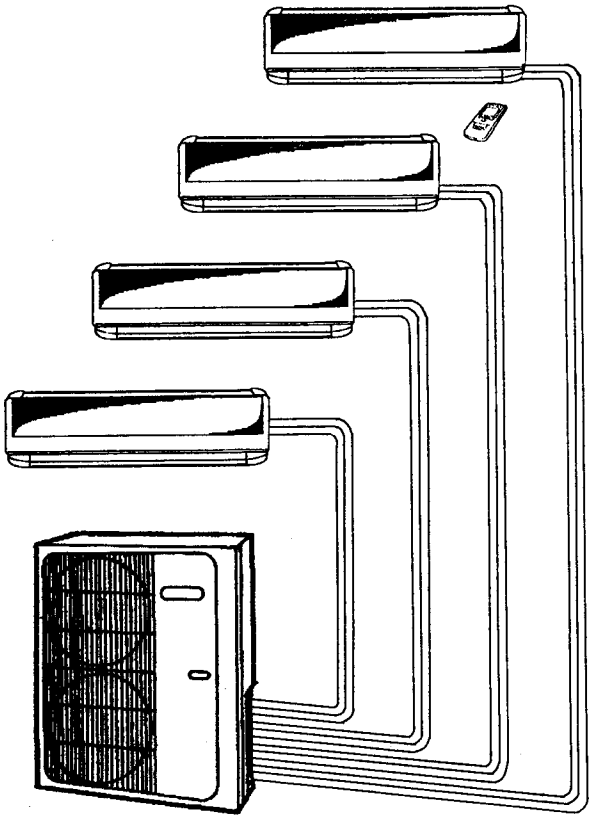
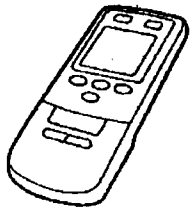
SERVICE INSTRUCTIONS

MULTI SPLIT SYSTEM
ROOM AIR CONDITIONER
12,000 BTU/h x 4 ROOMS

APPLICATION MODELS :
AS□12AN□-W/AO□32AN□M4
AS□12RN□-W/AO□32RN□M4



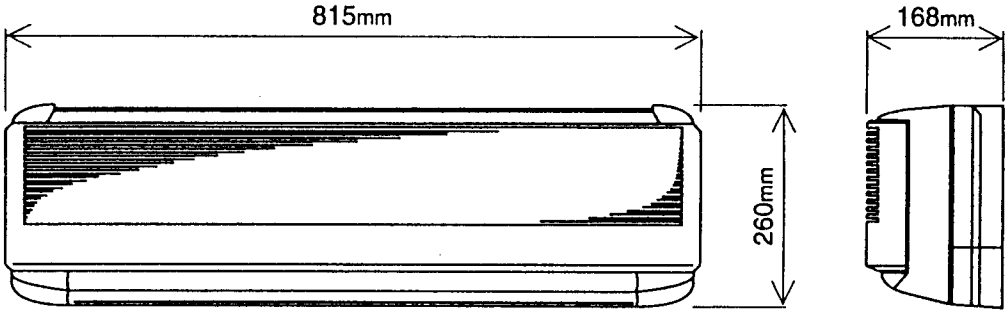
WALL MOUNTED TYPE
WIRELESS REMOTE
CONTROL MODEL

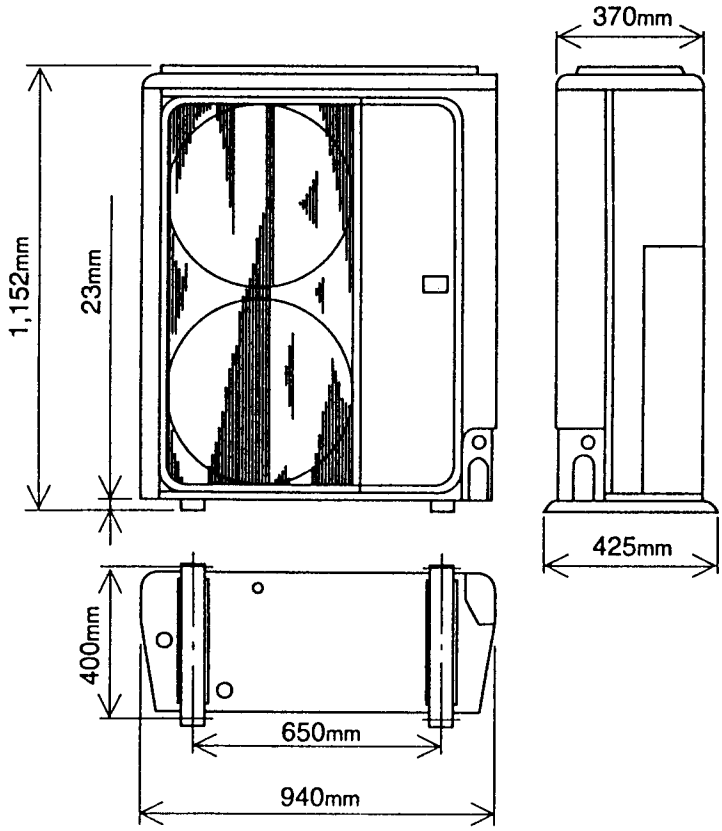


CONTENTS

No. SI-13AM-1

OUTLINE AND DIMENSIONS





DESCRIPTION OF FUNCTIONS

1. OPERATION CONTROL PANEL AND REMOTE CONTROL UNIT FUNCTIONS

1) OPERATION CONTROL PANEL

① POWER SWITCH
ON : During normal operation, leave in this position.

OFF: Set to this position when the unit is not used for an extended period of time.

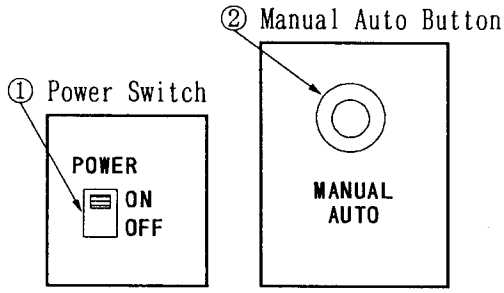
② MANUAL AUTO BUTTON
Use this button for temporary manual operation in the event that the remote control unit batteries die, or the remote control unit is lost.

The operation is the same as MASTER CONTROL "AUTO" position. In order to halt operation, either push the forcing automatic button again or turn POWER SWITCH off.

—— Operation Control Panel ——

Fig. 1

Controls are located under the front panel.



2) REMOTE CONTROL UNIT FUNCTIONS

③ "TEST" BUTTON(TEST position)

(1) When switched to the "TEST" position, only the thermostat is short-circuited.

(2) Set to this position when testing after installation.

(3) If the air conditioner is used in the "TEST" state, since the compressor, heat exchanger, etc. will be damaged because the temperature control can not be performed, always be switched to "NORMAL" operation.

(4) If the microcomputer or other electronic circuit is faulty, the air conditioner can not be operated even by the test run.

(5) The "TEST" operation mode is released after 60 minutes and then the unit is set to "Normal" operation.

Fig. 2 Remote control unit

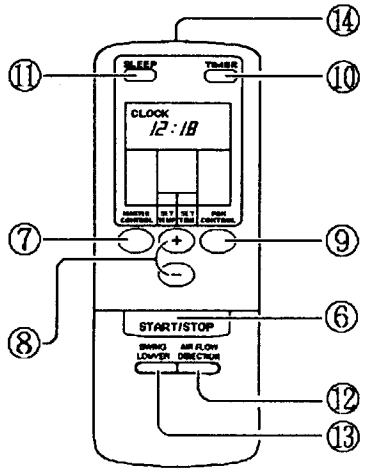
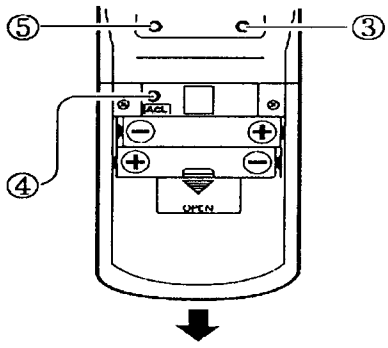


Fig. 3 Rear side



③ TEST RUN button
④ ACL button
⑤ TIME ADJUSTMENT button
⑥ START/STOP button
⑦ MASTER CONTROL button
⑧ SET TEMP./SET TIME buttons
⑨ FAN CONTROL button
⑩ TIMER button
⑪ SLEEP button
⑫ AIRFLOW DIRECTION button
⑬ SWING LOUVER button
⑭ Signal Transmitter

④ "ACL" BUTTON

(1)Press and slide the battery compartment lid on the reverse side to open it.

(2)Insert batteries.

(3)Press the ACL button.

(4)Close the battery compartment lid.

NOTE: Never mix new batteries with used ones, or batteries of different types. Batteries will last about one year under normal use. If the remote control unit operating range becomes appreciably reduced, replace the batteries and press the ACL button with the tip of a ball-point pen or other small object.

⑤ "TIME ADJUSTMENT" BUTTON

(1) Press the TIME ADJUSTMENT button.

(2) Use the +/- SET TIME buttons to adjust the clock to the current time.

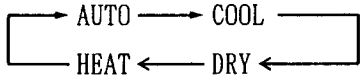
(3) Press the TIME ADJUSTMENT button again.

⑥ START/STOP AND ⑦MASTER CONTROL BUTTONS

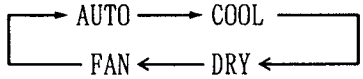
(1) Press the START/STOP button.
The indoor unit operation indicator lamp (red) will light.
The air conditioner will begin to operate.

(2) Press the MASTER CONTROL button to select the desired mode.
Each time the button is pressed, the mode will change in the following order.

[REVERSE CYCLE]



[COOLING MODEL]



About three seconds later, the entire display will reappear.

⑧ SET TEMP./SET TIME BUTTONS

(1) Press the SET TEMP. buttons.

⊕ button:
Press to raise the thermostat setting.
⊖ button:
Press to lower the thermostat setting.

(2) Thermostat setting range:
[REVERSE CYCLE]
AUTO ·· Standard temperature setting ± 2 ℃
Heating ····· 16～30℃
Cooling/Dry···· 18～30℃
[COOLING MODEL]
AUTO ·· Standard temperature setting ± 2 ℃
Cooling/Dry···· 18～30℃
Fan ····· 17～30℃

(During use of Fan mode, if the thermostat is set to 17℃ or lower, the display will show"--" and the fan will operate continuously, regardless of the room temperature.)

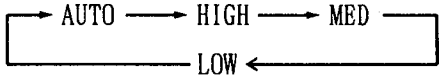
The thermostat cannot be used to set the room temperature during the FAN mode (the temperature will not appear on the remote control unit display).

NOTE: The thermostat setting should be considered a standard value, and may differ somewhat from the actual room temperature.

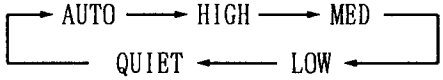
⑨ FAN CONTROL BUTTON

(1) Press the FAN CONTROL button.
Each time the button is pressed, the fan speed changes in the following order:

[REVERSE CYCLE]



[COOLING MODEL]



About three seconds later, the entire display will reappear.

When set to AUTO:
Heating:
Fan operates so as to be optimally warmed air.
However, the fan will operate at very low speed when the temperature of the air issued from the indoor unit is low.
Cooling:
As the room temperature approaches that of the thermostat setting, the fan speed becomes slower.
Fan :
The fan alternately turns on and off;when on, the fan runs at a low fan speed. [COOLING MODEL ONLY]

The fan will operate at very low setting during monitor operation and at the start of the heating mode.

When set to QUIET: [COOLING MODEL ONLY]

SUPER QUIET operation begins.
The indoor unit's airflow will be reduced for quieter operation.

- SUPER QUIET operation cannot be used during dry mode. (The same is true when dry mode is selected during AUTO mode operation.)

- During super quiet operation, cooling performance will be reduced somewhat.

⑩ TIMER BUTTTON

A) To use the ON timer or OFF timer

(1) Press the START/STOP button(if the unit is already operating, proceed to step 2). The indoor unit operation indicator lamp (red) will light.

(2) Press the TIMER button to select the ON timer or OFF timer operation. Each time the button is pressed the timer function changes in the following order:

RESET → OFF → ON → PROGRAM(OFF → ON, OFF ← ON) ←

The indoor unit TIMER indicator lamp(green) will light.

(3) Use the SET TIME button to adjust the desired OFF time or ON time. Set the time while the time display is flashing(the flashing will continue for about five seconds).

⊕ button:Press to advance the time.

⊖ button:Press to reverse the time.

About five seconds later, the entire display will reappear.

B) To Use the Program timer

(1) Press the START/STOP button(if the unit is already operating, proceed to step 2). The indoor unit operation indicator lamp (red) will light.

