

SERVICE MANUAL

SANYO

FILE NO.

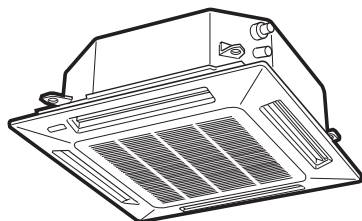
SPW-X253G56, SPW-X253GS56 / SPW-C253G5 (/M), SPW-C253G8 (/M)
SPW-X303G56, SPW-X303GS56 / SPW-C303G5 (/M)
SPW-X363G56, SPW-X363GS56 / SPW-C363G5 (/M), SPW-C363G8 (/M)
SPW-X483G56, SPW-X483GS56 / SPW-C483G8 (/M)

SPLIT SYSTEM AIR CONDITIONER

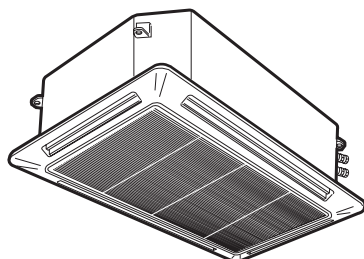
INDOOR MODEL No.	PRODUCT CODE No.	OUTDOOR MODEL No.	PRODUCT CODE No.
SPW-X253G56	854 012 42	SPW-C253G5	854 012 22
		SPW-C253G5/M	854 012 65
SPW-X253GS56	854 012 46	SPW-C253G8	854 012 23
		SPW-C253G8/M	854 012 68
SPW-X303G56	854 012 43	SPW-C303G5	854 012 24
SPW-X303GS56	854 012 47	SPW-C303G5/M	854 012 69
SPW-X363G56	854 012 44	SPW-C363G5	854 012 25
		SPW-C363G5/M	854 012 66
SPW-X363GS56	854 012 48	SPW-C363G8	854 012 26
		SPW-C363G8/M	854 012 70
SPW-X483G56	854 012 45	SPW-C483G8	854 012 27
SPW-X483GS56	854 012 49	SPW-C483G8/M	854 012 67

NOTE) Models which does not have the alphabet “/M” behind outdoor Model No. comply with the European regulations.

Indoor Unit

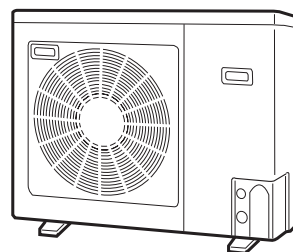


SPW-X253G56
SPW-X253GS56

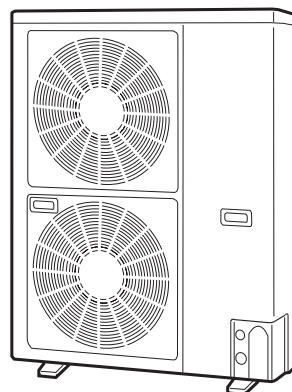


SPW-X303G56
SPW-X303GS56
SPW-X363G56
SPW-X363GS56
SPW-X483G56
SPW-X483GS56

Outdoor Unit



SPW-C253G5 SPW-C253G5/M
SPW-C253G8 SPW-C253G8/M
SPW-C303G5 SPW-C303G5/M



SPW-C363G5 SPW-C363G5/M
SPW-C363G8 SPW-C363G8/M
SPW-C483G8 SPW-C483G8/M

Section

1

2

3

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Important

Please Read Before Starting

This air conditioning system meets strict safety and operating standards. As the installer or service person, it is an important part of your job to install or service the system so it operates safely and efficiently.

For safe installation and trouble-free operation, you must:

- Carefully read this instruction booklet before beginning.
- Follow each installation or repair step exactly as shown.
- Observe all local, state, and national electrical codes.
- Pay close attention to all warning and caution notices given in this manual.



WARNING

This symbol refers to a hazard or unsafe practice which can result in severe personal injury or death.



CAUTION

This symbol refers to a hazard or unsafe practice which can result in personal injury or product or property damage.

If Necessary, Get Help

These instructions are all you need for most installation sites and maintenance conditions. If you require help for a special problem, contact our sales/service outlet or your certified dealer for additional instructions.

In Case of Improper Installation

The manufacturer shall in no way be responsible for improper installation or maintenance service, including failure to follow the instructions in this document.

SPECIAL PRECAUTIONS

When Wiring



ELECTRICAL SHOCK CAN CAUSE SEVERE PERSONAL INJURY OR DEATH. ONLY A QUALIFIED, EXPERIENCED ELECTRICIAN SHOULD ATTEMPT TO WIRE THIS SYSTEM.

- Do not supply power to the unit until all wiring and tubing are completed or reconnected and checked.
- Highly dangerous electrical voltages are used in this system. Carefully refer to the wiring diagram and these instructions when wiring. Improper connections and inadequate grounding can cause **accidental injury or death**.
- **Ground the unit** following local electrical codes.
- Connect all wiring tightly. Loose wiring may cause overheating at connection points and a possible fire hazard.

When Transporting

Be careful when picking up and moving the indoor and outdoor units. Get a partner to help, and bend your knees when lifting to reduce strain on your back. Sharp edges or thin aluminum fins on the air conditioner can cut your fingers.

When Installing

...In a Room

Properly insulate any tubing run inside a room to prevent "sweating" that can cause dripping and water damage to walls and floors.

...In Moist or Uneven Locations

Use a raised concrete pad or concrete blocks to provide a solid, level foundation for the outdoor unit. This prevents water damage and abnormal vibration.

...In an area with High Winds

Securely anchor the outdoor unit down with bolts and a metal frame. Provide a suitable air baffle.

...In a Snowy Area (for Heat Pump-type Systems)

Install the outdoor unit on a raised platform that is higher than drifting snow. Provide snow vents.

When Connecting Refrigerant Tubing

- Execute enough ventilation in case refrigerant gas leaks during operations. Be careful not to contact the refrigerant gas with the flame. It will cause the generation of poisonous gas.
- Keep all tubing runs as short as possible.
- Use the flare method for connecting tubing.
- Apply refrigerant lubricant to the matching surfaces of the flare and union tubes before connecting them, then tighten the nut with a torque wrench for a leak-free connection.
- Check carefully for leaks before starting the test run.

NOTE

Depending on the system type, liquid and gas lines may be either narrow or wide. Therefore, to avoid confusion, the refrigerant tubing for your particular model is specified as either "narrow" or "wide" rather than as "liquid" or "gas".

When Servicing

- Turn the power OFF at the main power box before opening the unit to check or repair electrical parts and wiring.
- Keep your fingers and clothing away from any moving parts.
- Clean up the site when finished servicing. Don't forget to check that no metal scraps or bits of wiring have been left inside the unit.

WHO SHOULD USE THIS MANUAL

This service manual is made to assist the service technician apply his knowledge and training to this model air conditioner. This manual is written both for **experienced service persons** and **those who are new** to air conditioning service. To help those with less experience or who are new to this kind of unit we have included more explanations of basic procedures in simple language than is usual in some service manuals. The **experienced technician** will of course find he knows many of these things already and can go directly to the procedures and information he needs; the less experienced technician will better understand what to do even before he arrives on the job, and therefore be better able to work by himself as well as assist the more experienced technician.

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Introduction: *Read Me First!*

This manual will help you understand and service the air conditioner. To help you find the information you need, we have divided it into 5 main sections. Each section is divided into chapters with charts, tables and explanations to help you find and repair problems.

- ❑ **Section 1: Specifications**, tells you about the physical and electrical make up of the unit, as well as its heating and cooling capacities. Look in this section to find the correct values for components and functions.
- ❑ **Section 2: Processes and Functions**, explains each different part of the cooling and heating cycle, and how each control function reacts to changing conditions to keep the room at the set temperature range.
- ❑ **Section 3: Electrical Data**, which has fold-out schematic and wiring diagrams so you can find the parts you need to check when something is wrong, and see how they should be connected.
- ❑ **Section 4: Service Procedures**, has two main parts, a *diagnostic* chapter to help you find the specific component to replace or adjust, and a chapter with specific procedures and values to guide you in checking the electrical components in the unit.
- ❑ **Section 5: Instruction Manual**, is the same manual the user will have, and it contains general information about how to set and use the features of this particular air conditioner. Knowing this information will help you tell the owner how to use and care for this air conditioner, and also help you install and set the unit correctly.

HOW TO USE THIS MANUAL

You can use this manual both as a *reference* to find specific information about the capacity, functions and construction of this unit, and as a source of information to help you set up and maintain the unit.

When this unit is not working properly, and the cause is not known, you can use the procedures in **Section 3: Servicing Procedures** to find the problem, fix it, and restore the unit to its proper functioning.

This air conditioner has many helpful self diagnostic features to help you identify problem areas quickly.

So you will be ready when a problem happens, we suggest you look this manual over and become familiar with it by following these steps:

1. **Look at the TABLE OF CONTENTS** to get an idea of what is in this manual and where to find it.
2. **Look at the chapter about TROUBLE SHOOTING**, so you are familiar with the way the flow charts work. They are designed to guide you quickly through the possible causes for each kind of problem that is likely to happen to the Unit. Particularly read the introduction to this section, and the parts about the self-diagnosis and error codes which show on the display.
3. **Look at the chapter about CHECKING ELECTRICAL COMPONENTS**. You already know about most of these procedures. This chapter gives you the specific values and methods for these components. If you don't know some of these procedures, you can easily learn them here.
4. **Read the Instruction Manual!** The Instruction Manual is included here because it helps you help the user to set the temperature controls properly and know how to take care of any simple problems that may happen, as well as know when to call for service. The Instruction Manual also has illustrations, care, and installation information not found in the rest of the service manual. It is short, and if you read it carefully, you will be able to answer the customers questions easily, and also know the most efficient ways for setting times and temperatures.

Please use this manual to make your work easier, keep the air conditioner functioning well, and keep your customers satisfied.

1. SPECIFICATIONS

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1-1 Unit Specifications

MODEL No.	Indoor Unit		SPW-X253G56		SPW-X253GS56	
	Outdoor Unit		SPW-C253G5, SPW-C253G5/M			
POWER SOURCE			220 - 230 - 240 V / 1 Phase / 50 Hz			
PERFORMANCE			Cooling			
Capacity		kW	7.3			
		BTU / h	25,000			
Air circulation (Hi/Me/Lo)		m3 / h	1,140/1,020/840			
Moisture removal(High)		Liters/ h	3.6			
ELECTRICAL RATINGS						
Voltage rating		V	220	230	240	
Available voltage range		V	198 - 264			
Running amperes*		A	14.5	14.6	14.7	
Max. running amperes**		A	20.2	19.6	19.4	
Power input		kW	3.01	3.07	3.16	
Power factor		%	94.4	91.4	89.6	
C.O.P		W / W	2.43	2.38	2.31	
Max. starting amperes		A	69	72	75	
FEATURES						
Controls			Microprocessor			
Timer			ON / OFF 12-hours		ON/OFF 24-hours & Program	
Fan speeds Indoor/Outdoor			3 and Automatic control/ 2 (Auto)			
Airflow direction (Indoor)			Automatic (Remote control)			
Air filter			Washable, easy access			
Remote controller (Accessory)			RCS-31G(W)		RCS-5PS3E	
Refrigerant control			Capillary tube			
Drain pump (drain connection)			Max. head 25cm above drain connection (25A,OD32mm)			
Compressor			Rotary			
Operation sound	Indoor - Hi/Me/Lo	dB - A	37 / 35 / 31			
	Outdoor - Hi	dB - A	53			
REFRIGERANT TUBING						
Limit of tubing length		m (ft.)	40 (131)			
Limit of tubing length at shipment		m (ft.)	15 (49)			
Limit of elevation difference between the two units		m (ft.)	Outdoor unit is higher than indoor unit: 40 (131) Outdoor unit is lower than indoor unit: 25 (82)			
Refrigerant tube outer diameter	Narrow tube	mm (in)	6.35 (1 / 4)			
	Wide tube	mm (in)	15.88 (5 / 8)			
Refrigerant amount at shipment		kg	R22 - 2.4			
DIMENSIONS & WEIGHT			Indoor unit		Outdoor unit	
Unit dimensions	Height	mm (in)	328 (12-29/32)		735 (28-30/32)	
	Width	mm (in)	860 (33-27/32)		940 (37)	
	Depth	mm (in)	860 (33-27/32)		340 (13-12/32)	
Package dimensions	Height	mm (in)	410 (16-5/32)		826 (32-17/32)	
	Width	mm (in)	988 (38-29/32)		1,016 (40)	
	Depth	mm (in)	988 (38-29/32)		416 (16-12/32)	
Net weight		kg (lb)	30 (66)		68 (150)	
Shipping weight		kg (lb)	47 (104)		74 (163)	
Shipping volume		m ³ (Cu. ft.)	0.4 (14.1)		0.349 (12.3)	

DATA SUBJECT TO CHANGE WITHOUT NOTICE

Cooling :

Rating conditions(*) : Indoor air temperature 27 °C DB / 19 °C WB, Outdoor air temperature 35 °C DB

Full load conditions(**) : Indoor air temperature 35 °C DB / 25 °C WB, Outdoor air temperature 50 °C DB

1-1 Unit Specifications

MODEL No.	Indoor Unit		SPW-X303G56		SPW-X303GS56	
	Outdoor Unit		SPW-C303G5, SPW-C303G5/M			
POWER SOURCE			220 - 230 - 240 V / 1 Phase / 50 Hz			
PERFORMANCE			Cooling			
Capacity		kW	8.8			
		BTU / h	30,000			
Air circulation (Hi/Me/Lo)		m3 / h	1,380/1,200/1,020			
Moisture removal(High)		Liters/ h	4.2			
ELECTRICAL RATINGS						
Voltage rating		V	220	230	240	
Available voltage range		V	198 - 264			
Running amperes*		A	16.9	17.7	18.6	
Max. running amperes**		A	22.7	22.8	22.9	
Power input		kW	3.36	3.46	3.6	
Power factor		%	90.4	85	80.6	
C.O.P		W / W	2.62	2.54	2.44	
Max. starting amperes		A	100	105	109	
FEATURES						
Controls			Microprocessor			
Timer			ON / OFF 12-hours		ON/OFF 24-hours & Program	
Fan speeds Indoor/Outdoor			3 and Automatic control/ 2 (Auto)			
Airflow direction (Indoor)			Automatic (Remote control)			
Air filter			Washable, easy access			
Remote controller (Accessory)			RCS-31G(W)		RCS-5PS3E	
Refrigerant control			Capillary tube			
Drain pump (drain connection)			Max. head 25cm above drain connection (25A,OD32mm)			
Compressor			Rotary			
Operation sound	Indoor - Hi/Me/Lo	dB - A	40 / 36 / 32			
	Outdoor - Hi	dB - A	53			
REFRIGERANT TUBING						
Limit of tubing length		m (ft.)	40 (131)			
Limit of tubing length at shipment		m (ft.)	15 (49)			
Limit of elevation difference between the two units		m (ft.)	Outdoor unit is higher than indoor unit: 40 (131) Outdoor unit is lower than indoor unit: 25 (82)			
Refrigerant tube outer diameter	Narrow tube	mm (in)	6.35 (1 / 4)			
	Wide tube	mm (in)	15.88 (5 / 8)			
Refrigerant amount at shipment		kg	R22 - 2.6			
DIMENSIONS & WEIGHT			Indoor unit		Outdoor unit	
Unit dimensions	Height	mm (in)	358 (14-3/32)		735 (28-30/32)	
	Width	mm (in)	1,150 (45-9/32)		940 (37)	
	Depth	mm (in)	860 (33-27/32)		340 (13-12/32)	
Package dimensions	Height	mm (in)	440 (17-10/32)		826 (32-17/32)	
	Width	mm (in)	1,278 (50-10/32)		1,016 (40)	
	Depth	mm (in)	988 (38-29/32)		416 (16-12/32)	
Net weight		kg (lb)	38 (84)		70 (154)	
Shipping weight		kg (lb)	62 (137)		76 (168)	
Shipping volume		m ³ (Cu. ft.)	0.556 (19.6)		0.349 (12.3)	

DATA SUBJECT TO CHANGE WITHOUT NOTICE

Cooling :

Rating conditions(*) : Indoor air temperature 27 °C DB / 19 °C WB, Outdoor air temperature 35 °C DB

Full load conditions(**) : Indoor air temperature 35 °C DB / 25 °C WB, Outdoor air temperature 50 °C DB

1-1 Unit Specifications

MODEL No.	Indoor Unit		SPW-X363G56		SPW-X363GS56	
	Outdoor Unit		SPW-C363G5, SPW-C363GS5/M			
POWER SOURCE			220 - 230 - 240 V / 1 Phase / 50 Hz			
PERFORMANCE			Cooling			
Capacity		kW	10.6			
		BTU / h	36,000			
Air circulation (Hi/Me/Lo)		m3 / h	1,920/1,680/1,320			
Moisture removal(High)		Liters/ h	4.7			
ELECTRICAL RATINGS						
Voltage rating		V	220	230	240	
Available voltage range		V	198 - 264			
Running amperes*		A	16.3	17.1	18.6	
Max. running amperes**		A	20.5	20.8	21.5	
Power input		kW	3.17	3.28	3.45	
Power factor		%	88.4	83.4	77.3	
C.O.P		W / W	3.34	3.23	3.07	
Max. starting amperes		A	102	107	111	
FEATURES						
Controls			Microprocessor			
Timer			ON / OFF 12-hours		ON/OFF 24-hours & Program	
Fan speeds Indoor/Outdoor			3 and Automatic control/ 2 (Auto)			
Airflow direction (Indoor)			Automatic (Remote control)			
Air filter			Washable, easy access			
Remote controller (Accessory)			RCS-31G(W)		RCS-5PS3E	
Refrigerant control			Capillary tube			
Drain pump (drain connection)			Max. head 25cm above drain connection (25A,OD32mm)			
Compressor			Rotary			
Operation sound	Indoor - Hi/Me/Lo	dB - A	43 / 40 / 36			
	Outdoor - Hi	dB - A	54			
REFRIGERANT TUBING						
Limit of tubing length		m (ft.)	50 (164)			
Limit of tubing length at shipment		m (ft.)	15 (49)			
Limit of elevation difference between the two units		m (ft.)	Outdoor unit is higher than indoor unit: 50 (164) Outdoor unit is lower than indoor unit: 30 (98)			
Refrigerant tube outer diameter	Narrow tube	mm (in)	9.52 (3 / 8)			
	Wide tube	mm (in)	19.05 (3 / 4)			
Refrigerant amount at shipment		kg	R22 - 4.2			
DIMENSIONS & WEIGHT			Indoor unit		Outdoor unit	
Unit dimensions	Height	mm (in)	358 (14-3/32)		1,235 (48-20/32)	
	Width	mm (in)	1,150 (45-9/32)		940 (37)	
	Depth	mm (in)	860 (33-27/32)		340 (13-12/32)	
Package dimensions	Height	mm (in)	440 (17-10/32)		1,326 (52-7/32)	
	Width	mm (in)	1,278 (50-10/32)		1,016 (40)	
	Depth	mm (in)	988 (38-29/32)		416 (16-12/32)	
Net weight		kg (lb)	38 (84)		94 (207)	
Shipping weight		kg (lb)	62 (137)		101 (223)	
Shipping volume		m ³ (Cu. ft.)	0.556 (19.6)		0.56 (19.8)	

DATA SUBJECT TO CHANGE WITHOUT NOTICE

Cooling :

Rating conditions(*) : Indoor air temperature 27 °C DB / 19 °C WB, Outdoor air temperature 35 °C DB

Full load conditions(**) : Indoor air temperature 35 °C DB / 25 °C WB, Outdoor air temperature 50 °C DB

1-1 Unit Specifications

MODEL No.	Indoor Unit		SPW-X253G56		SPW-X253GS56	
	Outdoor Unit		SPW-C253G8, SPW-C253G8/M			
POWER SOURCE			380 - 400 - 415 V / 3N / 50 Hz			
PERFORMANCE			Cooling			
Capacity		kW	7.3			
		BTU / h	25,000			
Air circulation (Hi/Me/Lo)		m3 / h	1,140/1,020/840			
Moisture removal(High)		Liters/ h	3.6			
ELECTRICAL RATINGS						
Voltage rating		V	380	400	415	
Available voltage range		V	342- 456			
Running amperes*		A	4.7	4.7	4.6	
Max. running amperes**		A	6	5.8	5.7	
Power input		kW	2.76	2.8	2.81	
Power factor		%	89.2	86	85	
C.O.P		W / W	2.64	2.61	2.6	
Max. starting amperes		A	27	29	30	
FEATURES						
Controls			Microprocessor			
Timer			ON / OFF 12-hours	ON/OFF 24-hours & Program		
Fan speeds Indoor/Outdoor			3 and Automatic control/ 2 (Auto)			
Airflow direction (Indoor)			Automatic (Remote control)			
Air filter			Washable, easy access			
Remote controller (Accessory)			RCS-31G(W)	RCS-5PS3E		
Refrigerant control			Capillary tube			
Drain pump (drain connection)			Max. head 25cm above drain connection (25A,OD32mm)			
Compressor			Rotary			
Operation sound	Indoor - Hi/Me/Lo	dB - A	37 / 35 / 31			
	Outdoor - Hi	dB - A	53			
REFRIGERANT TUBING						
Limit of tubing length		m (ft.)	40 (131)			
Limit of tubing length at shipment		m (ft.)	15 (49)			
Limit of elevation difference between the two units		m (ft.)	Outdoor unit is higher than indoor unit: 40 (131) Outdoor unit is lower than indoor unit: 25 (82)			
Refrigerant tube outer diameter	Narrow tube	mm (in)	6.35 (1 / 4)			
	Wide tube	mm (in)	15.88 (5 / 8)			
Refrigerant amount at shipment		kg	R22 - 2.4			
DIMENSIONS & WEIGHT			Indoor unit		Outdoor unit	
Unit dimensions	Height	mm (in)	328 (12-29/32)		735 (28-30/32)	
	Width	mm (in)	860 (33-27/32)		940 (37)	
	Depth	mm (in)	860 (33-27/32)		340 (13-12/32)	
Package dimensions	Height	mm (in)	410 (16-5/32)		826 (32-17/32)	
	Width	mm (in)	988 (38-29/32)		1,016 (40)	
	Depth	mm (in)	988 (38-29/32)		416 (16-12/32)	
Net weight		kg (lb)	30 (66)		68 (150)	
Shipping weight		kg (lb)	47 (104)		74 (163)	
Shipping volume		m ³ (Cu. ft.)	0.4 (14.1)		0.349 (12.3)	

DATA SUBJECT TO CHANGE WITHOUT NOTICE

Cooling :

Rating conditions(*) : Indoor air temperature 27 °C DB / 19 °C WB, Outdoor air temperature 35 °C DB

