2. WALL MOUNTED TYPE ROOM AIR-CONDITIONER

(Split system, Air to air heat pump type)

SRK328HENF-L2, SRK408HENF-L2
SRK501HENF-L, SRK561HENF-L

CONTENTS

2.1 GENERAL INFORMATION

2.1.1 Specific features

The "Mitsubishi Daiya" room air conditioner: **SRK series** are of split and wall mounted type and the unit consists of indoor unit and outdoor unit with refrigerant precharged in factory. The indoor unit is composed of room air cooling or heating equipment with operation control switch and the outdoor unit is composed of condensing unit with compressor.

(1) Remote control flap

The flap can be automatically controlled by operating wireless remote control.

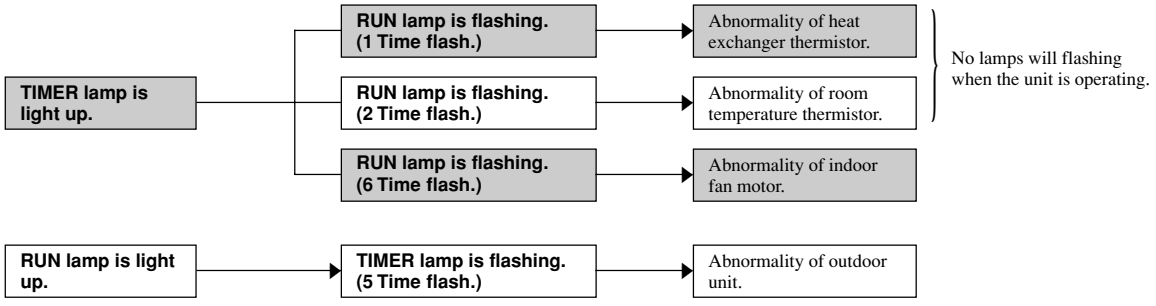
- AUTO (Natural flow) : Flap operation is automatically control.
- Swing : This will swing the flap up and down.
- Memory flap : Once the flap position is set, the unit memorizes the position and continues to operate at the same position from the next time.

(2) Automatic Operation

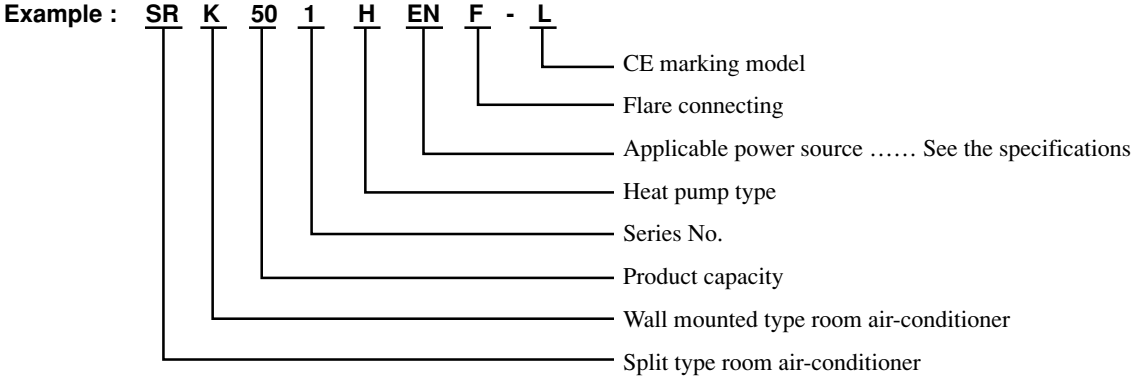
When the remote control switch is set on "auto", it will either automatically decide operation mode such as cooling, heating and thermal dry, or operate in the operation mode before it has been turned to automatic control.

(3) Self diagnosis Function

We are constantly trying to do better service to our customers by installing such judges that show abnormality of operation as follows.



2.1.2 How to read the model name



2.2 SELECTION DATA

2.2.1 Specifications

Model SRK328HENF-L2 (Indoor unit)
SRC328HENF-L2 (Outdoor unit)

Item			Model	SRK328HENF–L2	SRC328HENF–L2
Cooling capacity(1)			W	3000/3000	
Heating capacity(1)			W	3800/3800	
Power source				1 Phase, 220/240V, 50Hz	
Operation data(1)	Cooling input		kW	1.39/1.49	
	Running current (Cooling)		A	6.9/6.9	
	Heating input		kW	1.19/1.32	
	Running current (Heating)		A	6.1/6.1	
	Inrush current		A	33.6/36.6	
	COP (In cooling)			2.16/2.01	
	Noise level(5)		dB(A)	Cooling: 40/42 Heating: 41/43	Cooling: 44/46 Heating: 45/47
Exterior dimensions Height x Width x Depth			mm	275 x 790 x 174	542 x 795 x 255
Color				Ivory white	Polar white
Net weight			kg	8	37
Refrigerant equipment Compressor type & Q'ty				–	RM5517GNE2 (Rotary type) x 1
Motor			kW	–	1.3
Starting method				–	Line starting
Heat exchanger				Louver fins & bare tubing	
Refrigerant control				Capillary tubes	
Refrigerant(4)			kg	R22 0.74	
Refrigerant oil			ℓ	0.6 (BARREL FREEZE 32SAM)	
Defrost control				MC control	
Air handling equipment Fan type & Q'ty				Tangential fan x 1	Propeller fan x 1
Motor			W	16	15
Air flow (at High)		(Cooling)	CMM	8.5/8.5	24/24.5
		(Heating)		9.5/9.5	24/24.5
Air filter, Q'ty				Polypropylene net (washable) x 2	–
Shock & vibration absorber				–	Cushion rubber (for compressor)
Electric heater				–	–
Operation control Operation switch				Wireless–Remote controller	–
Room temperature control				MC. Thermostat	–
Pilot lamp				RUN (Green), TIMER (Yellow)	–
Safety equipment				–	Dome mounted protector (for compressor) Internal thermostat (for fan motor)
Refrigerant piping	O.D		mm(in)	Liquid line: ø6.35 (1/4") Gas line: ø12.7 (1/2")	
	Connecting method			Flare connecting	
	Attached length of piping			Liquid line: 0.4m Gas line : 0.35m	–
	Insulation			Necessary (Both sides)	
Drain hose				Connectable	
Power source cord				2.5m (3 cores with Earth)	
Connection wiring	Size x Core number			1.5mm² x 5 cores (Including earth cable)	
	Connecting method			Terminal block (Screw fixing type)	
Accessories (included)				Mounting kit	
Optional parts				–	

Notes **(1) The data are measured at the following conditions.**

Item / Operation	Indoor air temperature DB	Indoor air temperature WB	Outdoor air temperature DB	Outdoor air temperature WB	Standards
Cooling	27ºC	19ºC	35ºC	24ºC	JIS C9612, ISO-T1
Heating	20ºC	–	7ºC	6ºC	JIS C9612, ISO-T1

(2) The operation data are applied to the 220V or 240V districts respectively

(3) Limitation of Voltage application
Minimum: 198V Maximum: 264V

(4) The refrigerant quantity to be charged includes the refrigerant in 7.5m connecting piping.
(Purging is not required even in the short piping.)
If the piping length is longer, when it is 10 m, add 20g refrigerant per meter and when it is 10 to 15m, add 30g refrigerant per meter.

(5) Expressed in sound pressure level.

Model SRK408HENF-L2 (Indoor unit)
SRC408HENF-L2 (Outdoor unit)

Item			Model	SRK408HENF-L2	SRC408HENF-L2
Cooling capacity(1)			W	3500/3500	
Heating capacity(1)			W	4100/4100	
Power source				1 Phase, 220/240V, 50Hz	
Operation data(1)	Cooling input		kW	1.320/1.405	
	Running current (Cooling)		A	6.4/6.4	
	Heating input		kW	1.335/1.460	
	Running current (Heating)		A	6.5/6.5	
	Inrush current		A	33.6/36.6	
	COP (In cooling)			2.65/2.49	
	Noise level(5)		dB(A)	Cooling: 40/42 Heating: 41/43	Cooling: 47/49 Heating: 48/50
Exterior dimensions Height x Width x Depth			mm	275 x 790 x 174	542 x 795 x 255
Color				Ivory white	Polar white
Net weight			kg	8	37
Refrigerant equipment Compressor type & Q'ty				–	RM5517GNE4 (Rotary type) x 1
Motor			kW	–	1.3
Starting method				–	Line starting
Heat exchanger				Louver fins & bare tubing	
Refrigerant control				Capillary tubes	
Refrigerant(4)			kg	R22 1.3	
Refrigerant oil			ℓ	0.6 (BARREL FREEZE 32SAM)	
Defrost control				MC control	
Air handling equipment Fan type & Q'ty				Tangential fan x 1	Propeller fan x 1
Motor			W	16	18
Air flow (at High)		(Cooling)	CMM	8.5/8.5	22/22.5
		(Heating)		9.5/9.5	22/22.5
Air filter, Q'ty				Polypropylene net (washable) x 2	–
Shock & vibration absorber				–	Cushion rubber (for compressor)
Electric heater				–	–
Operation control Operation switch				Wireless–Remote controller	–
Room temperature control				MC. Thermostat	–
Pilot lamp				RUN (Green), TIMER (Yellow)	–
Safety equipment				–	Dome mounted protector (for compressor) Internal thermostat (for fan motor)
Refrigerant piping	O.D		mm(in)	Liquid line: ø6.35 (1/4") Gas line: ø12.7 (1/2")	
	Connecting method			Flare connecting	
	Attached length of piping			Liquid line: 0.4m Gas line : 0.35m	–
	Insulation			Necessary (Both sides)	
Drain hose				Connectable	
Power source cord				2.5m (3 cores with Earth)	
Connection wiring	Size x Core number			1.5mm² x 5 cores (Including earth cable)	
	Connecting method			Terminal block (Screw fixing type)	
Accessories (included)				Mounting kit	
Optional parts				–	

Notes **(1) The data are measured at the following conditions.**

Item / Operation	Indoor air temperature DB	Indoor air temperature WB	Outdoor air temperature DB	Outdoor air temperature WB	Standards
Cooling	27ºC	19ºC	35ºC	24ºC	JIS C9612, ISO-T1
Heating	20ºC	–	7ºC	6ºC	JIS C9612, ISO-T1

(2) The operation data are applied to the 220V or 240V districts respectively

(3) Limitation of Voltage application
Minimum: 198V Maximum: 264V

(4) The refrigerant quantity to be charged includes the refrigerant in 7.5m connecting piping.
(Purging is not required even in the short piping.)
If the piping length is longer, when it is 10 m, add 20g refrigerant per meter and when it is 10 to 15m, add 30g refrigerant per meter.

(5) Expressed in sound pressure level.

Model SRK501HENF-L (Indoor unit)
SRC501HENF-L (Outdoor unit)

Item			Model	SRK501HENF–L	SRC501HENF–L
Cooling capacity(1)			W	4500/4500	
Heating capacity(1)			W	5700/5800	
Power source				1 Phase, 220/240V, 50Hz	
Operation data(1)	Cooling input		kW	1.78/1.88	
	Running current (Cooling)		A	8.4/8.2	
	Heating input		kW	1.76/1.89	
	Running current (Heating)		A	8.5/8.3	
	Inrush current		A	39/42	
	COP (In cooling)			2.53/2.39	
	Noise level(5)		dB(A)	Cooling: 44/44 Heating: 45/45	Cooling: 50/51 Heating: 53/54
Exterior dimensions Height x Width x Depth			mm	275 x 790 x 189	615 x 850 x 290 + 30
Color				Ivory white	Polar white
Net weight			kg	9	53
Refrigerant equipment Compressor type & Q'ty				–	RM5523GNE4 (Rotary type) x 1
Motor			kW	–	1.7
Starting method				–	Line starting
Heat exchanger				Louver fins & bare tubing	
Refrigerant control				Capillary tubes	
Refrigerant(4)			kg	R22 1.28	
Refrigerant oil			ℓ	0.7 (BARREL FREEZE 32SAM)	
Defrost control				MC control	
Air handling equipment Fan type & Q'ty				Tangential fan x 1	Propeller fan x 1
Motor			W	23	40
Air flow (at High)		(Cooling)	CMM	11/11	34/34
		(Heating)		12/12	34/34
Air filter, Q'ty				Polypropylene net (washable) x 2	–
Shock & vibration absorber				–	Cushion rubber (for compressor)
Electric heater				–	–
Operation control Operation switch				Wireless–Remote controller	–
Room temperature control				MC. Thermostat	–
Pilot lamp				RUN (Green), TIMER (Yellow), ECONO (Orange), HI POWER (Green)	–
Safety equipment				–	Dome mounted protector (for compressor) Internal thermostat (for fan motor)
Refrigerant piping	O.D		mm(in)	Liquid line: ø6.35 (1/4") Gas line: ø12.7 (1/2")	
	Connecting method			Flare connecting	
	Attached length of piping			Liquid line: 0.4m Gas line: 0.35m	–
	Insulation			Necessary (Both sides)	
Drain hose				Connectable	
Power source cord				2.5m (3 cores with Earth)	
Connection wiring	Size x Core number			1.5mm² x 5 cores (With Earth)	
	Connecting method			Terminal block (Screw fixing type)	
Accessories (included)				Mounting kit	
Optional parts				–	

Notes **(1) The data are measured at the following conditions.**

Item / Operation	Indoor air temperature DB	Indoor air temperature WB	Outdoor air temperature DB	Outdoor air temperature WB	Standards
Cooling	27ºC	19ºC	35ºC	24ºC	JIS C9612, ISO-T1
Heating	20ºC	–	7ºC	6ºC	JIS C9612, ISO-T1

(2) The operation data are applied to the 220V or 240V districts respectively
(3) Limitation of Voltage application Minimum: 198V Maximum: 264V
(4) The refrigerant quantity to be charged includes the refrigerant in 7.5m connecting piping.
(Purging is not required even in the short piping.)
If the piping length is longer, (when it is 10 m, add 20g refrigerant per meter and when it is 10 to 15m, add 30g refrigerant per meter.)
(5) Expressed in sound pressure level.

Model SRK561HENF-L (Indoor unit)
SRC561HENF-L (Outdoor unit)

Item			Model	SRK561HENF–L	SRC561HENF–L
Cooling capacity(1)			W	5000/5000	
Heating capacity(1)			W	6200/6300	
Power source				1 Phase, 220/240V, 50Hz	
Operation data(1)	Cooling input		kW	2.08/2.18	
	Running current (Cooling)		A	10.2/9.53	
	Heating input		kW	2.02/2.15	
	Running current (Heating)		A	10.5/9.95	
	Inrush current		A	44/48	
	COP (In cooling)			2.40/2.29	
	Noise level(5)		dB(A)	Cooling: 45/45 Heating: 46/46	Cooling: 53/54 Heating: 54/56
Exterior dimensions Height x Width x Depth			mm	275 x 790 x 189	615 x 850 x 290 + 30
Color				Ivory white	Polar white
Net weight			kg	9	53
Refrigerant equipment Compressor type & Q'ty				–	RM5526GNE4 (Rotary type) x 1
Motor			kW	–	1.9
Starting method				–	Line starting
Heat exchanger				Louver fins & bare tubing	
Refrigerant control				Capillary tubes	
Refrigerant(4)			kg	R22 1.35	
Refrigerant oil			ℓ	0.7 (BARREL FREEZE 32SAM)	
Defrost control				MC control	
Air handling equipment Fan type & Q'ty				Tangential fan x 1	Propeller fan x 1
Motor			W	23	40
Air flow (at High)		(Cooling)	CMM	12/12	34/34
		(Heating)		13/13	34/34
Air filter, Q'ty				Polypropylene net (washable) x 2	–
Shock & vibration absorber				–	Cushion rubber (for compressor)
Electric heater				–	–
Operation control Operation switch				Wireless–Remote controller	–
Room temperature control				MC. Thermostat	–
Pilot lamp				RUN (Green), TIMER (Yellow), ECONO (Orange), HI POWER (Green)	–
Safety equipment				–	Dome mounted protector (for compressor) Internal thermostat (for fan motor)
Refrigerant piping	O.D		mm(in)	Liquid line: ø6.35 (1/4") Gas line: ø12.7 (1/2")	
	Connecting method			Flare connecting	
	Attached length of piping			Liquid line: 0.4m Gas line: 0.35m	–
	Insulation			Necessary (Both sides)	
Drain hose				Connectable	
Power source cord				2.5m (3 cores with Earth)	
Connection wiring	Size x Core number			1.5mm² x 5 cores (With Earth)	
	Connecting method			Terminal block (Screw fixing type)	
Accessories (included)				Mounting kit	
Optional parts				–	

Notes **(1) The data are measured at the following conditions.**

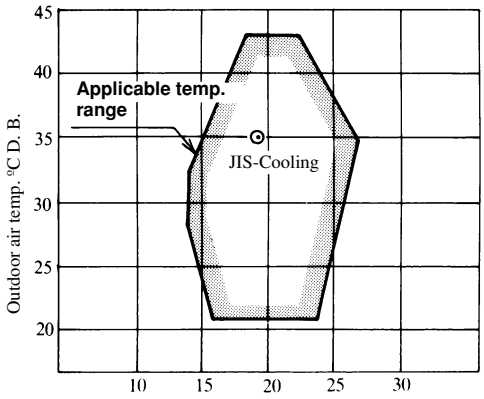
Item / Operation	Indoor air temperature DB	Indoor air temperature WB	Outdoor air temperature DB	Outdoor air temperature WB	Standards
Cooling	27°C	19°C	35°C	24°C	JIS C9612, ISO-T1
Heating	20°C	–	7°C	6°C	JIS C9612, ISO-T1

(2) The operation data are applied to the 220V or 240V districts respectively
(3) Limitation of Voltage application Minimum: 198V Maximum: 264V
(4) The refrigerant quantity to be charged includes the refrigerant in 7.5m connecting piping.
(Purging is not required even in the short piping.)
If the piping length is longer, (when it is 10 m, add 20g refrigerant per meter and when it is 10 to 15m, add 30g refrigerant per meter.)
(5) Expressed in sound pressure level.

2.2.2 Range of usage & limitations

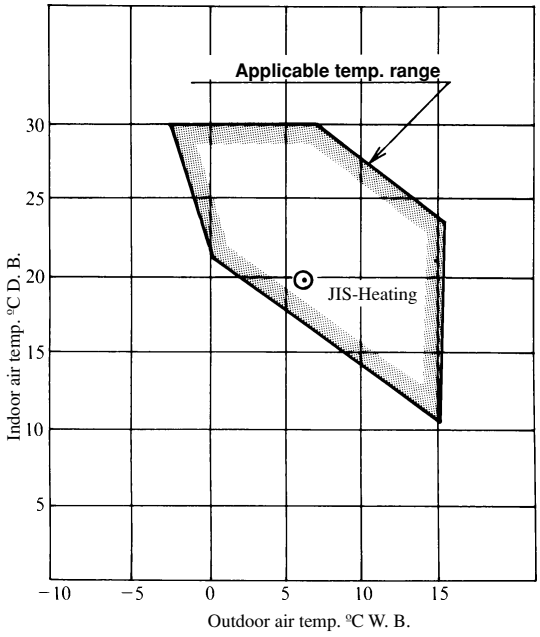
(1) Inlet air temperature

(a) Cooling operation



Note: The chart is the result from the continuous operation under constant air temperature conditions, however, excludes the initial pull-down stage.

