Malfunction of thermistor (R31T, R32T) for gas pipes (loose connection, disconnection, short circuit, failure)	139
	C9	◑	◑	◑	Malfunction of thermistor (R1T) for air inlet (loose connection, disconnection, short circuit, failure)	140
	CJ	○	○	○	Malfunction of thermostat sensor in remote controller	141
Outdoor Unit	E1	◑	◑	◑	PC board defect	142
	E3	◑	◑	◑	Actuation of high pressure switch	143
	E4	◑	◑	◑	Actuation of low pressure sensor	144
	E5	◑	◑	◑	Compressor motor lock (INV compressor)	145
	E6	◑	◑	◑	Standard compressor lock or over current	146
	E7	◑	◑	◑	Malfunction of outdoor unit fan motor	147
	E9	◑	◑	◑	Malfunction of moving part of electronic expansion valve (Y1E~3E)	149
	F3	◑	◑	◑	Abnormal discharge pipe temperature	151
	F6	◑	◑	◑	Refrigerant overcharged	152
	H3	○	●	◑	Malfunction of High pressure switch	—
	H4	◑	◑	◑	Actuation of Low pressure switch	—
	H7	◑	◑	◑	Abnormal outdoor fan motor signal	153
	H9	◑	◑	◑	Malfunction of thermistor (R1T) for outdoor air (loose connection, disconnection, short circuit, failure)	154
	J2	◑	◑	◑	Current sensor malfunction	155
	J3	◑	◑	◑	Malfunction of discharge pipe thermistor (R31~32T) (loose connection, disconnection, short circuit, failure)	156
	J4	◑	◑	◑	Malfunction of heat exchanger gas pipe thermistor (R81, 82T)	157
	J5	◑	◑	◑	Malfunction of thermistor (R2T) for suction pipe (loose connection, disconnection, short circuit, failure)	158
	J6	◑	◑	◑	Malfunction of thermistor (R4T) for heat exchanger (loose connection, disconnection, short circuit, failure)	159
	J7	◑	◑	◑	Malfunction of receiver outlet liquid pipe thermistor (R6T)	160
	J8	◑	◑	◑	Malfunction of thermistor (R7T) for oil equalizing pipe. (loose connection, disconnection, short circuit, failure)	161
	J9	◑	◑	◑	Malfunction of receiver gas pipe thermistor (R5T)	162
	JA	◑	◑	◑	Malfunction of discharge pipe pressure sensor	163
	JC	◑	◑	◑	Malfunction of suction pipe pressure sensor	164
	L0	◑	◑	◑	Inverter system error	—
	L4	◑	◑	◑	Malfunction of inverter radiating fin temperature rise	165
	L5	◑	◑	◑	Inverter compressor motor grounding, short circuit	166
	L6	◑	◑	◑	Compressor motor coil grounding on short circuit	—
	L8	◑	◑	◑	Inverter current abnormal	167
	L9	◑	◑	◑	Inverter start up error	168

	Malfunction code	Operation lamp	Inspection display	Unit No.	Malfunction contents	Page Referred
Outdoor Unit	LA	◑	◑	◑	Malfunction of power unit	—
	LC	◑	◑	◑	Malfunction of transmission between inverter and control PC board	169
	P1	◑	◑	◑	Inverter over-ripple protection	171
	P4	◑	◑	◑	Malfunction of inverter radiating fin temperature rise sensor	172
	PJ	◑	◑	◑	Faulty field setting after replacing main PC board or faulty combination of PC board	173
System	U0	○	●	◑	Low pressure drop due to refrigerant shortage or electronic expansion valve failure	174
	U1	◑	◑	◑	Reverse phase / open phase	175
	U2	◑	◑	◑	Power supply insufficient or instantaneous failure	176
	U3	◑	◑	◑	Check operation is not conducted.	178
	U4	◑	◑	◑	Malfunction of transmission between indoor and outdoor units	179
	U5	◑	◑	◑	Malfunction of transmission between remote controller and indoor unit	181
	U5	●	○	●	Failure of remote controller PC board or setting during control by remote controller	181
	U7	◑	◑	◑	Malfunction of transmission between outdoor units	182
	U8	◑	◑	●	Malfunction of transmission between main and sub remote controllers (malfunction of sub remote controller)	184
	U9	◑	◑	◑	Malfunction of transmission between indoor unit and outdoor unit in the same system	185
	UA	◑	◑	◑	Excessive number of indoor units etc.	187
	UC	○	○	○	Address duplication of central remote controller	188
	UE	◑	◑	◑	Malfunction of transmission between central remote controller and indoor unit	189 199
	UF	◑	◑	◑	Refrigerant system not set, incompatible wiring / piping	191
	UH	◑	◑	◑	Malfunction of system, refrigerant system address undefined	192
Central Remote Controller and Schedule Timer	M1	○ or ●	◑	◑	Central remote controller or schedule timer PC board defect	194 201
	M8	○ or ●	◑	◑	Malfunction of transmission between optional controllers for centralized control	195 202
	MA	○ or ●	◑	◑	Improper combination of optional controllers for centralized control	196 203
	MC	○ or ●	◑	◑	Address duplication, improper setting	198 205
Heat Reclaim Ventilation	64	○	●	◑	Indoor unit's air thermistor error	—
	65	○	●	◑	Outside air thermistor error	—
	6A	○	●	◑	Damper system alarm	—
	6A	◑	◑	◑	Damper system + thermistor error	—
	6F	○	●	◑	Malfunction of simple remote controller	—
	6H	○	●	◑	Malfunction of door switch or connector	—
	94	◑	◑	◑	Internal transmission error	—

The system operates for malfunction codes indicated in black squares, however, be sure to check and repair.

Malfunction code indication by outdoor unit PCB

To enter the monitor mode, push the MODE button (BS1) when in “Setting mode 1”.

<Selection of setting item>

Push the SET button (BS2) and set the LED display to a setting item.

<Confirmation of malfunction 1>

Push the RETURN button (BS3) once to display "First digit" of malfunction code.

<Confirmation of malfunction 2>

Push the SET button (BS2) once to display "Second digit" of malfunction code.

<Confirmation of malfunction 3>

Push the SET button (BS2) once to display "master or slave1 or slave2" and "malfunction location".

Detail description on next page.

Push the RETURN button (BS3) and switches to the initial status of “Monitor mode”.

* Push the MODE button (BS1) and returns to “Setting mode 1”.

Contents of malfunction		Malfunction code
Abnormal discharge pressure	HPS activated	E3
Abnormal suction pressure	Abnormal Pe	E4
Compressor lock	Detection of INV compressor lock	E5
Activation of OC	Detection of STD1 compressor lock	E6
	Detection of STD2 compressor lock	
Over load, over current,	Instantaneous over current of DC fan motor	E7
abnormal lock of outdoor unit fan motor	Detection of DC fan motor lock	
Malfunction of electronic expansion valve	EV1	E9
	EV2	
	EV3	
Abnormal position signal of outdoor unit fan motor	Abnormal position signal of DC fan motor	H7
Faulty sensor of outdoor air temperature	Faulty Ta sensor	H9
Faulty sensor of heat storage unit		HC
Abnormality in water system of heat storage unit		HJ
Transmission error between heat storage unit and controller		HF
Abnormal discharge pipe temperature	Abnormal Td	F3
Abnormal heat exchanger temperature	Refrigerant over charge	F6
Faulty current sensor	Faulty CT1 sensor	J2
	Faulty CT2 sensor	
Faulty sensor of discharge pipe temperature	Faulty Tdi sensor	J3
	Faulty Tds1 sensor	
	Faulty Tds2 sensor	
Faulty sensor of heat exchanger gas pipe temperature	Faulty Tg1, Tg2 sensor	J4
	Faulty Tg2 sensor	
Faulty sensor of suction pipe temperature	Faulty Ts sensor	J5
Faulty sensor of heat exchanger temperature	Faulty Tb sensor	J6
Faulty sensor of receiver temperature	Faulty Tl sensor	J7
Faulty sensor of oil pressure equalizing pipe temperature	Faulty To sensor	J8
Faulty sensor of subcool heat exchanger temperature	Faulty Tsh sensor	J9
Faulty sensor of discharge pressure	Faulty Pc sensor	JA
Faulty sensor of suction pressure	Faulty Pe sensor	JC
Inverter radiation fin temperature rising	Over heating of inverter radiation fin temperature	L4
DC output over current	Inverter instantaneous over current	L5
Electronic thermal switch	Electronic thermal switch 1	L8
	Electronic thermal switch 2	
	Out-of-step	
	Speed down after startup	
	Lightening detection	
Stall prevention (Limit time)	Stall prevention (Current increasing)	L9
	Stall prevention (Faulty startup)	
	Abnormal wave form in startup	
	Out-of-step	
Transmission error between inverter and outdoor unit	Inverter transmission error	LC
Open phase/Power supply imbalance	Imbalance of inverter power supply voltage	P1
Faulty temperature sensor inside switch box	Faulty thermistor of inverter box	P3
Faulty temperature sensor of inverter radiation fin	Faulty thermistor of inverter fin	P4
Incorrect combination of inverter and fan driver	Faulty field setting or faulty combination of PC board	PJ
Gas shortage	Gas shortage alarm	U0
Reverse phase	Reverse phase error	U1
Abnormal power supply voltage	Insufficient inverter voltage	U2
	Inverter open phase (phase T)	
	Charging error of capacitor in inverter main circuit	
No implementation of test-run		U3
Transmission error between indoor and outdoor unit	I/O transmission error	U4
Transmission error between outdoor units, transmission error between thermal storage units, duplication of IC address	O/O transmission error	U7
Transmission error of other system	Indoor unit system malfunction in other system or other unit of own system	U9
Erroneous on-site setting	Abnormal connection with excessive number of indoor units	UA
	Conflict of refrigerant type in indoor units	
Faulty system function	Incorrect wiring (Auto address error)	UH
Transmission error in accessory devices, conflict in wiring and piping, no setting for system	Malfunction of multi level converter, abnormality in conflict check	UJ UF

Malfunction code	Confirmation of malfunction 1							Confirmation of malfunction 2							Confirmation of malfunction 3						
	H1P	H2P	H3P	H4P	H5P	H6P	H7P	H1P	H2P	H3P	H4P	H5P	H6P	H7P	H1P	H2P	H3P	H4P	H5P	H6P	H7P
E3	◎			●	●	◎	◎	◎			●	●	◎	◎	◎					●	●
E4								◎			●	◎	●	●	◎					●	●
E5								◎			●	◎	●	◎	◎					●	●
E6								◎			●	◎	◎	●	◎					●	◎
								◎			●	◎	◎	●	◎					◎	●
E7								◎			●	◎	◎	◎	◎					●	◎
E9								◎			◎	●	●	◎	◎					●	◎
															◎					◎	●
															◎					◎	◎
H7	◎			●	◎	●	●	◎			●	◎	◎	◎	◎					●	◎
H9								◎			◎	●	●	◎	◎					●	●
HC								◎			◎	◎	●	●	◎					●	●
HJ								◎			◎	◎	●	◎	◎					●	●
HF								◎			◎	◎	◎	◎	◎					●	●
F3	◎			●	◎	●	◎	◎			●	●	◎	◎	◎					●	●
F6								◎			●	◎	◎	●	◎					●	●
J2	◎			●	◎	◎	●	◎			●	●	◎	●	◎					●	◎
															◎					◎	●
J3								◎			●	●	◎	◎	◎					●	◎
															◎					◎	●
															◎					◎	◎
J4								◎			●	◎	●	●	◎					●	◎
																				◎	●
J5								◎			●	◎	●	◎	◎					●	●
J6								◎			●	◎	◎	●	◎					●	●
J7								◎			●	◎	◎	◎	◎					●	●
J8								◎			◎	●	●	●	◎					●	●
J9								◎			◎	●	●	◎	◎					●	●
JA								◎			◎	●	◎	●	◎					●	●
JC								◎			◎	◎	●	●	◎					●	●
L4	◎			●	◎	◎	◎	◎			●	◎	●	●	◎					●	●
L5								◎			●	◎	●	◎	◎					●	●
L8								◎			◎	●	●	●	◎					●	●
L9								◎			◎	●	●	◎	◎					●	●
LC								◎			◎	◎	●	●	◎					●	●
P1	◎			◎	●	●	●	◎			●	●	●	◎	◎					●	●
P3								◎			●	●	◎	◎	◎					●	●
P4								◎			●	◎	●	●	◎					●	●
PJ								◎			◎	◎	●	◎	◎					●	●
U0	◎			◎	●	●	◎	◎			●	●	●	●	◎					●	●
U1								◎			●	●	●	◎	◎					●	●
U2								◎			●	●	◎	●	◎					●	●
U3								◎			●	●	◎	◎	◎					●	●
U4								◎			●	◎	●	●	◎					●	●
U7								◎			●	◎	◎	◎	◎					●	●
U9								◎			◎	●	●	◎	◎					●	●
UA								◎			◎	●	◎	●	◎					●	●
UH								◎			◎	●	◎	◎	◎					●	●
UJ								◎			◎	◎	●	◎	◎					●	●
								◎			◎	◎	◎	◎	◎					●	●

○ : ON
◎ : Blink
● : OFF

Malfunction code 1st digit display section

○ : ON
◎ : Blink
● : OFF

Malfunction code 2nd digit display section

Master	●	●
Slave 1	●	◎
Slave 2	◎	●

Malfunction location

2. Troubleshooting by Indication on the Remote Controller

2.1 "A0" Indoor Unit: Error of External Protection Device

Remote Controller Display

A0

Applicable Models

All indoor unit models

Method of Malfunction Detection

Detect open or short circuit between external input terminals in indoor unit.

Malfunction Decision Conditions

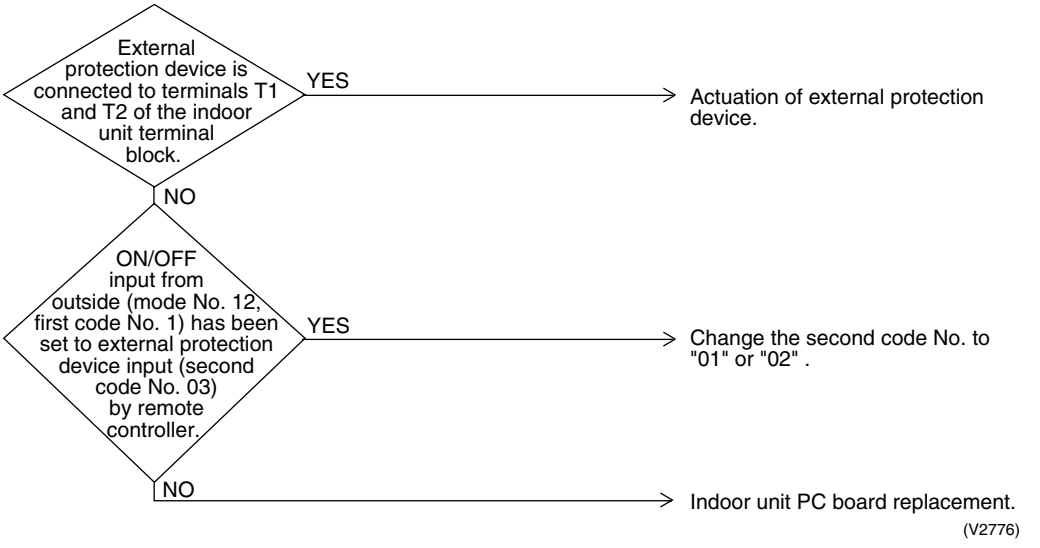
When an open circuit occurs between external input terminals with the remote controller set to "external ON/OFF terminal".

Supposed Causes

- Actuation of external protection device
- Improper field set
- Defect of indoor unit PC board

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



2.2 "A1" Indoor Unit: PC Board Defect

Remote Controller Display

A1

Applicable Models

All indoor unit models

Method of Malfunction Detection

Check data from E²PROM.

Malfunction Decision Conditions

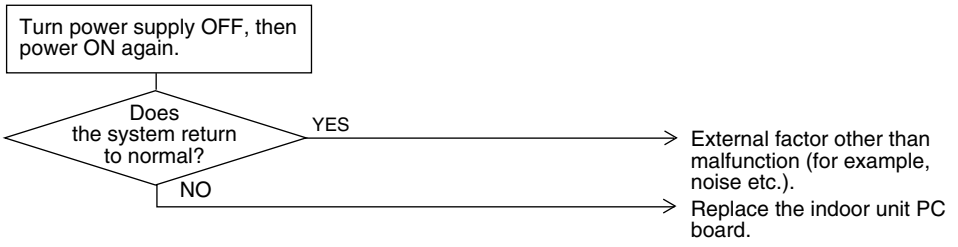
When data could not be correctly received from the E²PROM
E²PROM : Type of nonvolatile memory. Maintains memory contents even when the power supply is turned off.

Supposed Causes

- Defect of indoor unit PC board

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



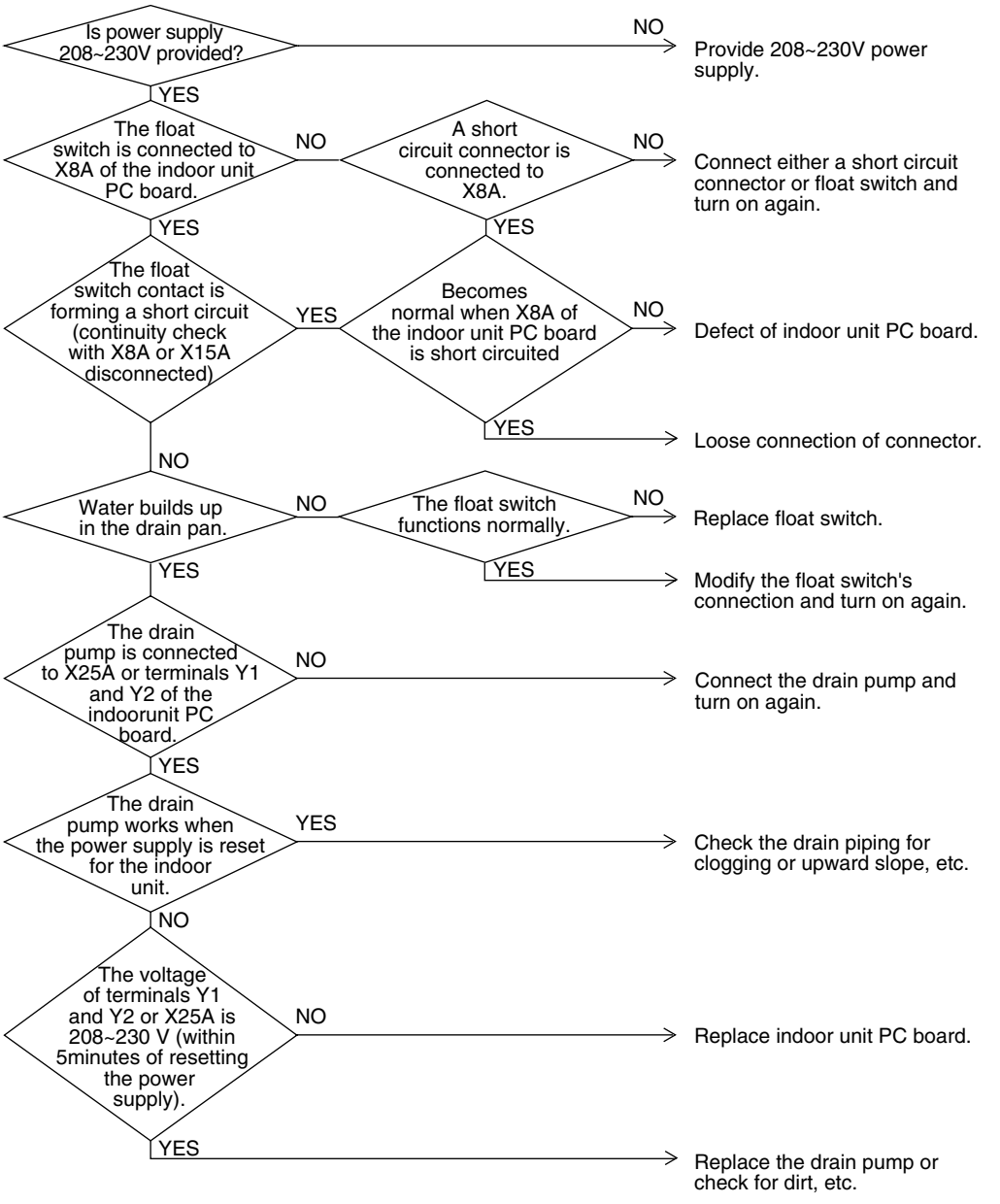
(V2777)

2.3 "A3" Indoor Unit: Malfunction of Drain Level Control System (S1L)

Remote Controller Display	A3
Applicable Models	FXFQ, FXDQ, FXSQ, FXMQ, FXHQ, FXAQ
Method of Malfunction Detection	By float switch OFF detection
Malfunction Decision Conditions	When rise of water level is not a condition and the float switch goes OFF.
Supposed Causes	■ 208~230V power supply is not provided ■ Defect of float switch or short circuit connector ■ Defect of drain pump ■ Drain clogging, upward slope, etc. ■ Defect of indoor unit PC board ■ Loose connection of connector

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V2778)

2.4 "A6" Indoor Unit: Fan Motor (M1F) Lock, Overload

Remote Controller Display

A6

Applicable Models

All indoor unit models

Method of Malfunction Detection

Detection by failure of signal for detecting number of turns to come from the fan motor

Malfunction Decision Conditions

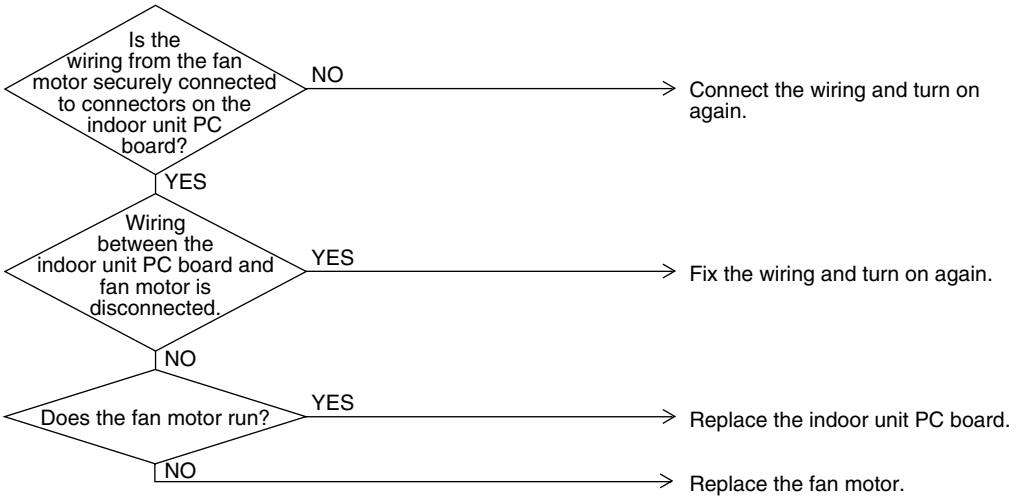
When number of turns can't be detected even when output voltage to the fan is maximum

Supposed Causes

- Fan motor lock
- Disconnected or faulty wiring between fan motor and PC board

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V2779)

2.5 "A7" Indoor Unit: Malfunction of Swing Flap Motor (MA)

Remote Controller Display

A7

Applicable Models

FXHQ only

Method of Malfunction Detection

Utilizes ON/OFF of the limit switch when the motor turns.

Malfunction Decision Conditions

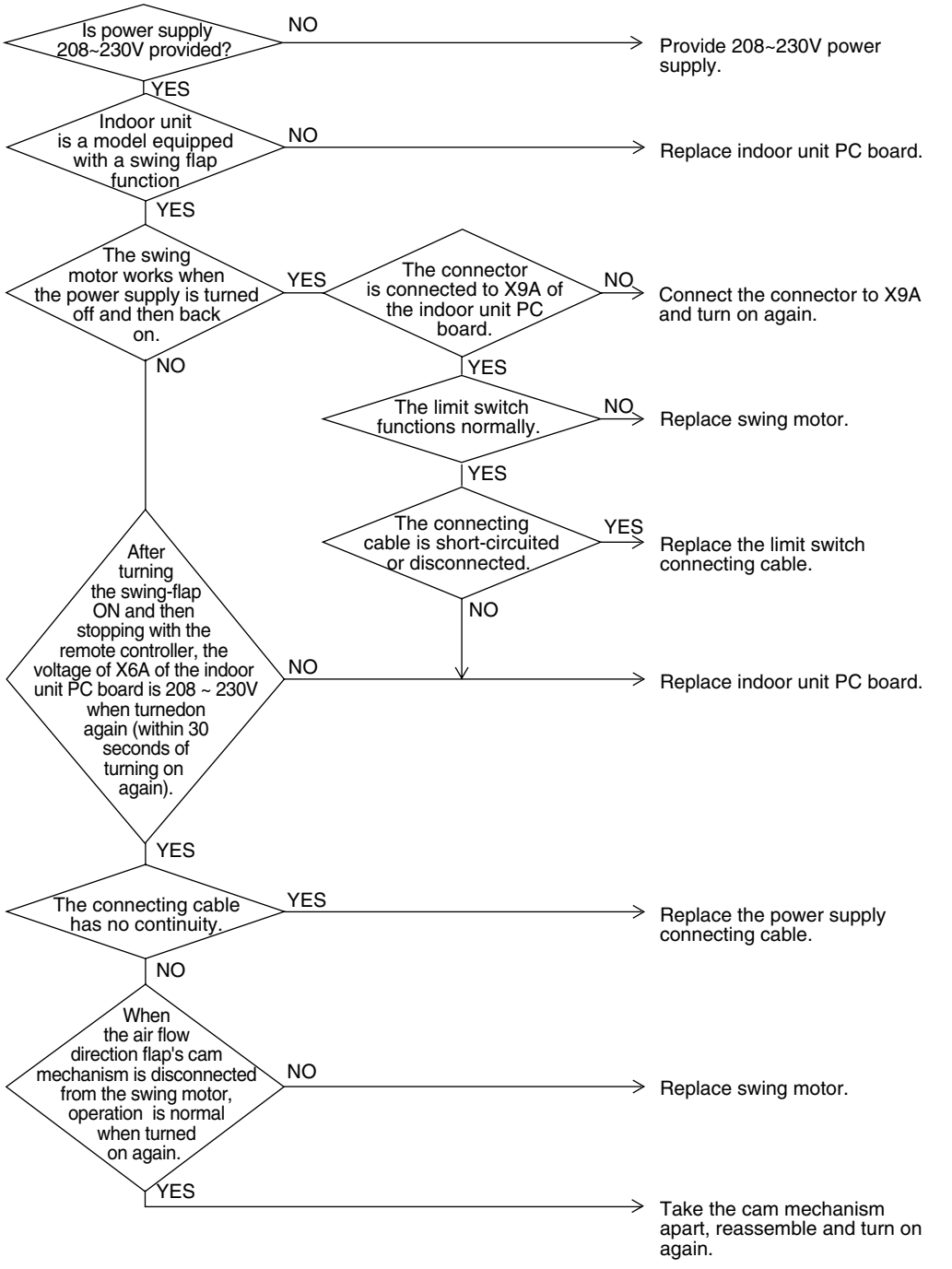
When ON/OFF of the micro-switch for positioning cannot be reversed even though the swing flap motor is energized for a specified amount of time (about 30 seconds).

Supposed Causes

- Defect of swing motor
- Defect of connection cable (power supply and limit switch)
- Defect of air flow direction adjusting flap-cam
- Defect of indoor unit PC board

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V2780)

2.6 "A9" Indoor Unit: Malfunction of Moving Part of Electronic Expansion Valve (20E)

Remote Controller Display

A9

Applicable Models

All indoor unit models

Method of Malfunction Detection

Use a microcomputer to check the electronic expansion valve for coil conditions.

Malfunction Decision Conditions

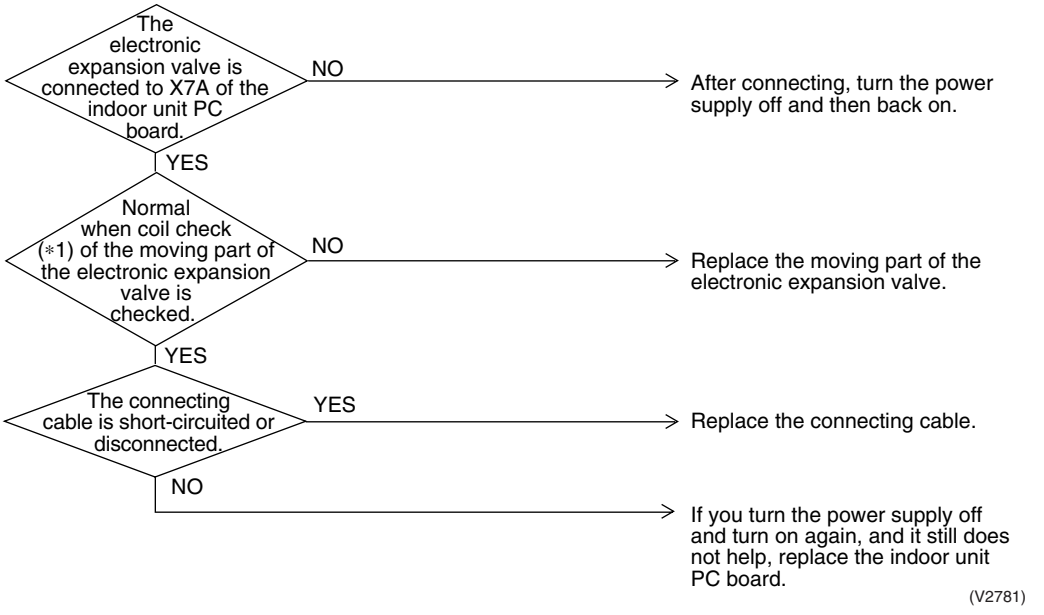
When the pin input of the electronic expansion valve is not normal while in the initialization of the microcomputer.

Supposed Causes

- Malfunction of moving part of electronic expansion valve
- Defect of indoor unit PC board
- Defect of connecting cable

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



∗1 Coil check method for the moving part of the electronic expansion valve
Disconnect the electronic expansion valve from the PC board and check the continuity between the connector pins.

(Normal)

Pin No.	1. White	2. Yellow	3. Orange	4. Blue	5. Red	6. Brown
1. White		×	◎ Approx. 300Ω	×	○ Approx. 150Ω	×
2. Yellow			×	◎ Approx. 300Ω	×	○ Approx. 150Ω
3. Orange				×	○ Approx. 150Ω	×
4. Blue					×	○ Approx. 150Ω
5. Red						×
6. Brown						

◎ : Continuity Approx. 300Ω
○ : Continuity Approx. 150Ω
× : No continuity

2.7 "AF" Indoor Unit: Drain Level above Limit

Remote Controller Display

AF

Applicable Models

FXFQ, FXDQ, FXSQ, FXMQ, FXHQ

Method of Malfunction Detection

Water leakage is detected based on float switch ON/OFF operation while the compressor is in non-operation.

Malfunction Decision Conditions

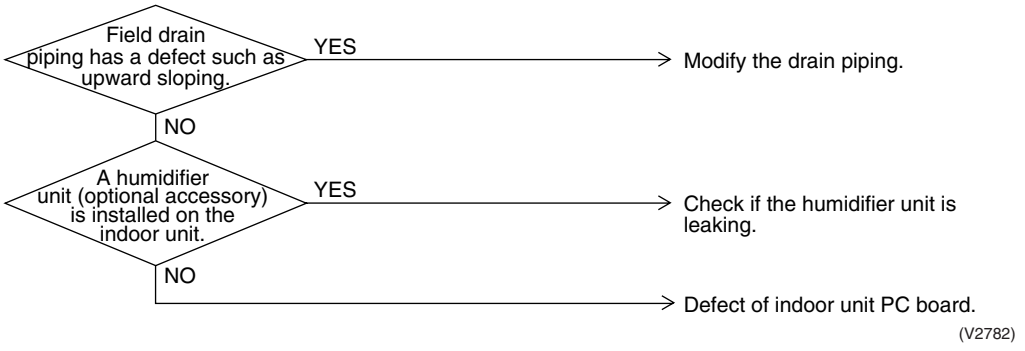
When the float switch changes from ON to OFF while the compressor is in non-operation.

Supposed Causes

- Humidifier unit (optional accessory) leaking
- Defect of drain pipe (upward slope, etc.)
- Defect of indoor unit PC board

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



2.8 "AJ" Indoor Unit: Malfunction of Capacity Determination Device

Remote controller display

AJ

Applicable Models

All indoor unit models

Method of Malfunction Detection

Capacity is determined according to resistance of the capacity setting adaptor and the memory inside the IC memory on the indoor unit PC board, and whether the value is normal or abnormal is determined.

Malfunction Decision Conditions

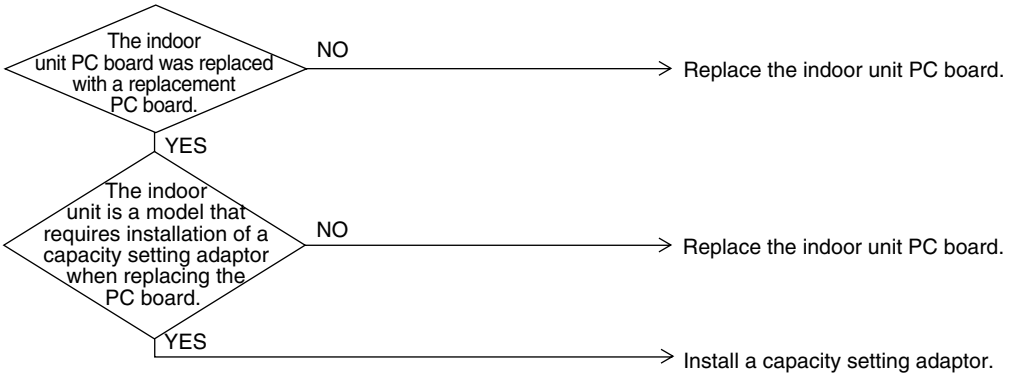
Operation and:
1. When the capacity code is not contained in the PC board's memory, and the capacity setting adaptor is not connected.
2. When a capacity that doesn't exist for that unit is set.

Supposed Causes

- You have forgotten to install the capacity setting adaptor.
- Defect of indoor unit PC board

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V2783)

2.9 "C4" Indoor Unit: Malfunction of Thermistor (R2T) for Heat Exchanger

Remote Controller Display

C4

Applicable Models

All indoor unit models

Method of Malfunction Detection

Malfunction detection is carried out by temperature detected by heat exchanger thermistor.

Malfunction Decision Conditions

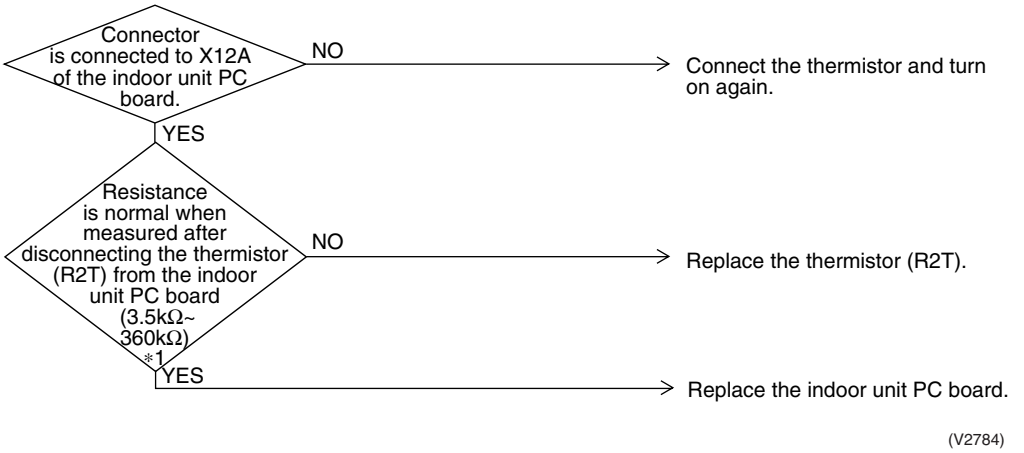
When the heat exchanger thermistor becomes disconnected or shorted while the unit is running.

Supposed Causes

- Defect of thermistor (R2T) for liquid pipe
- Defect of indoor unit PC board

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V2784)

*1: Refer to thermistor resistance / temperature characteristics table on P.239.

2.10 "C5" Indoor Unit: Malfunction of Thermistor (R31T, R32T) for Gas Pipes

Remote Controller Display

C5

Applicable Models

All indoor unit models

Method of Malfunction Detection

Malfunction detection is carried out by temperature detected by gas pipe thermistor.

Malfunction Decision Conditions

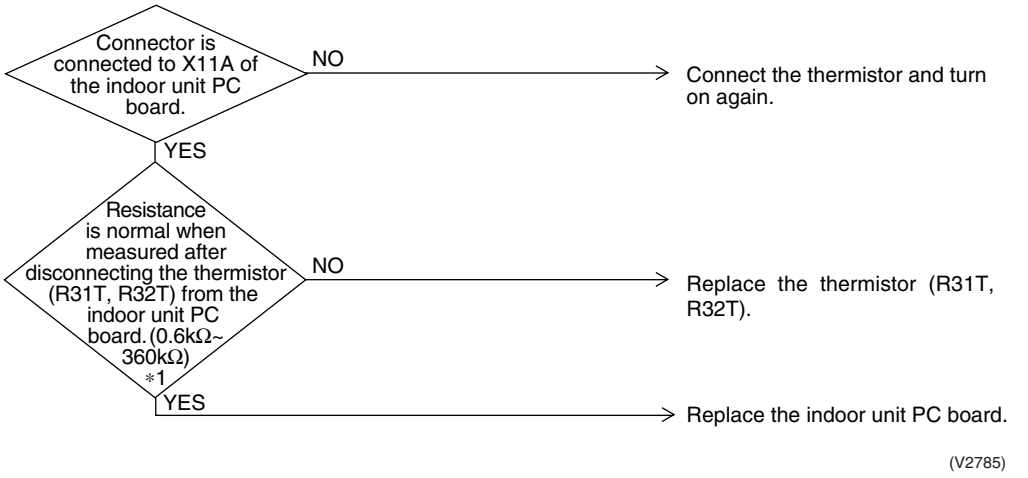
When the gas pipe thermistor becomes disconnected or shorted while the unit is running.

Supposed Causes

- Defect of indoor unit thermistor (R31T, R32T) for gas pipe
- Defect of indoor unit PC board

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



*1: Refer to thermistor resistance / temperature characteristics table on P.240.

2.11 "C9" Indoor Unit: Malfunction of Thermistor (R1T) for Suction Air

Remote Controller Display

C9

Applicable Models

All indoor unit models

Method of Malfunction Detection

Malfunction detection is carried out by temperature detected by suction air temperature thermistor.

Malfunction Decision Conditions

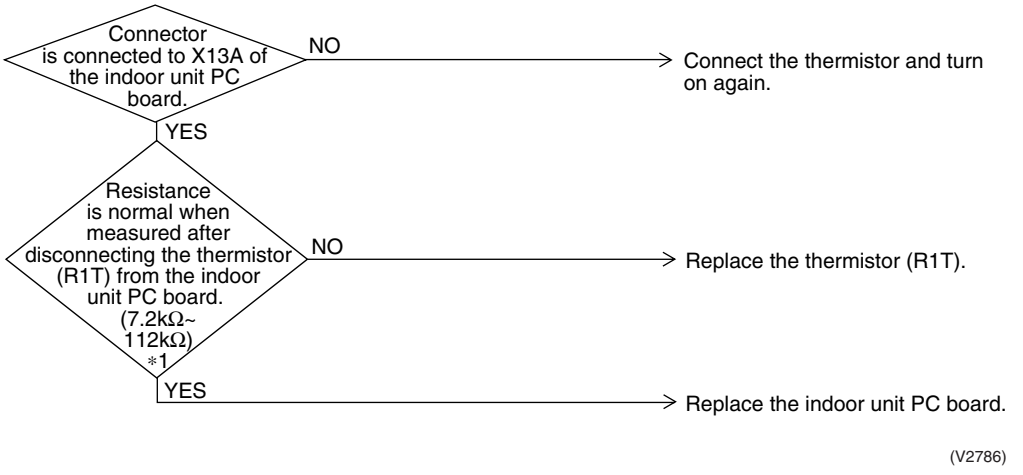
When the suction air temperature thermistor becomes disconnected or shorted while the unit is running.

Supposed Causes

- Defect of indoor unit thermistor (R1T) for air inlet
- Defect of indoor unit PC board

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



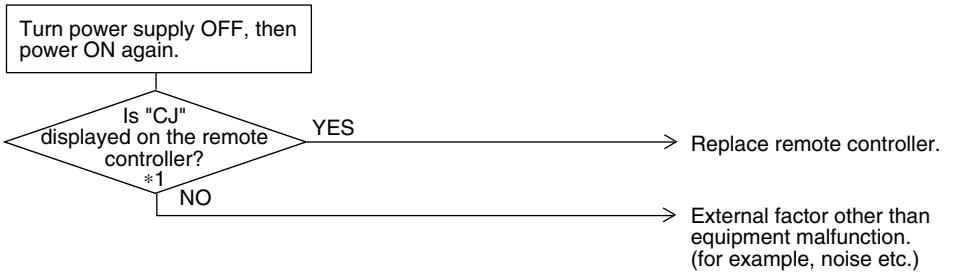
*1: Refer to thermistor resistance / temperature characteristics table on P.239.

2.12 "CJ" Indoor Unit: Malfunction of Thermostat Sensor in Remote Controller

Remote Controller Display	CJ
Applicable Models	All indoor unit models
Method of Malfunction Detection	Malfunction detection is carried out by temperature detected by remote controller air temperature thermistor. (Note)
Malfunction Decision Conditions	When the remote controller air temperature thermistor becomes disconnected or shorted while the unit is running.
Supposed Causes	■ Defect of remote controller thermistor ■ Defect of remote controller PC board

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V2787)

Note: In case of remote controller thermistor malfunction, unit is still operable by suction air thermistor on indoor unit.

*1: Refer to thermistor resistance / temperature characteristics table on P.239.

2.13 "E1" Outdoor Unit: PC Board Defect

Remote Controller Display

E1

Applicable Models

REYQ72M, 96M

Method of Malfunction Detection

Check data from E²PROM

Malfunction Decision Conditions

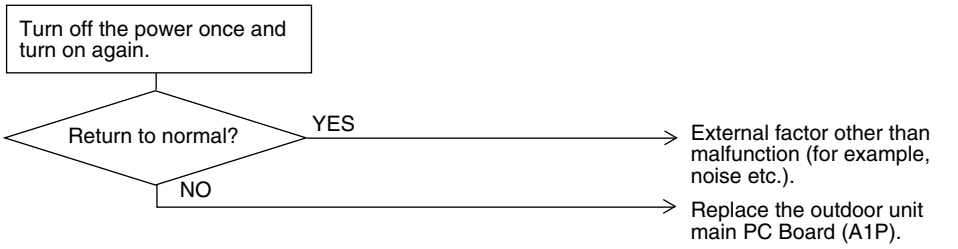
When data could not be correctly received from the E²PROM
E²PROM : Type of nonvolatile memory. Maintains memory contents even when the power supply is turned off.

Supposed Causes

- Defect of outdoor unit PC board (A1P)

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V3064)

2.14 "E3" Outdoor Unit: Actuation of High Pressure Switch

Remote Controller Display

E3

Applicable Models

REYQ72M, 96M

Method of Malfunction Detection

Abnormality is detected when the contact of the high pressure protection switch opens.