Full load conditions(**) : Indoor air temperature 35 °C DB / 25 °C WB, Outdoor air temperature 50 °C DB

1-1 Unit Specifications

MODEL No.	Indoor Unit		SPW-X363G56		SPW-X363GS56	
	Outdoor Unit		SPW-C363G8, SPW-C363G8/M			
POWER SOURCE			380 - 400 - 415 V / 3N / 50 Hz			
PERFORMANCE			Cooling			
Capacity		kW	10.6			
		BTU / h	36,000			
Air circulation (Hi/Me/Lo)		m3 / h	1,920/1,680/1,320			
Moisture removal(High)		Liters/ h	4.7			
ELECTRICAL RATINGS						
Voltage rating		V	380	400	415	
Available voltage range		V	342 - 456			
Running amperes*		A	5.2	5.1	5.1	
Max. running amperes**		A	6.7	6.5	6.4	
Power input		kW	3.07	3.11	3.15	
Power factor		%	89.7	88	85.9	
C.O.P		W / W	3.45	3.41	3.37	
Max. starting amperes		A	31	33	34	
FEATURES						
Controls			Microprocessor			
Timer			ON / OFF 12-hours		ON/OFF 24-hours & Program	
Fan speeds Indoor/Outdoor			3 and Automatic control/ 2 (Auto)			
Airflow direction (Indoor)			Automatic (Remote control)			
Air filter			Washable, easy access			
Remote controller (Accessory)			RCS-31G(W)		RCS-5PS3E	
Refrigerant control			Capillary tube			
Drain pump (drain connection)			Max. head 25cm above drain connection (25A,OD32mm)			
Compressor			Rotary			
Operation sound	Indoor - Hi/Me/Lo	dB - A	43 / 40 / 36			
	Outdoor - Hi	dB - A	54			
REFRIGERANT TUBING						
Limit of tubing length		m (ft.)	50 (164)			
Limit of tubing length at shipment		m (ft.)	15 (49)			
Limit of elevation difference between the two units		m (ft.)	Outdoor unit is higher than indoor unit: 50 (164) Outdoor unit is lower than indoor unit: 30 (98)			
Refrigerant tube outer diameter	Narrow tube	mm (in)	9.52 (3 / 8)			
	Wide tube	mm (in)	19.05 (3 / 4)			
Refrigerant amount at shipment		kg	R22 - 4.0			
DIMENSIONS & WEIGHT			Indoor unit		Outdoor unit	
Unit dimensions	Height	mm (in)	358 (14-3/32)		1,235 (48-20/32)	
	Width	mm (in)	1,150 (45-9/32)		940 (37)	
	Depth	mm (in)	860 (33-27/32)		340 (13-12/32)	
Package dimensions	Height	mm (in)	440 (17-10/32)		1,326 (52-7/32)	
	Width	mm (in)	1,278 (50-10/32)		1,016 (40)	
	Depth	mm (in)	988 (38-29/32)		416 (16-12/32)	
Net weight		kg (lb)	38 (84)		94 (207)	
Shipping weight		kg (lb)	62 (137)		101 (223)	
Shipping volume		m ³ (Cu. ft.)	0.556 (19.6)		0.56 (19.8)	

DATA SUBJECT TO CHANGE WITHOUT NOTICE

Cooling :

Rating conditions(*) : Indoor air temperature 27 °C DB / 19 °C WB, Outdoor air temperature 35 °C DB

Full load conditions(**) : Indoor air temperature 35 °C DB / 25 °C WB, Outdoor air temperature 50 °C DB

1-1 Unit Specifications

MODEL No.	Indoor Unit		SPW-X483G56		SPW-X483GS56	
	Outdoor Unit		SPW-C483G8, SPW-C483G8/M			
POWER SOURCE			380 - 400 - 415 V / 3N / 50 Hz			
PERFORMANCE			Cooling			
Capacity		kW	14			
		BTU / h	47,800			
Air circulation (Hi/Me/Lo)		m3 / h	1,920/1,680/1,320			
Moisture removal(High)		Liters/ h	7.4			
ELECTRICAL RATINGS						
Voltage rating		V	380	400	415	
Available voltage range		V	342 - 456			
Running amperes*		A	8.4	8.5	8.9	
Max. running amperes**		A	10.3	9.9	9.5	
Power input		kW	4.7	4.76	4.86	
Power factor		%	85	80.8	76	
C.O.P		W / W	2.98	2.94	2.88	
Max. starting amperes		A	71	73	75	
FEATURES						
Controls			Microprocessor			
Timer			ON / OFF 12-hours	ON/OFF 24-hours & Program		
Fan speeds Indoor/Outdoor			3 and Automatic control/ 2 (Auto)			
Airflow direction (Indoor)			Automatic (Remote control)			
Air filter			Washable, easy access			
Remote controller (Accessory)			RCS-31G(W)	RCS-5PS3E		
Refrigerant control			Capillary tube			
Drain pump (drain connection)			Max. head 25cm above drain connection (25A,OD32mm)			
Compressor			Rotary			
Operation sound	Indoor - Hi/Me/Lo	dB - A	43 / 40 / 36			
	Outdoor - Hi	dB - A	56			
REFRIGERANT TUBING						
Limit of tubing length		m (ft.)	50 (164)			
Limit of tubing length at shipment		m (ft.)	15 (49)			
Limit of elevation difference between the two units		m (ft.)	Outdoor unit is higher than indoor unit: 50 (164) Outdoor unit is lower than indoor unit: 30 (98)			
Refrigerant tube outer diameter	Narrow tube	mm (in)	9.52 (3 / 8)			
	Wide tube	mm (in)	19.05 (3 / 4)			
Refrigerant amount at shipment		kg	R22 - 4.3			
DIMENSIONS & WEIGHT			Indoor unit		Outdoor unit	
Unit dimensions	Height	mm (in)	358 (14-3/32)		1,235 (48-20/32)	
	Width	mm (in)	1,150 (45-9/32)		940 (37)	
	Depth	mm (in)	860 (33-27/32)		340 (13-12/32)	
Package dimensions	Height	mm (in)	440 (17-10/32)		1,326 (52-7/32)	
	Width	mm (in)	1,278 (50-10/32)		1,016 (40)	
	Depth	mm (in)	988 (38-29/32)		416 (16-12/32)	
Net weight		kg (lb)	38 (84)		106 (234)	
Shipping weight		kg (lb)	62 (137)		113 (249)	
Shipping volume		m ³ (Cu. ft.)	0.556 (19.6)		0.56 (19.8)	

DATA SUBJECT TO CHANGE WITHOUT NOTICE

Cooling :

Rating conditions(*) : Indoor air temperature 27 °C DB / 19 °C WB, Outdoor air temperature 35 °C DB

Full load conditions(**) : Indoor air temperature 35 °C DB / 25 °C WB, Outdoor air temperature 50 °C DB

1-2 Major Component Specifications

(A) Indoor Unit

Unit Model No.		SPW-X253G56	
Source		220 - 230 - 240 V / 1 phase / 50 Hz	
Remote controller (Accessory)		RCS - 31G (W)	
Controller P.C.B. Ass'y		CR - X363GS	
Fan (Number...diameter)	mm	Turbo (1...ø 490)	
Fan Motor			
Model...Nominal output	W	SFG6X - 41A5P...40 W	
Source		220 - 230 - 240 V / 1 phase / 50 Hz	
No. of pole...rpm (230V, High)	rpm	6...470	
Coil resistance (Ambient temp. 20°C)		BRN - WHT : 114.0 , ORG - YEL : 66.4 WHT - VLT : 23.9 , WHT - PNK : 77.4 VLT - ORG : 12.4 , YEL - BLK : 82.1	
Safety devices			
Operating temp.	Open °C	130 ± 8 °C	
	Close °C	79 ± 15 °C	
Run capacitor	VAC, µF	440 V, 4 µF	
Heat exchanger			
Coil		Aluminum plate fin / Copper tube	
Rows...fin pitch	mm	2...1.7	
Face area	m ²	0.295	
Panel			
Model No.		PNR - X253GA	
Dew proof heater		240 V, 26 W	
Auto louver motor		M2LB24ZA12	
Auto louver motor...Rated	V, W, rpm	240 VAC, 3 W, 2.5 rpm	
Coil resistance (at 25°C)		15,620 ± 15 %	

1-2 Major Component Specifications

(A) Indoor Unit

Unit Model No.		SPW - X303G56	SPW - X363G56	SPW - X483G56
Source		220 - 230 - 240 V / 1 phase / 50 Hz		
Remote controller (Accessory)		RCS - 31G (W)		
Controller P.C.B. Ass'y		CR - X363GS		
Fan (Number...diameter)	mm	Turbo (1...ø 490)		
Fan Motor				
Model...Nominal output	W	SFG6X - 61A3P...60 W		
Source		220 - 230 - 240 V / 1 phase / 50 Hz		
No. of pole...rpm (230V, High)	rpm	6...530		
Coil resistance (Ambient temp. 20°C)		BRN - WHT : 71.1 , ORG - YEL : 22.7 WHT - VLT : 8.7 , VLT - RNK : 43.2 VLT - ORG : 13.3 , YEL - BLK : 54.32		
Safety devices				
Operating temperature	Open °C	130 ± 8 °C		
	Close °C	79 ± 15 °C		
Run capacitor	VAC, µF	440 V, 6 µF		
Heat exchanger				
Coil		Aluminum plate fin / Copper tube		
Rows...fin pitch	mm	2...1.7		
Face area	m ²	0.479		
Panel				
Model No.		PNR - X483GA		
Dew proof heater		240 V, 31 W		
Auto louver motor		M2LB24ZA12		
Auto louver motor...Rated	V, W, rpm	240 VAC, 3 W, 2.5 rpm		
Coil resistance (at 25°C)		15,620 ± 15 %		

1-2 Major Component Specifications

(A) Indoor Unit

MODEL No.		SPW - X253GS56	
Source		220 - 230 - 240 V / 1 phase / 50 Hz	
Remote controller (Accessory)		RCS - 5PS3E	
Controller P. C. B Ass'y		CR - X363GS	
Switch Ass'y		SW - X363GS	
Fan (Number ... diameter)	mm	Turbo (1... ø 490)	
Fan motor			
Model ... Nominal output	W	SFG6X - 41A5P ... 40 W	
Source		220 - 230 - 240 V / 1 phase / 50 Hz	
No. of pole ... r.p.m. (230 V, High)	rpm	6 ... 470	
Coil resistance (Ambient temperature 20 °C)		BRW - WHT : 114.0 , ORG - YEL : 66.4 WHT - VLT : 23.9 , WHT - PNK : 77.4 VLT - ORG : 12.4 , YEL - BLK : 82.1	
Safety device			
Operating temperature	Open °C	130 ± 8 °C	
	Close °C	79 ± 15 °C	
Run capacitor	VAC , µF	440 V , 4 µF	
Heat exchanger			
Coil		Aluminum plate fin / Copper tube	
Rows ... fin pitch	mm	2 ... 1.7	
Face area	m²	0.295	
Panel			
Model No.		PNR - X253GS	
Indicator Lamp Ass'y		IND - TS2422	
Dew proof heater		240 V , 26 W	
Auto louver motor		M2LB24ZA12	
Auto louver motor ... Rated	V, W, rpm.	240 VAC , 3W , 2.5 rpm	
Coil resistance (at 25 °C)		15,620 ± 15 %	

1-2 Major Component Specifications

(A) Indoor Unit

MODEL No.		SPW - X303GS56	SPW - X363GS56	SPW - X483GS56
Source		220 - 230 - 240 V / 1 phase / 50 Hz		
Remote controller (Accessory)		RCS - 5PS3E		
Controller P. C. B Ass'y		CR - X363GS		
Switch ass'y		SW - X363GS		
Fan (Number ... diameter)	mm	Turbo (1... ø 490)		
Fan motor				
Model ... Nominal output	W	SFG6X - 61A3P ... 60 W		
Source		220 - 230 - 240 V / 1 phase / 50 Hz		
No. of pole ... r.p.m. (230 V, High)	rpm	6 ... 530		
Coil resistance (Ambient temperature 20 °C)		BRW - WHT : 71.1 , ORG - YEL : 22.7 WHT - VLT : 8.7 , VLT - PNK : 43.2 VLT - ORG : 13.3 , YEL - BLK : 54.32		
Safety device				
Operating temperature	Open °C	130 ± 8 °C		
	Close °C	79 ± 15 °C		
Run capacitor	VAC , µF	440 V , 6 µF		
Heat exchanger				
Coil		Aluminum plate fin / Copper tube		
Rows ... fin pitch	mm	2 ... 1.7		
Face area	m ²	0.479		
Panel				
Model No.		PNR - X483GS		
Indicator Lamp ass'y		IND - TS2422		
Dew proof heater		240 V , 31 W		
Auto louver motor		M2LB24ZA12		
Auto louver motor ... Rated	V, W, rpm	240 VAC , 3W , 2.5 rpm		
Coil resistance (at 25 °C)		15,620 ± 15 %		

1-2 Major Component Specifications

(B) Outdoor Unit

Model No.			SPW-C253G5 SPW-C253G5/M	SPW-C303G5 SPW-C303G5/M	SPW-C363G5 SPW-C363G5/M
Source			220 - 230 - 240 V / 1 phase / 50 Hz		
Compressor			Rotary (Hermetic)		
Model ... Code No.			C - R221H5V	C - R240H5W	
Nominal output	W		2,200	2,400	
Compressor oil	cc		1,350		
Coil resistance (at 25°C)			C - R : 0.76, C - S : 2.76	C - R : 0.69, R - S : 3.34, S - C : 2.66	
Refrigerant amount at shipment		kg	R22 - 2.4	R22 - 2.6	R22 - 4.2
Safety device			Internal / OL - D24	Internal type	
Operating temperature	Open	°C	160 ± 5 / 150 ± 10	175 ± 5	
	Close	°C	87 ± 9 / 63 ± 10	105 ± 9	
Run capacitor	V, µF		400V, 40		
High pressure switch			ACB - 1TB07		
Set pressure	OFF	kg/cm²	30 ^{+2.0} _{+0.5}		
	ON	kg/cm²	24 ± 2.0		
Fan (Number...diameter (mm))			Propeller (1...ø 460)		Propeller (2...ø 460)
Fan motor					
Model...Nominal output		W	KFC6S - 91C5P...100 W		KFC6S - 91C5PX2 100WX2
No. of pole ... rpm (230V, High)		rpm	6...868		6...871
Coil resistance (Ambient temperature 20°C)			BRW – WHT : 61.0 YEL – PNK : 17.7 WHT – YEL : 64.3		
Safety device			Internal type		Internal type
Operating temperature	Open	°C	130 ± 8		130 ± 8
	Close	°C	79 ± 15		79 ± 15
Run capacitor	VAC, µF		440 V, 5 µF		440 V, 5 µF / 5 µF
Heat exchanger					
Coil			Aluminium plate fin / Copper tube		
Rows ... fin pitch		mm	2...2.0		2...2.0
Face area		m²	0.616		1.08

1-2 Major Component Specifications

(B) Outdoor Unit

MODEL No.			SPW-C253G8, SPW-C253G8/M	
Source			380 - 400 - 415 V / 3 phase / 50 Hz	
Compressor			Rotary (Hermetic)	
Model ... Code No.			C - R224H8S	
Nominal output		W	2,200	
Compressor oil		CC	1,350	
Coil resistance (at 25°C)			R - S : 5.54 , S - T : 5.54 , T - R : 5.54	
Refrigerant amount at shipment		kg	R22 - 2.4	
Safety device			Internal type	External type
Overload relay models			—	FMSA - 1SZ607A
Operating temperature	Open	°C	120 ± 5	—
	Close	°C	98 ± 11	—
Operating ampere (at 25°C)		A	—	6A, 110 %
Run capacitor		V, µF	—	
High pressure switch			ACB - 1TB07	
Set pressure	OFF	kg/cm ²	30 ^{+2.0} / _{+0.5}	
	ON	kg/cm ²	24 ± 2.0	
Fan Number ... diameter		mm	Propeller (1 ... ø 460)	
Fan motor				
Model ... Nominal output		W	KFC6S - 91C5P ... 100 W	
No. of pole ... rpm (230 V, High)		rpm	6 ... 868	
Coil resistance (Ambient temperature 20°C)			BRW - WHT : 61.0 , YEL - PNK : 17.7 WHT - YEL : 64.3	
Safety device				
Operating temperature	Open	°C	130 ± 8	
	Close	°C	79 ± 15	
Run capacitor		VAC, µF	440V, 5 µF	
Heat exchanger				
Coil			Aluminum plate fin / Copper tube	
Rows ... fin pitch		mm	2 ... 2.0	
Face area		m ²	0.616	

1-2 Major Component Specifications

(B) Outdoor Unit

MODEL No.				SPW-C363G8 SPW-C363G8/M		SPW-C483G8 SPW-C483G8/M	
Source				380 - 400 - 415 V / 3 phase / 50 Hz			
Compressor				Rotary (Hermetic)		Scroll (Hermetic)	
Model...Code No.				C - R243H8T		ZR61KC - TFD - 522	
Nominal output			W	2,400		3,750	
Compressor oil			cc	1,350		2,130	
Coil resistance (Ambient temperature 25°C)				T – R : 5.54 , R – S : 5.54 S – T : 5.54		T1 – T2 : 2.72 , T2 – T3 : 2.72 T3 – T1 : 2.72	
Refrigerant amount at shipment			kg	R 22 - 4.0		R 22 - 4.3	
Safety devices				Internal type	External type	Internal type	External type
Overload relay models				—	FMSA -1SZ607A	—	FMSA -1SZ607A
Operating temperature			Open °C	120 ± 5	—	130	—
			Close °C	98 ± 11	—	61	—
Operating ampere (at 25°C)			A	—	6A, 110 %	—	10A, 110 %
Run capacitor			V, µF	—			
High pressure switch				ACB - 1TB07			
Set pressure			OFF kg/cm²	30 ^{+2.0} / _{+0.5}			
			ON kg/cm²	24 ± 2.0			
Fan (Number...diameter) mm				Propeller (2...ø460)			
Fan motor							
Model...Nominal output			W	KFC6S - 91C5PX2...100WX2			
No. of pole...rpm (230 V, High)			rpm	6...871			
Coil resistance (Ambient temperature 20°C)				BRN – WHT : 61.0 WHT – YEL : 64.3 YEL – PNK : 17.7			
Safety device							
Operating temperature			Open °C	130 ± 8			
			Close °C	79 ± 15			
Run capacitor			VAC, µF	440V, 5 µF / 440 V, 5 µF			
Heat exchanger							
Coil				Aluminum plate fin / Copper tube			
Rows...fin pitch			mm	2...2.0			
Face area			m²	1.08			

1-3 Other Component Specifications

(A) Indoor Unit

			SPW-X253G56	SPW-X303G56	SPW-X363G56	SPW-X483G56
Power Transformer			ATR – I75A			
	Rated	Primary	AC 230 V, 50 Hz			
		Secondary	10.6 V, 0.93 A			
		Capacity	9.85 VAC			
	Coil resistance		WHT - WHT : 96.5 , BRN - BRN : 0.8 (at 20 °C)			
Thermistor cut off temperature		°C	150			
Thermistor (Coil sensor)			PBC - 41E - S26	PBC - 41E - S36		
Coil resistance		k	−10 °C : 23.7 , 5 °C : 12.1 −5 °C : 18.8 , 10 °C : 9.7 0 °C : 15.0 , 15 °C : 8.0			
Drain pump			WP20SL - 21			
Rated			AC 230 V, 14.7 W			
Float switch			FS - 0218 - 103			
Rated (Contact rated)			AC 230 V, 50 W			
Synchronized Motor			M2LB24ZA12			

			SPW-X253GS56	SPW-X303GS56	SPW-X363GS56	SPW-X483GS56
Power Transformer			ATR – I75A			
Rated	Primary	AC 230 V, 50 Hz				
	Secondary	10.6 V, 0.93 A				
	Capacity	9.85 VAC				
Coil resistance			WHT - WHT : 96.5 , BRN - BRN : 0.8 (at 20 °C)			
Thermistor cut off temperature		°C	150			
Thermistor (Coil sensor)			PBC - 41E - S26	PBC - 41E - S36		
Coil resistance		k	-10 °C : 23.7 , 5 °C : 12.1 -5 °C : 18.8 , 10 °C : 9.7 0 °C : 15.0 , 15 °C : 8.0			
Thermistor (Room or coil sensor)			KTEC - 35 - S6			
Coil resistance		k	0 °C : 16.5 , 40 °C : 2.7 5 °C : 12.8 , 45 °C : 2.2 10 °C : 10.0 , 50 °C : 1.8 20 °C : 6.3 , 55 °C : 1.5 30 °C : 4.0 ,			
Drain pump			WP20SL - 21			
Rated			AC 230 V, 14.7 W			
Float switch			FS - 0218 - 103			
Rated (Contact rated)			AC 230 V, 50 W			
Switch Ass'y			SW - X363GS			
Indicator Lamp Ass'y			IND - X253GS		IND - X483GS	
Synchronized Motor			M2LB24ZA12			

