

**SPLIT TYPE
ROOM AIR CONDITIONER**
Compact Wall Mounted
Wall Mounted / Floor
Compact Cassette / Slim Duct
INVERTER MULTI

SERVICE INSTRUCTION

| Models | Indoor unit | Outdoor unit |
|---------------|--------------------|---------------------|
|---------------|--------------------|---------------------|

| | | |
|--|--|-------------|
| | ASU7RLF1 ASU9RLF1 ASU12RLF1 ASU15RLF1 | AOU36RLXFZ1 |
|--|--|-------------|

| | | |
|--|---|--|
| | ASU18RLF ASU24RLF AGU9RLF AGU12RLF AGU15RLF | |
|--|---|--|

| | | |
|--|--|--|
| | AUU7RLF AUU9RLF AUU12RLF AUU18RLF | |
|--|--|--|

| | | |
|--|--|--|
| | ARU7RLF ARU9RLF ARU12RLF ARU18RLF ARU24RLF | |
|--|--|--|



Refrigerant
R410A

CONTENTS

1. DESCRIPTION OF EACH CONTROL OPERATION

| | |
|--|-------|
| 1. CAPACITY CONTROL..... | 01-01 |
| 2. AUTO CHANGEOVER OPERATION..... | 01-01 |
| 3. INDOOR FAN CONTROL..... | 01-03 |
| 4. LOUVER CONTROL..... | 01-11 |
| 5. OUTDOOR FAN CONTROL..... | 01-15 |
| 6. TIMER OPERATION CONTROL..... | 01-16 |
| 7. COMPRESSOR CONTROL..... | 01-19 |
| 8. ELECTRONIC EXPANSION VALVE CONTROL..... | 01-20 |
| 9. TEST OPERATION CONTROL..... | 01-20 |
| 10. PREVENT TO RESTART FOR 3 MINUTES (3 MINUTES ST)..... | 01-20 |
| 11. 4-WAY VALVE EXTENSION SELECT..... | 01-20 |
| 12. AUTO RESTART..... | 01-21 |
| 13. MANUAL AUTO OPERATION..... | 01-21 |
| 14. COMPRESSOR PREHEATING..... | 01-22 |
| 15. POWERFUL OPERATION..... | 01-22 |
| 16. MINIMUM HEAT OPERATION..... | 01-22 |
| 17. ECONOMY OPERATION..... | 01-22 |
| 18. HEAT INSULATION CONDITION (BUILDING INSULATION)..... | 01-23 |
| 19. THERMO CONTROL (FOR INDOOR UNIT SENSOR)..... | 01-23 |
| 20. THERMO CONTROL (FOR WIREDE REMOTE SENSOR)..... | 01-23 |
| 21. FRESH AIR CONTROL..... | 01-24 |
| 22. EXTERNAL ELECTRICAL HEATER CONTROL..... | 01-24 |
| 23. DRAIN PUMP OPERATION..... | 01-25 |
| 24. DEFROST OPERATION CONTROL..... | 01-26 |
| 25. VARIOUS PROTECTIONS..... | 01-28 |

2. TROUBLE SHOOTING

| | |
|--|-------|
| 2-1 ERROR DISPLAY..... | 02-01 |
| 2-1-1 INDOOR UNIT DISPLAY..... | 02-01 |
| 2-1-2 WIRED REMOTE CONTROLLER DISPLAY..... | 02-02 |
| 2-1-3 OUTDOOR UNIT DISPLAY..... | 02-03 |
| 2-2 TROUBLE SHOOTING WITH ERROR CODE..... | 02-04 |
| 2-3 TROUBLE SHOOTING WITH NO ERROR CODE..... | 02-35 |
| 2-4 SERVICE PARTS INFORMATION..... | 02-44 |

***Slim Duct / Compact Cassette
Compact Wall Mounted /
Wall Mounted / Floor type***

INVERTER (MULTI)

**1 . DESCRIPTION OF EACH
CONTROL OPERATION**

1. CAPACITY CONTROL

Compressor frequency decides by capacity of an indoor unit, operation number of an indoor unit, set temperature, room temperature and outside temperature.

2. AUTO CHANGEOVER OPERATION

When the air conditioner is set to the Auto mode by remote controller, operation starts in the optimum mode from among the Heating, Cooling, Dry and Monitoring mode. During operation, the optimum mode is automatically switched in accordance with temperature changes. The temperature can be set between 64°F(18°C) and 86°F(30°C) in 2°F(1°C) steps.

- ① When operation starts, indoor fan and outdoor fan are operated for around 3 minutes. Room temperature and outdoor temperature are sensed, and the operation mode is selected in accordance with the table below. <Monitoring mode>

(Table 1 : Operation mode selection table)

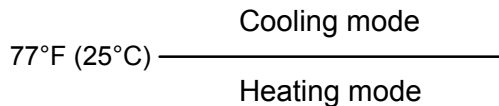
| Room temperature (TR) | Operation mode |
|--|----------------------------|
| $TR > Ts + 4^{\circ}F(+2^{\circ}C)$ | Cooling (Automatic dry) |
| $Ts + 4^{\circ}F(+2^{\circ}C) \geq TR \geq Ts - 4^{\circ}F(-2^{\circ}C)$ | *Middle zone |
| $TR < Ts - 4^{\circ}F(-2^{\circ}C)$ | Heating |

TR : Room temperature
Ts : Setting temperature

*If it's Middle zone, operation mode of indoor unit is selected as below.

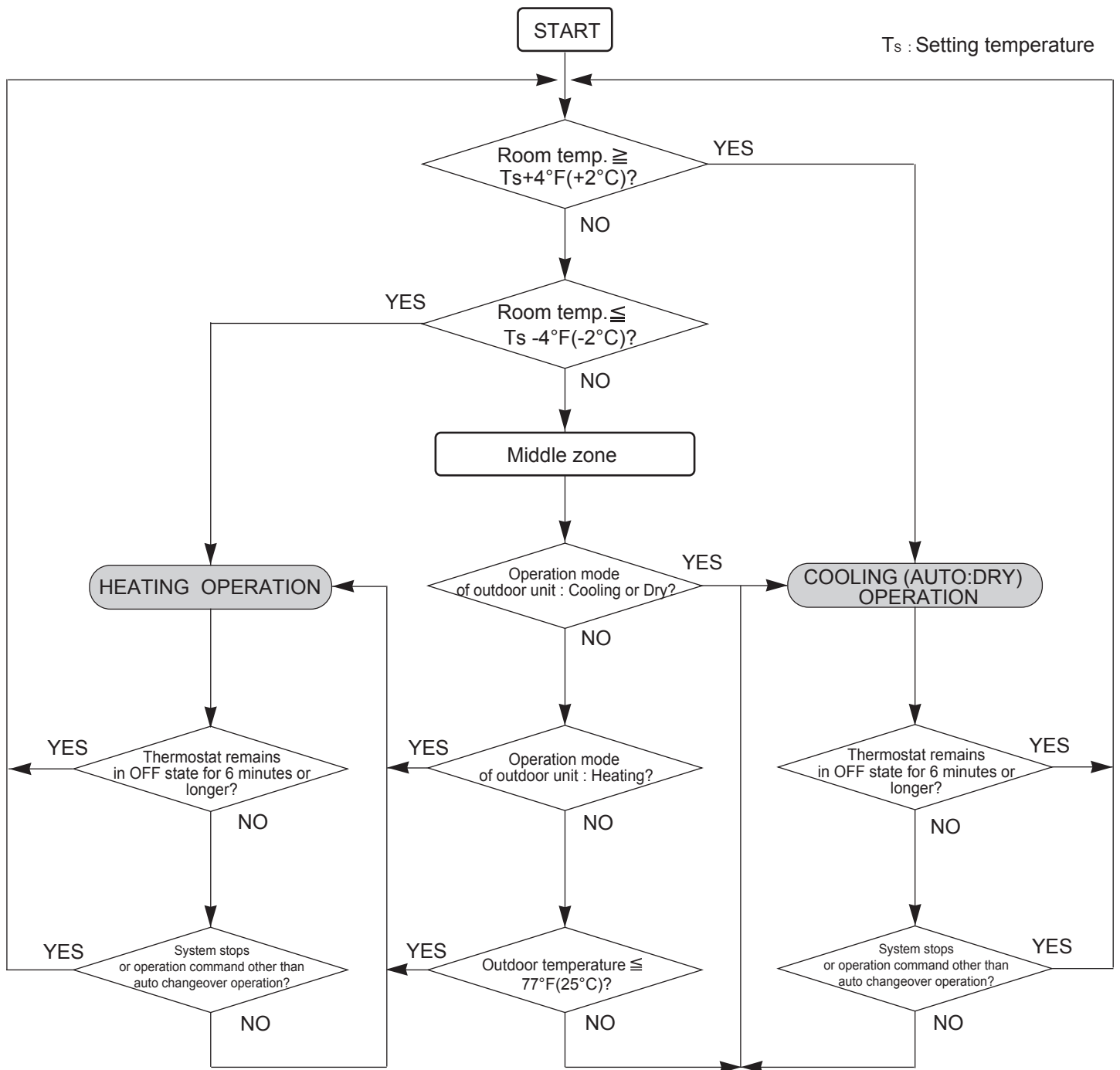
- (1). Same operation mode is selected as outdoor unit.
If outdoor unit is operating in Cooling, Dry, and Heating mode, indoor unit will be operated by the same operation mode.
- (2). Selected by the outdoor temperature.
If outdoor unit is operating in other than Cooling, Dry, and Heating mode, indoor unit will be operated according to the outdoor temperature as below.