Malfunction Decision Conditions

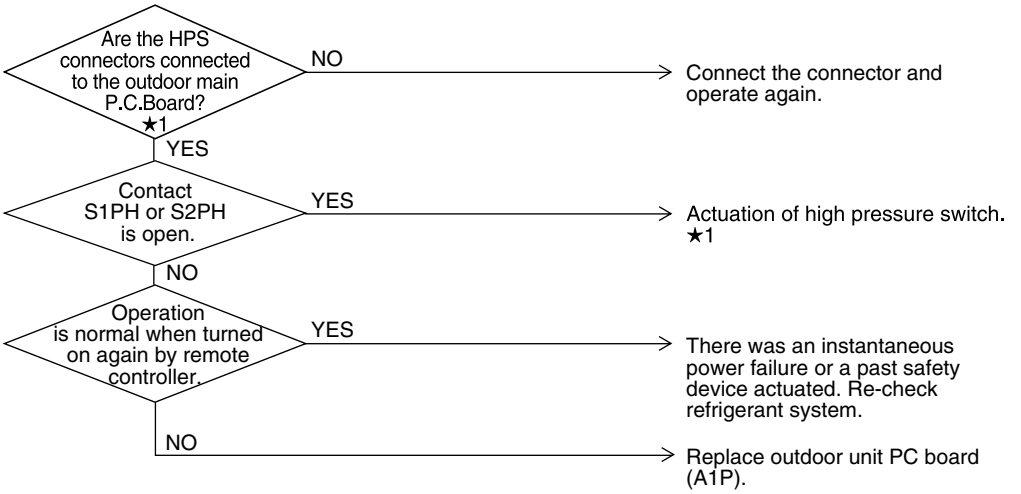
Error is generated when the HPS activation count reaches the number specific to the operation mode.

Supposed Causes

- Actuation of outdoor unit high pressure switch
- Defect of High pressure switch
- Defect of outdoor unit PC board
- Instantaneous power failure
- Faulty high pressure sensor

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V3065)

★1: Actuation of high pressure switch (HPS)

- The outdoor unit PC board's connector is disconnected.
- Is the outdoor unit heat exchanger dirty?
- Defect of outdoor fan
- Is the refrigerant over-charged?
- Faulty high pressure sensor

2.15 "E4" Outdoor Unit: Actuation of Low Pressure Sensor

Remote Controller Display

E4

Applicable Models

REYQ72M, 96M

Method of Malfunction Detection

Abnormality is detected by the pressure value with the low pressure sensor.

Malfunction Decision Conditions

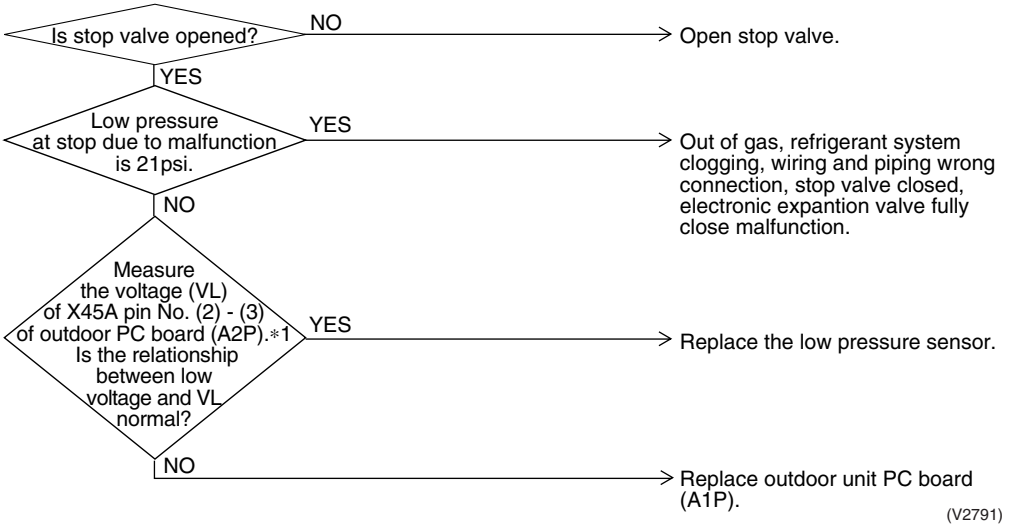
Error is generated when the low pressure is dropped under specific pressure.

Supposed Causes

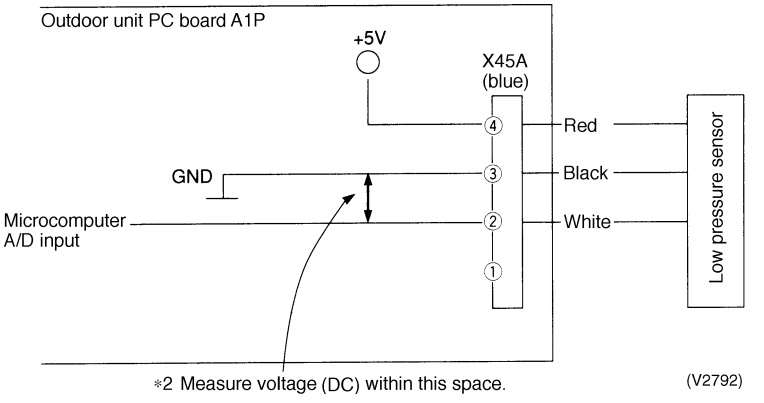
- Abnormal drop of low pressure (Lower than 21psi)
- Defect of low pressure sensor
- Defect of outdoor unit PC board
- Stop valve is not opened.

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



*1: Voltage measurement point



*1: Refer to pressure sensor, pressure / voltage characteristics table on P.241.

2.16 "E5" Compressor Motor Lock (INV Compressor)

Remote Controller Display

E5

Applicable Models

REYQ72M, 96M

Method of Malfunction Detection

Inverter PC board takes the position signal from UVWN line connected between the inverter and compressor, and detects the position signal pattern.

Malfunction Decision Conditions

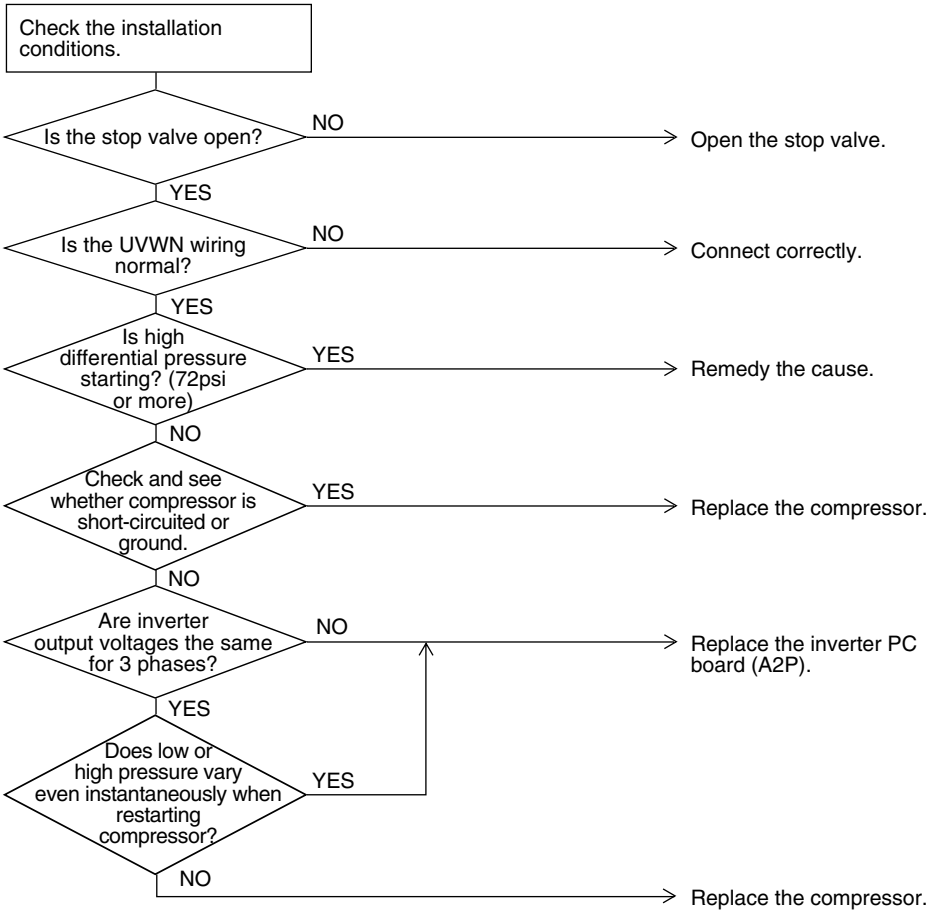
The position signal with 3 times cycle as imposed frequency is detected when compressor motor operates normally, but 2 times cycle when compressor motor locks. When the position signal in 2 times cycle is detected.

Supposed Causes

- Compressor lock
- High differential pressure (72psi or more)
- Incorrect UVWN wiring
- Faulty inverter PC board
- Stop valve is left in closed.

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V2793)

2.17 "E6" Compressor Motor Overcurrent/Lock (STD Compressor)

Remote Controller Display

E6

Applicable Models

REYQ72M, 96M

Method of Malfunction Detection

Detects the overcurrent with current sensor (CT).

Malfunction Decision Conditions

Malfunction is decided when the detected current value exceeds the below mentioned value for 2 seconds.

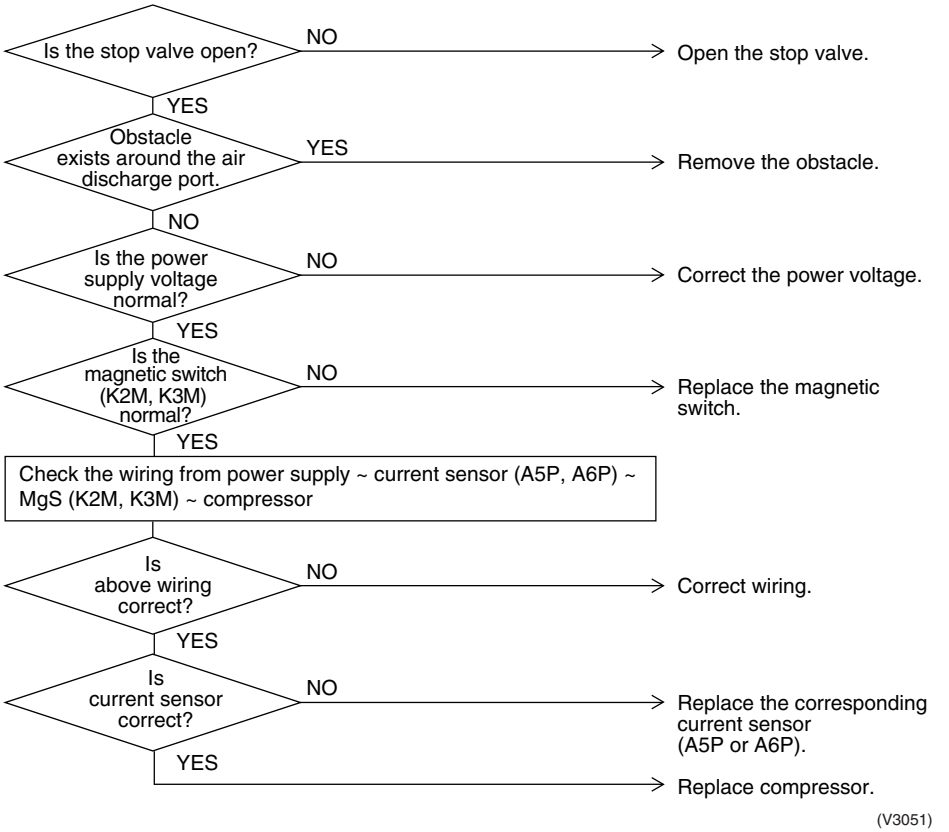
- 200 V unit : 34.0 A

Supposed Causes

- Closed stop value
- Obstacles at the discharge port
- Improper power voltage
- Faulty magnetic switch
- Faulty compressor
- Faulty current sensor

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



Note: Abnormal case

- The current sensor value is 0 during STD compressor operation.
- The current sensor value is more than 15.0A during STD compressor operation.

2.18 "E7" Malfunction of Outdoor Unit Fan Motor

Remote Controller Display

E7

Applicable Models

REYQ72M, 96M

Method of Malfunction Detection

Malfunction of fan motor system is detected according to the fan speed detected by hall IC when the fan motor runs.

Malfunction Decision Conditions

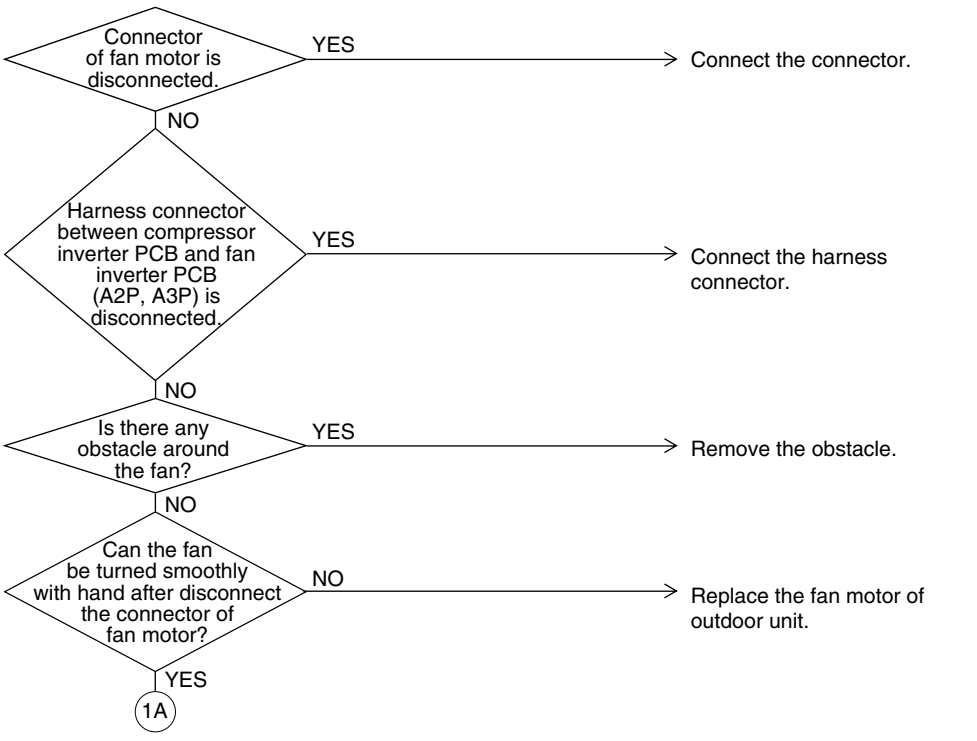
- When the fan runs with speed less than a specified one for 15 seconds or more when the fan motor running conditions are met
- When connector detecting fan speed is disconnected
- When malfunction is generated 4 times, the system shuts down.

Supposed Causes

- Malfunction of fan motor
- The harness connector between fan motor and PC board is left in disconnected, or faulty connector
- Fan does not run due to foreign matters tangled
- Clearing condition: Operate for 5 minutes (normal)

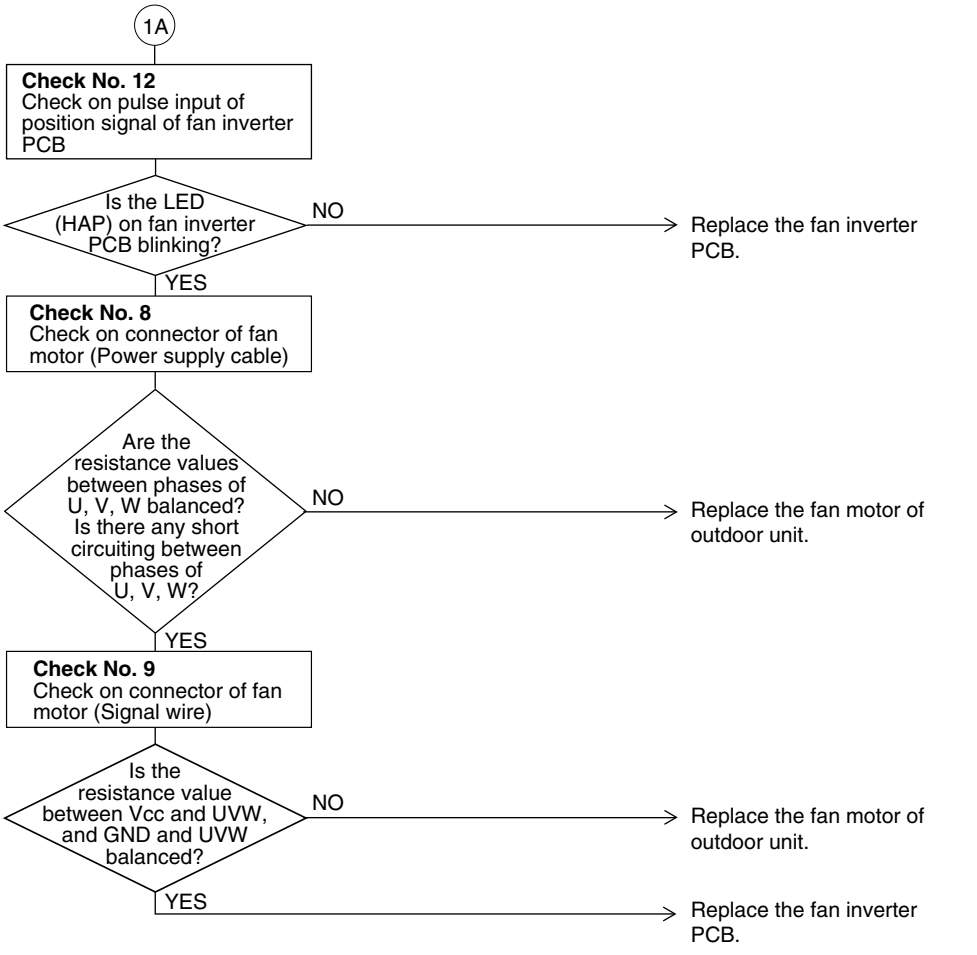
Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V3076)

Troubleshooting



Refer check 8, 9 and 12 to P.212~213.

2.19 "E9" Outdoor Unit: Malfunction of Moving Part of Electronic Expansion Valve (Y1E, Y2E, Y3E)

Remote Controller Display

E9

Applicable Models

REYQ72M, 96M

Method of Malfunction Detection

Check disconnection of connector
Check continuity of expansion valve coil

Malfunction Decision Conditions

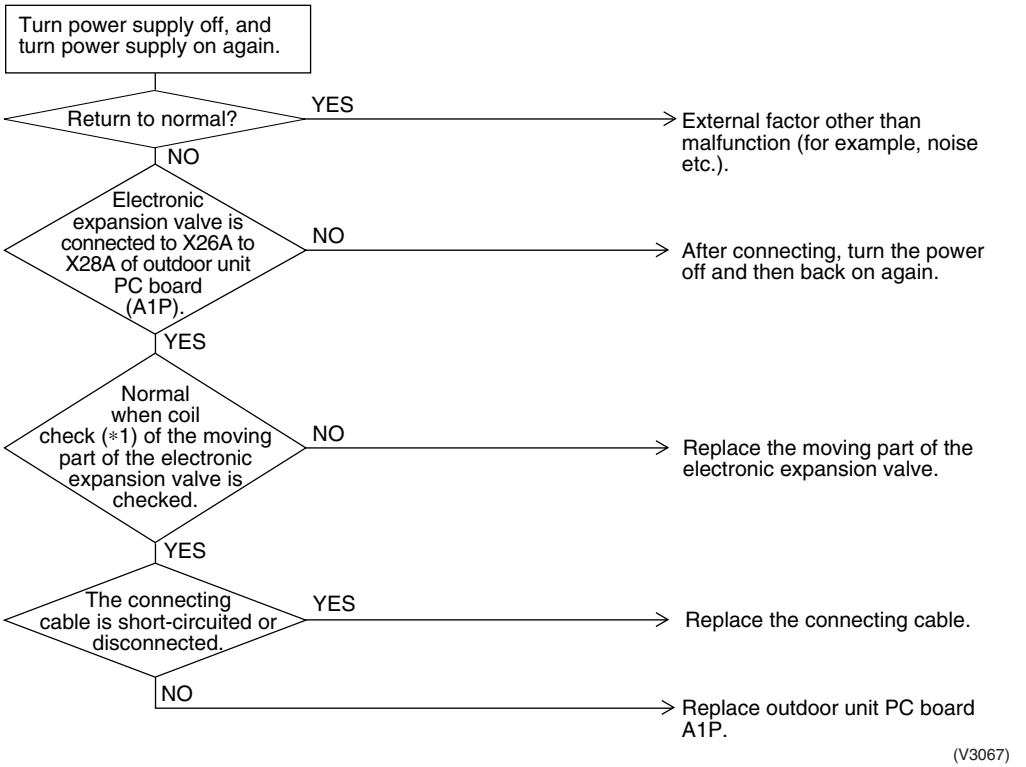
Error is generated under no common power supply when the power is on.

Supposed Causes

- Defect of moving part of electronic expansion valve
- Defect of outdoor unit PC board (A1P)
- Defect of connecting cable

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V3067)

∗1 Coil check method for the moving part of the electronic expansion valve
Disconnect the electronic expansion valve from the PC board and check the continuity between the connector pins.

(Normal)

Pin No.	1. White	2. Yellow	3. Orange	4. Blue	5. Red	6. Brown
1. White		×	◎ Approx. 300Ω	×	○ Approx. 150Ω	×
2. Yellow			×	◎ Approx. 300Ω	×	○ Approx. 150Ω
3. Orange				×	○ Approx. 150Ω	×
4. Blue					×	○ Approx. 150Ω
5. Red						×
6. Brown						

◎ : Continuity Approx. 300Ω
○ : Continuity Approx. 150Ω
× : No continuity

2.20 "F3" Outdoor Unit: Abnormal Discharge Pipe Temperature

Remote Controller Display

F3

Applicable Models

REYQ72M, 96M

Method of Malfunction Detection

Abnormality is detected according to the temperature detected by the discharge pipe temperature sensor.

Malfunction Decision Conditions

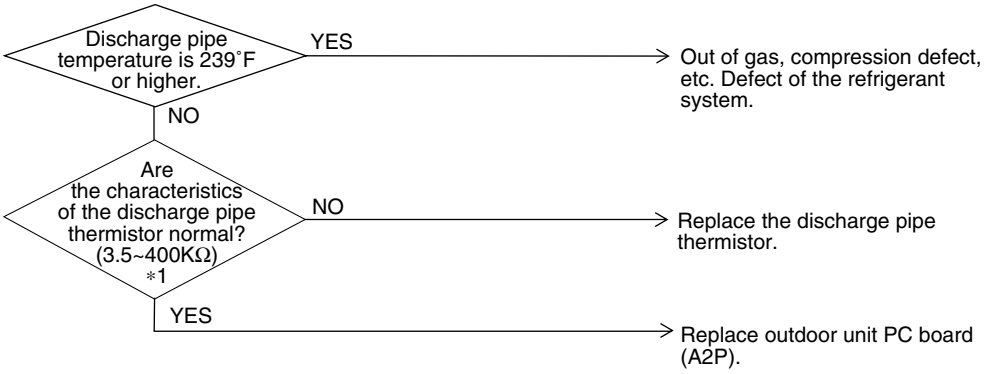
- When the discharge pipe temperature rises to an abnormally high level
- When the discharge pipe temperature rises suddenly

Supposed Causes

- Faulty discharge pipe temperature sensor
- Faulty connection of discharge pipe temperature sensor
- Faulty outdoor unit PC board

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V3068)

*1: Refer to thermistor resistance / temperature characteristics table on P.239.

2.21 "F6" Refrigerant Overcharged

Remote Controller Display

F6

Applicable Models

REYQ72M, 96M

Method of Malfunction Detection

Refrigerant overcharge is detected from the receiver gas pipe temperature during test operation.

Malfunction Decision Conditions

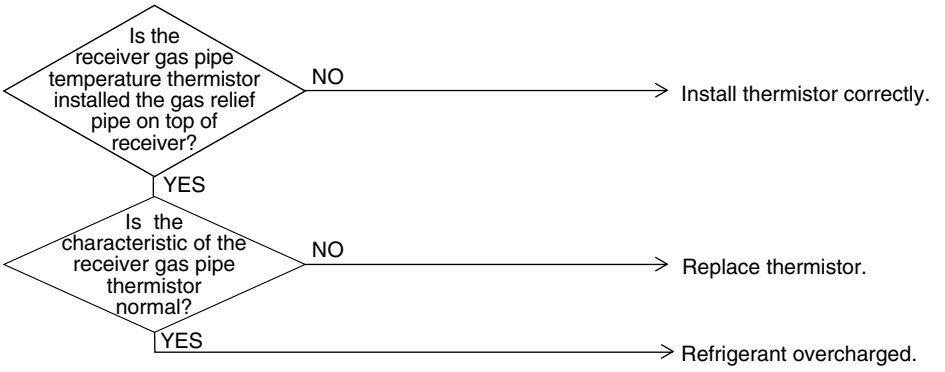
When the receiver gas pipe temperature is lower than evaporating temperature during test operation.

Supposed Causes

- Refrigerant overcharge
- Disconnection of the receiver gas pipe thermistor

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V2797)

2.22 "H7" Abnormal Outdoor Fan Motor Signal

Remote Controller Display

H7

Applicable Models

REYQ72M, 96M

Method of Malfunction Detection

Detection of abnormal signal from fan motor.

Malfunction Decision Conditions

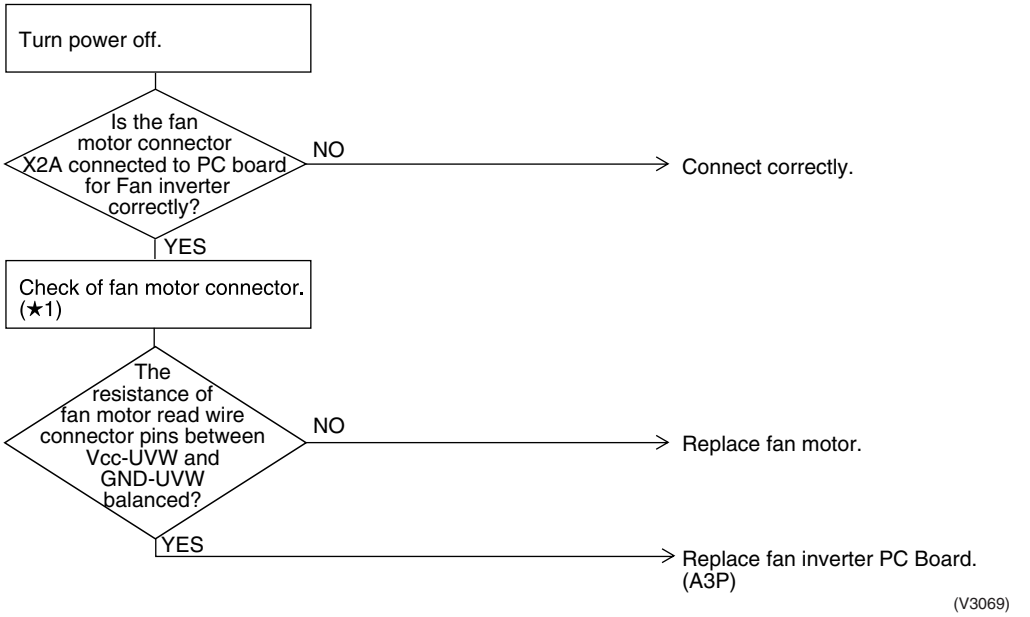
In case of detection of abnormal signal at starting fan motor.

Supposed Causes

- Abnormal fan motor signal (circuit malfunction)
- Broken, short or disconnection connector of fan motor connection cable
- Fan Inverter PC board malfunction

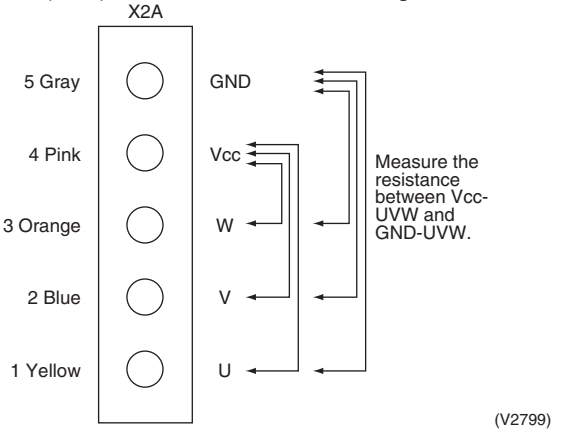
Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V3069)

★1: Disconnect connector (X2A) and measure the following resistance.



(V2799)

2.23 "H9" Outdoor Unit: Malfunction of Thermistor for Outdoor Air (R1T)

Remote Controller Display

H9

Applicable Models

REYQ72M, 96M

Method of Malfunction Detection

The abnormal detection is based on current detected by current sensor.

Malfunction Decision Conditions

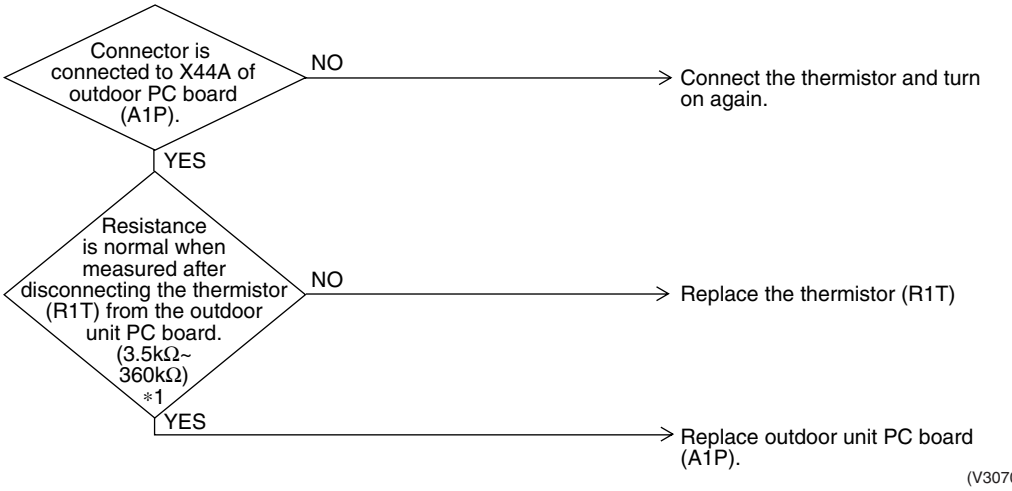
When the outside air temperature sensor has short circuit or open circuit.

Supposed Causes

- Defect of thermistor (R1T) for outdoor air
- Defect of outdoor unit PC board (A1P)

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



The alarm indicator is displayed when the fan only is being used also.

*1: Refer to thermistor resistance / temperature characteristics table on P.239.

2.24 "J2" Current Sensor Malfunction

Remote Controller Display

J2

Applicable Models

REYQ72M, 96M

Method of Malfunction Detection

Malfunction is detected according to the current value detected by current sensor.

Malfunction Decision Conditions

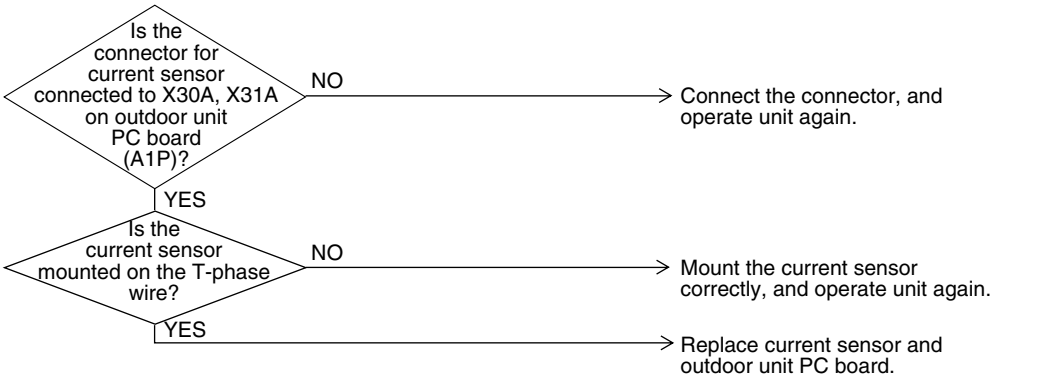
When the current value detected by current sensor becomes 5A or lower, or 40A or more during standard compressor operation.

Supposed Causes

- Faulty current sensor
- Faulty outdoor unit PC board

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



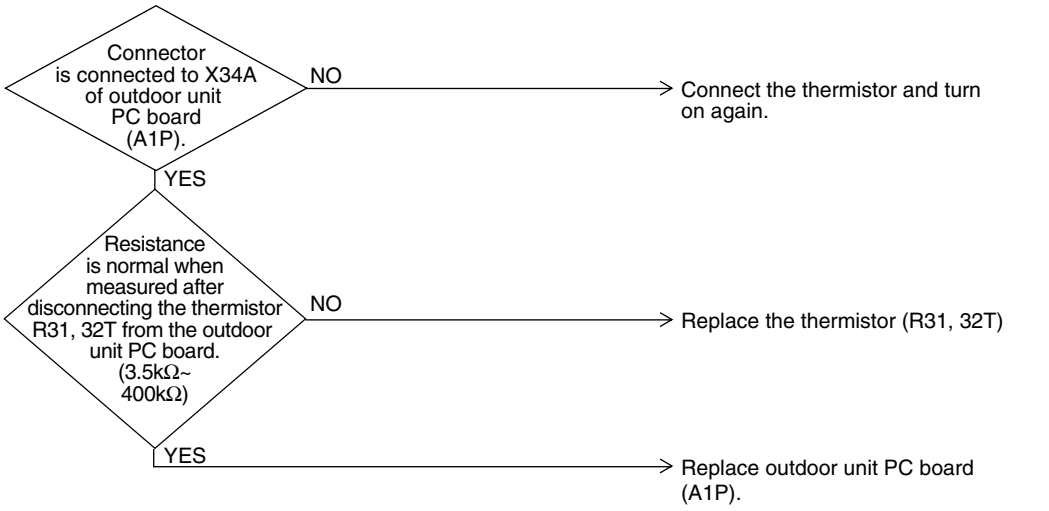
(V3071)

2.25 "J3" Outdoor Unit: Malfunction of Discharge Pipe Thermistor (R31~32T)

Remote Controller Display	J3
Applicable Models	REYQ72M, 96M
Method of Malfunction Detection	Malfunction is detected from the temperature detected by discharge pipe temperature thermistor.
Malfunction Decision Conditions	When a short circuit or an open circuit in the discharge pipe temperature thermistor is detected.
Supposed Causes	■ Defect of thermistor (R31T, R32T) for outdoor unit discharge pipe ■ Defect of outdoor unit PC board (A1P)

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



The alarm indicator is displayed when the fan is being used also.

2.26 "J4" Malfunction of Heat Exchanger Gas Pipe Thermistor (R81, 82T)

Remote Controller Display

J4

Applicable Models

REYQ72M, 96M

Method of Malfunction Detection

Malfunction is detected according to the temperature detected by heat exchanger gas pipe thermistor.

Malfunction Decision Conditions

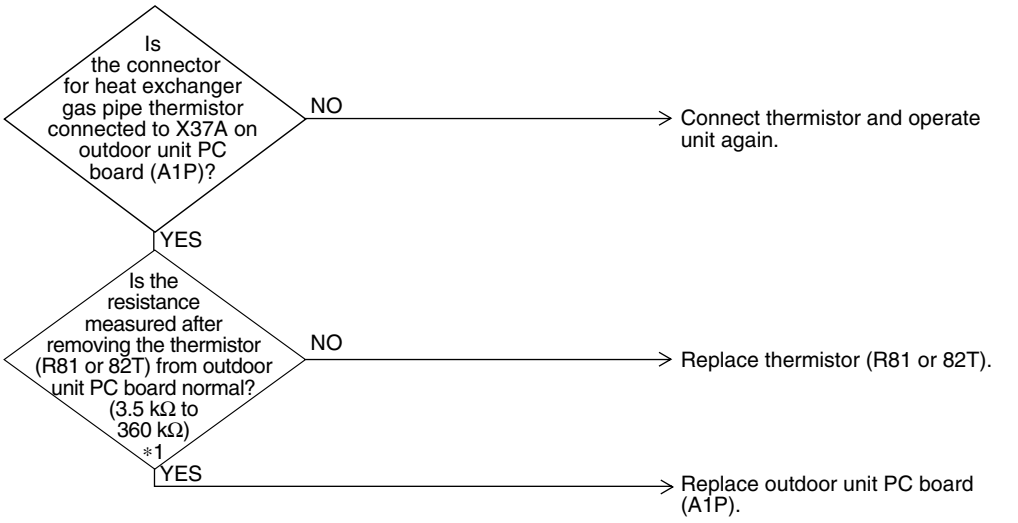
When the heat exchanger gas pipe thermistor is short circuited or open.

Supposed Causes

- Faulty heat exchanger gas pipe thermistor (R81, 82T)
- Faulty outdoor unit PC board

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V3075)

*1: Refer to thermistor resistance / temperature characteristics table on P.239.

2.27 "J5" Outdoor Unit: Malfunction of Thermistor (R2T) for Suction Pipe

Remote Controller Display

J5

Applicable Models

REYQ72M, 96M

Method of Malfunction Detection

Malfunction is detected from the temperature detected by the suction pipe temperature thermistor.

Malfunction Decision Conditions

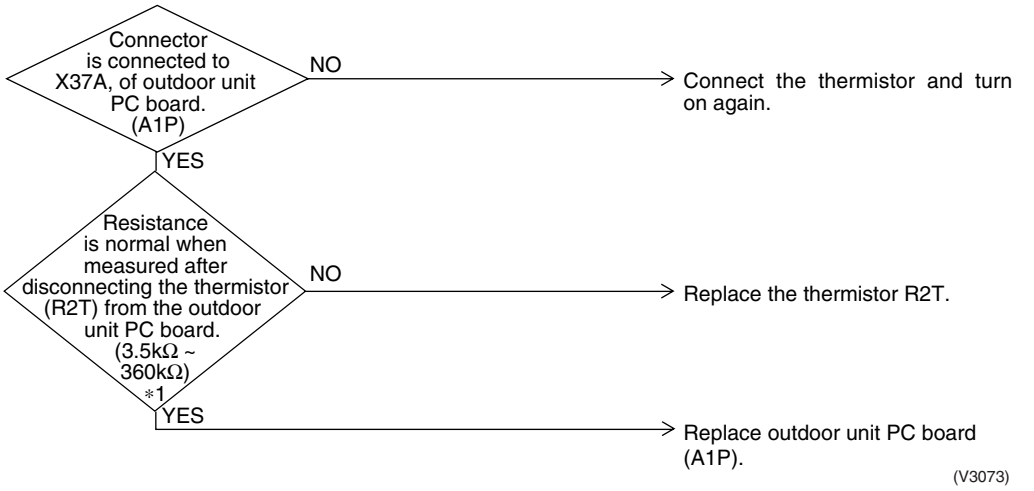
When a short circuit or an open circuit in the suction pipe temperature thermistor is detected.

Supposed Causes

- Defect of thermistor (R2T) for outdoor unit suction pipe
- Defect of outdoor unit PC board (A1P)

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



*1: Refer to thermistor resistance / temperature characteristics table on P.239.

2.28 "J6" Outdoor Unit: Malfunction of Thermistor (R4T) for Outdoor Unit Heat Exchanger

Remote Controller Display

J6

Applicable Models

REYQ72M, 96M

Method of Malfunction Detection

Malfunction is detected from the temperature detected by the heat exchanger thermistor.

Malfunction Decision Conditions

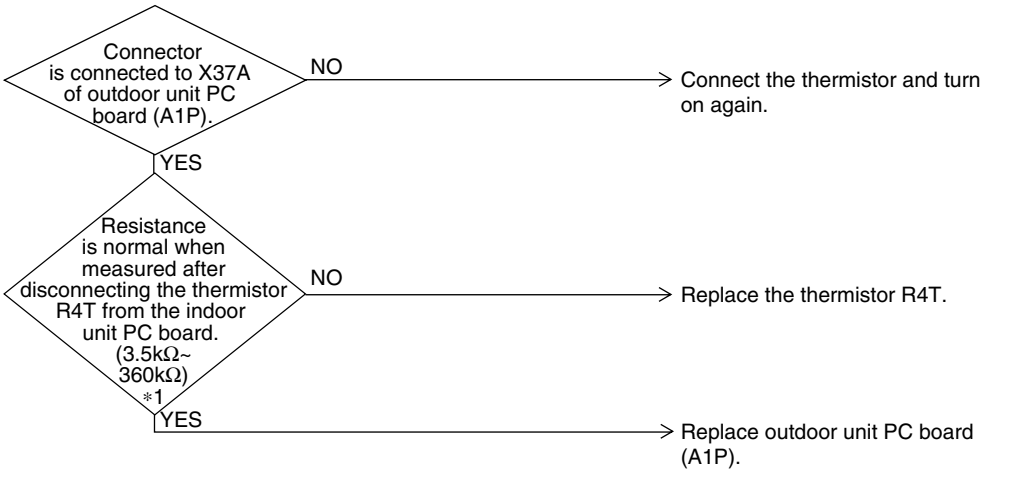
When a short circuit or an open circuit in the heat exchange thermistor is detected.

Supposed Causes

- Defect of thermistor (R4T) for outdoor unit coil
- Defect of outdoor unit PC board (A1P)

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V3074)

*1: Refer to thermistor resistance / temperature characteristics table on P.239.

2.29 "J7" Malfunction of Receiver Outlet Liquid Pipe Thermistor (R6T)

Remote Controller Display

J7

Applicable Models

REYQ96M

Method of Malfunction Detection

Malfunction is detected according to the temperature detected by receiver outlet liquid pipe thermistor.

Malfunction Decision Conditions

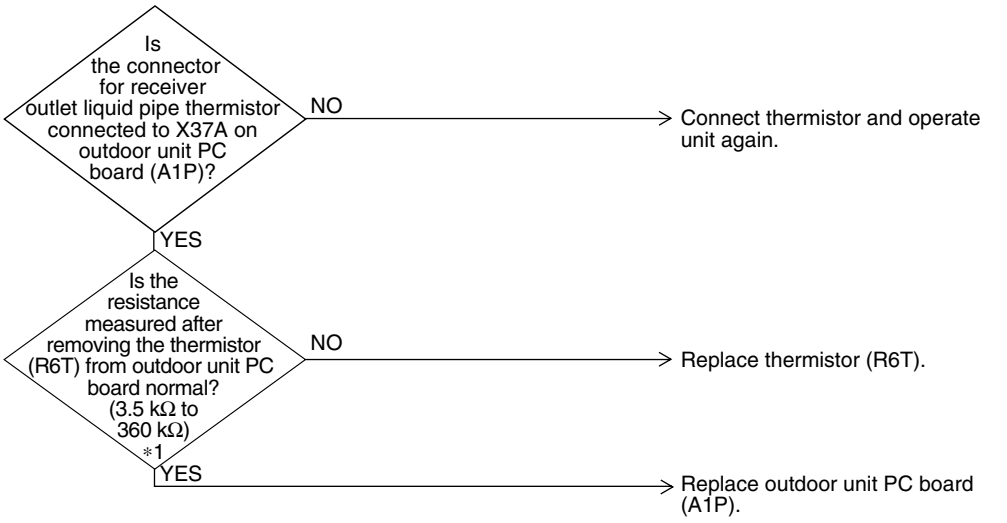
When the receiver outlet liquid pipe thermistor is short circuited or open.

Supposed Causes

- Faulty receiver outlet liquid pipe thermistor (R6T)
- Faulty outdoor unit PC board

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V3075)

*1: Refer to thermistor resistance / temperature characteristics table on P.239.

2.30 "J8" Malfunction of Oil Equalizing Pipe Thermistor (R7T)

Remote Controller Display

J8

Applicable Models

REYQ72M, 96M

Method of Malfunction Detection

Malfunction is detected according to the temperature detected by oil equalizing pipe thermistor.