1-3 Other Component Specifications

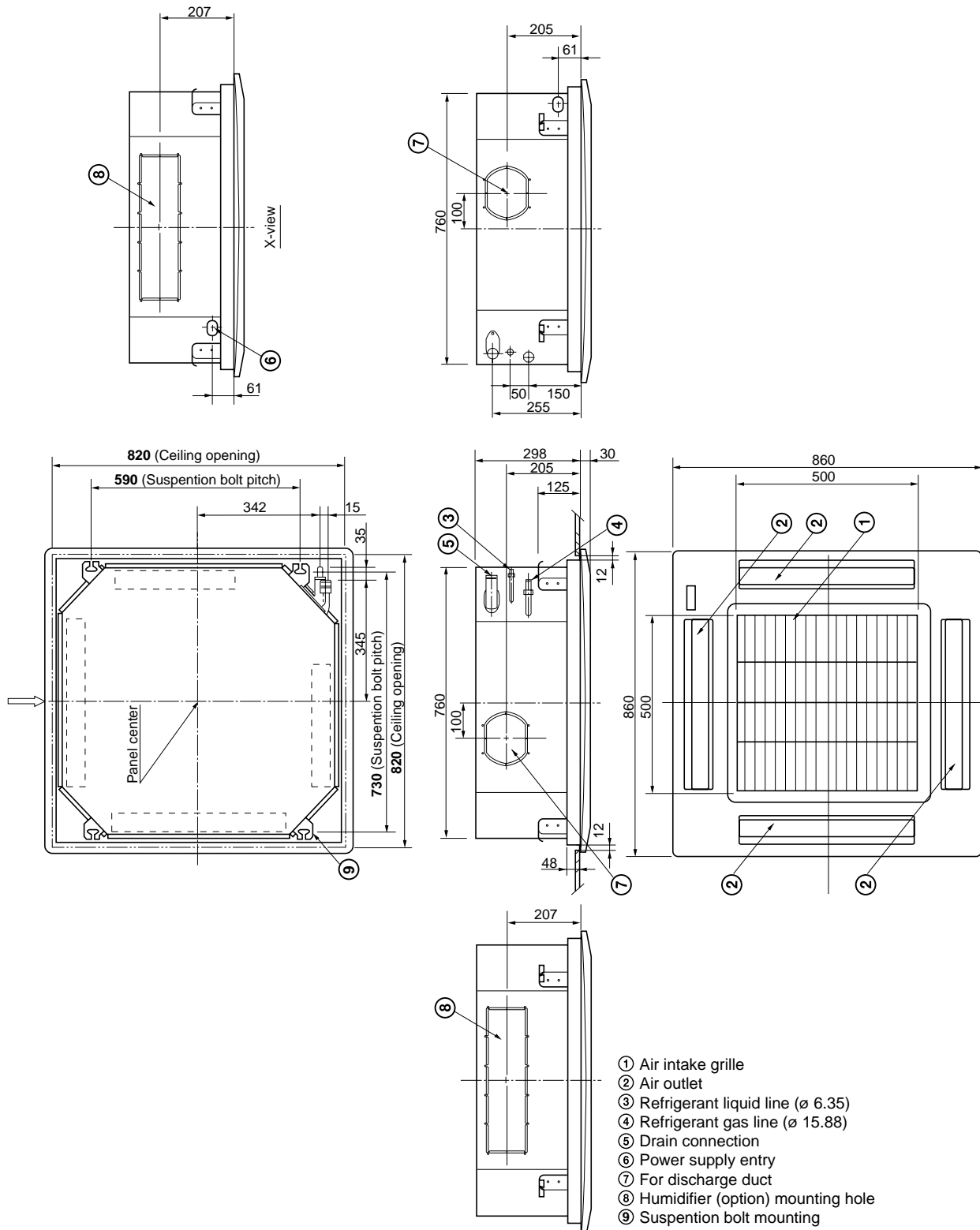
(B) Outdoor Unit

MODEL No.		SPW-C253G5 SPW-C253G5/M	SPW-C303G5 SPW-C303G5/M	SPW-C363G5 SPW-C363G5/M
Compressor Motor Mgnetic Contactor		FMCA - 1SZ607		
Coil rated		AC 220 - 240 V, 50 Hz		
Coil resistance (at 20°C)		828 ± 15 %		
Contact rated	V, A	AC 440 V, 13 A		
Auxiliary relay		HH62S / 085		
Coil rated		AC 240 V, 50 Hz		
Coil resistance (at 20°C)	k	17.2		
Contact rated	V, A	AC 220 V, 5 A		
Thermostat (Coil sensor)		YTB - S377		
Operating Temperature	°C	27.5 ± 1.5 OFF (High)		
		25.5 ^{+1.5} _{−0.5} ON (Low)		
Contact rated	A	AC 250 V, 1 A		

MODEL No.		SPW-C253G8 SPW-C253G8/M	SPW-C363G8 SPW-C363G8/M	SPW-C483G8 SPW-C483G8/M
Compressor Motor Magnetic Contactor		FMSA - 1SZ607A		
Coil rated		AC 220 - 240 V, 50 Hz		
Coil resistance (at 20°C)		828 (at 20 °C)		
Contact rated	V, A	AC 440 V, 13 A		
Thermal Relay				
Contact rated	V, A	AC 220 V, 2.25 A		
Rated ampere (90 / 120%)	A	6 A, 110 %	6 A, 110 %	10 A, 110 %
Auxiliary relay		HH62S / 085		
Coil rated	A	AC 240 V, 50 Hz		
Coil resistance	kW	15.5 ± 20 %		
Contact rated	A	AC 250 V, 10A		
Relay		RDR - S400		
Rated voltage	V	AC 380 - 415 V, 3 phase, 50 Hz		
Resistance (at 20°C)	k	R - T : 76.3		
Thermostat (Coil sensor)		YTB - S377		
Operating Temperature	°C	27.5 ± 1.5 OFF (High) 25.5 ^{+1.5} _{-0.5} ON (Low)		
Contact rated		AC 250 V, 1 A		

1-4 Dimensional Data

(A) Indoor Unit : SPW-X253G56, SPW-X253GS56



0410_X_S

Fig. 1

1-4 Dimensional Data

(A) Indoor Unit : SPW-X363G56, SPW-X483G56, SPW-X303G56
SPW-X363GS56, SPW-X483GS56, SPW-X303GS56

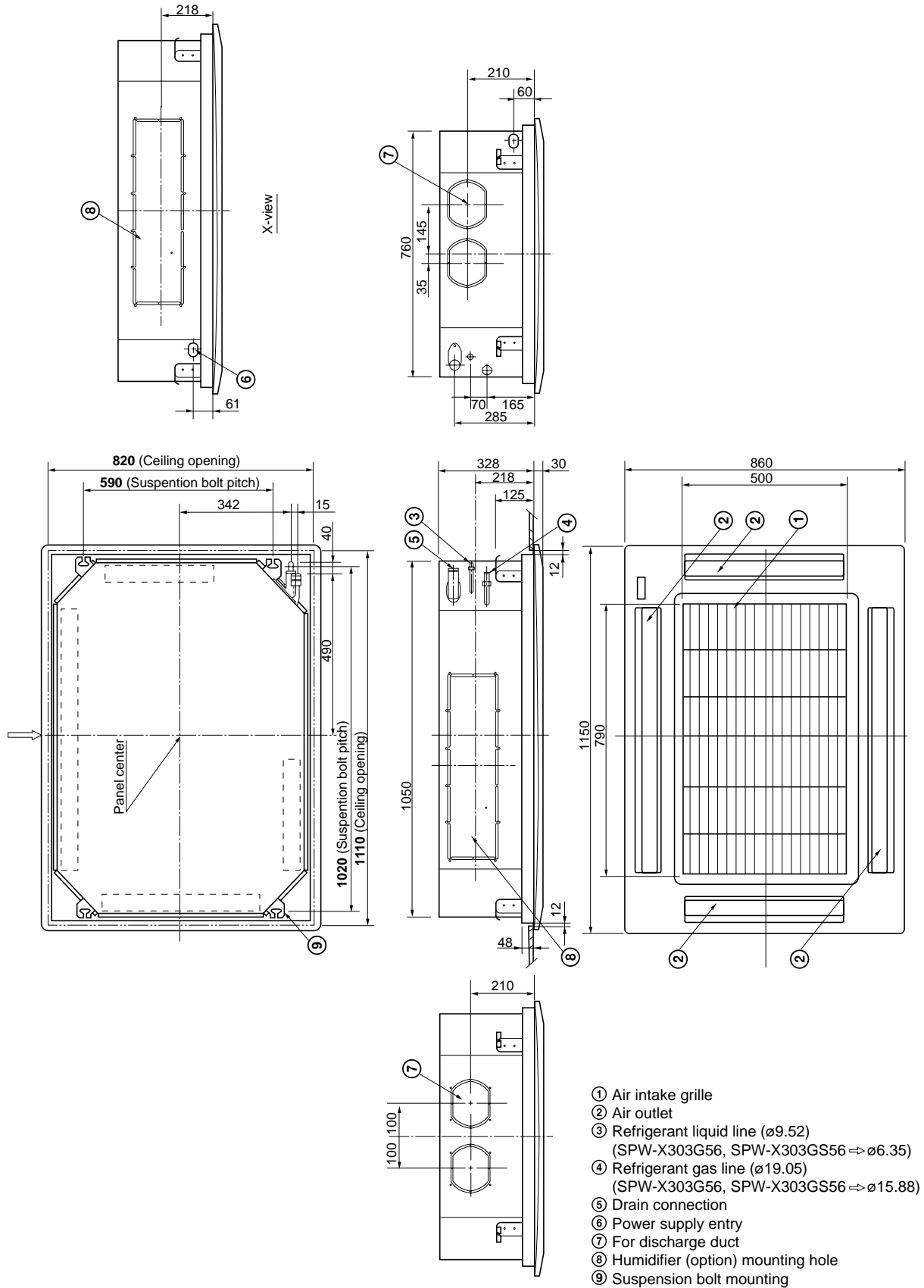
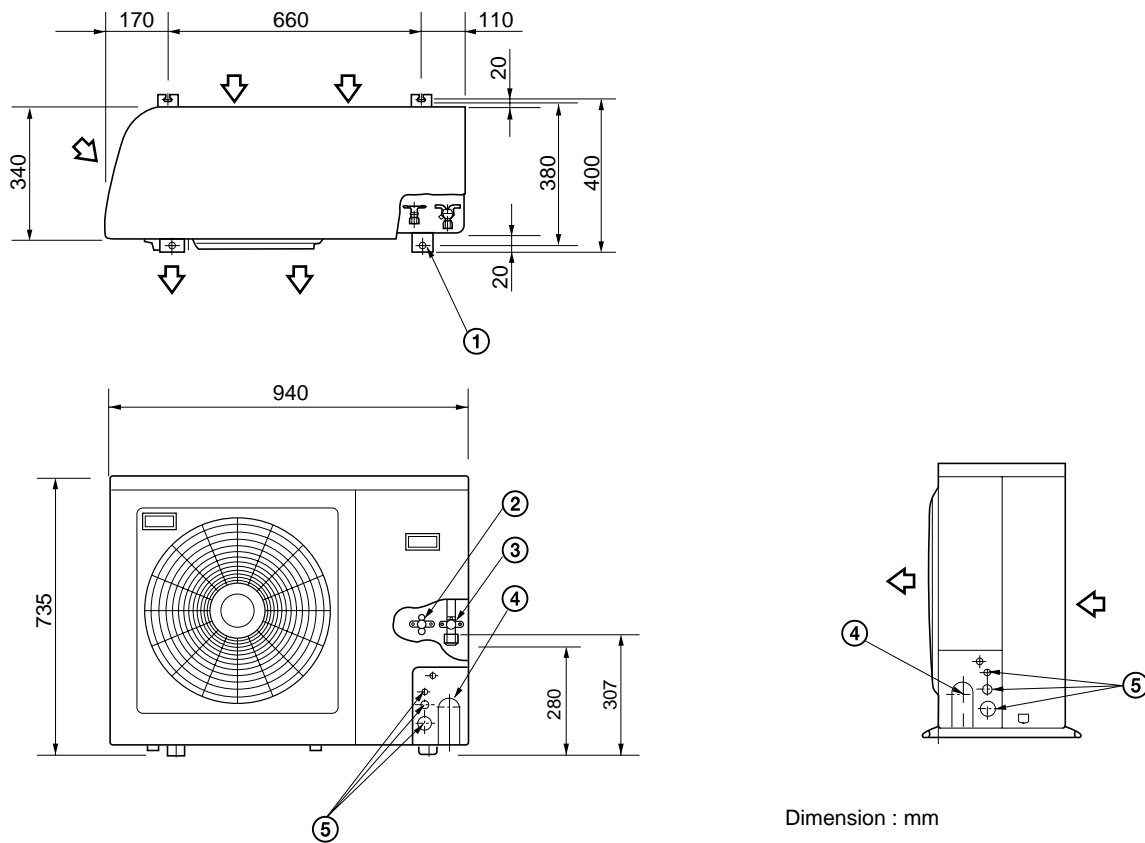


Fig. 2

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1-4 Dimensional Data

(B) Outdoor Unit : SPW-C253G5, SPW-C253G5/M
SPW-C253G8, SPW-C253G8/M
SPW-C303G5, SPW-C303G5/M



Dimension : mm

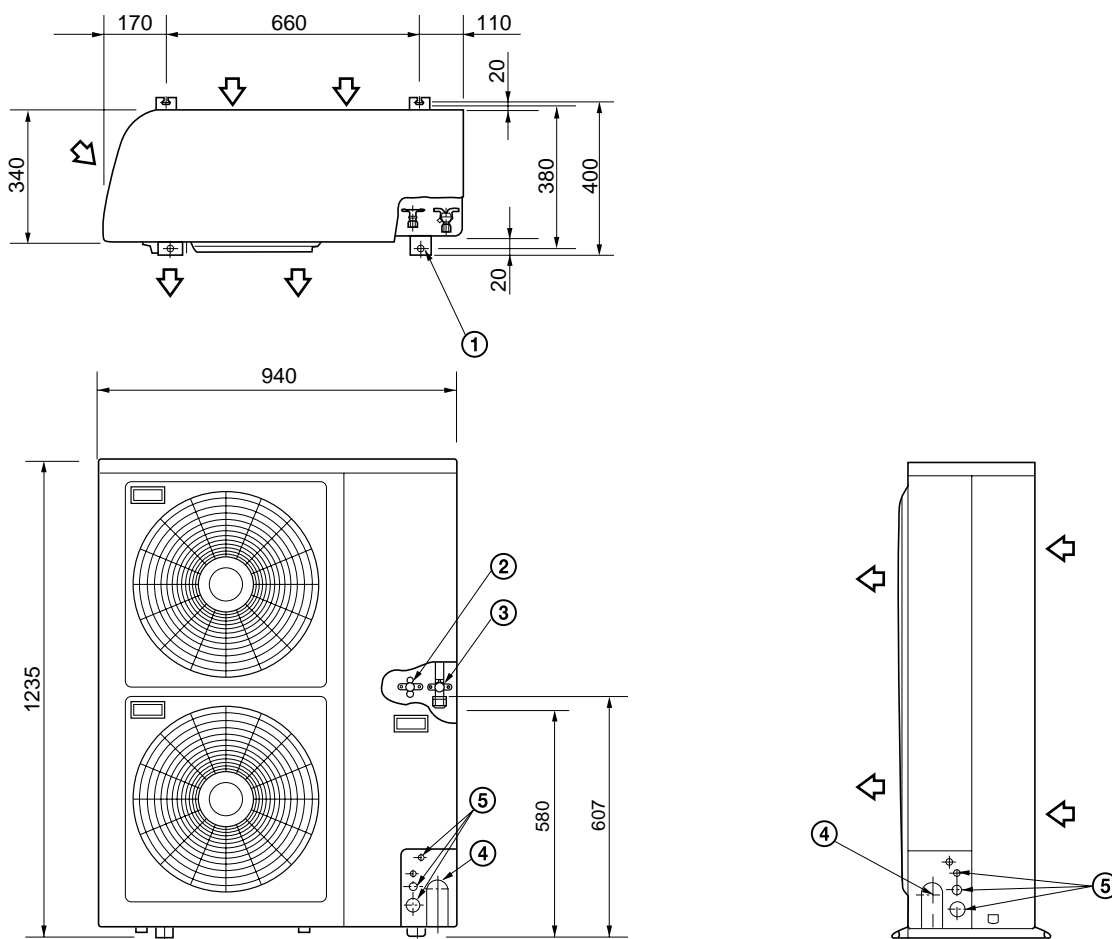
- ① Hole for anchor bolt (4- ϕ 13)
- ② Refrigerant tube joint (narrow tube)
Flare connection 1/4 in (6.35 mm)
- ③ Refrigerant tube joint (wide tube)
Flare connection 5/8 in (15.88 mm)
- ④ Refrigerant tubing inlet
- ⑤ Power supply inlet

0411_C_5

Fig. 3

1-4 Dimensional Data

(B) Outdoor Unit : SPW-C363G5, SPW-C363G5/M
SPW-C363G8, SPW-C363G8/M
SPW-C483G8, SPW-C483G8/M



Dimension : mm

- ① Hole for anchor bolt (4- ϕ 13)
- ② Refrigerant tube joint (narrow tube)
Flare connection 3/8 in (9.52 mm)
- ③ Refrigerant tube joint (wide tube)
Flare connection 3/4 in (19.05 mm)
- ④ Refrigerant tubing inlet
- ⑤ Power supply inlet

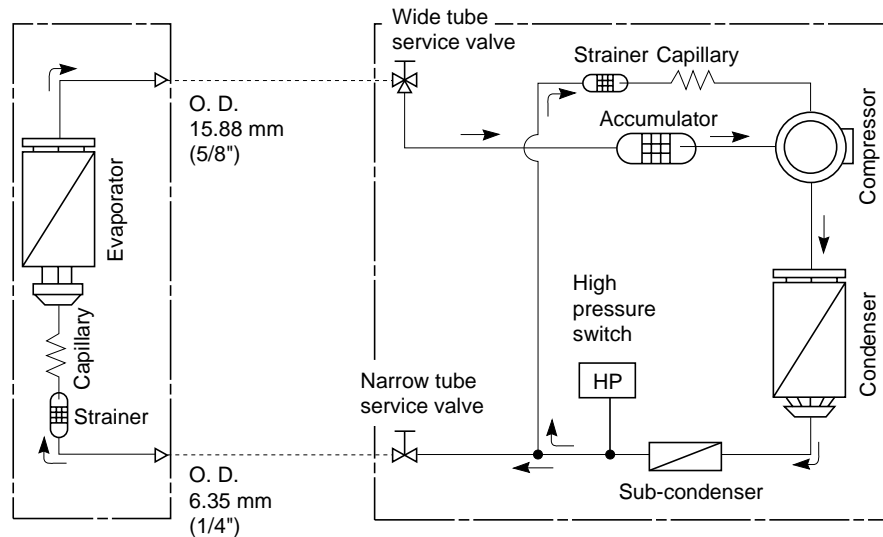
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Fig. 4

1-5 Refrigerant Flow Diagram

Indoor Unit : SPW-X253GS56
SPW-X303GS56
SPW-X253G56
SPW-X303G56

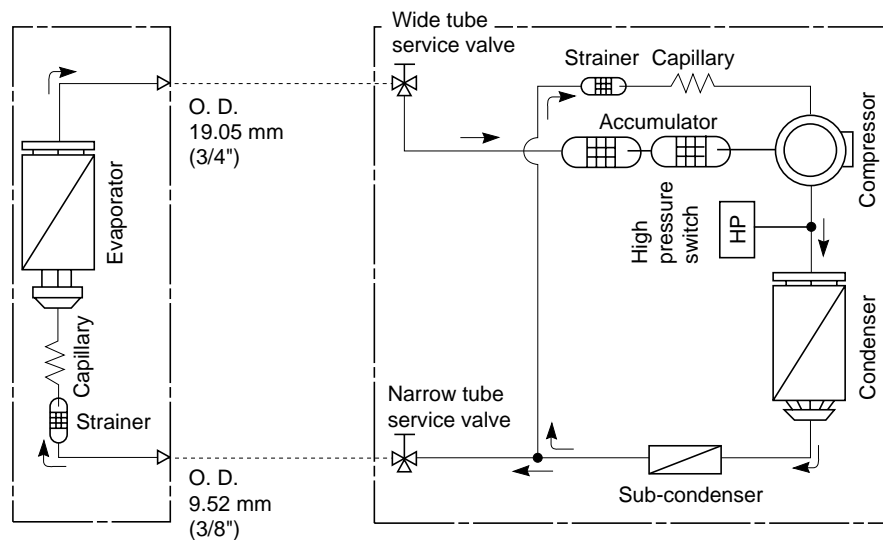
Outdoor Unit : SPW-C253G5, SPW-C253G5/M
SPW-C303G5, SPW-C303G5/M
SPW-C253G8, SPW-C253G8/M



0664_T_S

Indoor Unit : SPW-X363GS56
SPW-X363G56

Outdoor Unit : SPW-C363G5, SPW-C363G5/M
SPW-C363G8, SPW-C363G8/M

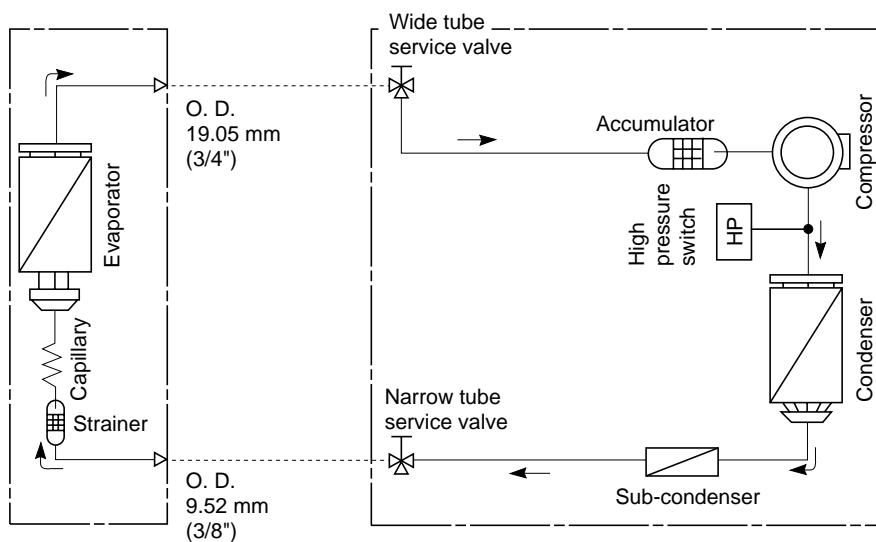


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Fig. 5-1

1-5 Refrigerant Flow Diagram

Indoor Unit : SPW-X483GS56 Outdoor Unit : SPW-C483G8, SPW-C483G8/M
SPW-X483G56



0606_X_S

Fig. 5-2

1-6 Operating Range

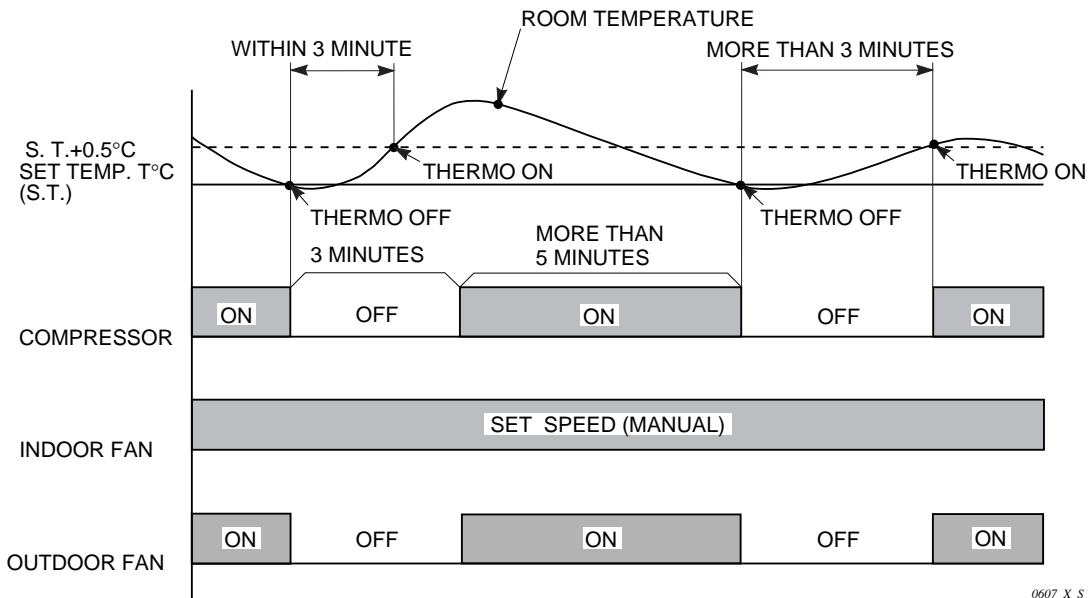
	Temperature	Indoor air intake temp.	Outdoor air intake temp.
Cooling	Maximum	35°C DB / 22.5°C WB	52°C DB
	Minimum	19°C DB / 14°C WB	19°C DB

2. PROCESSES AND FUNCTIONS

2-1	Room Temperature Control	30
2-2	Freeze Prevention	31
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2-1 Room Temperature Control

The Unit adjusts room temperature by turning the outdoor unit's compressor ON and OFF. This process is controlled by the **thermostat** located in the remote control unit. The figures on this and the next pages show how each part of the system performs when the room temperature changes and the thermostat activates the compressor to start (**thermo ON**) or stop (**thermo OFF**). Fig. 6 shows about the cooling cycle.