(Fig. 1 : Outdoor temperature zone selection)



- ② When Heating was selected at ①, the same operation as HEATING OPERATION of page 01-08 is performed.
- ③ When the compressor was stopped for 6 consecutive minutes by the temperature control function after the Cooling(Auto:Dry) or Heating mode was selected at above, operation is switched to Monitoring and the operation mode is selected again.

■ AUTO CHANGEOVER operation flow chart



3. INDOOR FAN CONTROL

1. Fan speed

(Table 2 : Indoor fan speed table)

ASU7RLF1 (rpm)

| Operation mode | Air flow mode | Fan Speed |
|----------------|---------------------|-----------|
| Heating | Poweful | 1090 |
| | Hi | 1050 |
| | Me+ | 1000 |
| | Me | 950 |
| | Lo | 850 |
| | Quiet | 710 |
| | Cool Air Prevention | 600 |
| | S-Lo | 480 |
| Cooling / Fan | Poweful | 1090 |
| | Hi | 1050 |
| | Me | 950 |
| | Lo | 850 |
| | Quiet | 680 |
| | *Soft Quiet | 600 |
| | S-Lo | 480 |
| | Dry | Auto |

ASU9RLF1 (rpm)

| Operation mode | Air flow mode | Fan Speed |
|----------------|---------------------|-----------|
| Heating | Poweful | 1140 |
| | Hi | 1090 |
| | Me+ | 1040 |
| | Me | 980 |
| | Lo | 850 |
| | Quiet | 710 |
| | Cool Air Prevention | 600 |
| | S-Lo | 480 |
| Cooling / Fan | Poweful | 1140 |
| | Hi | 1090 |
| | Me | 980 |
| | Lo | 850 |
| | Quiet | 680 |
| | *Soft Quiet | 600 |
| | S-Lo | 480 |
| | Dry | Auto |

ASU12RLF1 (rpm)

| Operation mode | Air flow mode | Fan Speed |
|----------------|---------------------|-----------|
| Heating | Poweful | 1240 |
| | Hi | 1190 |
| | Me+ | 1120 |
| | Me | 1050 |
| | Lo | 910 |
| | Quiet | 710 |
| | Cool Air Prevention | 600 |
| | S-Lo | 480 |
| Cooling / Fan | Poweful | 1240 |
| | Hi | 1190 |
| | Me | 1050 |
| | Lo | 880 |
| | Quiet | 680 |
| | *Soft Quiet | 600 |
| | S-Lo | 480 |
| | Dry | Auto |

ASU15RLF1 (rpm)

| Operation mode | Air flow mode | Fan Speed |
|----------------|---------------------|-----------|
| Heating | Poweful | 1320 |
| | Hi | 1280 |
| | Me+ | 1190 |
| | Me | 1120 |
| | Lo | 1050 |
| | Quiet | 770 |
| | Cool Air Prevention | 600 |
| | S-Lo | 480 |
| Cooling / Fan | Poweful | 1320 |
| | Hi | 1280 |
| | Me | 1090 |
| | Lo | 1000 |
| | Quiet | 750 |
| | *Soft Quiet | 670 |
| | S-Lo | 480 |
| | Dry | Auto |

*Note, during Economy operation and operation mode is Fan, air flow is 1 step downs.
(Hi > Me, Me > Lo, Quiet > Soft Quiet)

ASU18RLF

(rpm)

| Operation mode | Air flow mode | Fan Speed |
|----------------|---------------------|---------------|
| Heating | Hi | 1260 |
| | Me+ | 1120 |
| | Me | 1020 |
| | Lo | 900 |
| | Quiet | 790 |
| | Cool Air Prevention | 680 |
| | S-Lo | 480 |
| Cooling / Fan | Hi | 1260 |
| | Me | 1020 |
| | Lo | 900 |
| | Quiet | 770 |
| | *Soft Quiet | 680 |
| | S-Lo | 480 |
| Dry | Auto | X, J zone:770 |

ASU24RLF

(rpm)

| Operation mode | Air flow mode | Fan Speed |
|----------------|---------------------|---------------|
| Heating | Hi | 1430 |
| | Me+ | 1320 |
| | Me | 1220 |
| | Lo | 1020 |
| | Quiet | 900 |
| | Cool Air Prevention | 720 |
| | S-Lo | 480 |
| Cooling / Fan | Hi | 1480 |
| | Me | 1220 |
| | Lo | 1020 |
| | Quiet | 900 |
| | *Soft Quiet | 720 |
| | S-Lo | 480 |
| Dry | Auto | X, J zone:900 |

*Note, during Economy operation and operation mode is Fan, air flow is 1 step downs.
(Hi > Me, Me > Lo, Quiet > Soft Quiet)

AGU9RLF (rpm)

| Operation mode | Air flow mode | | Speed | |
|----------------|---------------------|----------------|-----------------------------|----------------------------|
| | | | Upper & Lower air flow mode | Upper air flow mode |
| Heating | Powerful | (Upper/ Lower) | 1230/ 1040 | 1300 |
| | Hi | | 1120/ 950 | 1230 |
| | Me | | 1000/ 850 | 1090 |
| | Lo | | 860/ 730 | 940 |
| | Quiet | | 660/ 560 | 750 |
| | Cool air prevention | | 660/ 560 | 680 |
| Cooling/ Fan | Powerful | (Upper/ Lower) | 1230/ 1040 | 1300 |
| | Hi | | 1120/ 950 | 1230 |
| | Me | | 960/ 820 | 1070 |
| | Lo | | 820/ 700 | 910 |
| | Quiet | | 660/ 560 | 750 |
| | *Soft Quiet | | 570/ 480 | 680 |
| Dry | Auto | (Upper/ Lower) | ---- / ---- | X zone: 750 J zone: 750 |
| | | | | |