(2) Set the desired times for OFF timer and ON timer.

See the section"To Use the ON timer or OFF timer" to set the desired mode and times. About three seconds later, the entire display will reappear. The indoor unit timer indicator lamp (green) will light.

(3) Press the timer button to select the PROGRAM timer operation(either OFF → ON or OFF ← ON will display).

The display will alternately show"Off timer" and"ON timer", then change to show the time setting for the operation to occur first. The PROGRAM timer will begin operating. (If the ON timer has been selected to operate first, the unit will stop operating at this point). About five seconds later, the entire display will reappear.

⑪ SLEEP BUTTON

To Use the SLEEP timer

(1) While the air conditioner is operating or stopped, press the SLEEP button. The indoor unit operation indicator lamp (red) lights and the timer indicator lamp (green) lights.

To Change the Timer Settings

Press the SLEEP button once again and set the time using the SET TIME button.

Set the time while the Timer Mode Display is flashing(the flashing will continue about five seconds).

⊕ button:Press to advance the time.

⊖ button:Press to reverse the time.

About five seconds later, the entire display will reappear.

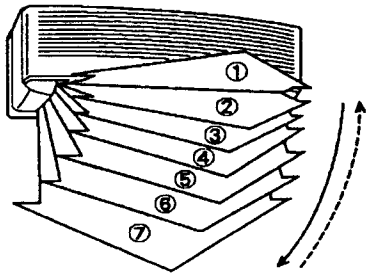
⑫ AIRFLOW DIRECTION BUTTON

Vertical Air Direction Adjustment: Press the AIRFLOW DIRECTION button.

Each time the button is pressed, the air direction range will change as follows:

① ⇄ ② ⇄ ③ ⇄ ④ ⇄ ⑤ ⇄ ⑥ ⇄ ⑦

Fig. 4



Type of Airflow Direction Setting:
①, ②, ③, ④ :During Cooling/Dry modes
⑤, ⑥, ⑦ :During Heating mode
[COOLING MODEL ONLY]
①, ②, ③, ④, ⑤, ⑥, ⑦ :During Fan mode
The remote control unit display does not change.

Use the air direction adjustment within the range shown above.

The vertical airflow direction is set automatically as shown, in accordance with the type of operation selected.

[COOLING MODEL]
During Cooling/Dry mode: Horizontal flow①
During Fan mode : Downward flow⑦

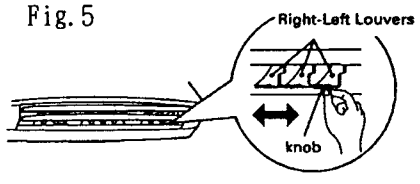
[REVERSE CYCLE]
During Cooling/Dry mode: Horizontal flow①
During Heating mode : Downward flow⑦

During AUTO mode operation, for the first minute after beginnig operation, airflow will be horizontal①; the air direction cannot be adjusted during this period.

Right-Left Adjustment

Adjust the Right-Left louvers. Move the Right-Left louvers to adjust air flow in the direction you prefer.

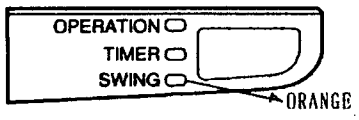
Fig. 5



⑬ SWING OPERATION

・To select swing operation
<Press the swing louver button.>
The swing indicator lamp (orange) will light.

Fig. 6



In this mode, the air flow direction louvers will swing automatically to direct the airflow both up and down.

To stop swing operation
<Press the swing louver button once again.>
The swing indicator lamp will go out.
Airflow direction will return to the setting before swing was begun.

About swing operation :
* The range of swing is relative to the currently set airflow direction.

Air flow direction set	Range of swing
①	① to ③
②	① to ④
③	② to ⑤
④	③ to ⑥
⑤	④ to ⑦
⑥	⑤ to ⑦
⑦	⑥ to ⑦

* If the swing range is not as desired, use the remote control units AIR FLOW DIRECTION button to change the range of swing.

* During Cooling/Dry modes, if swing operation is continued at the lowest (downward) range for more than 30 minutes, the unit will automatically switch the swing range to the horizontal flow range, to prevent the condensation of moisture on the outlet.

* The swing operation may stop temporarily when the air conditioner's fan is not operating, or when operating at very low speed.

2. TIMER FUNCTION

There are four timer modes: "SLEEP", "OFF TIMER", "ON TIMER" and "PROGRAM TIMER".

(1) Set the clock time when the unit is in the stop mode(only the current time will be shown on the remote control unit display).
(2) While adjusting the current clock time, do not use other remote control functions.
(3) Each time the TIMER button is pressed, the remote control unit display will change in order as shown below :

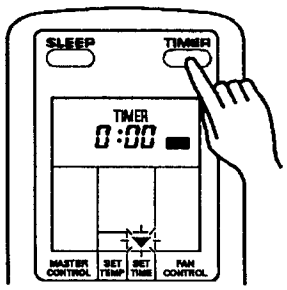
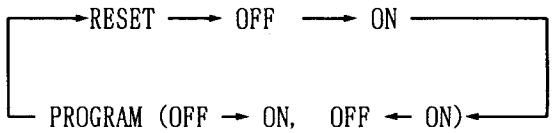


Fig. 7



① SLEEP timer

When desiring to stop operation automatically after you go to bed, if the SLEEP button is pressed, operation stops while the "room temperature" is changed automatically.

* Cooling/Drying
When set to the "SLEEP", the set temperature is raised 1.0℃, then raised 1.0℃/ 1 hour thereafter.
When the temperature has been raised a total of 2℃, that temperature is held until the set time has elapsed, then operation automatically stops.

* Heating [REVERSE CYCLE]
When set to the "SLEEP", the set temperature is lowered 1℃, then lowered 1℃/30 minutes thereafter.
When the temperature has been lowered at a total of 4℃, that temperature is held until the set time has elapsed, then operation automatically stops.

Fig. 8

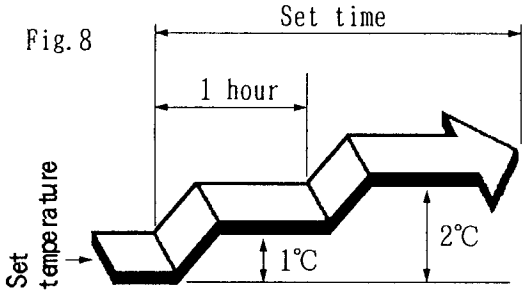
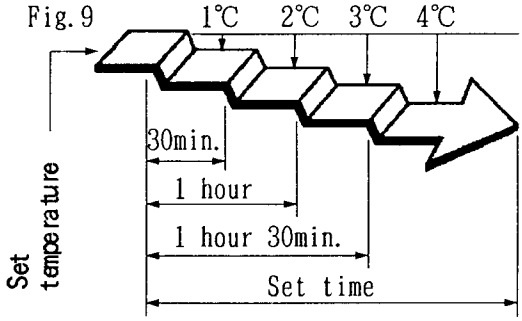


Fig. 9



② OFF TIMER

Use when going to bed or otherwise to stop operation. When the clock reaches the set time, the air conditioner will be turned off.

③ ON TIMER

For wake up operation or otherwise to start operation. Depending on the difference between the actual room temperature and the set temperature value, the unit will start operation automatically in order to bring the room temperature to the desired set temperature value by the time previously set.

The higher or lower the room temperature is (relative to the set temperature), the earlier the unit will start its operation. ON-timer operation will start: For heating : 45 ~ 10 minutes before the set time For cooling : 20 ~ 10 minutes before the set time

In the case of FAN mode, the operation will start precisely at the set time.

④ PROGRAM TIMER

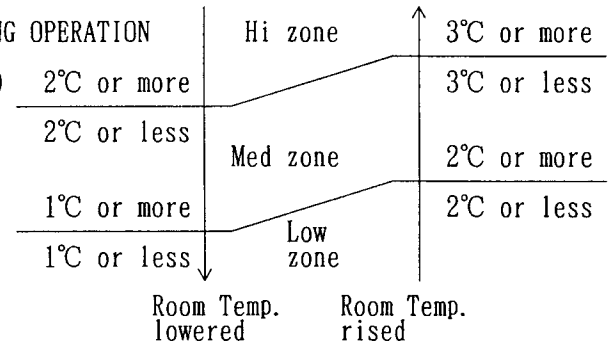
The PROGRAM timer allows you to integrate OFF timer and ON timer operations in a single sequence. The sequence can involve one transition from OFF timer to ON timer, or from ON timer to OFF timer, within a twenty four hour period.
The first timer function to operate will be the one set nearest to the current time.
The order of operation is indicated by the arrow in the Remote Control Unit display (OFF → ON, or OFF ← ON).
One example of PROGRAM timer use might be to have the air conditioner automatically stop(OFF timer)after you go to sleep, then start(ON timer)automatically in the morning before you arise.

3. INDOOR FAN CONTROL

A) "AUTO" POSITION

1) COOLING OPERATION

Fig. 10



Air flow mode is set automatically in accordance with the condition " (Room temp. −Set temp.) " as shown in the left.

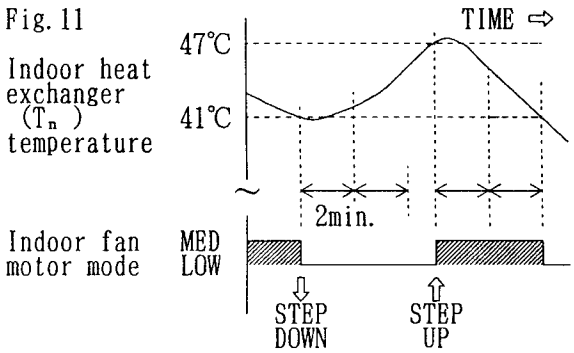
2) HEATING OPERATION [REVERSE CYCLE MODEL ONLY]

(1) When the indoor heat exchanger temperature lowers less than 41 ℃ while the compressor operates, the fan mode switches to lower position for one step.
("MED" → "LOW")("LOW" → "LOW")

(2) After switching the fan mode, it does not switch within 2 minutes.

(3) When the indoor heat exchanger temperature becomes 47 ℃ or more, the fan mode switches to higher position for one step("LOW" → "MED")("MED" → "MED").

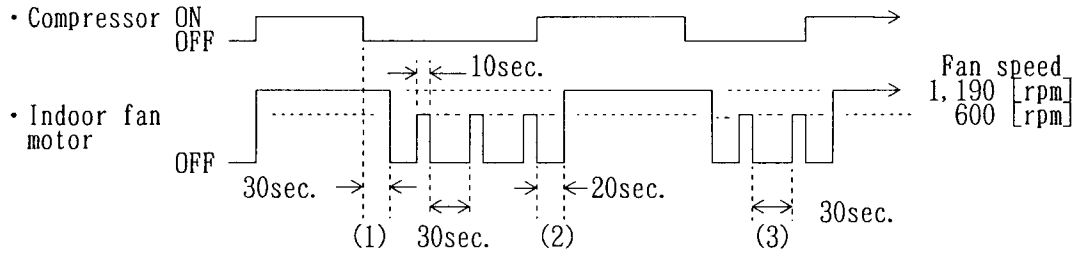
Fig. 11



(4) When "FAN CONTROL" is switched to "AUTO" while the unit is operated at the "FAN CONTROL" position of "HIGH", "MED" or "LOW", the unit operates in the "MED" fan mode at the indoor heat exchanger temperature of more than 41℃ and in the "Low" fan mode at the indoor heat exchanger temperature temperature of less than 41℃.

3) DRY OPERATION

Fig. 12



(1) The indoor fan motor stops in 30 seconds after the compressor stopped.

(2) The indoor fan motor starts in 20 seconds after the compressor started.

(3) If the compressor is in the stop state when the unit is operating, the unit operates at fan speed shown above for 10 seconds every 30 seconds.

B) "LOW", "MED" and "HIGH" position

The indoor fan operates at an air flow set in the FAN CONTROL mode.

C) QUIET position [COOLING MODEL ONLY]

Quiet operation begins. The indoor unit airflow will be reduced for quieter operation.
Quiet operation cannot be used during Dry mode. (In the same way, when the dry mode is selected during AUTO mode operation, SUPER QUIET operation cannot be used.)
During Super Quiet operation, heating and cooling performance will be reduced somewhat.

4. OPERATING MODE

(1)"AUTO" position:

Depending on the room temperature when operation begins, the operating mode is switched automatically as shown in the following Table 1. Also, depending on the operating mode, the room temperature setting will cause the "standard" temperature to be set as shown.

Table 1.