0607_X_S

Fig. 6

Chart Summary and Explanations

- ☐ Once the compressor **starts**, it keeps running for 5 minutes.
- ☐ Once the compressor **stops**, it will not start running again for 3 minutes.
- ☐ If you **change** the operation mode during the cooling cycle, the control circuit **stops** the compressor for 3 minutes.
- ☐ For 5 minutes after the compressor is first turned on, and for 3 minutes after it is turned off, the compressor is not controlled by the room sensor.
- ☐ **Thermo ON:** When room temperature rises 0.5°C above the set temperature T° , ($T^{\circ} + 0.5^{\circ}\text{C}$):

Compressor → **ON**
- ☐ **Thermo OFF:** When the room temperature is equal to or below the set temperature T° :

Compressor → **OFF**
- ☐ In case of wireless remote control model (GS type).
 - The remote control unit sends the temperature signal to the air conditioner regularly at 3 minute intervals. If the signal from the remote control unit stops for more than 10 minutes due to the damage of the remote control unit or other trouble, the air conditioner will switch to the temperature sensor which is built in the indoor unit and control the room temperature. In these cases, the temperature around the remote control unit may differ from the temperature detected at the air conditioner's position.
 - If the remote control is located near a heat source, such as a space heater or in direct sunlight, press the A/C SENSOR button to switch to the sensor in the indoor unit.

2-2 Freeze Prevention

Freeze Prevention keeps the indoor heat exchange coil from freezing. Freezing reduces the efficiency of the unit, and frost buildup on the coil blocks cool air circulation from the indoor unit's fan.

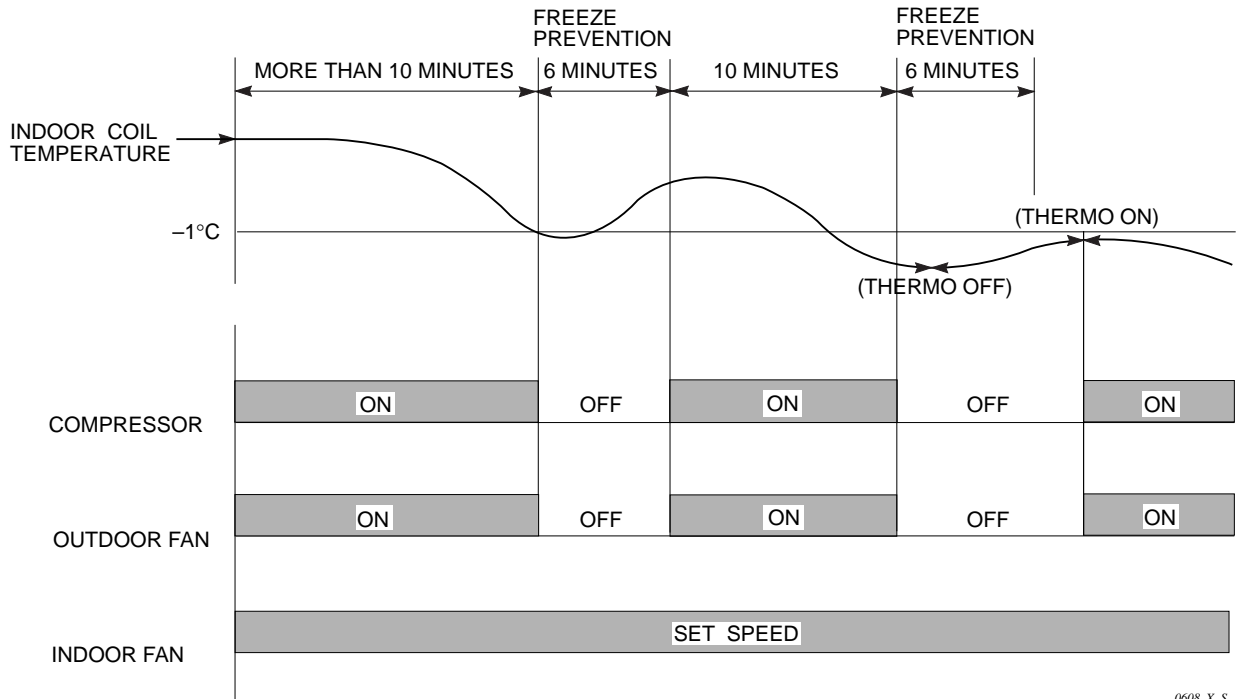


Fig. 7

2-3 Drain Pump Control

Drain pump operates when compressor starts to operate or when Float Switch turns off.

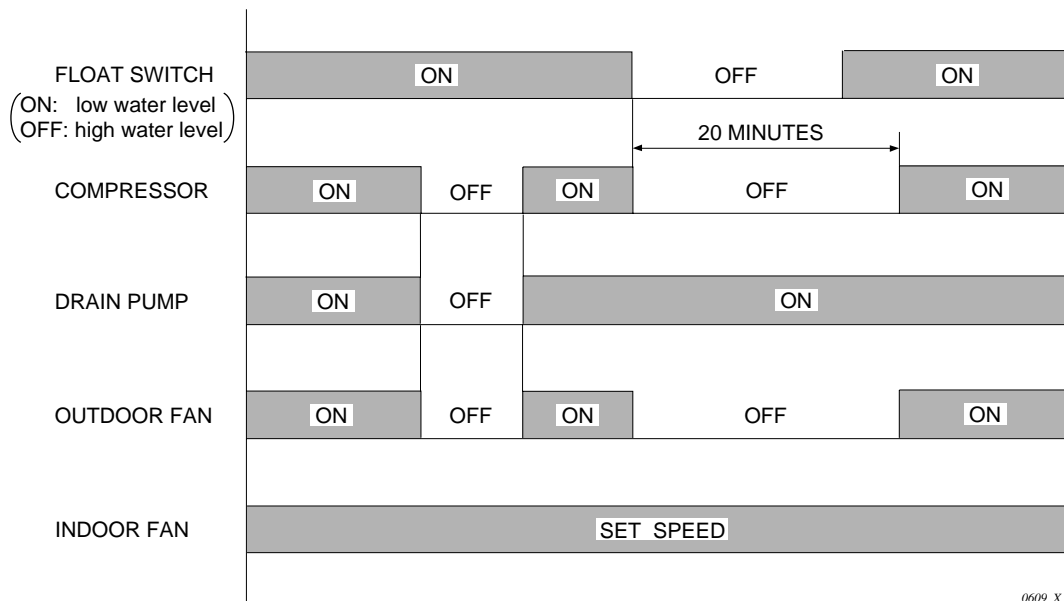


Fig. 8

2-4 Outdoor Fan Control

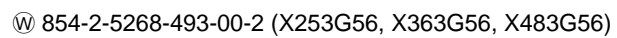
- In low outdoor temperature, the outdoor fan is set automatically from HIGH to LOW to prevent the indoor heat exchanger from freezing.
- When the outdoor temperature falls below 25.5°C, the outdoor fan is set from HIGH to LOW automatically. When the outdoor temperature rises to 27.5°C, the outdoor fan is set from LOW to HIGH automatically.

3. ELECTRICAL DATA

3-1	Indoor Unit (Electric Wiring Diagram, Schematic Diagram)	34
3-2	Outdoor Unit (Electric Wiring Diagram, Schematic Diagram)	42

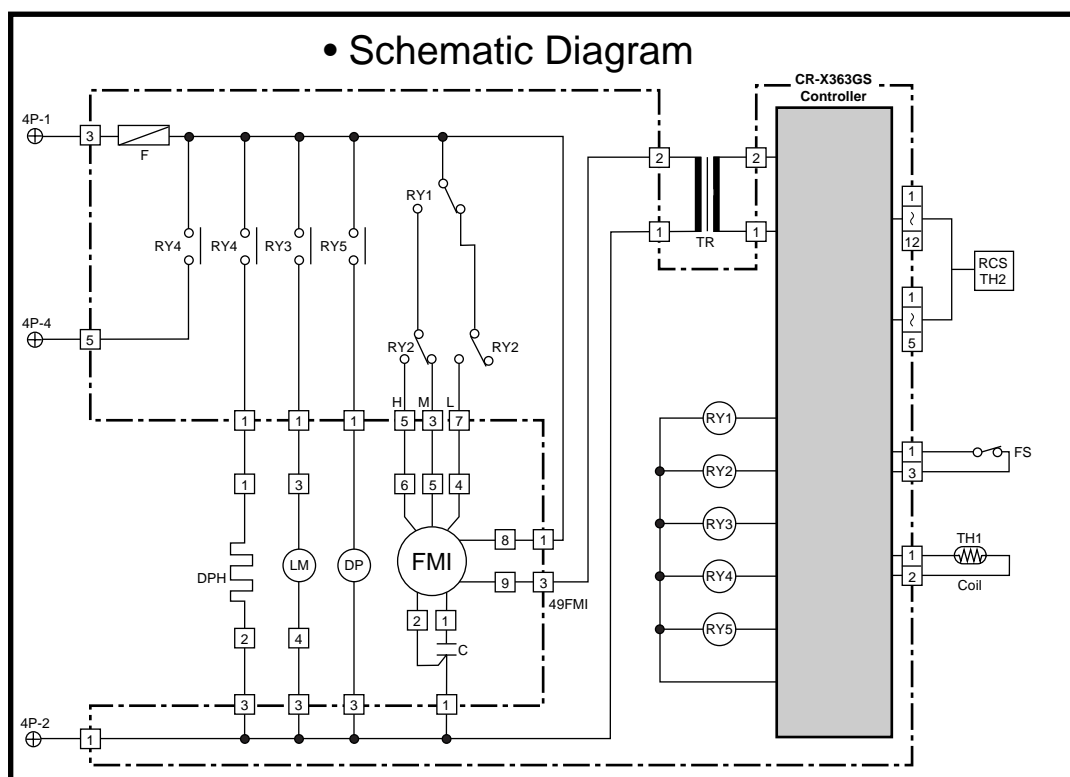
① SPW-X253G56, SPW-X363G56, SPW-X483G56

- Electric Wiring Diagram



3-1 Indoor Unit

① SPW-X253G56, SPW-X363G56, SPW-X483G56



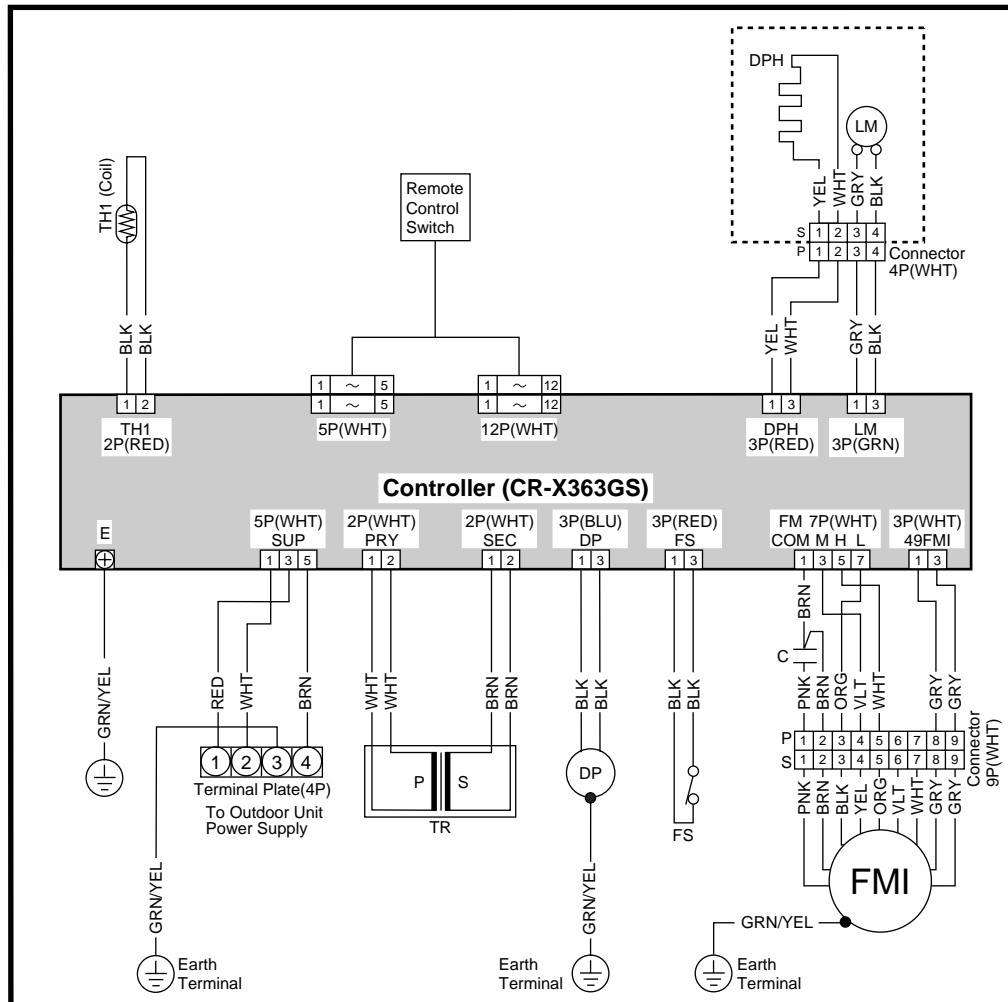
Symbols	Description	Symbols	Description
FMI	Indoor Fan Motor	CR-X363GS	Indoor Controller
49FMI	Indoor Motor Thermal Protector	RCS	Remote Control Switch
C	Capacitor	⊕	Terminal Plate
F	Fuse	□	Connector
DP	Drain Pump	⊕	Terminal
DPH	Dew Proof Heater		
LM	Auto Louver Motor		
TR	Power Transformer		
RY1-RY5	Auxiliary Relay		
FS	Float Switch		
TH1	Thermistor (Indoor Coil)		
TH2	Room Thermistor		

© 854-2-5268-493-00-2 (X253G56, X363G56, X483G56)

3-1 Indoor Unit

② SPW-X303G56

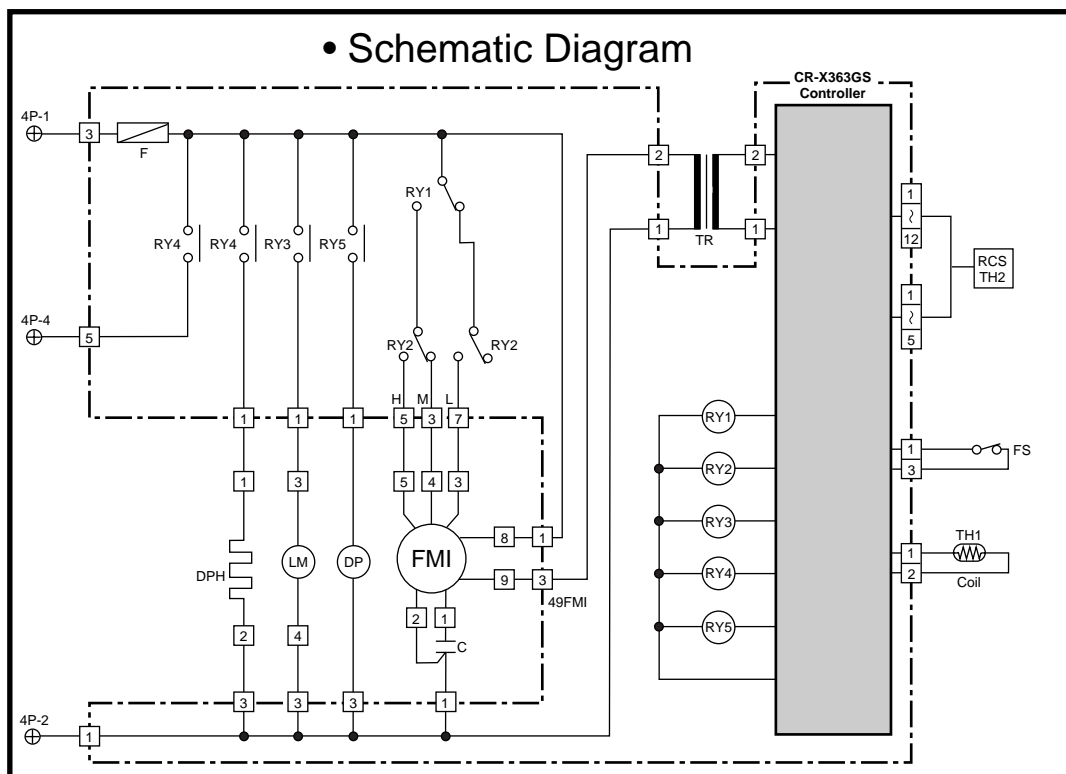
• Electric Wiring Diagram



⑈ 854-2-5268-494-00-2 (X303G56)

3-1 Indoor Unit

② SPW-X303G56



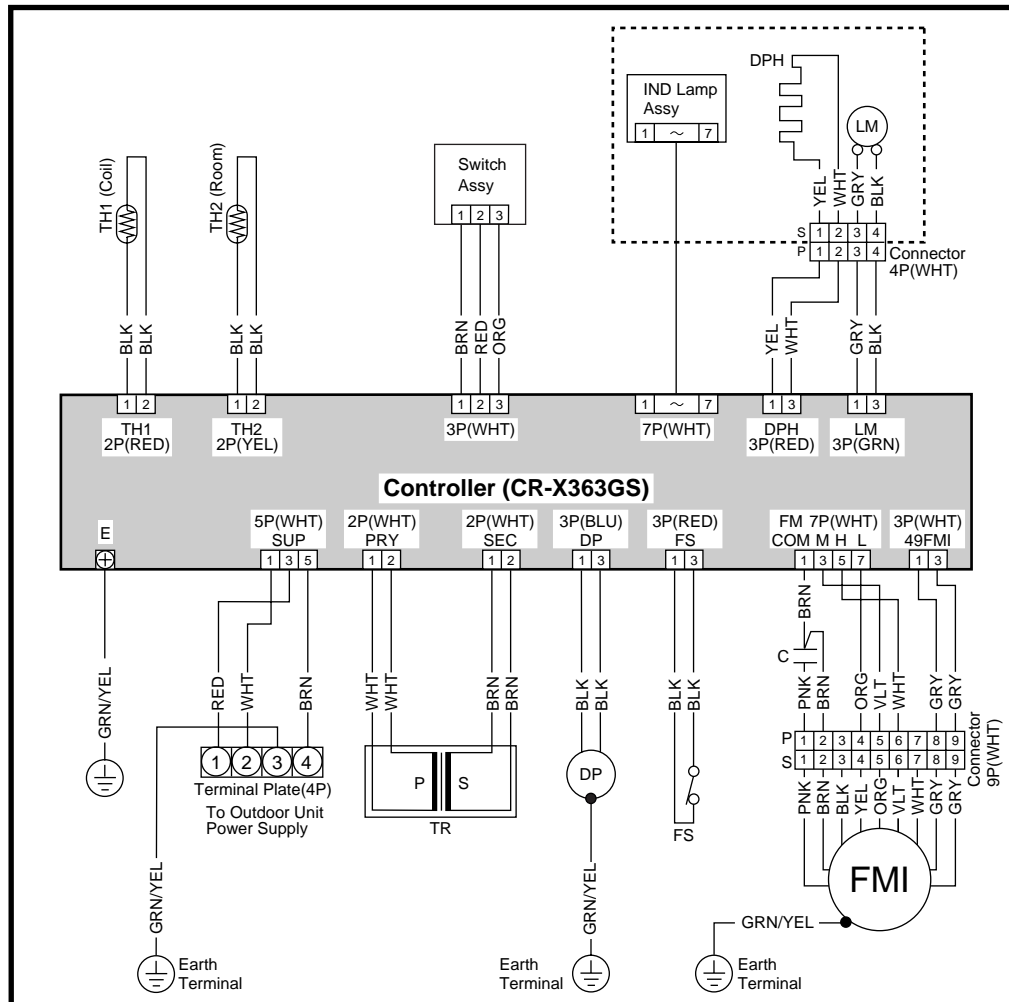
Symbols	Description	Symbols	Description
FMI	Indoor Fan Motor	CR-X363GS	Indoor Controller
49FMI	Indoor Motor Thermal Protector	RCS	Remote Control Switch
C	Capacitor	⊕	Terminal Plate
F	Fuse	□	Connector
DP	Drain Pump	⊕	Terminal
DPH	Dew Proof Heater		
LM	Auto Louver Motor		
TR	Power Transformer		
RY1-RY5	Auxiliary Relay		
FS	Float Switch		
TH1	Thermistor (Indoor Coil)		
TH2	Room Thermistor		

© 854-2-5268-494-00-2 (X303G56)

3-1 Indoor Unit

③ SPW-X253GS56, SPW-X363GS56, SPW-X483GS56

• Electric Wiring Diagram



Ⓜ 854-2-5268-495-00-2 (X253GS56, X363GS56, X483GS56)