AGU12RLF (rpm)

| Operation mode | Air flow mode | | Speed | |
|----------------|---------------------|----------------|-----------------------------|----------------------------|
| | | | Upper & Lower air flow mode | Upper air flow mode |
| Heating | Powerful | (Upper/ Lower) | 1350/ 1150 | 1370 |
| | Hi | | 1240/ 1040 | 1300 |
| | Me | | 1080/ 920 | 1140 |
| | Lo | | 910/ 770 | 980 |
| | Quiet | | 660/ 560 | 750 |
| | Cool air prevention | | 660/ 560 | 680 |
| Cooling/ Fan | Powerful | (Upper/ Lower) | 1350/ 1150 | 1370 |
| | Hi | | 1240/ 1040 | 1300 |
| | Me | | 1050/ 890 | 1120 |
| | Lo | | 860/ 730 | 930 |
| | Quiet | | 660/ 560 | 750 |
| | *Soft Quiet | | 570/ 480 | 680 |
| Dry | Auto | (Upper/ Lower) | ---- / ---- | X zone: 750 J zone: 750 |
| | | | | |

AGU15RLF (rpm)

| Operation mode | Air flow mode | | Speed | |
|----------------|---------------------|----------------|-----------------------------|----------------------------|
| | | | Upper & Lower air flow mode | Upper air flow mode |
| Heating | Powerful | (Upper/ Lower) | 1440/ 1230 | 1440 |
| | Hi | | 1330/ 1120 | 1370 |
| | Me | | 1140/ 970 | 1180 |
| | Lo | | 940/ 800 | 1020 |
| | Quiet | | 660/ 560 | 750 |
| | Cool air prevention | | 660/ 560 | 680 |
| Cooling/ Fan | Powerful | (Upper/ Lower) | 1440/ 1230 | 1440 |
| | Hi | | 1330/ 1120 | 1370 |
| | Me | | 1100/ 930 | 1160 |
| | Lo | | 890/ 750 | 960 |
| | Quiet | | 660/ 560 | 750 |
| | *Soft Quiet | | 570/ 480 | 680 |
| Dry | Auto | (Upper/ Lower) | ---- / ---- | X zone: 750 J zone: 750 |
| | | | | |

*Note, during Economy operation and operation mode is Fan, air flow is 1 step downs.
(Hi > Me, Me > Lo, Quiet > Soft Quiet)

AUU7RLF (rpm)

| Operation mode | Air flow mode | Fan Speed |
|----------------|---------------------|---------------|
| Heating | Hi | 590 |
| | Me+ | 570 |
| | Me | 540 |
| | Lo | 490 |
| | Quiet | 440 |
| | Cool Air Prevention | 400 |
| | S-Lo | 300 |
| Cooling / Fan | Hi | 590 |
| | Me | 540 |
| | Lo | 490 |
| | Quiet | 440 |
| | *Soft Quiet | 400 |
| | S-Lo | 300 |
| Dry | Auto | X, J zone:440 |

AUU9RLF (rpm)

| Operation mode | Air flow mode | Fan Speed |
|----------------|---------------------|---------------|
| Heating | Hi | 590 |
| | Me+ | 570 |
| | Me | 540 |
| | Lo | 490 |
| | Quiet | 440 |
| | Cool Air Prevention | 400 |
| | S-Lo | 300 |
| Cooling / Fan | Hi | 590 |
| | Me | 540 |
| | Lo | 490 |
| | Quiet | 440 |
| | *Soft Quiet | 400 |
| | S-Lo | 300 |
| Dry | Auto | X, J zone:440 |

AUU12RLF (rpm)

| Operation mode | Air flow mode | Fan Speed |
|----------------|---------------------|---------------|
| Heating | Hi | 650 |
| | Me+ | 620 |
| | Me | 580 |
| | Lo | 520 |
| | Quiet | 460 |
| | Cool Air Prevention | 400 |
| | S-Lo | 300 |
| Cooling / Fan | Hi | 660 |
| | Me | 580 |
| | Lo | 520 |
| | Quiet | 460 |
| | *Soft Quiet | 400 |
| | S-Lo | 300 |
| Dry | Auto | X, J zone:460 |

AUU18RLF (rpm)

| Operation mode | Air flow mode | Fan Speed |
|----------------|---------------------|---------------|
| Heating | Hi | 840 |
| | Me+ | 800 |
| | Me | 750 |
| | Lo | 650 |
| | Quiet | 500 |
| | Cool Air Prevention | 400 |
| | S-Lo | 300 |
| Cooling / Fan | Hi | 790 |
| | Me | 660 |
| | Lo | 570 |
| | Quiet | 460 |
| | *Soft Quiet | 400 |
| | S-Lo | 300 |
| Dry | Auto | X, J zone:460 |

*Note, during Economy operation and operation mode is Fan, air flow is 1 step downs.
(Hi > Me, Me > Lo, Quiet > Soft Quiet)

ARU7RLF (Static pressure:25Pa) (rpm)

| Operation mode | Air flow mode | Fan Speed |
|----------------|---------------|---------------|
| Heating | Hi | 1160 |
| | Me | 1000 |
| | Lo | 940 |
| | Quiet | 880 |
| | S-Lo | 500 |
| Cooling / Fan | Hi | 1160 |
| | Me | 1000 |
| | Lo | 940 |
| | Quiet | 880 |
| | *Soft Quiet | 500 |
| | S-Lo | 500 |
| Dry | Auto | X, J zone:880 |

ARU9RLF (Static pressure:25Pa) (rpm)

| Operation mode | Air flow mode | Fan Speed |
|----------------|---------------|---------------|
| Heating | Hi | 1260 |
| | Me | 1160 |
| | Lo | 1060 |
| | Quiet | 960 |
| | S-Lo | 500 |
| Cooling / Fan | Hi | 1260 |
| | Me | 1160 |
| | Lo | 1060 |
| | Quiet | 960 |
| | *Soft Quiet | 500 |
| | S-Lo | 500 |
| Dry | Auto | X, J zone:960 |

ARU12RLF (Static pressure:25Pa) (rpm)

| Operation mode | Air flow mode | Fan Speed |
|----------------|---------------|----------------|
| Heating | Hi | 1340 |
| | Me | 1240 |
| | Lo | 1140 |
| | Quiet | 1030 |
| | S-Lo | 500 |
| Cooling / Fan | Hi | 1340 |
| | Me | 1240 |
| | Lo | 1140 |
| | Quiet | 1030 |
| | *Soft Quiet | 500 |
| | S-Lo | 500 |
| Dry | Auto | X, J zone:1030 |

ARU18RLF (Static pressure:25Pa) (rpm)

| Operation mode | Air flow mode | Fan Speed |
|----------------|---------------|----------------|
| Heating | Hi | 1380 |
| | Me | 1300 |
| | Lo | 1220 |
| | Quiet | 1140 |
| | S-Lo | 600 |
| Cooling / Fan | Hi | 1380 |
| | Me | 1300 |
| | Lo | 1220 |
| | Quiet | 1140 |
| | *Soft Quiet | 600 |
| | S-Lo | 600 |
| Dry | Auto | X, J zone:1140 |

ARU24RLF (Static pressure:25Pa) (rpm)

| Operation mode | Air flow mode | Fan Speed |
|----------------|---------------|----------------|
| Heating | Hi | 1460 |
| | Me | 1360 |
| | Lo | 1260 |
| | Quiet | 1180 |
| | S-Lo | 600 |
| Cooling / Fan | Hi | 1460 |
| | Me | 1360 |
| | Lo | 1260 |
| | Quiet | 1180 |
| | *Soft Quiet | 600 |
| | S-Lo | 600 |
| Dry | Auto | X, J zone:1180 |

*Note, during Economy operation and operation mode is Fan, air flow is 1 step downs.
(Hi > Me, Me > Lo, Quiet > Soft Quiet)

2. FAN OPERATION

The airflow can be switched in 5 steps such as Auto, Quiet, Lo, Me, Hi, while the indoor fan only runs.