Mode	Standard temperature			Thermostat temperature setting range
Auto [REVERSE CYCLE MODEL ONLY]	Actual Room Temperature	Operating Mode	Temperature Setting (standard)	Standard temperature setting ± 2℃
	30℃ or more	Cool	27℃	
	27℃ to 30℃	Cool	26℃	
	24℃ to 27℃	Dry	24℃	
	22℃ to 24℃	Monitor	—	
	Less than 22℃	Heat	23℃	
Auto [COOLING MODEL ONLY]	30℃ or more	Cool	27℃	Standard temperature setting ± 2℃
	27℃ to 30℃	Cool	26℃	
	25℃ to 27℃	Dry	24℃	
	23℃ to 25℃	Dry	22℃	
	Less than 23℃	Dry	20℃	
Heating	———			16 ~ 30℃
Cooling/Dry	———			18 ~ 30℃

① Once the operating mode has been set, the mode will not change even if the room temperature changes. However, during the monitor operation mode, if the room temperature changes to below 22 ℃, the mode will automatically switch to heating, and when it rises above 24℃ the mode will automatically switch to drying. [REVERSE CYCLE MODEL ONLY]

② In the monitor mode, the fan will operate very slowly. [REVERSE CYCLE MODEL ONLY]

③ In the dry mode, the fan will operate slowly to prevent room humidity from increasing, and the room fan may stop.

④ During defrosting operation in the heating mode, the OPERATION indicator lamp will flash slowly and the heating mode will stop temporarily. [REVERSE CYCLE MODEL ONLY]

⑤ If the START/STOP button is pressed to recommence operation within two hours after stopping automatic operation, the unit will begin operating from the same mode as before.

(2)"FAN" position: [COOLING MODEL ONLY]

① In this position, the fan operates alone to circulate air.
The room temperature will not be changed.

② Operates at an air flow set in FAN CONTROL mode.

(3)"DRY" position:

① In the dry mode, since preference will be given to remove humidity, the room temperature may not be lowered to the selected value.

② When using the dry mode, set the temperature to a value lower than the actual current room temperature. If it is set higher than the current room temperature, the unit will not enter the dry mode.

③ Room heating cannot be performed in the dry mode.

④ In the dry mode, the optimum fan speed will be set automatically and cannot be changed. The fan will emit a very weak stream of air.

⑤ In the dry mode, the room fan may occasionally stop in order to prevent room humidity from increasing.

(4)"COOL" position:

When using the cooling mode, set the temperature to a value lower than the actual current room temperature. If it is set higher than the current room temperature, the unit will not enter the cooling mode and only the fan will operate.

(5)"HEAT" position: [REVERSE CYCLE]

① Set the temperature to a higher than the actual current room temperature. If it is set to a lower temperature value, heating does not start.

② For about 3 to 5 minutes after starting heating, the fan will operate very slowly, then switch to the selected fan setting. This period is to allow the indoor unit heat exchanger to prewarm before emitting warm air.

③ During defrosting, the OPERATION indicator lamp will flash slowly, and the heating mode is temporarily interrupted.

5. AUTO RESTART

The air conditioner power has been interrupted by a power failure. The air conditioner will then the restart automatically in its previous mode when the power is restored.

Operated by setting before the power failure . Then, the air flow direction louvers will automatically change to their standard direction.

If a power failure occurs during TIMER opertion, the timer will be reset and the unit will begin (or stop) to operate at the new time setting. In the event that this kind of the timer fault occurs the TIMER indicator lamp(green)will flash.

Use of other electrical appliances(electric shaver, etc.)or nearby use of a wireless radio transmitter may cause the air conditioner to malfunction. In this event, temporarily disconnect the power supply plug, reconnect it, and then use the power control unit to resume operation.

6. SET TEMPERATURE COMPENSATION AT OPERATION START

At the time of operation start and when MASTER CONTROL is switched to cooling or heating, the set temperatures are compensated by +2 ℃ for heat operation for 60 min. and by -1 ℃ for cool operation for 40 min.

7. PROTECTING THE INDOOR FAN MOTOR BY LOCKING

When the number of revolutions of "the indoor fan motor" is abnormal after 56 seconds passed since 'the setting air flow' has been changed or when the 'indoor fan motor starts,

"Indoor fan motor" : Stops (is turned off)

Indication lamp : See troubleshooting displays table No. E code.

8. COLD AIR DISCHARGE PREVENTION FUNCTION [REVERSE CYCLE MODEL ONLY]

Indoor fan speed is decided with the indoor pipe temperature of the heat exchanger and the indoor fan mode setting. The unit operates with the air flow shown below.

① Fig. 13 Indoor pipe temperature

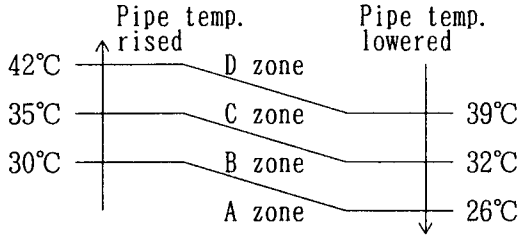


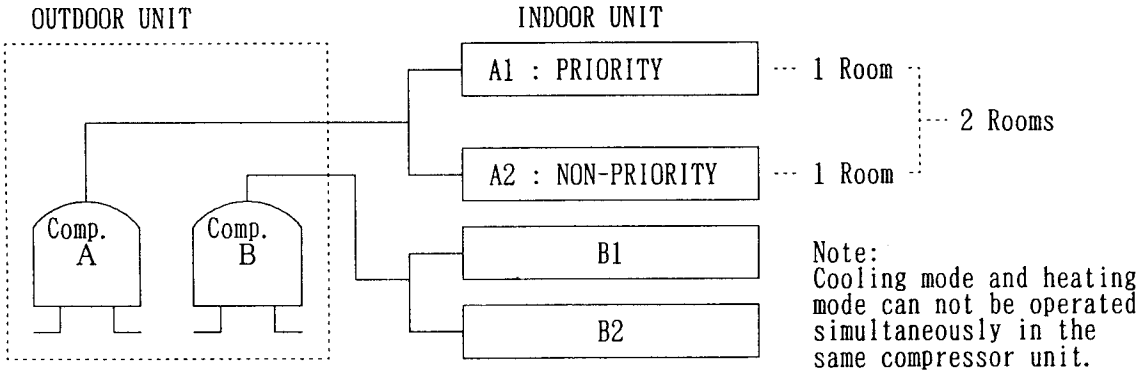
Table 2. ② Indoor fan mode setting

① \ ②	AUTO	HIGH	MED	LOW
D zone	AUTO	Setting fan air-flow		
C zone	AUTO	Med		
B zone	LOW			
A zone	S-LOW (Supper-LOW)			

9. OPERATING DISCRIMINATION CONTROL OF THE INDOOR UNIT

(1) In the indoor unit, the unit which operation mode was set first is operated as a priority indoor unit.
(2) The other indoor unit is operated as a non-priority indoor unit.
The operation mode of the priority indoor unit and non-priority unit is controlled in accordance with the condition shown in Table 3.

Fig. 14 FOR EXAMPLE : MULTI-SYSTEM CONNECTION CIRCUIT



• THE RELATION CONTROL BETWEEN OPERATION MODE AND COMPRESSOR

Table 3

OPERATION MODE	NON-PRIORITY INDOOR UNIT	COOLING (A2) or DRY		HEATING (A2)		SERIAL SIGNAL TROUBLE
PRIORITY INDOOR UNIT	Compressor control	ON	OFF	ON	OFF	
COOLING (A1) or DRY	ON	2 Rooms Cooling	1 Room Cooling	1 Room Cooling	1 Room Cooling	1 Room Cooling
	OFF	1 Room Cooling	OFF Cooling	OFF * Cooling	OFF Cooling	OFF * Cooling
HEATING (A1)	ON	1 Room Heating	1 Room Heating	2 Rooms Heating	1 Room Heating	1 Room Heating
	OFF	OFF * Heating	OFF Heating	1 Room Heating	OFF Heating	OFF * Heating

NOTE : * OFF to ON
When the operation mode of the priority indoor unit A1 has stopped or when the operation mode of the non-priority indoor unit A2 has not stopped after three seconds passed since the operation mode of the priority indoor unit A1 has stopped, the non-priority indoor unit A2 is operated as a priority indoor unit.

10. OUTDOOR FAN MOTOR CONTROL

1) The outdoor fan motor controls the fan speed with operation conditions and operation mode of the indoor unit as shown in Table 4.

Table 4

OPERATION MODE	1 ROOM (A1 or A2)	2 ROOMS (A1 + A2)
Cooling / Dry	Hi	Hi
Heating	Low	Hi

* An exception : Prevention of de-icing, fog protection

2) The outdoor fan motor is turned on and off with a compressor, at the same time, is controlled by the following condition.

Table 5

OPERATION MODE / PRIORITY INDOOR UNIT	NON-PRIORITY INDOOR UNIT	COOLING (A2)		HEATING (A2)		SERIAL SIGNAL TROUBLE
	Compressor control	ON	OFF	ON	OFF	
COOLING (A1)	ON	Hi	Hi	Hi	Hi	Hi
	OFF	Hi	OFF	OFF	OFF	OFF
HEATING (A1)	ON	Low	Low	Hi	Low	Low
	OFF	OFF	OFF	Low	OFF	OFF

* An exception : Defrosting operation, heating overload protection

11. ELECTRONIC EXPANSION VALVE CONTROL

After the power is turned on, the following operation is controlled automatically to control the most suitable refrigerant charge by the operation mode and operation conditions of each indoor unit (A1 or A2).

[CONTROL PROCESS OF ELECTRONIC EXPANSION VALVE AND EACH THERMISTOR DETECTION TEMPERATURE]

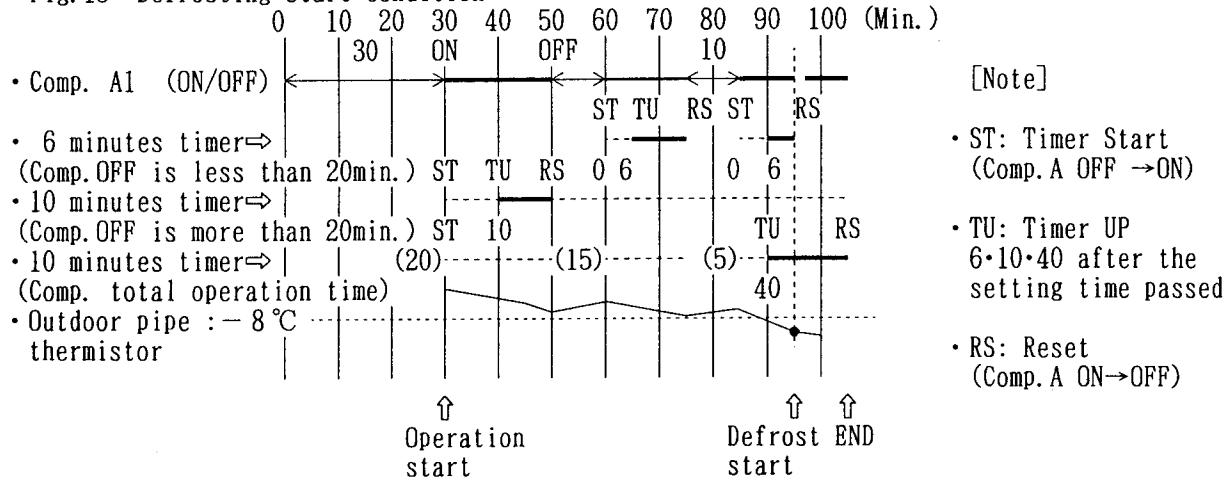
(1) To control the quantity of super heat constant, the electronic expansion valve is controlled by the difference between thermistor detection temperature of evaporating temperature and suction thermistor detection temperature.
(2) If two indoor units operate in heating mode simultaneously, two minutes electronic expansion valve is controlled by the difference between two way valve 1 thermistor detection temperature and two way 2 thermistor detection temperature.
(3) The compressor controls one minute electronic expansion valve with the discharge thermistor detection temperature during operation.