(b) Heating operating



Note: The chart is the result from the continuous operation under constant air temperature conditions, however, excludes the initial pull-down stage and any possible defrost cycles.

(2) Total one way piping length and vertical height difference.

Item \ Models		All models
Total one way piping length (m)		15
Vertical height difference (m)	Outdoor unit is higher	5
	Outdoor unit is lower	5

(3) Voltage application

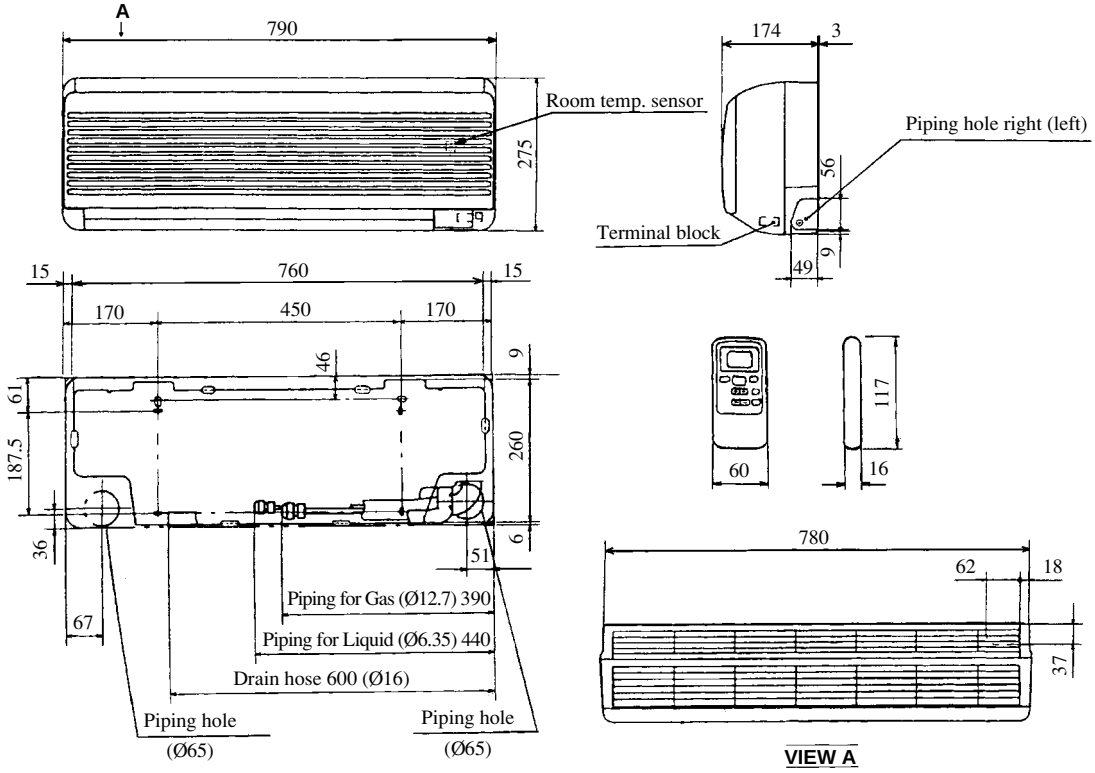
Item \ Models	All models
Minimum (V)	198
Maximum (V)	264