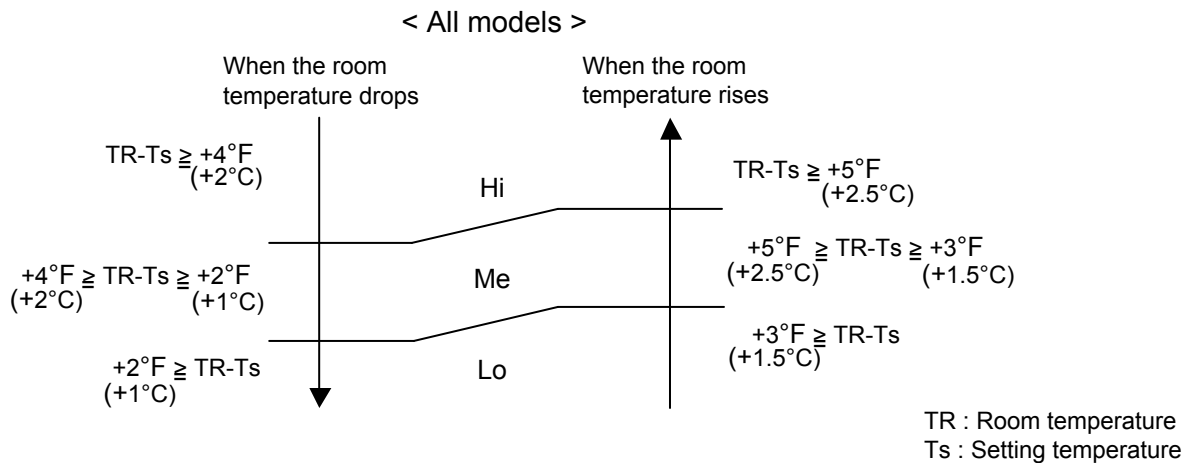
When Fan mode is set at (Auto), it operates on (Me) Fan Speed. < All models >

3. COOLING OPERATION (Auto : Cooling)

Switch the airflow [Auto], and the indoor fan will run according to a room temperature, as shown in Fig. 2 .

On the other hand, if switched in [Hi]~[Quiet], the indoor fan will run at a constant airflow of [Cooling] operation modes Quiet, Lo, Me, Hi.

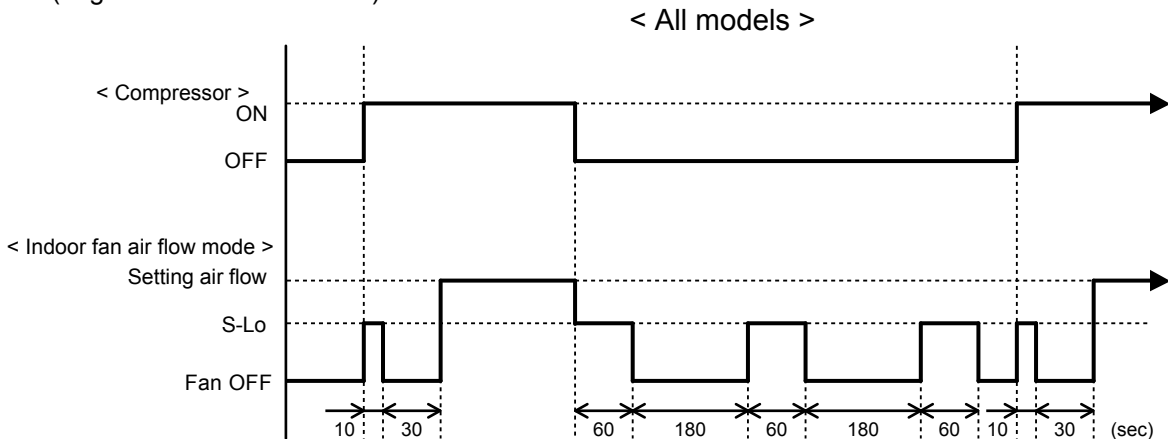
(Fig. 2 : Airflow change - over)



4. DRY OPERATION (Auto : Dry)

During the dry operation, the fan speed setting can not be changed, it operates automatically as shown in Fig. 3 .
Room temperature variation which the room temperature sensor of the indoor unit body has detected.

(Fig. 3 : Indoor fan control)

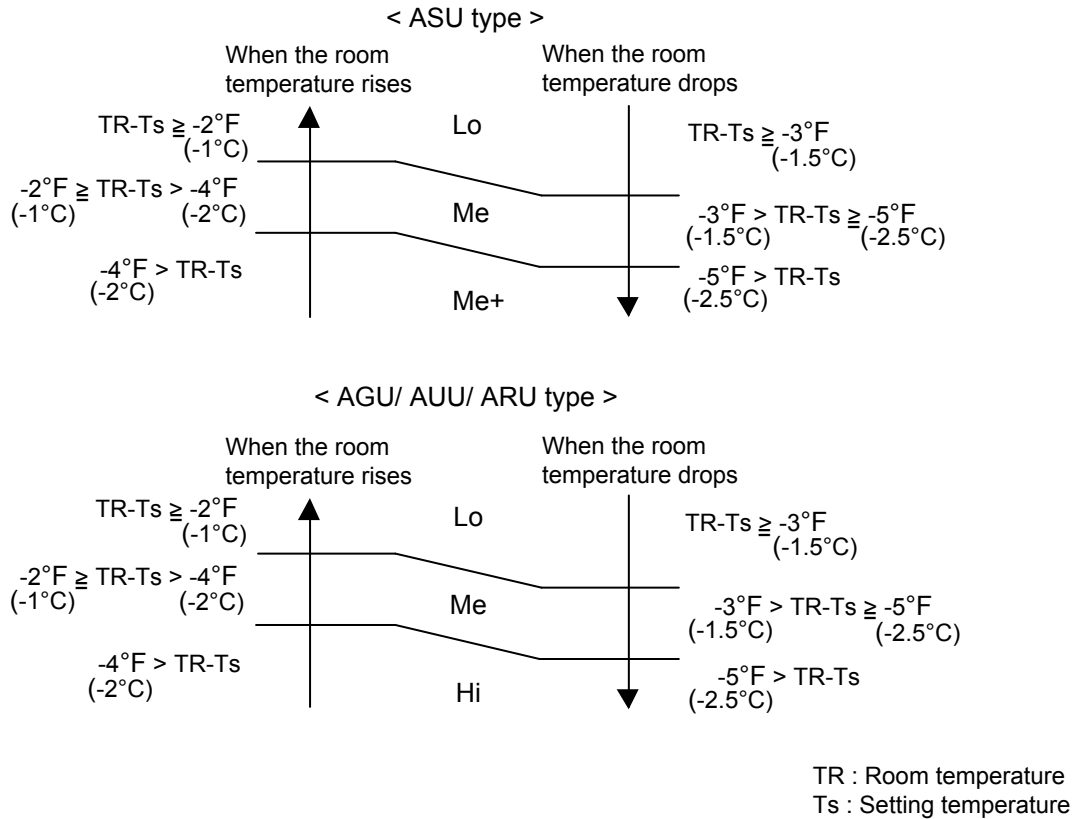


5. HEATING OPERATION (Auto : Heating)

Switch the airflow [Auto], and the indoor fan will run according to a room temperature, as shown in Fig. 4 .

On the other hand, if switched in [Hi] ~ [Quiet], the indoor fan will run at a constant airflow of [Heat] operation modes Quiet, Lo, Me, Hi, as shown in Table 2 .