12. DEFROSTING [REVERSE CYCLE]

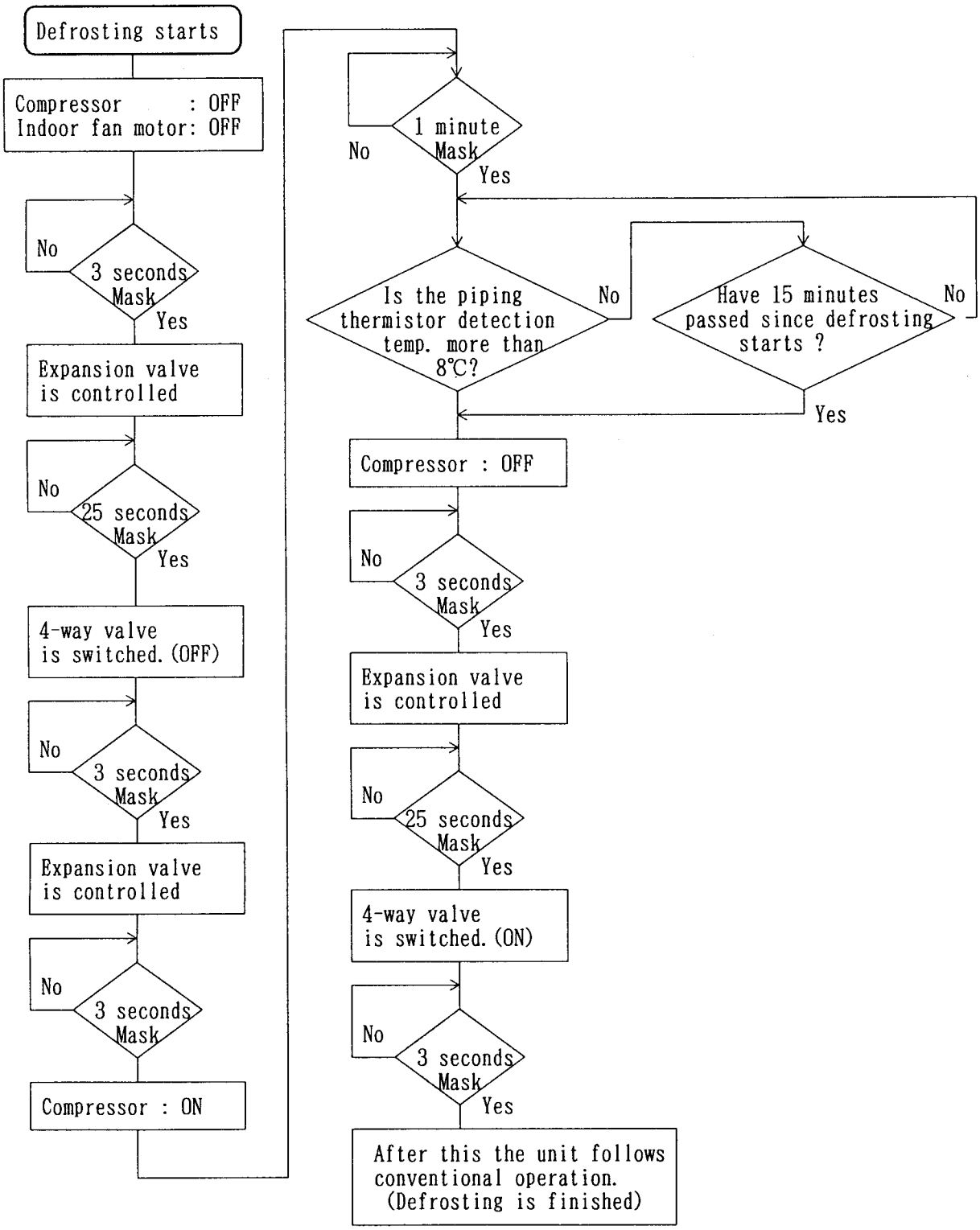
1) DEFROSTING OPERATION

When the outdoor piping thermistor detection temperature is -8℃ or less (-12℃ or less for 10 minutes after switching from one room operation to two rooms operation, and -8℃ after 10 minutes and in one room operation) after timer of 6 minutes timer or 10 minutes timer, besides 40 minutes timer are up, defrosting starts.

Fig. 15 Defrosting start condition



2) Fig. 16 DEFROSTING FLOW-CHART



3) DEFROSTING FINISH

Defrosting is performed after the compressor is turned on and one minute mask is finished. It will be completed when the outdoor piping thermistor temperature is 8℃ or more or time of 15 minutes timer is up.

13. PREHEAT (Crankcase heater)

When the detection temperature of the outdoor piping temperature sensor is indicated in less than working values regardless of operation mode after 3 hours have passed since the compressor is turned OFF, the crankcase heater is turned ON.

Then, when the detection temperature of the piping temperature sensor of the outdoor unit is indicated in more than released values, the crankcase heater is turned OFF. After that, when it is indicated in less than working values, the crankcase heater is turned ON.

Table 6

CONDITION	Before 48 hours passes	After 48 hours passed
Working values	3 ℃	0 ℃
Released values	7 ℃	2 ℃

14. DE-ICING PROTECTION [COOLING OPERATION]

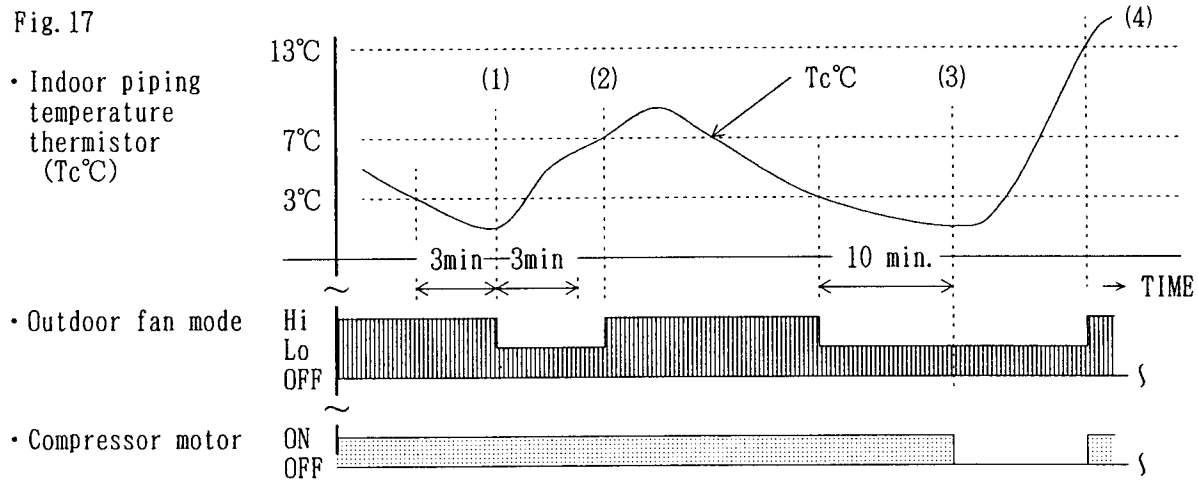
(1) The outdoor fan motor is operated at Hi speed and when piping temperature data of either of the indoor unit are less than 3℃, after 3 minutes have passed since the compressor is turned on, the outdoor fan motor is switched to Lo speed.

(2) When the piping temperature of both indoor units shows more than 7 ℃, after 3 minutes have passed since the outdoor fan motor is switched to Lo speed, the outdoor fan motor is switched to Hi speed.

(3) When the piping temperature in either of the indoor unit after 3 minutes have passed since the outdoor fan motor is switched to Lo speed, at the same time, after 10 minutes have passed since the compressor starts is less than 3℃, the compressor is stopped.

(4) When the piping temperature of both indoor units shows more than 13 ℃, after the compressor is turned off, this function is released.

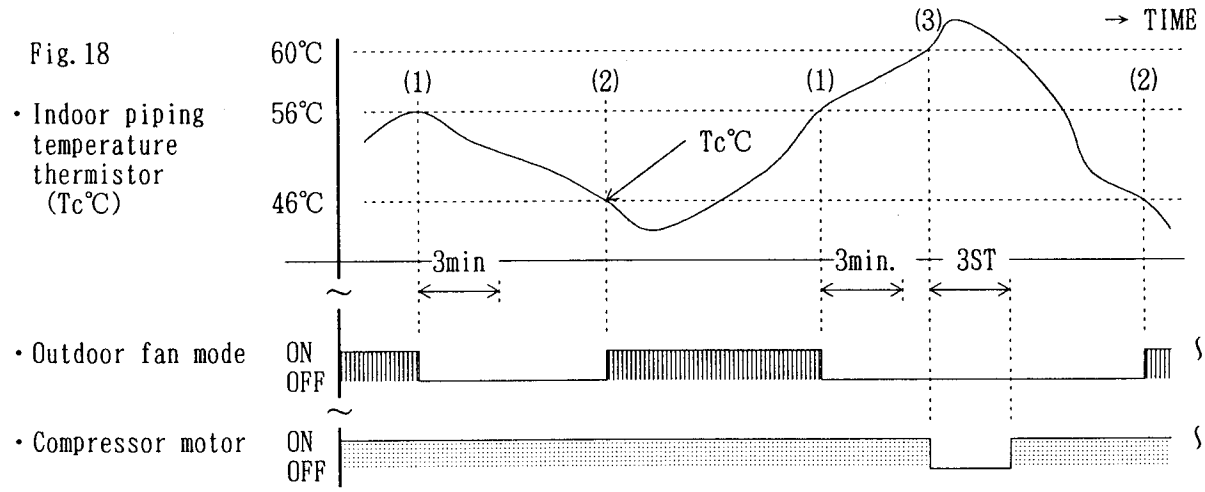
Fig. 17



15. HEATING OVERLOAD PROTECTION [REVERSE CYCLE]

Two stages exist for heating overload protection.
The outdoor fan motor is turned OFF at one stage, and then the compressor is turned OFF at another stage.

Fig. 18



OUTDOOR FAN MOTOR OFF

A) When the piping temperature of the indoor unit becomes a working point as shown in Fig. 18 to (1), the outdoor fan motor is turned OFF.

B) When the piping temperature of the indoor unit becomes a released point as shown in Fig. 18 to (2), the outdoor fan motor OFF is released.
However, the outdoor fan motor is not released for 3 minutes after it is turned OFF.

COMPRESSOR MOTOR OFF

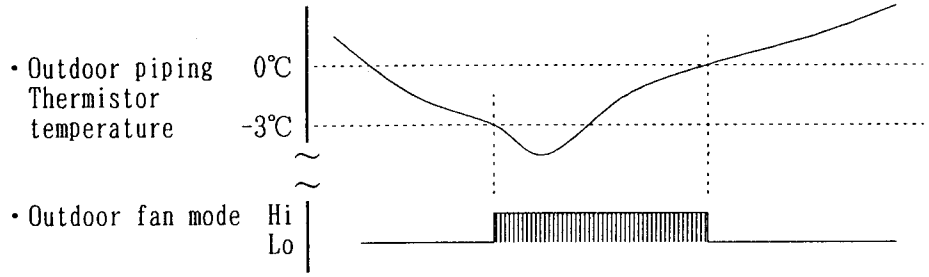
C) When the piping temperature of the indoor unit is given as shown in Fig. 18 to (3), after the outdoor unit fan motor is turned OFF, the compressor is turned OFF.
However, the compressor stop is released with the 3ST(Three minutes delay fuction).

16. FOG PROTECTION [REVERSE CYCLE (Heating operation mode)]

When the detection temperature of the outdoor piping temperature sensor under conditions (in one room operation) that the outdoor fan motor is operated at Lo speed in heating mode is less than -3 ℃, the outdoor fan motor is switched to Hi speed.

When the detection temperature of the outdoor piping temperature sensor is more than 0℃ after the outdoor fan motor is switched to Hi speed, the outdoor fan motor is returned to Lo speed.

Fig. 19



17. DISCHARGE TEMPERATURE PROTECTION

1) In any case, when the detection temperature of the discharge temperature sensor is more than 115℃, the compressor is turned OFF.

2) When the detection temperature of the discharge temperature sensor is less than 80℃ after the compressor is turned OFF and time of " 3 minutes re-start ST" is up, this protection function is released and the compressor is turned ON.

18. PRESSURE SWITCH PROTECTION

Whatever may happen, the compressor is turned OFF when the pressure switch functions. This function is released with " 3 minutes re-start ST" finish after the pressure switch functions.

Table 7

30 ± 1 kgf/cm²G	Pressure switch is turned ON (Compressor motor stopped)
24 ± 1.5 kgf/cm²G	Pressure switch is turned OFF (Compressor motor released

19. EXPANSION VALVE PROTECTION

1) In any case, when 2-way valve 1 thermistor detection temperature or 2-way valve 2 thermistor detection temperature is more than 62 ℃, the compressor is turned OFF.

2) Electronic expansion valve is reset in 2 minutes and a half after the compressor is turned OFF.

3) "3 minutes re-start ST" finishes, at the same time when both of 2-way valve 1 thermistor detection temperature and 2-way valve 2 thermistor detection temperature become less than 50 ℃, the expansion valve protection is released.

20. THREE MINUTES DELAY FUNCTION (3ST)

1) The outdoor unit does not operate for three minutes after the power switch is turned on. (Compressor protection, breaker off prevention, etc.)

2) When test operation is performed in heating mode during continuous operation, it takes some time until an air blows out of the indoor unit because "Three minutes delay" and "Cold air prevention" have priority over TEST operation.