2.2.3 Exterior dimensions

(1) Indoor unit

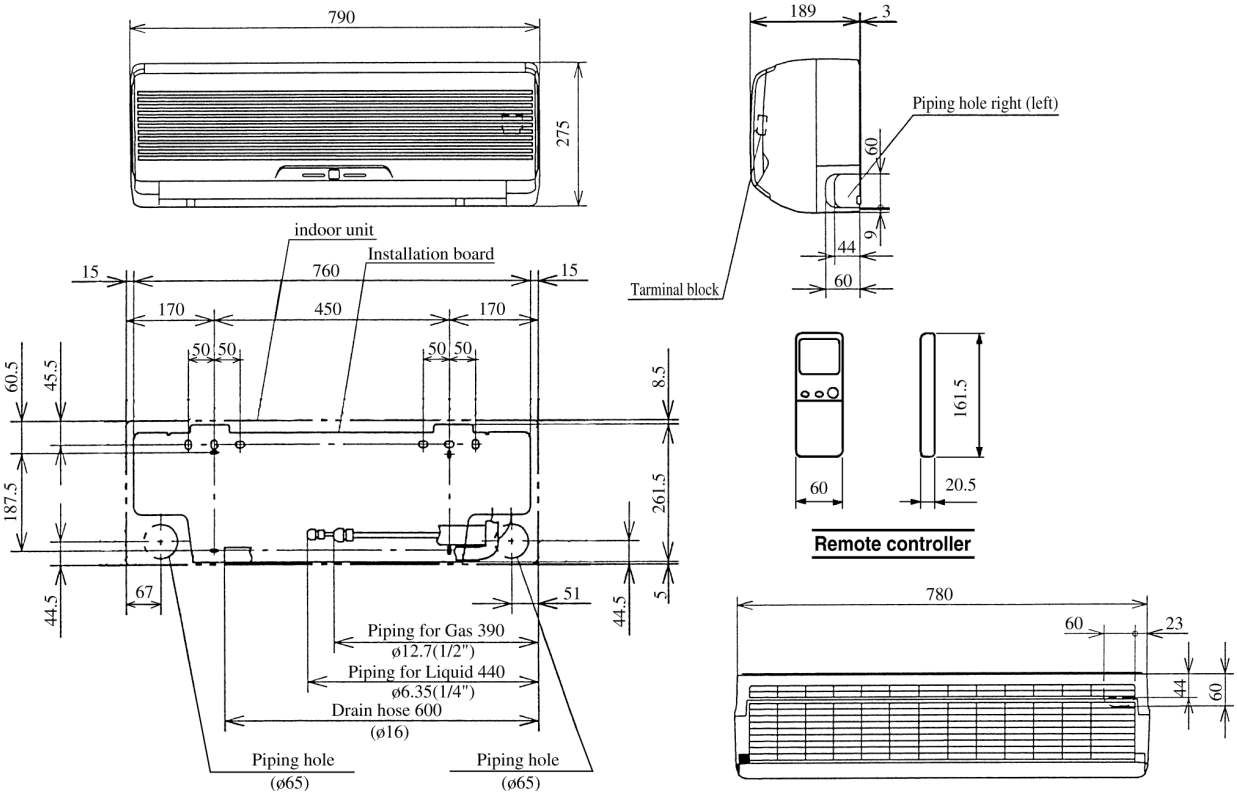
Models SRK328HENF-L2, 408HENF-L2

Unit: mm



Models SRK501HENF-L. 561HENF-L

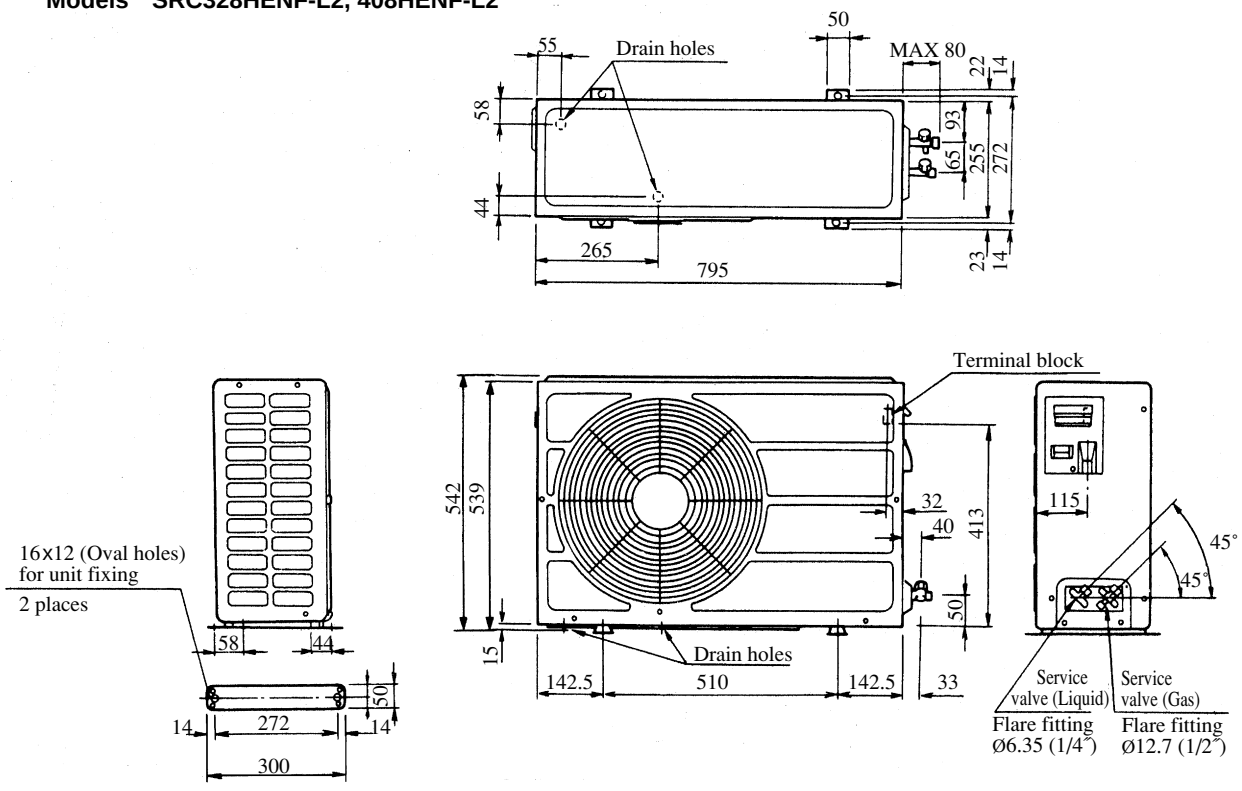
Unit: mm



(2) Outdoor unit

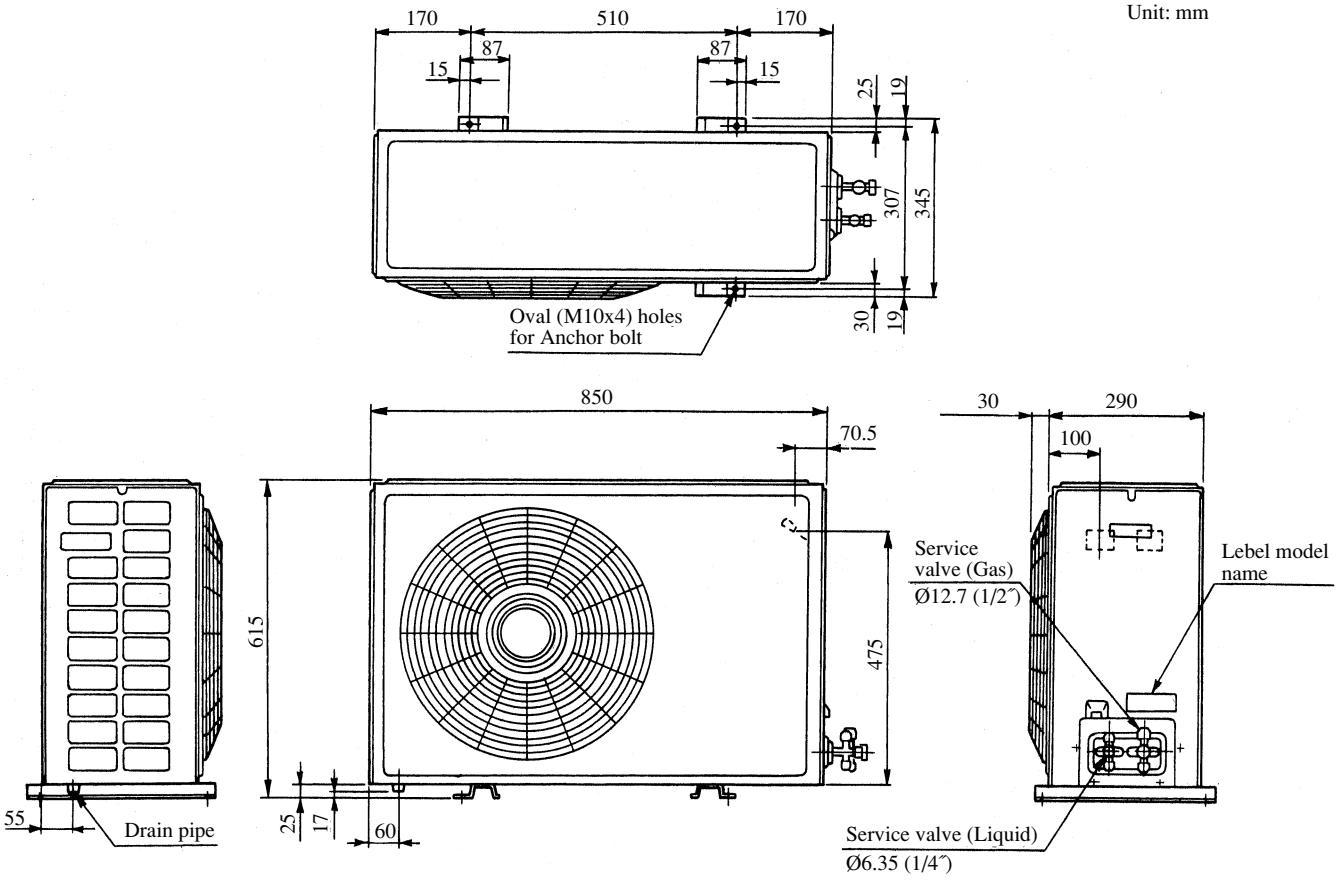
Models SRC328HENF-L2, 408HENF-L2

Unit: mm



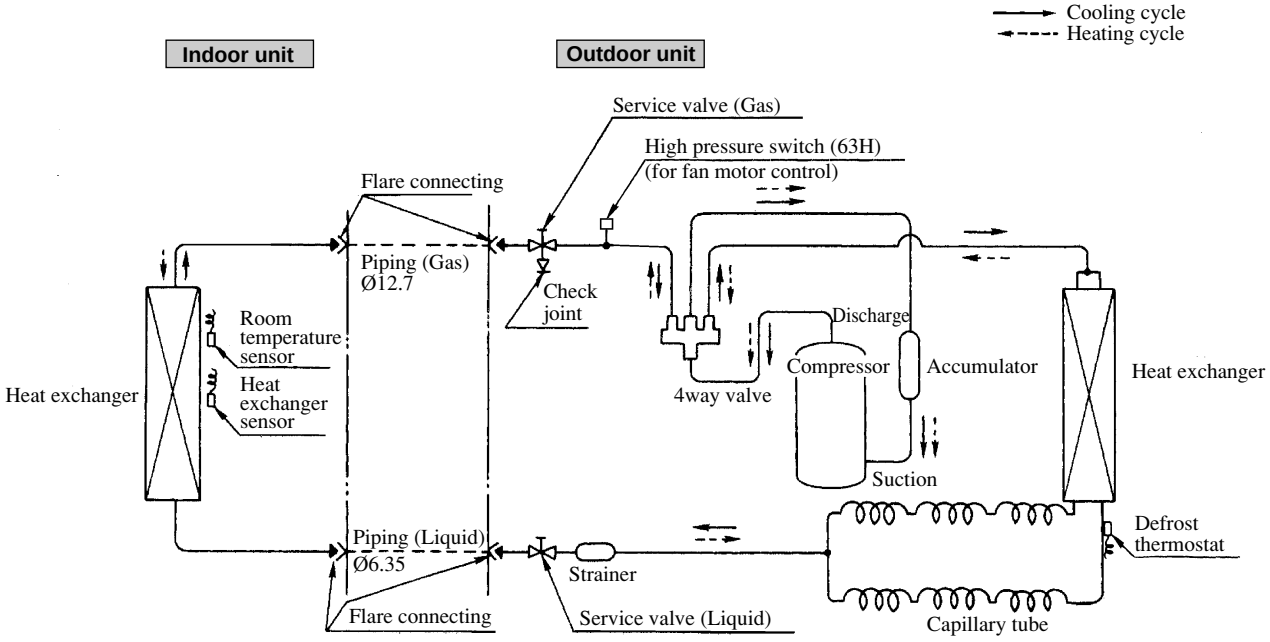
Models SRC501HENF-L, 561HENF-L

Unit: mm

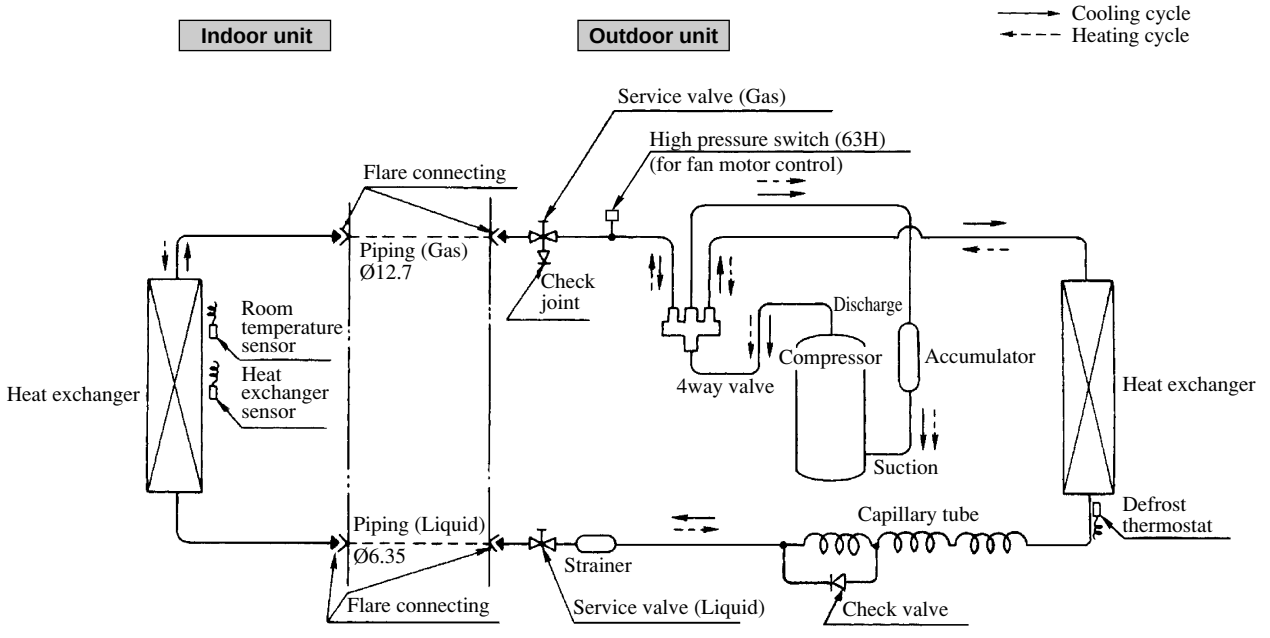


2.2.4 Piping system

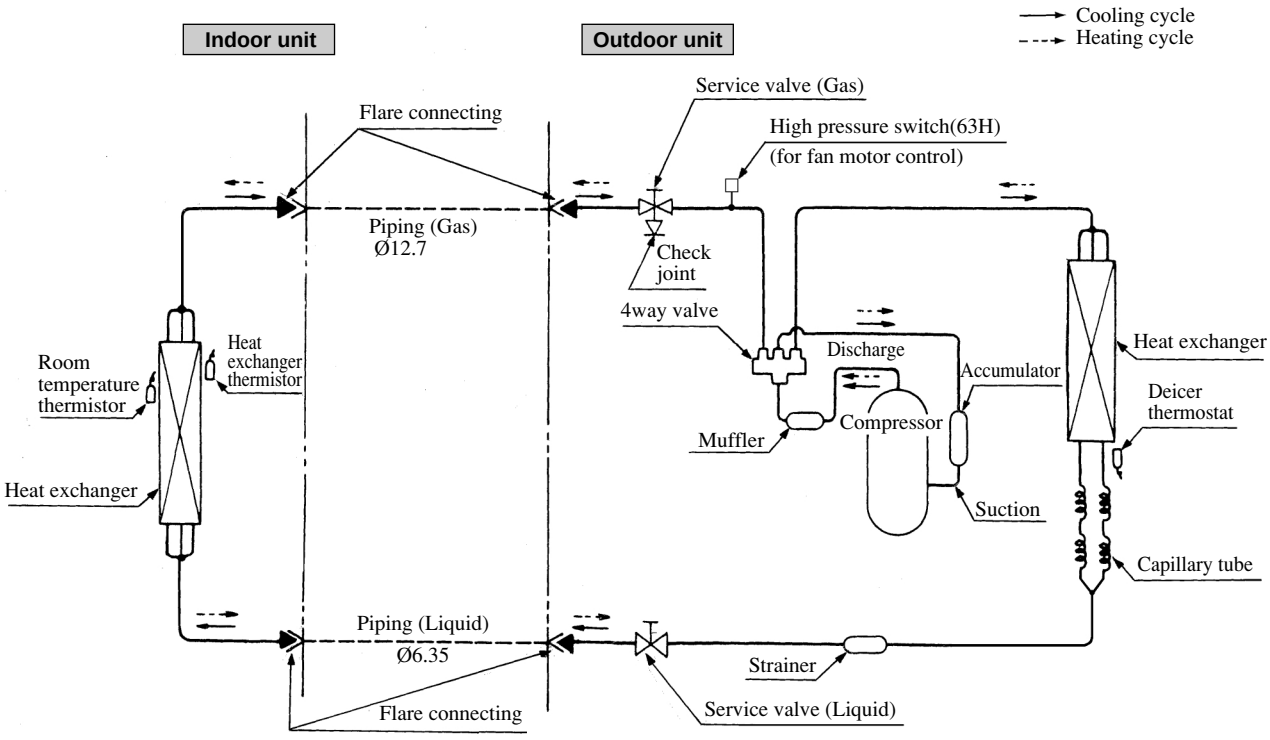
Model SRK328HENF-L2



Model SRK408HENF-L2



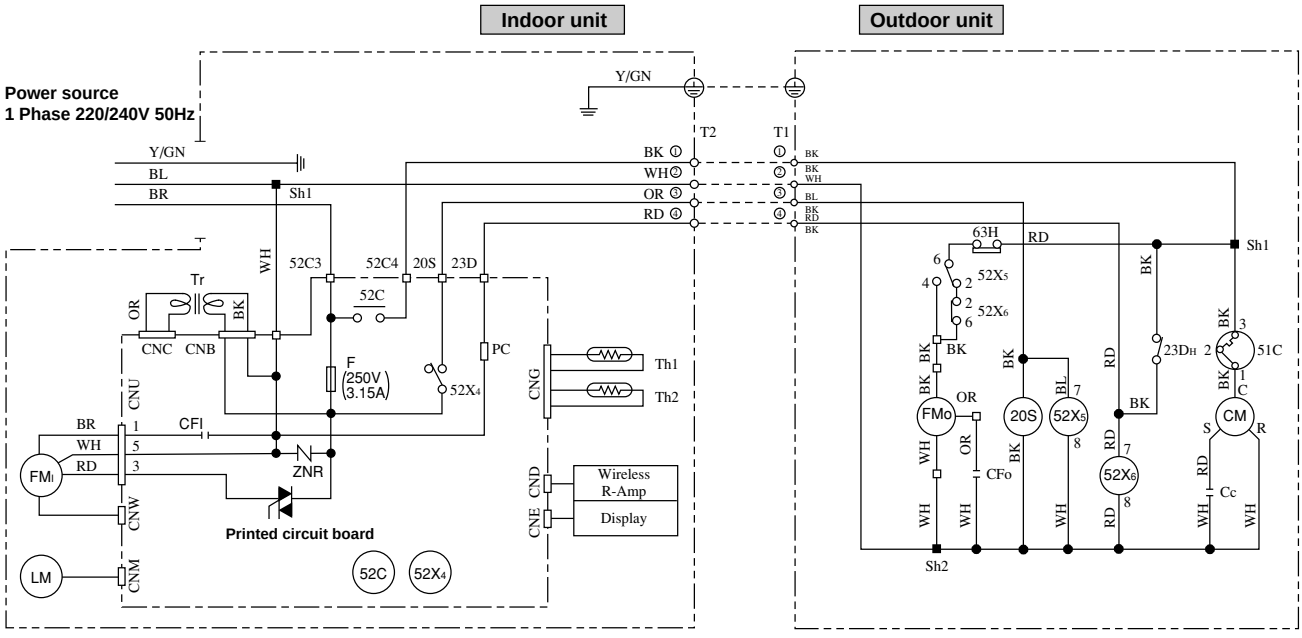
Models SRK501HENF-L, 561HENF-L



2.3 ELECTRICAL DATA

2.3.1 Electrical wiring

Models SRK328HENF-L2, 408HENF-L2



Color symbol

BK	Black
BL	Blue
BR	Brown
RD	Red
OR	Orange
WH	White
Y/GN	Yellow/Green

Meaning of marks

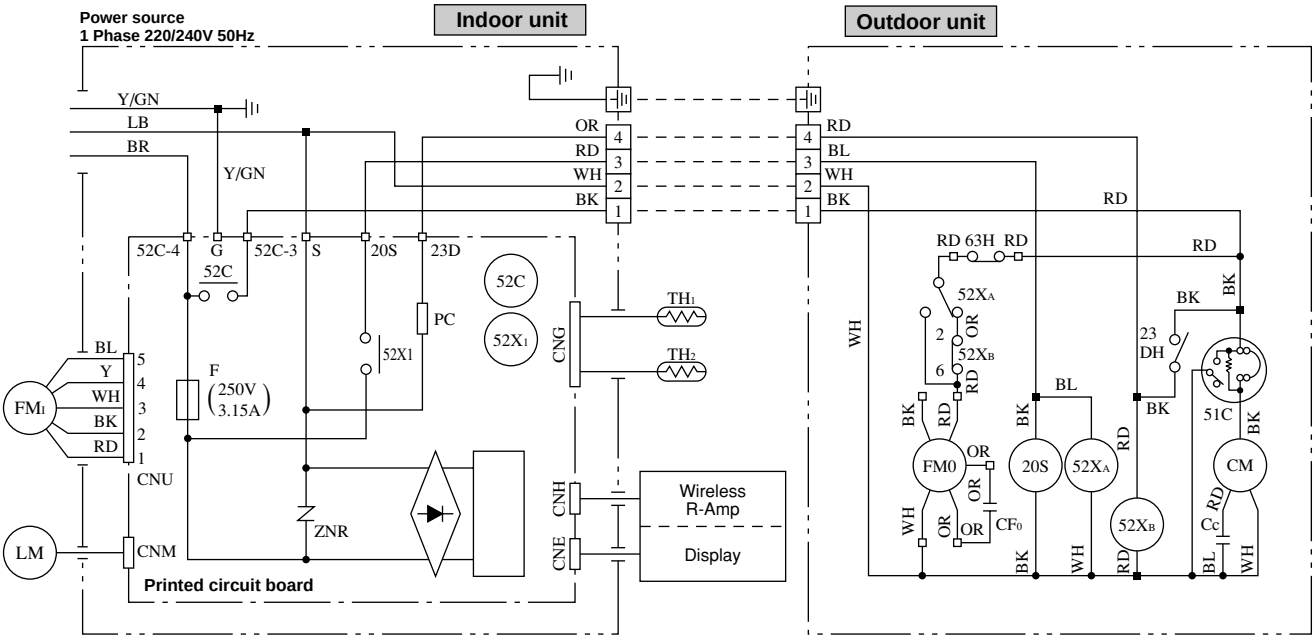
Symbol	Parts name	Symbol	Parts name
Cc	Capacitor for CM	**$Th_{1,2}$**	Thermistor
CF_I	Capacitor for FM_I	**Tr**	Transformer
CF_O	Capacitor for FMo	**ZNR**	Varistor
CM	Compressor motor	**20S**	4 way valve, coil
F	Fuse	**51C**	Motor protector for CM
FM_I	Fan motor (Indoor unit)	**52C**	Magnetic conductor for CM
FM_O	Fan motor (Outdoor unit)	**$52X_{4,5,6}$**	Auxiliary relay
LM	Louver motor	**63H**	High pressure switch
PC	Photo coupler	**23DH**	Defrost thermostat

Table of relay operations

Relay symbol \ Operation / Control part		Cooling	Heating	Defrost
$52X_4$	**20S**	×	○	×
$52X_5$	**FM_O**	×	○	×
$52X_6$		×	×	○
52C	**CM**	○	○	○

Notes (1) ○; denotes magnetized relay ×: denotes demagnetized relay
(2) Th_1 is room temperature thermistor. Th_2 (the heat exchanger thermistor) is the hot start, hot keep, and frost prevention thermistor. (for details, refer to pages 71,72,74)
(3) Preset values:
23DH (defroster stop thermostat): opens at over 14˚C
63H (overload protection high pressure switch during heating): closes at 1.86(19.0) / opens at 2.41(24.5) [MPa(kgf/cm^2)]

Models SRK501HENF-L, 561HENF-L



Color symbol

BK	Black
BL	Blue
BR	Brown
RD	Red
OR	Orange
WH	White
Y	Yellow
LB	Light blue
Y/GN	Yellow/Green

Meaning of marks

Symbol	Parts name	Symbol	Parts name
C_C	Capacitor for CM	**$Th_{1,2}$**	Thermistor
CF_O	Capacitor for FM_O	**ZNR**	Varistor
CM	Compressor motor	**20S**	4 way valve. coil
F	Fuse	**51C**	Motor protector for CM
FM_I	Fan motor (Indoor unit)	**52C**	Magnetic contactor for CM
FM_O	Fan motor (Outdoor unit)	**$52X_{A,B,1}$**	Auxiliary relay
LM	Louver motor	**63H**	High pressure switch
PC	Photo coupler	**23DH**	Thermostat (Defrost)

Table of relay operations

Relay symbol / Control part \ Operation		Cooling	Heating	Defrost
$52X_1$	**20S**	×	○	×
$52X_A$	**FM_O**	×	○	×
$52X_B$		×	×	○
52C	**CM**	○	○	○

Notes (1) ○; denotes magentized relay ×: denotes demagnetized relay

(2) Th_1 is room temperature sensor. Th_2 (the heat exchanger sensor) is the hot start, hot keep, and frost prevention sensor. (for details, refer to pages 71, 72, 74)

2.4 OUTLINE OF OPERATION CONTROL BY MICROCOMPUTER

2.4.1 Table for operation control

Functions				Content	Refering page
Comfortability, Economical efficiency, Operational simplicity	**High efficiency, low input rotary compressor**			Low input rotary compressor with high efficiency is equipped.	–
	Wireless remote control			All operation modes can be operated from distance place by the wireless remote control. And also liquid crystal is used to show all kinds to operation or, off, air flow switch, operation switch, timer switch, timer set, temperature set, flap control.	68
	Micro computer control	**Dry**		Defumidifies while keeping room temperature to the thermostat setting level by M.C. thermostat.	73
		ON TIMER		ON timer setting for anytime during 24 (32, 40: 12) hours can be performed.	70
		OFF TIMER		OFF timer setting for favourite time can be performed. Comfortable Cooling and Dry operation to prevent catching cold in sleep and economical operation can be performed, while raising room temperature setting during 1 hour period in steps. **While COOL & DRY**: When the timer is set to OFF the temperature is increased by 0.5ºC simultaneously, by 0.5ºC additionally every 30 minutes and by **1.5ºC in one hour**. **While HEAT**: When the timer is set to OFF the temperature is decreased by 1ºC simultaneously by 1ºC additionally every 30 minutes and by **3ºC in one hour. (Heat Pump type only)**	70
		Automatic fan control		Room unit air volume can be automatically controlled step by step, according to the difference between room temperature and setting temperature. 1. Shorten pull down time for cooling/heating operation 2. Low noise level operation can performed by proper air volume.	71
		3 Hot system [Heat Pump type only] (in heating operation)	**HOT START**	**When heating is initiated, thermostat reset, or heating resumed after defrosting,** the indoor fan is automatically controlled stop to set value in accordance with the temperature of the indoor air heat exchanger to prevent the blowing out of cold air.	71
			HOT SPURT	**The thermostat temperature setting is automatically increased by 2ºC** when heating is initiated to provide faster stabilization of room temperature.	72
			HOT KEEP	The indoor fan is stopped depending on the temp, of the indoor heat exchanger **to prevent the blowing-out of cold air when the heating operation is stopped by thermostat or defrosting operation is started.**	72
		Micro computer (MC) controlled timely defrosting operation (in heating)		The change in the difference between the intake air temperature and the heat exchanger temperature causes the frost and condensation removal operation to start.	74
		M. C. (Micro computer controlled) thermostat		M. C thermostat improves on energy saving and comfort, by controlling room temperature with high accuracy.	–
		Remote control flap		The flap can be automatically controlled by operating wireless remote control. • AUTO (Natural flow) : Flap operation is automatically controlled. • Swing : This will swing the flap up and down. • Memory flap : Once the flap position is set, the unit memorizes the position and continues to operate at the same position from the next time.	66
		Comfort timer (Cooling & Heating)		The room temperature is checked 60 minutes before the timer is at ON. Depending on the temperature at that time, the operation starets 5 to 60 minutes before the timer is at ON.	70
		Self Diagnosis Function		We are constantly trying to do better service to our customers by installing such judges that show abnormality of each function as follows: • Abnormality of outdoor unit: TIMER lamp flashing. • Abnormality of indoor fan motor: RUN lamp flashing. • Abnormality of heat exchanger thermistor: RUN lamp flashing. • Abnormality of room temperature thermistor: RUN lamp flashing. } No lamp will flashing when the unit is operating	76

2.4.2 Details of operation control

(1) Flap control

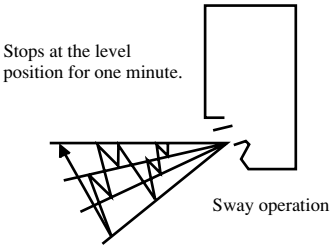
Control the flap by the flap button on the wireless remote control

(a) AUTO (Natural flow)

The flap will be automatically set to the angle of air flow best to operation mode

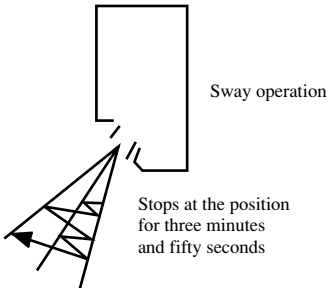
1) Starting time of operation

In case of cooling and dry operation



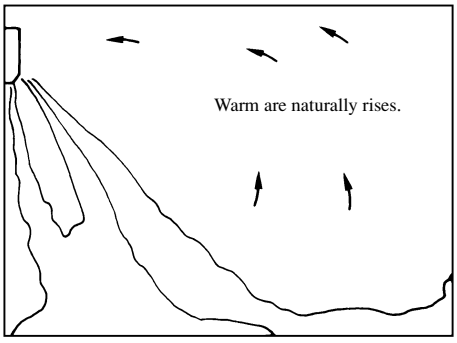
- The flap operation as shown above will repeated.

In case of heating operation



- When the room temperature controller (thermostat) is activated, horizontal blowing is applied to prevent cool wind from blowing out.

Air flow when flaps are used downward in heating



Warm air is sent to the floor, creating the ideal room temperature variation is created in which the feet are warmer and the air around the head slightly cooler.

2) When not operating

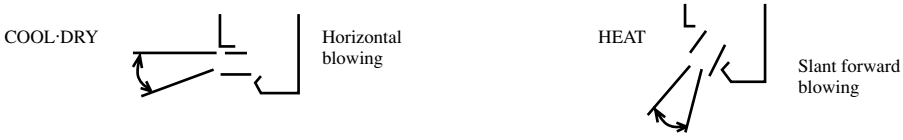
The flap returns to the position of air flow directly below, when operation has stopped.

(b) Memory flap

While the flap is operating if the AIRFLOW button is pushed once, it stops swinging at an angle.

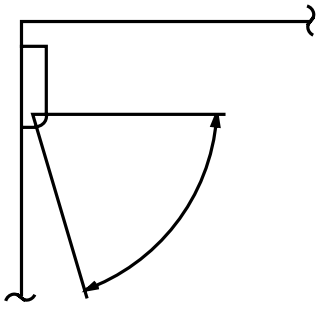
As this angle is memorized in the microcomputer, the flap will be automatically set to the angle when next operation is started.

- Recommendable stopping angle of the flap



(c) Swing flap

Flap moves in upward and downward directions continuously.



(2) Back-up Switch

When the remote controller batteries become weak, or if the remote controller is lost or malfunctioning, this switch may be used to turn the unit on and off.

(a) Operation

Push the switch once to place the unit in the automatic mode. Push it once more to turn the unit off.

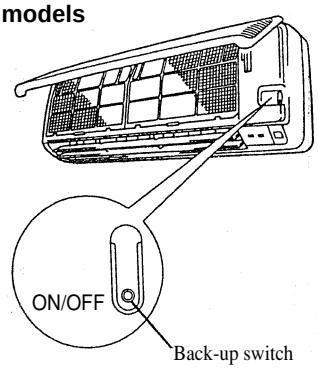
(b) Details of operation

The unit will go into the automatic mode in which it automatically determines, from room temperature (as detected by sensor), whether to go into the cooling, thermal dry or heating modes.