(Fig. 4 : Airflow change - over)



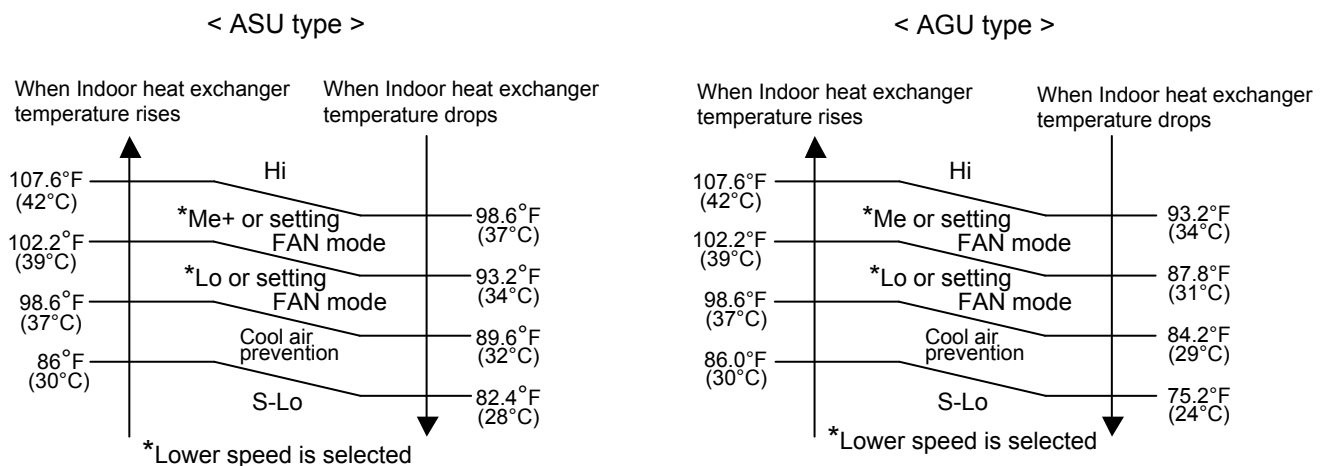
6. COOL AIR PREVENTION CONTROL (For Heating and Minimum Heat operation)

The maximum value of the indoor fan speed is set as shown in Fig. 5 , based on the detected temperature by the indoor heat exchanger sensor in heating mode.

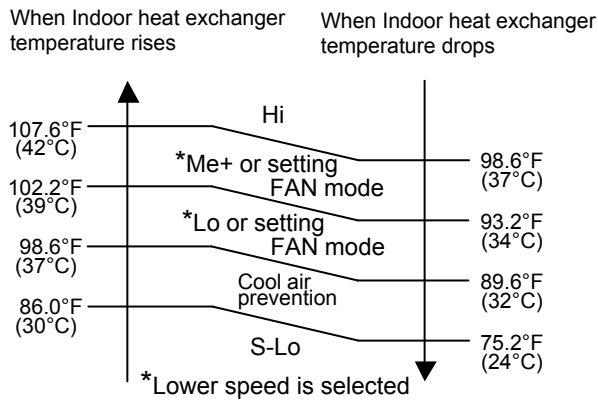
Field setting is necessary at AU and AR type as "Cool air prevention : effective"

(Fig. 5 : Airflow change - over for cool air prevention)

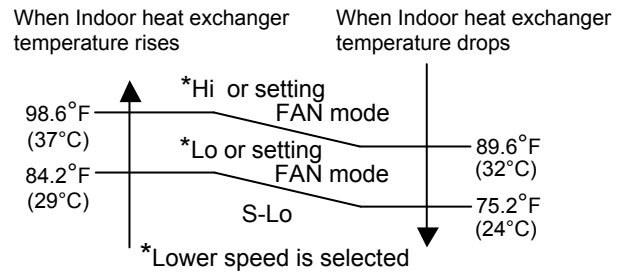
During NORMAL HEATING OPERATION



< AUU type >

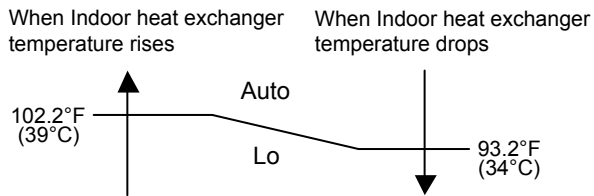


< ARU type >

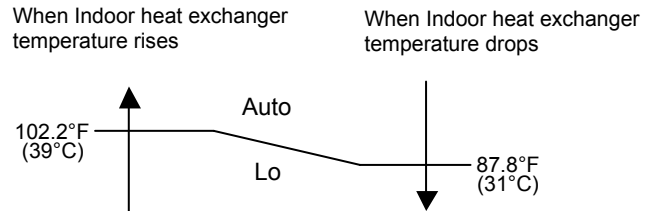


During MINIMUM HEAT OPERATION

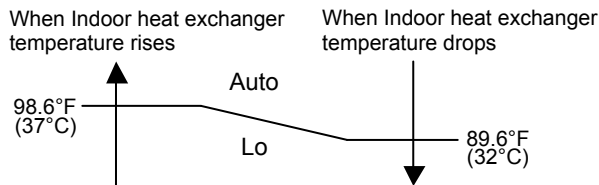
< ASU / AUU type >



< AGU type >



< ARU type >



4. LOUVER CONTROL

For Compact Wall Mounted Type < ASU7/ 9/ 12/ 15RLF1 >

1. VERTICAL LOUVER CONTROL

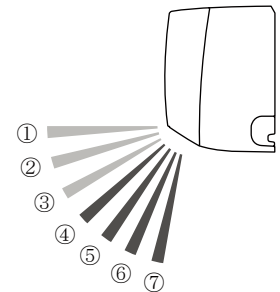
(Function Range)

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

(Fig. 6 : Vertical air direction range)

① ↔ ② ↔ ③ ↔ ④ ↔ ⑤ ↔ ⑥ ↔ ⑦

The Remote Controller's display does not change.



- If you set the angle to position ④~⑦ for more than 30 minutes in COOL or DRY mode, they automatically return to position ③ .
In COOL or DRY mode, if the angle is set to position ④~⑦ for many hours, condensation may be formed, and the drips may wet your property.
- Use the air direction adjustments within the ranges shown above.
- The vertical airflow direction is set automatically as shown, in accordance with the type of operation selected.
 - Cooling / Dry mode : Horizontal flow ①
 - Heating mode : Downward flow ⑦
- During AUTO or Heating mode operation, for the first a few minutes after beginning operation, air-flow will be horizontal ① ; the air direction cannot be adjusted during this period.
The air flow direction setting will temporarily become ① when the temperature of the air -flow is low at the start of the Heating mode.

2. SWING OPERATION

To select Vertical Airflow Swing Operation

When the swing signal is received from the remote controller, the vertical louver starts to swing.

(Table 3 : Swinging range)

| The type of operation | Range |
|--------------------------------------|-------|
| Cooling / Dry mode Fan mode (①~③) | ① ↔ ③ |
| Heating mode Fan mode (④~⑦) | ④ ↔ ⑦ |

- The SWING operation may stop temporarily when the air conditioner's fan is not operating, or when operating at very low speeds.

To select Horizontal Airflow Swing Operation

(No function)

For Wall Mounted Type < ASU18/ 24RLF >

1. VERTICAL LOUVER CONTROL

(Function Range)

Each time the button is pressed, the air direction range will change as follow: (Fig. 7 : Vertical air direction range)

① ⇄ ② ⇄ ③ ⇄ ④ ⇄ ⑤ ⇄ ⑥

Types of Air flow Direction Setting:

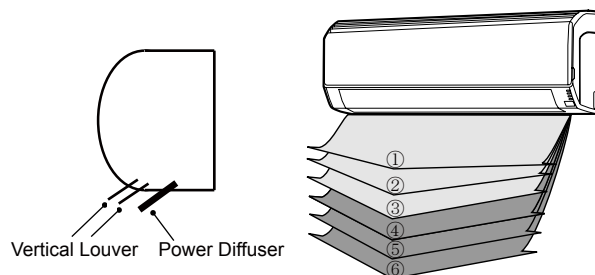
①, ②, ③, ④, ⑤, ⑥ : During Cooling / Dry / Heating / Fan modes

- Use the air direction adjustments within the ranges shown above.
- The vertical airflow direction is set automatically as shown, in accordance with the type of operation selected.