3

3

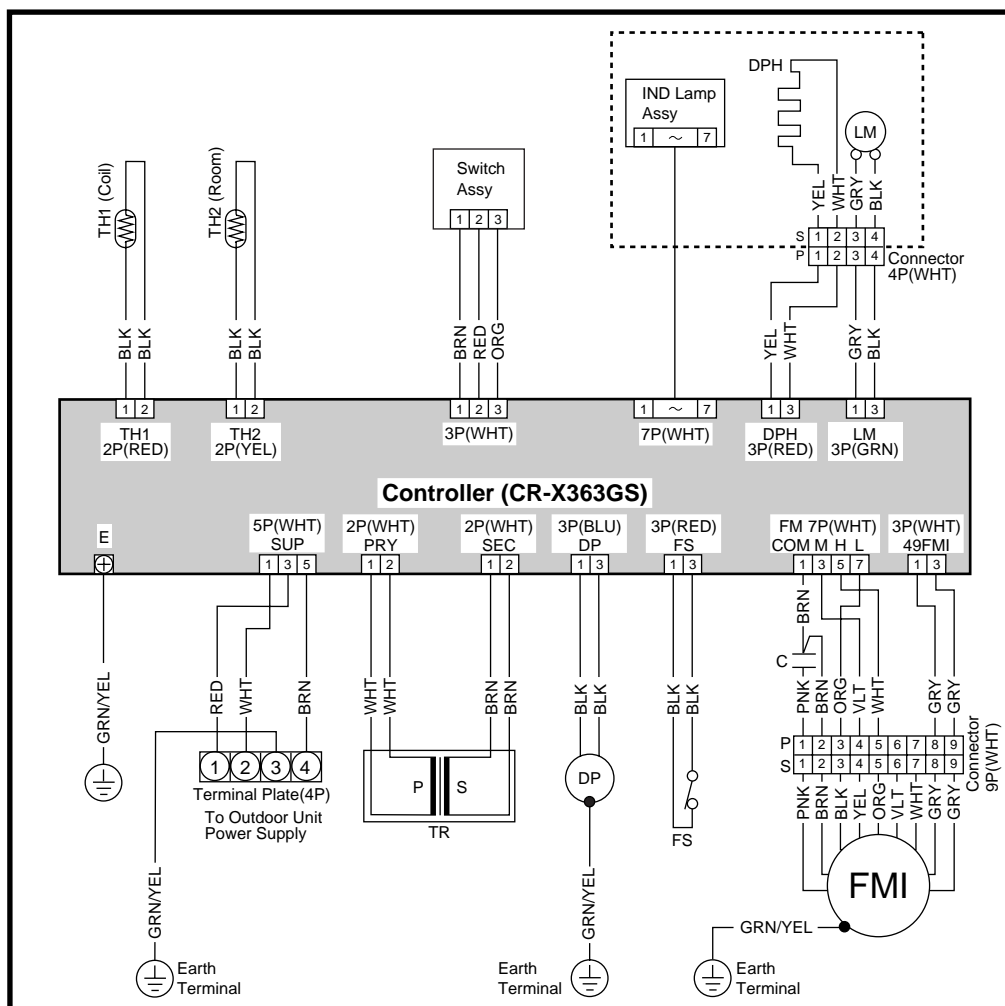
3

3

3-1 Indoor Unit

④ SPW-X303GS56

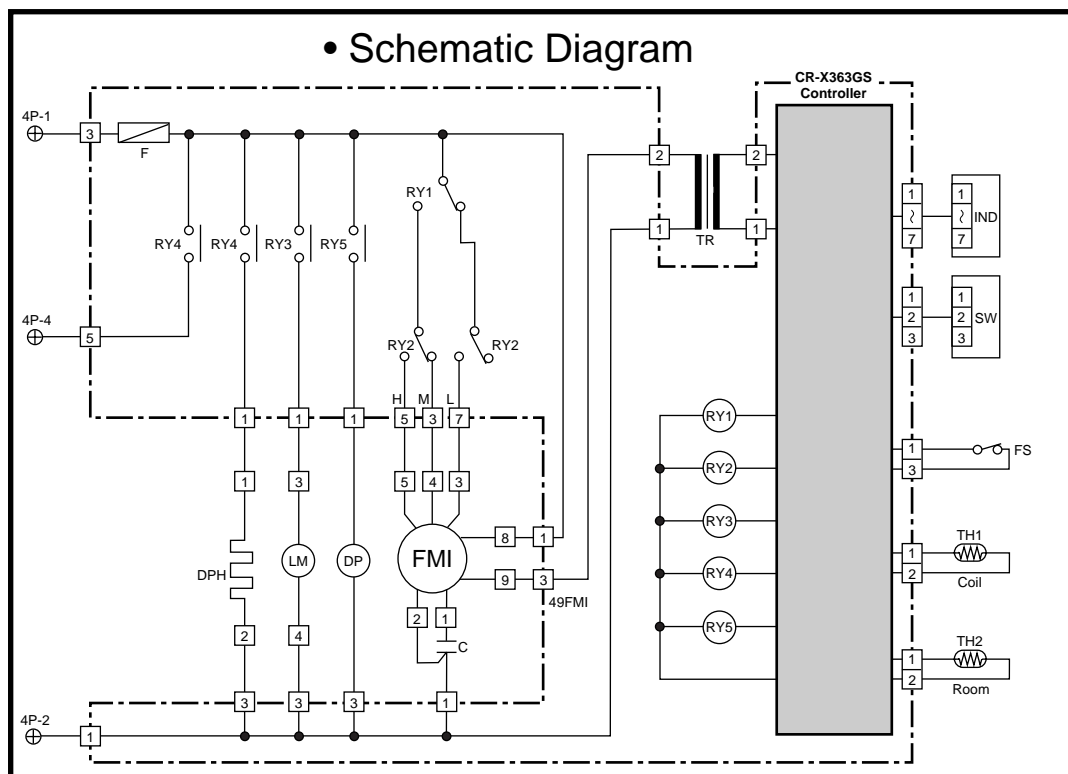
• Electric Wiring Diagram



⑧ 854-2-5268-496-00-2 (X303GS56)

3-1 Indoor Unit

④ SPW-X303GS56



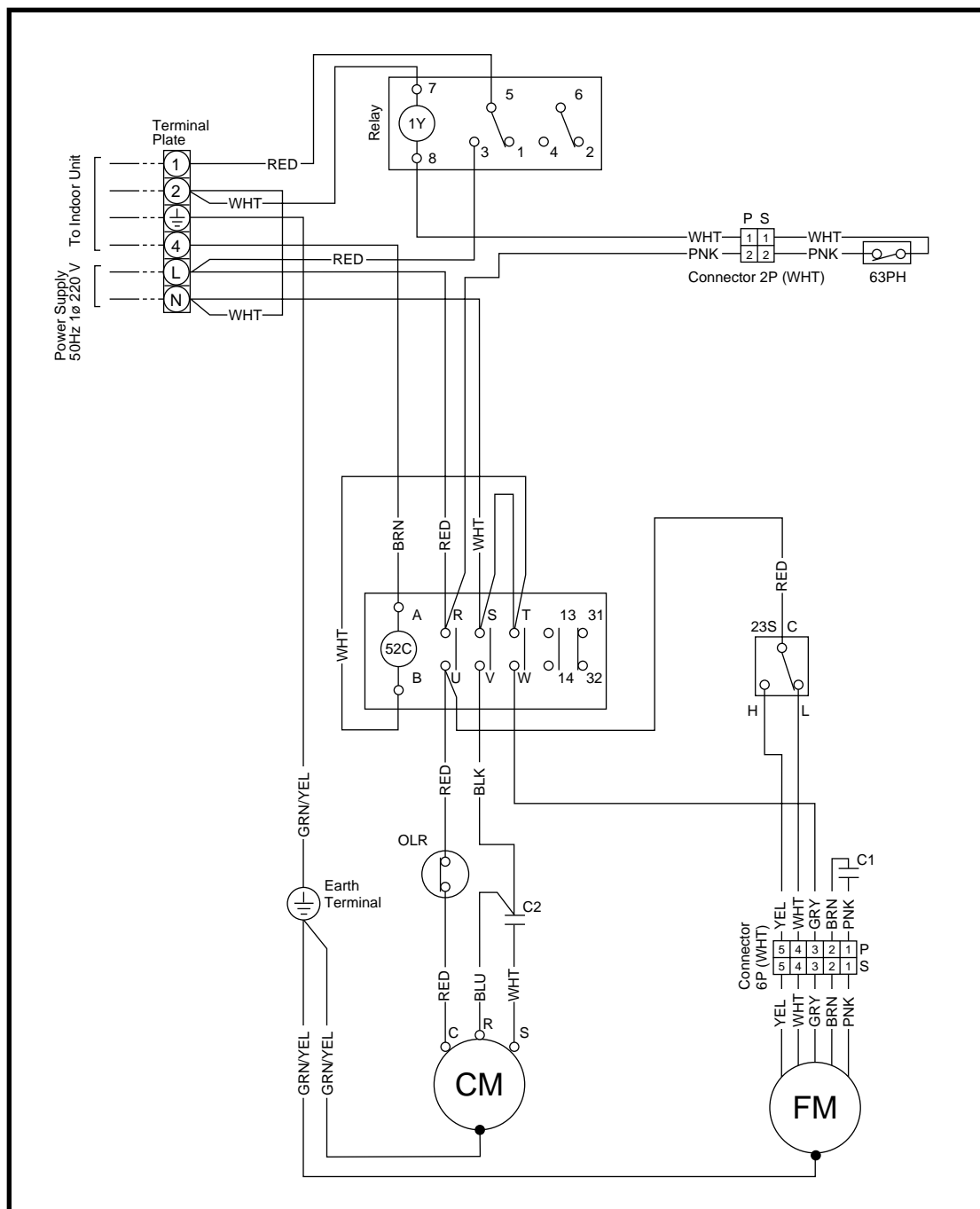
Symbols	Description	Symbols	Description
FMI	Indoor Fan Motor	CR-X363GS	Indoor Controller
49FMI	Indoor Motor Thermal Protector	IND	Indicator Lamp Assy
C	Capacitor	SW	Switch Assy
F	Fuse	⊕	Terminal Plate
DP	Drain Pump	□	Connector
DPH	Dew Proof Heater	⊕	Terminal
LM	Auto Louver Motor		
TR	Power Transformer		
RY1-RY5	Auxiliary Relay		
FS	Float Switch		
TH1	Thermistor (Indoor Coil)		
TH2	Room Thermistor		

© 854-2-5268-496-00-2 (X303GS56)

3-2 Outdoor Unit

① SPW-C253G5
SPW-C253G5/M



• Electric Wiring Diagram



⑈ 854-2-5268-461-00-1 (C253G5)

① **SPW-C253G5**
SPW-C253G5/M

[illegible]

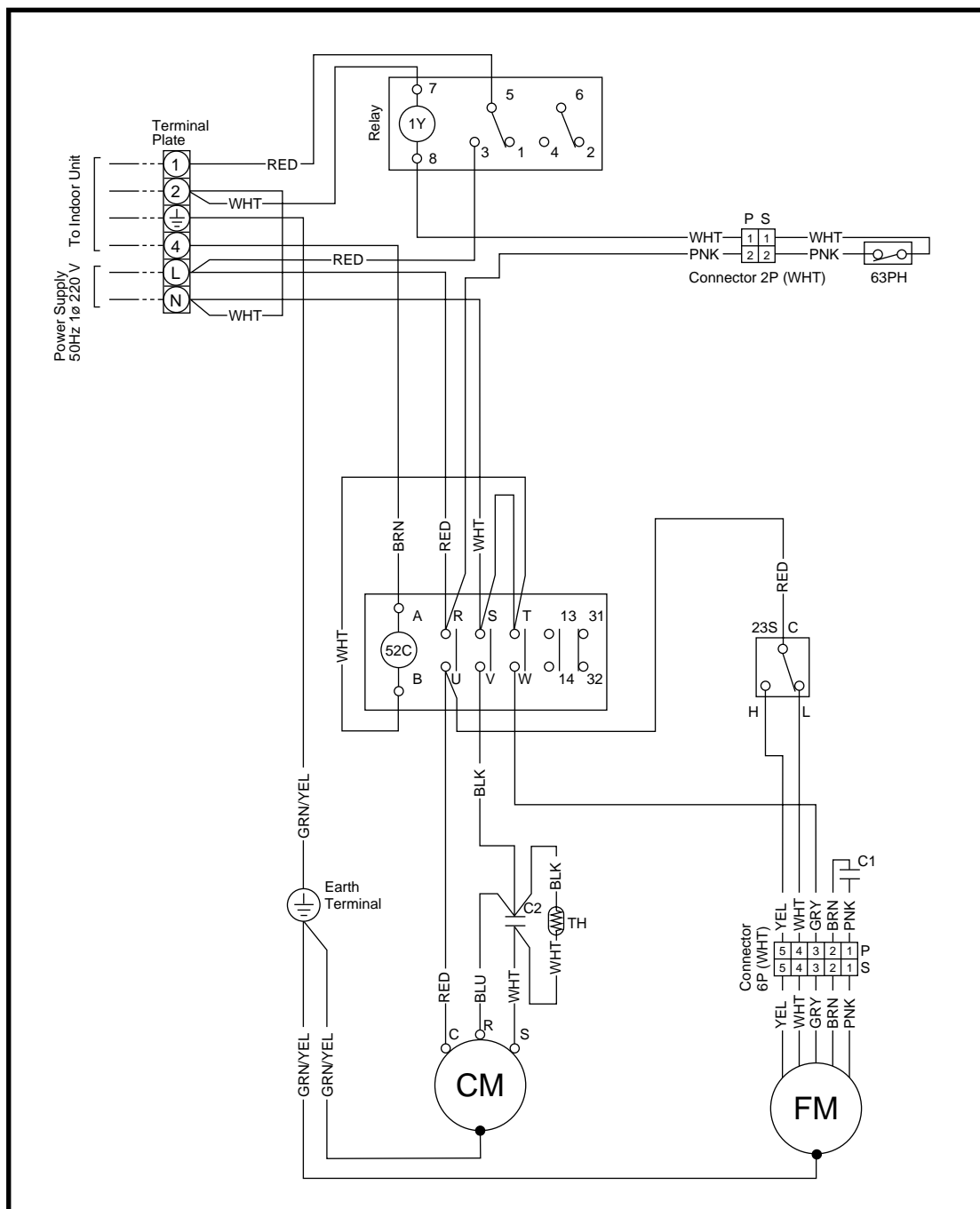
Symbols	Description
CM	Compressor motor
FM	Fan Motor
52C	Compressor Motor Magnetic Contactor
63PH	High Pressure Switch
23S	Fan Speedcontrol Thermostat
C1, 2	Capacitor
OLR	Overload relay
1Y	Auxiliary Relay
	Connector
	Terminal Plate

⑤ 854-2-5268-461-00-1 (C253G5)

3-2 Outdoor Unit

② SPW-C303G5
SPW-C303G5/M

• Electric Wiring Diagram





Ⓓ 854-2-5268-462-00-1 (C303G5)

② **SPW-C303G5**
SPW-C303G5/M

• Schematic Diagram

The schematic diagram illustrates a power distribution system. The main supply line is connected to terminals L and N. A branch leads to a control panel with a switch (52C) and a thermal switch (TH) connected to a capacitor (C2). Another branch leads to a motor (CM) with terminals S, R, IV, and U. A third branch leads to a motor (FM) with terminals C, L, H, and O, and a capacitor (C1) connected to terminals 1, 2, and 3. A fourth branch leads to a switch (23S) connected to a switch (52C) and a switch (63PH). The system is grounded at the bottom terminal T.

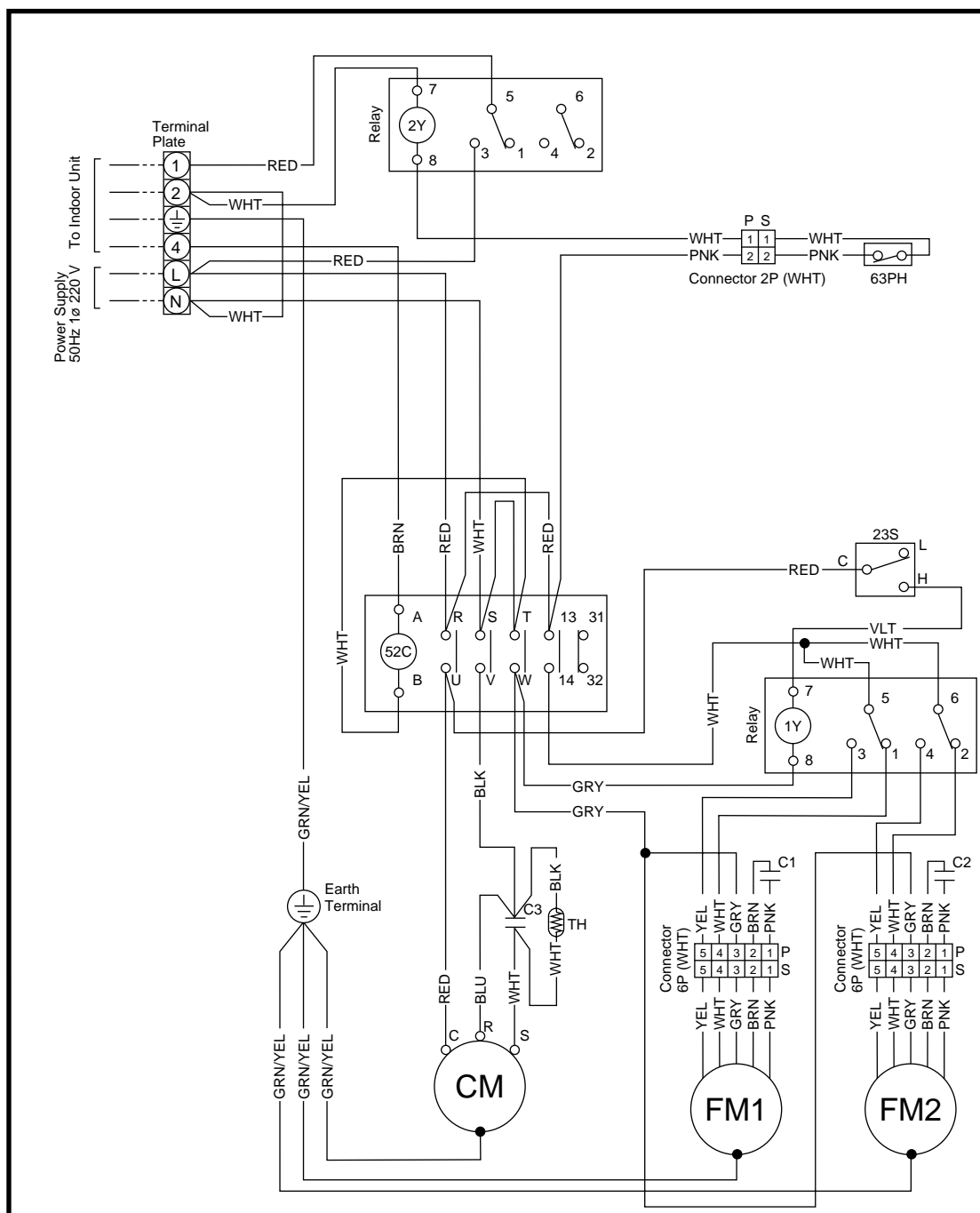
Symbols	Description
CM	Compressor motor
FM	Fan Motor
52C	Compressor Motor Magnetic Contactor
63PH	High Pressure Switch
23S	Fan Speedcontrol Thermostat
C1, 2	Capacitor
TH	Thermistor
1Y	Auxiliary Relay
	Connector
	Terminal Plate

3

3-2 Outdoor Unit

③ SPW-C363G5 SPW-C363G5/M

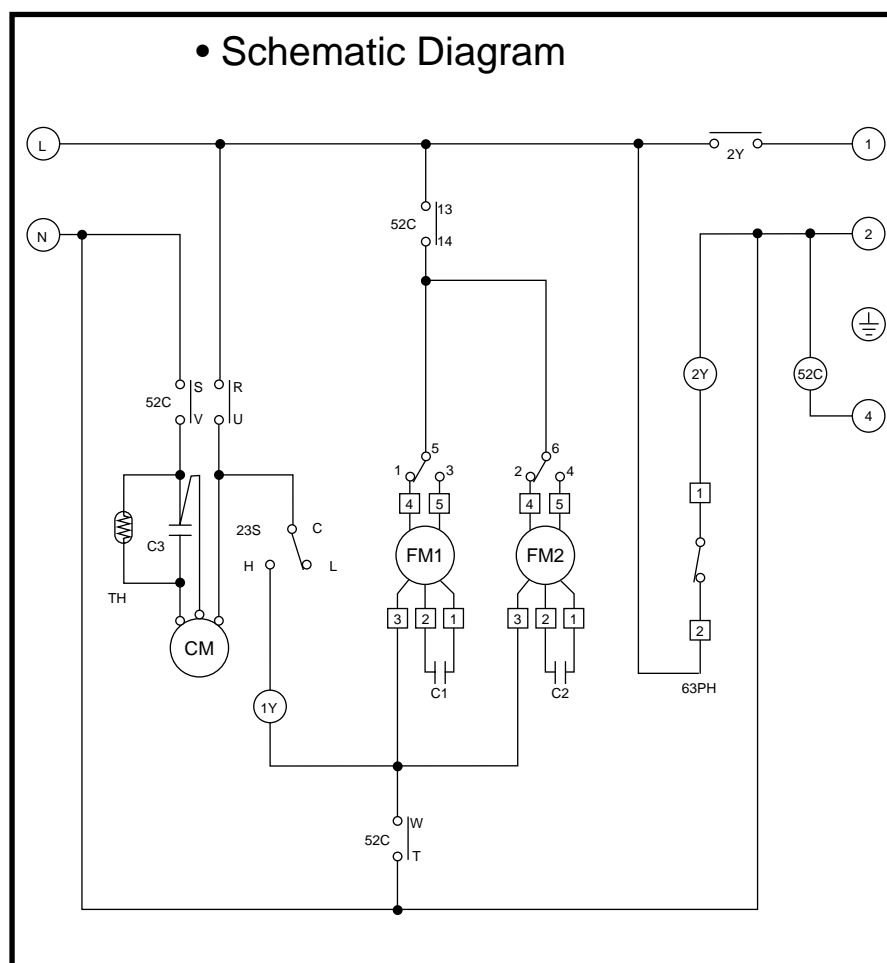
• Electric Wiring Diagram



⑈ 854-2-5268-463-00-2 (C363G5)