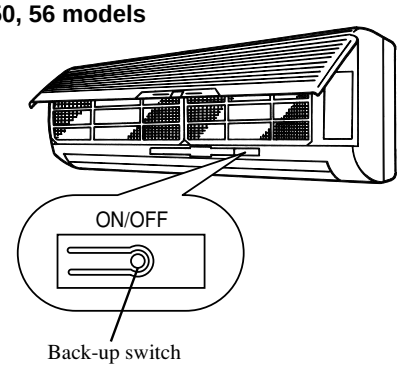
Function / Operation mode	Room temperature setting	Fan speed	Flap	Timer switch
Cooling	About 26ºC	Auto	Natural flow	Continuous
Thermal dry	About 25ºC			
Heating	About 25ºC			

On operating in automatic operation mode by back-up switch, functions show in the above table are not altered, white, the other micro-computer control functions remain effective.

• 32, 40 models



• 50, 56 models



(3) AUTOMATIC operation

(a) When starting operation after more than 1 hour since operation stops

(Operation stop button ON or ON-Timer), this system operates indoor fan with Lo for 20 seconds checks room temperature and allowing decision of operating mode automatically.

	Room temperature<21ºC	21ºC≦Room temperature<26ºC	26ºC≦Room temperature
Operation Mode	Heating	Dry	Cooling

Note (1) Operating Mode is not altered due to change of room temperature.
When intended to change operating mode, switch operation change over dial to the intended mode.

(b) Established temperature (operate by the established temperature button on remote controller).

		Wireless remote control signal (Indication)												
		-6	-5	-4	-3	-2	-1	±0	+1	+2	+3	+4	+5	+6
Temperature setting	Cooling	20	21	22	23	24	25	26	27	28	29	30	31	32
	Thermal dry	19	20	21	22	23	24	25	26	27	28	29	30	31
	Heating	19	20	21	22	23	24	25	26	27	28	29	30	31

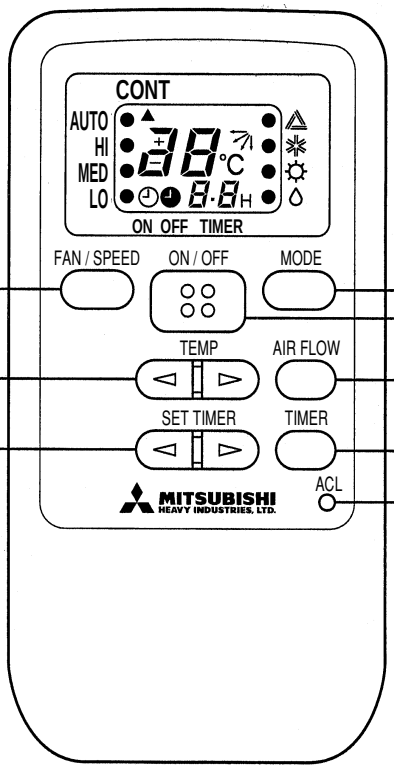
(c) When switching to automatic operation during "Heating" "Cooling" "Dry" or when restarting with in 1 hour after stopping with automatic operation mode, the former operating mode is selected. (In this case, 20 seconds Lo operation of indoor fan is not performed). When the previous mode is in "FAN", operation mode is to be set by the above mentioned chart.

(4) Operation control function by remote control switch

- **32, 40 models**

Remote control switch

◆ Operation section



OPERATION MOOD select button

Each time the button is pushed, the • indicator is switched over in turn.

ON/OFF button

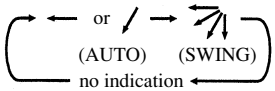
Press for starting operation, press again for stopping.

FAN SPEED button

Each time the button is pushed, the • indicator is switched over in turn.

AIRFLOW button

This button changes the flap mode. When pressed, this button changes the mode in the following order:



TEMPERATURE button

This button sets the room temperature.

TIMER button

This button changes the selection of ON timer/OFF timer operation and normal operation.

SET TIMER button

This button sets the ON timer and OFF timer times.

RESET switch

Switch for resetting microcomputer.

• The above illustration shows all controls, but in practice only the relevant parts are shown.

◆ Indication section

TEMPERATURE Indicator

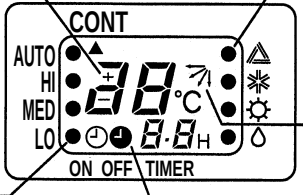
Indicates set temperature.

(Does not indicate temperature when operation mode is on AUTO)

OPERATION MODE Indicator

Indicates selected operation with • lamp.

△(AUTO) · ❄(Cool) · ☼(Heat) · ◊(Dry)



AIR FLOW Indicator

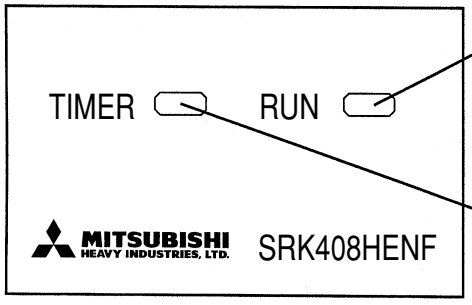
Shows selected flap mode.

FAN SPEED Indicator

Indicates set air flow rate with • lamp.

TIMER Indicator

Unit indication section



RUN (HOT KEEP) light (green)

• Illuminates during operation.

•Blinks at air flow stop due to the 'HOT KEEP'.

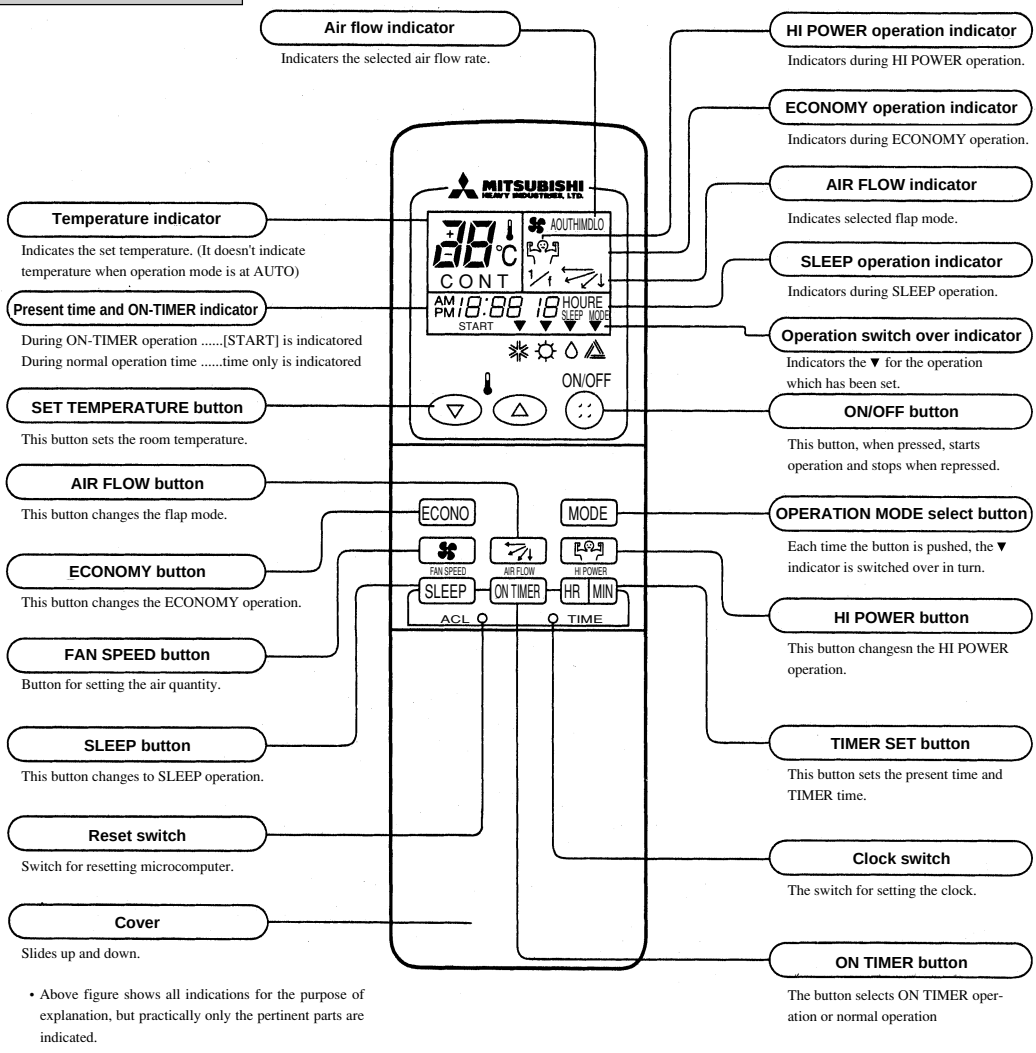
TIMER light (yellow)

Illuminates during TIMER operation.

- **50, 56 models**

The diagram below shows the heat pump type. The cooling only type does not have the items relating to heating.

Remote control switch

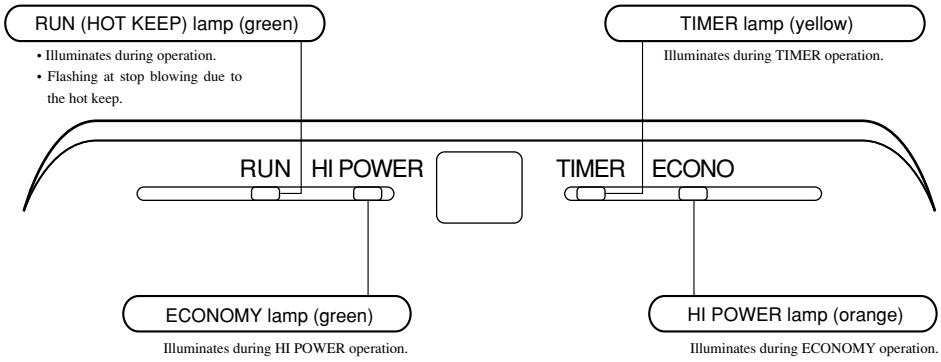


• Above figure shows all indications for the purpose of explanation, but practically only the pertinent parts are indicated.

Heat pump model: [△(Auto) · ❄(Cool) · ☼(Heat) · ♢(Dry)]

Cooling only model: [△(Auto) · ❄(Cool) · ≋(Fan) · ♢(Dry)]

Indoor unit indicator



(a) Comfort timer settings

Temperature is checked beginning 1 hour before the set time, and the power is turned on before the timer setting as necessary to bring the temperature to the proper level by the set time.

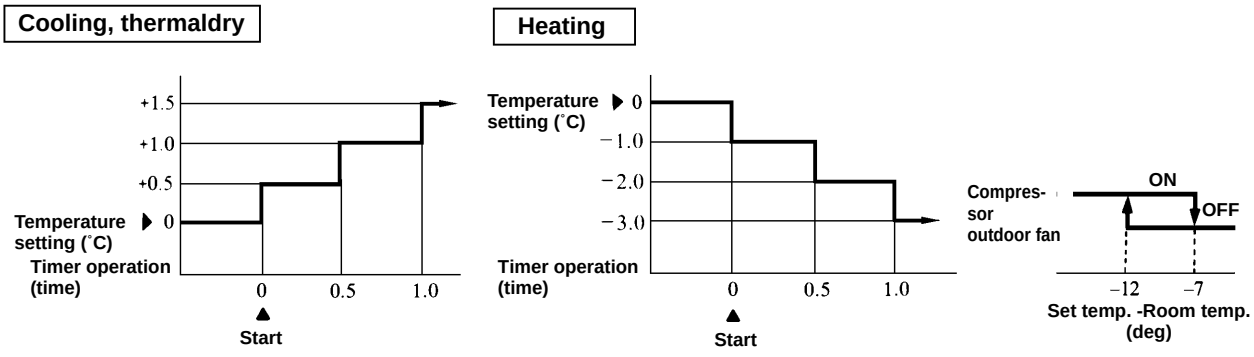
Operation mode	Room temperature sensor (Th1)	Operating start time (amount of time previous to set time that operation begins)
Heating	Under 5°C	60 mins.
	Under 10°C	30 mins.
	Under 15°C	15 mins.
	Over 15°C	5 mins.
Cooling	Over 40°C	60 mins.
	Over 35°C	30 mins.
	Over 30°C	15 mins.
	Under 30°C	5 mins.

(b) Timer time setting

The turn-off timer and turn-on timer can be set for up to 24 (32, 40: 12) hours in units of 1 hour.

(c) Night time turn off

Placing the timer to this setting changes the temperature setting of the indoor set button as follows:

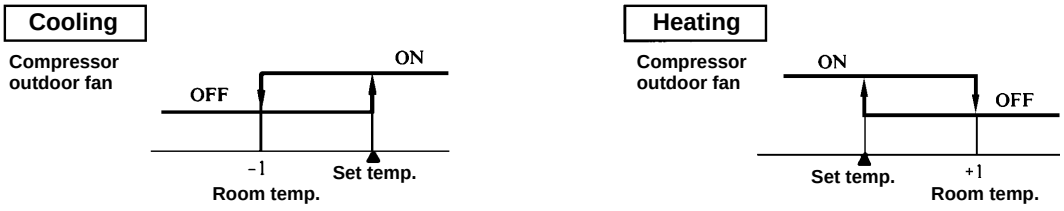


Note (1) The unit performs heating to the set time after 2.0 hours in the night time as shown right.

(d) Temperature adjustment

1) Temperature adjustment setting may be set between 18 and 30˚C.

2) The compressor and outdoor fan and turned on and off as shown below according to the temperature setting.



3) During the continuous mode, the compressor runs continuously in both cooling and heating. For thermal dry, please refer to page 73.

(e) Fan control

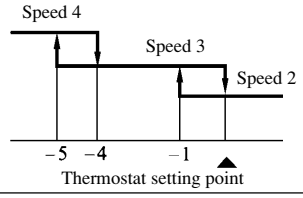
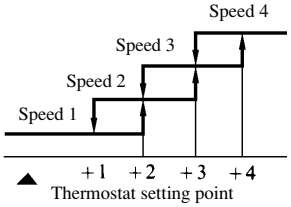
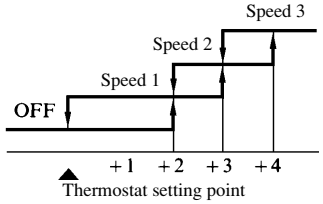
1) Fan speed change

Mode / Fan speed knob	COOL	HEAT	FAN
AUTO	See below		
LOW	Speed 1 (Speed 1)	Speed 2 (Speed 2)	Speed 1 (Speed 1)
MED	Speed 2 (Speed 2)	Speed 3 (Speed 3)	Speed 2 (Speed 2)
HIGH	Speed 3 (Speed 4)	Speed 4 (Speed 5)	Speed 3 (Speed 3)

Notes (1) Please refer to page 73 regarding dry operation.
(2) Fan speeds shown in brackets are shown for when continuing with set temperatures.

2) Fan speed knob: AUTO

- The indoor fan is automatically controlled in accordance with the difference between the room temperature (detected by the room temperature sensor) and the thermostat setting as shown below.

Set-ting temp / Mode	Heating	Cooling	Fan
18~30°C			
Continuous	Speed 5	Speed 4	Speed 3

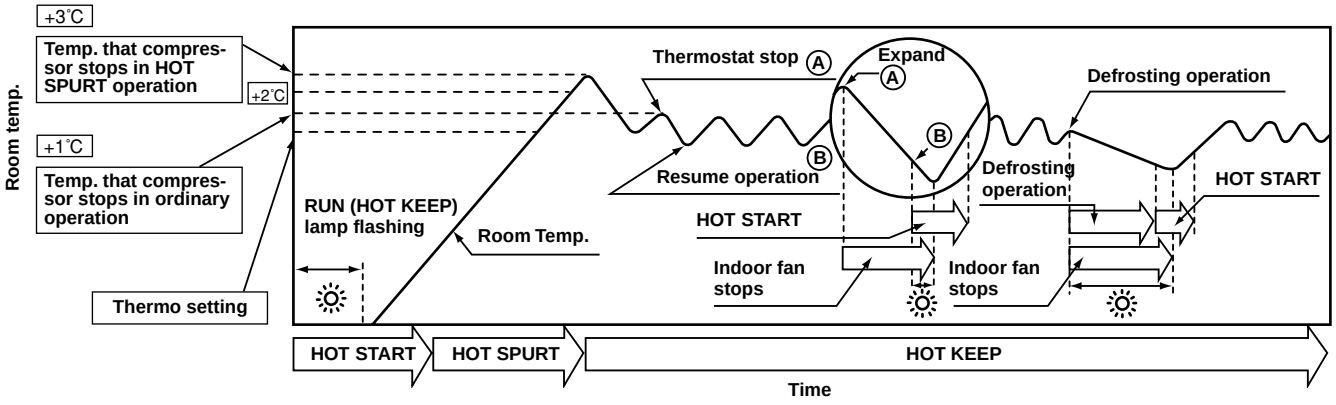
Note (1) Please refer to page 73 regarding dry operation.

(5) 3 Hot system (Heat pump type only)

When initiating heating operation, restoring thermostat, defrosting operation, the indoor fan motor and the thermostat is controlled by micro computer in accordance with the room air temp, and temp, of the indoor heat exchanger.

By this blowing of cold air is prevented and comfortable heating operation is assured.

Controls of thermostat and indoor fan motor.



(a) HOT START (RUN (Hot keep) lamp flashing when the indoor fan is stopped)

1) Operation timing

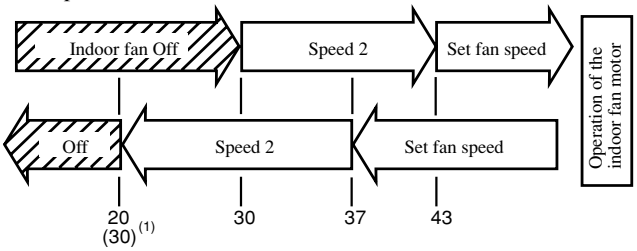
a) When the compressor is starting. (when starting operation and resuming operation by restored thermostat)

b) When the defrosting operation is switched to the heating operation.

2) Function

a) The indoor fan motor is controlled in accordance with the temperature of the indoor heat exchanger to send warm air from the start.

b) When the air flow increases at heating starting as shown below, the temperature of the indoor heat exchanger become lower since the intake air temperature is still low. By this the fan speed is decreased. In this case, in order to prevent excessively ON/OFF switching of the fan motor, the controlling temperature is made different from the controlling temperature for HOT KEEP.