Malfunction Decision Conditions

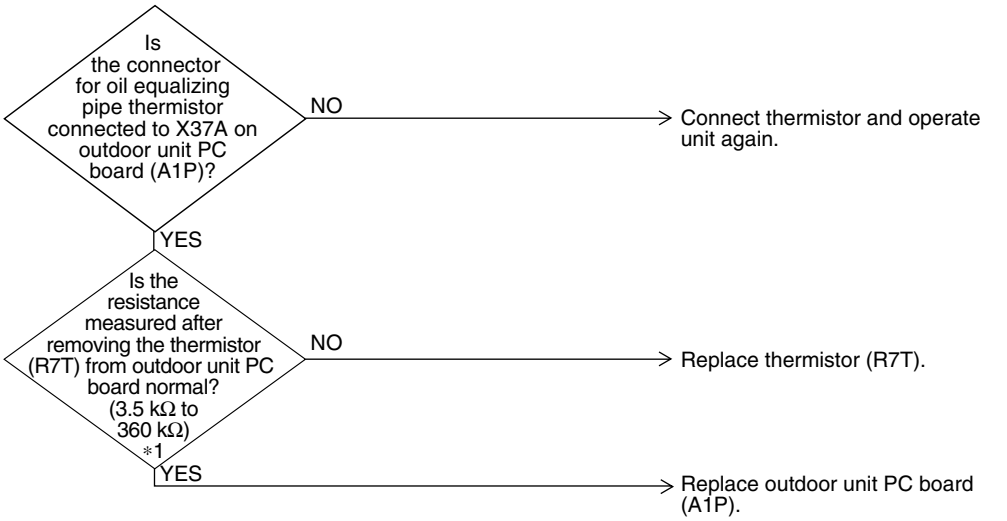
When the oil equalizing pipe thermistor is short circuited or open.

Supposed Causes

- Faulty oil equalizing pipe thermistor (R7T)
- Faulty outdoor unit PC board

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V3075)

*1: Refer to thermistor resistance / temperature characteristics table on P.239.

2.31 "J9" Malfunction of Sub-cooling Heat Exchanger Gas Pipe Thermistor (R5T)

Remote Controller Display

J9

Applicable Models

REYQ72M, 96M

Method of Malfunction Detection

Malfunction is detected according to the temperature detected by sub-cooling heat exchanger gas pipe thermistor.

Malfunction Decision Conditions

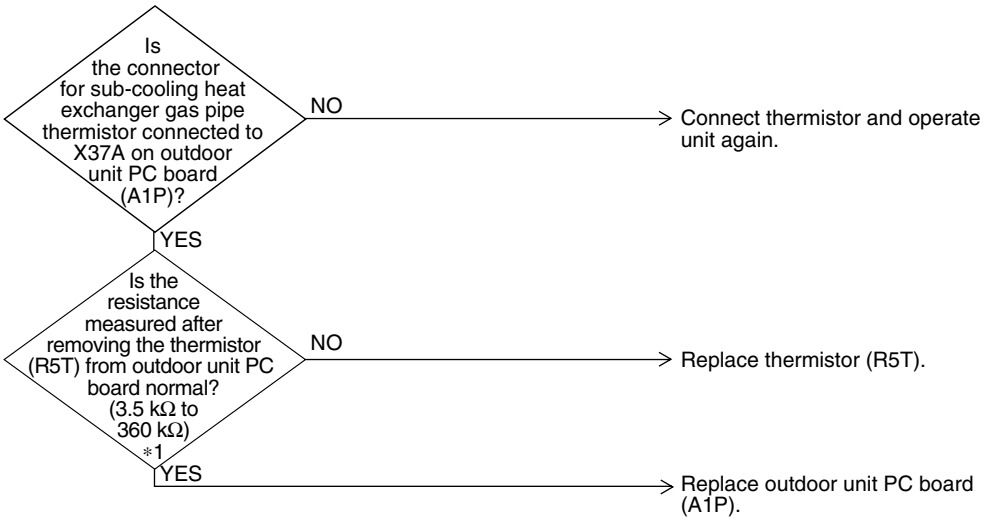
When the sub-cooling heat exchanger gas pipe thermistor is short circuited or open.

Supposed Causes

- Faulty sub-cooling heat exchanger gas pipe thermistor (R5T)
- Faulty outdoor unit PC board

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V3075)

*1: Refer to thermistor resistance / temperature characteristics table on P.239.

2.32 "JA" Outdoor Unit: Malfunction of Discharge Pipe Pressure Sensor

Remote Controller Display

JA

Applicable Models

REYQ72M, 96M

Method of Malfunction Detection

Malfunction is detected from the pressure detected by the high pressure sensor.

Malfunction Decision Conditions

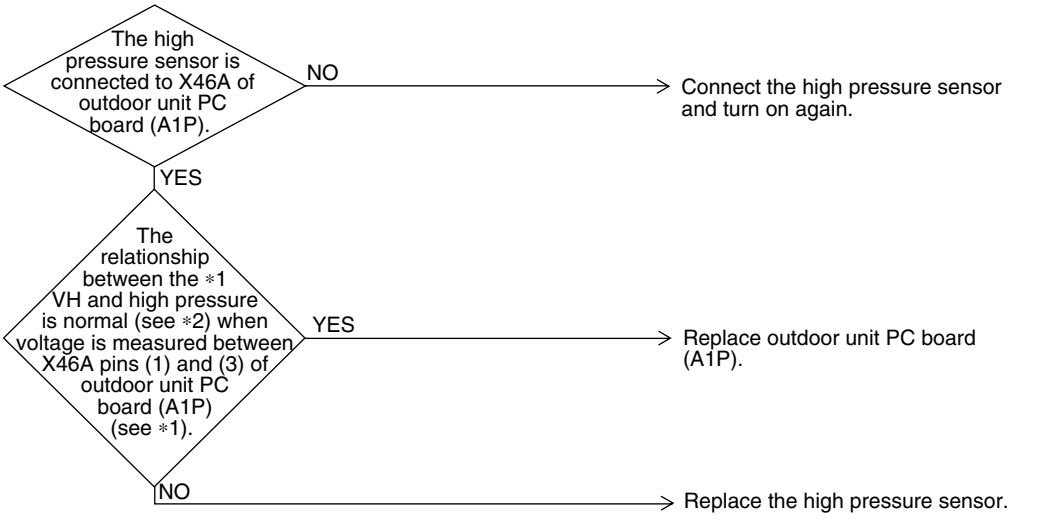
When the discharge pipe pressure sensor is short circuit or open circuit.

Supposed Causes

- Defect of high pressure sensor system
- Connection of low pressure sensor with wrong connection.
- Defect of outdoor unit PC board.

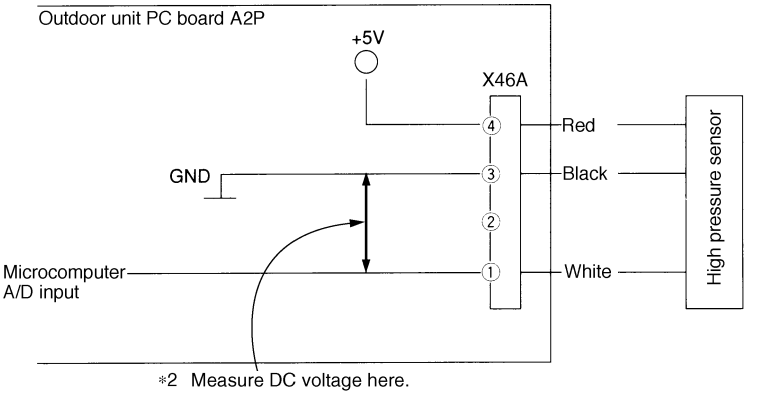
Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V2806)

∗1: Voltage measurement point



(V2807)

∗2: Refer to pressure sensor, pressure / voltage characteristics table on P.241.

2.33 "JC" Outdoor Unit: Malfunction of Suction Pipe Pressure Sensor

Remote Controller Display

JC

Applicable Models

REYQ72M, 96M

Method of Malfunction Detection

Malfunction is detected from pressure detected by low pressure sensor.

Malfunction Decision Conditions

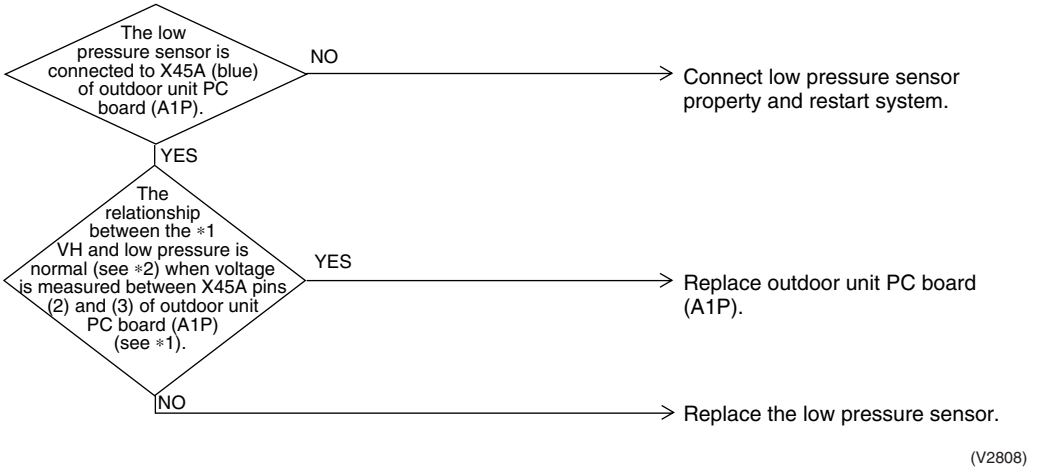
When the suction pipe pressure sensor is short circuit or open circuit.

Supposed Causes

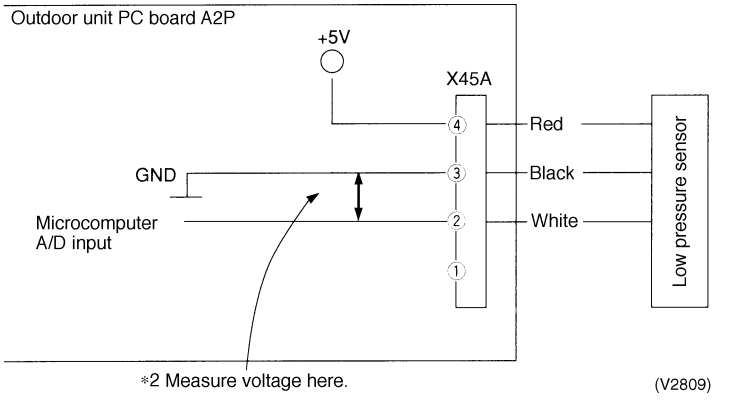
- Defect of low pressure sensor system
- Connection of high pressure sensor with wrong connection.
- Defect of outdoor unit PC board.

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



∗1: Voltage measurement point



∗2: Refer to pressure sensor, pressure/voltage characteristics table on P.241.

2.34 "L4" Outdoor Unit: Malfunction of Inverter Radiating Fin Temperature Rise

Remote Controller Display

L4

Applicable Models

REYQ72M, 96M

Method of Malfunction Detection

Fin temperature is detected by the thermistor of the radiation fin.

Malfunction Decision Conditions

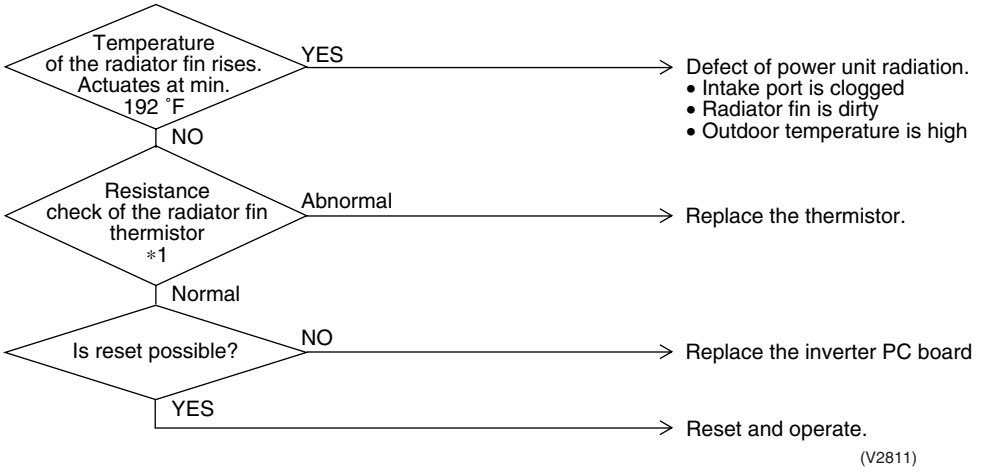
When the temperature of the inverter radiation fin increases above 192°F.

Supposed Causes

- Actuation of fin thermal (Actuates above 192°F)
- Defect of inverter PC board
- Defect of fin thermistor

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



*1: Refer to thermistor resistance / temperature characteristics table on P.239.

2.35 "L5" Outdoor Unit: Inverter Compressor Abnormal

Remote Controller Display

L5

Applicable Models

REYQ72M, 96M

Method of Malfunction Detection

Malfunction is detected from current flowing in the power transistor.

Malfunction Decision Conditions

When an excessive current flows in the power transistor.
(Instantaneous overcurrent also causes activation.)

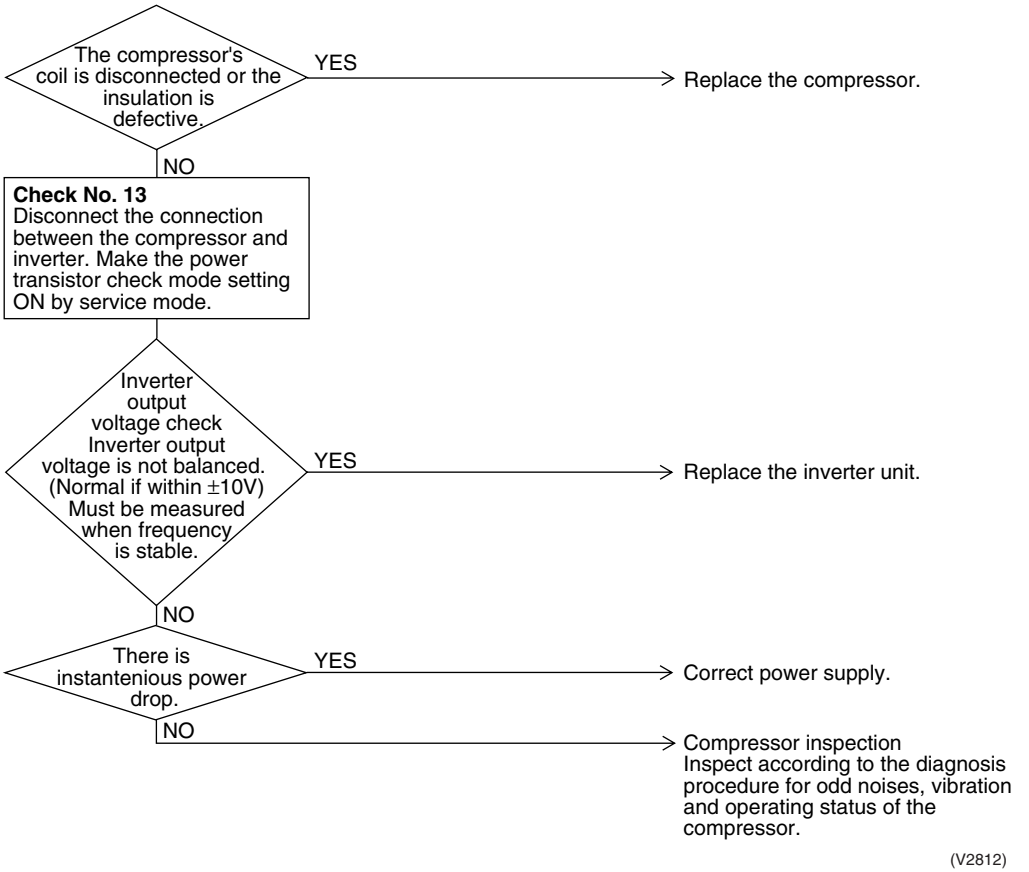
Supposed Causes

- Defect of compressor coil (disconnected, defective insulation)
- Compressor start-up malfunction (mechanical lock)
- Defect of inverter PC board

Troubleshooting

Compressor inspection

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



Higher voltage than actual is displayed when the inverter output voltage is checked by tester.

Refer check 13 to P.213.

2.36 "L8" Outdoor Unit: Inverter Current Abnormal

Remote Controller Display

L8

Applicable Models

REYQ72M, 96M

Method of Malfunction Detection

Malfunction is detected by current flowing in the power transistor.

Malfunction Decision Conditions

When overload in the compressor is detected.

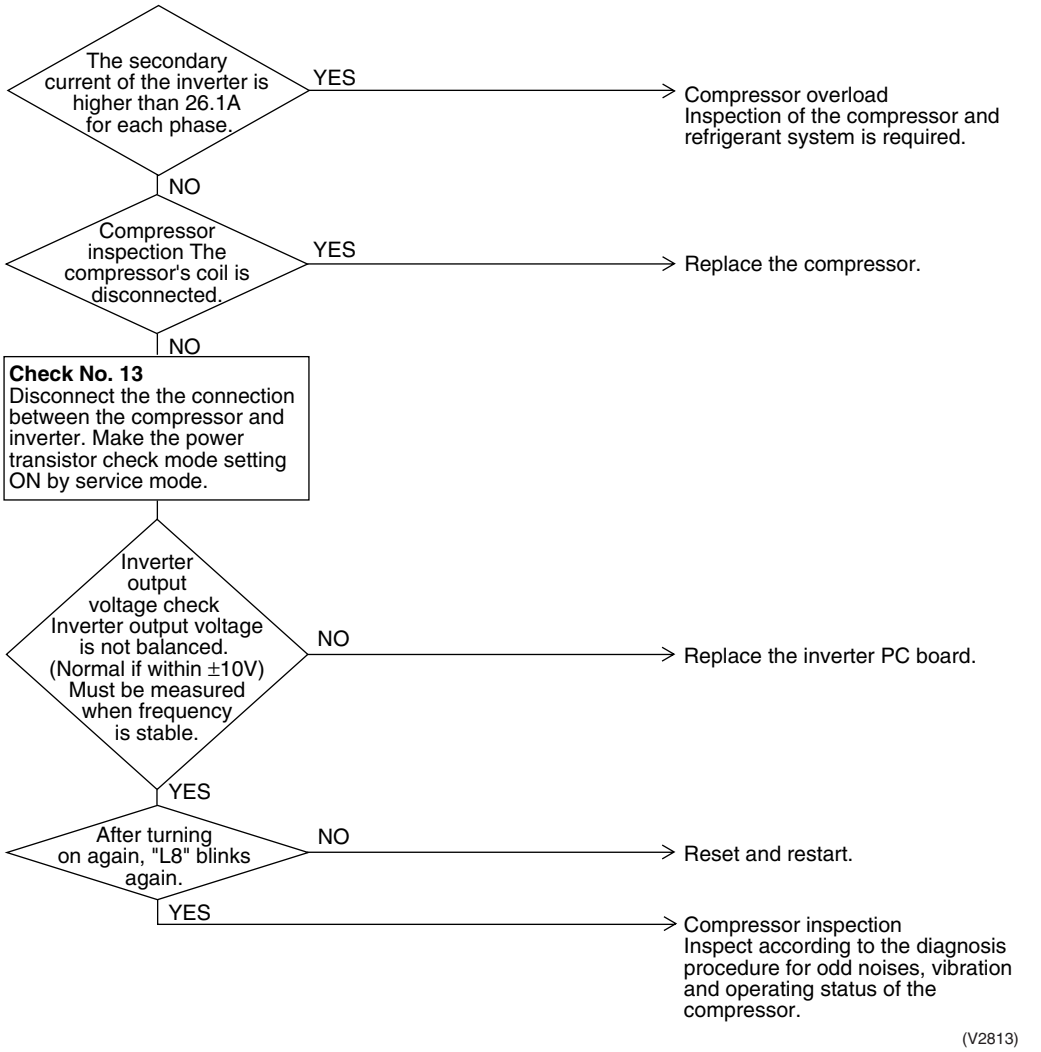
Supposed Causes

- Compressor overload
- Compressor coil disconnected
- Defect of inverter PC board

Troubleshooting

Output current check

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V2813)

Refer check 13 to P.213.

2.37 "L9" Outdoor Unit: Inverter Start up Error

Remote Controller Display

L9

Applicable Models

REYQ72M, 96M

Method of Malfunction Detection

Malfunction is detected from current flowing in the power transistor.

Malfunction Decision Conditions

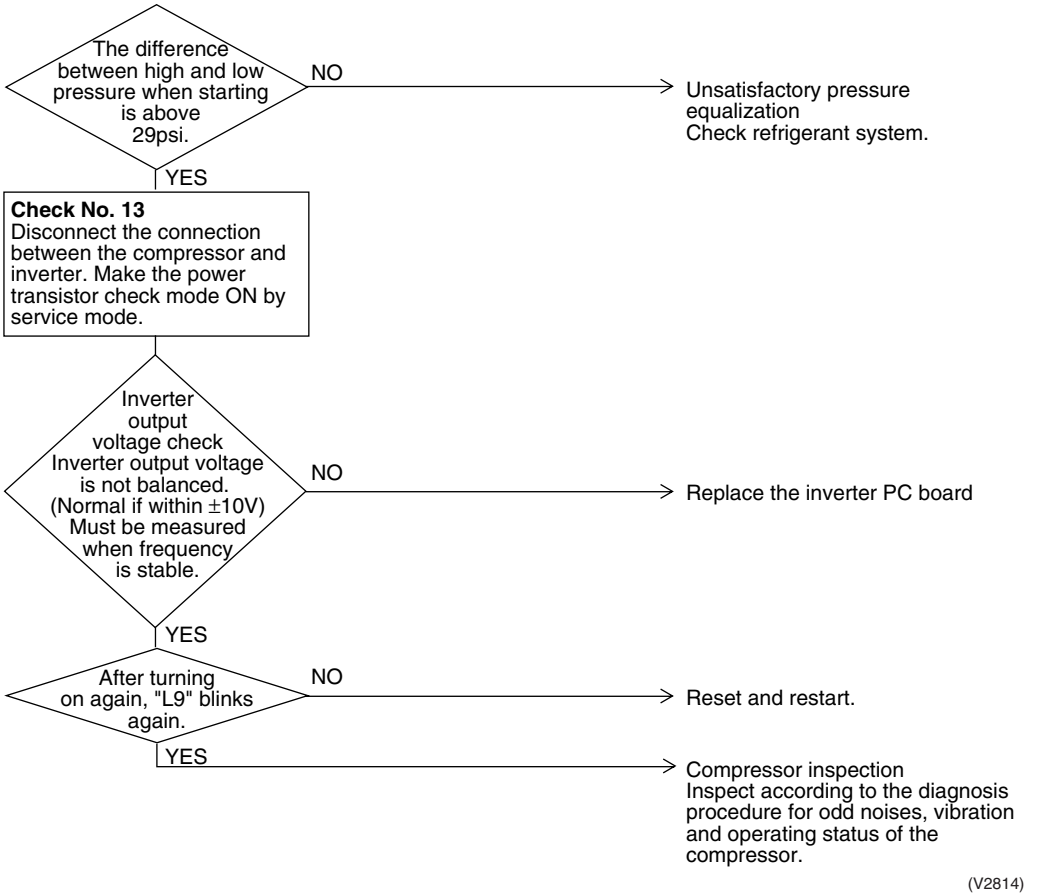
When overload in the compressor is detected during startup

Supposed Causes

- Defect of compressor
- Pressure differential start
- Defect of inverter PC board

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V2814)

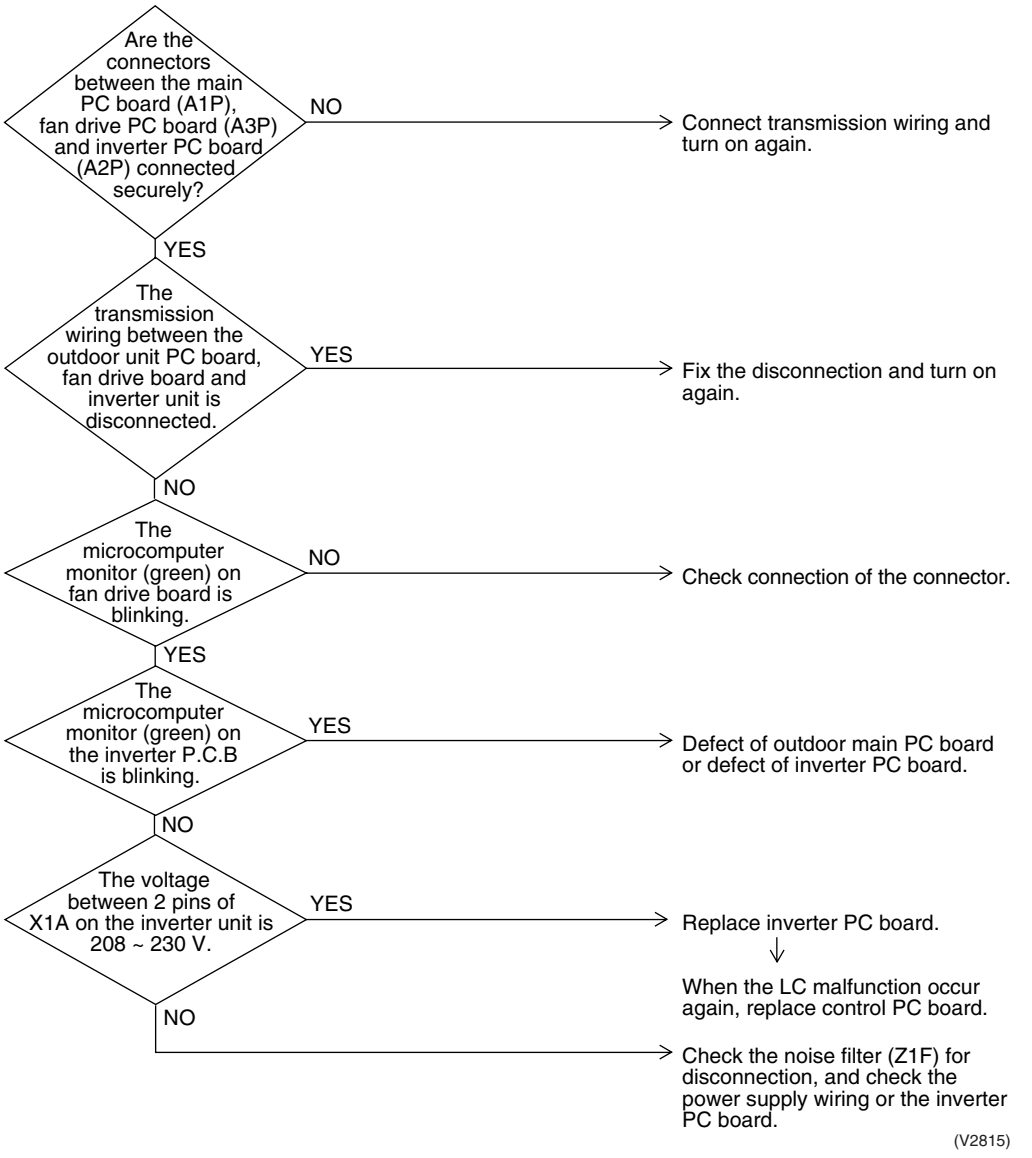
Refer check 13 to P.213.

2.38 "LC" Outdoor Unit: Malfunction of Transmission between Inverter and Control PC Board

Remote Controller Display	LC
Applicable Models	REYQ72M, 96M
Method of Malfunction Detection	Check the communication state between inverter PC board and control PC board by micro-computer.
Malfunction Decision Conditions	When the correct communication is not conducted in certain period.
Supposed Causes	■ Malfunction of connection between the inverter PC board and outdoor control PC board ■ Defect of outdoor control PC board (transmission section) ■ Defect of inverter PC board ■ Defect of noise filter ■ External factor (Noise etc.)

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



2.39 "P1" Outdoor Unit: Inverter Over-Ripple Protection

Remote Controller Display

P1

Applicable Models

REYQ72M, 96M

Method of Malfunction Detection

Imbalance in supply voltage is detected in PC board.

Malfunction Decision Conditions

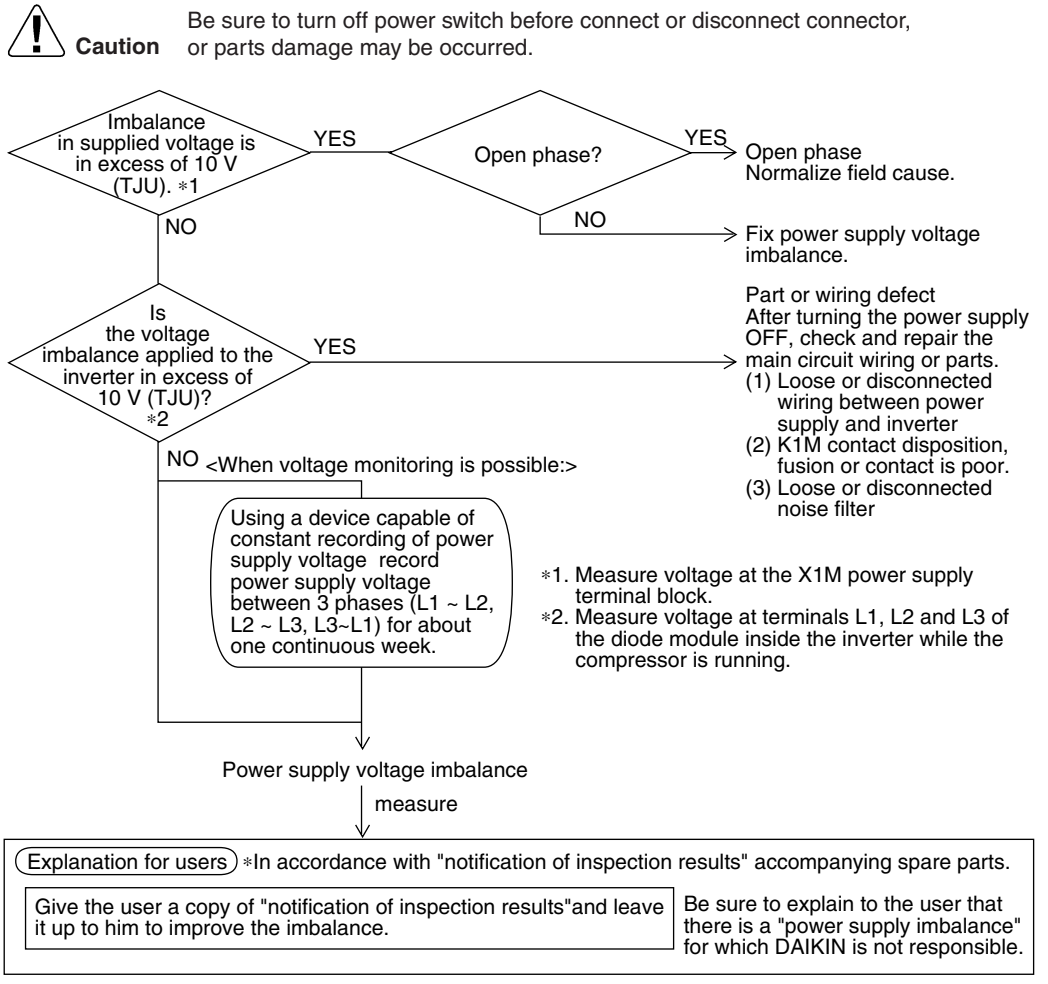
When the resistance value of thermistor becomes a value equivalent to open or short circuited status.

- Malfunction is not decided while the unit operation is continued.
  "P1" will be displayed by pressing the inspection button.

Supposed Causes

- Open phase
- Voltage imbalance between phases
- Defect of main circuit capacitor
- Defect of inverter PC board
- Defect of K1M
- Improper main circuit wiring

Troubleshooting



(V2816)

2.40 "P4" Outdoor Unit: Malfunction of Inverter Radiating Fin Temperature Rise Sensor

Remote Controller Display

P4

Applicable Models

REYQ72M, 96M

Method of Malfunction Detection

Resistance of radiation fin thermistor is detected when the compressor is not operating.

Malfunction Decision Conditions

When the resistance value of thermistor becomes a value equivalent to open or short circuited status.

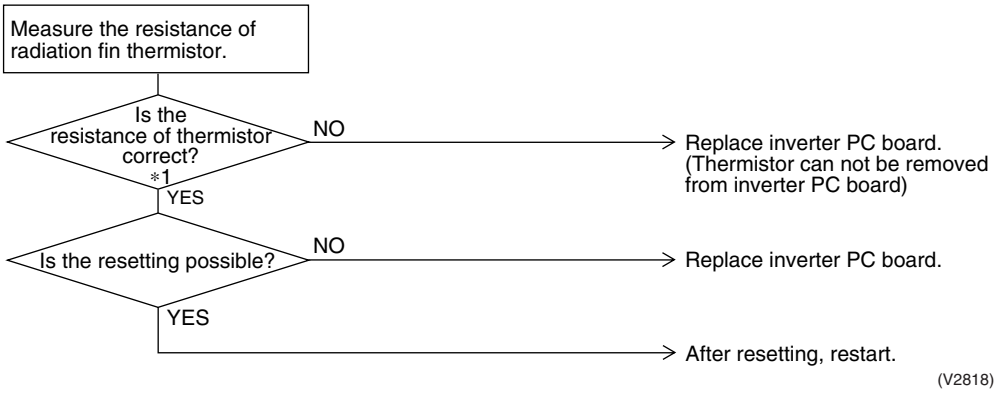
- Malfunction is not decided while the unit operation is continued.
  "P4" will be displayed by pressing the inspection button.

Supposed Causes

- Defect of radiator fin temperature sensor
- Defect of inverter PC board

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



*1: Refer to thermistor resistance / temperature characteristics table on P.239.

2.41 "PJ" Outdoor Unit: Faulty Field Setting after Replacing Main PC Board or Faulty Combination of PC Board

Remote Controller Display

PJ

Applicable Models

REYQ72M, 96M

Method of Malfunction Detection

The faulty (or no) field setting after replacing main PC board or faulty PC board combination is detected through communications with the inverter.

Malfunction Decision Conditions

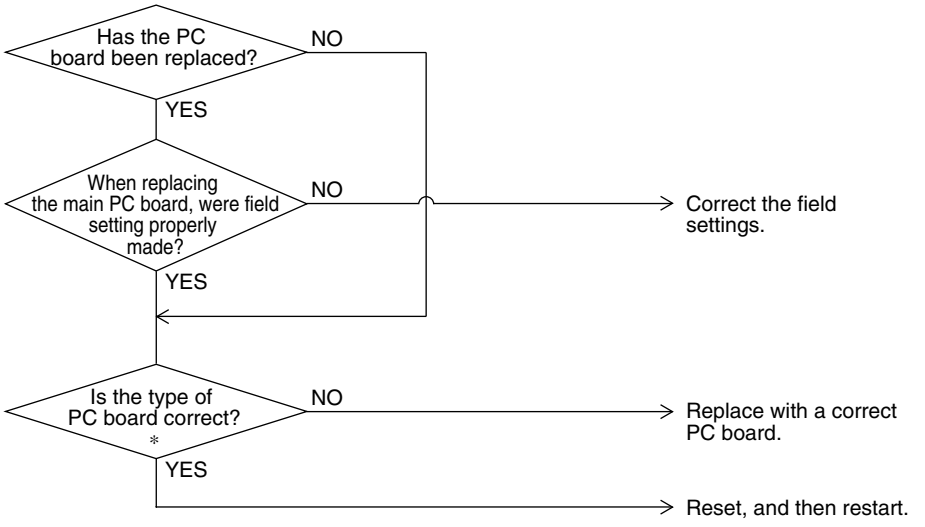
Whether or not the field setting or the type of the PC board is correct through the communication date is judged.

Supposed Causes

- Faulty (or no) field setting after replacing main PC board
- Mismatching of type of PC board

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



*Note) Type of PC board mismatching includes;
Main PC board
Inverter PC board (for compressor)
Fan driver PC board

2.42 "UO" Outdoor Unit: Low Pressure Drop due to Refrigerant Shortage or Electronic Expansion Valve Failure

Remote Controller Display

UO

Applicable Models

REYQ72M, 96M

Method of Malfunction Detection

Short of gas malfunction is detected by discharge pipe temperature thermistor.

Malfunction Decision Conditions

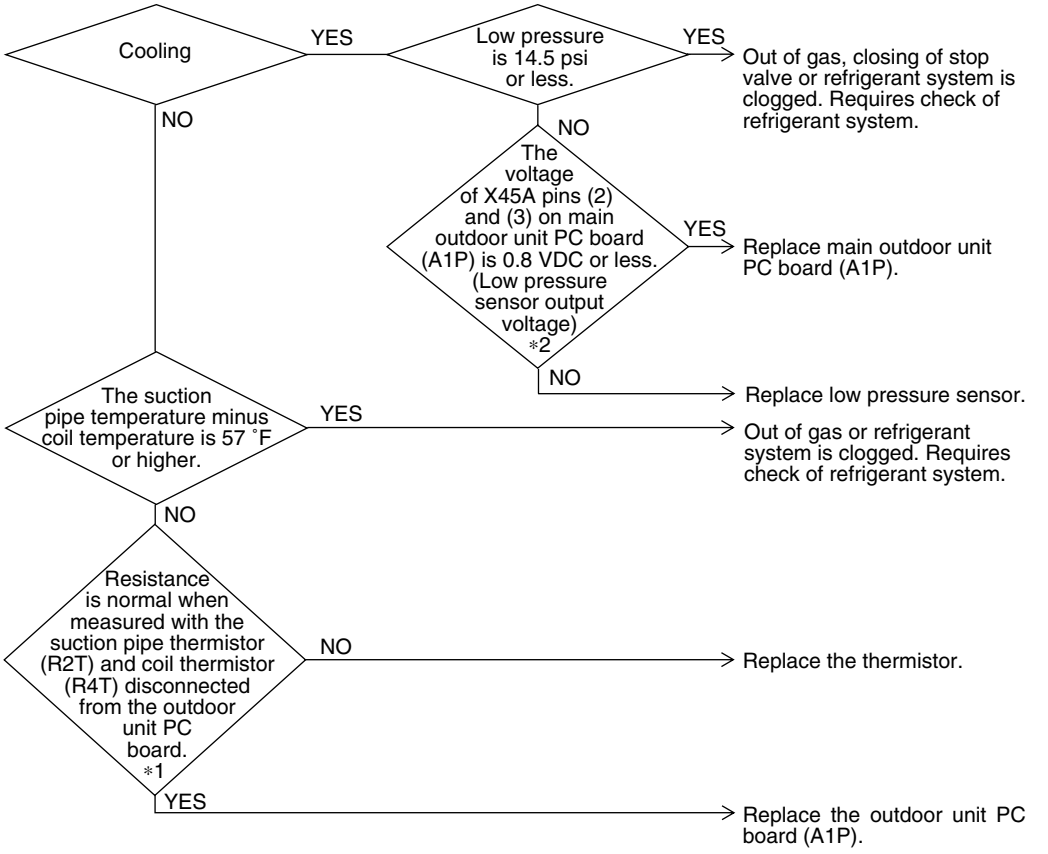
Microcomputer judge and detect if the system is short of refrigerant.
★Malfunction is not decided while the unit operation is continued.

Supposed Causes

- Out of gas or refrigerant system clogging (incorrect piping)
- Defect of pressure sensor
- Defect of outdoor unit PC board (A1P)
- Defect of thermistor R2T or R4T

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



*1: Refer to thermistor resistance / temperature characteristics table on P.239.
*2: Refer to pressure sensor, pressure / voltage characteristics table on P.241.

2.43 "U1" Outdoor Unit: Reverse Phase, Open Phase

Remote Controller Display

U1

Applicable Models

REYQ72M, 96M

Method of Malfunction Detection

Detection is based on the voltage in main circuit capacitor for inverter and supply voltage. The phase of each phase are detected by reverse phase detection circuit and right phase or reverse phase are judged.

Malfunction Decision Conditions

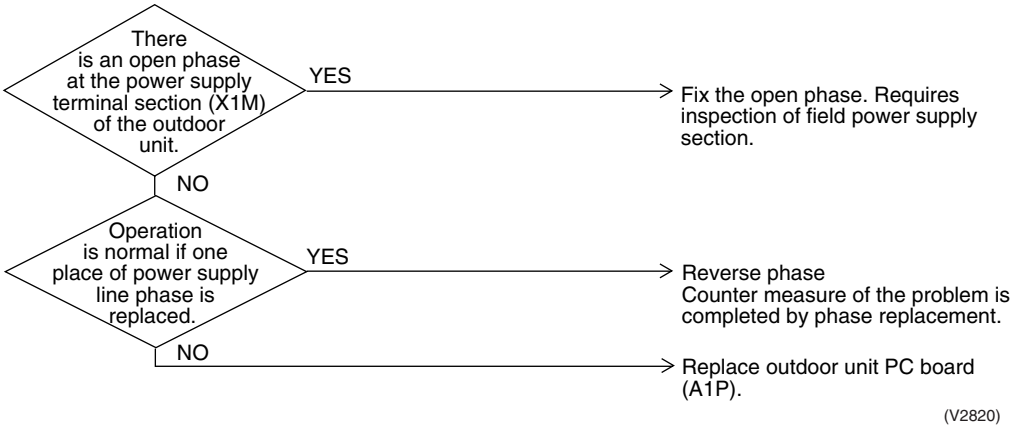
When a significant phase difference is made between phases.

Supposed Causes

- Power supply reverse phase
- Power supply open phase
- Defect of outdoor PC board A1P

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.

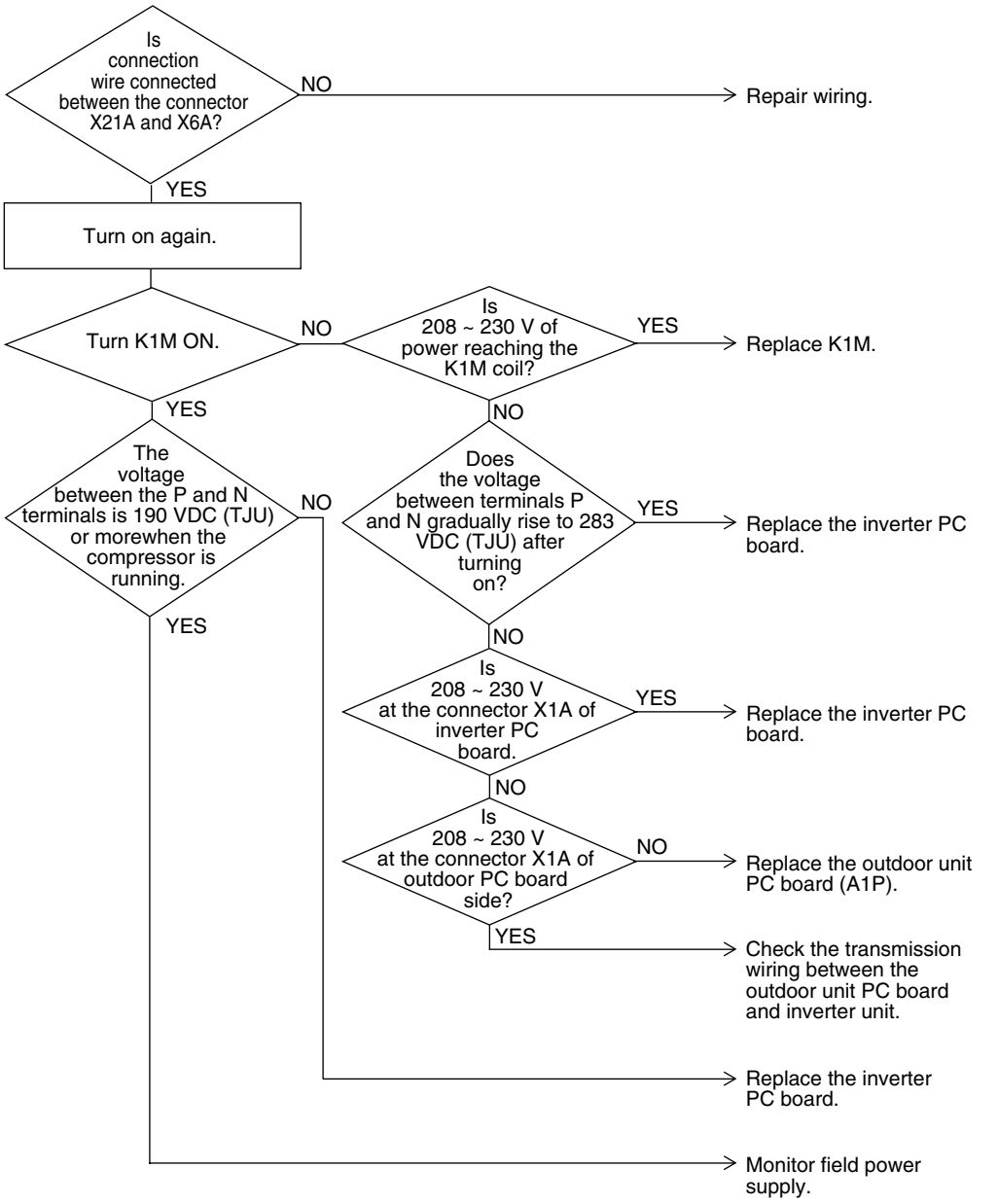


2.44 "U2" Outdoor Unit: Power Supply Insufficient or Instantaneous Failure

Remote Controller Display	U2
Applicable Models	REYQ72M, 96M
Method of Malfunction Detection	Detection of voltage of main circuit capacitor built in the inverter and power supply voltage.
Malfunction Decision Conditions	When the capacitor above only has a voltage of 190 V or less.
Supposed Causes	■ Power supply insufficient ■ Instantaneous failure ■ Open phase ■ Defect of inverter PC board ■ Defect of outdoor control PC board ■ Defect of K1M. ■ Main circuit wiring defect

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V2821)

2.45 "U3" Outdoor Unit: Check Operation not Executed

Remote Controller Display

U3

Applicable Models

REYQ72M, 96M

Method of Malfunction Detection

Check operation is executed or not

Malfunction Decision Conditions

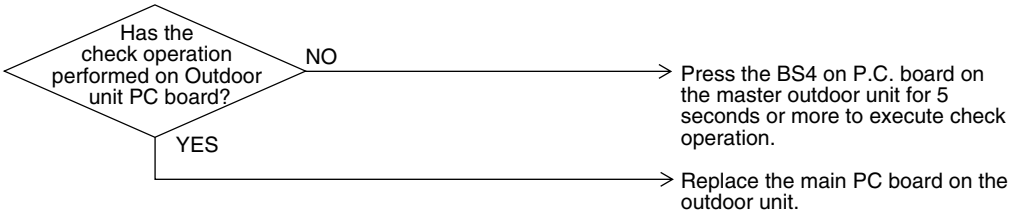
Malfunction is decided when the unit starts operation without check operation.