21. THREE MINUTES CONTINUOUS OPERATION TIMER (3HT)

The unit continues to run without halting for three minutes after the compressor starts.

22. 4-WAY VALVE DELAY SWITCHING FUNCTION [REVERSE CYCLE MODEL ONLY]

When heat operation stops, 4-way valve stops 2 minutes and 35 seconds later.

TROUBLESHOOTING GUIDE

PRIOR TO INSPECTION

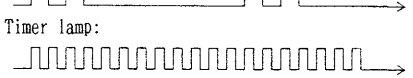
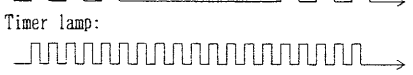
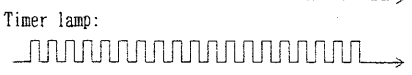
Prior to inspection, first of all, check in which indication indoor unit lamps appear.
The indoor unit lamp consists of 14 kinds of indicators (refer to attachments).
According to information, the check point can be estimated.

If other troubles occurred than above indicators, especially the indoor unit won't run, once remove the power plug from the plug socket, and re-insert it in the plug socket, and check the indoor unit operation.
Under normal condition, to actuate the wind-directional panel (above 20 seconds later stop).
Furthermore, press the manual auto switch, and the indoor fan will rotate of itself.

Examine symptoms observing according to whether such series operations are wholly or partially performed, or quite not performed.

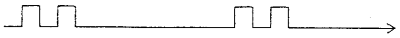
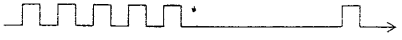
To check a voltage at check points of the indoor unit, remove the power plug from the plug socket, and draw the each PCB out of the electrical parts case, and insert it in the plug socket. If the PCB is hard to be pulled out, the connector may be once removed.

TROUBLESHOOTING DISPLAY TABLE (I)

No.	TROUBLE INDICATOR LAMP		FLASH / TIME (SEC)	OPERATION FACTOR	ESTIMATED FACTOR	
	OPERATION LAMP (red)	TIMER LAMP (green)			INDOOR UNIT	OUTDOOR UNIT
A	1.0 sec ON / 1.0 sec OFF	1.0 sec ON / 1.0 sec OFF	Operation lamp:  Timer Lamp: 	• Test operation	———	———
B	2 times flash (0.5 sec) 5 sec OFF	0.1 sec ON / 0.1 sec OFF	Operation lamp:  Timer lamp: 	• Indoor unit room thermistor abnormal	• Thermistor lead wire disconnected • Thermistor connector removed • Thermistor element fault • Main PCB fault	———
C	3 times flash (0.5 sec) 5 sec OFF	0.1 sec ON / 0.1 sec OFF	Operation lamp:  Timer lamp: 	• Indoor unit piping thermistor abnormal	• Thermistor lead disconnected • Thermistor Connector removed • Thermistor element fault • Main PCB fault	———
D	4 times flash (0.5 sec) 5 sec OFF	0.1 sec ON / 0.1 sec OFF	Operation lamp:  Timer lamp: 	• Serial reverse transmit signal fault Reverse signal fault (Indoor fan motor stop)	• F cable connection error • Main PCB fault	• Fuse blown • Main PCB fault
E	6 times flash (0.5 sec) 5 sec OFF	0.1 sec ON / 0.1 sec OFF	Operation lamp:  Timer lamp: 	• Indoor unit fan motor defective (Indoor fan motor locked and fan speed fault)	• Indoor fan motor fault • Indoor fan motor connector removed • Power PCB fault • Main PCB fault	———

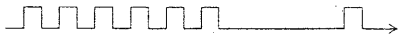
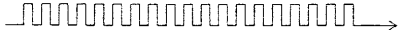
[NOTE] No. SHOWS TROUBLE DIAGNOSIS.

TROUBLESHOOTING DISPLAY TABLE (II)

No.	TROUBLE INDICATOR LAMP		FLASH / TIME (SEC)	OPERATION FACTOR	ESTIMATED FACTOR	
	OPERATION LAMP (red)	TIMER LAMP (green)			INDOOR UNIT	OUTDOOR UNIT
F	0.1 sec ON / 0.1 sec OFF	1 time flash (0.5 sec) / 5 sec OFF	Operation lamp:  Timer lamp: 	・Outdoor discharge thermistor abnormal	———	・Compressor locked ・Thermistor lead wire disconnected ・Thermistor connector removed ・Thermistor element fault ・Main PCB fault
G	0.1 sec ON / 0.1 sec OFF	2 times flash (0.5 sec) / 5 sec OFF	Operation lamp:  Timer lamp: 	・Outdoor condenser thermistor abnormal	———	・Thermistor lead wire disconnected ・Thermistor connector removed ・Thermistor element fault ・Electronic expansion valve fault ・Main PCB fault
H	0.1 sec ON / 0.1 sec OFF	3 times flash (0.5 sec) / 5 sec OFF	Operation lamp:  Timer lamp: 	・Outdoor suction thermistor abnormal	———	Same as above
I	0.1 sec ON / 0.1 sec OFF	4 times flash (0.5 sec) / 5 sec OFF	Operation lamp:  Timer lamp: 	・Outdoor evaporator thermistor abnormal	———	Same as above
J	0.1 sec ON / 0.1 sec OFF	5 times flash (0.5 sec) / 5 sec OFF	Operation lamp:  Timer lamp: 	・Outdoor unit 2-way valve 1 thermistor abnormal	———	Same as above

[NOTE] No. SHOWS TROUBLE DIAGNOSIS

TROUBLESHOOTING DISPLAY TABLE (III)

No.	TROUBLE INDICATOR LAMP		FLASH / TIME (SEC.)	OPERATION FACTOR	ESTIMATED FACTOR	
	OPERATION LAMP (red)	TIMER LAMP (green)			INDOOR UNIT	OUTDOOR UNIT
K	0.1 sec ON / 0.1 sec OFF	6 times flash (0.5 sec) / 5 sec OFF	Operation lamp:  Timer lamp: 	• Outdoor unit 2-way valve 2 thermistor abnormal	———	• Thermistor lead wire disconnected • Thermistor connector removed • Thermistor element fault • Electronic expansion valve fault • Main PCB fault
L	0.1 sec ON / 0.1 sec OFF	7 times flash (0.5 sec) / 5 sec OFF	Operation lamp:  Timer lamp: 	• Electronic expansion valve 2 abnormal	———	• Electronic expansion valve fault • Main PCB fault
M	0.1 sec ON / 0.1 sec OFF	8 times flash (0.5 sec) / 5 sec OFF	Operation lamp:  Timer lamp: 	• Serial forward transmits abnormal	• F-cable connection error • Main PCB fault	• F-cable connection error • Main PCB fault
N	0.1 sec ON / 0.1 sec OFF	9 times flash (0.5 sec) / 5 sec OFF	Operation lamp:  Timer lamp: 	• Super heat abnormal	———	• Electronic expansion valve fault • Gas leakage

[NOTE] No. SHOWS TROUBLE DIAGNOSIS.

TROUBLESHOOTING DISPLAY TABLE (IV)

No.	TROUBLE INDICATOR LAMP	FLASH / TIME (SEC)	OPERATION FACTOR	ESTIMATED FACTOR
O	1 time flash 0.2 sec ON ／2.5 sec OFF	LED : D8	・Dischage thermistor abnormal	・Compressor locked ・Thermistor element fault ・Main PCB fault
	2 times flash (0.2 sec ON / 0.5 sec OFF) ／2.5 sec OFF	LED : D8	・Outdoor condensor thermistor abnormal	・Thermistor lead wire disconnected ・Thermistor connector removed ・Thermistor element fault ・Electronic expansion valve fault ・Main PCB fault
	3 times flash (0.2 sec ON / 0.5 sec OFF) ／2.5 sec OFF	LED : D8	・Outdoor suction thermistor abnormal	
	4 times flash (0.2 sec ON / 0.5 sec OFF) ／2.5 sec OFF	LED : D8	・Outdoor evaporator thermistor abnormal	
	5 times flash (0.2 sec ON / 0.5 sec OFF) ／2.5 sec OFF	LED : D8	・2-way valve 1 thermistor abnormal	
	6 times flash (0.2 sec ON / 0.5 sec OFF) ／2.5 sec OFF	LED : D8	・2-way valve 2 thermistor abnormal	
P	1 time flash 0.2 sec ON ／2.5 sec OFF	LED : D9	・Indoor unit 1 communication signal faulty	・F-cable connection error (Indoor unit 1) ・Main PCB fault (IC1 or IC7)
	2 times flash (0.2 sec ON / 0.5 sec OFF) ／2.5 sec OFF	LED : D9	・Indoor unit 2 communication signal faulty	・F-cable connection error (Indoor unit 2) ・Main PCB fault (IC1 or IC8)
	3 times flash (0.2 sec ON / 0.5 sec OFF) ／2.5 sec OFF	LED : D9	・Indoor unit 1 and 2 communication signal faulty	・F-cable connection error ・Main PCB fault
	4 times flash (0.2 sec ON / 0.5 sec OFF) ／2.5 sec OFF	LED : D9	・The defective signal from the electronic expansion valve is output 2 times an hour.	・Electronic expansion valve fault
	5 times flash (0.2 sec ON / 0.5 sec OFF) ／2.5 sec OFF	LED : D9	・Defective super heat	・Gas leakage ・Electronic expansion valve fault
Q	○ Turned ON	LED : D10	・When the serial signal of the priority indoor unit and non-priority unit is different.	・The remote controller unit setting miss ・F-cable connection error

[NOTE] No. SHOWS TROUBLE DIAGNOSIS. (LED on the main PCB of the outdoor unit)

TROUBLESHOOTING FOR THE INDOOR UNIT

TROUBLE DIAGNOSIS A	TEST OPERATION (Test run button of the remote control unit)

(1) This button is used when installing the air conditioner, and should not be used under normal conditions, as it will cause the air conditioner's thermostat function to operate incorrectly.

(2) If this button is pressed during normal operation, the unit will switch to test operation mode, and the indoor unit's OPERATION Indicator Lamp and TIMER Indicator Lamp will begin to flash simultaneously.

(3) To stop the test operation mode, either press the TEST RUN button once again, or press the START/STOP button to stop the air conditioner.

TROUBLE DIAGNOSIS B	INDOOR UNIT ROOM THERMISTOR ABNORMAL

If flashing No.B in troubleshooting display table in the preceding item is performed, the room temperature thermistor is faulty (The unit does not operate at all).

<Check point>

* Remove the indoor room thermistor, measure resistance value as follows.

Thermistor resistance values

Room temperature (℃)	5	10	15	20	25	30	35	40
Resistance values(Ω)	25.9	20.1	15.8	12.5	10.0	7.7	6.2	5.3

<Check procedures>

* Replace the main PCB of the indoor unit.
* The indoor room thermistor open or short-circuited.

TROUBLE DIAGNOSIS C	INDOOR UNIT PIPING THERMISTOR ABNORMAL

The piping temperature thermistor is faulty (The unit does not operate at all).

<Check point>

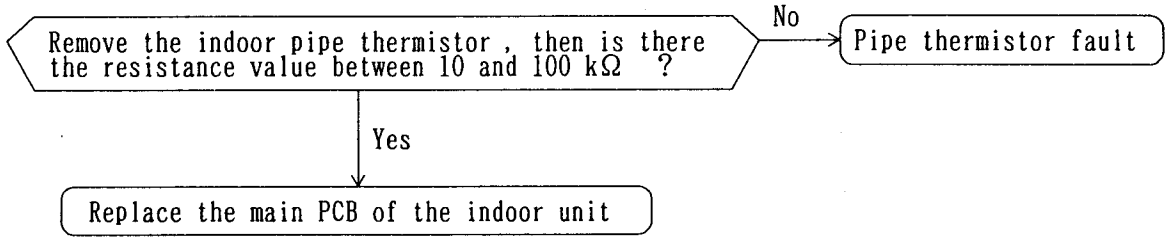
* Check if CN3 on the main PCB of the indoor unit is inserted tightly.

* Remove the indoor room thermistor, measure resistance value as follows.