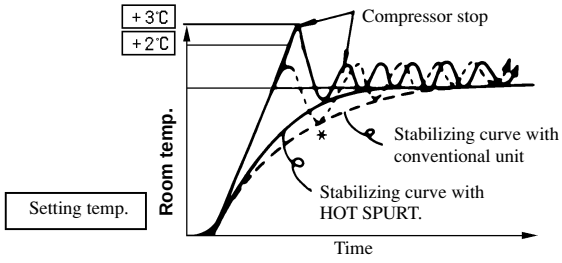
Note (1) When the compressor has stopped, the indoor fan will stop at 30°C

(b) HOT SPURT

1) Operation timing

When starting operation. (during start-up)

2) Function



The set temperature of the thermostat is increased by 2˚C to stabilize the room temperature quickly. When starting heating, since the surrounding wall and furniture is cold, if the compressor is stopped by thermostat, the 3 min. delay timer operates, the temperature drops rapidly during the 3 min, and although the thermostat has to resume operation, air conditioner would not start for those 3 min. (where marked *)

(c) HOT KEEP

1) Cold draft prevention (I)

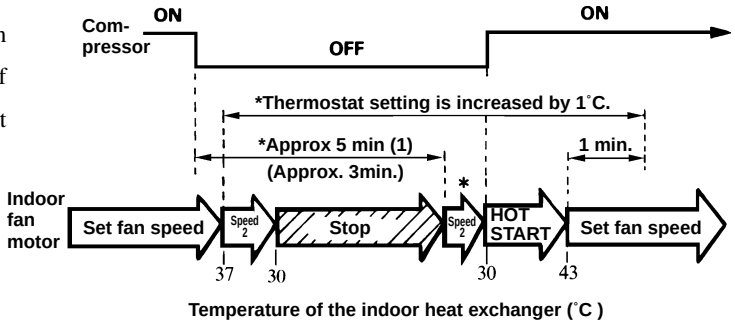
a) Operation timing: While defrosting operation

b) Function: The indoor fan is stopped and RUN (HOT KEEP) lamp flashing.

2) Cold draft prevention (II)

a) Operation timing: When thermostat is switched to "off".

b) Function: The indoor fan operates as shown below, and after the passage of a period of either 5 minutes return to thermo. Control at speed 2 operation.

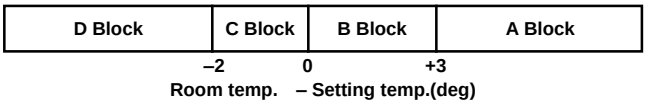


Notes (1) When the thermostat does not reset within 5 minutes, reset it by operating the indoor fan motor at speed 2.
(2) Refer to above explanation of HOT START function.
(3) The * marked speed 2 operation shows the case in which the thermostat is switched to off. While the defrosting operation the * marked operation are not performed.

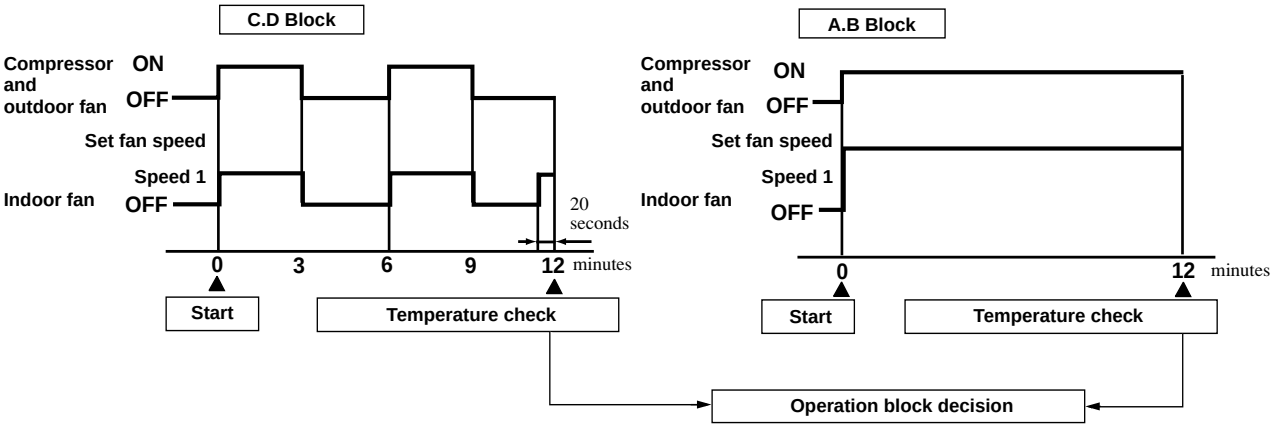
(6) DRY operation

(a) Choose the appropriate operation block area by the difference between room temperature and thermostat setting temperature as shown below.

● **Operation block area**



(b) Start up operation

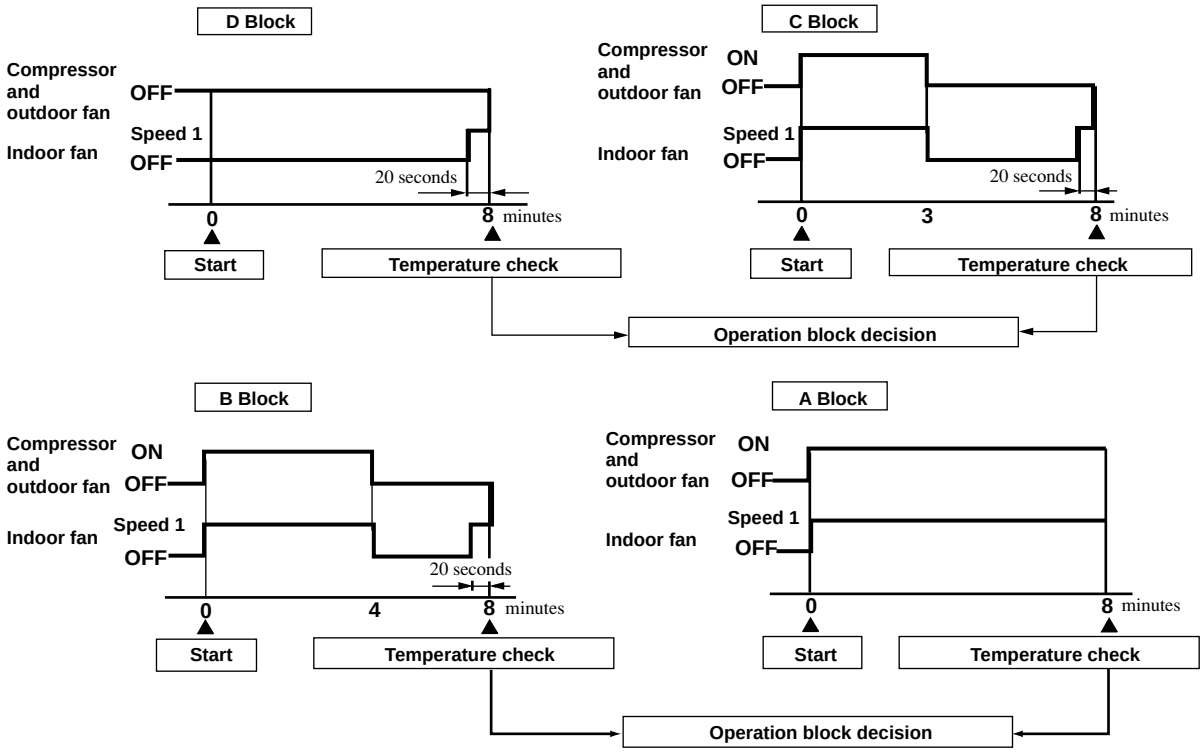


Note (1) Thermostat operation is performed in A, B Block. When compressor and indoor fan stop by thermostat operation within 12 minutes from start, temperature check is performed by operating indoor fan at speed 1 (2) for 20 seconds before finishing 12 minutes and allowing decision of next operation block.

(c) DRY operation

After finishing start up operation described in (b) above, thermal dry operation is performed at 8 minutes intervals, according to the difference between room temperature and thermostat setting temperature as shown below.

Beside, 1 cycle of this operating time consists of 8 minutes, 7 cycle operation is performed then.



(7) Dew condensation prevention control for cooling operation

This prevents dew condensation, in the indoor unit, from occurring.

(a) **Operating condition:** when 52C is kept ON for 30 min. after the unit starts operation.

(b) **Operation content:** forces the indoor fan to change from Speed 1 to Speed 2.

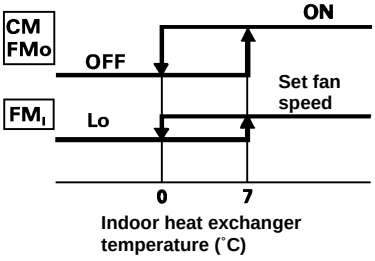
(c) **Resetting condition:** When 52C is off, or when dew condensation prevention control has been operating continuously for 30 minutes.

(8) Frost prevention for indoor heat exchanger [Preventing frost accumulation on the indoor heat exchanger]

During the Cooling or Dry operation in low room air temp. condition, evaporating temperature will decrease and consequently indoor heat exchanger sometimes gets clogged with frost (or ice).

In order to prevent this trouble, compressor is stopped by under mentioned condition by indoor heat exchanger sensor (Th2) and timer (built into micro computer circuit) functions.

Also indoor fan is changed over to Lo speed.



CM, FMo stoppage condition

① Temperature of heat exchanger is 0˚C or lower.

② As least 10 minutes has passed since the compressor started.

CM, FMo re-starting condition

① Temperature of heat exchanger is 7˚C or higher.

② As least 3 minutes has passed since the compressor stopped.

(9) Microcomputer controlled timely defrosting operation (Heat pump type only)

(a) Defrost Start

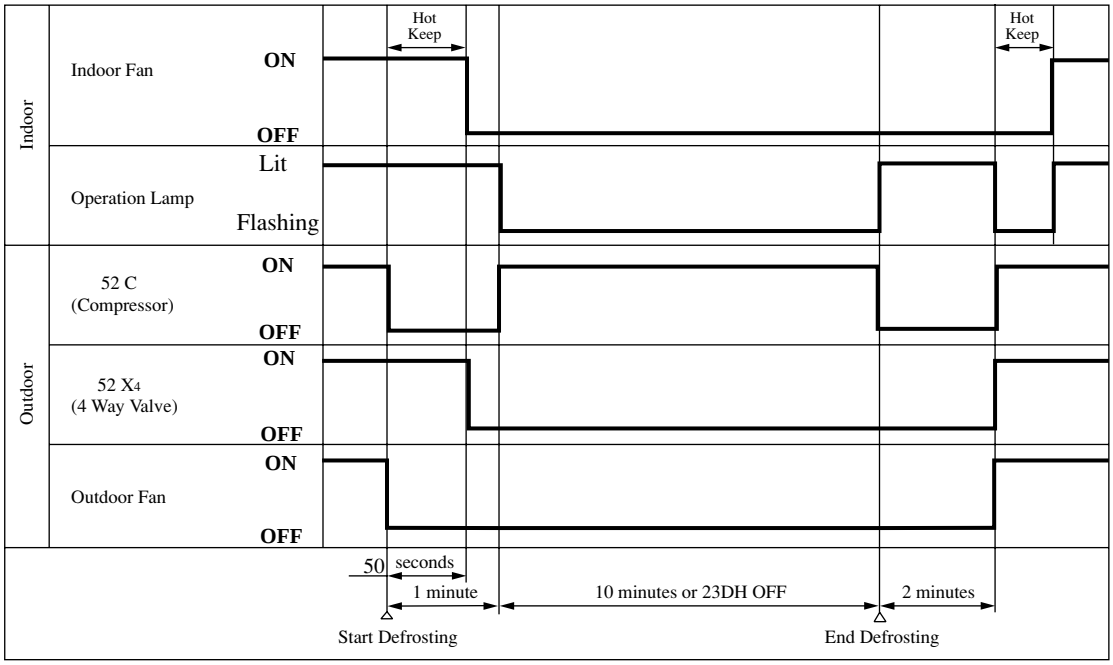
Changes in the difference in temperature between the intake air temperature and the indoor heat exchanger temperature causes frost to build up, at which time defrosting begins. However, defrosting will not occur when the total compressor operation time or time after defrosting has ended is 40 minutes.

(b) Defrost End (heat exchanger temperature or timer)

1) What the heat exchanger temperature (detected by 23DH) reaches the value given below, defrosting is ended and heating operation is returned to. Preset values: 14C˚

2) Operation will also return to heating operation when more then 10 minutes has passed since the starting of defrosting operation.

Device operation during defrosting



(10) Forced defrosting (Heat pump type only)

To test forced defrosting in the operation test mode, the unit may be operated once in the forced defrost mode as shown below.

◆32, 40 models

Temporarily turn off the power source and then perform the following operation using the remote controller within 20 seconds after the power is turned back on.

Operation	: **Run**	Air flow	: **Swing**
Fan speed	: **Low**	Timer switch	: **On timer (🕘)**
Operation setting	: **Heating**	On time	: **3H**
Temperature setting	: **19**		

◆50, 56 models

Turn the unit off and then on again, then perform the following operations within 20 seconds. ON-OFF: "ON"; FAN SPEED: "LO"; Operation mode switch: "HEAT": Room temperature adjustment: "19", Timer switch: "ON"; Airflow switch: Swing, Time: as desired; Start time: 180 minutes after present time: (Refer to note (1))

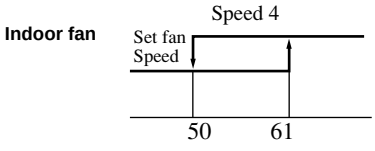
Note (1) Example of timer setting.
Clock: AM 4:00
ON time: AM 7:00

- When the remote control operation is performed, forced defrosting will start for one minute after the three minute timer operation ends. After that the defrost thermostat(23DH) will either turn OFF or the operation will stop after 10 minutes.

(11) High-pressure control (Heat pump type only)

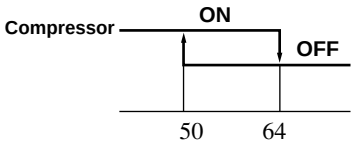
The indoor heat exchanger thermistor detection temperature controls the indoor fan and compressor.

- **When the indoor heat exchanger temperature Is ≧ 61˚C**



Indoor heat exchanger temperature (˚C)

- **When the indoor heat exchanger temperature Is ≧ 64˚C**



Indoor heat exchanger temperature (˚C)

(12) Three-minute forced operation

When the compressor begins operating the thermal operation is not effective for three minutes, so operation continues as is in the operation mode. (After three minutes has passed the thermal operation is effective.)

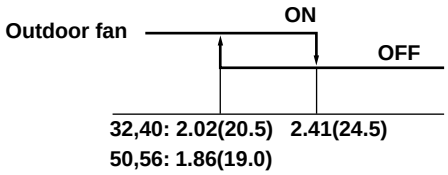
However, stopping the compressor via a stop signal or protection control has priority.

(13) Heating operation overload protection (Heat pump type only)

During heating operation in overload condition (room outside air temperature is considerably high), in order to protect the unit, the outdoor fan is controlled by the pressure switch (63H) and the compressor and outdoor fan are controlled by the heat exchanger sensor (Th_2)

(a) Outdoor fan control

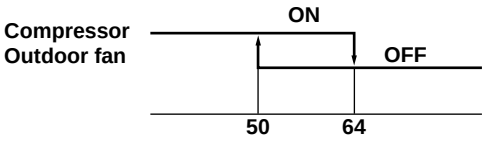
High pressures are prevented and extreme heat absorption controlled by turning the outdoor fan ON and OFF with the pressure switch.



High pressure MPa (kgf/cm²)

(b) Compressor and outdoor fan control

When high pressure occurs even with the outdoor fan off, stop the compressor and outdoor fan with the indoor heat exchange sensor to protect the unit.



Indoor heat exchanger temperature (°C)

(14) High power operation (Remote controller "HI POWER" button on) [50, 56 model only]

The indoor unit fan rotates at speed 4 for 15 minutes, and carries out continuous cooling and heating.

(15) Economy operation (Remote controller "ECONO" button on) [50, 56 model only]

(a) Cooling economy operation

The indoor unit fan operates 2ºC higher than the set temperature at speed 1.

(b) Thermal dry economy operation

Thermal dry operation carried out at 2ºC higher than the set temperature.

(c) Heating economy operation

The indoor unit fan operates 2ºC lower than the set temperature at speed 2.

(16) Self diagnosis function

When something abnormal happens on the outdoor unit, indoor unit fan motor and each sensor (heat exchanger, room temperature,) it will be indicated by flashing lamps.

(a) Abnormality of outdoor unit: TIMER lamp will flashing when 5 minutes after it has been operated with the compressor ON (52ºC ON) the temperature on heat exchanger thermistor will not go below 25ºC for more than 20 minutes for cooling and will not go over 30ºC for more than 20 minutes for heating.
(The compressor will stop when cooling more than 20 minutes after flashing of the lamp, or heating above 25ºC abe below 30ºC.)

(b) Abnormality of indoor fan motor: The indoor fan motor revolves at a rate under 300 rpm for 30 seconds or longer, the RUN lamp will flash.

(c) Abnormality of heat exchanger thermistor: RUN lamp will flashing when the input temperature of the heat exchanger thermistor measures less than –20ºC for more than 3 seconds with the air-conditioner "OFF". (will not flashing during operation)

(d) Abnormality room temperature thermistor: RUN lamp will flashing when the input temperature of the room temperature thermistor measures less than –20ºC for more than 3 seconds with the air-conditioner "OFF". (will not flashing during operation)

Note (1) If the above abnormalities happen concurrently, the lamp will flashing in the order of item number (a) through (d) above.

2.5 APPLICATION DATA

SAFETY PRECAUTIONS

- Please read these "Safety Precautions" first then accurately execute the installation work.
- Though the precautionary points indicated herein are divided under two headings, ⚠WARNING and ⚠CAUTION, those points which are related to the strong possibility of an installation done in error resulting in death or serious injury are listed in the ⚠WARNING section. However, there is also a possibility of serious consequences in relationship to the points listed in the ⚠CAUTION section as well. In either case, important safety related information is indicated, so by all means, properly observe all that is mentioned.
- After completing the installation, along with confirming that no abnormalities were seen from the operation tests, please explain operating methods as well as maintenance methods to the user (customer) of this equipment, based on the owner's manual. Moreover, ask the customer to keep this sheet together with the owner's manual.

⚠WARNING

- This system should be applied to places as households, residences and the like. Application to inferior environment such as engineering shop could cause equipment malfunction.
- Please entrust installation to either the company which sold you the equipment or to a professional contractor. Defects from improper installations can be the cause of water leakage, electric shocks and fires.
- Execute the installation accurately, based on following the installation manual. Again, improper installations can result in water leakage, electric shocks and fires.
- For installation, confirm that the installation site can sufficiently support heavy weight. When strength is insufficient, injury can result from a falling of the unit.
- For electrical work, please see that a licensed electrician executes the work while following the safety standards related to electrical equipment, and local regulations as well as the installation instructions, and that only exclusive use circuits are used.
  Insufficient power source circuit capacity and defective installment execution can be the cause of electric shocks and fires.
- Accurately connect wiring using the proper cable, and insure that the external force of the cable is not conducted to the terminal connection part, through properly securing it improper connection or securing can result in heat generation or fire.
- Take care that wiring does not rise upward, and accurately install the lid/service panel. It's improper installation can also result in heat generation or fire.
- When setting up or moving the location of the air conditioner, do not mix air etc. or anything other than the designated refrigerant (R22) within the refrigeration cycle.
  Rupture and injury caused by abnormal high pressure can result from such mixing.
- Always use accessory parts and authorized parts for installation construction. Using parts not authorized by this company can result in water leakage, electric shock, fire and refrigerant leakage.
- Ventilate the work area when refrigerant leaks during the operation.
  Coming in contact with fire, refrigerant could generate toxic gas.
- Confirm after the foundation construction work that refrigerant does not leak.
  If coming in contact with fire of a fan heater, a stove or movable cooking stove, etc., refrigerant leaking in the room could generate toxic gas.