3-2 Outdoor Unit

③ SPW-C363G5 SPW-C363G5/M



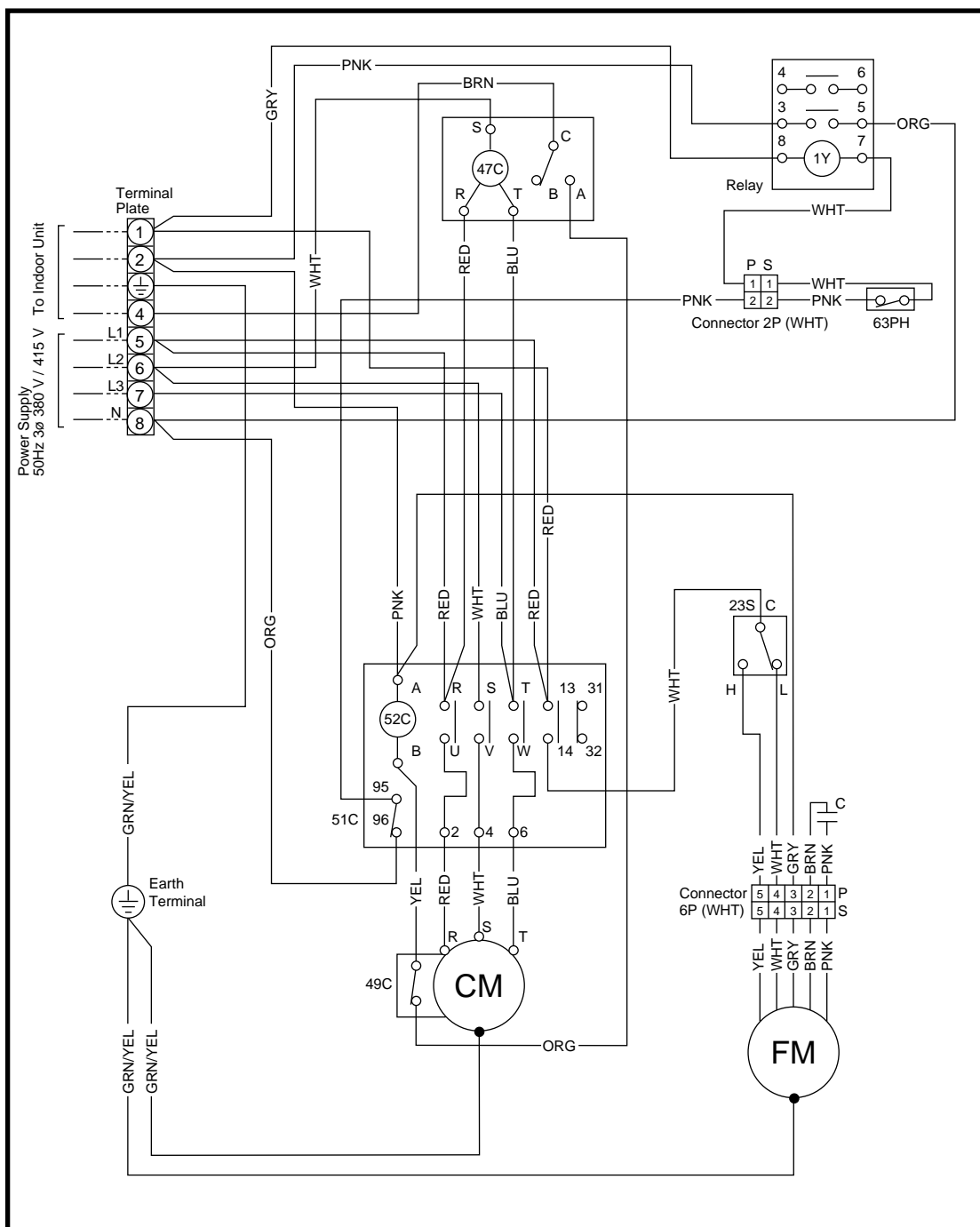
Symbols	Description
CM	Compressor motor
FM1, 2	Fan Motor
52C	Compressor Motor Magnetic Contactor
63PH	High Pressure Switch
23S	Fan Speedcontrol Thermostat
C1, 2, 3	Capacitor
TH	Thermistor
1Y, 2Y	Auxiliary Relay
□	Connector
○	Terminal Plate

© 854-2-5268-463-00-2 (C363G5)

3-2 Outdoor Unit

④ SPW-C253G8
SPW-C253G8/M

• Electric Wiring Diagram

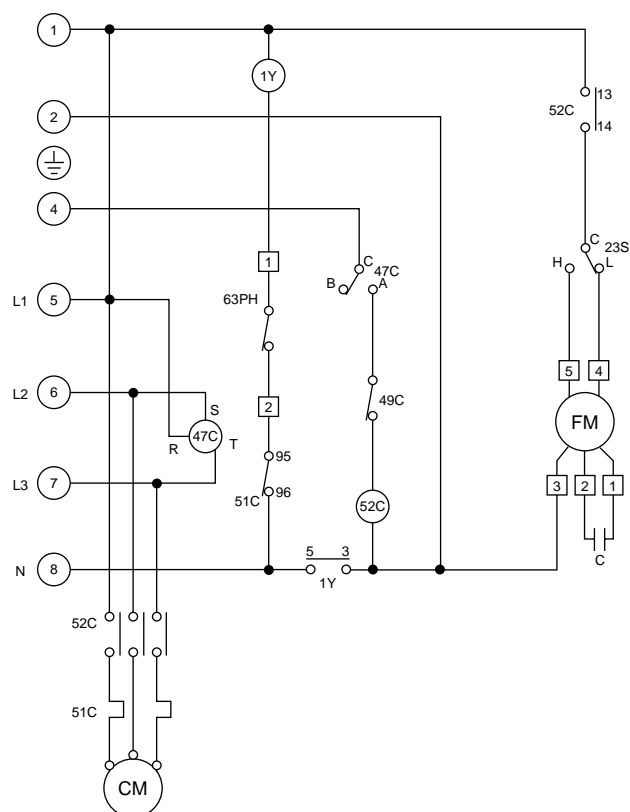


⑈ 854-2-5268-458-00-0 (C253G8)

3-2 Outdoor Unit

④ SPW-C253G8 SPW-C253G8/M

• Schematic Diagram

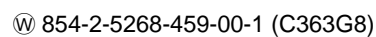


Symbols	Description
CM	Compressor motor
FM	Fan Motor
52C	Compressor Motor Magnetic Contactor
51C	Compressor Motor Overcurrent Relay
49C	Compressor Motor Thermal Protector
47C	Negative Phase Relay
63PH	High Pressure Switch
23S	Fan Speedcontrol Thermostat
C	Capacitor
1Y	Auxiliary Relay
□	Connector
○	Terminal Plate

© 854-2-5268-458-00-0 (C253G8)

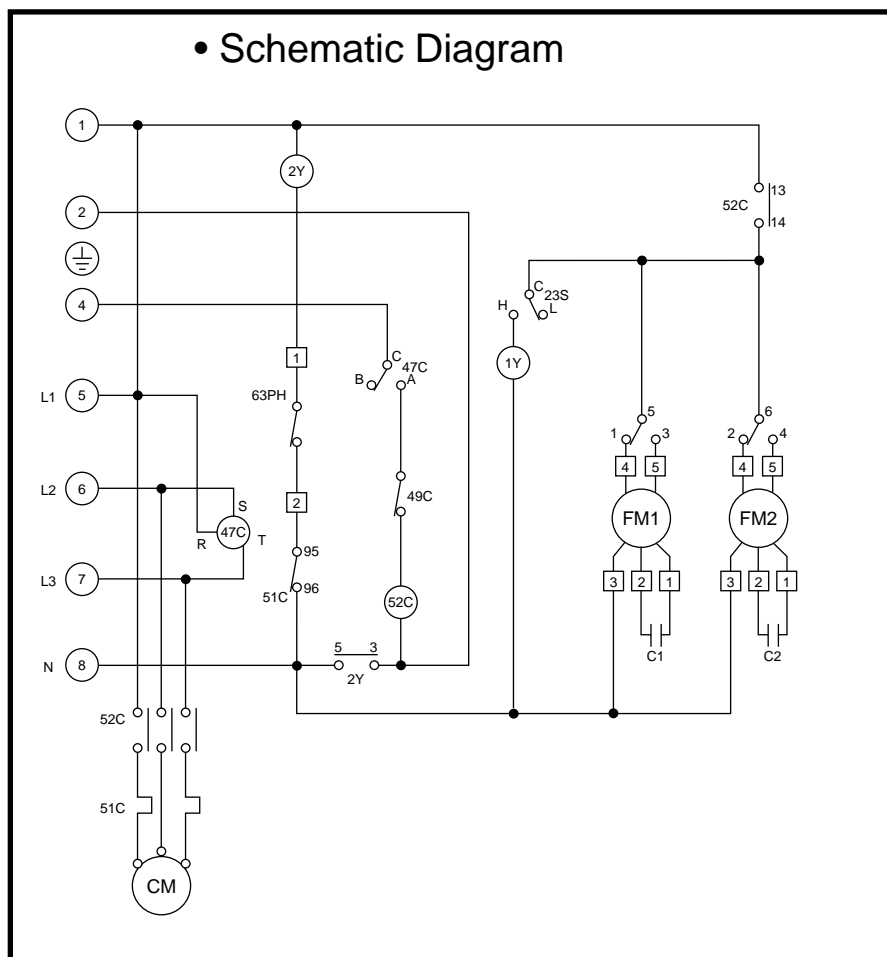
⑤ **SPW-C363G8**
SPW-C363G8/M

- Electric Wiring Diagram



3-2 Outdoor Unit

⑤ SPW-C363G8 SPW-C363G8/M



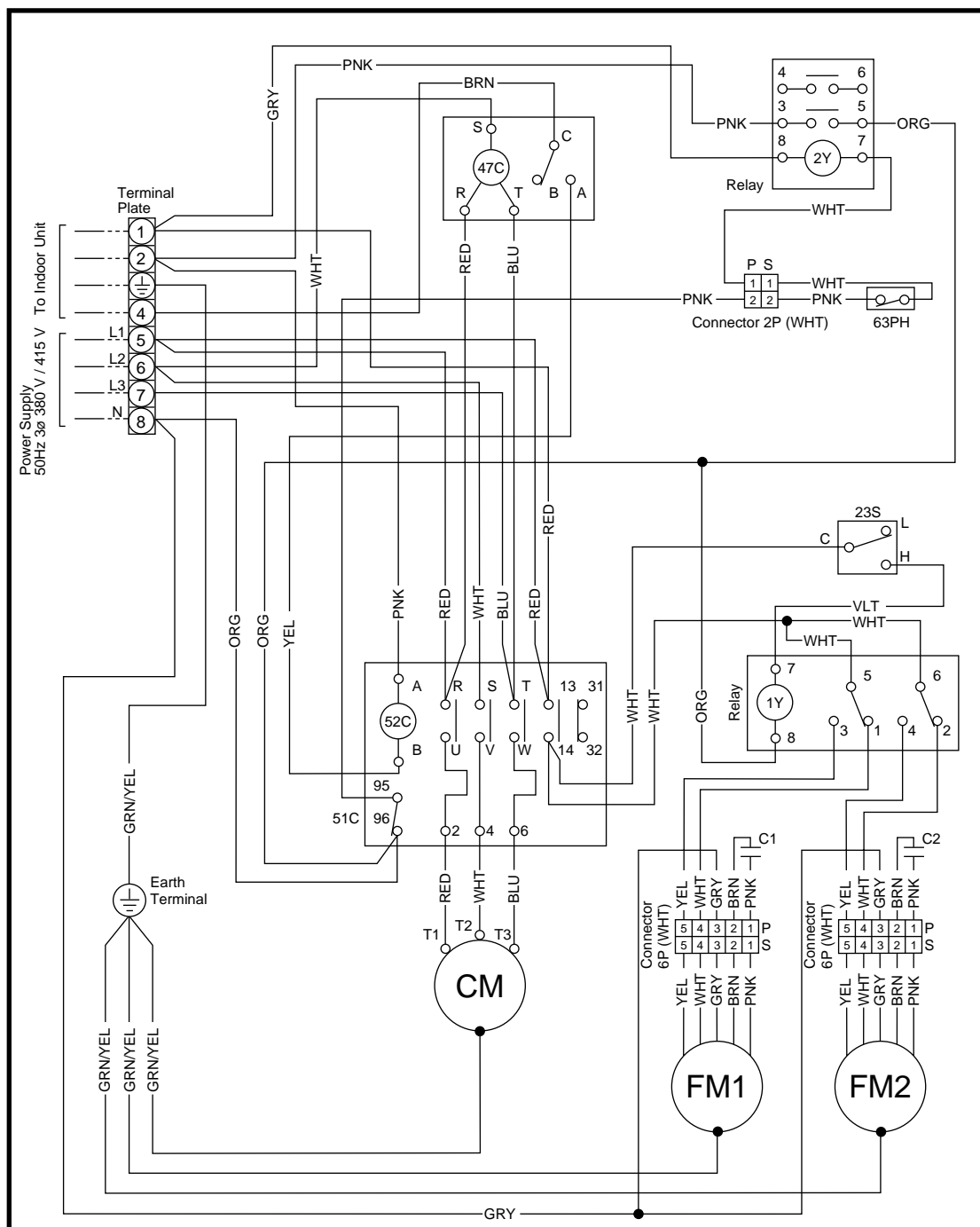
Symbols	Description
CM	Compressor motor
FM1, 2	Fan Motor
52C	Compressor Motor Magnetic Contactor
51C	Compressor Motor Overcurrent Relay
49C	Compressor Motor Thermal Protector
47C	Negative Phase Relay
63PH	High Pressure Switch
23S	Fan Speedcontrol Thermostat
C1, 2	Capacitor
1Y, 2Y	Auxiliary Relay
□	Connector
○	Terminal Plate

© 854-2-5268-459-00-1 (C363G8)

3-2 Outdoor Unit

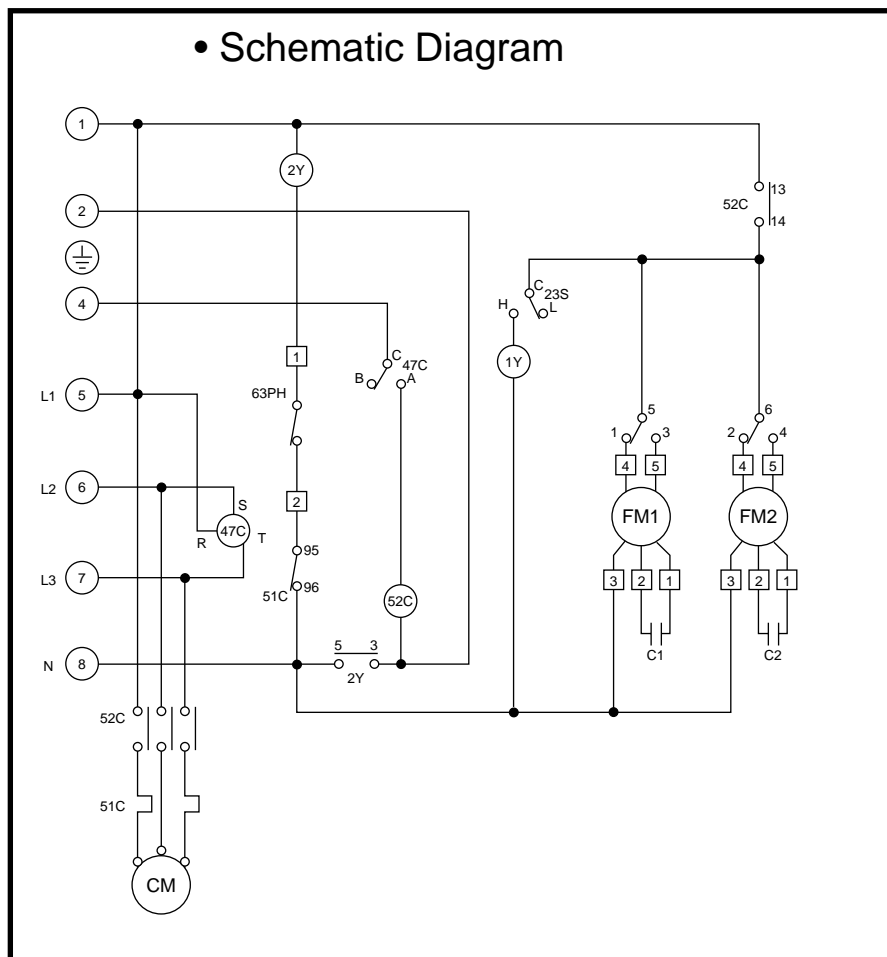
⑥ SPW-C483G8
SPW-C483G8/M

• Electric Wiring Diagram



⑈ 854-2-5268-460-00-1 (C483G8)

3-2 Outdoor Unit

⑥ SPW-C483G8
SPW-C483G8/M

Symbols	Description
CM	Compressor motor
FM1, 2	Fan Motor
52C	Compressor Motor Magnetic Contactor
51C	Compressor Motor Overcurrent Relay
47C	Negative Phase Relay
63PH	High Pressure Switch
23S	Fan Speedcontrol Thermostat
C1, 2	Capacitor
1Y, 2Y	Auxiliary Relay
□	Connector
○	Terminal Plate

© 854-2-5268-460-00-1 (C483G8)

4. SERVICE PROCEDURES

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4-1 Troubleshooting

(1) Check before and after Troubleshooting

Many problems may happen because of wiring or power supply problems, so you should check these areas first. Problems here can cause false results in some of the other tests, and so should be corrected first.

①. Check power supply wiring

(a) Single-phase

- ☐ Check that power supply wires are correctly connected to terminal No. 1 through No. 4 on the 4P terminal plate in the indoor unit and L and N on the 6P terminal in the outdoor unit.

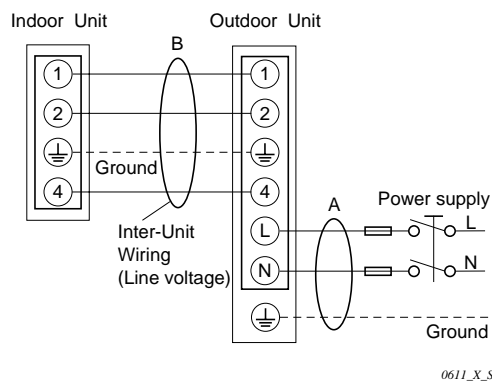
(b) 3-phase

- ☐ Check that power supply wires are correctly connected to terminal No. 1 through No. 4 on the 4P terminal plate in the indoor unit and L1 through L3 and N on the 8P terminal in the outdoor unit.

②. Check inter-unit wiring

- ☐ Check that inter-unit control wiring (AC 220 - 240 V Line voltage) is correctly connected between the indoor unit and outdoor unit.

Single-phase outdoor unit



3-phase outdoor unit

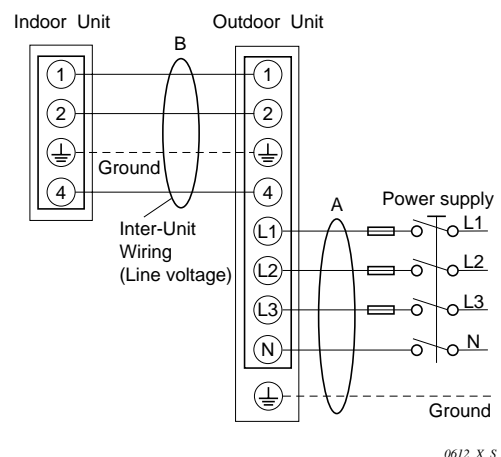


Fig. 16

③. Check power supply

- ☐ Check that voltage is within the specified range ($\pm 10\%$ of the rating).
- ☐ Check that power is being supplied.



WARNING

If the following troubleshooting must be done with power being supplied, be careful not to touch any uninsulated live part that can cause ELECTRIC SHOCK.

④. Check the lead wires and connectors in indoor and outdoor units.

- ☐ Check that the sheath of lead wires is not damaged.
- ☐ Check that the lead wires are firmly connected at the terminal plate.
- ☐ Check that the wiring is correct.

⑤ Reference

- Condition of general cooling operation (Thermo. ON)
SWEEP.....ON
Indoor fan speed....HIGH

(2) Air conditioner does not operate

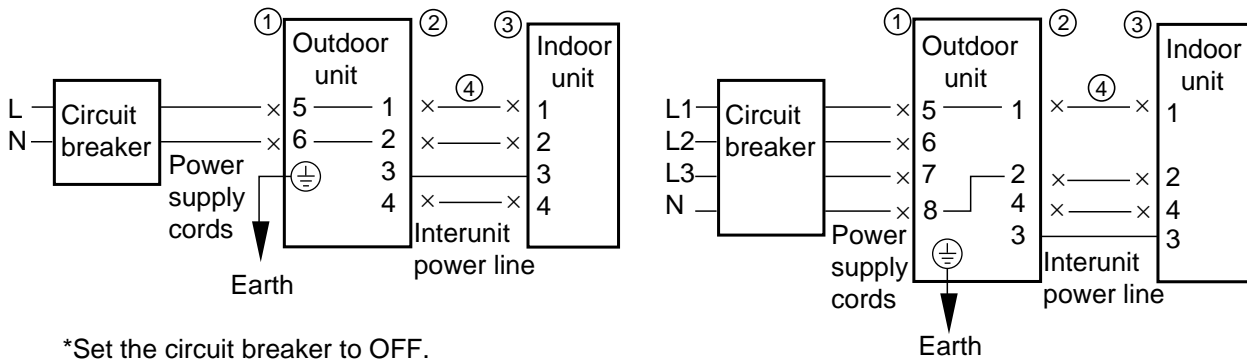
① Circuit breaker trips (or fuse blows).

(a) When the circuit breaker is set to ON, it is tripped soon.