Supposed Causes

- Check operation is not executed.

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



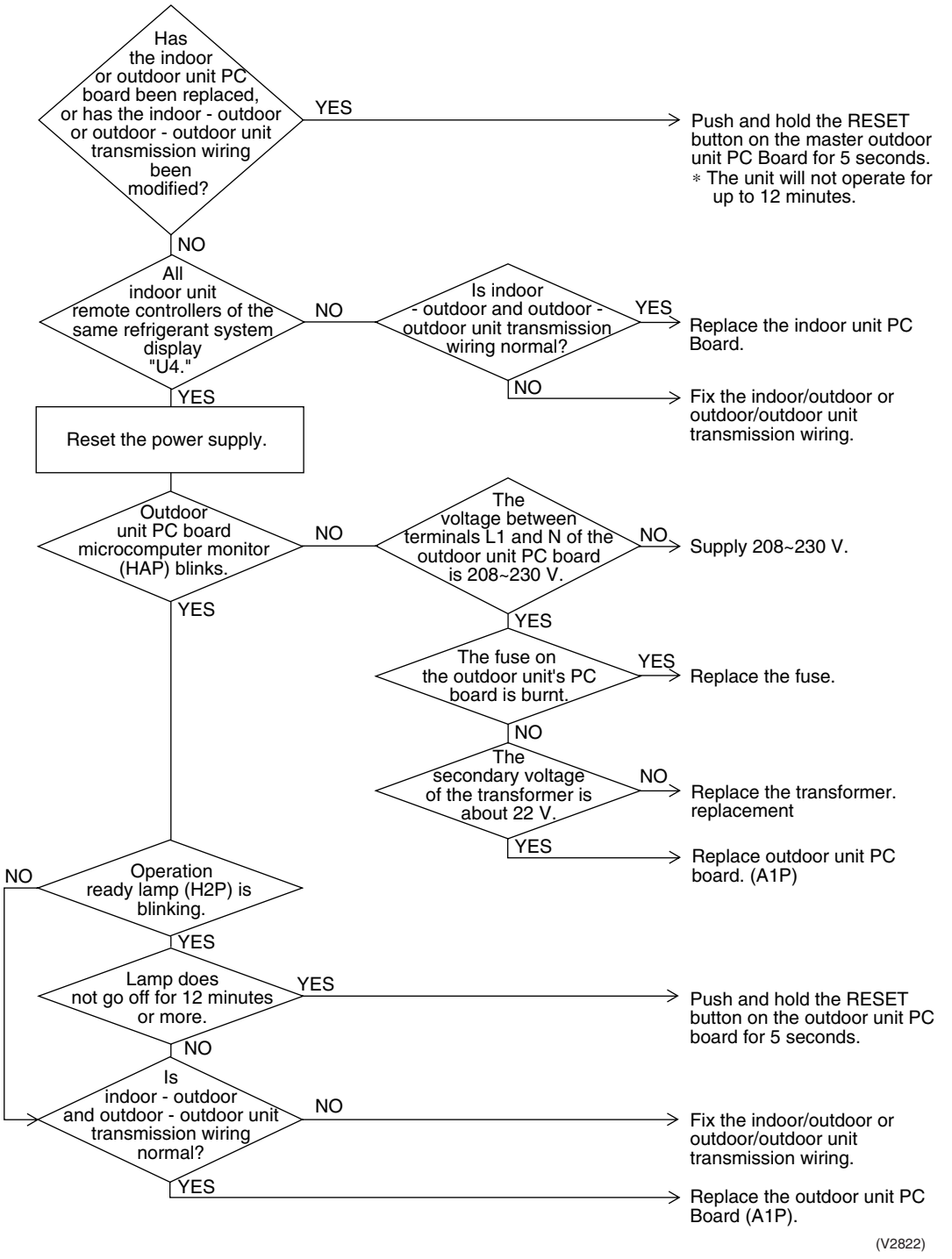
(V3052)

2.46 "U4" Malfunction of Transmission between Indoor Units

Remote Controller Display	U4
Applicable Models	All model of indoor unit REYQ72M, 96M
Method of Malfunction Detection	Microcomputer checks if transmission between indoor and outdoor units is normal.
Malfunction Decision Conditions	When transmission is not carried out normally for a certain amount of time
Supposed Causes	■ Indoor to outdoor, outdoor to outdoor transmission wiring F1, F2 disconnection, short circuit or wrong wiring ■ Outdoor unit power supply is OFF ■ System address doesn't match ■ Defect of indoor unit PC board ■ Defect of outdoor unit PC board

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



2.47 "U5" Indoor Unit: Malfunction of Transmission between Remote Controller and Indoor Unit

Remote Controller Display

U5

Applicable Models

All models of indoor units

Method of Malfunction Detection

In case of controlling with 2-remote controller, check the system using microcomputer is signal transmission between indoor unit and remote controller (main and sub) is normal.

Malfunction Decision Conditions

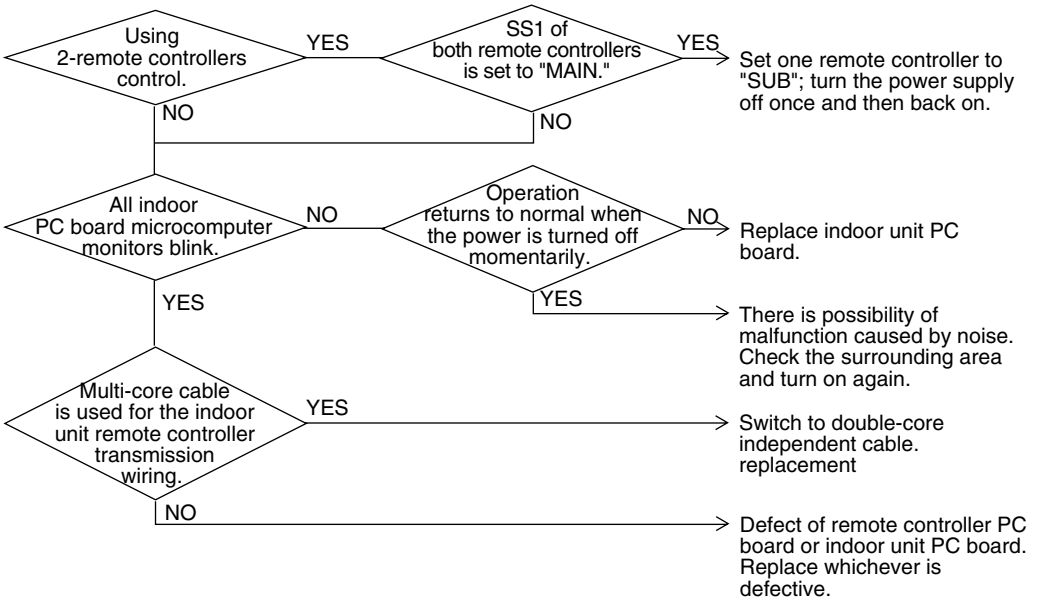
Normal transmission does not continue for specified period.

Supposed Causes

- Malfunction of indoor unit remote controller transmission
- Connection of two main remote controllers (when using 2 remote controllers)
- Defect of indoor unit PC board
- Defect of remote controller PC board
- Malfunction of transmission caused by noise

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



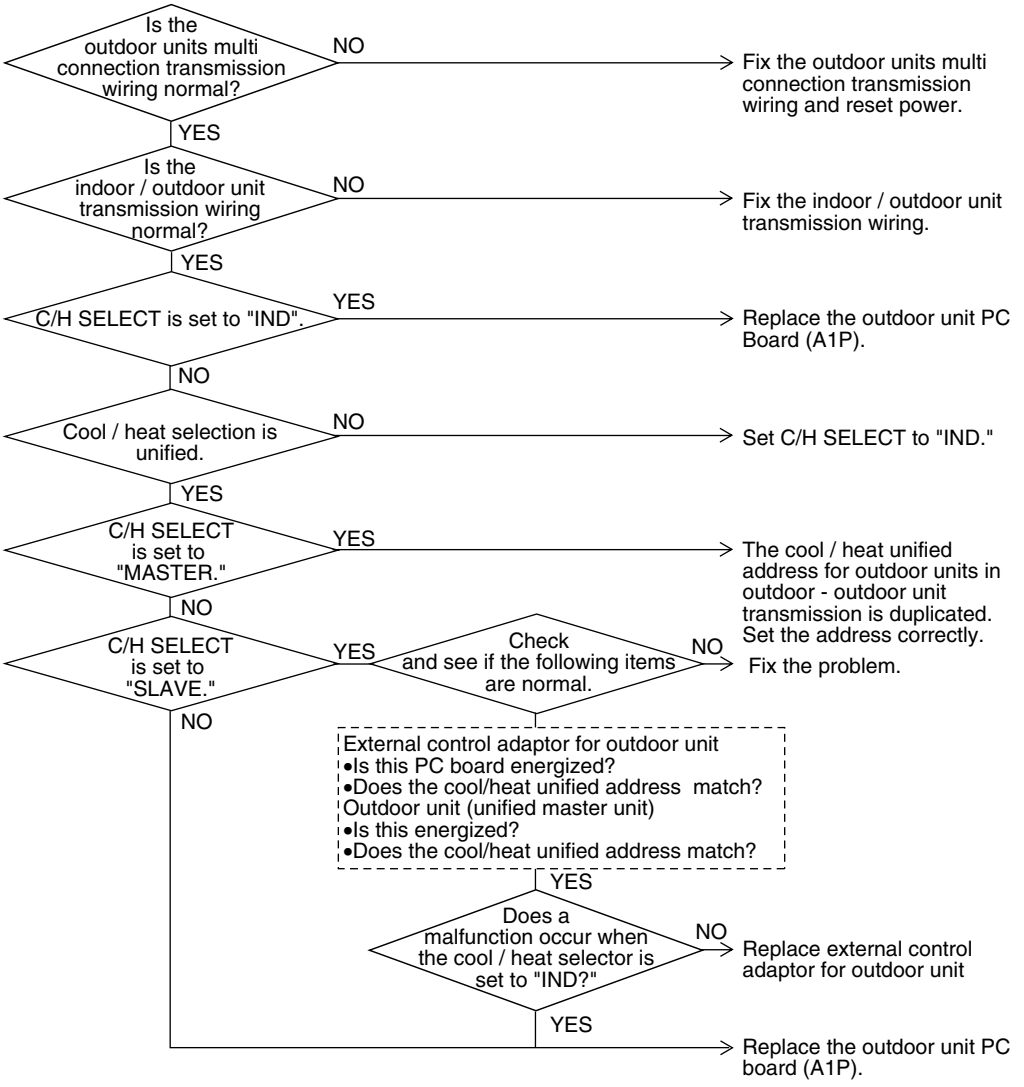
(V2823)

2.48 "U7" Indoor Unit: Malfunction of Transmission between Outdoor Units

Remote Controller Display	U7
Applicable Models	All models of indoor units
Method of Malfunction Detection	Microcomputer checks if transmission between outdoor units.
Malfunction Decision Conditions	When transmission is not carried out normally for a certain amount of time
Supposed Causes	■ Improper connection of transmission wiring between outdoor unit and external control adaptor for outdoor unit ■ Improper connection of transmission wiring between outdoor units. ■ Improper cool/heat selection ■ Improper cool/heat unified address (outdoor unit, external control adaptor for outdoor unit) ■ Defect of outdoor unit PC board (A1P) ■ Defect of external control adaptor for outdoor unit

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



2.49 "U8" Indoor Unit: Malfunction of Transmission between MAIN and SUB Remote Controllers

Remote Controller Display

U8

Applicable Models

All models of indoor units

Method of Malfunction Detection

In case of controlling with 2-remote controller, check the system using microcomputer if signal transmission between indoor unit and remote controller (main and sub) is normal.

Malfunction Decision Conditions

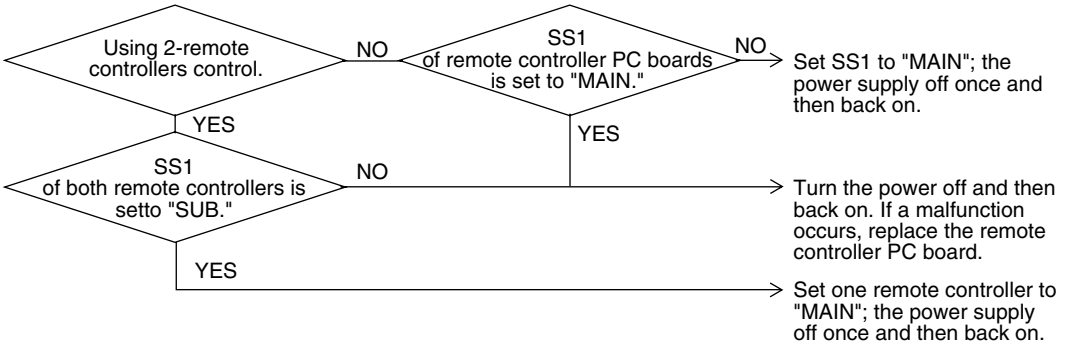
Normal transmission does not continue for specified period.

Supposed Causes

- Malfunction of transmission between main and sub remote controller
- Connection between sub remote controllers
- Defect of remote controller PC board

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



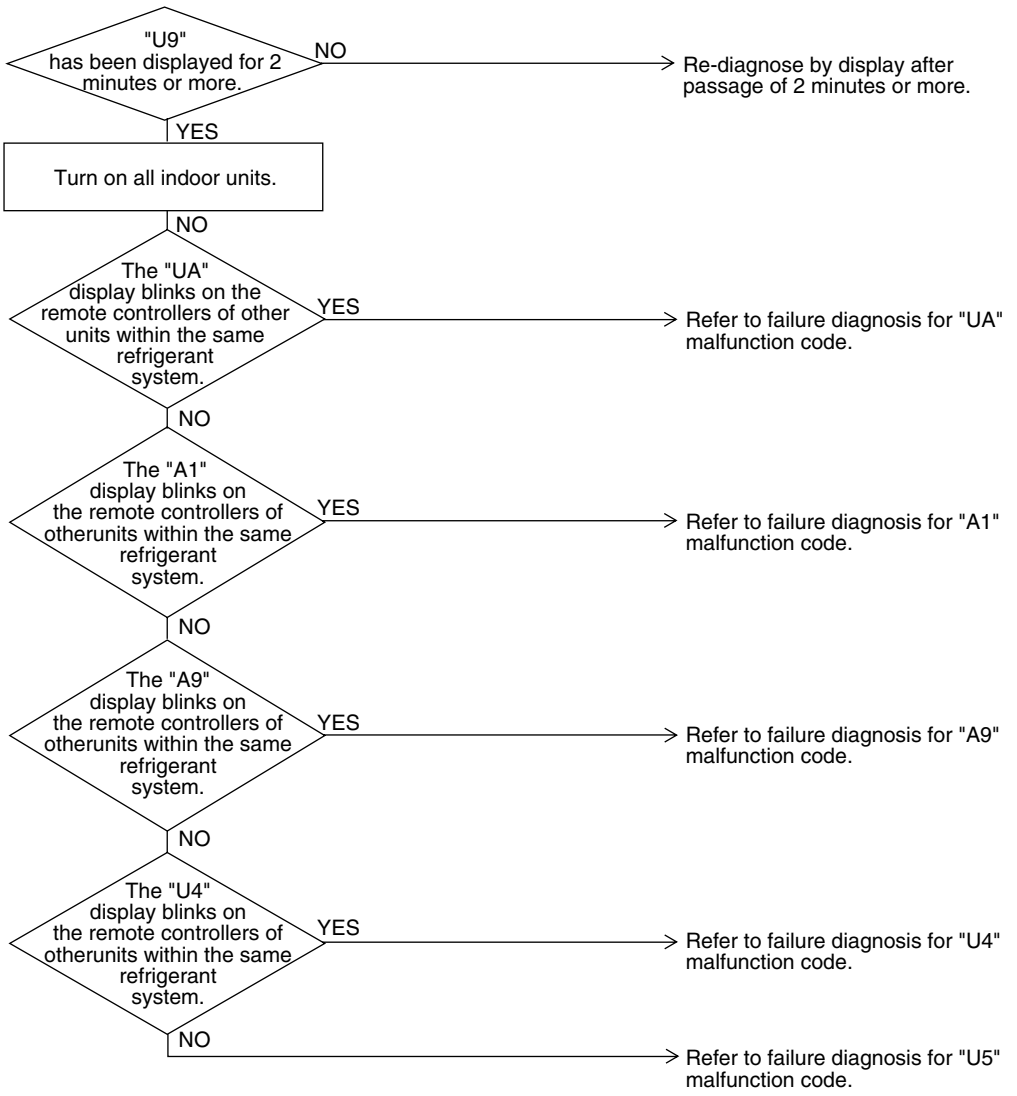
(V2825)

2.50 "U9" Indoor Units: Malfunction of Transmission between Indoor Units and Outdoor Units in the Same System

Remote Controller Display	U9
Applicable Models	All models of indoor units
Method of Malfunction Detection	Detect the malfunction signal of any other indoor unit within the system concerned.
Malfunction Decision Conditions	When the malfunction decision is made on any other indoor unit within the system concerned.
Supposed Causes	■ Malfunction of transmission within or outside of other system ■ Malfunction of electronic expansion valve in indoor unit of other system ■ Defect of PC board of indoor unit in other system ■ Improper connection of transmission wiring between indoor and outdoor unit

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V2826)

2.51 "UA" Improper Combination of Indoor Units and Outdoor Units/Indoor Units and Remote Controller

Remote Controller Display

UA

Applicable Models

All indoor unit models
REYQ72M, 96M
Remote controller

Method of Malfunction Detection

A difference occurs in data by the type of refrigerant between indoor and outdoor units.
The number of indoor units is outside of the allowable range.

Malfunction Decision Conditions

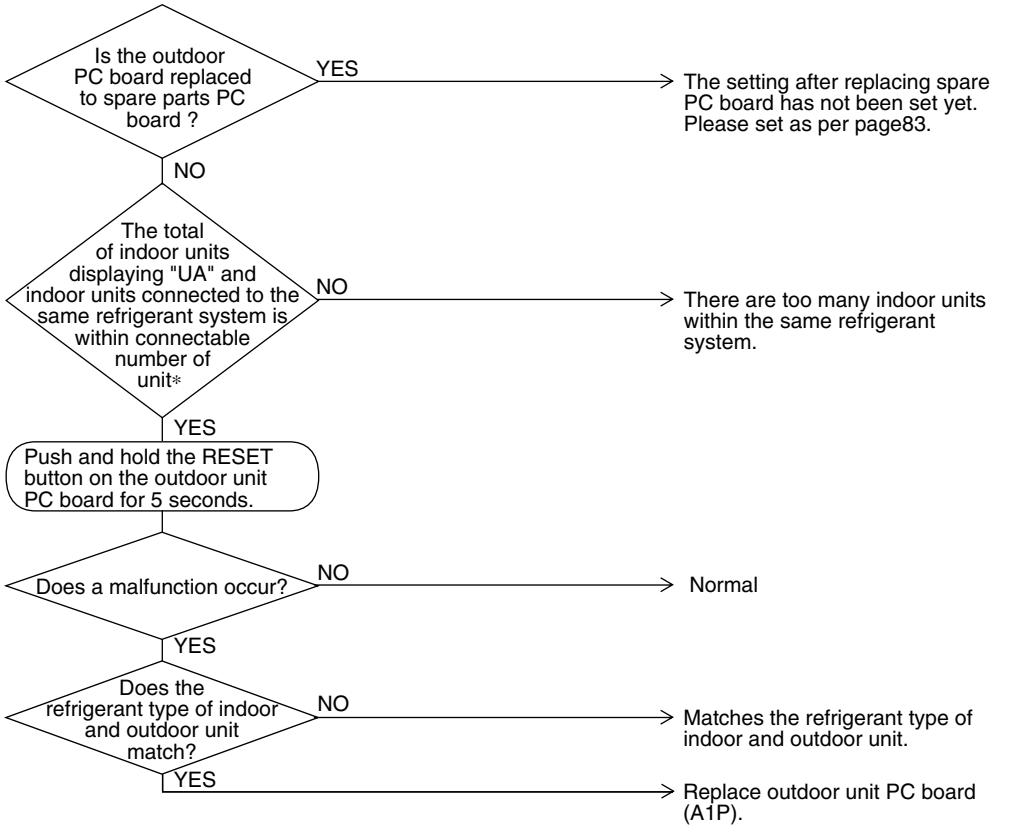
The malfunction decision is made as soon as either of the abnormalities aforementioned is detected.

Supposed Causes

- Excess of connected indoor units
- Defect of outdoor unit PC board (A1P)
- Mismatching of the refrigerant type of indoor and outdoor unit
- Setting of outdoor PC board was not conducted after replacing to spare parts PC board

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V2827)

* The number of indoor units that can be connected to a single outdoor unit system depends on the type of outdoor unit.

2.52 "UC" Address Duplication of Centralized Remote Controller

Remote Controller Display

UC

Applicable Models

All models of indoor unit
Centralized controller

Method of Malfunction Detection

The principal indoor unit detects the same address as that of its own on any other indoor unit.

Malfunction Decision Conditions

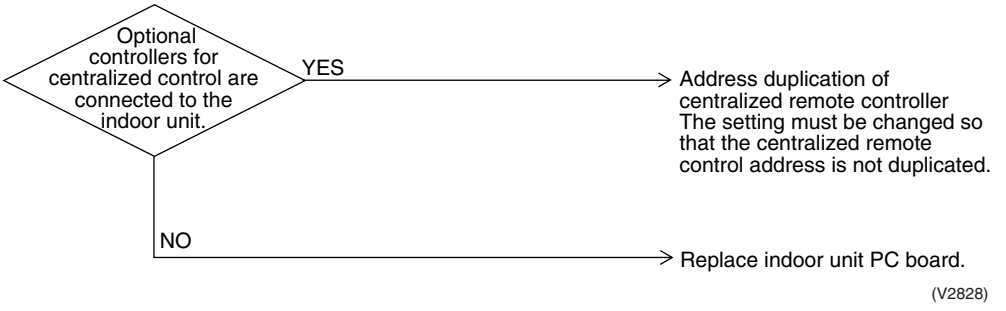
The malfunction decision is made as soon as the abnormality aforementioned is detected.

Supposed Causes

- Address duplication of centralized remote controller
- Defect of indoor unit PC board

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.

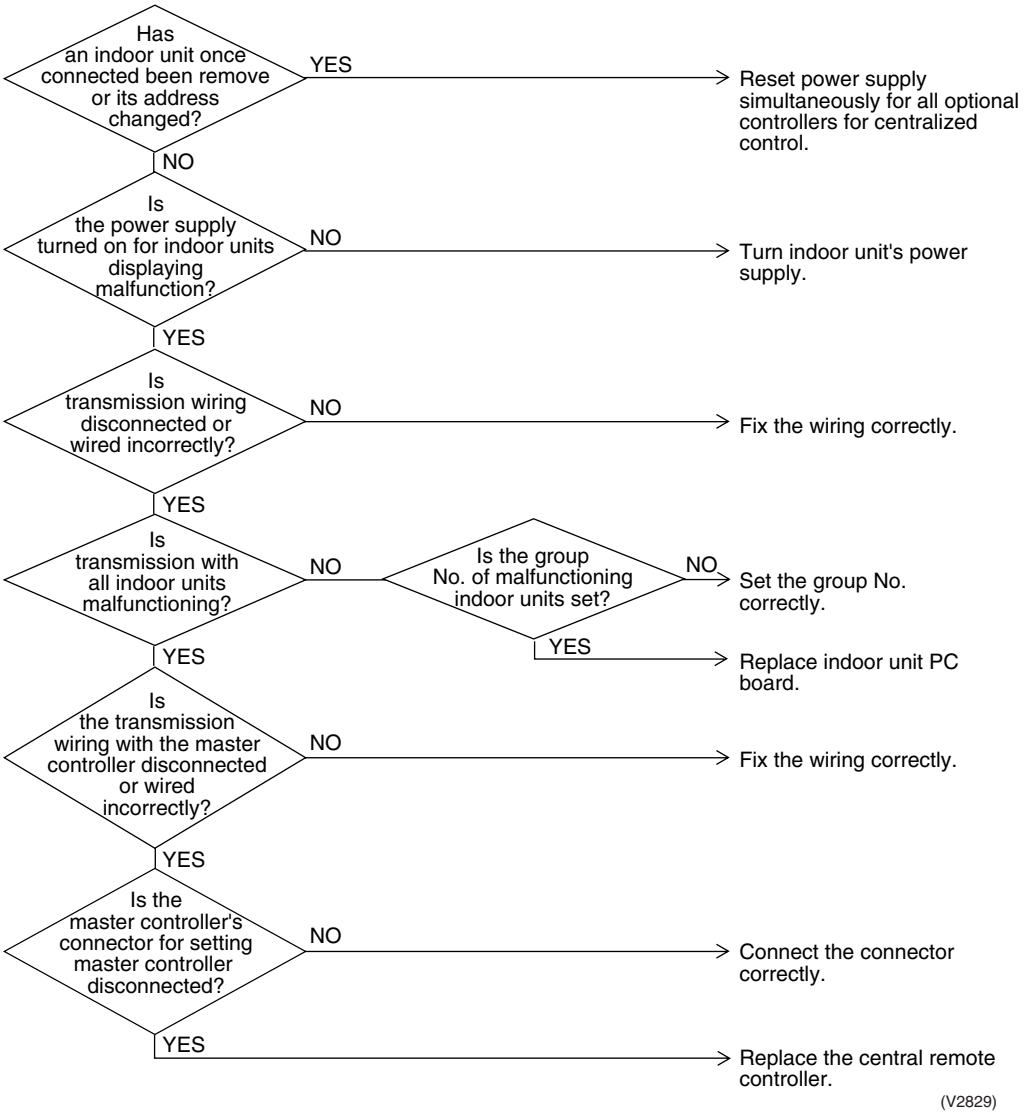


2.53 "UE" Malfunction of Transmission between Centralized Controller and Indoor Unit

Remote Controller Display	UE
Applicable Models	All models of indoor units Centralized controller
Method of Malfunction Detection	Microcomputer checks if transmission between indoor unit and centralized controller is normal.
Malfunction Decision Conditions	When transmission is not carried out normally for a certain amount of time
Supposed Causes	■ Malfunction of transmission between optional controllers for centralized control and indoor unit ■ Connector for setting master controller is disconnected ■ Failure of PC board for central remote controller ■ Defect of indoor unit PC board

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



2.54 "UF" System is not Set yet

Remote Controller Display

UF

Applicable Models

All indoor units models
REYQ72M, 96M

Method of Malfunction Detection

The number of indoor units in terms of data transmission becomes mismatched to that of indoor units with changes in temperature on operation for checks.

Malfunction Decision Conditions

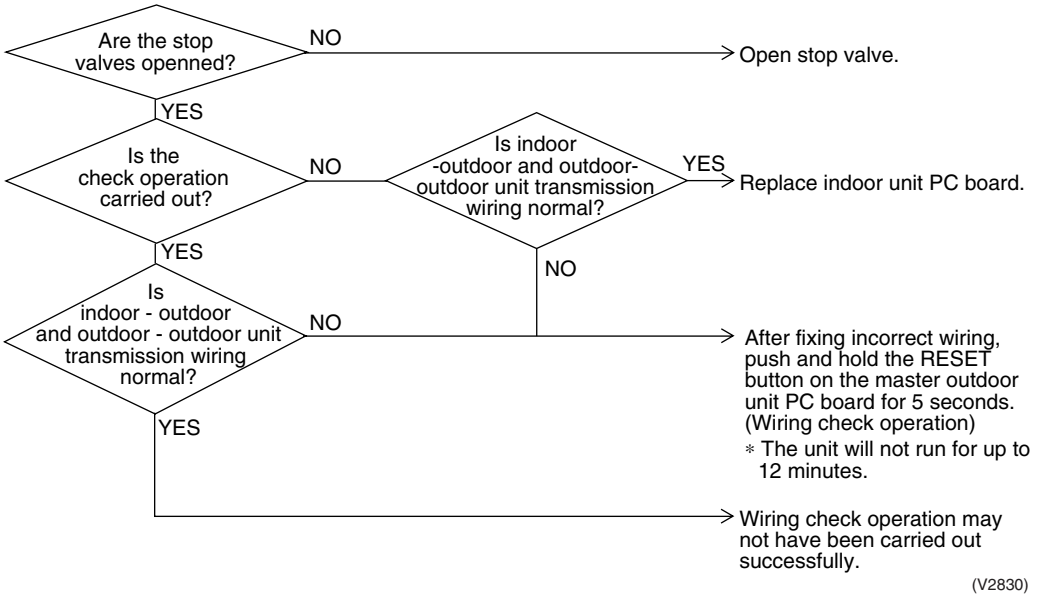
The malfunction is determined as soon as the abnormality aforementioned is detected through checking the system for any erroneous connection of units on the check operation.

Supposed Causes

- Improper connection of transmission wiring between indoor-outdoor unit and outdoor unit-external control adaptor for outdoor unit
- Failure to execute check operation
- Defect of indoor unit PC board
- Stop valve is left in closed.

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



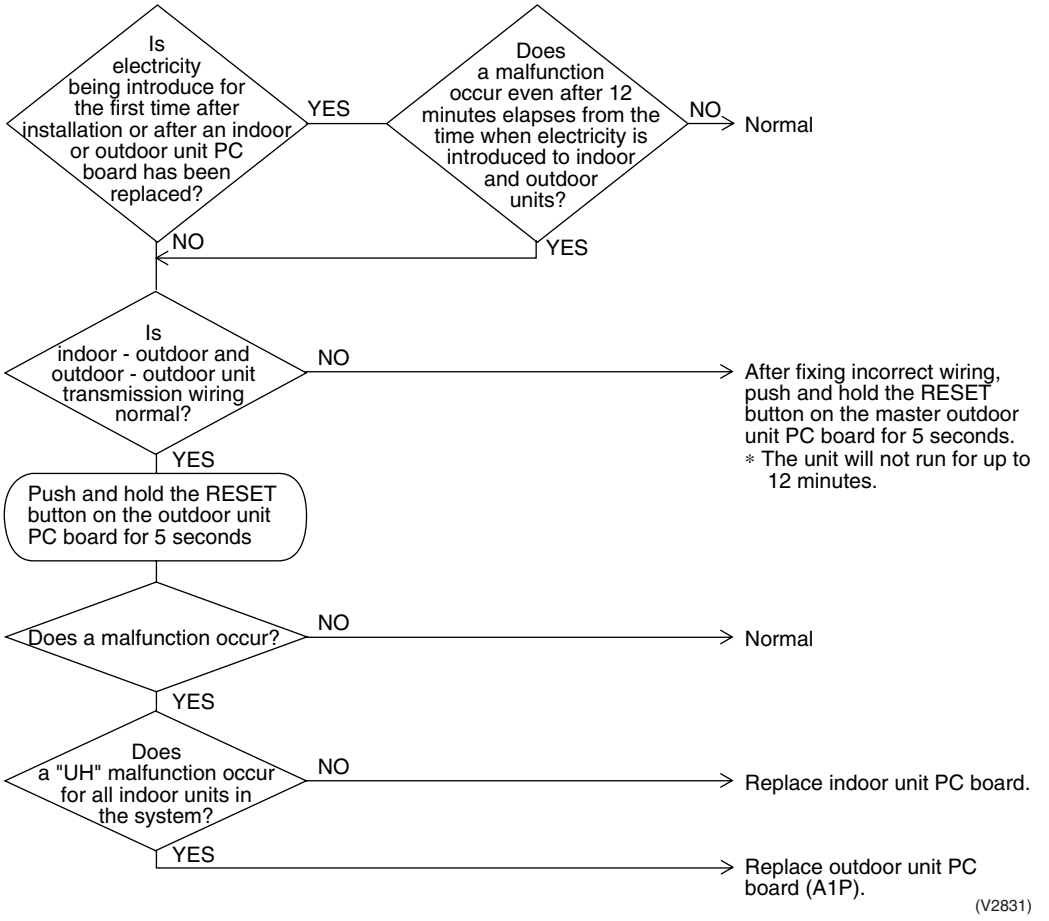
Note: Wiring check operation may not be successful if carried out after the outdoor unit has been off for more than 12 hours, or if it is not carried out after running all connected indoor units in the fan mode for at least an hour.

2.55 "UH" Malfunction of System, Refrigerant System Address Undefined

Remote Controller Display	UH
Applicable Models	All models of indoor units REYQ72M, 96M
Method of Malfunction Detection	
Malfunction Decision Conditions	
Supposed Causes	■ Improper connection of transmission wiring between indoor-outdoor unit and outdoor-outdoor unit ■ Defect of indoor unit PC board ■ Defect of outdoor unit PC board (A1P)

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



3. Troubleshooting (OP: Central Remote Controller)

3.1 "M1" PC Board Defect

Remote Controller Display

M1

Applicable Models

Central remote controller

Method of Malfunction Detection

Detect an abnormality in the DIII-NET polarity circuit.

Malfunction Decision Conditions

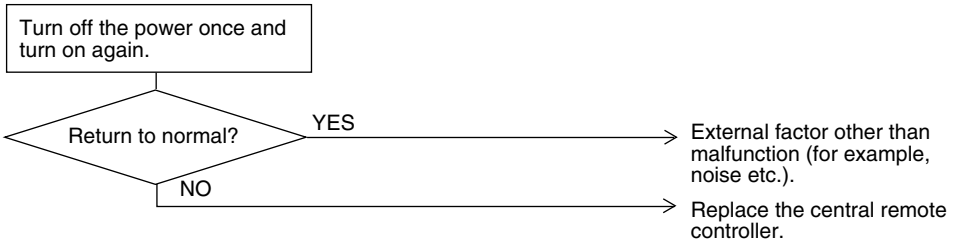
When + polarity and - polarity are detected at the same time.

Supposed Causes

- Defect of central remote controller PC board

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V3064)

3.2 "M8" Malfunction of Transmission Between Optional Controllers for Centralized Control

Remote Controller Display

M8

Applicable Models

Central remote controller

Method of Malfunction Detection

Detect the malfunction according to DIII-NET transmission data. (The system will be automatically reset.)

Malfunction Decision Conditions

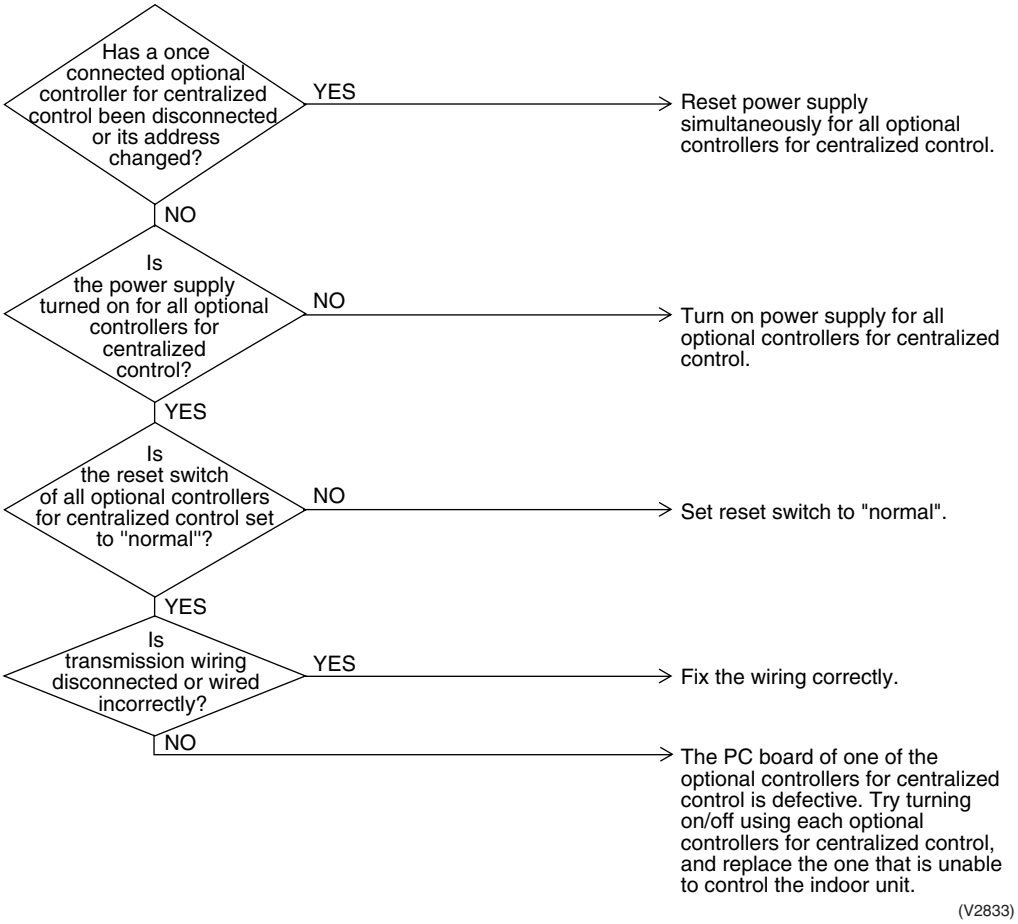
When no master controller is present at the time of the startup of slave controller.
When optional controllers for the centralized control which was connected once, shows no response.

Supposed Causes

- Malfunction of transmission between optional controllers for centralized control
- Defect of PC board of optional controllers for centralized control

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



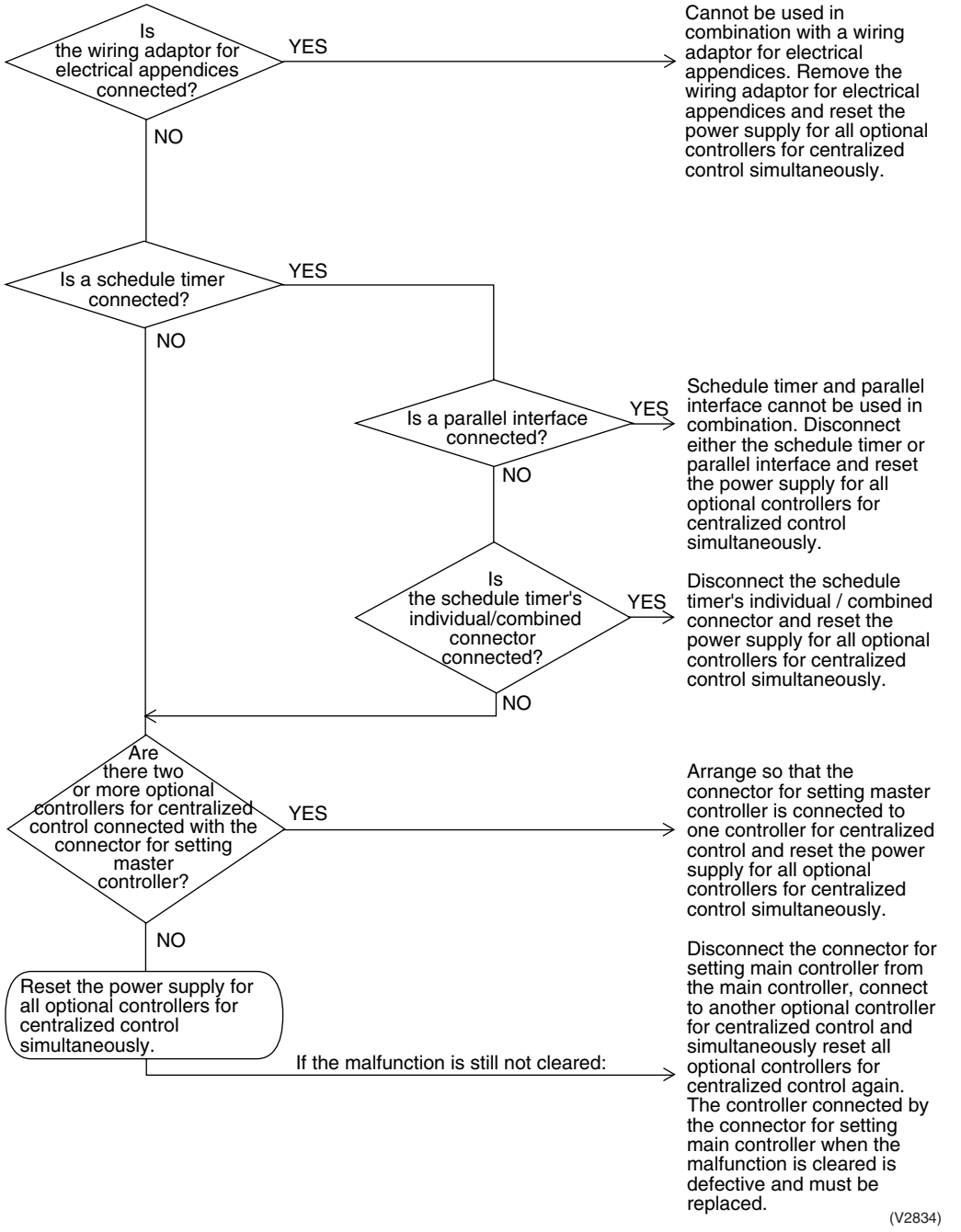
(V2833)

3.3 "MA" Improper Combination of Optional Controllers for Centralized Control

Remote Controller Display	MA
Applicable Models	Central remote controller
Method of Malfunction Detection	Detect the malfunction according to DIII-NET transmission data.
Malfunction Decision Conditions	When the schedule timer is set to individual use mode, other central component is present. When multiple master controller are present. When the remote control adapter is present.
Supposed Causes	■ Improper combination of optional controllers for centralized control ■ More than one master controller is connected ■ Defect of PC board of optional controller for centralized control

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



3.4 "MC" Address Duplication, Improper Setting

Remote Controller Display

MC

Applicable Models

Central remote controller

Method of Malfunction Detection

Detect the malfunction according to DIII-NET transmission data.