⚠CAUTION

- Execute proper grounding. Do not connect the ground wire to a gas pipe, water pipe, lightning rod or a telephone ground wire.
  Improper placement of ground wires can result in electric shock.
- The installation of an earth leakage breaker is necessary depending on the established location of the unit.
  No installing an earth leakage breaker may result in electric shock.
- Do not install the unit where there is a concern about leakage of combustible gas.
  The rare event of leaked gas collecting around the unit could result in an outbreak of fire.
- For the drain pipe, follow the installation manual to insure that it allows proper drainage and thermally insulate it to prevent condensation. Inadequate plumbing can result in water leakage and water damage to interior items.

2.5.1 Selection of location for installation

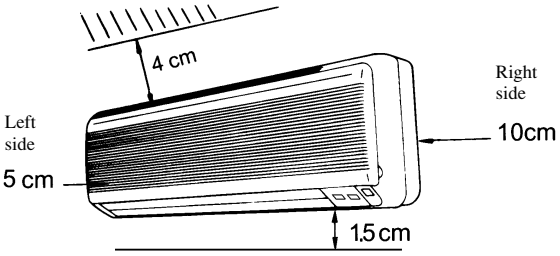
(1) Indoor unit

(a) Where there is no obstructions to the air flow and where the cooled air can be evenly distributed.

(b) A solid place where the unit or the wall will not vibrate.

(c) A place where there will be enough space for servicing. (Where space mentioned below can be secured)

(d) Where wiring and the piping work will be easy to conduct.



(e) The place where receiving part is not exposed to the direct rays of the sun or the strong rays of the street lighting.

(2) Outdoor unit

(a) A place where good air circulation can be obtained.

(b) A place where the exhausted air will not be sucked in for the second time.

(c) A place where the unit will not be affected by other heat sources. (When there are several units installed or another heat source)

(d) Do not install the unit near the seaside, or where there is possibility of chlorine gas generation.

(e) A place where discharged hot and cold air or unit's operating sound will not be nuisance to the neighbourhood.

(f) A place where servicing space can be secured.

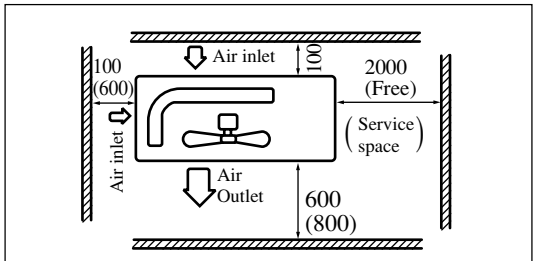
(g) A place where vibration will not be enlarge.

(h) In heating operation, snow deposit on the heat-exchanger of outdoor unit must be prevented for keeping the normal performance capacity.

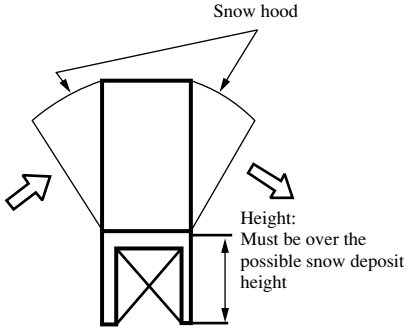
(i) Snow-hood on outdoor unit as in drawing, will reduce the frequency of defrost operation.

When installing the snow hood, take care so that the air outlet of the snow hood will not face directly into the most windy direction.

(ii) Design the base higher than possible snow deposit.

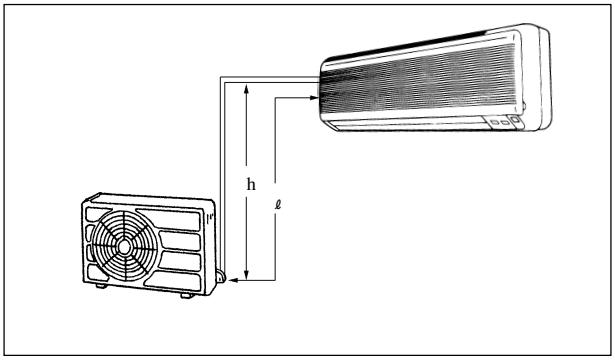


Notes (1) If the wall is higher than 1.2 m or a ceiling is present, distances larger than indicated in the above table must be provided.
(2) Value in ( ) indicates 50,56 models



(3) Limitations for one way piping length and vertical height difference.

Item \ Model		All models
One way piping length (ℓ)		15
Vertical height difference (H)	Outdoor unit is lower	5 m
	Outdoor unit is higher	5 m

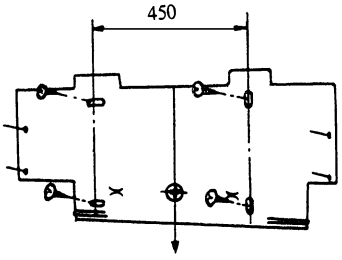


2.5.2 Installation of indoor unit

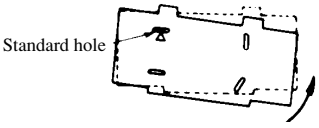
(1) Installation if installation board

(a) Fixing of installation board

Lock for the inside wall structures (Intermediate support or pillar) and firmly install the unit after level surface has been checked.

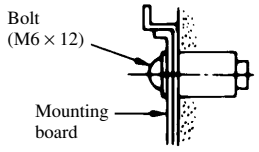
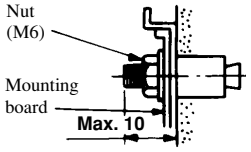


Adjustment of the installation board in the horizontal direction is to be conducted with lour screws in a temporary tightened state.



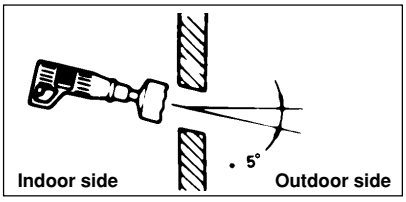
Adjust so that board will be level by turning the board with the standard hole as the center.

(b) Fixing method of installation board

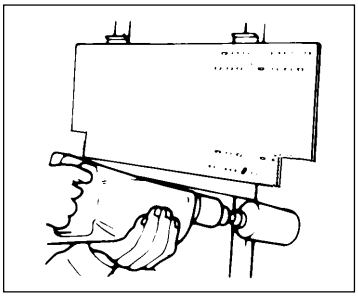
Fixing on concrete wall	
Use of nut anchor	Use of bolt anchor
	

(2) Drilling the and installation of sleeve

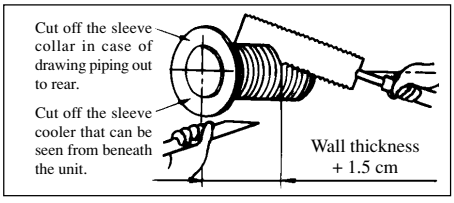
(a) Drill a hole with ø65 whole core drill



Note (1) Drill a hall with incline of 5 degree from indoor side to outdoor side.

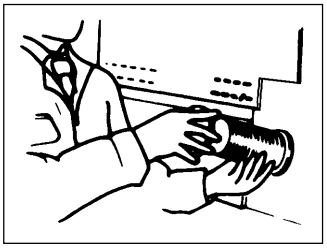


(b) Adjusting sleeve lenght (Option parts)

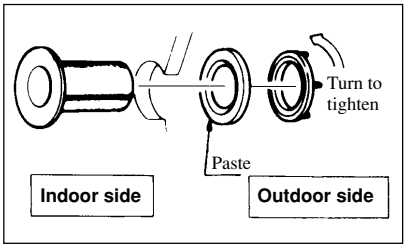


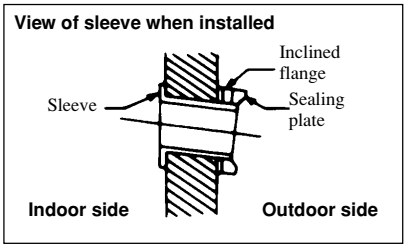
(c) Install the sleeve

(Inserting sleeve)



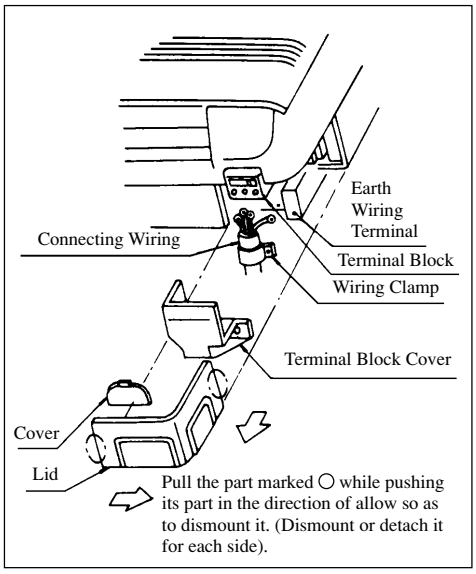
(*Sleeve + *Inclined + *Sealing plate)





(3) Preparation of indoor unit

(a) Mounting of connecting wires



◆ 32, 40 models

(i) Remove lid.

(ii) Remove cover, terminal block cover.

(iii) Connect the connection wire securely to the terminal block.

① Affix the connection wire securely to the terminal block. If the wire is not affixed completely, contact will be poor, and it is dangerous as the terminal block may heat up and catch fire.

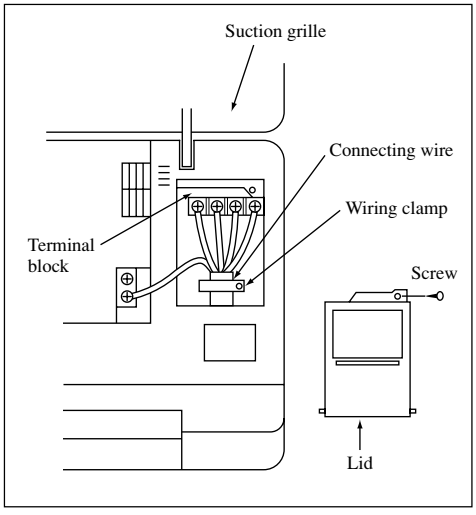
② Take care not to confuse the terminal numbers for indoor and outdoor connections.

③ Affix the connection wire using the wiring clamp.

(iv) Attach the terminal back cover.

(v) Attach the lid.

◆ 50, 56 models



(i) Open the suction grille, then remove the lid.

(ii) Remove the wiring clamp.

(iii) Pass the connecting wire to terminal block from behind of indoor unit.

(iv) Connect the connecting wire securely to the terminal block.

① Connect the connection wire securely to the terminal block. If the wire is not affixed completely, contact will be poor, and it is dangerous as the terminal block may heat up and catch fire.

② Take care not to confuse the terminal numbers for indoor and outdoor connections.

③ Affix the connection wire using the wiring clamp.

(v) Fix the connecting wire by wiring clamp.

(vi) Attach the lid.

(vii) Close the suction grille.

Use cables for interconnection wiring to avoid loosening of the wires.
CENELEC code for cables Required field cables.

H05	RNR3G1.5 (Example)
H	Harmonized cable type
05	300/500 volts
R	Natural-and/or synth, rubber wire insulation
N	Polychloroprene rubber conductors insulation
R	Stranded core
3or5	Number of conductors
G	One conductor of the cable is the earth conductor (yellow/green)
1.5	Section of copper wire (mm^2)

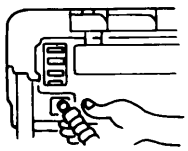
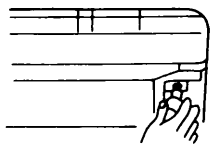
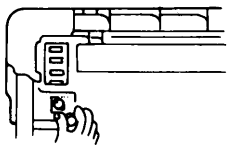
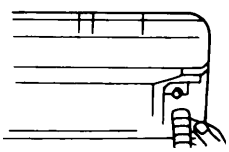
type	Cooling only type	Heat pump
1 BROWN	○	○
2 BLUE	○	○
3 BLACK	–	○
4 GREEN	–	○
⏚ YELLOW/GREEN	○	○

(b) Protective taping (Protect the cable with tape at the section where the cable passes through the hole opened on the wall.)

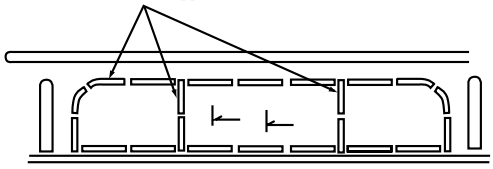
(c) Forming of pipe (Holding down the pipe at the root, change the pipe direction, extend it and adjust according to the circumstance.)

[When the pipe is extended to left and taken out from the rear center]

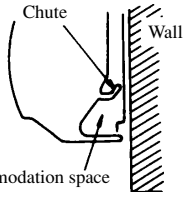
(Drain pipe relocation procedure)

1. Remove the drain pipe.	2. Remove the drain cap.	3. Insert the drain cap.	4. Connect the drain pipe.
			
• Loosen the spring clamp to remove.	• Remove by hand or use cutting pliers, etc.	• Securely insert the drain cap removed in the step 2. Note: If it is inserted insufficiently, water leakage could result.	• Loosen the spring clamp and securely insert the drain pipe. Note: If it is inserted insufficiently, water leakage could result.

- When arranging the pipe through a hole opened at the center, open the knockout hole using nippers, etc.



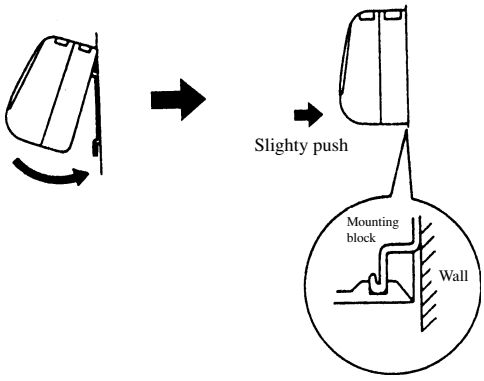
Note (1) It is designed to collect moisture accumulated on the rear face in the drain pan. Be sure not to accommodate the power cable, etc. above the chute.

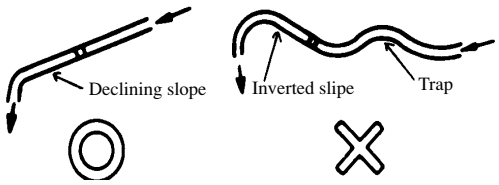


(4) Installation of indoor unit

(a) Hang the upper portion of the unit rear cover on the mounting board, and then magnet on the lower unit portion will pull to fix the unit.

(b) Be sure not to leave any trap on the drain pipe.





2.5.3 Installation of outdoor unit

(1) Installation of outdoor unit

(a) Make sure that sufficient space for installation and service is secured.

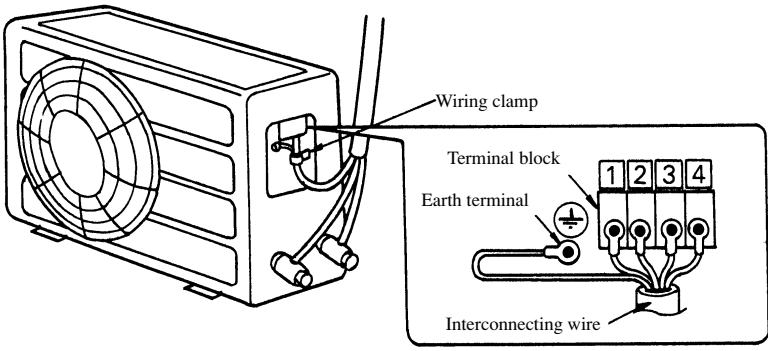
(b) Fix the leg sections of the unit on a firm base which will not play.
Attach cushion pads, etc. between the unit and the mounting fixtures not to transmit vibration to the building.

(c) Attach a drain elbow, etc. under the drain port of the bottom plate to guide drain water. (Drain elbow should not be used where days when temperature drops below 0°C continue for several days. Draining may be disturbed by frozen water.)

(d) When installing the unit at a higher place or where it could be toppled with strong winds, secure the unit firmly with foundation bolts, wire, etc.

(2) Connection of indoor and outdoor connecting wiring

(a) Connect the wiring according to the number of the indoor terminal block. (Mis-wiring may cause the burning damage, and make sure to connect correctly.)



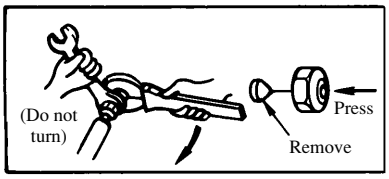
type	Cooling only type	Heat pump
1 BROWN	○	○
2 BLUE	○	○
3 BLACK	–	○
4 GREEN	–	○
⏚ YELLOW / GREEN	○	○

2.5.4 Refrigerant piping

(1) Preparation

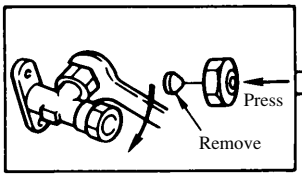
Keep the openings of the pipes covered with tapes etc. to prevent dust, sand, etc. from entering them.

Indoor unit side

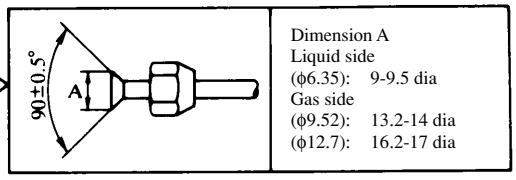


- Remove the flared nuts. (on both liquid and gas sides)

Outdoor unit side



- Remove the flared nuts. (on both liquid and gas sides)

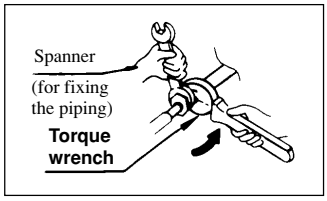


- Install the removed flared nuts to the pipes to be connected, then flare the pipes.

(2) Connection of refrigerant piping

Indoor unit side

- Connect firmly gas and liquid side pipings by Torque wrench.

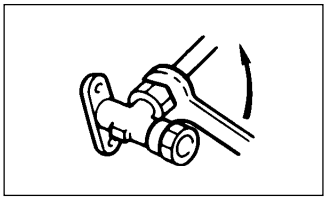


- Specified torquing value:

Liquid side (ø6.35) : 15.7~19.6 N·m(1.6~2.0 kgf·m)
Gas side (ø12.7) : 39.2~49.0 N·m(4.0~5.0 kgf·m)

Outdoor unit side

- Connect firmly gas and liquid side pipings by Torque wrench.