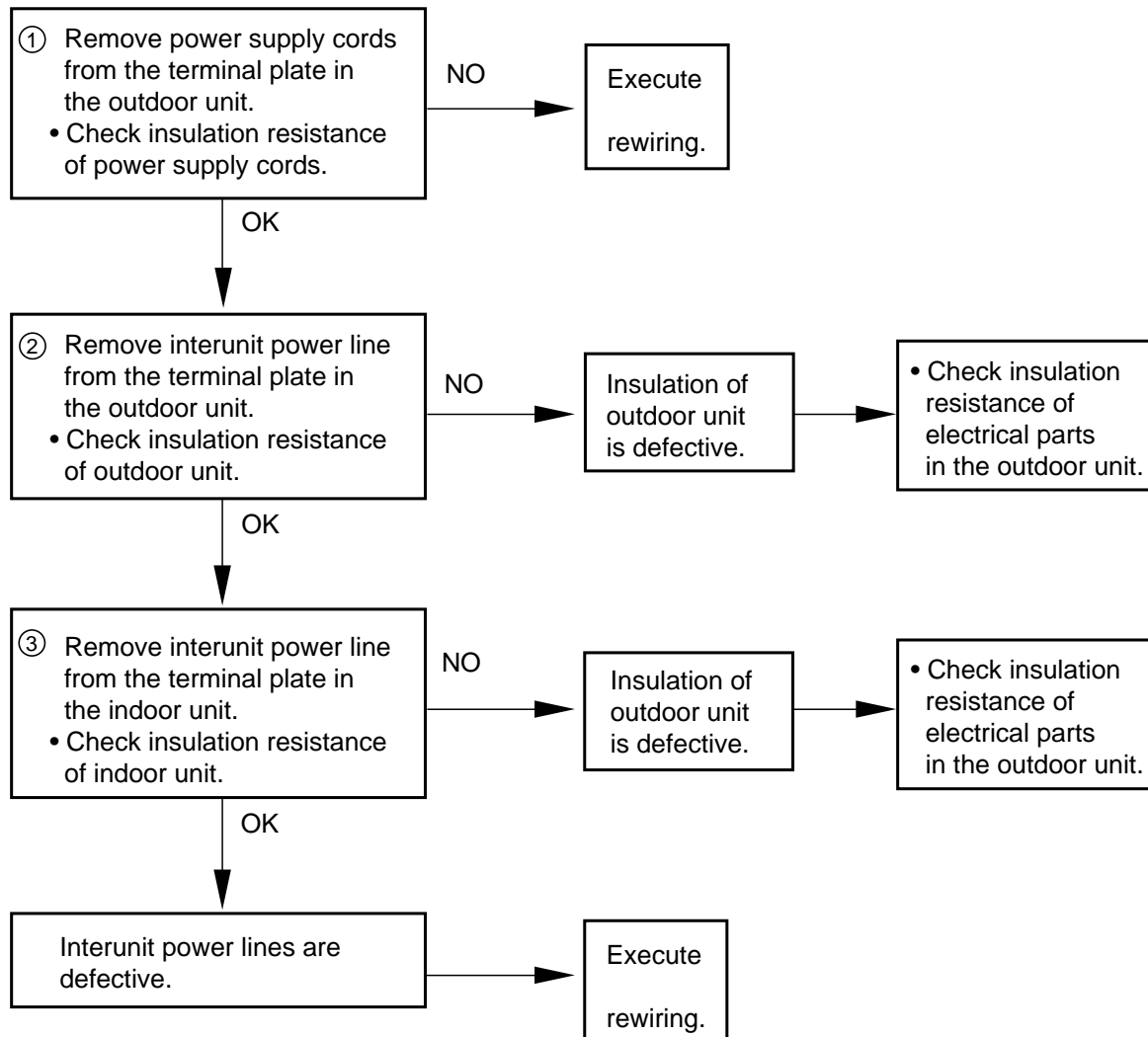
- There is a possibility of ground fault.
- Check insulation resistance.

If resistance value is 1MΩ or less, it is a defect of insulation.

(Example)

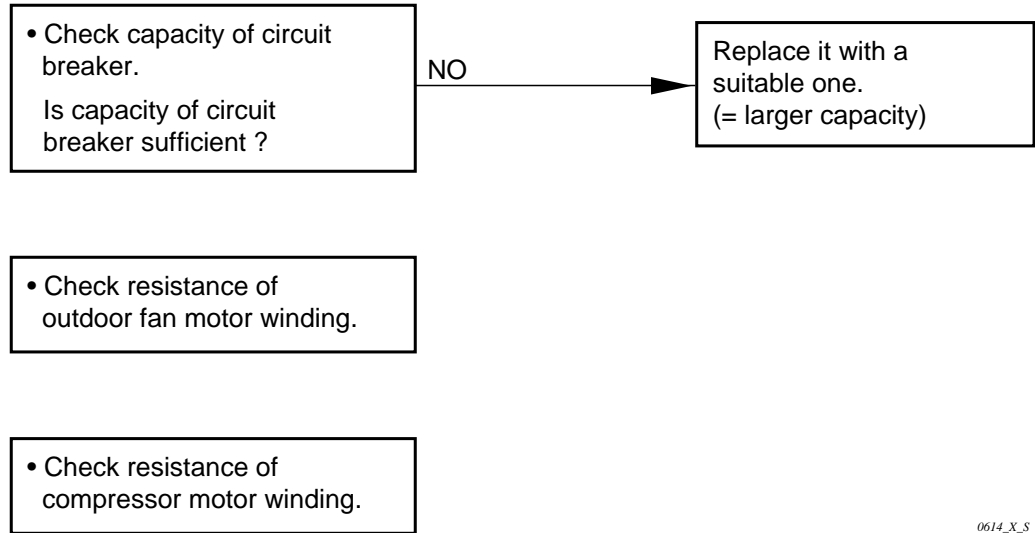


*Set the circuit breaker to OFF.



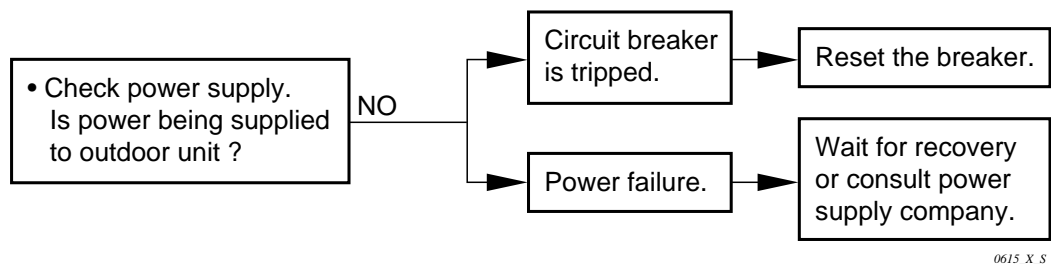
(b) Circuit breaker trips in several minutes after turning the air conditioner on.

- There is a possibility of short circuit.

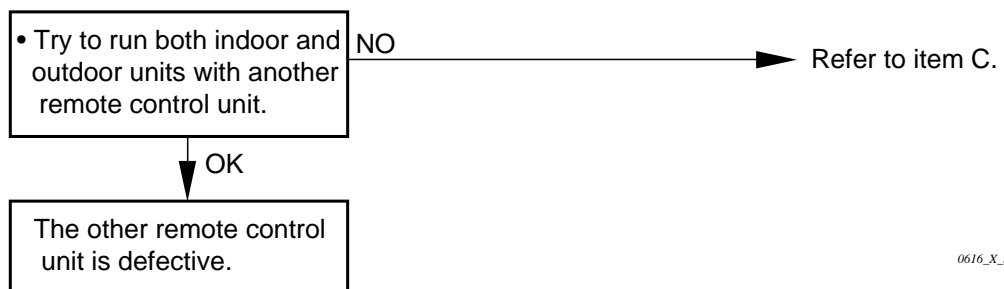


② Neither indoor unit nor outdoor unit runs.

A. Power is not supplied

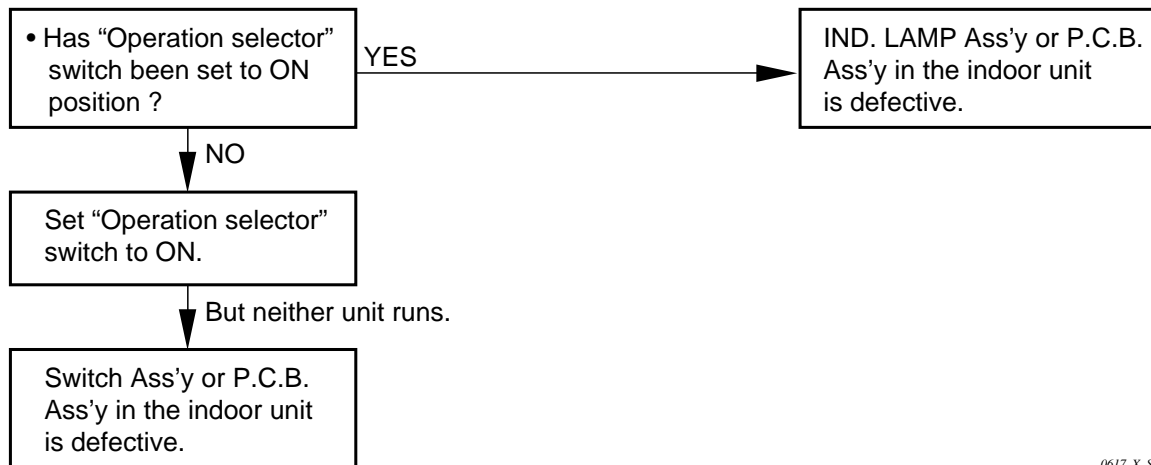


B. Check remote control unit.



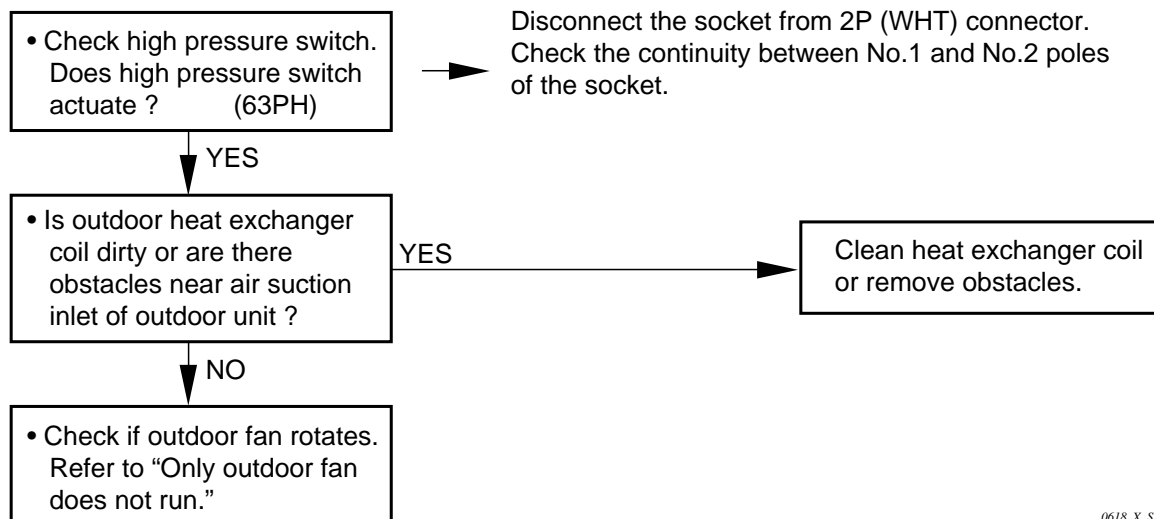
C. Check "Operation selector" switch in the indoor unit.

: In case of wireless remote control unit (GS type)

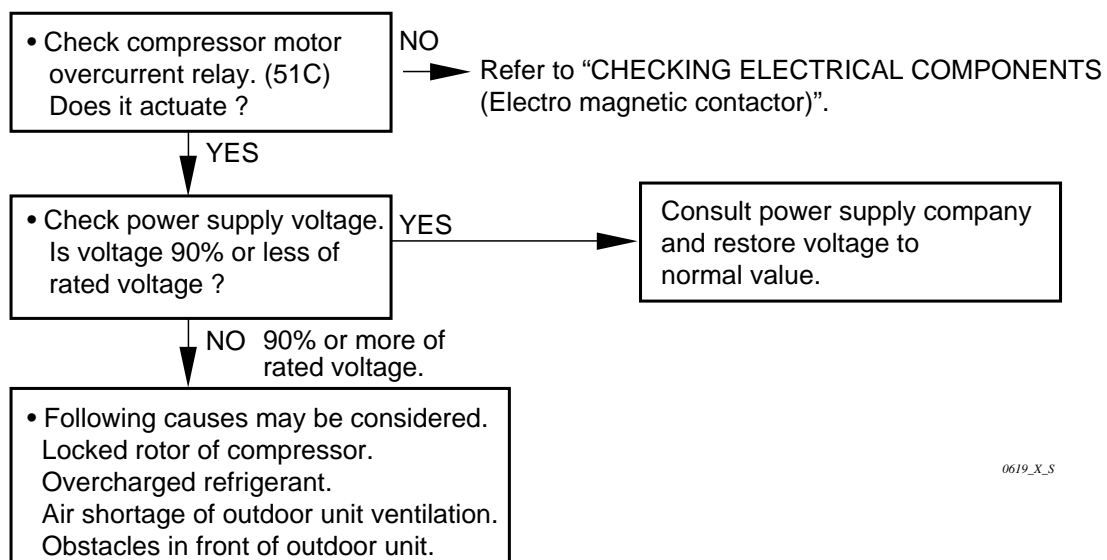


D. Check compressor motor protectors.

a) High pressure switch (63PH)



b) Compressor motor overcurrent relay (51C)



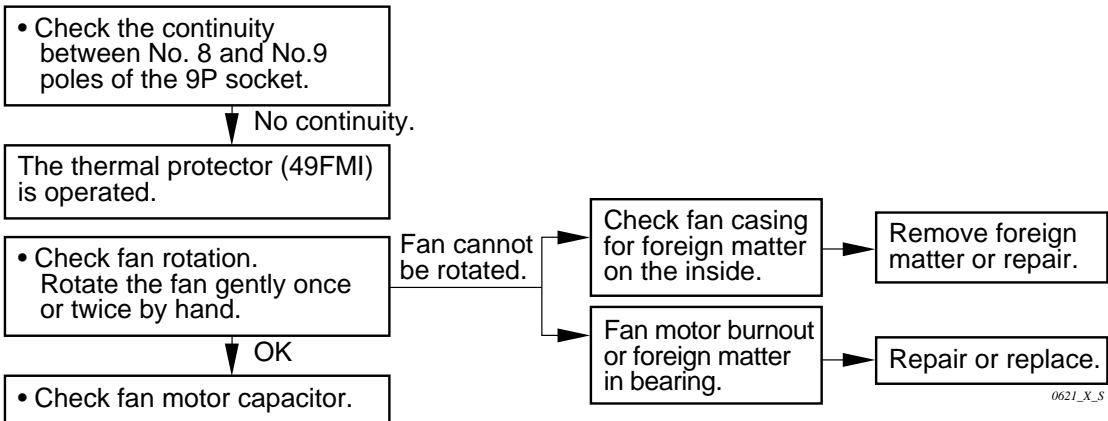
E. Check. auxiliary relay. (1Y or 2Y)

- Check coil resistance of auxiliary relay.
(1Y or 2Y)

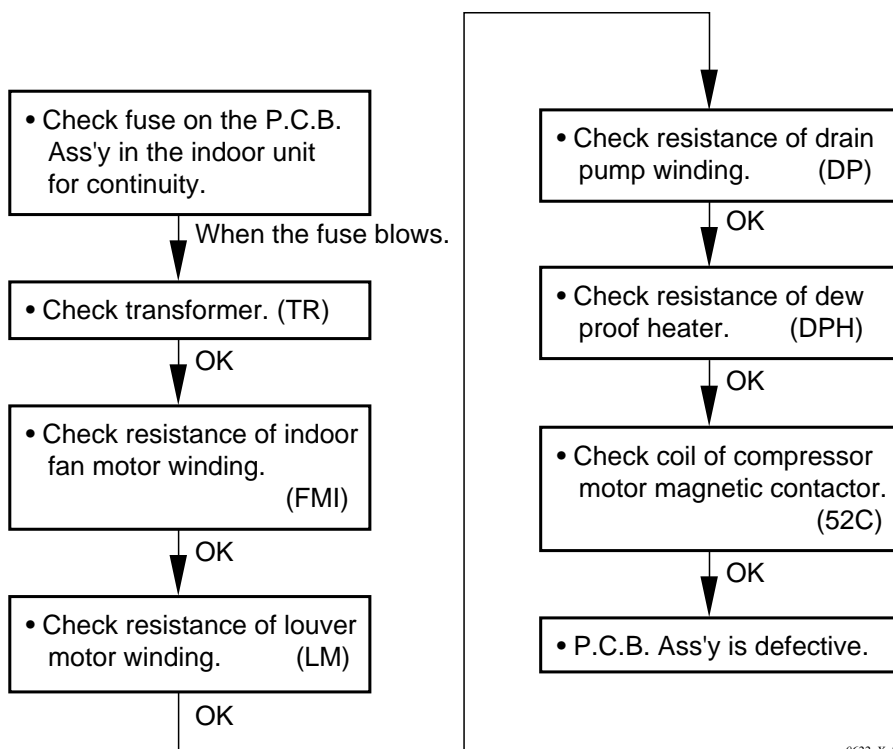
0620_X_S

F. Check indoor fan motor thermal protector (49FMI)

- Disconnect the socket from 9P (WHT) connector.



G. Check fuse on the P.C.B. Ass'y in the indoor unit.

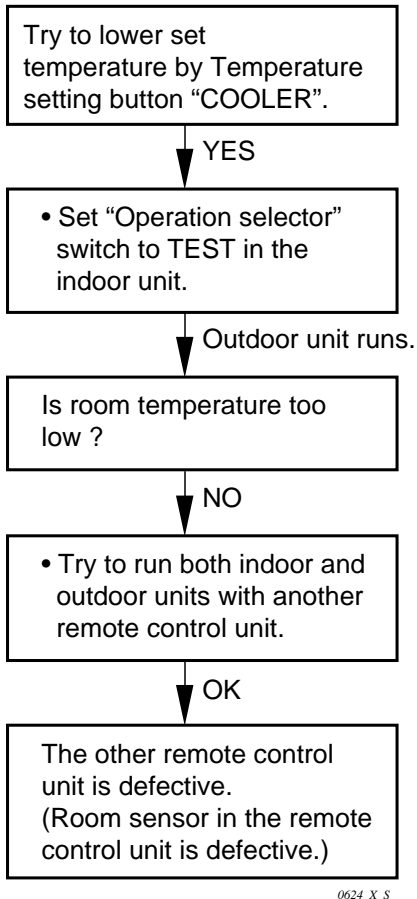


(3) Outdoor unit does not run.

A. Check COOL/FAN selector switch in the remote control unit.

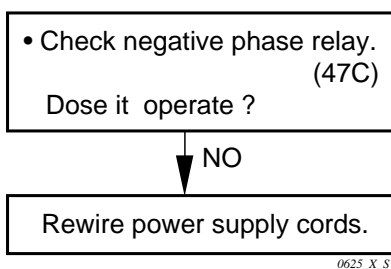


B. Check set temperature.

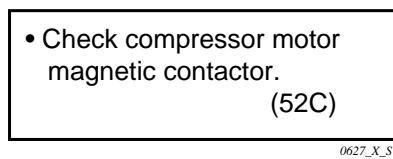
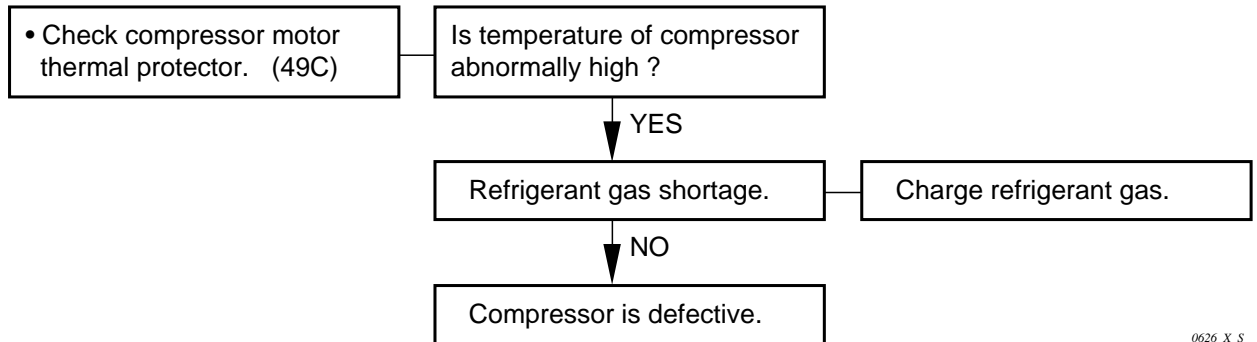


C. Outdoor unit is abnormal.

a) Check power supply wiring

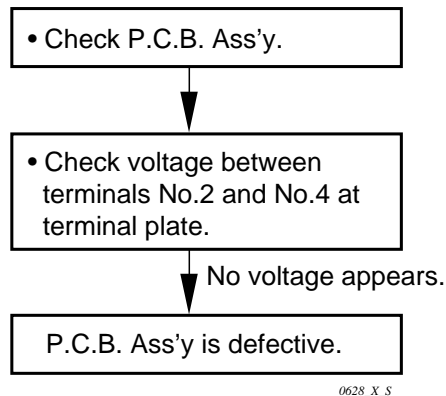


b) Check compressor motor thermal protector (49C)



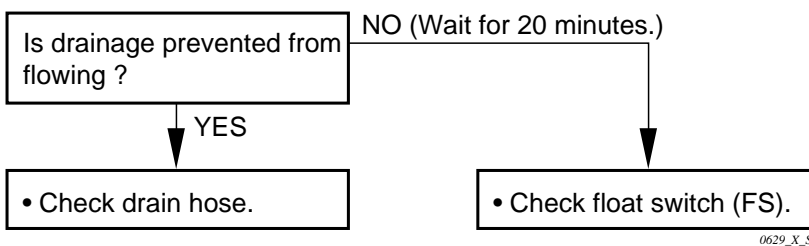
(Only outdoor fan does not run.)

D. Check indoor unit P.C.B.



E. Check float switch.

- Refer to “2-3 Drain Pump Control”



(4) Indoor unit does not run.

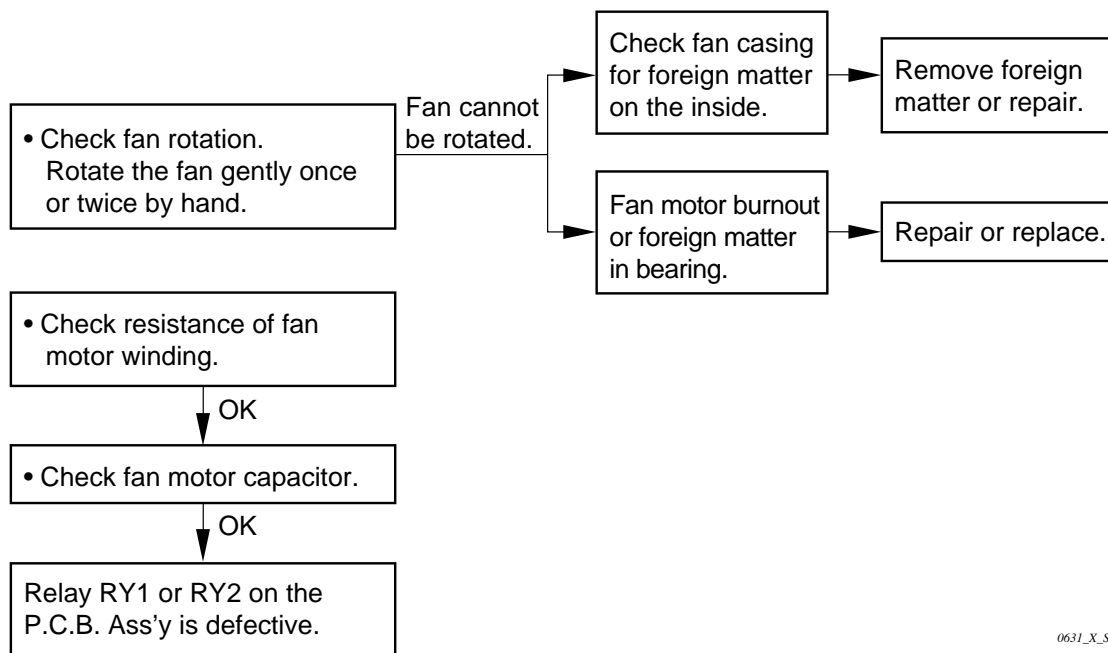
(Indoor fan and louver motor do not run.)