Malfunction Decision Conditions

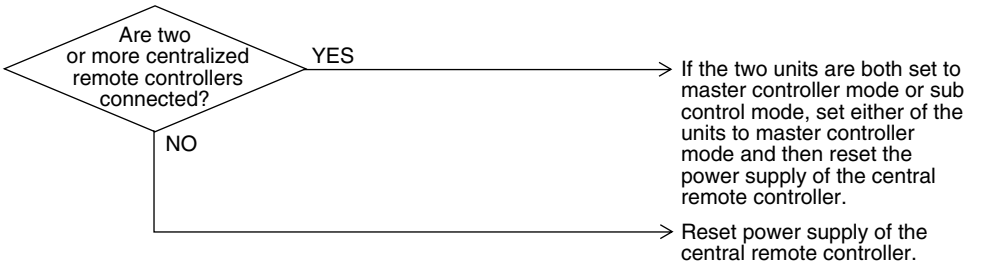
Two units are both set to master controller mode or slave controller mode.

Supposed Causes

- Address duplication of centralized controller

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V2835)

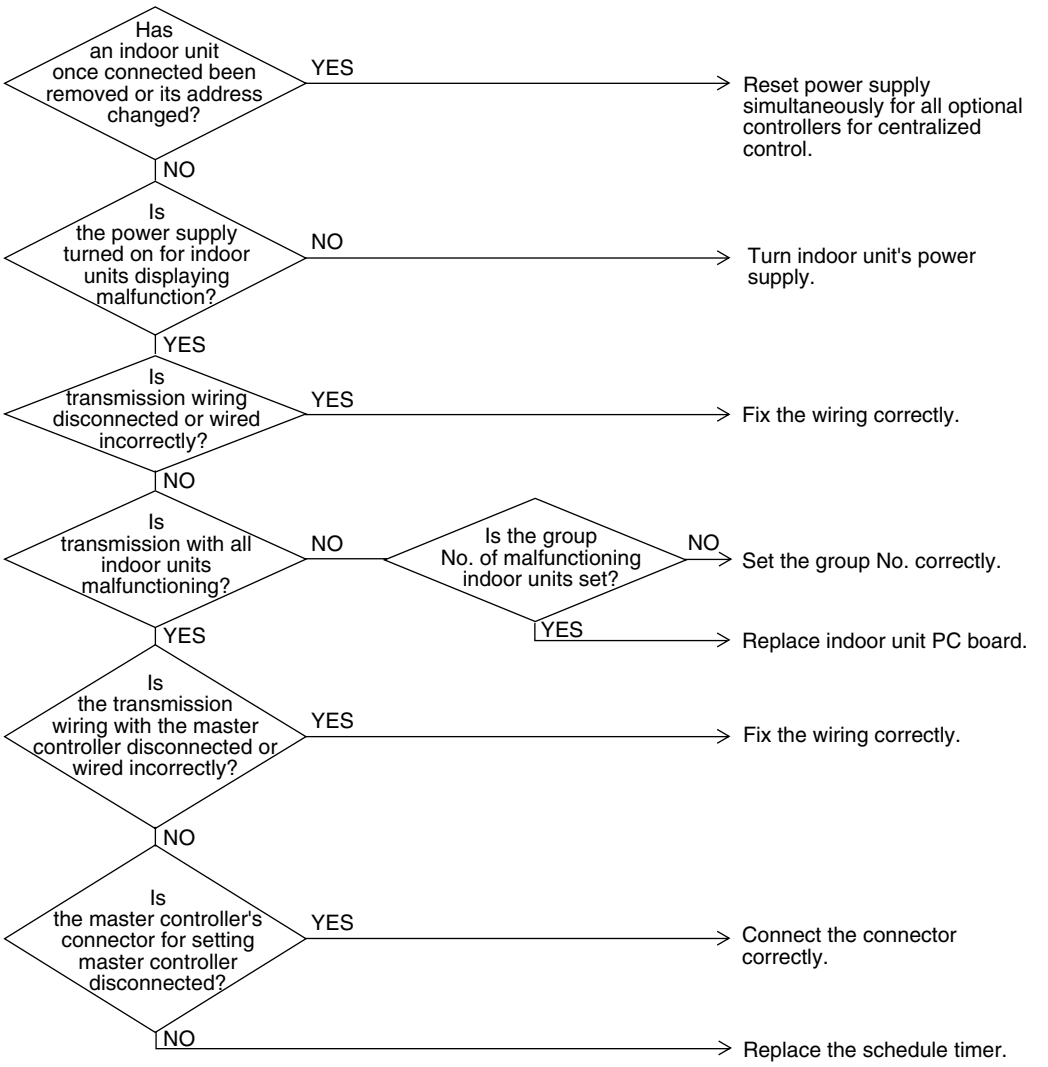
4. Troubleshooting (OP: Schedule Timer)

4.1 "UE" Malfunction of Transmission Between Centralized Controller and Indoor Unit

Remote Controller Display	UE
Applicable Models	Schedule timer Indoor units
Method of Malfunction Detection	Microcomputer checks if transmission between indoor unit and centralized controller is normal.
Malfunction Decision Conditions	When transmission is not carried out normally for a certain amount of time
Supposed Causes	■ Malfunction of transmission between centralized remote controller and indoor unit ■ Disconnection of connector for setting master controller (or individual/combined switching connector) ■ Defect of schedule timer PC board ■ Defect of indoor unit PC board

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V2836)

4.2 "M1" PC Board Defect

Remote Controller Display

M1

Applicable Models

Schedule timer

Method of Malfunction Detection

Detect an abnormality in the DIII-NET polarity circuit.

Malfunction Decision Conditions

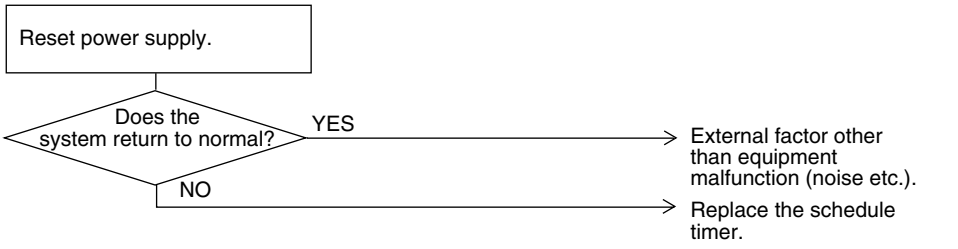
When + polarity and - polarity are detected at the same time.

Supposed Causes

- Defect of schedule timer PC board

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



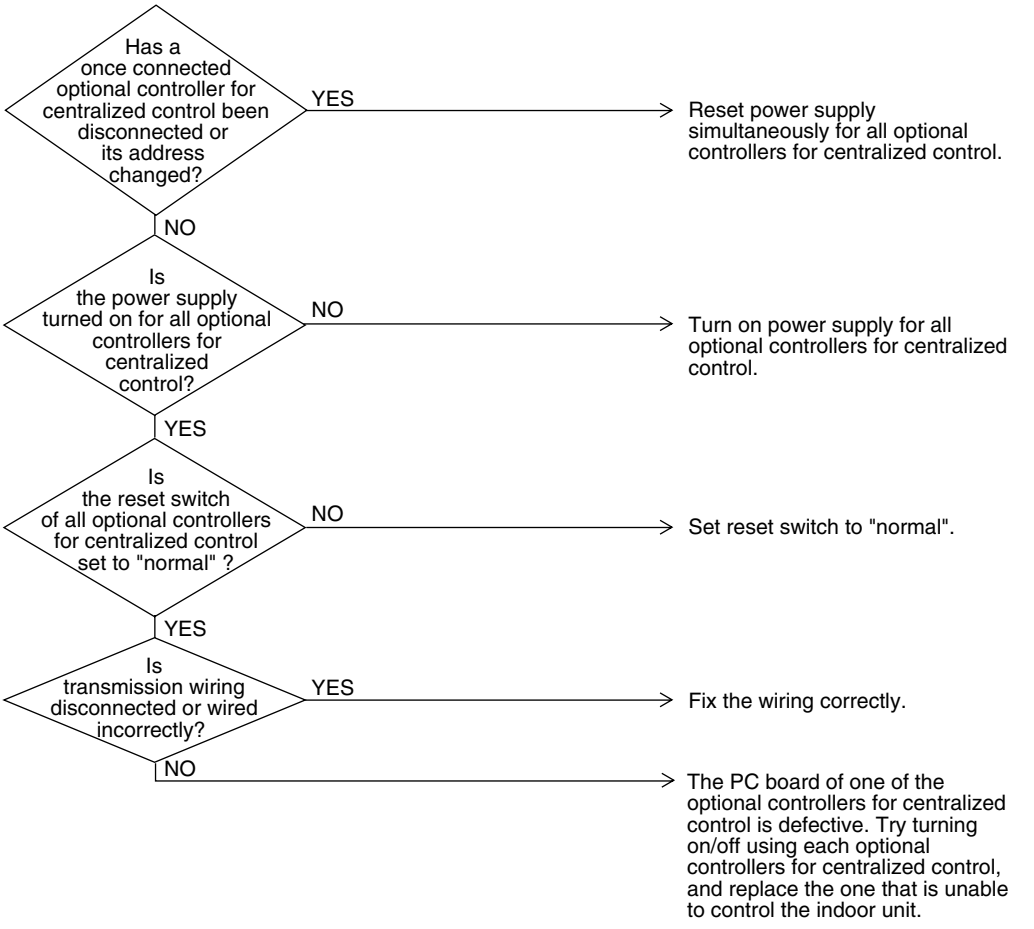
(V2837)

4.3 "M8" Malfunction of Transmission Between Optional Controllers for Centralized Control

Remote Controller Display	M8
Applicable Models	Schedule timer
Method of Malfunction Detection	Detect the malfunction according to DIII-NET transmission data. (The system will be automatically reset.)
Malfunction Decision Conditions	When no master controller at the time of the startup of slave controller. When the optional controllers for centralized control which was connected once, shows no response.
Supposed Causes	■ Malfunction of transmission between optional controllers for centralized control ■ Defect of PC board of optional controllers for centralized control

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



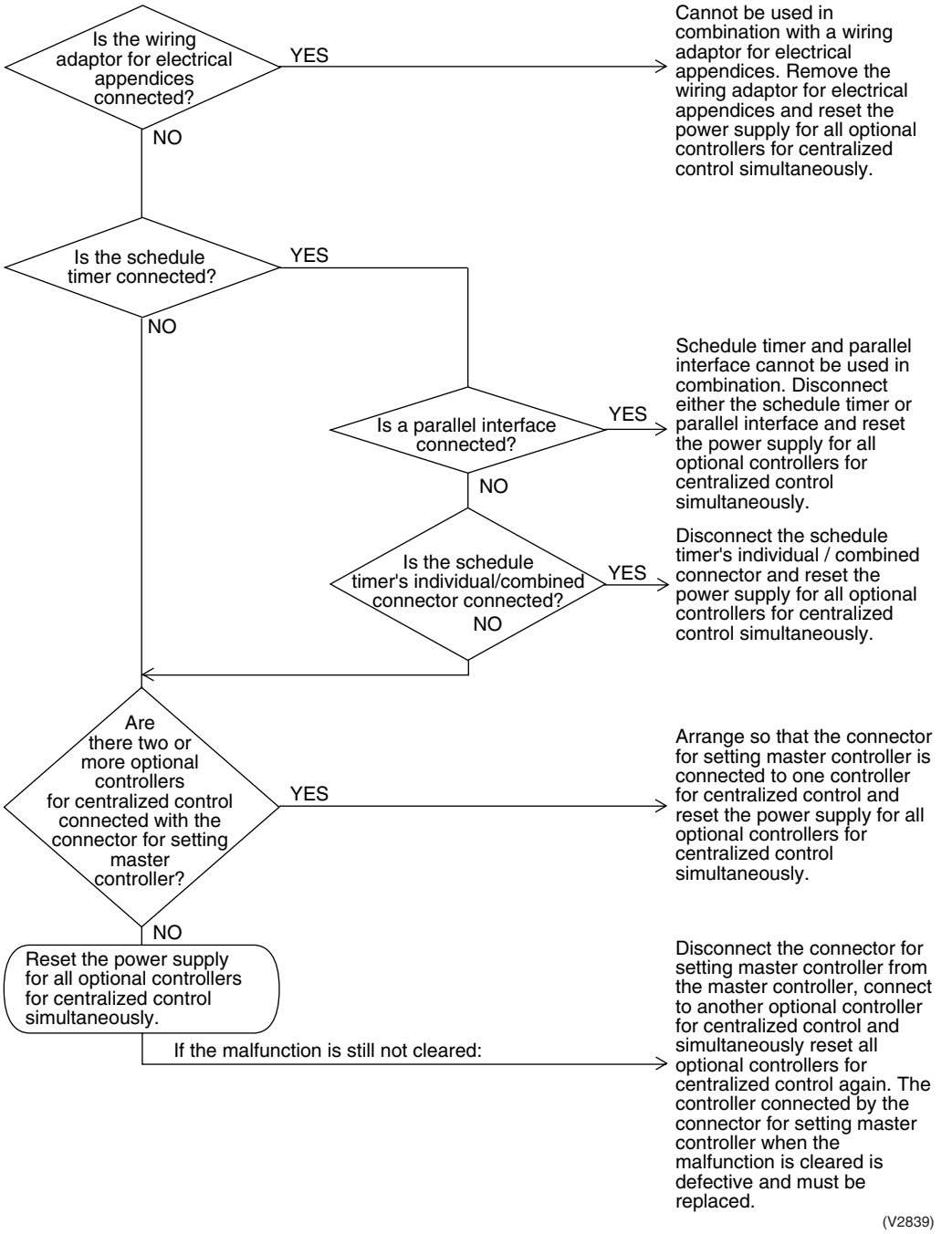
(V2838)

4.4 "MA" Improper Combination of Optional Controllers for Centralized Control

Remote Controller Display	MA
Applicable Models	Schedule timer
Method of Malfunction Detection	Detect the malfunction according to DIII-NET transmission data.
Malfunction Decision Conditions	When the schedule timer is set to individual use mode, other central component is present. When multiple master controller are present.
Supposed Causes	■ Improper combination of optional controllers for centralized control ■ More than one master controller is connected. ■ Defect of PC board of optional controller for centralized control.

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



4.5 "MC" Address Duplication, Improper Setting

Remote Controller Display

MC

Applicable Models

Schedule timer

Method of Malfunction Detection

Detect the malfunction according to DIII-NET transmission data.

Malfunction Decision Conditions

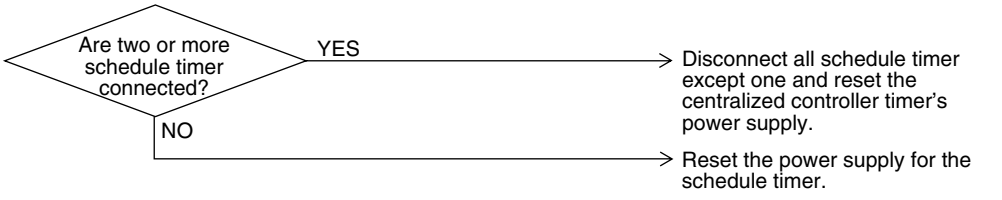
When two or more schedule timers are connected.

Supposed Causes

- Address duplication of schedule timer

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



(V2840)

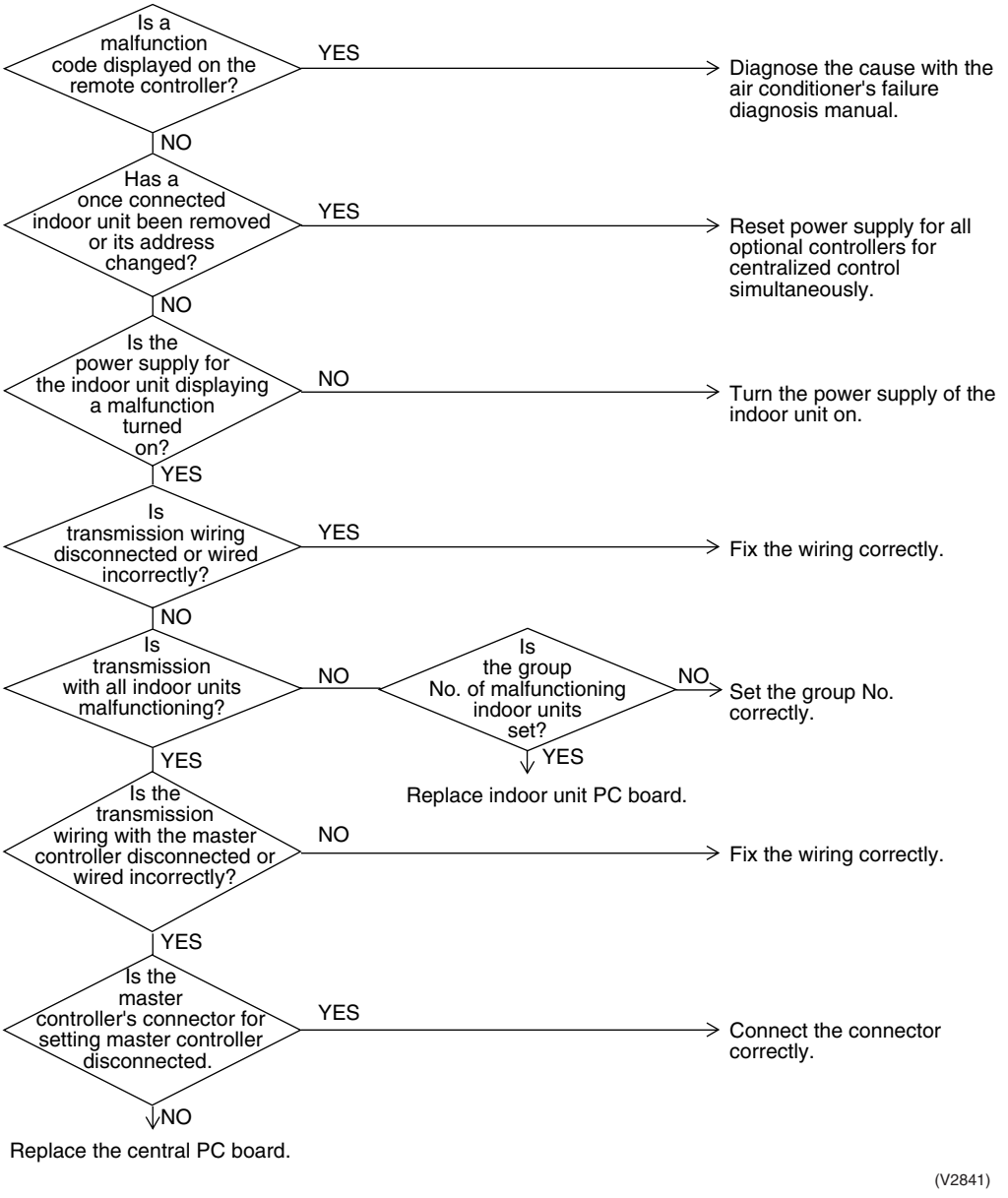
5. Troubleshooting (OP: Unified ON/OFF Controller)

5.1 Operation Lamp Blinks

Remote Controller Display	Operation lamp blinks
Applicable Models	All models of indoor units Unified ON/OFF controller
Method of Malfunction Detection	Detect the malfunction according to DIII-NET transmission data.
Malfunction Decision Conditions	
Supposed Causes	■ Malfunction of transmission between optional controller and indoor unit ■ Connector for setting master controller is disconnected ■ Defect of unified ON/OFF controller ■ Defect of indoor unit PC board ■ Malfunction of air conditioner

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



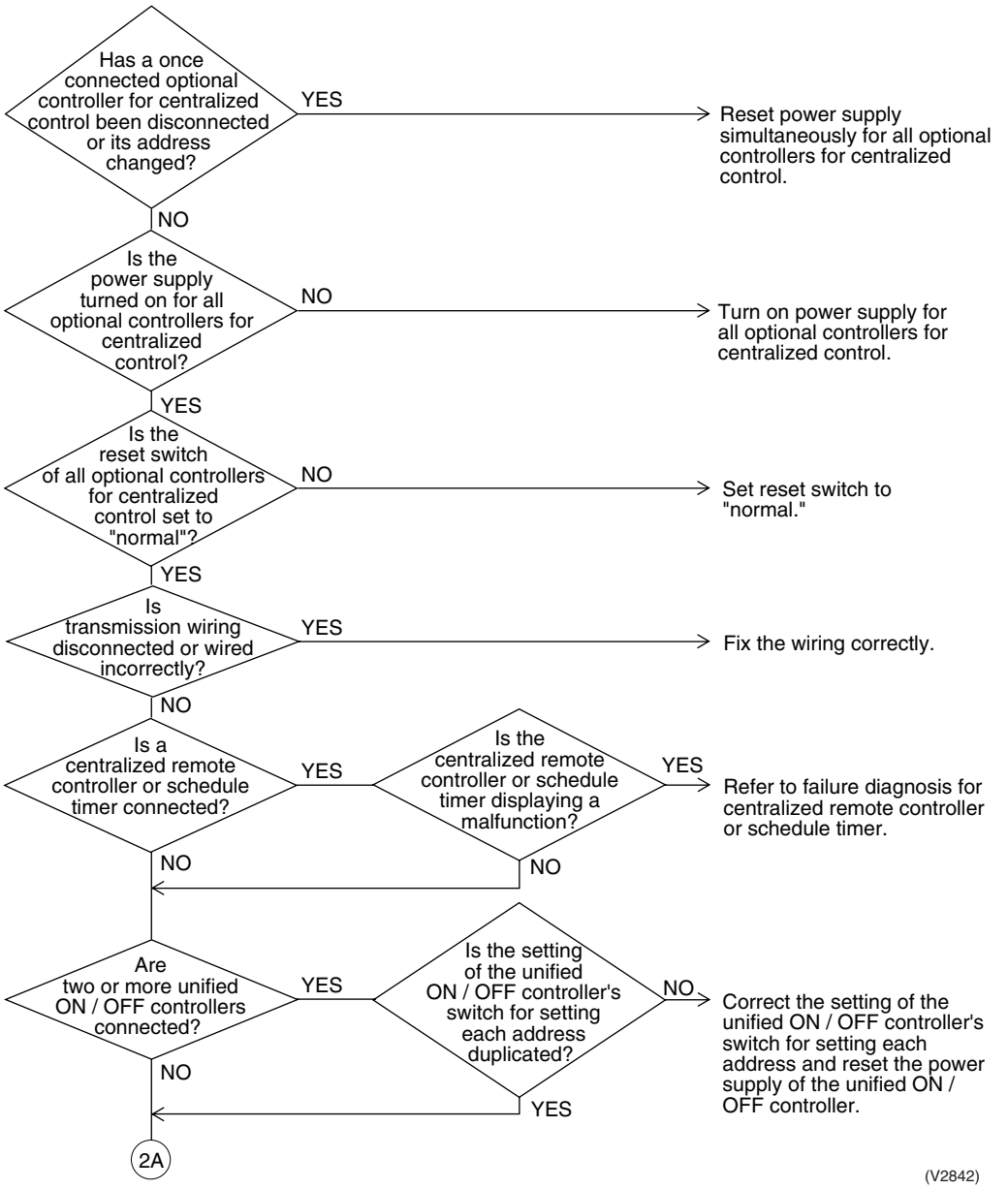
(V2841)

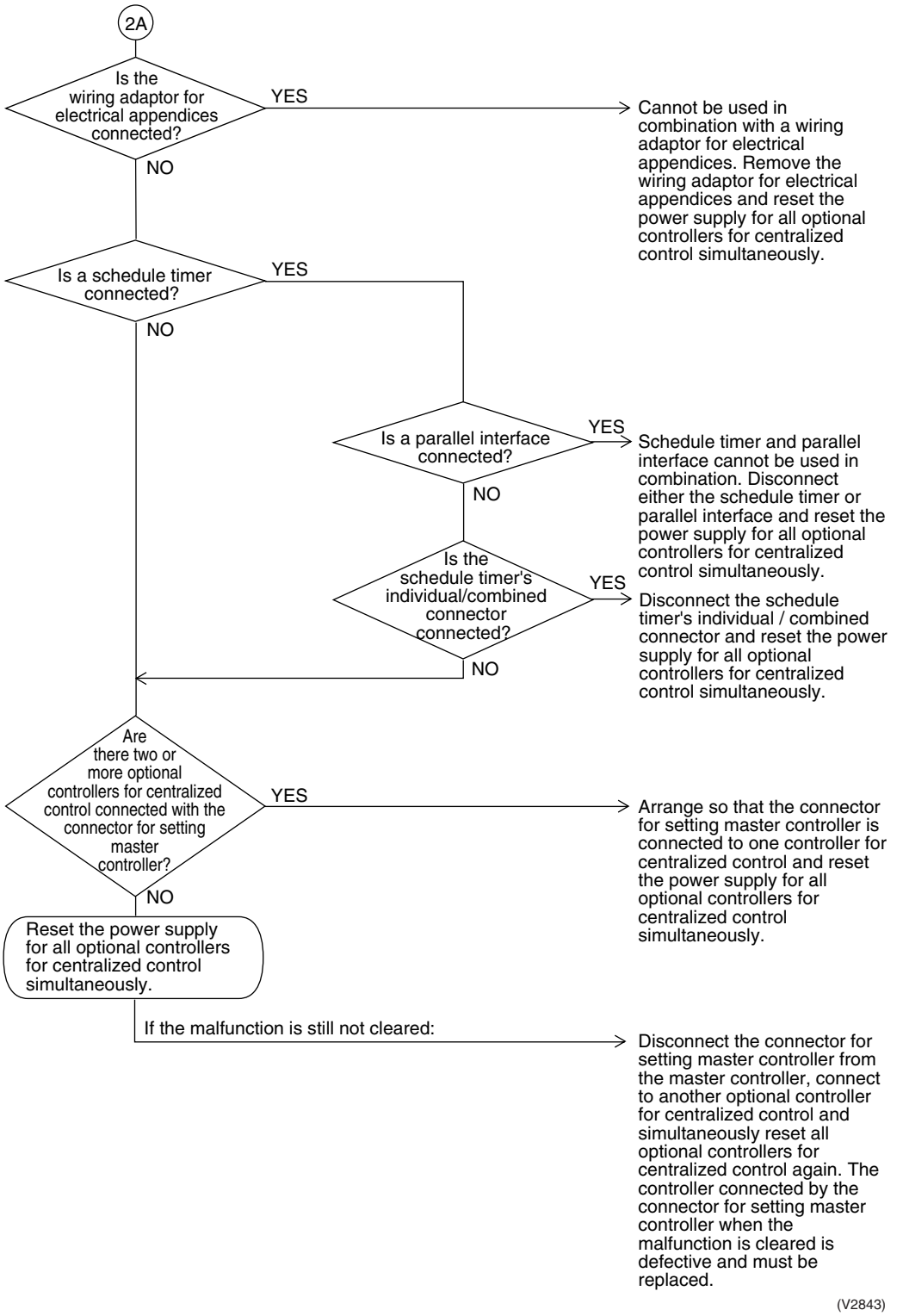
5.2 Display “Under Centralized Control” Blinks (Repeats Single Blink)

Remote Controller Display	“under centralized control” (Repeats double blink)
Applicable Models	Unified ON/OFF controller Central remote controller Schedule timer
Method of Malfunction Detection	Detect the malfunction according to DIII-NET transmission data.
Malfunction Decision Conditions	When the centralized controller, which was connected once, shows no response. The control ranges are overlapped. When multiple master central controller are present. When the schedule timer is set to individual use mode, other central controller is present. When the wiring adaptor for electrical appendices is present.
Supposed Causes	■ Address duplication of central remote controller ■ Improper combination of optional controllers for centralized control ■ Connection of more than one master controller ■ Malfunction of transmission between optional controllers for centralized control ■ Defect of PC board of optional controllers for centralized control

Troubleshooting

Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.




2A
Is the wiring adaptor for electrical appendices connected?
YES
Cannot be used in combination with a wiring adaptor for electrical appendices. Remove the wiring adaptor for electrical appendices and reset the power supply for all optional controllers for centralized control simultaneously.
NO
Is a schedule timer connected?
YES
NO
Is a parallel interface connected?
YES
Schedule timer and parallel interface cannot be used in combination. Disconnect either the schedule timer or parallel interface and reset the power supply for all optional controllers for centralized control simultaneously.
NO
Is the schedule timer's individual/combined connector connected?
YES
Disconnect the schedule timer's individual / combined connector and reset the power supply for all optional controllers for centralized control simultaneously.
NO
Are there two or more optional controllers for centralized control connected with the connector for setting master controller?
YES
Arrange so that the connector for setting master controller is connected to one controller for centralized control and reset the power supply for all optional controllers for centralized control simultaneously.
NO
Reset the power supply for all optional controllers for centralized control simultaneously.
If the malfunction is still not cleared:
Disconnect the connector for setting master controller from the master controller, connect to another optional controller for centralized control and simultaneously reset all optional controllers for centralized control again. The controller connected by the connector for setting master controller when the malfunction is cleared is defective and must be replaced.
(V2843)

5.3 Display “Under Centralized Control” Blinks (Repeats Double Blink)

Remote Controller Display

“under centralized control” (Repeats double blink)

Applicable Models

Unified ON/OFF controller

Method of Malfunction Detection

Detect the malfunction according to DIII-NET transmission data.

Malfunction Decision Conditions

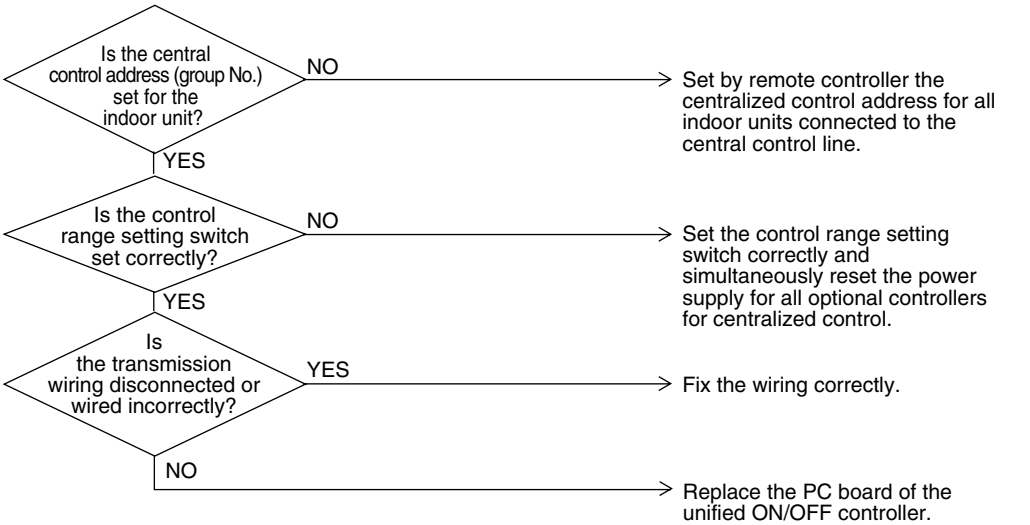
When no central control addresses are set to indoor units.
When no indoor units are connected within the control range.

Supposed Causes

- Central control address (group No.) is not set for indoor unit.
- Improper control range setting switch
- Improper wiring of transmission wiring

Troubleshooting

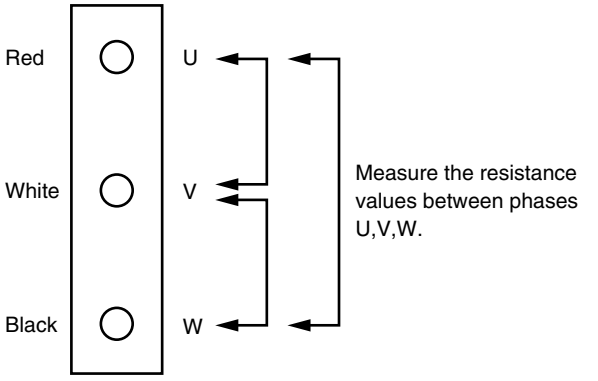
Caution Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



Check No. 8

Check on connector of fan motor (Power supply cable)

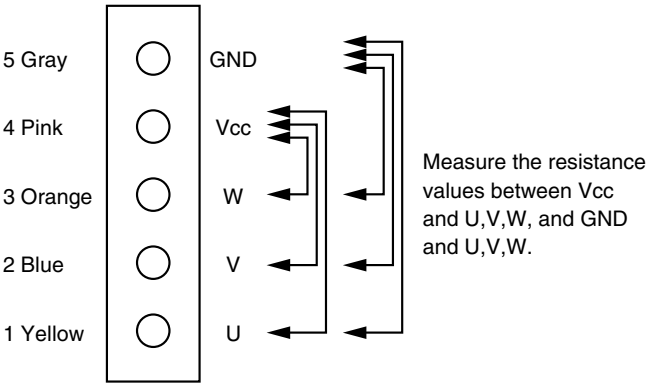
(1) Turn off the power supply.
Measure the resistance between phases of U,V,W at the motor side connectors (three-core wire) to check that the values are balanced and there is no short circuiting, while connector or relay connector is disconnected.



Check No. 9

Check on connector of fan motor (Signal wire)

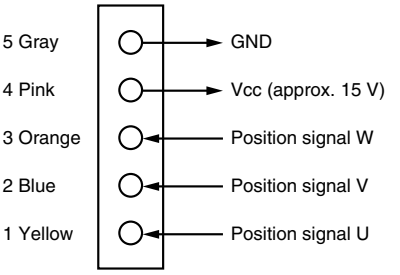
(1) Turn off the power supply.
(2) Measure the resistance between Vcc and each phase of U,V,W, and GND and each phase at the motor side connectors (five-core wire) to check that the values are balanced within the range of ± 20 %, while connector or relay connector is disconnected.



Check No. 12 **Check on pulse input of position signal of fan inverter PCB**

(1) Disconnect the connector X2A while power supply OFF and operation OFF.
(2) Is the voltage between pins No. 4 and 5 on X2A approx. 15 V after power supply is turned on?
(3) Connect the connector X2A while power supply OFF and operation OFF.
(4) Check below conditions when the fan motor is rotated one turn manually under the condition of operation OFF after power supply is turned ON.
Are the pulse (approx. 0 V and 5 V) generated 4 times between No. 1 and 5 on X2A?
Are the pulse (approx. 0 V and 5 V) generated 4 times between No. 2 and 5 on X2A?
Are the pulse (approx. 0 V and 5 V) generated 4 times between No. 3 and 5 on X2A?

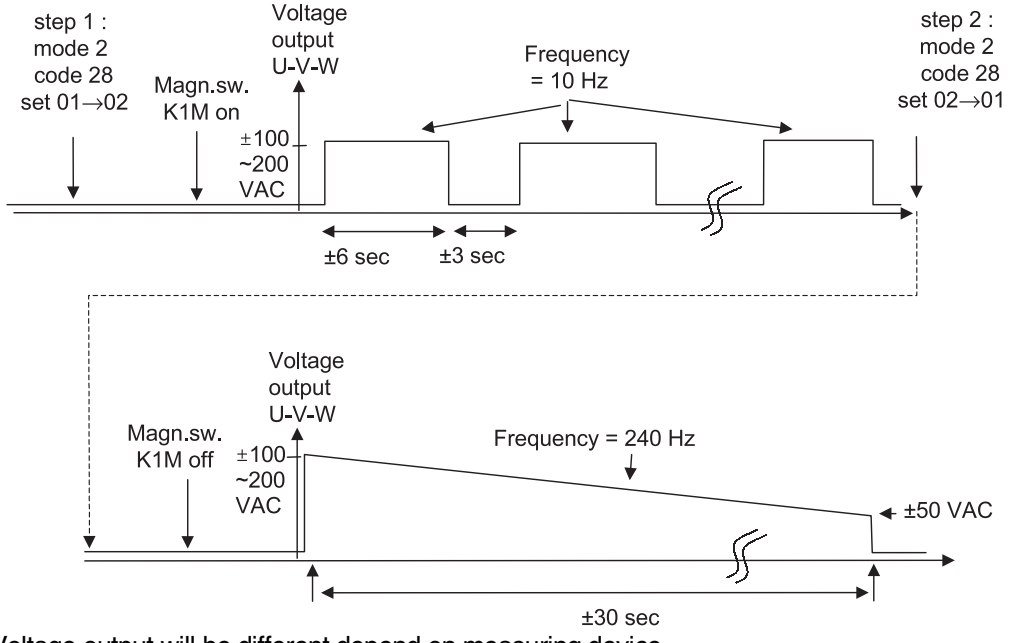
The condition (2) dose not appear → Faulty PCB → Replacing the PCB The conditions (4) do not appear → Faulty hall IC → Replacing fan motor of outdoor unit



Check No. 13 **Power transistor check mode**

When the inverter system malfunctions (malfunction of inverter, INV compressor), to locate where the malfunction occurs, switching to the power transistor check mode of inverter in the service mode setting enables not to judge the position detection signal malfunction but to output waveform only during inverter operation. (The waveform can be checked by disconnecting the wiring of compressor.)
After the completion of checks, return the system to the previous mode and wait for 30 seconds or more until the discharge of capacitor is completed. Then, conduct a subsequent work.

Note: Be sure to disconnect the compressor wiring when conducting the check operation mentioned above.
When the output voltage is approx. 100~200 V (10 Hz) and the voltage balance between phases U-V, V-W, W-U is within ±5%, the inverter PCB is normal.



* Voltage output will be different depend on measuring device.

Part 7
Replacement Procedure for INV Compressor, VRV (REYQ72M, 96M)

1. Replacement Procedure for INV Compressor, VRV (REYQ72M, 96M)

1.1 Replacement Procedure

(1) Collect the refrigerant by using refrigerant recovery unit.
(Since the setting on outdoor unit PCB is required for refrigerant recovery, refer to the warning plate "Precautions in service work" attached on the switch box cover.)
(2) Remove the sound insulator mat covering the faulty compressor, and disconnect the power cable from terminal board of the compressor.
(3) Disconnect the brazing sections of suction pipe and discharge pipe by using brazing torch after the refrigerant has been collected completely.
(4) Pinch the oil pressure equalizing pipe of the faulty compressor at the lower part of the brazed joint as shown in figure 1, and cut it between the pinched section and brazed joint in order to prevent residual oil from discharging.
(5) Remove three bolts at cushion rubber section to take out the faulty compressor outside the unit.
(6) Check that no oil remains in the oil pressure equalizing pipe as shown in figure 2, then remove the cut pipe from the brazed joint with brazing torch.
(7) Install the new compressor in the unit.
(Be sure to insert the cushion rubbers before tightening the fixing bolts of compressor.)
(8) Remove the rubber caps put on the suction and discharge pipe of the new compressor to release the sealing nitrogen gas.
(Take note that oil may spout due to the pipe inside pressure if the plug put on the equalizing seat is removed before removing of rubber cap.)
(9) Remove the plug put on the equalizing seat of the new compressor.
(10) Install the outlet pipe on the equalizing seat of the new compressor.
(11) Braze the equalizing seat outlet pipe to the oil pressure equalizing pipe with brazing torch.
* Since an O-ring is put in the equalizing seat, be sure to maintain the parts around O-ring in cool.
(12) Braze the suction and discharge pipe with brazing torch to the compressor.
(13) Conduct air tight test to check the piping system is free from leakage.
(14) Connect power cable to the terminal board of compressor and cover the compressor with sound insulator mat.
(15) Conduct vacuum drying.
(Since the setting on outdoor unit PCB is required for vacuum drying, refer to the warning plate “Precautions in service work” attached on the switch box cover.)
(16) Charge refrigerant after the completion of vacuum drying, and check the function of compressor with cooling or heating operation.