Thermistor resistance values

Pipe temperature (℃)	10	22	30	34	38	44	50	56	60
Resistance values(Ω)	103.3	57.2	39.6	33.2	27.9	21.7	17.0	13.5	11.6

<Check procedures>



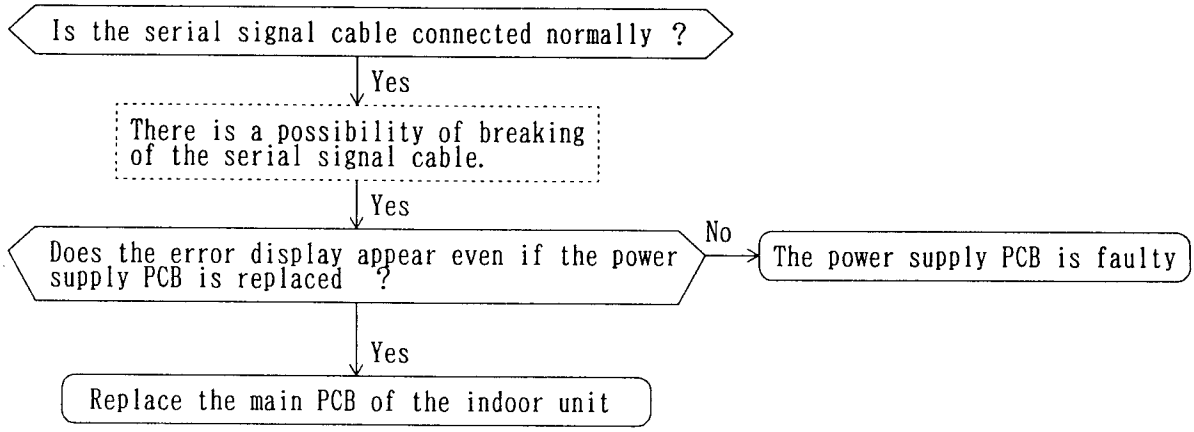
TROUBLE DIAGNOSIS D	SERIAL REVERSE TRANSFER SIGNAL ABNORMAL

Serial reverse transfer signal reception is faulty (Indoor fan motor stops).

<Check point>

* Check if the serial signal cable connecting the indoor unit to the outdoor unit is connected normally.

<Check procedures>



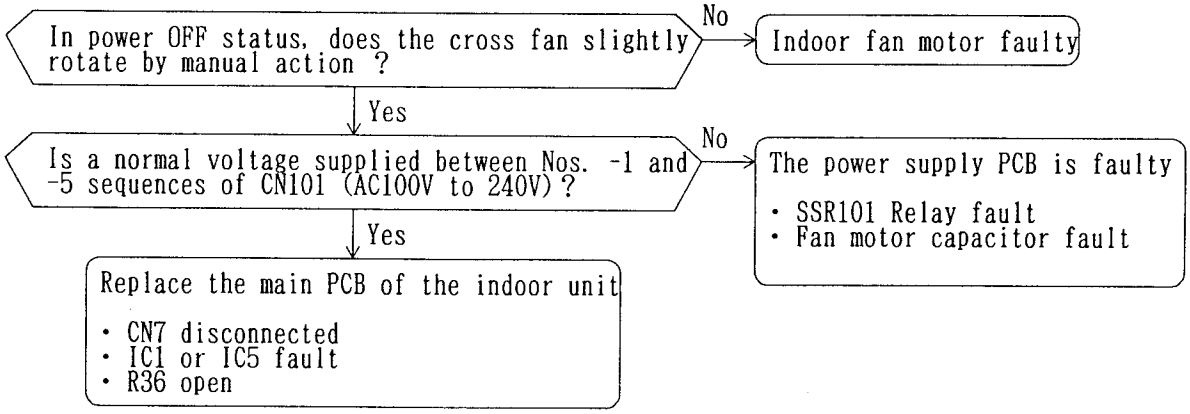
TROUBLE DIAGNOSIS E	INDOOR FAN MOTOR FAULT

Indoor fan motor is not rotated.

<Check point>

* Are the main PCB connections CN7, CN9 and the power PCB connecter CN101 firmly inserted ?

<Check procedures>



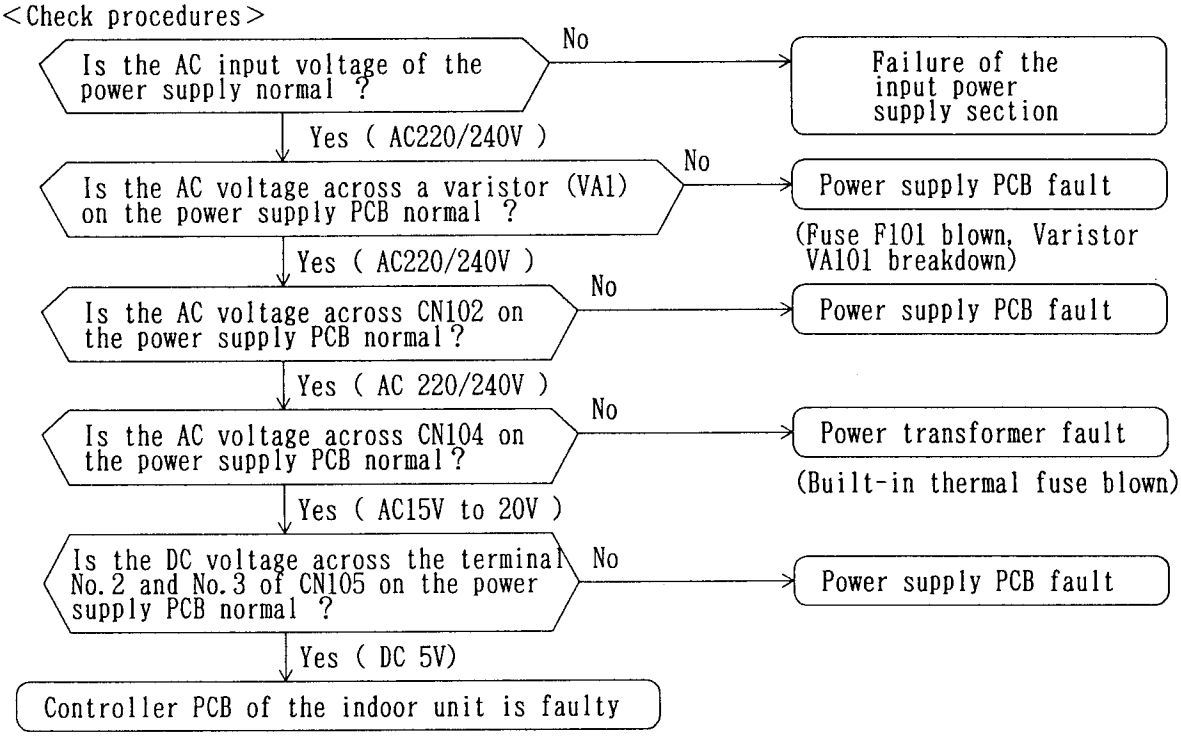
OTHER TROUBLESHOOTING

[1. Symptom] : The unit does not run at all
(The OPERATION lamp and the TIMER lamp do not light.)

<Check points>

* Is the voltage normal ?
* Is the connecting cable connected normally ?
* Is each connector inserted tightly ?
* Is the power switch on the power supply PCB turned on ?

<Check procedures>

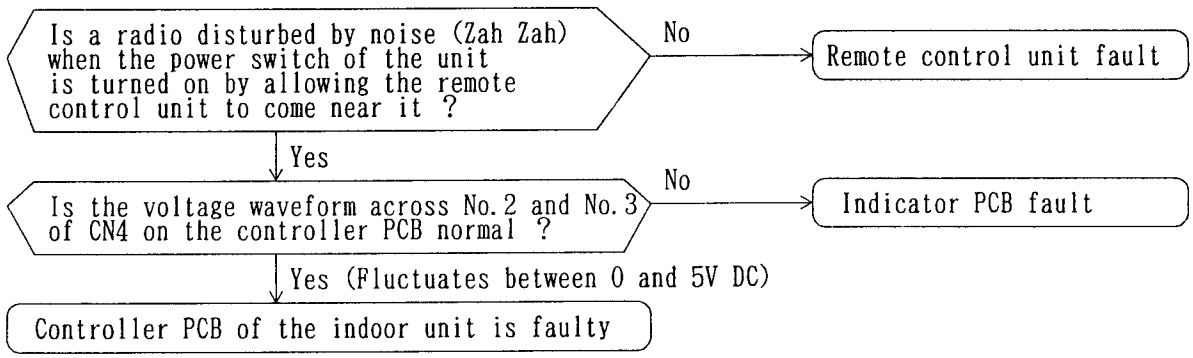


[2. Symptom] : The remote control unit does not receive the signal

<Check points>

* In the connector CN4 on the contoller PCB inserted tightly?
* Doesn't a battery of the remote control unit run low ?
* Does the unit run by a MANUAL AUTO switch (SW1 on the contoller PCB)?

<Check procedures>

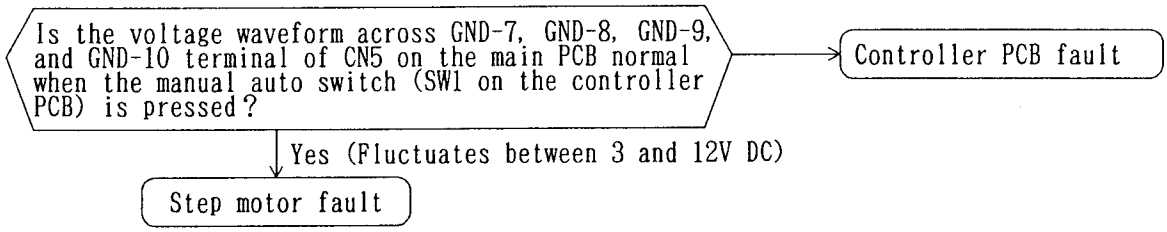


[3. Symptom] : The louver does not function

<Check point>

* Is the connector CN5 of the controller PCB inserted tightly?

<Check procedures> (GND: Ground or connector CN4-3)



TROUBLESHOOTING FOR THE OUTDOOR UNIT

If trouble display of OPERATING LED and TIMER LED at the indoor unit side is troubleshooting display table Nos. F to Q, the problem exists in the outdoor unit.
Remove the cabinet so that the controller PCB of the outdoor unit can be seen, and observe LEDs from D8 to D10 inside the controller PCB.
(Refer to troubleshooting display table (IV) Nos. O and P on page 20)

TROUBLE DIAGNOSIS F to K	OUTDOOR UNIT THERMISTOR FAULT

If D8 flickers, follow troubleshooting display table Nos. F to K, Thermistor is faulty.

<Check point>
* Remove the thermistor from the main PCB of the outdoor unit, and measure the resistance value of the thermistor.

No.	THERMISTOR	CONNECTOR (CN9)		RESISTANCE VALUES TO TEMPERATURE (kΩ)				
		PIN NO	WIRE COLOR	0℃	10℃	20℃	30℃	40℃
F	Discharge thermistor	CN9-1 CN9-2	Black	1,091.31	644.36	394.38	249.33	162.31
G	Condenser thermistor	CN9-3 CN9-4	Brown	16.05	9.72	6.10	3.94	2.62
H	Suction thermistor	CN9-5 CN9-6	Red	16.05	9.72	6.10	3.94	2.62
I	Evaporator pipe thermistor	CN9-7 CN9-8	Orange	16.05	9.72	6.10	3.94	2.62
J	Two-way valve 1 thermistor	CN9-9 CN9-10	Yellow	176.03	103.33	62.90	39.56	25.63
K	Two-way valve 2 thermistor	CN9-11 CN9-12	Green	176.03	103.33	62.90	39.56	25.63

Note: • This list shows representative resistance values, ±10% of resistance values is within allowance.

<Check procedures>

JUDGEMENT : When the representative resistance value does not apply to the above list, a thermistor is faulty.
When the resistance value applies to the above list, the main PCB is faulty.

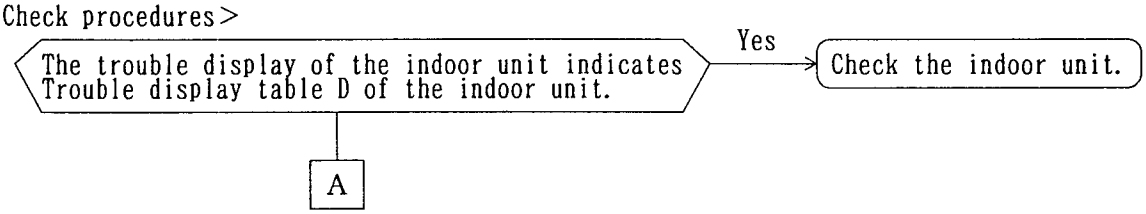
NO. F : Discharge thermistor
There is a possibility of the electronic expansion valve fault.
NO. G : Condenser thermistor
Abnormal conditions are considered to exist in the refrigerant circuit.