- Specified torquing value:

Liquid side (ø6.35): 15.7~19.6 N·m(1.6~2.0 kgf·m)
Gas side (ø12.7) : 39.2~49.0 N·m(4.0~5.0 kgf·m)

- **Use one more spanner to fix the valve.**

- Always use a Torque wrench and back up spanner to tighten the flare nut.

(3) Air purge

(a) Tighten all flare nuts in the pipings both indoor and outside wall so as not to cause leak.

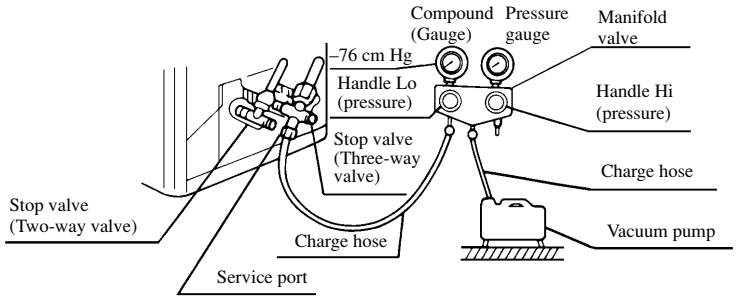
(b) Connect operating valve, charge hose, manifold valve and vacuum pump as is illustrated below.

(c) Open manifold valve handle Lo to its full width, and perform vacuum or evacuation.

Continue the vacuum or evacuation operation for 15 minutes or more and check to see that the vacuum gauge reads – 0.1MPa (– 76cm Hg).

(d) After completing vacuum operation, fully open operating valve (Both gas and liquid sides) with hexagon headed wrench.

(e) Check for possible leakage of gas in the connection parts of both indoor and outdoor.



Additional refrigerant charge

When refrigerant piping exceeds 7.5m conduct additional refrigerant charge after refrigerant sweeping.

Max. 10m Additional charge amount per meter = 20g/m*

10m over 15m Additional charge amount per meter = 30g/m

*In case of cooling only unit charge amount is 10g/m

[Example for heat pump units]

How much amount of additional charge for 10m piping?

(10 – 7.5)m × 20g/m = 50g 50g for additional charge

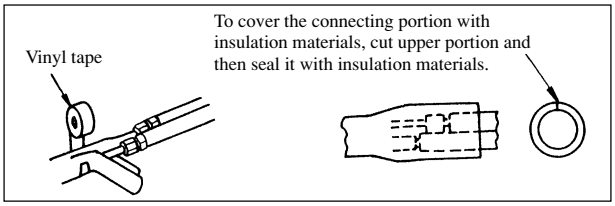
How much amount of additional charge for 15m piping?

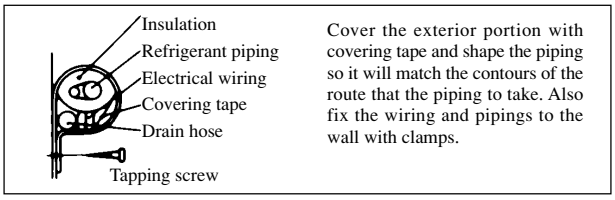
(10 – 7.5)m × 20g/m + (15 – 10)m × 30g/m = 200g 200g for additional charge

(4) Insulation of connecting portion

1) Cover the connection portion of the refrigerant piping with the pipe cover and seal them.
If neglecting to do so, moisture occurs on the piping and water will drip out.

2) Finishing and fixing
   a) Tie up the piping with wrapping tape, and shape it so that it conforms to which the pipe is attached.
   b) Fix them with clamps as right figure.





2.5.5 Test run

(1) Conduct trial run after confirming that there is no gas leaks.

(2) When conducting trial run set the remote controller thermostat to continuous operation position. However when the power source is cut off or when the unit's operation switch is turned off or was turned to fan operation position, the unit will not go into operation in order to protect the compressor.

(3) Insert in electric plug into the electric outlet and make sure that it is not loose.

(a) When there is something wrong with the electric outlet and if the insertion of the electric plug is insufficient, there may occur a burn out.

(b) It is very important to be careful of above when pulgging in the unit to an already furnished electrical outlet.

(4) Explain to the customer on the correct usage of the air conditioner in simple layman's terms.

(5) Make sure that drain flows properly.

(6) Standard operation data

(a) Heat pump type

(220/240V)

Item \ Model		SRK328HENF-L2	SRK408HENF-L2
High pressure MPa(kgf/cm²)	Cooling	–	–
	Heating	1.67~1.86 (17 ~ 19)	1.76 ~ 1.96 (18 ~ 20)
Low pressure MPa(kgf/cm²)	Cooling	0.44 ~ 0.54 (4.5 ~ 5.5)	0.39 ~0.49 (4.0 ~ 5.0)
	Heating	–	–
Temp. difference between suction air and discharge air (˚C)	Cooling	12 ~ 16	12 ~ 16
	Heating	18 ~ 22	18 ~ 22
Running current (A)	Cooling	6.9/6.9	6.4/6.4
	Heating	6.1/6.1	6.5/6.5

(220/240V)

Item \ Model		SRK501HENF-L	SRK561HENF-L
High pressure MPa(kgf/cm²)	Cooling	–	–
	Heating	1.67~1.86 (17 ~ 19)	1.76 ~ 1.96 (18 ~ 20)
Low pressure MPa(kgf/cm²)	Cooling	0.39 ~ 0.49 (4 ~ 5)	0.34 ~0.44 (3.5 ~ 4.5)
	Heating	–	–
Temp. difference between suction air and discharge air (˚C)	Cooling	12 ~ 16	13 ~ 18
	Heating	19 ~ 23	21 ~ 25
Running current (A)	Cooling	8.4/8.2	10.2/9.53
	Heating	8.5/8.3	10.5/9.95

(b) Cooling only type

(220/240V)

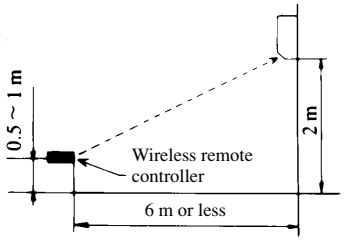
Item \ Model	SRK501CENF-L	SRK561CENF-L
High pressure MPa(kgf/cm²)	–	–
Low pressure MPa(kgf/cm²)	0.39 ~ 0.49 (4 ~ 5)	0.34 ~ 0.44 (3.5 ~ 4.5)
Temp. difference between suction air and discharge air (˚C)	12 ~ 16	13 ~ 18
Running current (A)	8.4/8.2	10.2/9.53

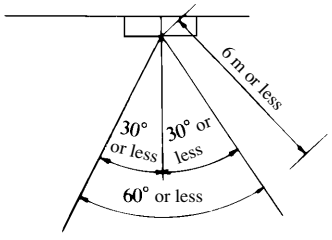
Note (1) The data are measured at following conditions.
Ambient air temperature
Indoor side: Cooling ... 27°C DB, 19°C WB, Heating ... 20°C DB
Outdoor side: Cooling ... 35°C DB, 24°C WB, Heating ... 7°C DB, 6°C WB

2.5.6 Precautions for wireless remote controller installation and operation

(1) Wireless remote controller covers the following distances:

(a) When operating facing the air-conditioner:

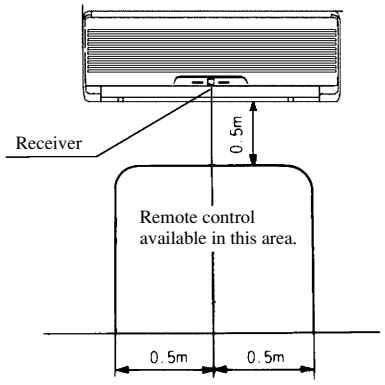




Notes (1) The remote controller is correctly facing the sensing element of the air conditioner when being manipulated.
(2) The typical coverage is indicated (in the left illustration). It may be more or less depending on the installation.
(3) The coverage may be less or even nil. If the sensing element is exposed to strong light, such as direct sunlight, illumination, etc., or dust is deposited on it or it is used behind a curtain, etc.

(b) When manipulating the remote controller mounted on a wall:

Make sure that it works normally (i.e., transmission/reception signal is audible) before mounting.

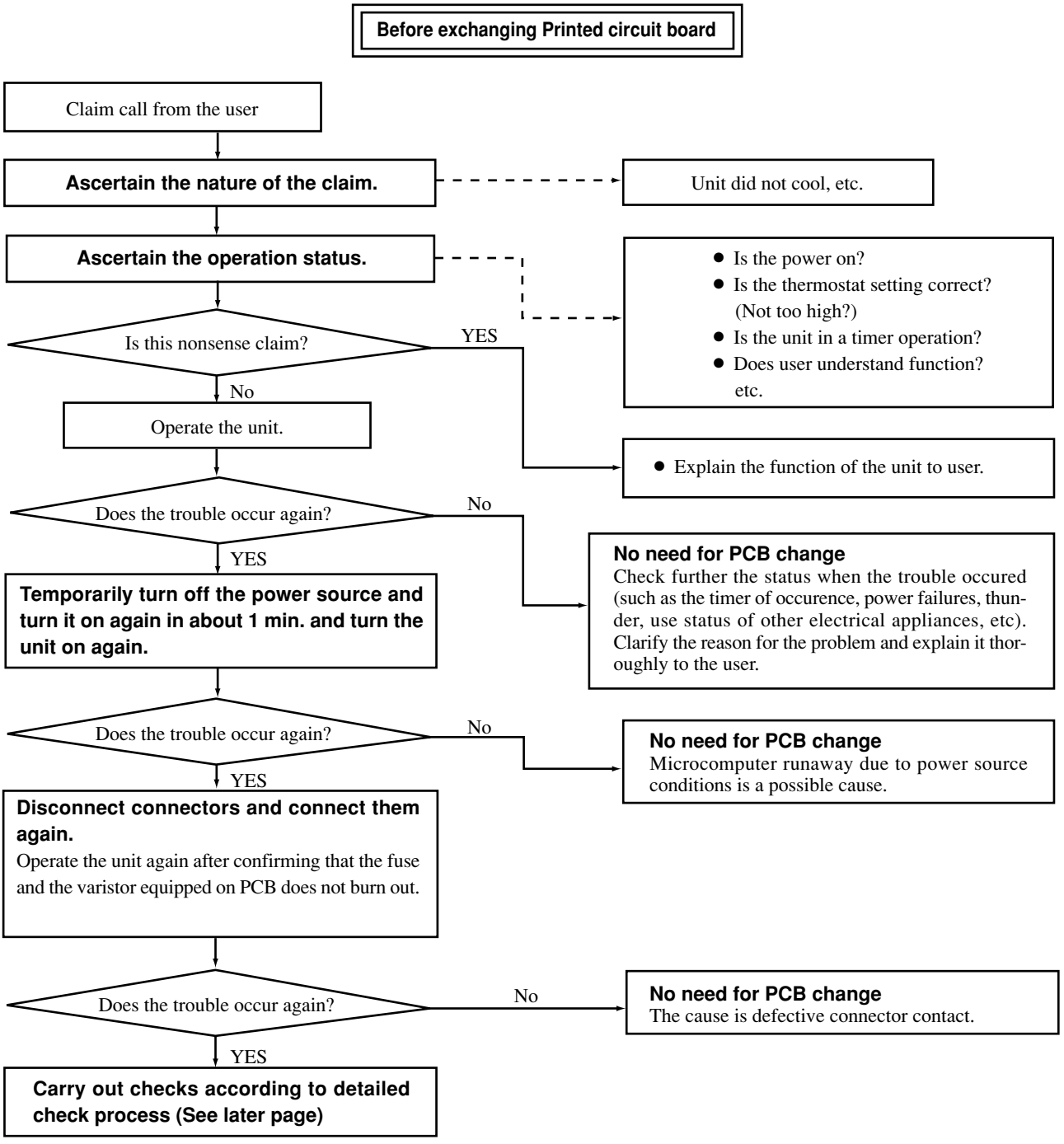


2.6 MAINTENANCE DATA

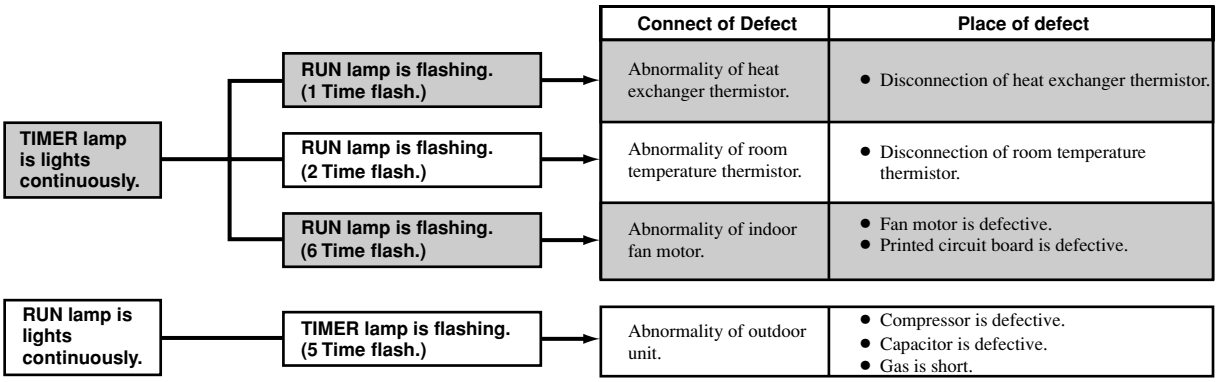
2.6.1 Trouble shooting

(1) Trouble shooting to be performed prior to exchanging PCB, (Printed circuit board) [Common to all models]

All the models described in this chapter are controlled by a microcomputer. When providing maintenance service to customers it is necessary to understand the function controlled by a micro computer thoroughly, so as not to mistakenly identify correct operations as mis-operations. It is also necessary to perform the following simple checks before conducting detailed checks or exchanging printed circuit board.



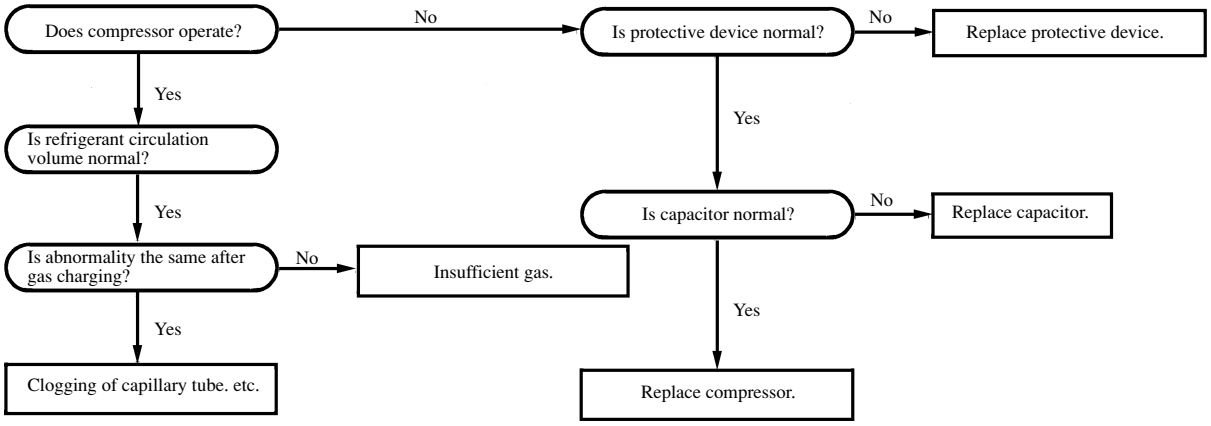
(2) Indication of Self Diagnosis (Indoor unit)



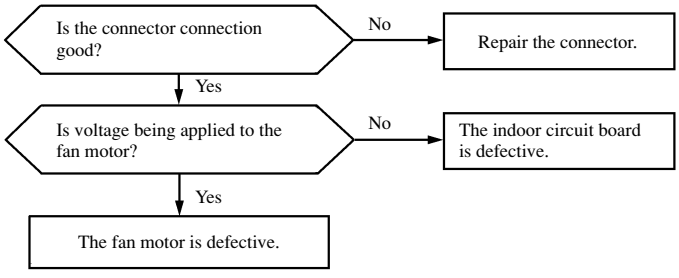
Connect of Defect	Place of defect
Abnormality of heat exchanger thermistor.	● Disconnection of heat exchanger thermistor.
Abnormality of room temperature thermistor.	● Disconnection of room temperature thermistor.
Abnormality of indoor fan motor.	● Fan motor is defective. ● Printed circuit board is defective.
Abnormality of outdoor unit.	● Compressor is defective. ● Capacitor is defective. ● Gas is short.