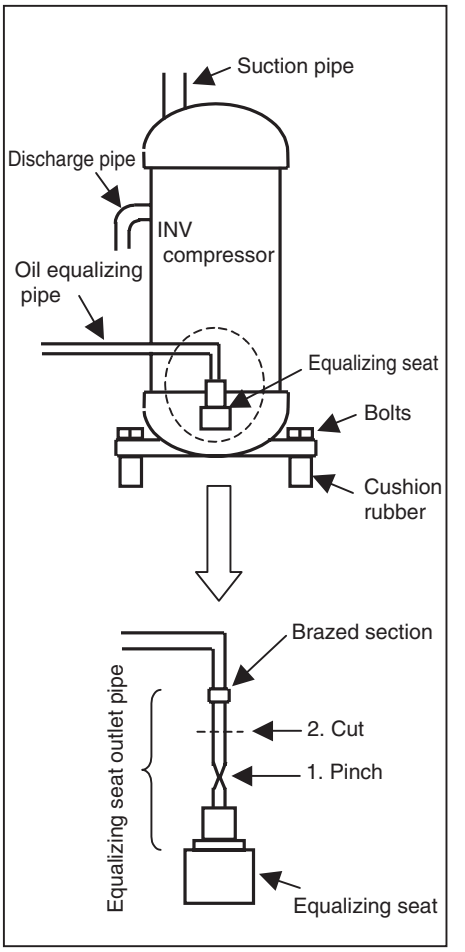


Fig. 1

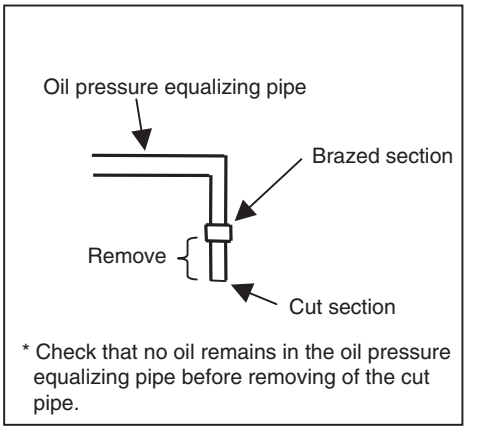


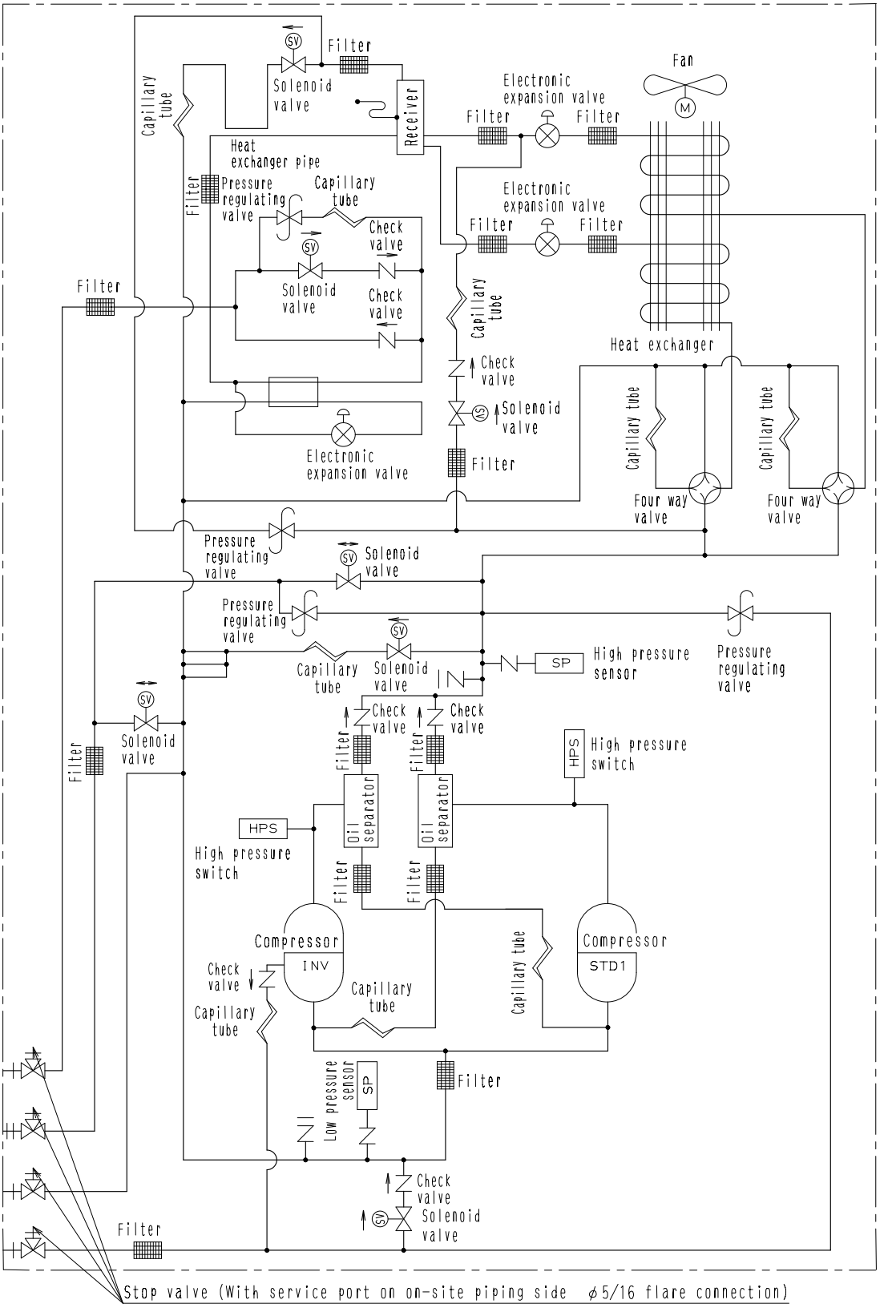
Fig. 2

Part 8
Appendix

1. Piping Diagrams

1.1 Outdoor Unit

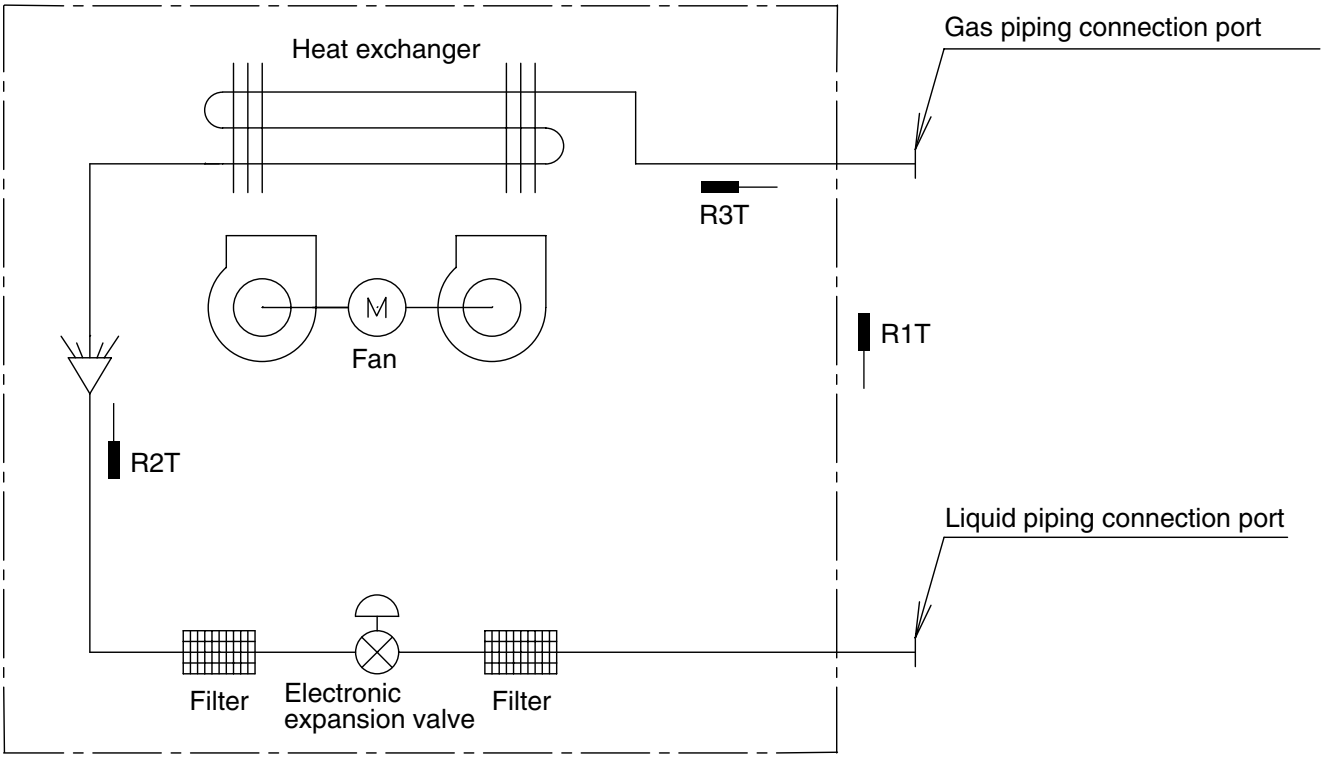
REYQ72M, 96MTJU



4D045329A

1.2 Indoor Unit

FXFQ 12M / 18M / 24M / 30M / 36MVJU
FXSQ 12M / 18M / 24M / 30M / 36M / 48MVJU
FXMQ 30M / 36M / 48MVJU
FXHQ 12M / 24M / 36MVJU
FXAQ 07M / 09M / 12M / 18M / 24MVJU
FXLQ 12M / 18M / 24MVJU
FXNQ 12M / 18M / 24MVJU

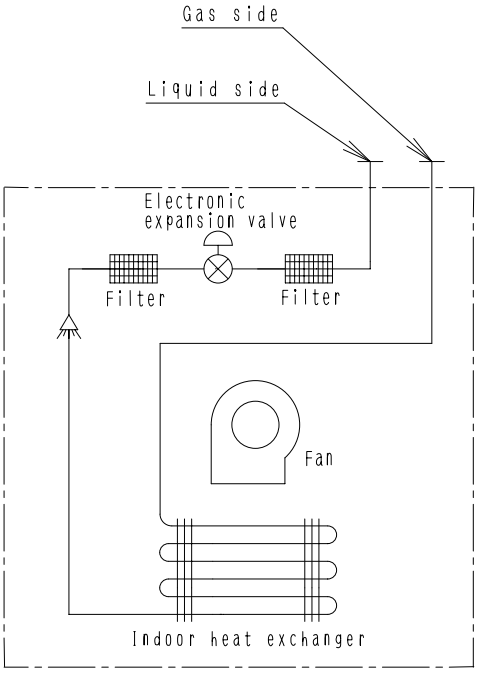


J:DU220-602J

R1T : Thermistor for suction air temperature
R2T : Thermistor for liquid line temperature
R3T : Thermistor for gas line temperature

Capacity	GAS	Liquid
07/09/12/18M	ϕ1/2	ϕ1/4
24/30/36/48M	ϕ5/8	ϕ3/8

FXDQ



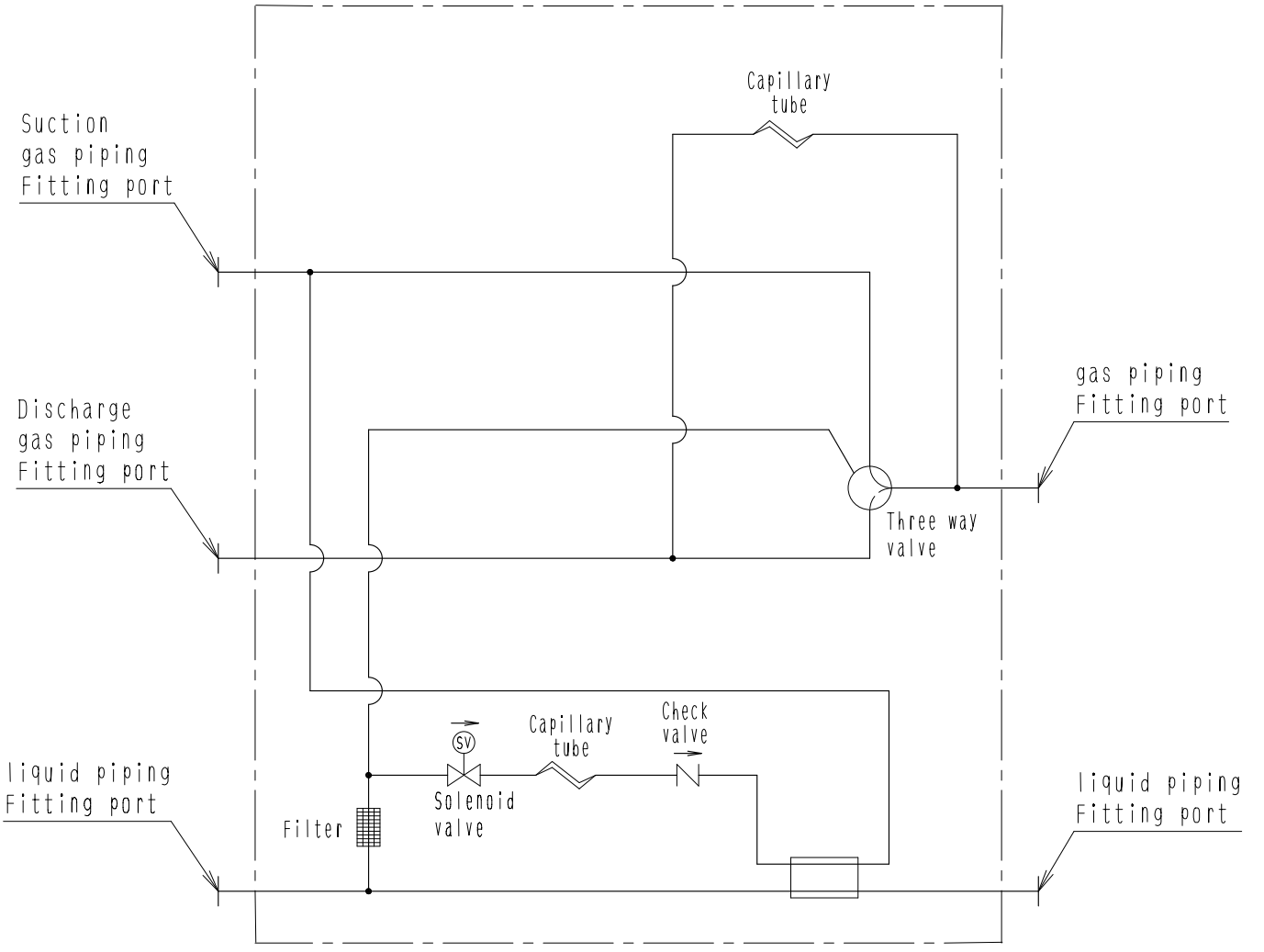
4D043864H

■ Refrigerant pipe connection port diameters

Model	Gas	Liquid
FXDQ07M / 09M / 12M / 18MVJU	ϕ1/2	ϕ1/4
FXDQ24MVJU	ϕ5/8	ϕ3/8

1.3 BS Unit

BSVQ36MVJU
BSVQ60MVJU

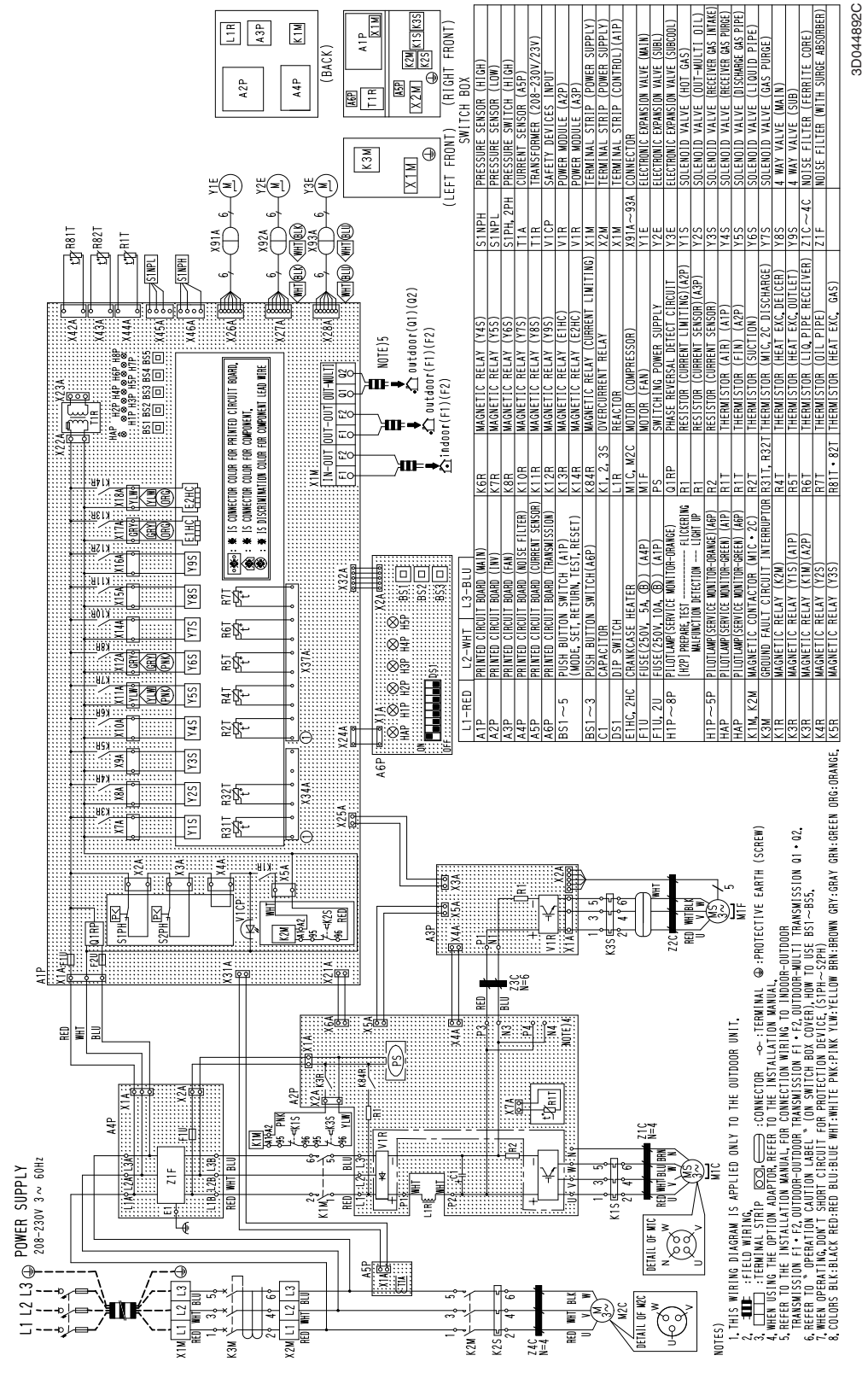


4D045338

2. Wiring Diagrams for Reference

2.1 Outdoor Unit

REYQ72, 96MTJU

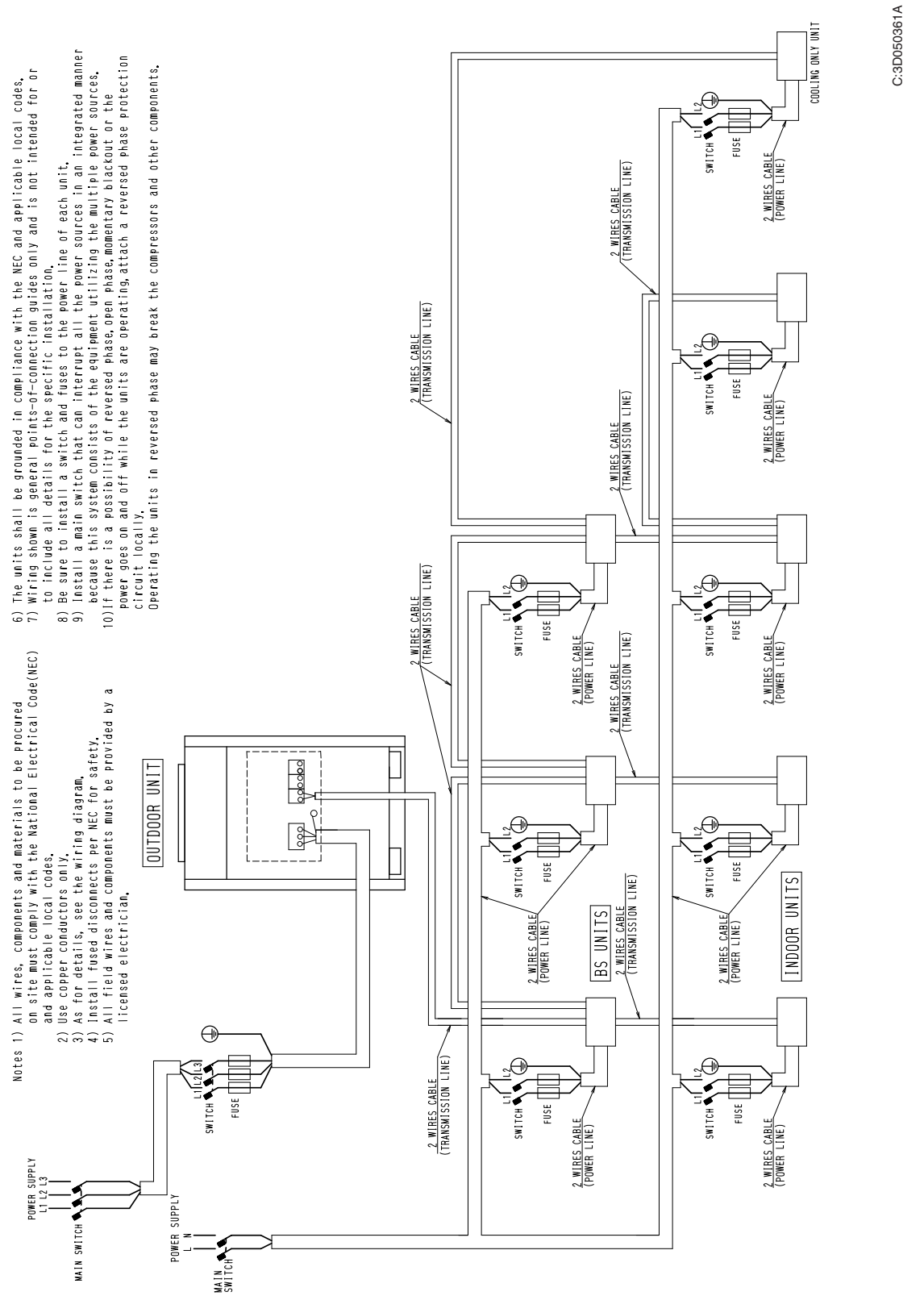


L1-RED	L2-WHT	L3-BLU			
A1P	PRINTED CIRCUIT BOARD (MAIN)		K6R	MAGNETIC RELAY (Y4S)	S1NPH PRESSURE SENSOR (HIGH)
A2P	PRINTED CIRCUIT BOARD (INV)		K7R	MAGNETIC RELAY (Y5S)	S1NPL PRESSURE SENSOR (LOW)
A3P	PRINTED CIRCUIT BOARD (FAN)		K8R	MAGNETIC RELAY (Y6S)	S1PH, 2PH PRESSURE SWITCH (HIGH)
A4P	PRINTED CIRCUIT BOARD (NOISE FILTER)		K10R	MAGNETIC RELAY (Y7S)	T1A CURRENT SENSOR (A5P)
A5P	PRINTED CIRCUIT BOARD (CURRENT SENSOR)		K11R	MAGNETIC RELAY (Y8S)	T1R TRANSFORMER (208~230V/23V)
A6P	PRINTED CIRCUIT BOARD (TRANSMISSION)		K12R	MAGNETIC RELAY (Y9S)	V1CP SAFETY DEVICES INPUT
BS1~5	PUSH BUTTON SWITCH (A1P) (MODE, SET, RETURN, TEST, RESET)		K13R	MAGNETIC RELAY (E1HC)	V1R POWER MODULE (A2P)
			K14R	MAGNETIC RELAY (E2HC)	V1R POWER MODULE (A3P)
BS1~3	PUSH BUTTON SWITCH(A6P)		K84R	MAGNETIC RELAY (CURRENT LIMITING)	X1M TERMINAL STRIP (POWER SUPPLY)
C1	CAPACITOR		K1, 2, 3S	OVERCURRENT RELAY	X2M TERMINAL STRIP (POWER SUPPLY)
DS1	DIP SWITCH		L1R	REACTOR	X1M TERMINAL STRIP (CONTROL)(A1P)
E1HC, 2HC	CRANKCASE HEATER		M1C, M2C	MOTOR (COMPRESSOR)	X91A~93A CONNECTOR
F1U	FUSE(250V, 5A, Ⓑ) (A4P)		M1F	MOTOR (FAN)	Y1E ELECTRONIC EXPANSION VALVE (MAIN)
F1U, 2U	FUSE(250V, 10A, Ⓑ) (A1P)		PS	SWITCHING POWER SUPPLY	Y2E ELECTRONIC EXPANSION VALVE (SUBL)
H1P~8P	PILOT LAMP(SERVICE MONITOR-ORANGE) (H2P) PREPARE TEST ---------- FLICKERING MALFUNCTION DETECTION --- LIGHT UP		Q1RP	PHASE REVERSAL DETECT CIRCUIT	Y3E ELECTRONIC EXPANSION VALVE (SUBCOOL)
			R1	RESISTOR (CURRENT LIMITING)(A2P)	Y1S SOLENOID VALVE (HOT GAS)
			R1	RESISTOR (CURRENT SENSOR)(A3P)	Y2S SOLENOID VALVE (OUT-MULTI OIL)
H1P~5P	PILOT LAMP(SERVICE MONITOR-ORANGE)(A6P)		R2	RESISTOR (CURRENT SENSOR)	Y3S SOLENOID VALVE (RECEIVER GAS INTAKE)
HAP	PILOT LAMP(SERVICE MONITOR-GREEN (A1P)		R1T	THERMISTOR (AIR) (A1P)	Y4S SOLENOID VALVE (RECEIVER GAS PURGE)
HAP	PILOT LAMP(SERVICE MONITOR-GREEN (A6P)		R2T	THERMISTOR (FIN) (A2P)	Y5S SOLENOID VALVE (DISCHARGE GAS PIPE)
K1M, K2M	MAGNETIC CONTACTOR (M1C~2C)		R2T	THERMISTOR (SUCTION)	Y6S SOLENOID VALVE (LIQUID PIPE)
K3M	GROUND FAULT CIRCUIT INTERRUPTOR		R31T, R32T	THERMISTOR (M1C, 2C DISCHARGE)	Y7S SOLENOID VALVE (GAS PURGE)
K1R	MAGNETIC RELAY (K2M)		R4T	THERMISTOR (HEAT EXC, DEICER)	Y8S 4 WAY VALVE (MAIN)
K2R	MAGNETIC RELAY (Y1S)(A1P)		R5T	THERMISTOR (HEAT EXC, OUTLET)	Y9S 4 WAY VALVE (SUB)
K3R	MAGNETIC RELAY (K1M)(A2P)		R6T	THERMISTOR (LIQ.PIPE RECEIVER)	Z1C~4C NOISE FILTER (FERRITE CORE)
K4R	MAGNETIC RELAY (Y2S)		R7T	THERMISTOR (OIL PIPE)	Z1F NOISE FILTER (WITH SURGE ABSORBER)
K5R	MAGNETIC RELAY (Y3S)		R81T, 82T	THERMISTOR (HEAT EXC, GAS)	

NOTES)
1. THIS WIRING DIAGRAM IS APPLIED ONLY TO THE OUTDOOR UNIT.
2. : FIELD WIRING.
3. : TERMINAL STRIP : CONNECTOR : TERMINAL : PROTECTIVE EARTH (SCREW)
4. WHEN USING THE OPTION ADAPTOR, REFER TO THE INSTALLATION MANUAL.
5. REFER TO THE INSTALLATION MANUAL FOR CONNECTION WIRING TO INDOOR-OUTDOOR TRANSMISSION F1•F2.OUTDOOR-OUTDOOR TRANSMISSION F1•F2.OUTDOOR-MULTI TRANSMISSION Q1•Q2.
6. REFER TO "OPERATION CAUTION LABEL" (ON SWITCH BOX COVER). HOW TO USE BS1~BS5.
7. WHEN OPERATING DON'T SHORT CIRCUIT FOR PROTECTION DEVICE.(S1PH~S2PH)
8. COLORS BLK:BLACK RED:RED BLU:BLUE WHT:WHITE PNK:PINK YLW:YELLOW BRN:BROWN GRY:GRAY GRN:GREEN ORG:ORANGE.

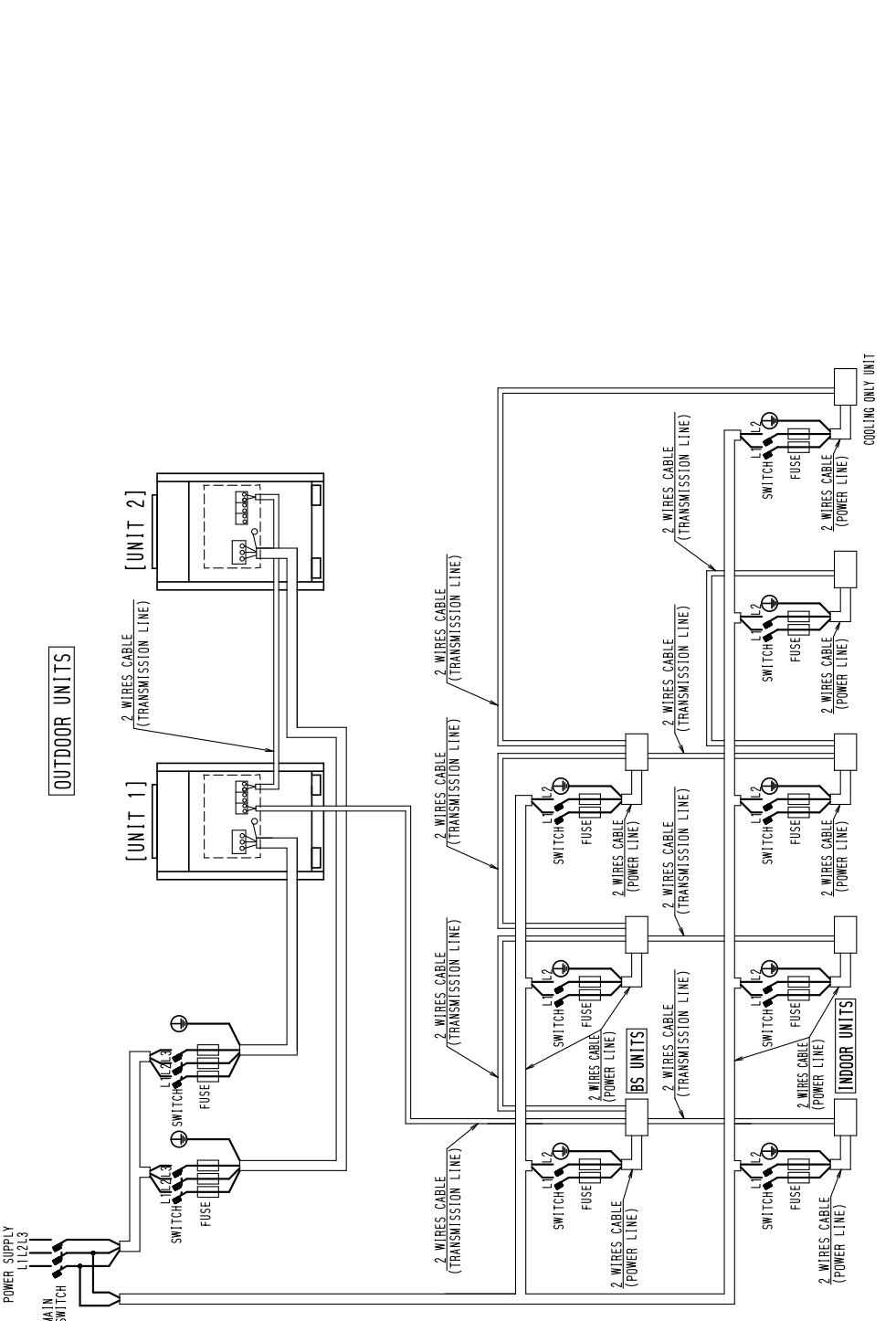
2.2 Field Wiring

REYQ72, 96MTJU



REYQ144, 168, 192MTJU

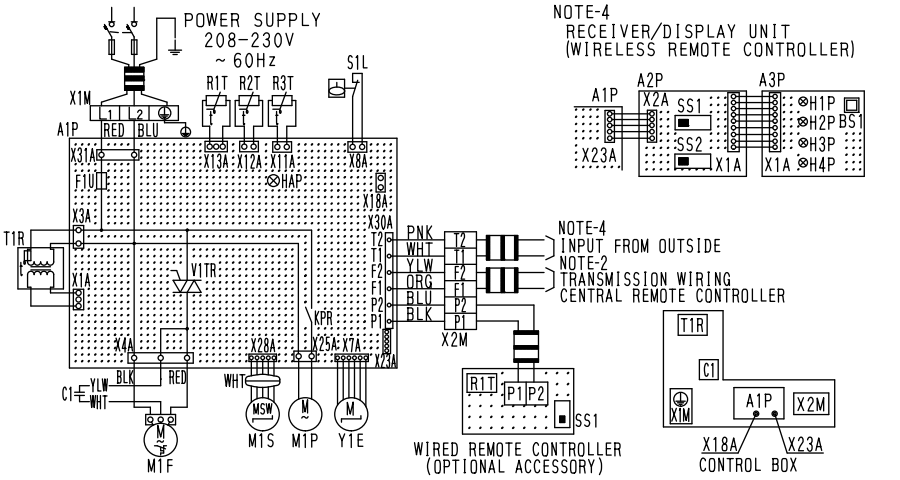
Notes 1) All wires, components and materials to be procured on site must comply with the National Electrical Code(NEC) and applicable local codes.
2) Use copper conductors only.
3) As for details, see the wiring diagram.
4) Install fused disconnects per NEC for safety.
5) All field wires and components must be provided by a licensed electrician.
6) The units shall be grounded in compliance with the NEC and applicable local codes.
7) Wiring shown is general points-of-connection guides only and is not intended for or to include all details for the specific installation.
8) Be sure to install a switch and fuses to the power line of each unit.
9) Install a main switch that can interrupt all the power sources in an integrated manner because this system consists of the equipment utilizing the multiple power sources.
10) If there is a possibility of reversed phase, open phase, momentary blackout or the power goes on and off while the units are operating, attach a reversed phase protection circuit locally.
Operating the units in reversed phase may break the compressors and other components.



2.3 Indoor Unit

FXFQ12M/18M/24M/30M/36MVJU

	INDOOR UNIT		RECEIVER/DISPLAY UNIT(ATTACHED TO WIRELESS REMOTE CONTROLLER)
A1P	PRINTED CIRCUIT BOARD		
C1	CAPACITOR(M1F)	A2P	PRINTED CIRCUIT BOARD
F1U	FUSE (Ⓑ5A/250V)	A3P	PRINTED CIRCUIT BOARD
HAP	LIGHT EMITTING DIODE (SERVICE MONITOR-GREEN)	BS1	PUSH BUTTON(ON/OFF)
		H1P	LIGHT EMITTING DIODE (ON-RED)
KPR	MAGNETIC RELAY(M1P)		
M1F	MOTOR(INDOOR FAN)	H2P	LIGHT EMITTING DIODE (TIMER-GREEN)
M1P	MOTOR(DRAIN PUMP)		
M1S	MOTOR(SWING FLAP)	H3P	LIGHT EMITTING DIODE (FILTER SIGN-RED)
Q1F	THERMO SWITCH(M1F EMBEDDED)		
R1T	THERMISTOR(AIR)	H4P	LIGHT EMITTING DIODE (DEFROST-ORANGE)
R2T・3T	THERMISTOR(COIL)		
S1L	FLOAT SWITCH	SS1	SELECTOR SWITCH (MAIN/SUB)
T1R	TRANSFORMER(208-230V/22V)		
V1TR	TRIAC	SS2	SELECTOR SWITCH (WIRELESS ADDRESS SET)
X1M	TERMINAL STRIP(POWER)		
X2M	TERMINAL STRIP(CONTROL)	CONNECTOR FOR OPTIONAL PARTS	
Y1E	ELECTRONIC EXPANSION VALVE	X18A	CONNECTOR(WIRING ADAPTOR FOR ELECTORICAL APPENDICES)
WIRED REMOTE CONTROLLER		X23A	CONNECTOR(WIRELESS REMOTE CONTROLLER)
R1T	THERMISTOR(AIR)		
SS1	SELECTOR SWITCH(MAIN/SUB)		

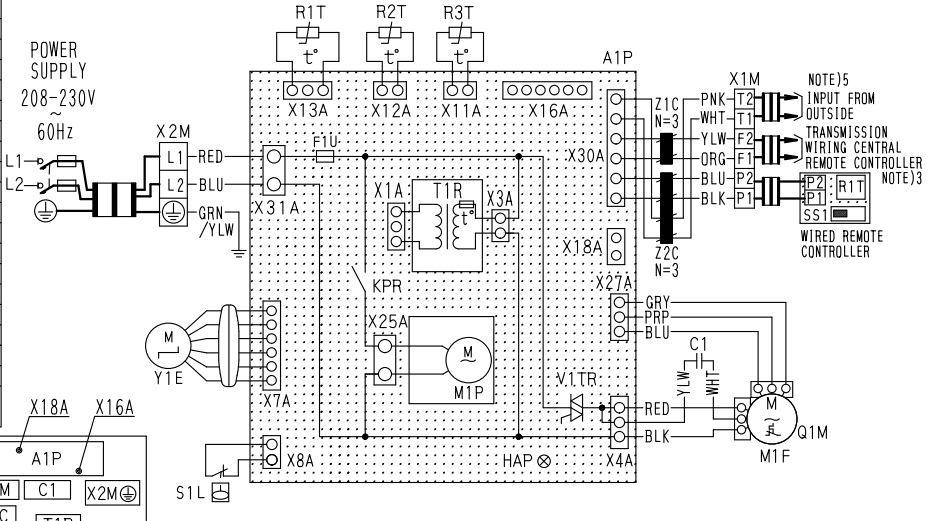


NOTES)
1. □□□□: TERMINAL
   ⊙⊙, ⊂⊃: CONNECTOR
   ═══: FIELD WIRING
2. IN CASE USING CENTRAL REMOTE CONTROLLER, CONNECT IT TO THE UNIT IN ACCORDANCE WITH THE ATTACHED INSTRUCTION MANUAL.
3. X23A IS CONNECTED WHEN THE WIRELESS REMOTE CONTROLLER KIT IS BEING USED.
4. WHEN CONNECTING THE INPUT WIRES FROM OUTSIDE, FORCED OFF OR ON/OFF CONTROL OPERATION CAN BE SELECTED BY REMOTE CONTROLLER.
   IN DETAILS, REFER TO THE INSTALLATION MANUAL ATTACHED THE UNIT.
5. SYMBOLS SHOW AS FOLLOWS
   (BLK:BLACK BLU:BLUE ORG:ORANGE PNK:PINK
   RED:RED WHT:WHITE YLW:YELLOW)
6. USE COPPER CONDUCTORS ONLY.

3D042620B

FXDQ07M/09M/12M/18M/24MVJU

A1P	PRINTED CIRCUIT BOARD
C1	CAPACITOR(M1F)
F1U	FUSE(F5A/250V)
HAP	LIGHT EMITTING DIODE (SERVICE MONITOR GREEN)
KPR	MAGNETIC RELAY(M1P)
M1F	MOTOR(INDOOR FAN)
M1P	MOTOR(DRAIN PUMP)
Q1M	THERMAL PROTECTOR(M1F EMBEDDED)
R1T	THERMISTOR(AIR)
R2T	THERMISTOR(COIL-1)
R3T	THERMISTOR(COIL-2)
S1L	FLOAT SWITCH
T1R	TRANSFORMER(208-230V/25V)
V1TR	PHASE CONTROL CIRCUIT
X1M	TERMINAL BLOCK
X2M	TERMINAL BLOCK
Y1E	ELECTRONIC EXPANSION VALVE
Z1C・Z2C	NOISE FILTER (FERRITE CORE)
WIRED REMOTE CONTROLLER	
R1T	THERMISTOR(AIR)
SS1	SELECTOR SWITCH(MAIN/SUB)
CONNECTOR FOR OPTIONAL PARTS	
X16A	CONNECTOR(ADAPTOR FOR WIRING)
X18A	CONNECTOR(WIRING ADAPTOR FOR ELECTRICAL APPENDICES)

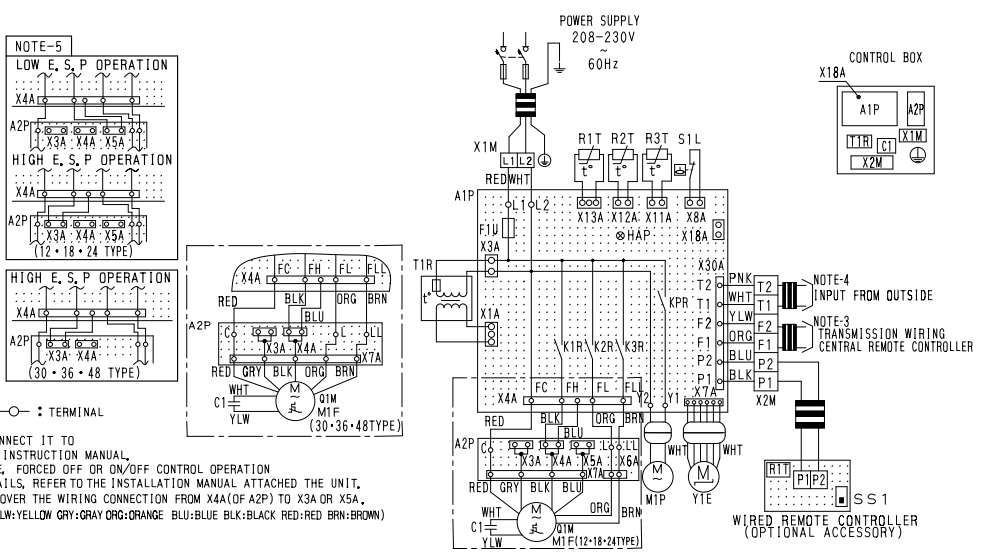


NOTES)
1. □□□: TERMINAL
   ⊙⊙, ⊂⊃: CONNECTOR
2. ═══: FIELD WIRING
3. IN CASE USING CENTRAL REMOTE CONTROLLER, CONNECT IT TO THE UNIT IN ACCORDANCE WITH THE ATTACHED INSTALLATION MANUAL.
4. REMOTE CONTROLLER MODEL VARIES ACCORDING TO THE COMBINATION SYSTEM, CONFIRM ENGINEERING MATERIALS AND CATALOGS, ETC. BEFORE CONNECTING.
5. WHEN CONNECTING THE INPUT WIRES FROM OUTSIDE, FORCED OFF OR ON/OFF CONTROL OPERATION CAN BE SELECTED BY REMOTE CONTROLLER.
   IN DETAILS, REFER TO THE INSTALLATION MANUAL ATTACHED TO THE UNIT.
6. SYMBOLS SHOW AS FOLLOWS: RED:RED BLK:BLACK WHT:WHITE YLW:YELLOW PRP:PURPLE GRY:GRAY BLU:BLUE PNK:PINK ORG:ORANGE GRN:GREEN

3D050501A

FXSQ12M/18M/24M/30M/36M/48MVJU

INDOOR UNIT		WIRED REMOTE CONTROLLER	
A1P	PRINTED CIRCUIT BOARD	R1T	THERMISTOR(AIR)
A2P	TERMINAL BOARD	SS1	SELECTOR SWITCH(MAIN/SUB)
C1	CAPACITOR(M1F)	CONNECTOR FOR OPTIONAL PARTS	
F1U	FUSE(Ⓑ5A/250V)	X18A	CONNECTOR(WIRING ADAPTOR FOR ELECTORICAL APPENDICES)
HAP	LIGHT EMITTING DIODE (SERVICE MONITOR GREEN)		
K1R-K3R	MAGNETIC RELAY(M1F)		
KPR	MAGNETIC RELAY(M1P)		
M1F	MOTOR(INDOOR FAN)		
M1P	MOTOR(DRAIN PUMP)		
Q1M	THERMO SWITCH (M1F EMBEDDED)		
R1T	THERMISTOR(AIR)		
R2T・R3T	THERMISTOR(COIL)		
S1L	FLOAT SWITCH		
T1R	TRANSFORMER(208-230V/22V)		
X1M	TERMINAL BLOCK(POWER)		
X2M	TERMINAL BLOCK(CONTROL)		
Y1E	ELECTRONIC EXPANSION VALVE		

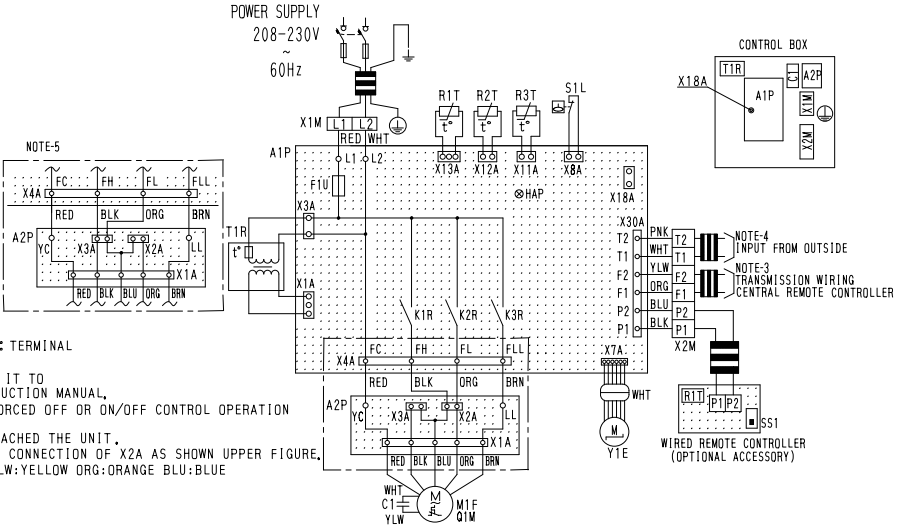


NOTES)
1. □□□:TERMINAL BLOCK, ⊡⊡, ⊐ :CONNECTOR, —○— : TERMINAL
2. ▮▮▮ : FIELD WIRING
3. IN CASE USING CENTRAL REMOTE CONTROLLER, CONNECT IT TO THE UNIT IN ACCORDANCE WITH THE ATTACHED INSTRUCTION MANUAL.
4. WHEN CONNECTING THE INPUT WIRES FROM OUTSIDE, FORCED OFF OR ON/OFF CONTROL OPERATION CAN BE SELECTED BY REMOTE CONTROLLER. IN DETAILS, REFER TO THE INSTALLATION MANUAL ATTACHED THE UNIT.
5. IN CASE HIGH OR LOW E.S.P. OPERATION, CHANGE OVER THE WIRING CONNECTION FROM X4A(OF A2P) TO X3A OR X5A.
6. SYMBOLS SHOW AS FOLLOWS. (PNK:PINK WHT:WHITE YLW:YELLOW GRY:GRAY ORG:ORANGE BLU:BLUE BLK:BLACK RED:RED BRN:BROWN)
7. USE COPPER CONDUCTORS ONLY.