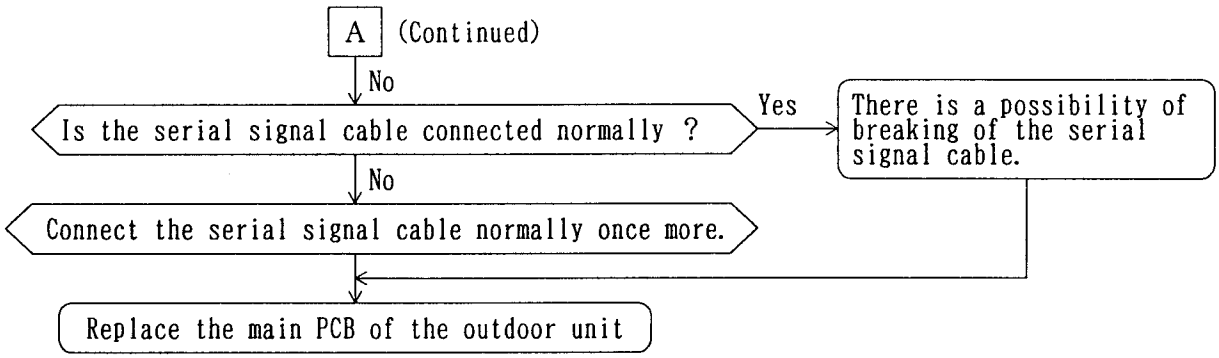
TROUBLE DIAGNOSIS P	COMMUNICATION SIGNAL FAULTY

If D9 flashes only one time, the serial transfer signal is in error.

<Check point>
* Check if the serial signal cable is wired normally.
* See the trouble display of the indoor unit.

<Check procedures>





If D9 flickers two or three times and D10 lights, check in the same way as stated above.

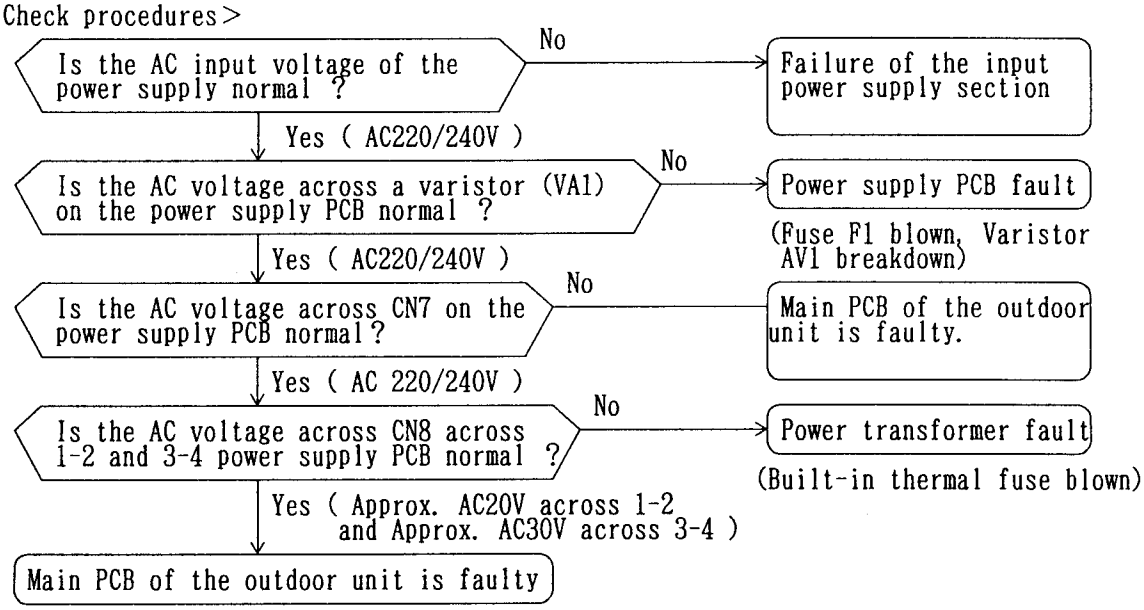
OTHER TROUBLESHOOTING

[1. Symptom] : The unit does not run at all
(LED D8 and D9 for trouble display do not flicker.)

※ When LED D8 and D9 are flickering, follow the preceding trouble display.

<Check points>
* Is the input voltage of the power supply input terminal normal?
* Check if the connecting cable is connected normally.
* Is each connector inserted tightly ?

<Check procedures>



1. WORKING INSPECTION(When cooling operation)

Symptom	Possible causes	Remedy
(1) Indoor unit evaporator is covered with frost. a. Frost near inlet. b. Frost all over.	• Gas leakage • Clogged filter • Low ambient temperature (less than 20℃)	Check the leaked part, and charge gas. Clean the filter. Check the ambient temperature
(2) Compressor operates, but it does not cool.	• Stained condenser	Clean.
(3) Water does not come out of the drain hose.	• When the compressor operates normally, the gas leaks.	Charge gas and replace the parts.
(4) Return pipe(low pressure) of the compressor is not cold.	• Gas leakage	Charge gas. Replace the parts.
(5) Outlet pipe(high pressure) of the compressor is not hot.	• Gas leakage	Charge gas.
(6) Compressor operates, but does not cool. a. Indoor unit evaporator is cold. b. Outdoor unit condenser is hot, but it does not cool.	• Overload operation • Stained condenser	Eliminate overload. Clean.
(7) Indoor unit air outlet temperature is low, but it does not cool.	• Clogged filter • The cooled air is short-circuited. • Overload operation	Clean. Isolate the problem and correct. Eliminate the overload.

2) SYMPTOM AND CHECK ITEM (FOR INDOOR UNIT)

SYMPTOM	CAUSES	CHECK ITEM	CHECK POINTS
(1) No operation	• Power supply circuit fault • Microcomputer reset circuit fault • Remote control fault • External wiring receiving section	Check 1 Check 2	Power supply circuit Microcomputer input signal Remote control trouble-shooting
(2) Erroneous operation (runaway)	• Microcomputer runaway	Check 3	Reset circuit
(3) Display does not light correctly.	• Display unit fault • LED driver fault	Check 4	Display unit Microcomputer output signal LED driver output signal

(Continued)

SYMPTOM	CAUSES	CHECK ITEM	CHECK POINTS
(4) Room temperature cannot be controlled	• Room thermistor fault • Pipe thermistor falut • A/D converter input section fault • Compressor relay fault	Check 5 Check 6	Thermistor resistance value Microcomputer input signal Relay driver output signal
(5) Indoor fan does not run and wind speed cannot be switched.	• Wind speed relay fault	Check 7	Microcomputer output signal Relay driver output signal
(6) Indication panel abnomal	• Thermistor shortcircuited or opened	Check 8	Room temperature thermistor circuit Pipe temperature thermistor circuit

3) **SYMPTOM AND CHECK ITEM** (FOR OUTDOOR UNIT)

SYMPTOM	CAUSE	CHECK ITEM	CHECK POINTS
(1) No operation	• Each harness is not connected correctly. • Power supply circuit fault	 Check 9	 Power supply circuit
(2) Erroneous operation (runaway)	• Electronic expansion valve fault • Three-minutes ST abnormal (Cooling model) • Compressor and fan motor fault (Cooling model)	Check 10 Check 11 Check 12	Electronic expansion valve driver circuit Timer circuit Relay output circuit

CHECK ITEM [FOR REVERSE CYCLE MODEL]

CHECK 1
Symptom ••• No operation
Remote control is not received

<Preliminary checks>
* Is the power cord plugged in ?
* Is power present at the plug socket ?
* Is power turned off ?

Power connection check
* Is power received at main p.c. board ? (220 or 240V AC)
* Is the fuse (3.15A) blown ?

(2) Power transformer check
* Are CN102 and CN104 inserted firmly ?
* Is 15 to 20V AC output at CN104 ?

(3) Power supply circuit check
① 12V line
0V ••• D101 to Q101 faulty
R102, R103 open
D106, C108 short-circuited
② 5V line
0V ••• D105 open, IC102 faulty,
C111, C112 short-circuited

(4) Power interrupt signal faulty [COOLING ONLY]
D101, D102, R5, R3 open, IC2 faulty
R2, R4, C3 short-circuited

(5) Reset circuit faulty
IC2 faulty, R1, C1 short-circuited

(6) Microcomputer oscillator faulty
Is the oscillator waveform (8.38MHz) output at microcomputer pins 49 and 50? If the oscillation waveform is not output, X1 or the microcomputer is faulty.

(7) Microcomputer faulty
If steps (1) to (6) are normal, the microcomputer IC1 is faulty.

CHECK 2
Symptom ••• No operation

<Preliminary checks>
* If the air conditioner operates when the remote control battery is changed, there is no problem. (The battery life is six months to one year.)
* When the receiving part of the remote control unit is exposed to direct sun light, the remote control may not be received.
* When the infrared signal between the remote control unit and receiver is blocked, the remote control is not received.

(1) Remote control unit check
If the signal tone is heard when a transistor radio is turned to an unused frequency in the medium wave band and the remote control button is pressed within 5cm of the radio, the remote control unit is normal.

(2) When the remote control unit is normal, Is CN4 disconnected ?
The receiver at the air conditioner switch P.C. board is faulty or the main P.C. board is faulty.

CHECK 3
Symptom ••• Erroneous operation (runaway)

<Preliminary checks>
* Set the wall outlet to OFF and wait at least 30 seconds. Then, set the wall outlet to ON again. If the remote control is received normally, there is not a trouble.

(1) Reset circuit faulty
IC2 faulty, R1 short-circuited

CHECK 4
Symptom ••• Display does not light correctly

<Preliminary check>
* Is indicator PC board connectors CN4 inserted firmly ?

(1) LED driver faulty
IC4 faulty, R30 to 32 open. If all of the above are normal, the display unit is faulty

CHECK 5
Sympotm ••• Room temperature cannot be controlled. (Compressor does not run or does not stop.)

<Preliminary checks>
* Is the TEST-MANUAL AUTO switch in the TEST operation ?
* Is room temperature or thermistor connector CN2 inserted firmly ?
* Is the set temperature correct ?

(1) Thermistor faulty
The room temperature thermistor resistance values are shown on page 21.
When there is a large error, the thermistor is faulty.

(2) A/D input circuit faulty
R20 open or short-circuited R20, 21 open, C13 short-circuited. If all of the above are normal, advance to Check 6.

CHECK 6
Symptom ••• Room temperature cannot be controlled.

<Preliminary checks>
* Is each faston terminal of the power relay inserted firmly ?
* Is the indoor unit and outdoor unit connection wiring open or loose ?

(1) IC5 faulty
IC5 output port short-circuited, power relay faulty

CHECK 7
Symptom ••• Room fan does not run.

<Preliminary checks>
* At dehumidification operation, the room fan is stopped while the compressor is stopped.
* Turn the fan one or two times by hand, if the fan does not turn easily, the fan motor is faulty.

(1) Fan motor faulty
Fan motor winding open.
(check between all windings)

(2) Fan motor capacitor faulty
Fan motor capacitor C105 open.

(3) Relay drive circuit faulty
IC5 faulty or output port short-circuited, SSR101 faulty.

CHECK 8
Symptom ··· Indication panel abnomal

<Preliminary checks>
* Whether during operation or non-operation, when the room temperature thermistor or pipe temperature thermistor is opened or short-circuited, operation is immediately stopped and failure indication is displayed.
* In the case that this function stops the operation, any operation instruction cannot resume the operation.
* Failure indications as shown in the trouble-shooting display table(item No.B & C).

Room temperature thermistor circuit
(1) C13 open or shortcircuited, R20, R21 open.

(2) thermistor faulty
thermistor resistance open or shortcircuited

Pipe temperature thermistor circuit
(1) C16 open or shortcircuited, R22, R23 open.

(2) thermistor faulty
thermistor resistance open or shortcircuited

CHECK 9
Symptom ····· No operation (Outdoor unit)

<Preliminary checks>
* Each harness is not connected correctly ?
* Is the power supply correct ?

(1) Power supply check
Is the 220/240V voltage supplied between both CN1 terminals ?
Is the pressure switch correct ?
Is the fuse 3.15A (F1) blown out ?