Cooling / Dry mode : Horizontal flow ①

Heating mode : Downward flow ⑤

- When the temperature of the air being blown out is low at the start of heating operation or during defrosting, the airflow direction temporarily becomes ① to prevent cold air being blown onto the body.
- During use of the Cooling and Dry modes, do not set the Air Flow Direction Louver in the Heating range (④~⑥) for long period of time, since water vapor may condense near the outlet louvers and drop of water may drip from the air conditioner. During the Cooling and Dry modes, if the Air Flow Direction Louvers are left in the heating range for around 20 minutes, they will automatically return to position ③.



2. HORIZONTAL LOUVER CONTROL

(Function Range)

Each time the button is pressed, the air direction range will change as follows. (Fig. 8 : Horizontal air direction range)

Cooling / Heating / Dry mode / Fan mode

① ⇄ ② ⇄ ③ ⇄ ④ ⇄ ⑤

3. SWING OPERATION

Vertical Airflow Swing Operation

When the swing signal is received from the remote controller, the vertical louver starts to swing.

(Swinging Range)

Cooling mode / Dry mode / Fan mode (①~③) : ① ⇄ ④

Heating mode / Fan mode (④~⑥) : ③ ⇄ ⑥

- When the indoor fan is S-Lo or Stop mode, the swing operation is interrupted and it stops at either upper end or bottom end.

Horizontal Airflow Swing Operation

When the swing signal is received from the remote controller, the horizontal louver starts to swing.

(Swinging Range)

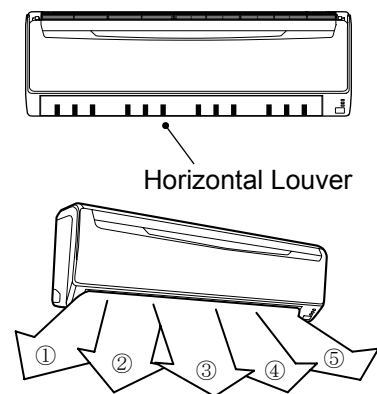
All mode : ① ⇄ ⑤

- When the indoor fan is S-Lo or Stop mode, the swing operation is interrupted and it stops at either upper end or bottom end.

Vertical and Horizontal Airflow Swing Operation

- When the horizontal swing signal is input from remote control, the combination of the vertical and horizontal swing operation is performed.

※ **Power Diffuser doesn't swing in any swing operation.**



For Floor Type < AGU9/ 12/ 15RLF >

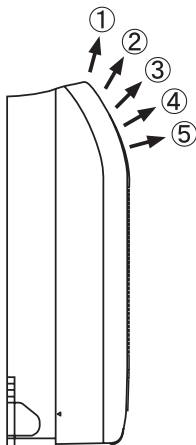
1. VERTICAL LOUVER CONTROL

(Function and Operation Range)

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

① ⇄ ② ⇄ ③ ⇄ ④ ⇄ ⑤

(Fig. 9 : Air direction range)



Use the air direction adjustments within the ranges shown above.

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

Cooling / Dry / Fan mode : Horizontal flow ①
Heating mode : Downward flow ④

- When the temperature of the air being blown out is low at the start of heating operation or during defrosting, the airflow direction temporarily becomes ① to prevent cold air being blown onto the body.
- During Monitor operation in AUTO CHANGEOVER mode, the airflow direction automatically becomes ①, and it cannot be adjusted.

2. SWING OPERATION

When the swing signal is received from the remote controller, the vertical louver starts to swing .

(Swinging Range)

Cooling / Heating / Dry / Fan mode : ① ⇄ ⑤

- When the indoor fan is either at S-Lo or Stop mode, the swinging operation is interrupted and it stops at either upper end or bottom end.

For Compact Cassette Type < AUU7/ 9/ 12/ 18RLF >

1. VERTICAL LOUVER CONTROL

(Function Range)

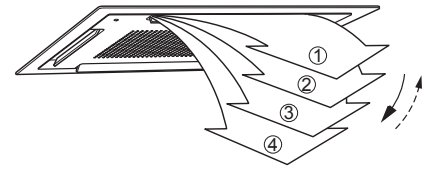
Each time the button is pressed, the air direction range will change as follows:

① ↔ ② ↔ ③ ↔ ④

(Operation Range)

①, ②, ③, ④ : During Cooling / Dry / Heating / Fan modes

(Fig. 10 : Vertical air direction range)



Use the air direction adjustments within the ranges shown above.

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

Cooling / Dry / Fan mode : Horizontal flow ①
 Heating mode : Downward flow ④

- During AUTO mode operation, for the first minute after start-up, air-flow will be horizontal ①; the air direction cannot be adjusted during this period.

2. SWING OPERATION

When the swing signal is received from the remote controller, the vertical louver starts to swing. The range of swing depends on the set airflow direction.

(Table 4 : Swinging range)

| The type of operation | Range of swing |
|------------------------------------|----------------|
| Cooling / Heating / Dry / Fan mode | ① to ④ |

- When the indoor fan is either at S-Lo or Stop mode, the swinging operation is interrupted and the louver stops at the memorized position.
 (Stop mode means Operation stop.)

5. OUTDOOR FAN CONTROL

1. Outdoor Fan Motor

The Table 5 shows the fan speed of the outdoor unit.

(Table 5 : Fan speed of the outdoor unit)

| | Cooling | Heating |
|-------------|----------------------------------|----------------------------------|
| AOU36RLXFZ1 | 850/ 780/ 660/ 400/ 300/ 200 rpm | 900/ 780/ 660/ 400/ 300/ 200 rpm |

* It runs at 500rpm for 20 seconds after starting up the outdoor fan.

6. TIMER OPERATION CONTROL

6-1 WIRELESS REMOTE CONTROLLER

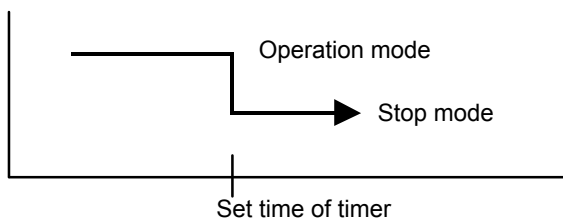
The Table 6 shows the available timer setting based on the product model.

(Table 6 : Timer setting)

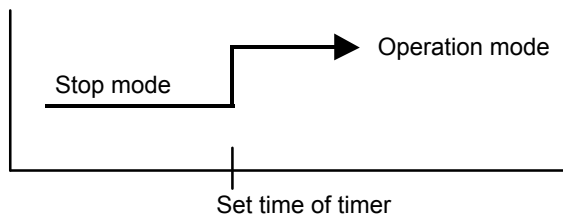
| ON TIMER / OFF TIMER | PROGRAM TIMER | SLEEP TIMER |
|----------------------|---------------|-------------|
| ○ | ○ | ○ |

1. ON / OFF TIMER

- OFF timer : When the clock reaches the set time, the air conditioner will be turned off.