3D043177A

FXMQ30M/36M/48MVJU

INDOOR UNIT		R2T・R3T	THERMISTOR(COIL)
A1P	PRINTED CIRCUIT BOARD	S1L	FLOAT SWITCH
A2P	TERMINAL BOARD	T1R	TRANSFORMER(208-230V/22V)
C1	CAPACITOR(M1F)	X1M	TERMINAL BLOCK(POWER)
F1U	FUSE(Ⓑ5A/250V) 30TYPE	X2M	TERMINAL BLOCK(CONTROL)
		Y1E	ELECTRONIC EXPANSION VALVE
F1U	FUSE(Ⓑ10A/250V) 36・48TYPE	WIRED REMOTE CONTROLLER	
HAP	LIGHT EMITTING DIODE (SERVICE MONITOR-GREEN)	SS1	SELECTOR SWITCH (MAIN/SUB)
K1R—K3R	MAGNETIC RELAY(M1F)	R1T	THERMISTOR(AIR)
M1F	MOTOR(INDOOR FAN)	CONNECTOR FOR OPTIONAL PARTS	
Q1M	THERMO SWITCH (M1F EMBEDDED)	X18A	CONNECTOR(WIRING ADAPTOR FOR ELECTORICAL APPENDICES)
R1T	THERMISTOR(AIR)		



NOTES)
1. □□□ :TERMINAL BLOCK, ⊡⊡, ⊐ :CONNECTOR, —○— : TERMINAL
2. ▮▮▮ : FIELD WIRING
3. IN CASE USING CENTRAL REMOTE CONTROLLER, CONNECT IT TO THE UNIT IN ACCORDANCE WITH THE ATTACHED INSTRUCTION MANUAL.
4. WHEN CONNECTING THE INPUT WIRES FROM OUTSIDE, FORCED OFF OR ON/OFF CONTROL OPERATION CAN BE SELECTED BY REMOTE CONTROLLER. IN DETAILS, REFER TO THE INSTALLATION MANUAL ATTACHED THE UNIT.
5. IN CASE HIGH E.S.P. OPERATION, CHANGE THE WIRING CONNECTION OF X2A AS SHOWN UPPER FIGURE.
6. SYMBOLS SHOW AS FOLLOWS. (PNK:PINK WHT:WHITE YLW:YELLOW ORG:ORANGE BLU:BLUE BLK:BLACK RED:RED BRN:BROWN)
7. USE COPPER CONDUCTORS ONLY.

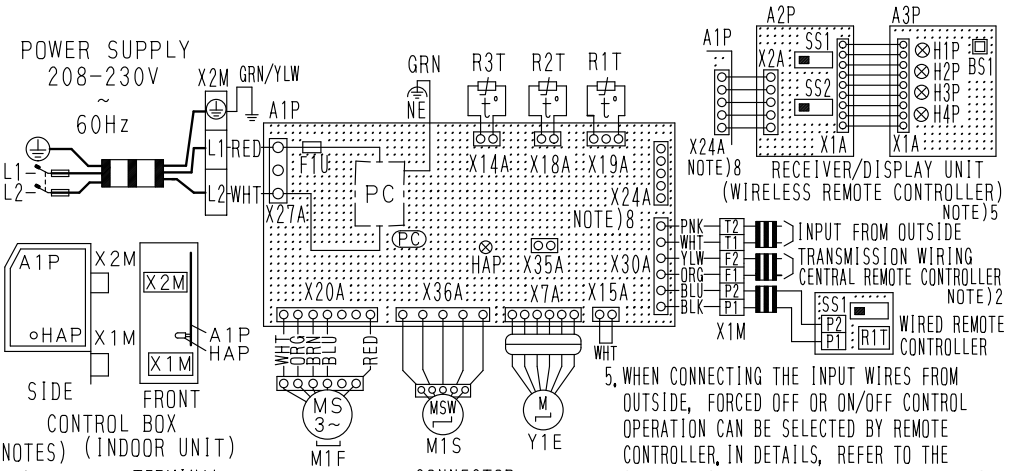
3D043176A

FXAQ07M/09M/12M/18M/24MVJU

INDOOR UNIT	
A1P	PRINTED CIRCUIT BOARD
F1U	FUSE(T 3.15AH 250V)
HAP	LIGHT EMITTING DIODE (SERVICE MONITOR GREEN)
M1F	MOTOR(INDOOR FAN)
M1S	MOTOR(SWING FLAP)
R1T	THERMISTOR(AIR)
R2T	THERMISTOR(COIL LIQUID PIPE)
R3T	THERMISTOR(COIL GAS PIPE)
X1M	TERMINAL BLOCK(CONTROL)
X2M	TERMINAL BLOCK(POWER)
Y1E	ELECTRONIC EXPANSION VALVE
PC	POWER CIRCUIT
	RECEIVER/DISPLAY UNIT(ATTACHED TO WIRELESS REMOTE CONTROLLER)
A2P	PRINTED CIRCUIT BOARD
A3P	PRINTED CIRCUIT BOARD
BS1	PUSH BUTTON(ON/OFF)
H1P	LIGHT EMITTING DIODE(ON-RED)
H2P	LIGHT EMITTING DIODE (TIMER-GREEN)
H3P	LIGHT EMITTING DIODE (FILTER SIGN-RED)
H4P	LIGHT EMITTING DIODE (DEFROST-ORENGE)
SS1	SELECTOR SWITCH(MAIN/SUB)
SS2	SELECTOR SWITCH (WIRELESS ADDRESS SET)

WIRED REMOTE CONTROLLER	
R1T	THERMISTOR(AIR)
SS1	SELECTOR SWITCH(MAIN/SUB)

CONNECTOR FOR OPTIONAL PARTS	
X15A	CONNECTOR(FLOAT SWITCH)
X35A	CONNECTOR(GROUP CONTROL ADAPTOR)



NOTES) (INDOOR UNIT)

1. □□□□ : TERMINAL ⊙⊙ : CONNECTOR
   ≡ : FIELD WIRING ⊃ : CONNECTOR
2. IN CASE USING CENTRAL REMOTE CONTROLLER, CONNECT IT TO THE UNIT IN ACCORDANCE WITH THE ATTACHED INSTALLATION MANUAL.
3. SYMBOLS SHOWS AS FOLLOWS: RED:RED WHT:WHITE GRN:GREEN PNK:PINK YLW:YELLOW BLK:BLACK ORG:ORANGE BRN:BROWN BLU:BLUE
4. ⊙⊙ SHOWS SHORT CIRCUIT CONNECTOR.
5. WHEN CONNECTING THE INPUT WIRES FROM OUTSIDE, FORCED OFF OR ON/OFF CONTROL OPERATION CAN BE SELECTED BY REMOTE CONTROLLER. IN DETAILS, REFER TO THE INSTALLATION MANUAL ATTACHED TO THE UNIT.
6. REMOTE CONTROLLER MODEL VARIES ACCORDING TO THE COMBINATION SYSTEM, CONFIRM ENGINEERING DATA AND CATALOGS, ETC. BEFORE CONNECTING.
7. CONFIRM THE METHOD OF SETTING THE SELECTOR SWITCH(SS1, SS2) OF WIRED REMOTE CONTROLLER AND WIRELESS REMOTE CONTROLLER BY INSTALLATION MANUAL AND ENGINEERING DATA, ETC.
8. X24A IS CONNECTED WHEN THE WIRELESS REMOTE CONTROLLER KIT IS USED.

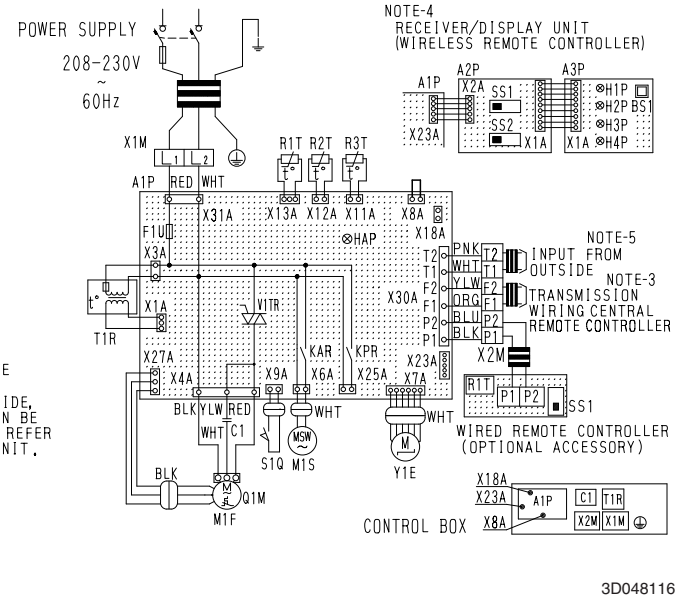
3D046039C

FXHQ12M/24M/36M

INDOOR UNIT	
A1P	PRINTED CIRCUIT BOARD
C1	CAPACITOR(M1F)
F1U	FUSE(Ⓑ5A,250V)
HAP	LIGHT EMITTING DIODE (SERVICE MONITOR-GREEN)
KAR	MAGNETIC RELAY(M1S)
KPR	MAGNETIC RELAY
M1F	MOTOR (INDOOR FAN)
M1S	MOTOR (SWING FLAP)
Q1M	THERMO SWITCH(M1F EMBEDDED)
R1T	THERMISTOR(AIR)
R2T	THERMISTOR(COIL LIQUID)
R3T	THERMISTOR(COIL GAS)
S1Q	LIMIT SWITCH(SWING FLAP)
T1R	TRANSFORMER(208-230V/25V)
V1TR	TRIAC
X1M	TERMINAL BLOCK(POWER)
X2M	TERMINAL BLOCK(CONTROL)
Y1E	ELECTRONIC EXPANSION VALVE
	WIRED REMOTE CONTROLLER
R1T	THERMISTOR(AIR)
SS1	SELECTOR SWITCH(MAIN/SUB)
	RECEIVER/DISPLAY UNIT(ATTACHED TO WIRELESS REMOTE CONTROLLER)
A2P	PRINTED CIRCUIT BOARD
A3P	PRINTED CIRCUIT BOARD
BS1	PUSH BUTTON(ON/OFF)
H1P	LIGHT EMITTING DIODE(ON-RED)
H2P	LIGHT EMITTING DIODE (TIMER-GREEN)
H3P	LIGHT EMITTING DIODE (FILTER SIGN-RED)
H4P	LIGHT EMITTING DIODE (DEFROST-ORANGE)
SS1	SELECTOR SWITCH(MAIN/SUB)
SS2	SELECTOR SWITCH (WIRELESS ADDRESS SET)
	CONNECTOR FOR OPTIONAL PARTS
X18A	CONNECTOR (WIRING ADAPTOR FOR ELECTRICAL APPENDICES)
X23A	CONNECTOR (WIRELESS REMOTE CONTROLLER)

NOTES)

1. □□□□ :TERMINAL BLOCK ⊙⊙, ⊃ :CONNECTOR
   ⊙⊙ : SHORT CIRCUIT CONNECTOR
2. ≡ :FIELD WIRING
3. IN CASE USING CENTRAL REMOTE CONTROLLER, CONNECT IT TO THE UNIT IN ACCORDANCE WITH THE ATTACHED INSTRUCTION MANUAL.
4. X23A IS CONNECTED WHEN THE WIRELESS REMOTE CONTROLLER KIT IS BEING USED.
5. WHEN CONNECTING THE INPUT WIRES FROM OUTSIDE, FORCED OFF OR ON/OFF CONTROL OPERATION CAN BE SELECTED BY REMOTE CONTROLLER. IN DETAILS, REFER TO THE INSTALLATION MANUAL ATTACHED THE UNIT.
6. SYMBOLS SHOW AS FOLLOWS.
   (BLU:BLUE BLK:BLACK ORG:ORANGE PNK:PINK
   RED:RED WHT:WHITE YLW:YELLOW)
7. USE COPPER CONDUCTORS ONLY.

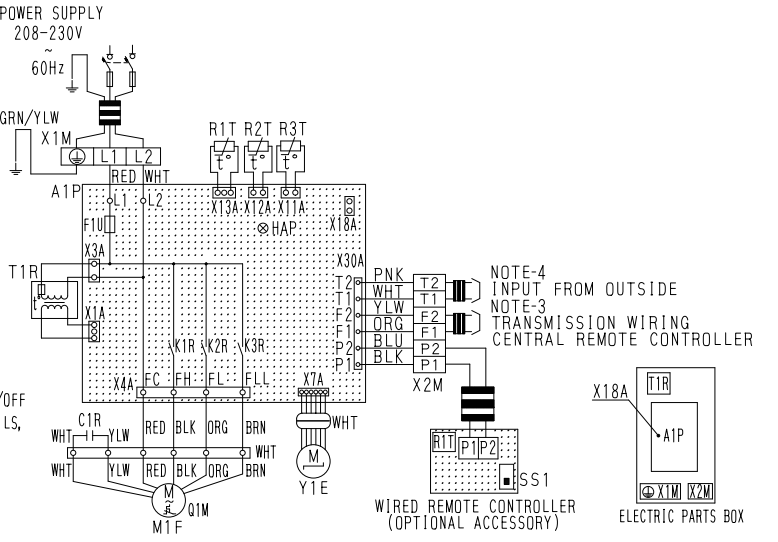


3D048116

FXLQ12M/18M/24MVJU
FXNQ12M/18M/24MVJU

INDOOR UNIT			
A1P	PRINTED CIRCUIT BOARD	X2M	TERMINAL BLOCK(CONTROL)
C1R	CAPACITOR (M1F)	Y1E	ELECTRONIC EXPANSION VALVE
F1U	FUSE(Ⓑ,5A, 250V)	WIRED REMOTE CONTROLLER	
HAP	LIGHT EMITTING DIODE (SERVICE MONITOR-GREEN)	R1T	THERMISTOR(AIR)
		SS1	SELECTOR SWITCH (MAIN/SUB)
K1R-K3R	MAGNETIC RELAY(M1F)	CONNECTOR FOR OPTIONAL PARTS	
M1F	MOTOR (INDOOR FAN)	X18A	CONNECTOR(WIRING ADAPTOR FOR ELECTORICAL APPENDICES)
Q1M	THERMO SWITCH (M1F EMBEDDED)		
R1T	THERMISTOR(AIR)		
R2T・R3T	THERMISTOR(COIL)		
T1R	TRANSFORMER(208-230V/25V)		
X1M	TERMINAL BLOCK(POWER)		

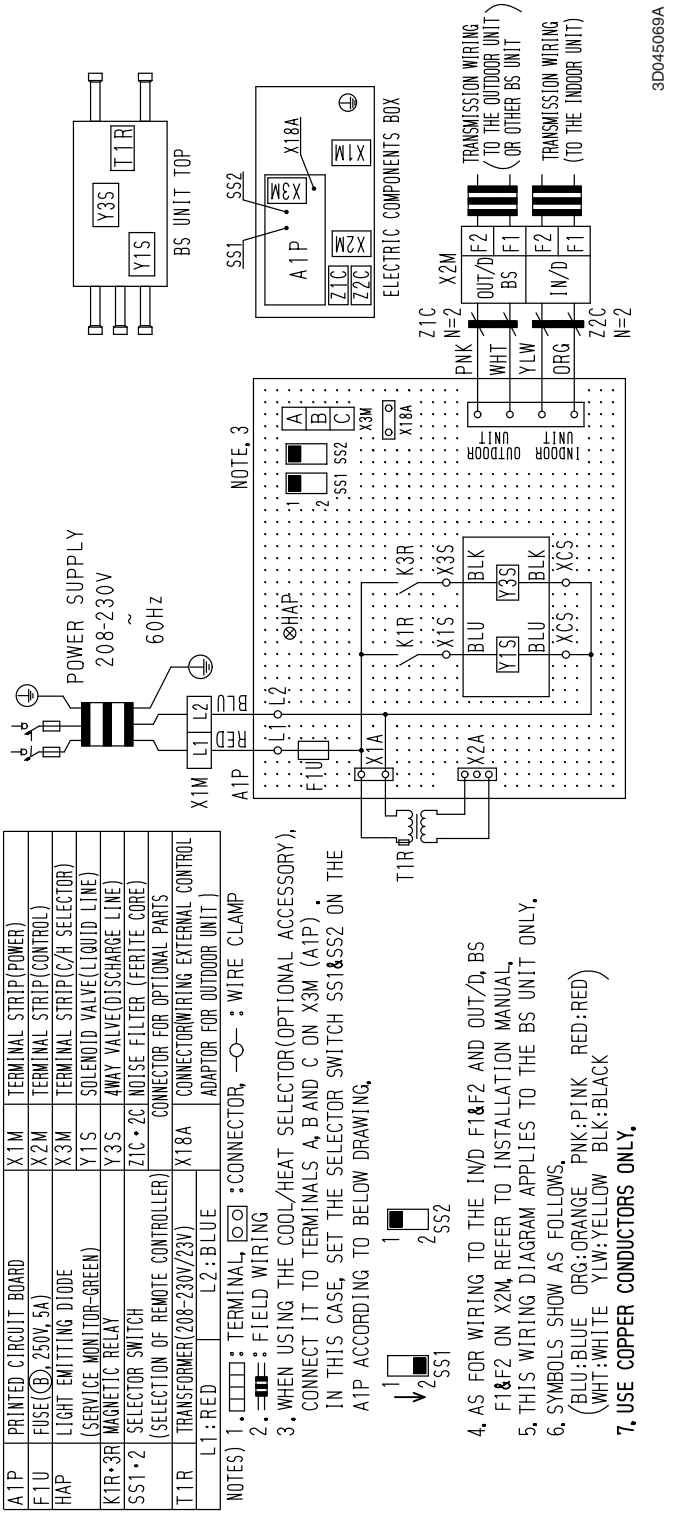
NOTES)
1. ⊏⊐:TERMINAL BLOCK, ⊡:CONNECTOR, ⊸:TERMINAL
2. ⊏▮⊐:FIELD WIRING
3. IN CASE USING CENTRAL REMOTE CONTROLLER, CONNECT IT TO THE UNIT IN ACCORDANCE WITH THE ATTACHED INSTALLATION MANUAL.
4. WHEN CONNECTING THE INPUT WIRES FROM OUTSIDE, FORCED OFF OR ON/OFF CONTROL OPERATION CAN BE SELECTED BY REMOTE CONTROLLER. IN DETAILS, REFER TO THE INSTALLATION MANUAL ATTACHED TO THE UNIT.
5. SYMBOLS SHOW AS FOLLOWS. (PNK:PINK WHT:WHITE YLW:YELLOW ORG:ORANGE BLU:BLUE BLK:BLACK RED:RED BRN:BROWN)
6. USE COPPER CONDUCTORS ONLY.



3D045644A

2.4 BS Unit

BSVQ36M / 60MVJU



3. List of Electrical and Functional Parts

3.1 Outdoor Unit

3.1.1 REYQ72M, 96MTJU

Item	Name			Symbol	Model
					REYQ72M, 96MTJUY1B
Compressor	Inverter		Type	M1C	JT100FCVDKT
			Output		2.7kW
	STD.1		Type	M2C	JT170FCKTJ
			Output		4.5kW
	Crankcase heater (INV)			E1HC	33W
	Crankcase heater (STD.1)			E2HC	33W
	Crankcase heater (STD.2)			E3HC	—
	Over current protection device for STD compressor			—	34A
Fan motor	Motor			M1F	0.75kW
	Over current protection device			—	10A
Functional parts	Electronic expansion valve (Main: EV1)			Y1E	Cooling:1400pls Heating:PI control
	Electronic expansion valve (Sub: EV2)			Y2E	Cooling:1400pls Heating:PI control
	Electronic expansion valve (Sub-cool: EV3)			Y3E	Cooling:PI control Heating:0pls
	Solenoid valve (Hot gas: SVP)			Y1S	VPV-603D
	Solenoid valve (External multi oil: SVO)			Y2S	TEV1620DQ2
	Solenoid valve (Receiver gas charge: SVL)			Y3S	TEV1620DQ2
	Solenoid valve (Receiver gas discharge: SVG)			Y4S	VPV-603D
	Solenoid valve (Discharge gas pipe closing: SVR)			Y5S	BPV1706
	Solenoid valve (Non-operating unit liquid pipe closing: SVSL)			Y6S	VPV-803DXF
	Solenoid valve (High pressure gas pipe pressure reduction: SVC)			Y7S	BPV1706
	4-way selector valve (20S1 Main)			Y8S	VHV0404
	4-way selector valve (20S2 Sub)			Y9S	VT3101C
Pressure-related parts	Pressure switch (INV)			S1PH	PS80 ON : 551+0/-14.5psi OFF : 413±21.8psi
	Pressure switch (STD1)			S2PH	
	Fusible plug			—	FPGD-3D 158 to 167°F
	Pressure sensor (HP)			S1NPH	PS8051A 0 to 601.9psi
	Pressure sensor (LP)			S1NPL	PS8051A -14.5 to 246.6psi
Thermistor	INV PCB	For fin (T fin)		R1T	3.5 to 360kΩ
	Main PCB	For outdoor air (Ta)		R1T	3.5 to 360kΩ
		For suction pipe (Ts)		R2T	3.5 to 360kΩ
		For discharge pipe (INV Tdi)		R31T	3.5 to 400kΩ
		For discharge pipe (STD1 Tds1)		R32T	3.5 to 400kΩ
		For heat exchanger (Tb)		R4T	3.5 to 360kΩ
		For sub-cooling heat exchanger (Tsh)		R5T	3.5 to 360kΩ
		For receiver liquid pipe (Tl)		R6T	3.5 to 360kΩ
		For oil equalizing pipe (To)		R7T	3.5 to 360kΩ
		Heat exchanger gas pipe 1 (Tg1)		R81T	3.5 to 360kΩ
		Heat exchanger gas pipe 2 (Tg2)		R82T	3.5 to 360kΩ
Others	Fuse (A1P)			F1, 2U	250VAC 10A Class B

3.2 Indoor Side

3.2.1 Indoor Unit

Parts Name		Symbol	Model					Remark
			FXFQ 12MVJU	FXFQ 18MVJU	FXFQ 24MVJU	FXFQ 30MVJU	FXFQ 36MVJU	
Remote Controller	Wired Remote Controller		BRC1C71					Option
	Wireless Remote Controller		BRC7C812					
Motors	Fan Motor	M1F	1ϕ45W 6P			1ϕ90W 6P		
			Thermal Protector 266°F : OFF 176°F : ON					
	Capacitor, fan motor	C1	3.5μF 450VAC			5.0μF 450VAC		
	Drain Pump	M1P	PLD-12230DM Thermal Fuse 293°F					
	Swing Motor	M1S	MP35HCA [3P007482-1]					
Thermistors	Thermistor (Suction Air)	R1T	ST8601A-1 ϕ4 L250 20kΩ (77°F)					
	Thermistor (for Heat Exchanger High Temp.)	R3T	ST8605-3 ϕ8 L630 20kΩ (77°F)					
	Thermistor (Heat Exchanger)	R2T	ST8602A-3 ϕ6 L630 20kΩ (77°F)					
Others	Float Switch	S1L	FS-0211					
	Fuse	F1U	250V 5A ϕ5.2					
	Transformer	T1R	TR25H25R0					

Parts Name		Symbol	Model					Remark
			FXDQ 07MVJU	FXDQ 09MVJU	FXDQ 12MVJU	FXDQ 18MVJU	FXDQ 24MVJU	
Remote Controller	Wired Remote Controller		BRC1C71					Option
	Wireless Remote Controller		BRC4C82					
Motors	Fan Motor	M1F	1ϕ62W 4P			1ϕ13W 4P		
			Thermal Protector 266±9°F : OFF 181±27°F : ON					
	Capacitor, fan motor	C1	4.0μF 450VAC			7.0μF 450VAC		
Thermistors	Thermistor (Suction Air)	R1T	ST8601A-1 ϕ4 L250 20kΩ (77°F)					
	Thermistor (for Heat Exchanger High Temp.)	R3T	ST8605-4 ϕ8 L800 20kΩ (77°F)					
	Thermistor (Heat Exchanger)	R2T	ST8602A-4 ϕ6 L800 20kΩ (77°F)					
Others	Float Switch	S1L	FS-0211					
	Transformer	T1R	TR25H25R0					

Parts Name		Symbol	Model						Remark
			FXSQ 12MVJU	FXSQ 18MVJU	FXSQ 24MVJU	FXSQ 30MVJU	FXSQ 36MVJU	FXSQ 48MVJU	
Remote Controller	Wired Remote Controller		BRC1C71						Option
	Wireless Remote Controller		BRC4C82						
Motors	Fan Motor	M1F	1φ50W 4P	1φ85W 4P	1φ125W 4P	1φ225W 4P			
			Thermal Fuse 305.6°F			Thermal protector 275°F : OFF 188.6°F : ON			
	Drain Pump	M1P	PLD-12230DM Thermal Fuse 336.2°F						
Thermistors	Thermistor (Suction Air)	R1T	ST8601-13 φ4 L630 20kΩ (77°F)						
	Thermistor (for Heat Exchanger High Temp.)	R3T	ST8605-7 φ8 L1600 20kΩ (77°F)						
	Thermistor (Heat Exchanger)	R2T	ST8602A-7 φ6 L1600 20kΩ (77°F)						
Others	Float Switch	S1L	FS-0211						
	Fuse	F1U	250V 5A φ5.2						
	Transformer	T1R	TR25H25R0						

Parts Name		Symbol	Model			Remark
			FXMQ 30MVJU	FXMQ 36MVJU	FXMQ 48MVJU	
Remote Controller	Wired Remote Controller		BRC1C71			Option
	Wireless Remote Controller		BRC4C82			
Motors	Fan Motor	M1F	1φ160W	1φ270W	1φ430W	
			Thermal protector 275°F : OFF 188.6°F : ON			
	Capacitor for Fan Motor	C1R	6μF 450V	9μF 450V	8μF 450V	
Thermistors	Thermistor (Suction Air)	R1T	ST8601A-5 φ4 L1000 20kΩ (77°F)			
	Thermistor (for Heat Exchanger High Temp.)	R3T	ST8605A-4 φ8 L800 20kΩ (77°F)			
	Thermistor (Heat Exchanger)	R2T	ST8602A-4 φ6 L800 20kΩ (77°F)			
Others	Float switch	S1L	FS-0211			
	Fuse	F1U	250V 5A φ5.2	250V 10A φ5.2		
	Transformer	T1R	TR25H25R0			

Parts Name		Symbol	Model			Remark
			FXHQ 12MVJU	FXHQ 24MVJU	FXHQ 36MVJU	
Remote Controller	Wired Remote Controller		BRC1C71			Option
	Wireless Controller		BRC7E83			
Motors	Fan Motor	M1F	1φ63W	1φ130W		
			Thermal protector 266°F : OFF 176°F : ON			
	Capacitor for Fan Motor	C1R	3.0μF-450V	9.0μF-450V		
	Swing Motor	M1S	MT8-L[3P058751-1] AC200~240V			
Thermistors	Thermistor (Suction Air)	R1T	ST8601A-1 φ4 L250 20kΩ (77°F)			
	Thermistor (for Heat Exchanger High Temp.)	R3T	ST8605-6 φ8 L = 1250 20kΩ (77°F)		ST8605-6 φ8 L = 1250 20kΩ (77°F)	
	Thermistor (Heat Exchanger)	R2T	ST8602A-6 φ6 L = 1250 20kΩ (77°F)		ST8602A-6 φ6 L = 1250 20kΩ (77°F)	
Others	Fuse	F1U	250V 5A			
	Transformer	T1R	TR25H25R0			

Parts Name		Symbol	Model					Remark
			FXAQ 07MVJU	FXAQ 09MVJU	FXAQ 12MVJU	FXAQ 18MVJU	FXAQ 24MVJU	
Remote Controller	Wired Remote Controller		BRC1C71					Option
	Wireless Remote Controller		BRC7E818					Option
Motors	Fan Motor	M1F	1φ40W			1φ43W		
			Thermal protector 266°F : OFF 176°F : ON					
	Swing Motor	M1S	MP24[3SB40333-1] AC200~240V			MSFBC20C21 [3SB40550-1] AC200~240V		
Thermistors	Thermistor (Suction Air)	R1T	ST8601-2 φ4 L400 20kΩ (77°F)					
	Thermistor (for Heat Exchanger High Temp.)	R3T	ST8605-2 φ8 L400 20kΩ (77°F)					
	Thermistor (for Heat Exchanger)	R2T	ST8602-2 φ6 L400 20kΩ (77°F)					
Others	Float Switch	S1L	OPTION					
	Fuse	F1U	250V 3.15A					

Parts Name		Symbol	Model			Remark
			FXLQ 12MVJU	FXLQ 18MVJU	FXLQ 24MVJU	
Remote Controller	Wired Remote Controller		BRC1C71			Option
	Wireless Remote Controller		—			
Motors	Fan Motor	M1F	1φ25W	1φ35W		
			Thermal protector 275°F : OFF 248°F : ON			
	Capacitor for Fan Motor	C1R	0.5μF-450V	1.5μF-450V	2.0μF-450V	
Thermistors	Thermistor (Suction Air)	R1T	ST8601-6 φ4 L1250 20kΩ (77°F)			
	Thermistor (for Heat Exchanger High Temp.)	R3T	ST8605-9 φ8 L2500 20kΩ (77°F)			
	Thermistor (for Heat Exchanger)	R2T	ST8602A-9 φ6 L2500 20kΩ (77°F)			
Others	Fuse	F1U	AC250V 5A			
	Transformer	T1R	TR25H25R0			

Parts Name		Symbol	Model			Remark
			FXNQ 12MVJU	FXNQ 18MVJU	FXNQ 24MVJU	
Remote Controller	Wired Remote Controller		BRC1C71			Option
	Wireless Remote Controller		—			
Motors	Fan Motor	M1F	1φ25W	1φ35W		
			Thermal protector 275°F : OFF 248°F : ON			
	Capacitor for Fan Motor	C1R	0.5μF-450V	1.5μF-450V	2.0μF-450V	
Thermistors	Thermistor (Suction Air)	R1T	ST8601-6 φ4 L1250 20kΩ (77°F)			
	Thermistor (for Heat Exchanger High Temp.)	R3T	ST8605-9 φ8 L2500 20kΩ (77°F)			
	Thermistor (for Heat Exchanger)	R2T	ST8602A-9 φ6 L2500 20kΩ (77°F)			
Others	Fuse	F1U	AC250V 5A			
	Transformer	T1R	TR25H25R0			

4. Option List

4.1 Option List of Controllers

Optional Accessories of Operation Control System

No.	Item	Type	FXFQ~MVJU	FXSQ~MVJU	FXMQ~MVJU	FXAQ~MVJU	FXLQ~MVJU FXNQ~MVJU	FXHQ~MVJU	FXDQ~MVJU
1	Remote controller	Wireless	BRC7C812	BRC4C82		BRC7E818	—	BRC7E83	BRC4C82
		Wired	BRC1C71						
			BRC1D71						
2	Set back time clock		BRC15A71						
3	Remote sensor		KRCS01-1						
4	Installation box for adaptor PCB		KRP1B98	—				KRP1C93	KRP1B101
5	Central remote controller		DCS302C71						
5-1	Electrical box		KJB311A						
6	Unified on/off controller		DCS301C71						
6-1	Electrical box		KJB212A						
7	Schedule timer		DST301B61						
8	External control adaptor for outdoor unit		★DTA104A62	DTA104A61		—	DTA104A61	★DTA104A62	★DTA104A53
9	D3-NET Expander adaptor		DTA109A51						
10	Simplified remote controller		—	BRC2A71		—	BRC2A71	—	BRC2A71
11	Adaptor for wiring		★KRP1B72	KRP1B71				★KRP1B73	—
12	Wiring adaptor for electrical appendices (2)		★KRP4A73	KRP4A71				★KRP4A72	★KRP4A74

C:3D043022D

Notes:
1.Installation box (No.4) is necessary for each adaptor marked ★.
2.Electrical box (5-1/6-1) is required for controller (No. 5/6).

Building management system

	Part name			Model No.	Function
intelligent Touch Controller	basic	Hardware	intelligent Touch Controller	DCS601C71	• Air-Conditioning management system that can be controlled by a compact all-in-one unit.
	Option	Software	Web	DCS004A71	• Monitors and controls the air conditioning system using the Internet and Web browser application on a PC.
Communication Line	∗2 Interface for use in BACnet®			DMS502A71	Interface unit to allow communications between VRV and BMS. Operation and monitoring of air-conditioning systems through BACnet® communications.
	Optional DIII board			DAM411A1	Expansion kit, installed on DMS502A71, to provide 3 more DIII-NET communication ports. Not usable independently.
	Optional Di board			DAM412A1	Expansion kit, installed on DMS502A71, to provide 16 more wattmeter pulse input points. Not usable independently.
	∗3 Interface for use in LONWORKS®			DMS504B71	Interface unit to allow communications between VRV and BMS. Operation and monitoring of air-conditioning systems through LONWORKS® communication.
Contact/Analog signal	Unification adaptor for computerized control			DCS302A72	Interface between the central monitoring board and central control units
	Wiring adaptor for electrical appendices (2)			KRP4A71-74	To control the group of indoor units collectively, which are connected by the transmission wiring of remote controller.
	External control adaptor for outdoor unit (Must be installed on indoor units.)			DTA104A53, 61, 62	Cooling/Heating mode change over. Demand control and Low noise control are available between the plural outdoor units.

Note:
★1.BACnet® is a registered trademark of American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE).
★2.LONWORKS® is a registered trade mark of Echelon Corporation.

4.2 Option Lists (Outdoor Unit)

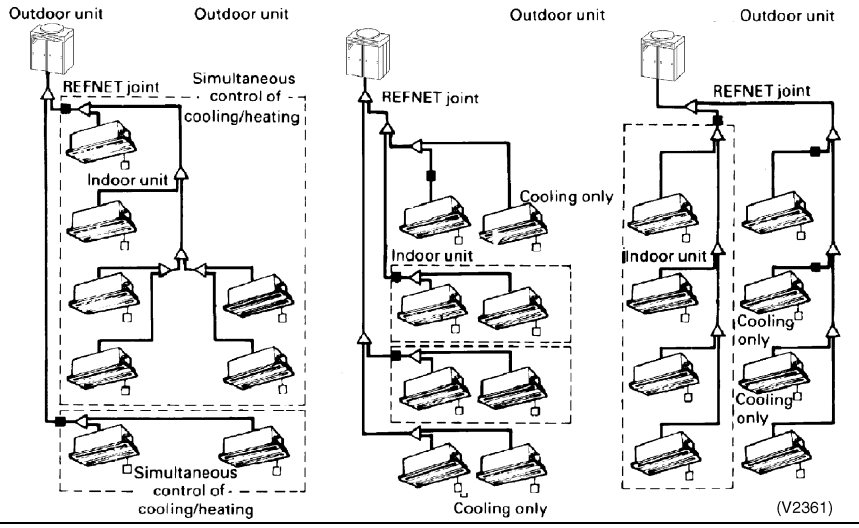
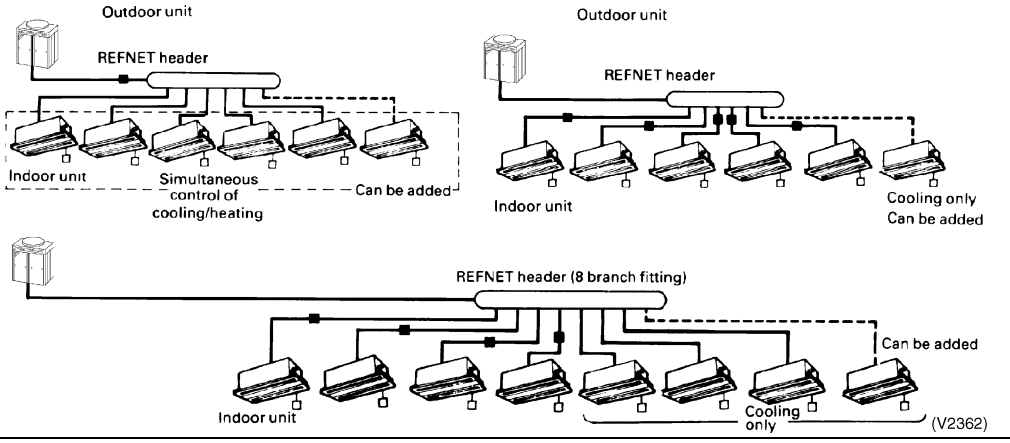
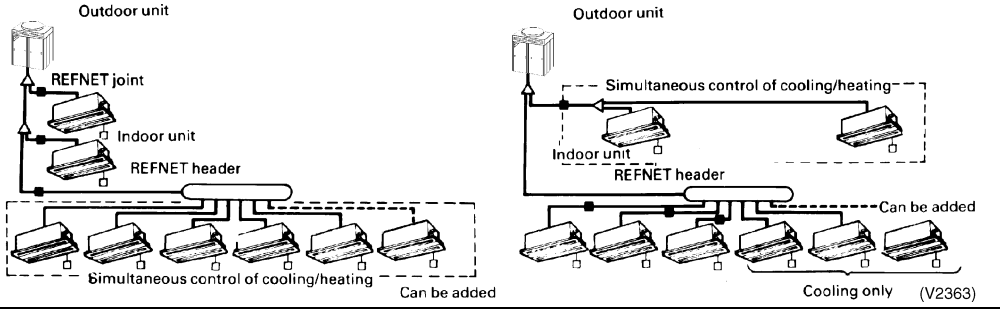
Optional accessories \ Series / Models			INVERTER "M" SERIES (Heat Recovery Type)	
			REYQ72, 96MTJU	**REYQ144, 168, 192MTJU**
Distributive piping	REFNET header	Model	KHRP25M33H (Max. 8 branch)	KHRP25M33H, KHRP25M72H (Max. 8 branch) (Max. 8 branch)
	REFNET joint	Model	KHRP25M22T, KHRP25M33T	KHRP25M22T, KHRP25M33T, KHRP25M72TU
Outdoor unit multi connection piping kit		Model	—	BHFP26M90U

4D045331B

5. Example of Connection (R-410A Type)

5.1 Heat Recovery System

Use of the particular branch fitting appropriate to each individual unit type not only permits the pipes to be laid with ease but also increases the reliability of the system as a whole.

Type of fitting	Sample systems
Distribution by REFNET joints	
Distribution by REFNET header	
Combination of REFNET joints and headers	

Units can be added by connecting them directly to the REFNET header or REFNET joint. Further branches cannot be included in the system below the REFNET header branch.

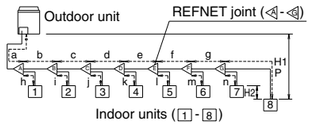
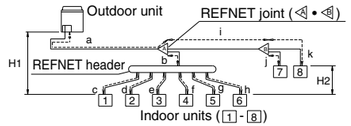
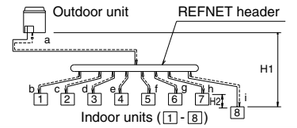
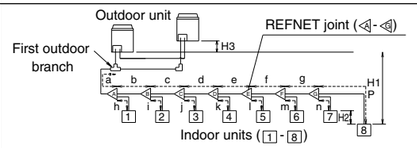
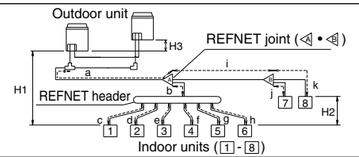
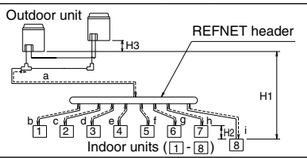
Notes:

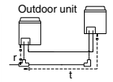
1. When the capacity ratio of the indoor system to the outdoor unit is more than 100% and when all the indoor units are in operation at the same time then the rated capacity of each unit will be somewhat reduced.
2. Special purpose REFNET pipe components must be used for all the pipe work. For further details concerning choice of components, types of components, etc.

5.2 Example of connection

1 indoor unit
A REFNET joint
REFNET header

＊ In case of multiple outdoor units installed, re-read to the first outdoor branch as seen from the indoor unit.

		Branch with REFNET joint	Branch with REFNET joint and REFNET header	Branch with REFNET header
One outdoor unit installed				
Multiple outdoor units installed				
Maximum allowable length	Between outdoor and indoor units	Actual pipe length	Pipe length between outdoor and indoor units ≤ 490ft.		
			Example unit 8: a + b + c + d + e + f + g + p ≤ 490ft.	Example unit 6: a + b + h ≤ 330ft., unit 8: a + i + k ≤ 490ft.	Example unit 8: a + i ≤ 490ft.
		Equivalent length	Equivalent pipe length between outdoor and indoor units ≤ 575ft. (assume equivalent pipe length of REFNET joint to be 1.6ft., that of REFNET header to be 3.3ft. calculation purposes)		
		Total extension length	Total piping length from outdoor unit* to all indoor units ≤ 950ft.		
	Between outdoor branch and indoor unit (Only for multiple outdoor units)	Actual pipe length	Piping length from outdoor branch to outdoor unit ≤ 33ft. Approximately length: max 43ft.		
Allowable height length	Between outdoor and indoor units	Difference in height	Difference in height between outdoor and indoor units (H1) ≤ 164ft. (Max 130ft. if the outdoor unit is below)		
	Between indoor and indoor units	Difference in height	Difference in height between adjacent indoor units (H2) ≤ 49ft.		
	Between outdoor and outdoor units	Difference in height	Difference in height between outdoor unit (main) and outdoor unit (sub) (H3) ≤ 16ft.		
Allowable length after the branch		Actual pipe length	Pipe length from first refrigerant branch kit (either REFNET joint or REFNET header) to indoor unit ≤ 130ft.		
			Example unit 8: b + c + d + e + f + g + p ≤ 130ft.	Example unit 6: b + h ≤ 130ft., unit 8:i + k ≤ 130ft.	Example unit 8: i ≤ 130ft.



r ≤ 33ft. (Approximately length: max 43ft.)
t ≤ 33ft. (Approximately length: max 43ft.)

Refrigerant branch kit selection

Refrigerant branch kits can only be used with R-410A.

How to select the REFNET joint
- When using REFNET joints at the first branch counted from the outdoor unit side, choose from the following table in accordance with the capacity of the outdoor unit.

Outdoor unit capacity type	Refrigerant branch kit name
REYQ72/96	KHRP26M22T, KHRP26M33T
REYQ144/168/192	KHRP26M22T, KHRP26M33T, KHRP26M72TU

- For REFNET joints other than the first branch, select the proper branch kit model based on the total capacity index.

indoor capacity index	Refrigerant branch kit name
< 72	KHRP26M22T
72 ≤ x < 111	KHRP26M33T
111 ≤	KHRP26M72TU

How to select the REFNET header
- Choose from the following table in accordance with the total capacity of all the indoor units connected below the REFNET header.

indoor capacity index	Refrigerant branch kit name
< 72	KHRP26M22H (Max. 4 kit)
< 111	KHRP26M33H (Max. 8 kit)
111 ≤	KHRP26M72H (Max. 8 kit)

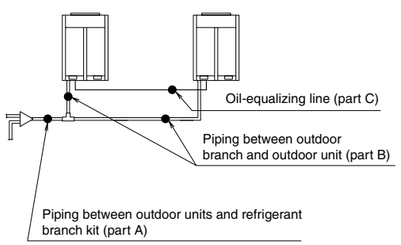
In case of multiple outdoor units installed, use outdoor branch kit.

Number of outdoor units	Branch kit name
2 units	BHFP22M90U

Example of downstream indoor units	example in case of REFNET joint C; indoor units 3 + 4 + 5 + 6 + 7 + 8	example in case of REFNET joint B indoor units 7 + 8, example in case of REFNET header; indoor units 1 + 2 + 3 + 4 + 5 + 6	example in case of REFNET header; indoor units 1 + 2 + 3 + 4 + 5 + 6 + 7 + 8

Pipe size selection

⚠**Caution**
The thickness and material shall be selected in accordance with local code.
For an outdoor unit multi installation, make the settings in accordance with the following figure.



Piping between outdoor units and refrigerant branch kit (part A)
- Match to the size of the connection piping on the outdoor unit.

Outdoor unit connection piping size (Unit: in.)

Outdoor unit capacity type	Piping size	
	Gas pipe	Liquid pipe
REYQ72	ϕ3/4	ϕ3/8
REYQ96	ϕ7/8	ϕ3/8
REYQ144/168/192	ϕ1-1/8	ϕ5/8

Piping between refrigerant branch kits
- Choose from the following table in accordance with the total capacity of all the indoor units connected below this.
- Do not let the connection piping exceed the refrigerant piping size chosen by general system model name.

(Unit: in.)

indoor capacity index	Piping size	
	Gas pipe	Liquid pipe
< 72	ϕ5/8	ϕ3/8
72 ≤ x < 111	ϕ7/8	
111 ≤ x < 156	ϕ1-1/8	ϕ1/2
156 ≤		ϕ5/8

Between refrigerant branch kit and indoor unit
- Pipe size for direct connection to indoor unit must be the same as the connection size of indoor unit.