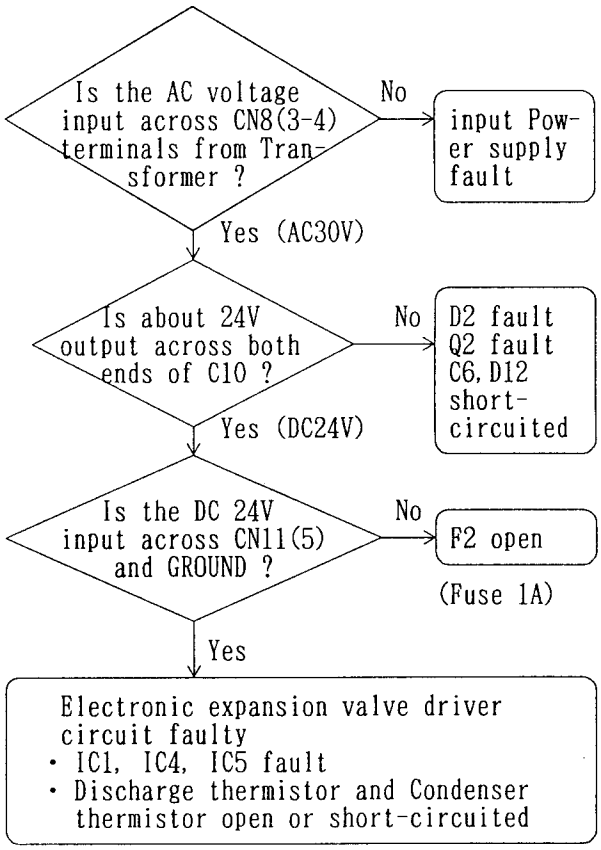
(2) Power circuit secondary side check
Is the power transformer output about 26V AC ?
① 12V line
0V ···· D3, Q1 fault
C5, R1 short-circuited or open
C7, D3 short-circuited
② 5V line
0V ···· D5, IC2 fault
C11 short-circuited or open
C12 shorted

CHECK 10
Symptom ··· Electronic expansion valve ON-OFF faulty

A : Outdoor unit of reverse cycle model

<Preliminary checks>
* Are the connectors CN11, CN12 firmly inserted ?
* Are the connectors CN9 firmly inserted ? (Temperature thermistor assy)

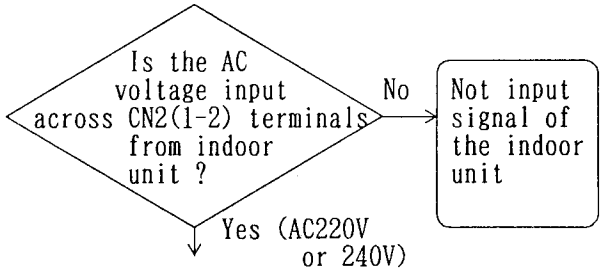
Electronic expansion valve 1 and 2 checks

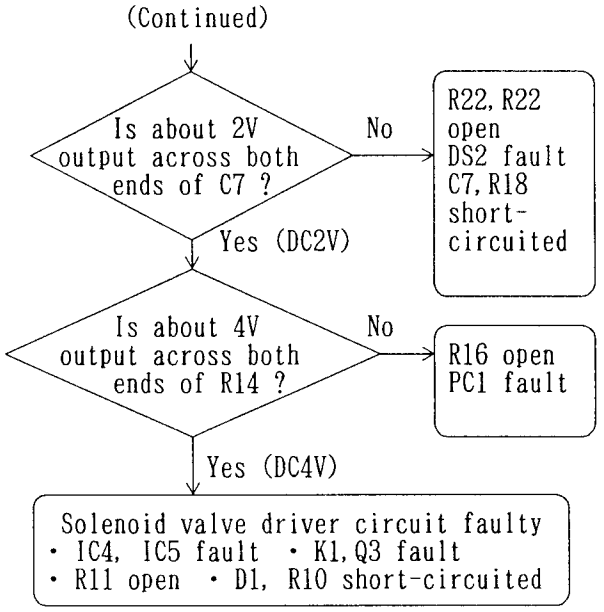


B : Outdoor unit of cooling model

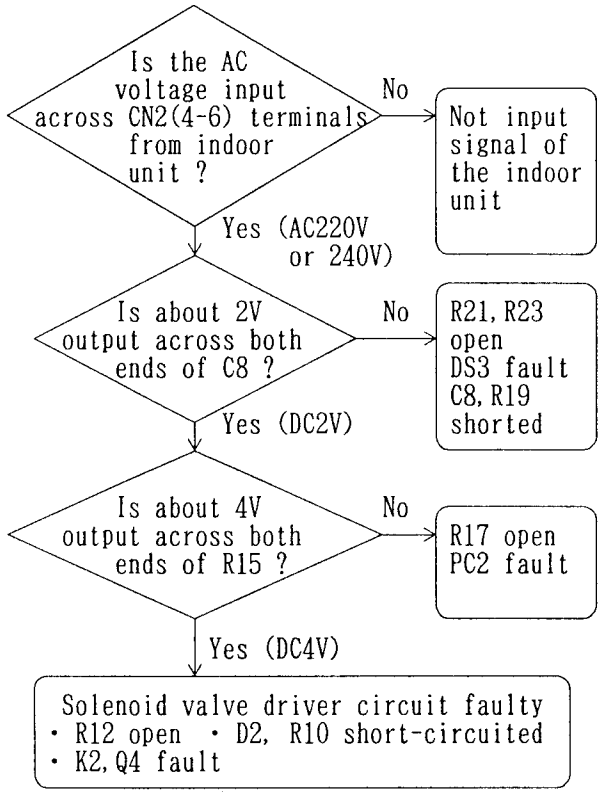
<Preliminary check>
* Are the connectors CN3, CN4 firmly inserted ?

(1) Solenoid valve 1 check





(2) Solenoid valve 2 check



CHECK 11

Symptom ····· Timer circuit faulty

- IC3, VR1 fault
- C12, C10, C11, C6 short-circuited
- R5, R4, R8 open

CHECK 12

Symptom ····· Relay driver circuit faulty

<Preliminary check>

* Check the 12V output circuit ?

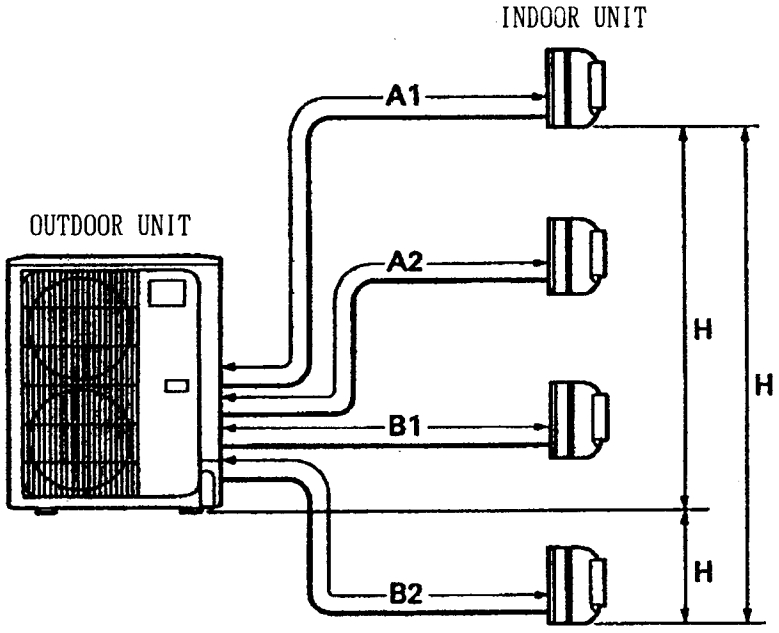
- IC5, Q1 faulty
- C9, C5, R2, D4 short-circuited
- R9, R3 open

PRECAUTIONS ON INSTALLATION

1. CONNECTING THE PIPING

LIMITATION OF REFRIGRANT PIPING LENGTH

Total max length (A1 + A2 + B1 + B2)	60 m (196 ft)
Total max length (A1 + A2)	30 m (98 ft)
Total max length (B1 + B2)	30 m (98 ft)
Max length for each indoor unit (A1 or A2 or B1 or B2)	25 m (82 ft)
Max height difference (H)	10 m (33 ft)



2. ADDITIONAL REFRIGERANT : Chargeless

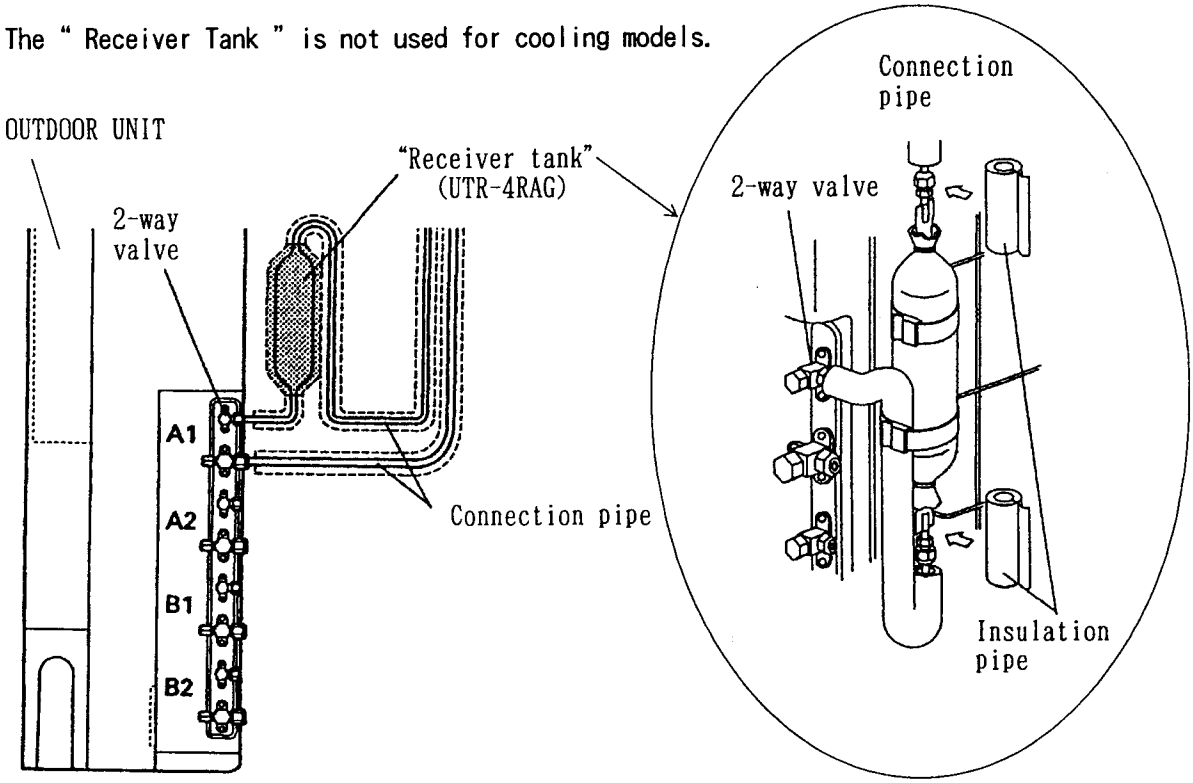
Piping Length	5m (16ft) to 30m (98ft)	INDOOR UNIT
Cooling only model	1,200g (42.4 oz)	(A1 + A2 or B1 + B2)
Reverse cycle model	1,900g (67.0 oz)	(A1 + A2 or B1 + B2)

3. CAUTION ON INSTALLATION (Reverse cycle model only)

When only 1 or 2 indoor units are connected

A " Receiver Tank " is neccesary (The max of 4 units) are not being installed.
When connecting only 1 indoor to unit A (A1, A2) or unit B (B1, B2), place the " Receiver Tank " between the 2-way valve and connection pipe.
Use " Receiver Tank " having capacity of 400 to 600cc.

The " Receiver Tank " is not used for cooling models.



RECEIVER TANK INSTALLATION MANUAL

1) Connect the auxiliary pipe to the 2-way Valve.

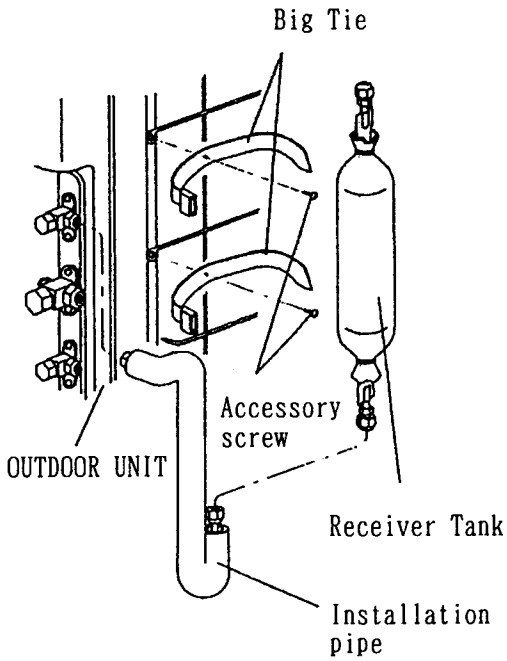
2) For big tie, tighten the accessory screws (2) together with the protection net.

3) Connect the auxiliary pipe and the " Receiver Tank ".

4) Fasten the " Receiver Tank " with the Big Tie.

5) Install the "Insulation(Pipe)" (2) to the " Receiver Tank " connection parts.

6) After " Receiver Tank " installation, perform " Air Purge " in accordance with the " Installation manual ".



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