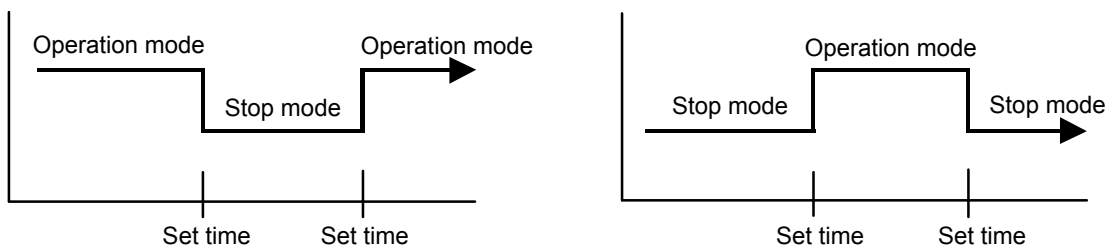


- ON timer : When the clock reaches the set time, the air conditioner will be turned on.



2. PROGRAM TIMER

- The program timer allows the OFF timer and ON timer to be used in combination one time.



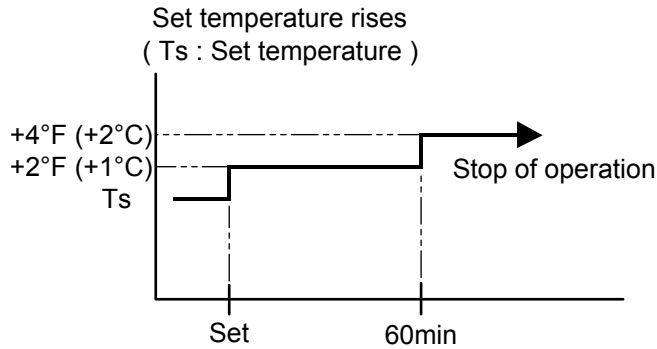
- Operation will start from the timer setting (either OFF timer or ON timer) whichever is closest to the clock's current timer setting.
The order of operations is indicated by the arrow in the remote control unit's display.
- SLEEP timer operation cannot be combined with ON timer operation.

3. SLEEP TIMER

If the sleep is set, the room temperature is monitored and the operation is stopped automatically. If the operation mode or the set temperature is change after the sleep timer is set, the operation is continued according to the changed setting of the sleep timer from that time ON.

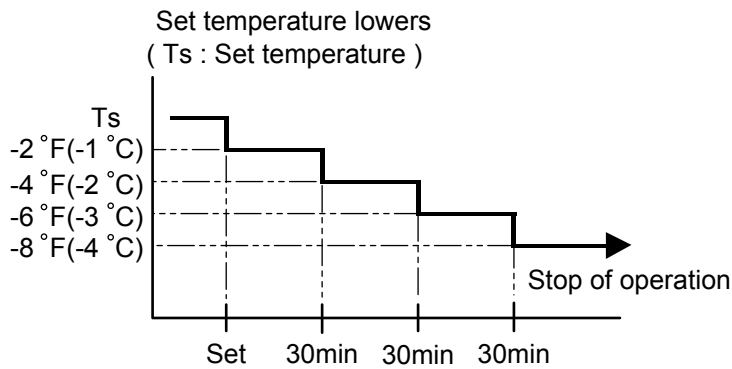
In the cooling operation mode

When the sleep timer is set, the setting temperature is increased 2°F(1°C). It increases the setting temperature another 2°F(1°C) after 1 hour. After that, the setting temperature is not changed and the operation is stopped at the time of timer setting.



In the heating operation mode

When the sleep timer is set, the setting temperature is decreased 2°F(1°C). It decreases the setting temperature another 2°F(1°C) every 30 minutes. Upon lowering 8°F(4°C), the setting temperature is not changed and the operation stops at the time of timer setting.



6-2 WIRED REMOTE CONTROLLER

The Table 7 shows the available timer setting based on the product model.

(Table 7 : Timer setting)

| ON TIMER / OFF TIMER | WEEKLY TIMER | TEMPERATURE SET BACK TIMER |
|----------------------|--------------|----------------------------|
| ○ | ○ | ○ |

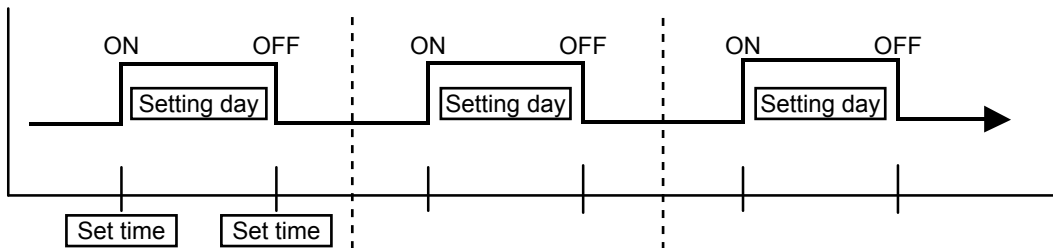
1. ON TIMER / OFF TIMER

Same to 6-1 **ON / OFF TIMER** and shown in those.

2. WEEKLY TIMER

This timer function can set operation times of the each day of the week.

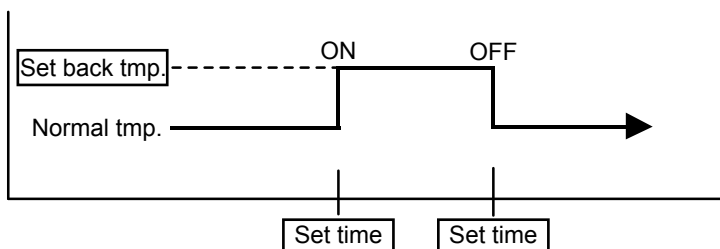
All days can be set together, the weekly timer can be used to repeat the timer setting for all of the days.



3. TEMPERATURE SET BACK TIMER

This timer function can change setting temperature of setting operation times of the each day of the week.

This can be together with other timer setting.



7. COMPRESSOR CONTROL

1. OPERATION FREQUENCY RANGE

The operation frequency of the compressor is different based on the operation mode as shown in the Table 8 .

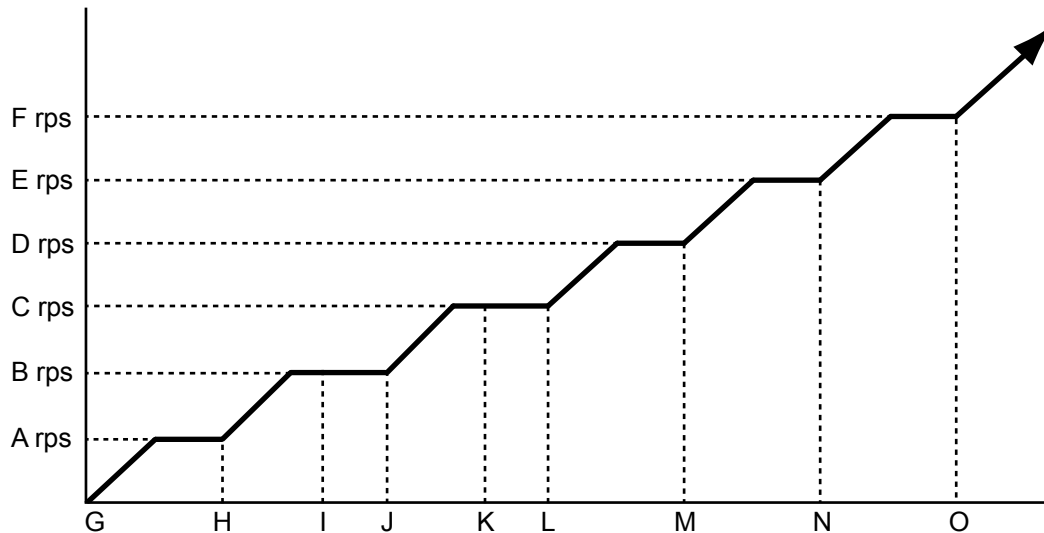
(Table 8 : Compressor operation frequency range)

| | Cooling | | Heating | |
|-------------|---------|-----|---------|-----|
| | Min | Max | Min | Max |
| AOU36RLXFZ1 | 16 | 72 | 16 | 93 |

2. OPERATION FREQUENCY CONTROL AT START UP

The compressor frequency soon after the start-up is controlled as shown in the Fig. 11 .