(Unit: in.)

indoor capacity type	Piping size	
	Gas pipe	Liquid pipe
07, 09, 12, 18 type	ϕ1/2	ϕ1/4
24, 30, 36, 48 type	ϕ5/8	ϕ3/8

Piping between outdoor branch and outdoor unit (part B) (Unit: in.)

outdoor capacity type	Piping size	
	Gas pipe	Liquid pipe
REYQ72	ϕ3/4	ϕ3/8
REYQ96	ϕ7/8	ϕ3/8

Oil-equalizing line (Only for multiple outdoor units installed) (part C) (Unit: in.)

Piping size	ϕ1/4

How to calculate the additional refrigerant to be charged

Additional referigerant to be charged R (lb.)
R should be rounded off in units of 0.1 (lb.).

NOTE:
If a negative result is gotten for R from the formula at right, no refrigerant needs to be added.

$$R=\left(\begin{array}{l}\text{Total length (ft.)}\\ \text{of liquid piping}\\ \text{size at } \phi 7/8\end{array}\right)\times 0.235+\left(\begin{array}{l}\text{Total length (ft.)}\\ \text{of liquid piping}\\ \text{size at } \phi 3/4\end{array}\right)\times 0.168+\left(\begin{array}{l}\text{Total length (ft.)}\\ \text{of liquid piping}\\ \text{size at } \phi 5/8\end{array}\right)\times 0.114+\left(\begin{array}{l}\text{Total length (ft.)}\\ \text{of liquid piping}\\ \text{size at } \phi 1/2\end{array}\right)\times 0.074+\left(\begin{array}{l}\text{Total length (ft.)}\\ \text{of liquid piping}\\ \text{size at } \phi 3/8\end{array}\right)\times 0.036+\left(\begin{array}{l}\text{Total length (ft.)}\\ \text{of liquid piping}\\ \text{size at } \phi 1/4\end{array}\right)\times 0.015-$$

Model name	Amount of refrigerant
REYQ72/96	0 lb.
REYQ144/168/192	6.6 lb.

Example for refrigerant branch using REFNET joint and REFNET header for REYQ192

If the outdoor unit is REYQ192 units and the piping lengths are as at right

a: ϕ3/4 × 100ft.	d: ϕ3/8 × 30ft.	g: ϕ1/4 × 30ft.	j : ϕ1/4 × 30ft.	
b: ϕ5/8 × 30ft.	e: ϕ3/8 × 30ft.	h: ϕ1/4 × 70ft.	k: ϕ1/4 × 25ft.	
c: ϕ3/8 × 30ft.	f : ϕ3/8 × 30ft.	i : ϕ1/2 × 30ft.		

$$R=\underset{a}{\boxed{100\times 0.168}}+\underset{b}{\boxed{30\times 0.014}}+\underset{i}{\boxed{30\times 0.074}}+\underset{c+d+e+f}{\boxed{120\times 0.036}}+\underset{g+h+j+k}{\boxed{155\times 0.015}}-6.6=22.485 \Rightarrow \boxed{22.5}$$

6. Thermistor Resistance / Temperature Characteristics

Indoor unit	For air suction	R1T
	For liquid pipe	R2T
	For gas pipe	R3T
Outdoor unit	For outdoor air	R1T
	For coil	R2T
	For suction pipe	R4T
	For Receiver gas pipe	R5T

Outdoor unit fin thermistor R1T

T°F	T°C	kΩ
14	-10	—
18	-8	—
21	-6	88.0
25	-4	79.1
28	-2	71.1
32	0	64.1
35	2	57.8
39	4	52.3
43	6	47.3
46	8	42.9
50	10	38.9
54	12	35.3
57	14	32.1
61	16	29.2
64	18	26.6
68	20	24.3
72	22	22.2
75	24	20.3
79	26	18.5
82	28	17.0
86	30	15.6
90	32	14.2
93	34	13.1
97	36	12.0
100	38	11.1
104	40	10.3
108	42	9.5
111	44	8.8
115	46	8.2
118	48	7.6
122	50	7.0
126	52	6.7
129	54	6.0
133	56	5.5
136	58	5.2
140	60	4.79
144	62	4.46
147	64	4.15
151	66	3.87
154	68	3.61
158	70	3.37
162	72	3.15
165	74	2.94
169	76	2.75
172	78	2.51
176	80	2.41
180	82	2.26
183	84	2.12
187	86	1.99
190	88	1.87
194	90	1.76
198	92	1.65
201	94	1.55
205	96	1.46
208	98	1.38

T°F	T°C	kΩ
-4.0	-20	197.81
-2.2	-19	186.53
-0.4	-18	175.97
1.4	-17	166.07
3.2	-16	156.80
5.0	-15	148.10
6.8	-14	139.94
8.6	-13	132.28
10.4	-12	125.09
12.2	-11	118.34
14.0	-10	111.99
15.8	-9	106.03
17.6	-8	100.41
19.4	-7	95.14
21.2	-6	90.17
23.0	-5	85.49
24.8	-4	81.08
26.6	-3	76.93
28.4	-2	73.01
30.2	-1	69.32
32.0	0	65.84
33.8	1	62.54
35.6	2	59.43
37.4	3	56.49
39.2	4	53.71
41.0	5	51.09
42.8	6	48.61
44.6	7	46.26
46.4	8	44.05
48.2	9	41.95
50.0	10	39.96
51.8	11	38.08
53.6	12	36.30
55.4	13	34.62
57.2	14	33.02
59.0	15	31.50
60.8	16	30.06
62.6	17	28.70
64.4	18	27.41
66.2	19	26.18
68.0	20	25.01
69.8	21	23.91
71.6	22	22.85
73.4	23	21.85
75.2	24	20.90
77.0	25	20.00
78.8	26	19.14
80.6	27	18.32
82.4	28	17.54
84.2	29	16.80
86.0	30	16.10

T°F	T°C	kΩ
86.0	30	16.10
87.8	31	15.43
89.6	32	14.79
91.4	33	14.18
93.2	34	13.59
95.0	35	13.04
96.8	36	12.51
98.6	37	12.01
100.4	38	11.52
102.2	39	11.06
104.0	40	10.63
105.8	41	10.21
107.6	42	9.81
109.4	43	9.42
111.2	44	9.06
113.0	45	8.71
114.8	46	8.37
116.6	47	8.05
118.4	48	7.75
120.2	49	7.46
122.0	50	7.18
123.8	51	6.91
125.6	52	6.65
127.4	53	6.41
129.2	54	6.65
131.0	55	6.41
132.8	56	6.18
134.6	57	5.95
136.4	58	5.74
138.2	59	5.14
140.0	60	4.96
141.8	61	4.79
143.6	62	4.62
145.4	63	4.46
147.2	64	4.30
149.0	65	4.16
150.8	66	4.01
152.6	67	3.88
154.4	68	3.75
156.2	69	3.62
158.0	70	3.50
159.8	71	3.38
161.6	72	3.27
163.4	73	3.16
165.2	74	3.06
167.0	75	2.96
168.8	76	2.86
170.6	77	2.77
172.4	78	2.68
174.2	79	2.60
176.0	80	2.51

Outdoor Unit Thermistors for Discharge Pipe (R31T, 32T)

T°F	T°C	kΩ
32.0	0	640.44
33.8	1	609.31
35.6	2	579.96
37.4	3	552.00
39.2	4	525.63
41.0	5	500.66
42.8	6	477.01
44.6	7	454.60
46.4	8	433.37
48.2	9	413.24
50.0	10	394.16
51.8	11	376.05
53.6	12	358.88
55.4	13	342.58
57.2	14	327.10
59.0	15	312.41
60.8	16	298.45
62.6	17	285.18
64.4	18	272.58
66.2	19	260.60
68.0	20	249.00
69.8	21	238.36
71.6	22	228.05
73.4	23	218.24
75.2	24	208.90
77.0	25	200.00
78.8	26	191.53
80.6	27	183.46
82.4	28	175.77
84.2	29	168.44
86.0	30	161.45
86.0	31	154.79
87.8	32	148.43
89.6	33	142.37
91.4	34	136.59
93.2	35	131.06
95.0	36	125.79
96.8	37	120.76
98.6	38	115.95
100.4	39	111.35
102.2	40	106.96
104.0	41	102.76
105.8	42	98.75
107.6	43	94.92
109.4	44	91.25
111.2	45	87.74
113.0	46	84.38
114.8	47	81.16
116.6	48	78.09
118.4	49	75.14
120.2	50	72.32

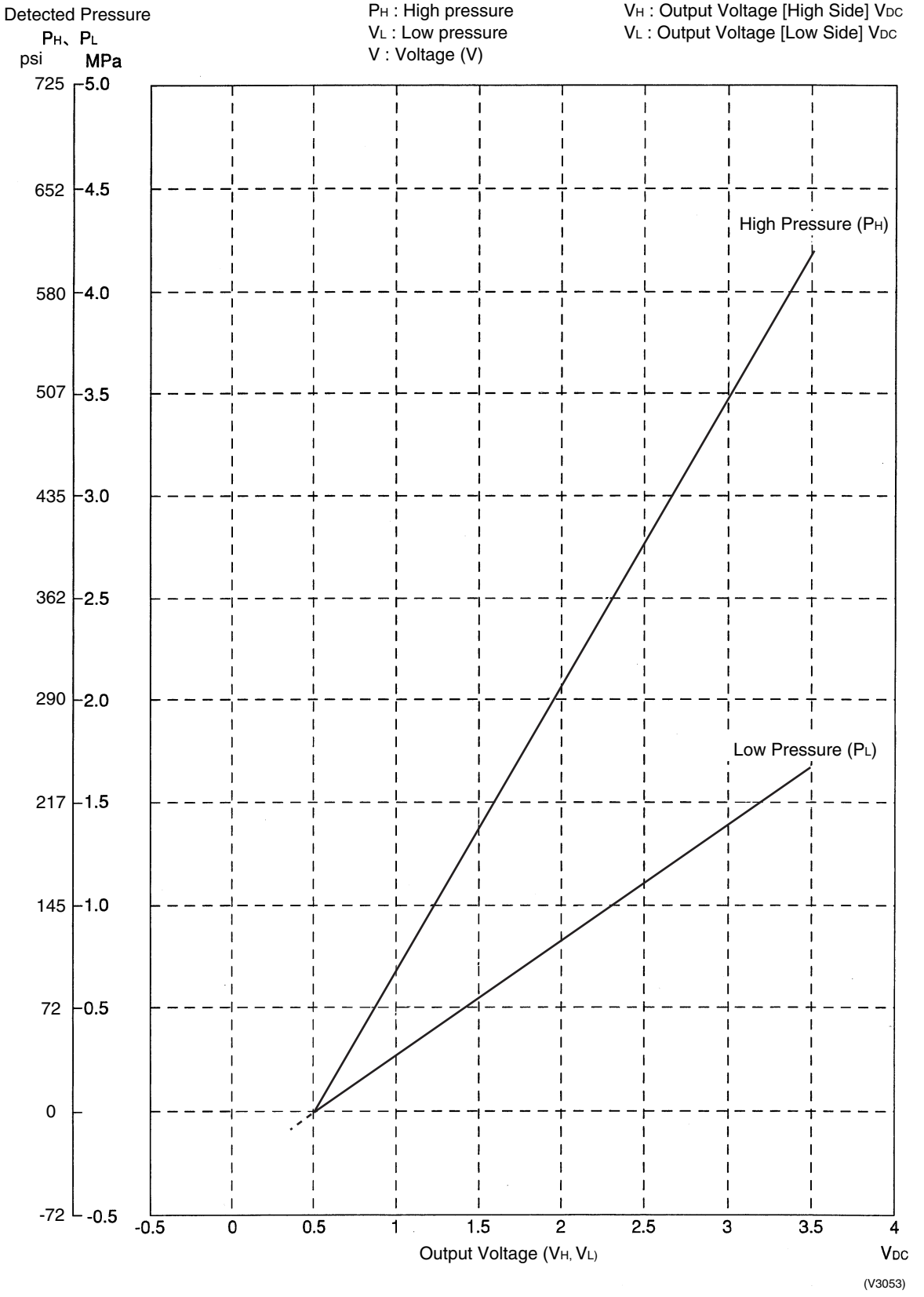
T°F	T°C	kΩ
122.0	50	72.32
123.8	51	69.64
125.6	52	67.06
127.4	53	64.60
129.2	54	62.24
131.0	55	59.97
132.8	56	57.80
134.6	57	55.72
136.4	58	53.72
138.2	59	51.98
140.0	60	49.96
141.8	61	48.19
143.6	62	46.49
145.4	63	44.86
147.2	64	43.30
149.0	65	41.79
150.8	66	40.35
152.6	67	38.96
154.4	68	37.63
156.2	69	36.34
158.0	70	35.11
159.8	71	33.92
161.6	72	32.78
163.4	73	31.69
165.2	74	30.63
167.0	75	29.61
168.8	76	28.64
170.6	77	27.69
172.4	78	26.79
174.2	79	25.91
176.0	80	25.07
177.8	81	24.26
179.6	82	23.48
181.4	83	22.73
183.2	84	22.01
185.0	85	21.31
186.8	86	20.63
188.6	87	19.98
190.4	88	19.36
192.2	89	18.75
194.0	90	18.17
195.8	91	17.61
197.6	92	17.07
199.4	93	16.54
201.2	94	16.04
203.0	95	15.55
204.8	96	15.08
206.6	97	14.62
208.4	98	14.18
210.2	99	13.76
212.0	100	13.35

T°F	T°C	kΩ
212.0	100	13.35
213.8	101	12.95
215.6	102	12.57
217.4	103	12.20
219.2	104	11.84
221.0	105	11.49
222.8	106	11.15
224.6	107	10.83
226.4	108	10.52
228.2	109	10.21
230.0	110	9.92
231.8	111	9.64
233.6	112	9.36
235.4	113	9.10
237.2	114	8.84
239.0	115	8.59
240.8	116	8.35
242.6	117	8.12
244.4	118	7.89
246.2	119	7.68
248.0	120	7.47
249.8	121	7.26
251.6	122	7.06
253.4	123	6.87
255.2	124	6.69
257.0	125	6.51
258.8	126	6.33
260.6	127	6.16
262.4	128	6.00
264.2	129	5.84
266.0	130	5.69
267.8	131	5.54
269.6	132	5.39
271.4	133	5.25
273.2	134	5.12
275.0	135	4.98
276.8	136	4.86
278.6	137	4.73
280.4	138	4.61
282.2	139	4.49
284.0	140	4.38
285.8	141	4.27
287.6	142	4.16
289.4	143	4.06
291.2	144	3.96
293.0	145	3.86
294.8	146	3.76
296.6	147	3.67
298.4	148	3.58
300.2	149	3.49
302.0	150	3.41

7. Pressure Sensor

P_H = 1.38V-0.69
P_L = 0.57V-0.28
P_H : High pressure
V_L : Low pressure
V : Voltage (V)

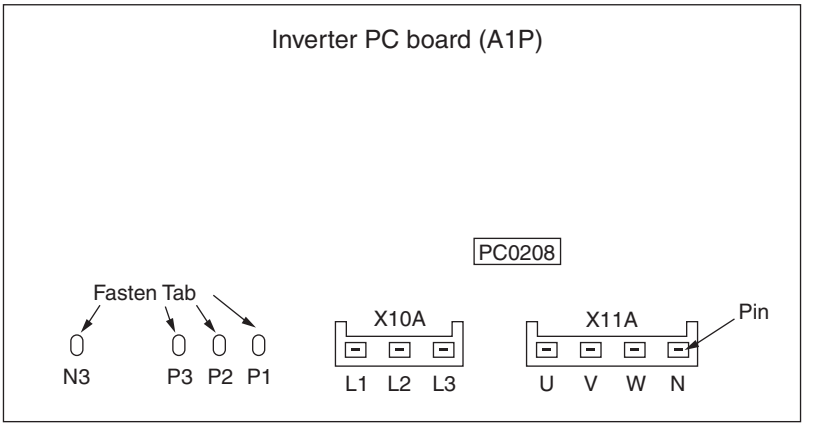
P_H : Detected Pressure [High Side]
P_L : Detected Pressure [Low Side]
V_H : Output Voltage [High Side] V_{DC}
V_L : Output Voltage [Low Side] V_{DC}



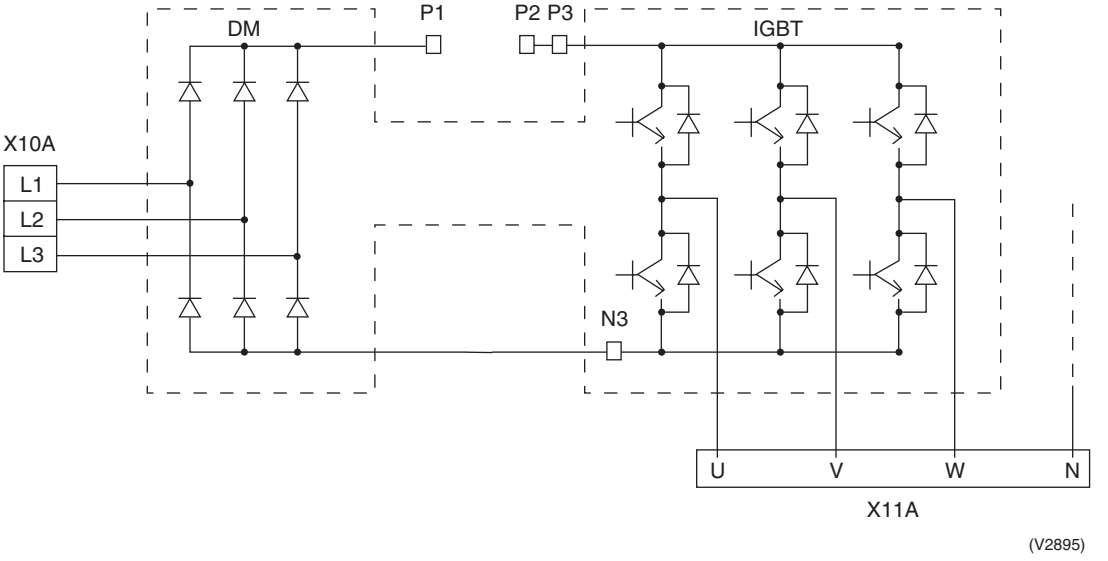
8. Method of Replacing The Inverter's Power Transistors and Diode Modules

8.1 Method of Replacing The Inverter's Power Transistors and Diode Modules

Inverter P.C.Board



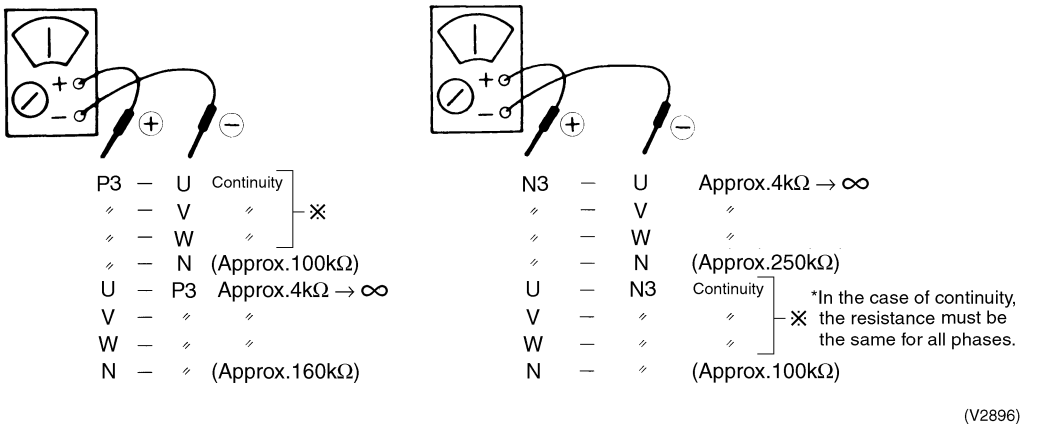
Electronic circuit



[Decision according to continuity check by analog tester]

- Before checking, disconnect the electric wiring connected to the power transistor and diode module.

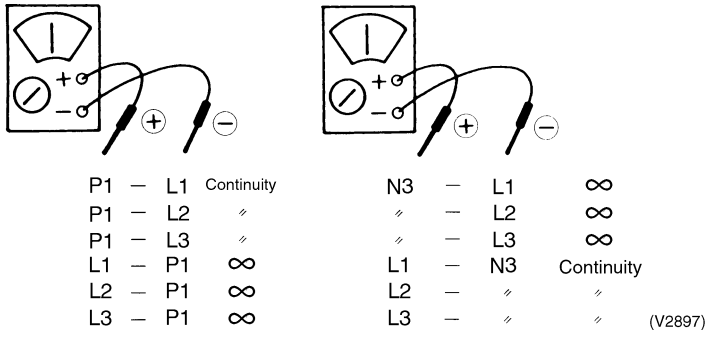
Power Transistor IGBT (On Inverter PC Board)



(Decision)
If other than given above, the power unit is defective and must be replaced.

Note: If using a digital tester, ∞ and continuity may be reversed.

Diode Module



(Decision)
If other than given above, the diode module is defective and must be replaced.

Note: If using a digital tester, ∞ and continuity may be reversed.

Part 9
Precautions for New Refrigerant (R-410A)

1. Precautions for New Refrigerant (R-410A)

1.1 Outline

1.1.1 About Refrigerant R-410A

■ Characteristics of new refrigerant, R-410A

1. Performance
   Almost the same performance as R-22 and R-407C
2. Pressure
   Working pressure is approx. 1.4 times more than R-22 and R-407C.
3. Refrigerant composition
   Few problems in composition control, since it is a Quasi-azeotropic mixture refrigerant.

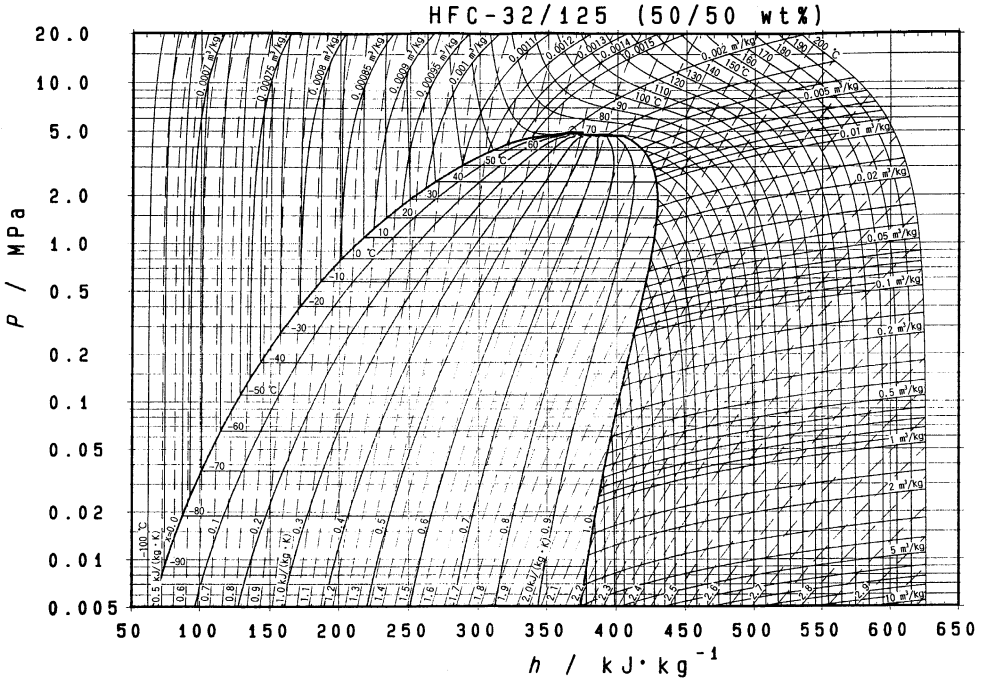
	HFC units (Units using new refrigerants)		HCFC units
Refrigerant name	R-407C	R-410A	R-22
Composing substances	Non-azeotropic mixture of HFC32, HFC125 and HFC134a (*1)	Quasi-azeotropic mixture of HFC32 and JFC125 (*1)	Single-component refrigerant
Design pressure	3.2 MPa (gauge pressure) = 32.6 kgf/cm^2 = 464 psi	4.0 MPa (gauge pressure) = 40.8 kgf/cm^2 = 580 psi	2.75MPa (gauge pressure) = 28.0 kgf/cm^2 = 399 psi
Refrigerant oil	Synthetic oil (Ether)		Mineral oil (Suniso)
Ozone destruction factor (ODP)	0	0	0.05
Combustibility	None	None	None
Toxicity	None	None	None

★1. Non-azeotropic mixture refrigerant: mixture of two or more refrigerants having different boiling points.

★2. Quasi-azeotropic mixture refrigerant: mixture of two or more refrigerants having similar boiling points.

★3. The design pressure is different at each product. Please refer to the installation manual for each product.

(Reference) 1 MPa≒ 10.19716 kgf / cm^2
1 MPa≒ 145 psi



Pressure-Enthalpy curves of HFC-32/125 (50/50wt%)

■ Thermodynamic characteristic of R-410A

DAIREP ver2.0

Temperature (æ	Steam pressure (kPa)		Density (kg/m³)		Specific heat at constant pressure (kJ/kgK)		Specific enthalpy (kJ/kg)		Specific entropy (kJ/KgK)	
	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor
-70	36.13	36.11	1410.7	1.582	1.372	0.695	100.8	390.6	0.649	2.074
-68	40.83	40.80	1404.7	1.774	1.374	0.700	103.6	391.8	0.663	2.066
-66	46.02	45.98	1398.6	1.984	1.375	0.705	106.3	393.0	0.676	2.058
-64	51.73	51.68	1392.5	2.213	1.377	0.710	109.1	394.1	0.689	2.051
-62	58.00	57.94	1386.4	2.463	1.378	0.715	111.9	395.3	0.702	2.044
-60	64.87	64.80	1380.2	2.734	1.379	0.720	114.6	396.4	0.715	2.037
-58	72.38	72.29	1374.0	3.030	1.380	0.726	117.4	397.6	0.728	2.030
-56	80.57	80.46	1367.8	3.350	1.382	0.732	120.1	398.7	0.741	2.023
-54	89.49	89.36	1361.6	3.696	1.384	0.737	122.9	399.8	0.754	2.017
-52	99.18	99.03	1355.3	4.071	1.386	0.744	125.7	400.9	0.766	2.010
-51.58	101.32	101.17	1354.0	4.153	1.386	0.745	126.3	401.1	0.769	2.009
-50	109.69	109.51	1349.0	4.474	1.388	0.750	128.5	402.0	0.779	2.004
-48	121.07	120.85	1342.7	4.909	1.391	0.756	131.2	403.1	0.791	1.998
-46	133.36	133.11	1336.3	5.377	1.394	0.763	134.0	404.1	0.803	1.992
-44	146.61	146.32	1330.0	5.880	1.397	0.770	136.8	405.2	0.816	1.987
-42	160.89	160.55	1323.5	6.419	1.401	0.777	139.6	406.2	0.828	1.981
-40	176.24	175.85	1317.0	6.996	1.405	0.785	142.4	407.3	0.840	1.976
-38	192.71	192.27	1310.5	7.614	1.409	0.792	145.3	408.3	0.852	1.970
-36	210.37	209.86	1304.0	8.275	1.414	0.800	148.1	409.3	0.864	1.965
-34	229.26	228.69	1297.3	8.980	1.419	0.809	150.9	410.2	0.875	1.960
-32	249.46	248.81	1290.6	9.732	1.424	0.817	153.8	411.2	0.887	1.955
-30	271.01	270.28	1283.9	10.53	1.430	0.826	156.6	412.1	0.899	1.950
-28	293.99	293.16	1277.1	11.39	1.436	0.835	159.5	413.1	0.911	1.946
-26	318.44	317.52	1270.2	12.29	1.442	0.844	162.4	414.0	0.922	1.941
-24	344.44	343.41	1263.3	13.26	1.448	0.854	165.3	414.9	0.934	1.936
-22	372.05	370.90	1256.3	14.28	1.455	0.864	168.2	415.7	0.945	1.932
-20	401.34	400.06	1249.2	15.37	1.461	0.875	171.1	416.6	0.957	1.927
-18	432.36	430.95	1242.0	16.52	1.468	0.886	174.1	417.4	0.968	1.923
-16	465.20	463.64	1234.8	17.74	1.476	0.897	177.0	418.2	0.980	1.919
-14	499.91	498.20	1227.5	19.04	1.483	0.909	180.0	419.0	0.991	1.914
-12	536.58	534.69	1220.0	20.41	1.491	0.921	182.9	419.8	1.003	1.910
-10	575.26	573.20	1212.5	21.86	1.499	0.933	185.9	420.5	1.014	1.906
-8	616.03	613.78	1204.9	23.39	1.507	0.947	189.0	421.2	1.025	1.902
-6	658.97	656.52	1197.2	25.01	1.516	0.960	192.0	421.9	1.036	1.898
-4	704.15	701.49	1189.4	26.72	1.524	0.975	195.0	422.6	1.048	1.894
-2	751.64	748.76	1181.4	28.53	1.533	0.990	198.1	423.2	1.059	1.890
0	801.52	798.41	1173.4	30.44	1.543	1.005	201.2	423.8	1.070	1.886
2	853.87	850.52	1165.3	32.46	1.552	1.022	204.3	424.4	1.081	1.882
4	908.77	905.16	1157.0	34.59	1.563	1.039	207.4	424.9	1.092	1.878
6	966.29	962.42	1148.6	36.83	1.573	1.057	210.5	425.5	1.103	1.874
8	1026.5	1022.4	1140.0	39.21	1.584	1.076	213.7	425.9	1.114	1.870
10	1089.5	1085.1	1131.3	41.71	1.596	1.096	216.8	426.4	1.125	1.866
12	1155.4	1150.7	1122.5	44.35	1.608	1.117	220.0	426.8	1.136	1.862
14	1224.3	1219.2	1113.5	47.14	1.621	1.139	223.2	427.2	1.147	1.859
16	1296.2	1290.8	1104.4	50.09	1.635	1.163	226.5	427.5	1.158	1.855
18	1371.2	1365.5	1095.1	53.20	1.650	1.188	229.7	427.8	1.169	1.851
20	1449.4	1443.4	1085.6	56.48	1.666	1.215	233.0	428.1	1.180	1.847
22	1530.9	1524.6	1075.9	59.96	1.683	1.243	236.4	428.3	1.191	1.843
24	1615.8	1609.2	1066.0	63.63	1.701	1.273	239.7	428.4	1.202	1.839
26	1704.2	1697.2	1055.9	67.51	1.721	1.306	243.1	428.6	1.214	1.834
28	1796.2	1788.9	1045.5	71.62	1.743	1.341	246.5	428.6	1.225	1.830
30	1891.9	1884.2	1034.9	75.97	1.767	1.379	249.9	428.6	1.236	1.826
32	1991.3	1983.2	1024.1	80.58	1.793	1.420	253.4	428.6	1.247	1.822
34	2094.5	2086.2	1012.9	85.48	1.822	1.465	256.9	428.4	1.258	1.817
36	2201.7	2193.1	1001.4	90.68	1.855	1.514	260.5	428.3	1.269	1.813
38	2313.0	2304.0	989.5	96.22	1.891	1.569	264.1	428.0	1.281	1.808
40	2428.4	2419.2	977.3	102.1	1.932	1.629	267.8	427.7	1.292	1.803
42	2548.1	2538.6	964.6	108.4	1.979	1.696	271.5	427.2	1.303	1.798
44	2672.2	2662.4	951.4	115.2	2.033	1.771	275.3	426.7	1.315	1.793
46	2800.7	2790.7	937.7	122.4	2.095	1.857	279.2	426.1	1.327	1.788
48	2933.7	2923.6	923.3	130.2	2.168	1.955	283.2	425.4	1.339	1.782
50	3071.5	3061.2	908.2	138.6	2.256	2.069	287.3	424.5	1.351	1.776
52	3214.0	3203.6	892.2	147.7	2.362	2.203	291.5	423.5	1.363	1.770
54	3361.4	3351.0	875.1	157.6	2.493	2.363	295.8	422.4	1.376	1.764
56	3513.8	3503.5	856.8	168.4	2.661	2.557	300.3	421.0	1.389	1.757
58	3671.3	3661.2	836.9	180.4	2.883	2.799	305.0	419.4	1.403	1.749
60	3834.1	3824.2	814.9	193.7	3.191	3.106	310.0	417.6	1.417	1.741
62	4002.1	3992.7	790.1	208.6	3.650	3.511	315.3	415.5	1.433	1.732
64	4175.7	4166.8	761.0	225.6	4.415	4.064	321.2	413.0	1.450	1.722

1.2 Service Tools

R-410A is used under higher working pressure, compared to previous refrigerants (R-22,R-407C). Furthermore, the refrigerating machine oil has been changed from Suniso oil to Ether oil, and if oil mixing is occurred, sludge results in the refrigerants and causes other problems. Therefore, gauge manifolds and charge hoses that are used with a previous refrigerant (R-22,R-407C) can not be used for products that use new refrigerants.
Be sure to use dedicated tools and devices.

■ Tool compatibility

Tool	Compatibility			Reasons for change
	HFC		HCFC	
	R-410A	R-407C	R-22	
Gauge manifold Charge hose	×			• Do not use the same tools for R-22 and R-410A. • Thread specification differs for R-410A and R-407C.
Gas detector	○		×	• The same tool can be used for HFCs.
Vacuum pump (pump with reverse flow preventive function)	○			• To use existing pump for HFCs, vacuum pump adaptor must be installed.
Weighting instrument	○			
Flaring tool (Clutch type)	○			• For R-410A, flare gauge is necessary.
Torque wrench	○			• Torque-up for 1/2 and 5/8
Pipe cutter	○			
Pipe expander	○			
Pipe bender	○			
Pipe assembling oil	×			• Due to refrigerating machine oil change. (No Suniso oil can be used.)
Refrigerant recovery device	Check your recovery device.			
Refrigerant piping	See the chart below.			• Only ϕ19.1 is changed to 1/2H material while the previous material is "O".

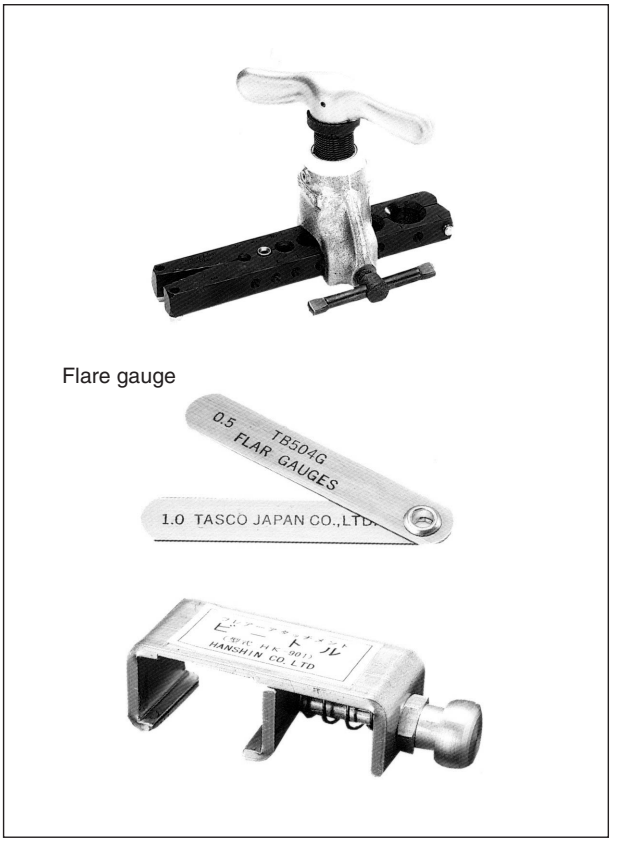
As for the charge mouthpiece and packing, 1/2UNF20 is necessary for mouthpiece size of charge hose.

■ Copper tube material and thickness

Pipe size	R-407C		R-410A	
	Material	Thickness [mm]	Material	Thickness [mm]
ϕ6.4	O	0.8	O	0.8
ϕ9.5	O	0.8	O	0.8
ϕ12.7	O	0.8	O	0.8
ϕ15.9	O	1.0	O	1.0
ϕ19.1	O	1.0	1/2H	1.0
ϕ22.2	1/2H	1.0	1/2H	1.0
ϕ25.4	1/2H	1.0	1/2H	1.0
ϕ28.6	1/2H	1.0	1/2H	1.0
ϕ31.8	1/2H	1.2	1/2H	1.1
ϕ38.1	1/2H	1.4	1/2H	1.4
ϕ44.5	1/2H	1.6	1/2H	1.6

* O: Soft (Annealed)
H: Hard (Drawn)

1. Flaring tool



■ Specifications

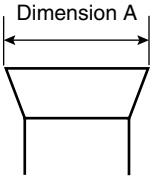
• Dimension A

Unit:mm

Nominal size	Tube O.D.	A $^{+0}_{-0.4}$	
	Do	Class-2 (R-410A)	Class-1 (Conventional)
1/4	6.35	9.1	9.0
3/8	9.52	13.2	13.0
1/2	12.70	16.6	16.2
5/8	15.88	19.7	19.4
3/4	19.05	24.0	23.3

■ Differences

• Change of dimension A



For class-1: R-407C
For class-2: R-410A

Conventional flaring tools can be used when the work process is changed.
(change of work process)
Previously, a pipe extension margin of 0 to 0.5mm was provided for flaring. For R-410A air conditioners, perform pipe flaring with a pipe extension margin of 1.0 to 1.5mm.
(For clutch type only)
Conventional tool with pipe extension margin adjustment can be used.

2. Torque wrench

■ Specifications

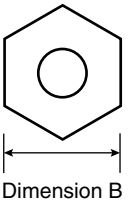
• Dimension B Unit:mm

Nominal size	Class-1	Class-2	Previous
1/2	24	26	24
5/8	27	29	27

No change in tightening torque
No change in pipes of other sizes

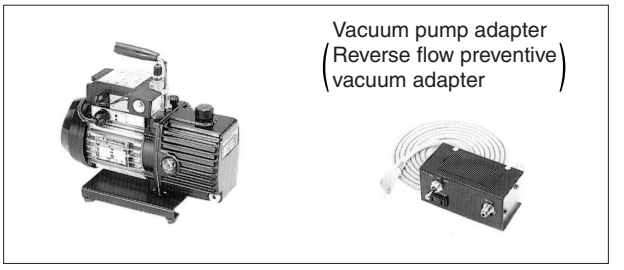
■ Differences

• Change of dimension B
Only 1/2", 5/8" are extended



For class-1: R-407C
For class-2: R-410A

3. Vacuum pump with check valve



■ Specifications

• Discharge speed
50 l/min (50Hz)
60 l/min (60Hz)
• Suction port UNF7/16-20(1/4 Flare)
UNF1/2-20(5/16 Flare) with adapter

● Maximum degree of vacuum
Select a vacuum pump which is able to keep the vacuum degree of the system in excess of –14.6 psi (5 torr or 5000 micron or – 755 mmHg).

■ Differences

• Equipped with function to prevent reverse oil flow
• Previous vacuum pump can be used by installing adapter.

4. Leak tester

■ Specifications
- Hydrogen detecting type, etc.
- Applicable refrigerants
  R-410A, R-407C, R-404A, R-507A, R-134a, etc.

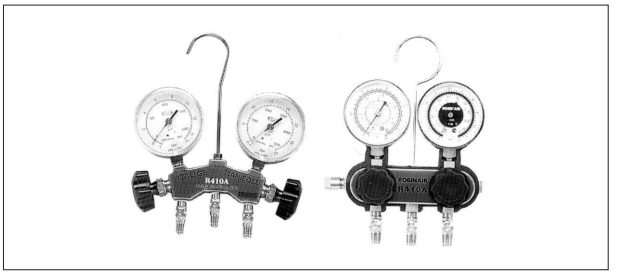
■ Differences
- Previous testers detected chlorine. Since HFCs do not contain chlorine, new tester detects hydrogen.

5. Refrigerant oil

■ Specifications
- Contains synthetic oil, therefore it can be used for piping work of every refrigerant cycle.
- Offers high rust resistance and stability over long period of time.

■ Differences
- Can be used for R-410A and R-22 units.

6. Gauge manifold for R-410A

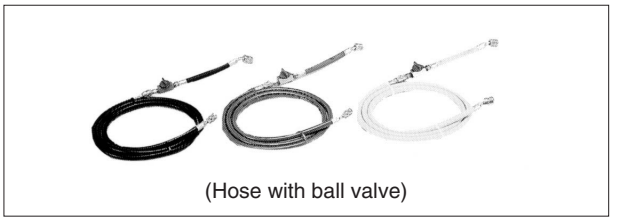


■ Specifications
- High pressure gauge
  15 to 770 psi (-76 cmHg to 53 kg/cm^2)
- Low pressure gauge
  15 to 550 psi (-76 cmHg to 38 kg/cm^2)

- 1/4" → 5/16" (2min → 2.5min)
- No oil is used in pressure test of gauges.
  → For prevention of contamination
- Temperature scale indicates the relationship between pressure and temperature in gas saturated state.

■ Differences
- Change in pressure
- Change in service port diameter

7. Charge hose for R-410A



(Hose with ball valve)

■ Specifications
- Working pressure 737 psi (51.8 kg/cm^2)
- Rupture pressure 3685 psi (259 kg/cm^2)
- Available with and without hand-operate valve that prevents refrigerant from outflow.

■ Differences
- Pressure proof hose
- Change in service port diameter
- Use of nylon coated material for HFC resistance

8. Weigher for refrigerant charge

■ Specifications
- High accuracy
  TA101A (for 10-kg cylinder) = ± 2g
  TA101B (for 20-kg cylinder) = ± 5g
- Equipped with pressure-resistant sight glass to check liquid refrigerant charging.
- A manifold with separate ports for HFCs and previous refrigerants is equipped as standard accessories.

■ Differences
- Measurement is based on weight to prevent change of mixing ratio during charging.

Regarding purchasing of service tools, please contact following address.
Daikin U. S. Corporation (Dallas Office)
1645 Wallace Dr, Ste 110 Carrollton, TX 75006
“Tel : 1-972-245-1510 Fax : 1-972-245-1038”

Index

Symbols

A

B

C

D

E

F

H

I

J

L

M

N

O

P

R

S

T

U

Drawings & Flow Charts

Symbols

A

B

C

D

E

F

V

W

Warning

- Daikin Industries, Ltd.'s products are manufactured for export to numerous countries throughout the world. Daikin Industries, Ltd. does not have control over which products are exported to and used in a particular country. Prior to purchase, please therefore confirm with your local authorized importer, distributor and/or retailer whether this product conforms to the applicable standards, and is suitable for use, in the region where the product will be used. This statement does not purport to exclude, restrict or modify the application of any local legislation.
- Ask a qualified installer or contractor to install this product. Do not try to install the product yourself. Improper installation can result in water or refrigerant leakage, electrical shock, fire or explosion.
- Use only those parts and accessories supplied or specified by Daikin. Ask a qualified installer or contractor to install those parts and accessories. Use of unauthorized parts and accessories or improper installation of parts and accessories can result in water or refrigerant leakage, electrical shock, fire or explosion.
- Read the User's Manual carefully before using this product. The User's Manual provides important safety instructions and warnings. Be sure to follow these instructions and warnings.

If you have any inquiries, please contact your local importer, distributor and/or retailer.

JMI-0107

JQA-1452

About ISO9001

ISO 9001 is a plant certification system defined by the International Organization for Standardization (ISO) relating to quality assurance. ISO 9001 certification covers quality assurance aspects related to the "design, development, manufacture, installation, and supplementary service" of products manufactured at the plant.

EC99J2044

JQA-E-90108

About ISO 14001

ISO 14001 is the standard defined by the International Organization for Standardization (ISO) relating to environmental management systems. Our group has been acknowledged by an internationally accredited compliance organisation as having an appropriate programme of environmental protection procedures and activities to meet the requirements of ISO 14001.

Dealer

DAIKIN AC (AMERICAS), INC.
1645 Wallace Drive, Suite 110
Carrollton, TX75006
info@daikinac.com
www.daikinac.com

- Specifications, designs and other content appearing in this brochure are current as of Oct.2006 but subject to change without notice.

This book is made of recycled paper.

SiUS39-602
Printed in U.S.A. 10/2006 AK