P.C.B. Ass'y is defective.

0630_X_S

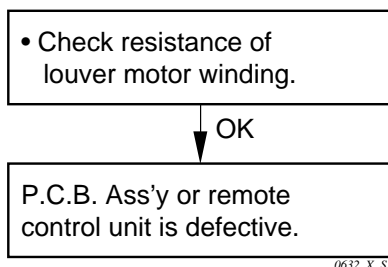
(5) Some part does not operate.

(1) Indoor fan does not run.



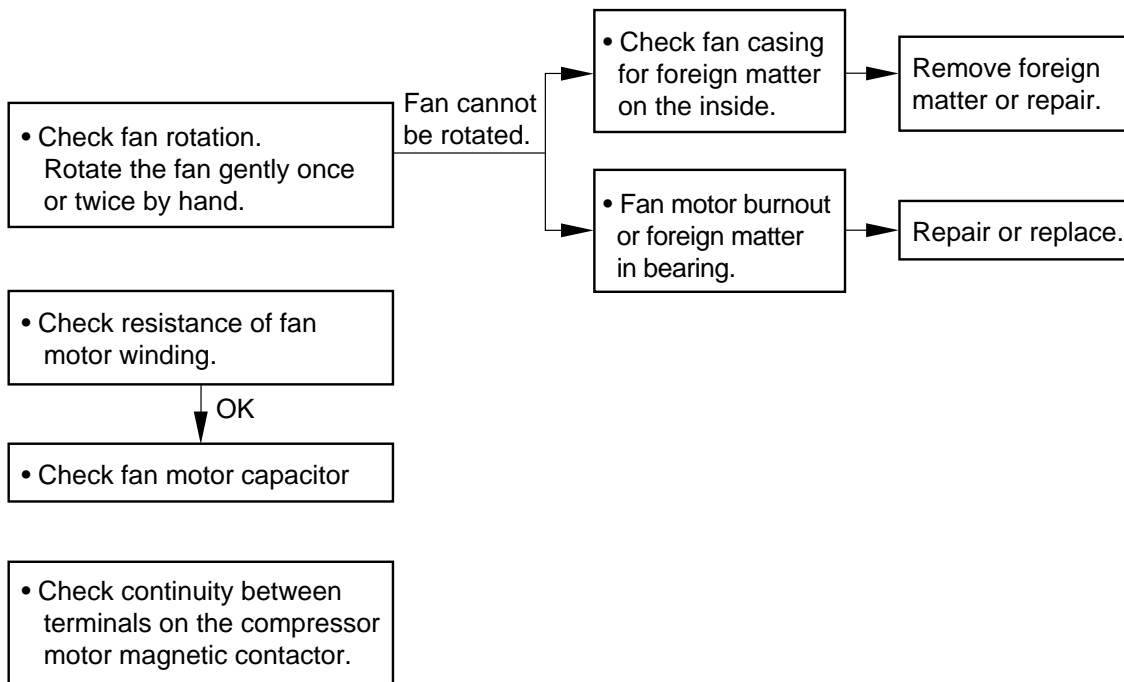
0631_X_S

(2) Louver motor does not run.



0632_X_S

(6) Outdoor fan does not run.



0633_X_S

(7) Outdoor fan speed is not switched from High to Low even when the outdoor temperature falls below 25.5°C.

- Check the thermostat (23S).

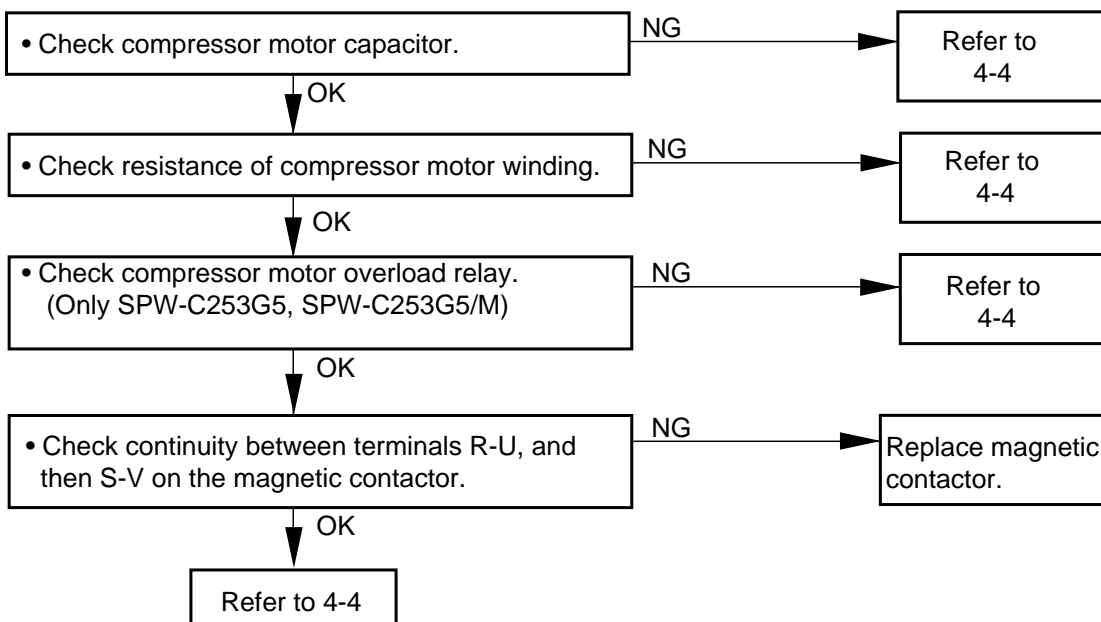
SPW-C363G8, SPW-C363G8/M and SPW-C483G8, SPW-C483G8/M

- Check coil resistance of the auxiliary relay. (1Y)

0634_X_S

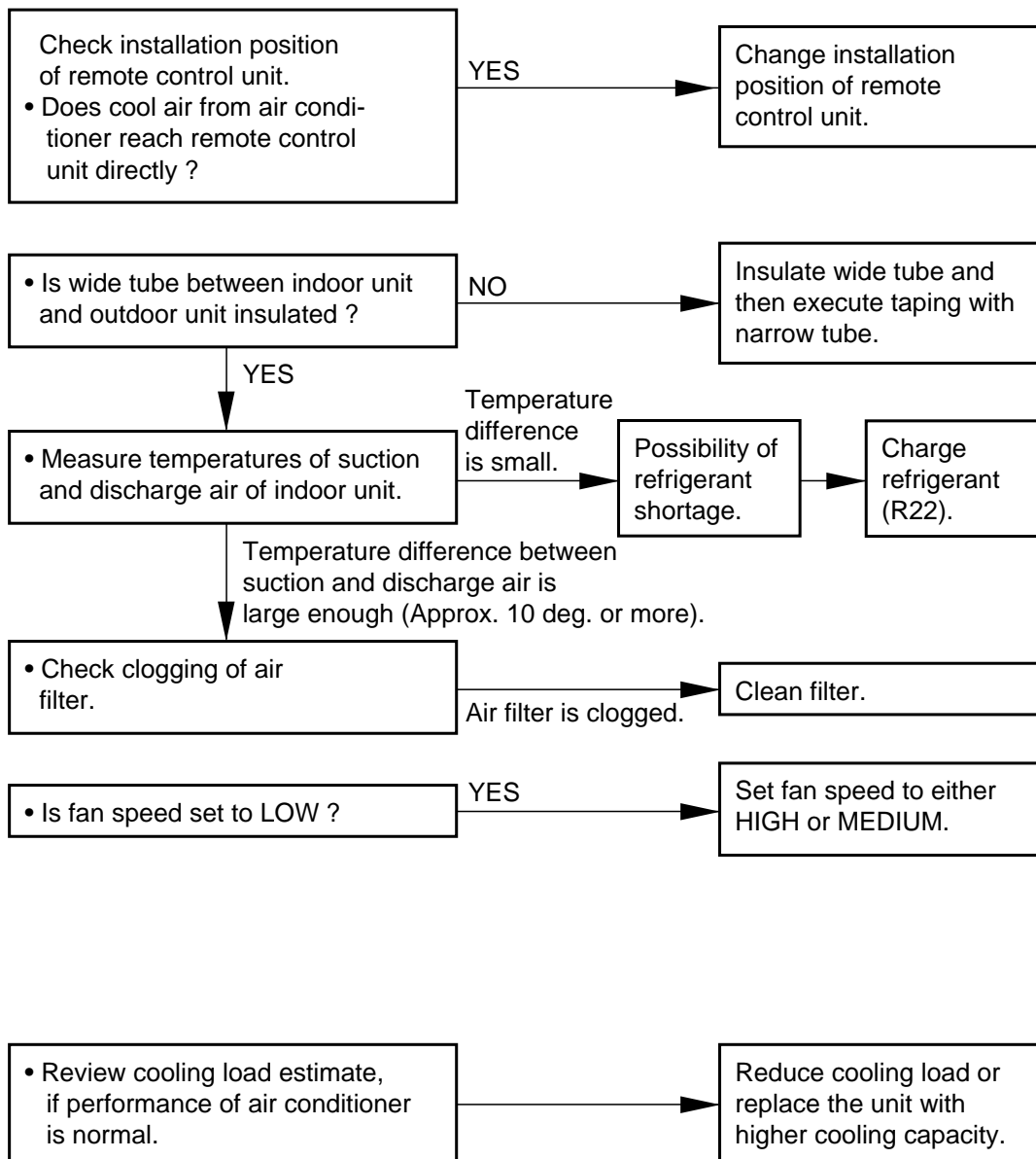
4

(8) Compressor does not run.



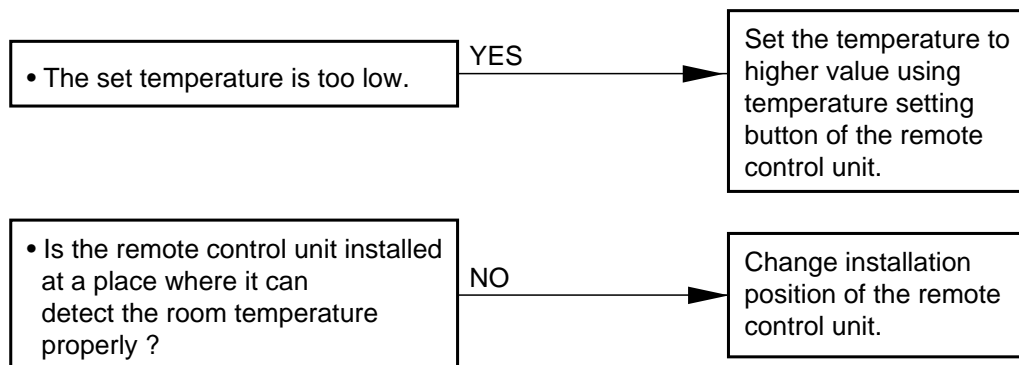
0635_X_S

(9) Poor cooling



0636_X_S

(10) Excessive cooling.



0637_X_S

4-2 A Sensor is Defective.

① Indoor (heat exchanger) coil temp. Sensor is defective.

(a) Open (=No continuity in sensor)

Compressor and outdoor fan repeat ON for 10 minutes and OFF for 6 minutes when sensor opens.

(b) Short

“Freeze Prevention” does not operate when dehumidified water is frozen on the indoor coil.

② Room temp. Sensor (in the remote control unit) is defective.

(a) Open (=No continuity in sensor)

Neither outdoor fan nor compressor runs.

(b) Short

Outdoor fan and compressor do not stop. — Excessive cooling.

4-3 Operation of Major Electrical Parts

Operation Mode (Function)		Operation	Indoor unit and Remote Control unit					Outdoor unit		
			Indicator lamps					Fan	Fan	Compressor
			Room Temp.	Cool	Timer	Night setback Energy saver	Sweep			
Cool-ing	Manual	Thermo. ON	○	○				○	○	○
		Thermo. OFF	○	○				○		
	Energy saver	Thermo. ON	○	○		○		○	○	○
		Thermo. OFF	○	○		○				
	Night setback	Thermo. ON	○	○		○		○	○	○
		Thermo. OFF	○	○		○				
	Timer (set)	ON Timer			○					
		OFF Timer	○	○	○			○	○	○
	Freeze prevention		○	○				○		
Fan			○					○		
Flap	Sweep	Cool	○	○*		○*		○	○*	○*
		Fan	○					○		
	Stop	Cool	○	○*		○*		○	○*	○*
		Fan	○					○		

NOTE ○* Refer to Cooling Mode.

4-4 Checking the Electrical Components

(1) Measurement of Insulation Resistance

- The electrical insulation is acceptable when the resistance exceeds 1 MΩ.

① Power Supply Wires

Clamp the earthed wire of the Power Supply wires with a lead clip of the insulation resistance tester and measure the resistance by placing a probe on either of the power wires. (Fig. 42)

Then measure the resistance between the earthed wire and the other power wires. (Fig. 42)

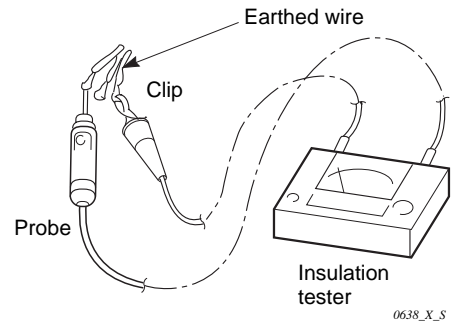


Fig. 42

② Indoor Unit

Clamp an aluminum plate fin or copper tube with the lead clip of the insulation resistance tester and measure the resistance by placing a probe on the terminal plate (Fig. 43)

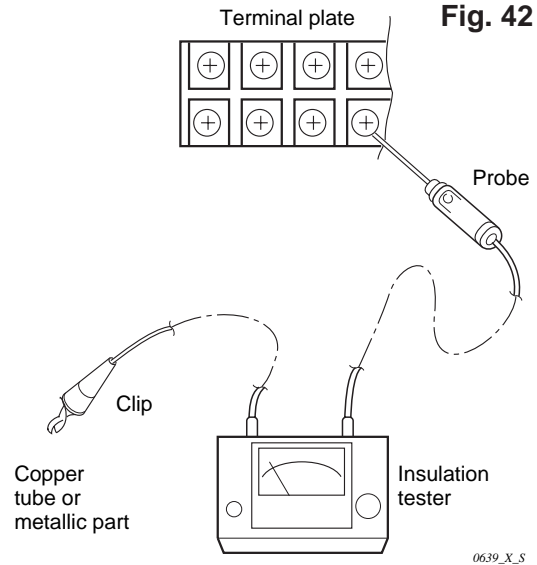


Fig. 43

③ Outdoor Unit

Measure the resistance by placing a probe on the terminal plate in the same manner as explained above ②. (Fig. 43)

④ Measurement of Insulation Resistance for Electrical parts

- Disconnect the connector of the desired electric part from terminal plate, P.C.B. Ass'y, etc. (Fig. 44)
- Similarly, disconnect the lead wires from compressor, capacitor, etc. (Fig. 45)
- Measure the resistance in the same manner as illustrated on the right.

Refer to Electrical Wiring Diagram.

NOTE

If the probe does not enter the hole because the hole is too narrow, use a probe with a thinner pin.

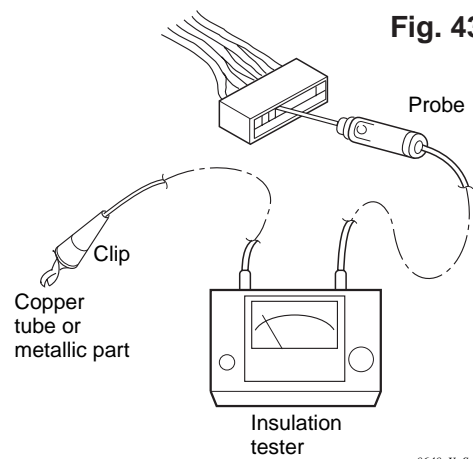
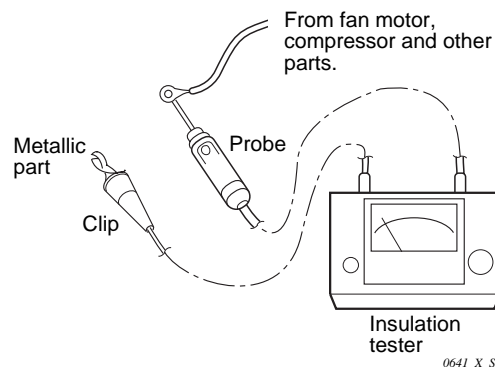


Fig. 44



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Fig. 45

(2) Checking the Protective Devices

- Disconnect the connector, which consists of P (plug) and S (socket) when you want to check the protective device.
- Then check continuity among plug's (and/or socket's) terminal as in **Fig. 46**.
- Normality of the protective device can be judged by the following table.
The Protective Device is proved normal if there is a continuity between terminals.

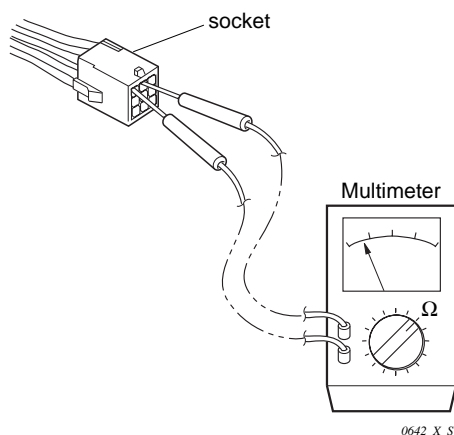


Fig. 46

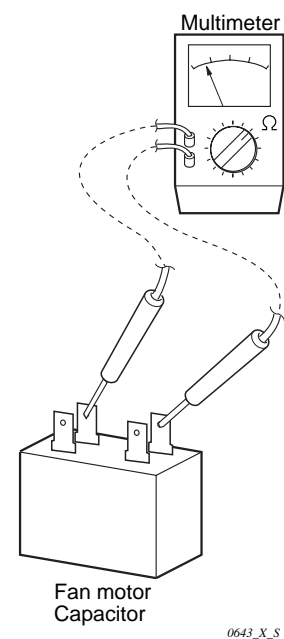
- ① **Indoor fan motor thermal protector (49FI) Indoor unit**
 - Disconnect the connector which leads to the indoor fan motor (FMI).
 - Check the socket's terminals.
- ② **Compressor motor thermal protector (49C) Outdoor unit**
 - Disconnect both the connectors in the outdoor unit.
 - Check terminal between the plug and socket.
- ③ **Outdoor fan motor thermal protector (49FO) Outdoor unit**
 - Disconnect both the connector which leads to the outdoor fan motor (FMO).
 - Check socket's terminal.

(3) Checking the Electrical Parts

- ① **Power transformer (TR1) Indoor unit** *Measure the coil resistance.
 - Primary 220-240 V ; Measure the resistance between two WHT lead wire terminals of socket connected to power transformer.
 - Secondary 10.6V ; Measure the resistance between two BRN lead wires.
Refer to “1-3-(A) Other component specifications”.
- ② **Indoor fan motor (FMI) Indoor unit** *Measure the coil resistance.
 - Measure the resistance between each terminal of the socket connected to the indoor fan motor.
Refer to “1-2-(A) Major component specifications”.
- ③ **Outdoor fan motor (FMO) Outdoor unit** *Measure the coil resistance.
 - Measure the resistance in the same manner as explained above ②.
Refer to “1-2-(B) Major component specifications”.
- ④ **Fan motor capacitor Both in indoor and outdoor unit**
 - Remove the lead wires from the capacitor terminals, and then place a probe on the capacitor terminals as shown in **Fig. 47**. Observe the deflection of the pointer, setting the resistance measuring range of the multimeter to the maximum value.
 - The capacitor is “acceptable” if the pointer bounces to a great extent and then gradually returns to its original position.

NOTE

The range of deflection and the deflection time differ according to the capacity of the capacitor.



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Fig. 47

⑤ Fuse on indoor P.C.B. Ass'y

- Remove the P.C.B. Ass'y from the electrical component box. Then pull out the fuse from the P.C.B. Ass'y. **(Fig. 48)**

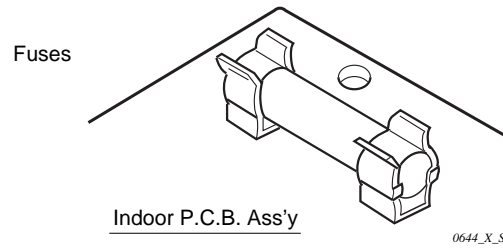


Fig. 48

- The check for continuity of the fuse by using the multimeter. **(Fig. 49)**
Having continuity is acceptable.

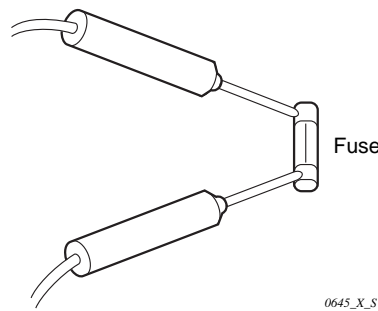
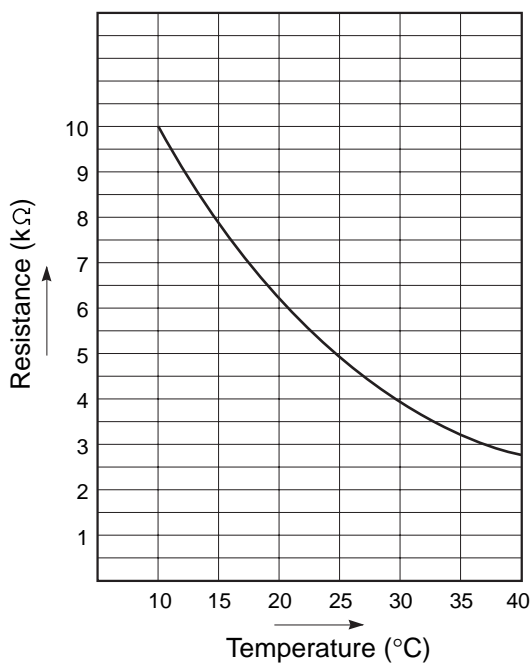


Fig. 49

(4) Thermistor Characteristic Curve

① Room temp. sensor

(KTEC-35)



① Coil sensor

(PBC-41E)