(3) Troubleshooting

Abnormality of outdoor unit [Compressor malfunction of insufficient gas (refrigerant)]



Abnormality of indoor fan motor (Fan motor defective, printed circuit board defective)



Anormality of thermistor — Disconnection of thermistor and defective connection of connector

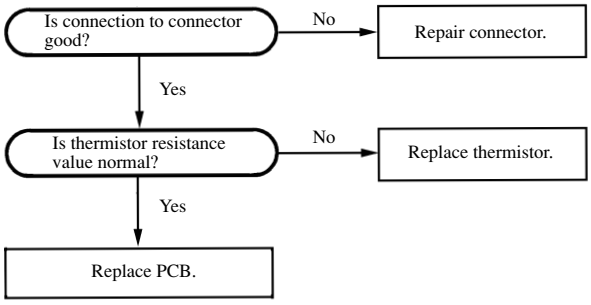
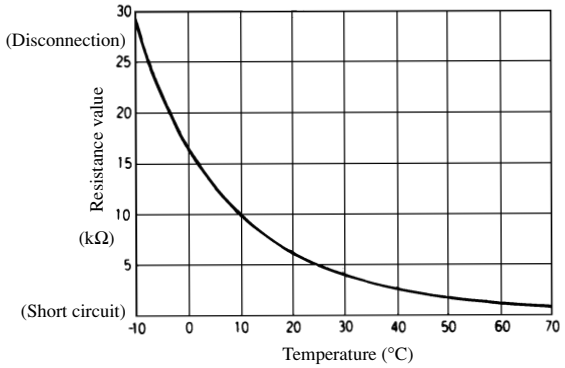
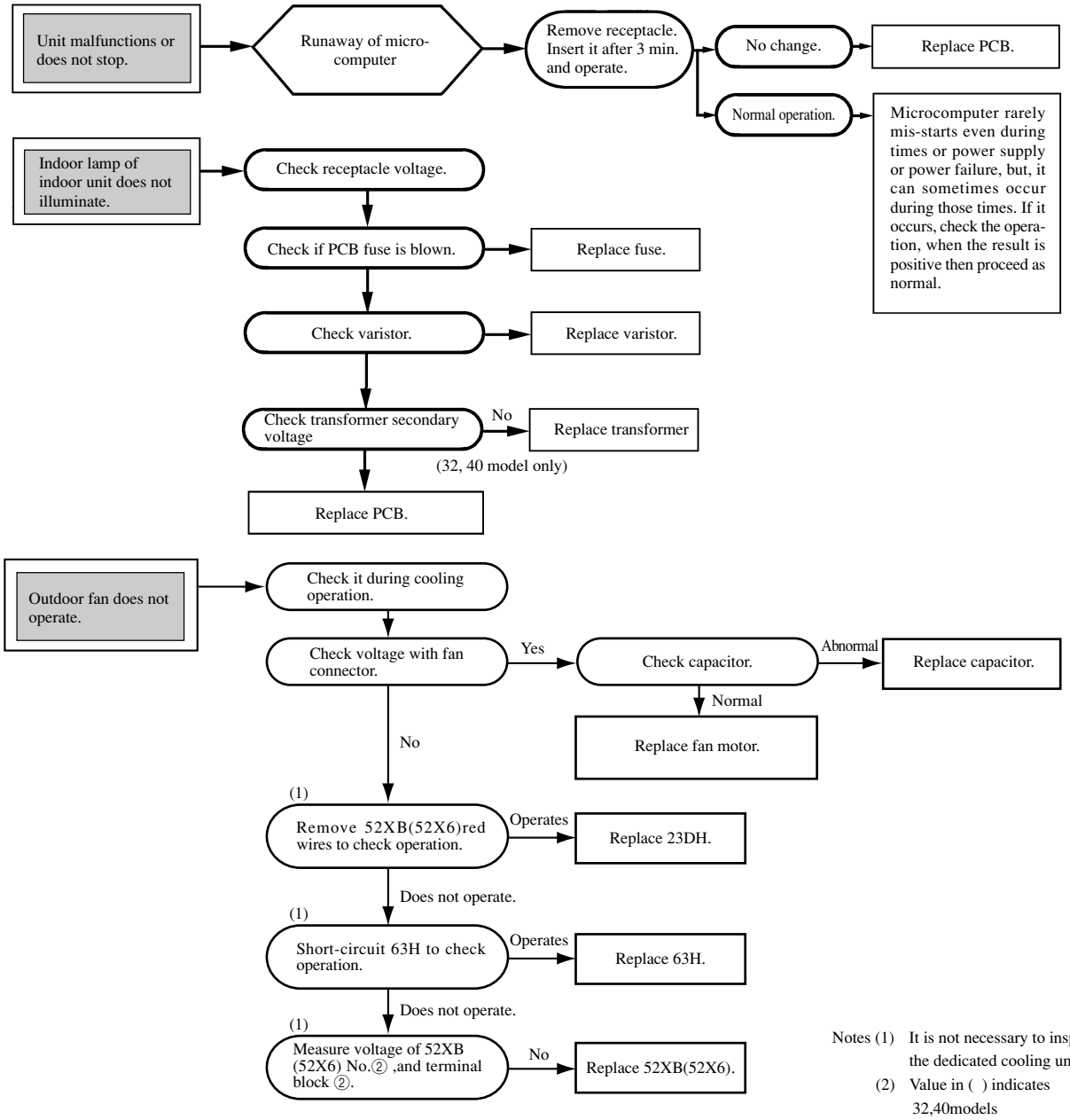


Chart for thermistor temperature resistance characteristics



(4) Trouble Diagnostic Procedures



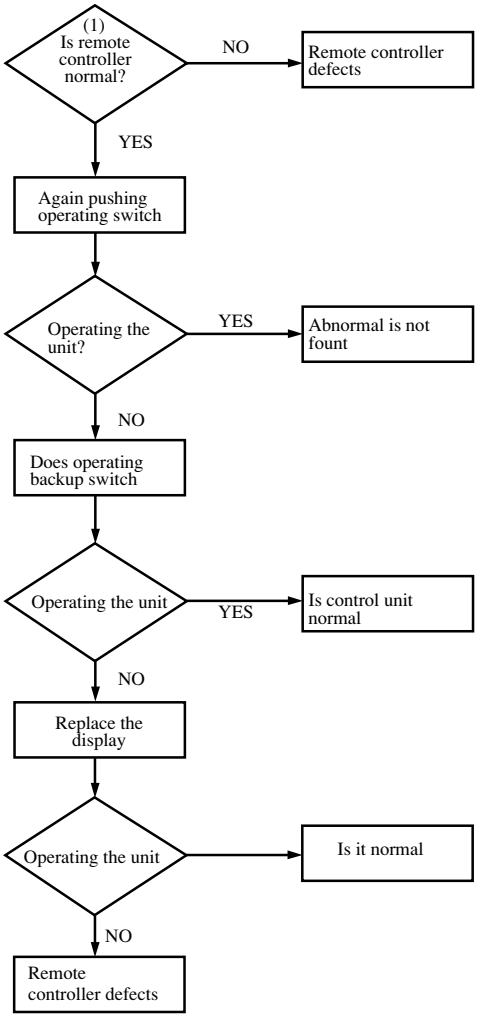
Notes (1) It is not necessary to inspect the dedicated cooling unit.
(2) Value in ( ) indicates 32,40models

(5) Trouble shooting chart for the room temperature thermistor (Th_1), heat exchanger thermistor (Th_2) and defrost thermostat (23DH)

Unit	Thermistor	Operation	Function	
			Short circuit	Broken connection
Indoor unit	**Room temperature thermistor (1) (Th_1) except for "continuous" thermal setting.**	**Cooling**	**Continuous Cooling operation** ● Cannot be turned ON/OFF by thermostat ● When FM_I is on. "AUTO" is continuously Hi	**Cooling will not operate** ● FM_I : continuous operation ● CM,FM_O: stopped
		Heating	**Heating will not operate** (CM, FM_O, FM_I all stopped)	**Continuous heating operation.** ● Cannot be turned ON/OFF by thermostat ● When FM_I is on. "AUTO" is continuously Hi
	Heat exchanger thermistor (Th_2)	**Cooling**	Cooling will not operate.	**Cooling will operate** ● Heat exchanger frost preventer begins to operate ● Cools alternately for 10 minutes, stopping for 3 minutes.
		Heating	**Heating will not operate** ● Heating overload protect begins to operate ● When FM is on, "AUTO'" is continuously Hi ● CM, FMo are stopped	**Heating will not operate normally** ● CM, FM_O are ON ● FM_I is OFF ● Hot keep lamp illuminated
Outdoor unit	**Defrost thermostat (23DH)**	**Cooling**	**Cooling will not operate (blown breaker)** ● CM, FM_I are ON ● FM_O is OFF	**No effect**
		Heating	**Heating will not operate normally** (The defrosting will operate normally, but 23DH reset is not possible. De frosts for 10 minutes)	**Heating will operate.** ● Unable to defros(2) ● Will not operate for very long when outside air temperature is low

Notes
(1) When the room temperature thermistor (Th_1) will not operate normally. Cooling or heating operation may be run continuously by putting the thermostat setting on "CONTINUOUS"
(2) When switching to the defrost cycle, 23DH opens (broken connection), the machanism resets to heating, and defrosting will not operate.

(6) How to make sure of remote controller

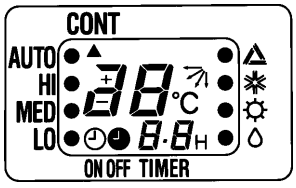


Note (1) How to check the remote controller

◆32, 40 models

(a) Press the reset switch of remote controller.

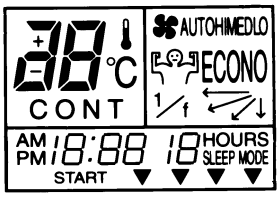
(b) If the salmost normal if entire display of remote controller is shown after 0 indication.



◆50,56 models

(a) Press the reset switch of remote controller.

(b) If the setting temperature is displayed 0˚C and then the present time is displayed 12:00, there is no significant problem.



2.6.2 Servicing

(1) Evacuation

The evacuation is an procedure to purge impurities ..... noncondensable gas, air, moisture from the refrigerant equipment by using a vacuum pump. Since the refrigerant R407C is very insoluble in water, even a small amount of moisture left in the refrigerant equipment will freeze, causing what is called water clogging.

- **Evacuation procedure**

(a) Check to ensure that there is no internal pressure in the unit. If there is an internal pressure, it should be relieved through the check joint.

(b) Connect the service hoses of the gauge manifold to the check joint of the gas & liquid piping.

(c) Connect a vacuum pump to the charge hose Ⓐ. Repeat evacuation in the following sequence.

Start the vacuum pump

↓

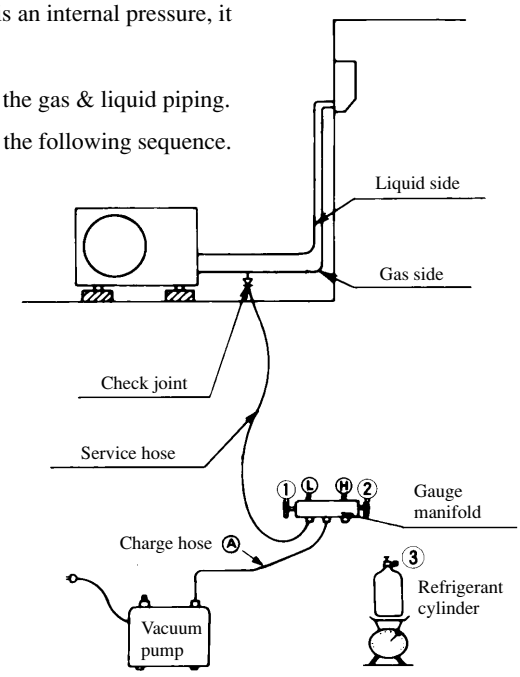
Operate the vacuum pump for more than 15 minutes after –0.1MPa (–76 cmHg) is indicated.

↓

Close low pressure valve ① of gauge manifold.

↓

Stop the vacuum pump.



Notes (1) Do not use the refrigerant pressure to expel air.
(2) Do not use the compressor for evacuation.
(3) Do not operate the compressor in the vacuum condition.

(2) Refrigerant charge

(a) Discharge refrigerant entirely from the unit and evacuate the unit.
Note: Addition of refrigerant without evacuation is unreasonable, because it will result in low charge or overcharge.

(b) Keep the gauge manifold and connect a refrigerant cylinder to the unit.

(c) Record the weight of the refrigerant cylinder on the balance. This is necessary for making sure of the charged refrigerant amount.

(d) Purge air from the charge hose Ⓐ.
Firstly loose the connecting portion of the charge hose Ⓐ at the gauge manihold side and open the valve ③ for a few seconds, and then immediately retighten it after observing that gas is blow out from the loosened portion.

(e) Open the valve ① and ③ after discharging air from the charge hose Ⓐ, then the gas refrigerant begins flowing from the cylinder into the unit. Be sure to erect the refrigerant cylinder upright to let gas refrigerant flow into the unit.

(f) When refrigerant has been charged into the system to some extent, **refrigerant flow becomes stagnant, when that happens, start the compressor in cooling cycle until the unit is filled with gas to the specified weight**.

(g) Making sure of the refrigerant amount, close the valve ③.

(h) Disconnect the charge hose from the unit. Cover the valve ports of the refrigerant piping with caps and tighten them securely.

(i) Check for gas leakage applying a gas leak detector along the piping line.

(j) Start the air conditioner and make sure of its operating condition ..... high side and low side pressures and temperature difference between suction air and outlet air.

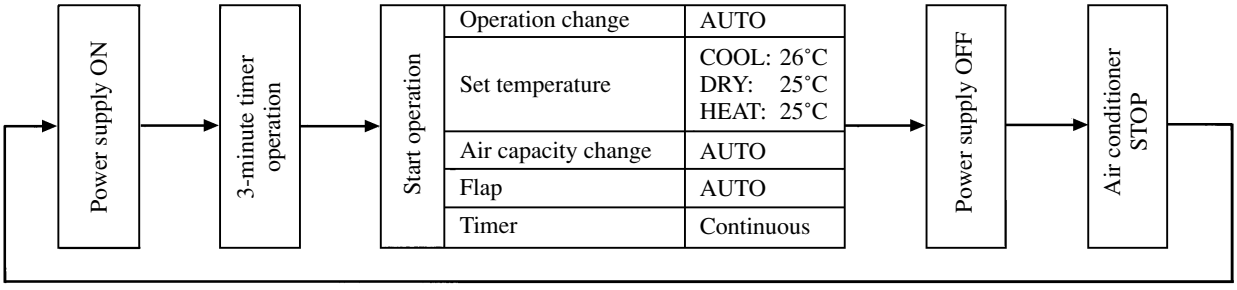
2.6.3 Power supply remote operation

When the remote part on indoor unit PCB is modified, the air conditioner is turned ON-OFF by power supply ON-OFF operation without using remote control switch.

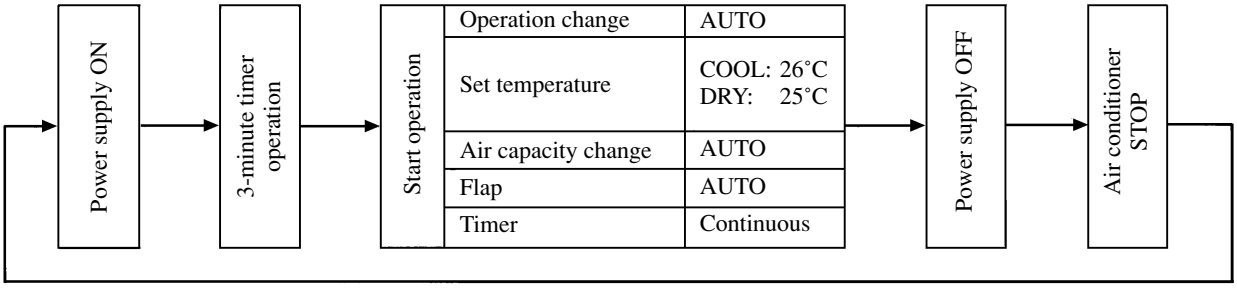
After the power supply remote operation, the operation contents can be modified by the remote controller.

(1) Operation contents

(a) Heat pump type



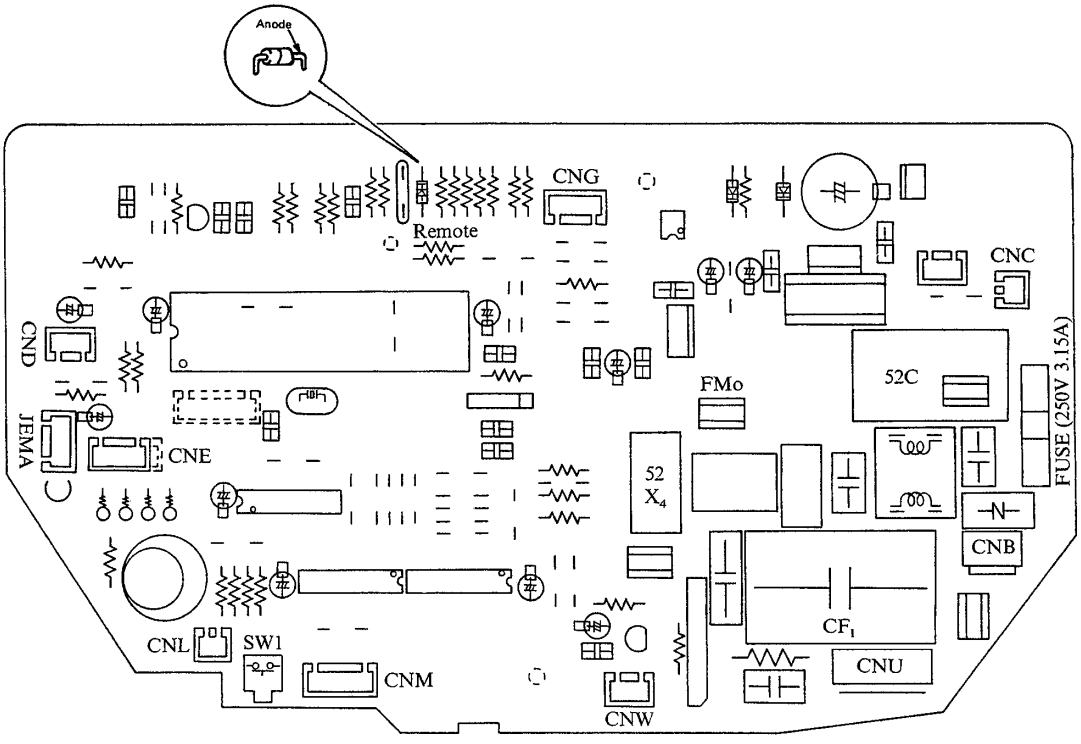
(b) Cooling only type



(2) Modification method

◆32,40 models

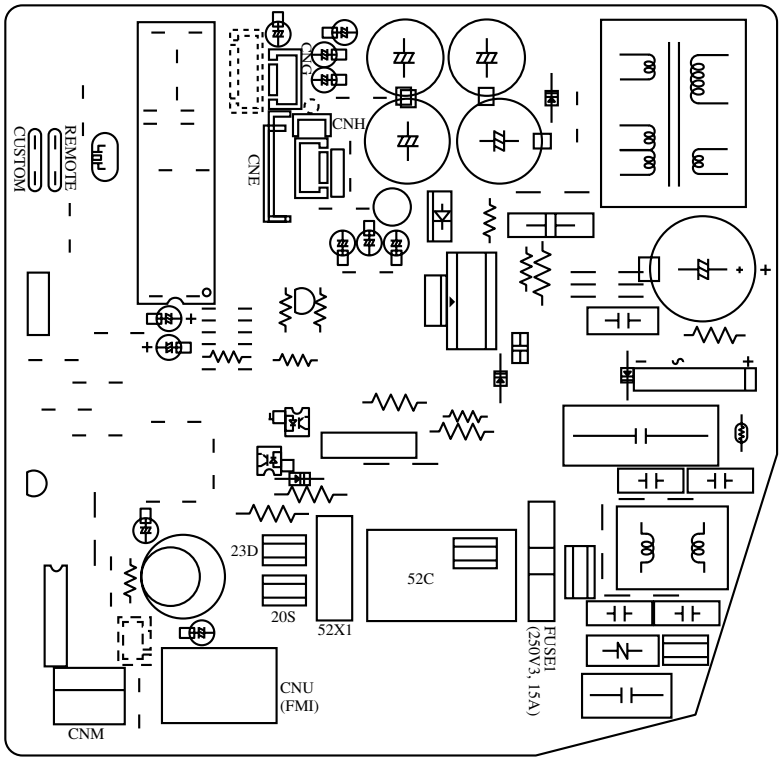
Solder the high-speed switching diode (manufacturer: Matsushita, Manufacture type No.: MA165) to "Remote" part on the PCB in the direction as shown in the diagram below.



◆50,56 models

Cut the jumper wire for the “REMOTE” section on the printed circuit board.

Carefully position the jumper wire so that it does not come in contact with other parts.



MEMO