(Fig. 11 : Compressor control at Start-up)



[Frequency]

| | A rps | B rps | C rps | D rps | E rps | F rps |
|-------------|-------|-------|-------|-------|-------|-------|
| AOU36RLXFZ1 | 30 | 30 | 47 | 60 | 80 | 80 |

[Time]

| | G ~ H | H ~ I | I ~ J | J ~ K | K ~ L | L ~ M | M ~ N | N ~ O |
|-------------|-------|--------|--------|--------|--------|-------|-------|-------|
| AOU36RLXFZ1 | 60sec | 120sec | 600sec | 180sec | 120sec | 60sec | 60sec | 60sec |

8. ELECTRONIC EXPANSION VALVE CONTROL

The most proper opening of the electronic expansion valve is calculated and controlled under the present operating condition based on the Table 9 .

The compressor frequency, the temperatures detected by the discharge temperature sensor and the outdoor temperature sensor.

(Table 9 : The pulse range of the electronic expansion valve control)

| | Operation mode | Pulse range |
|-------------|-------------------|-------------|
| AOU36RLXFZ1 | Cooling /Dry mode | 50 ~ 480 |
| | Heating mode | 30 ~ 480 |

* At the time of supplying the power to the outdoor unit, the initialization of the electronic expansion valve is operated (1000 pulses are input to the closing direction).

9. TEST OPERATION CONTROL

▪ With Wireless Remote Controller (with TEST RUN button)

Under the condition where the air conditioner runs, press the TEST RUN button, and the test operation control mode will appear.

During test running, the operation lamp and timer lamp of the air conditioner body twinkle simultaneously. Set the test operation mode, and the compressor will continue to run regardless of whether the room temperature sensor detects.

The test operation mode is released if 60 minutes have passed after setting up the test operation.

▪ With Wireless Remote Controller (without TEST RUN button)

Under the condition where the air conditioner runs, press the MANUAL AUTO button of the indoor unit for more than 10 seconds.

During test running, the operation lamp and timer lamp of the air conditioner body twinkle simultaneously. Set the test operation mode, and the compressor will continue to run regardless of whether the room temperature sensor detects.

The test operation mode is released, if 60 minutes have passed after setting up the test operation or pressing the MANUAL AUTO button of the indoor unit for more than 3 seconds.

▪ With Wired Remote Controller (without TEST RUN button)

Under the condition where the air conditioner stops, press the MASTER CONTROL button and the FAN CONTROL button simultaneously for 5 seconds or more, and the test operation control mode will appear.

During test running, "  " will display on the remote controller display.

Set the test operation mode, and the compressor will continue to run regardless of whatever the room temperature sensor detects.

The test operation mode is released if 60 minutes have passed after setting up the test operation.

10. PREVENT TO RESTART FOR 3 MINUTES (3 MINUTES ST)

The compressor won't enter operation status for 3 minutes after the compressor is stopped, even if any operation is given.

11. 4-WAY VALVE EXTENSION SELECT

At the time when the air conditioner is switched from the Cooling mode to Heating mode, the compressor is stopped, and the 4-way valve is switched in 3 minutes later after the compressor stopped.

12. AUTO RESTART

When the power was interrupted by a power failure, etc. during operation, the operation contents at that time are memorized and when power is recovered, operation is automatically resumed with the memorized operation contents.

(Table 10 : Operation contents memorized when the power is interrupted)

| | Wireless remote controller | Wired remote controller (When Memory Backup : Disable) | Wired remote controller (When Memory Backup : Enable) | |
|------------------------------|----------------------------|---|--|---|
| Operation mode | ○ | ○ | ○ | |
| Set temperature | ○ | ○ | ○ | |
| Set air flow | ○ | ○ | ○ | |
| Thermistor detected position | — | × | ○ | |
| Timer mode | ○ | × | OFF Timer | × |
| | | | ON Timer | × |
| | | | WEEKLY Timer | ○ |
| | | | TEMPERRATURE SET BACK Timer | ○ |

○ : Memorize
× : Not memorize

*It is necessary to set on the DIP-SW1-No,6 of the wired remote controller, to enable the memory backup.
Refer to the installation manual of wired remote controller for details.

13. MANUAL AUTO OPERATION

If MANUAL / AUTO Button is pushed continuous from 3 seconds to 10 seconds, manual auto operation will starts.

If the remote control is lost or battery power dissipated, this function will work without the remote control.

(Table 11 : Manual auto operation control)

| Functions | All models |
|-------------------|--|
| OPERATION MODE | Auto changeover |
| SETTING TEMP. | 75.2°F(24°C) |
| FAN MODE | Auto |
| VERTICAL LOUVER | NORMAL |
| HORIZONTAL LOUVER | NORMAL |
| TIMER MODE | Continuous (No timer setting available) |
| SWING OPERATION | OFF |
| ECONOMY | OFF |

14. COMPRESSOR PREHEATING

When the outdoor heat exchanger temperature is lower than Operation temperature (Refer to Table 12) and the heating operation has been stopped for 30 minutes, power is applied to the compressor and the compressor is heated.

(By heating the compressor, warm air is quickly discharged when operation is started.)

When operation was started, and when the outdoor temperature rises to Release temperature or greater, preheating is over.

(Table 12 : Preheating operation / Release temperature)

| | |
|-----------------------|---------------------|
| Operation temperature | Release temperature |
| 32°F(0°C) | 35.6°F(2°C) |

15. POWERFUL OPERATION (For ASU*RLF1/ AGU*RLF type)

The POWERFUL OPERATION functions by pressing POWERFUL button on the remote controller.

The indoor unit & outdoor unit will operate at maximum power as shown in Table 13 .

(Table 13 : Powerful operation)

| | |
|----------------------|---|
| | Powerful operation |
| COMPRESSOR FREQUENCY | Maximum |
| FAN CONT. MODE | Powerful |
| SETTING LOUVER | Cooling/ Dry : 3, Heating : 6 for ASU*RLF1 Cooling/ Dry : 4, Heating : 5 for AGU*RLF |

Release Condition is as follows.

[Cooling / Dry]

- Room temperature \leq Setting temperature -1.0°F(- 0.5°C) or Operation time has passed 20 minutes.

[Heating]

- Room temperature \geq Setting temperature +1.0°F(+0.5°C) or Operation time has passed 20 minutes.

16. MINIMUM HEAT OPERATION

MINIMUM HEAT operation performs as below when pressing MIN. HEAT button or Weekly timer setting on the remote controller.

(Table 14 : Minimum heat operation)

| | |
|---------------------|-------------------|
| Mode | Heating |
| Setting temperature | 50°F (10°C) |
| Fan mode | Auto |
| LED display | Economy |
| Defrost operation | Operate as normal |

17. ECONOMY OPERATION

The ECONOMY operation functions by pressing ECONOMY button on the remote controller.

At the maximum output, ECONOMY Operation is approximately 70% of normal air conditioner operation for cooling and heating.

The ECONOMY operation is almost the same operation as below settings.

(Table 15 : Economy operation)

| | | |
|--------------------|-------------------------|-------------------------|
| Mode | Cooling/ Dry | Heating |
| Target temperature | Setting temp.+2°F(+1°C) | Setting temp.-2°F(-1°C) |

18. HEAT INSULATION CONDITION (BUILDING INSULATION)

This setting can make the room temperature control more suitable for homes or buildings with high insulation (Function Number 95).

When the thermo sensor is turned ON it controls the compressor frequency at initial start to prevent overshoot in heating or cooling.

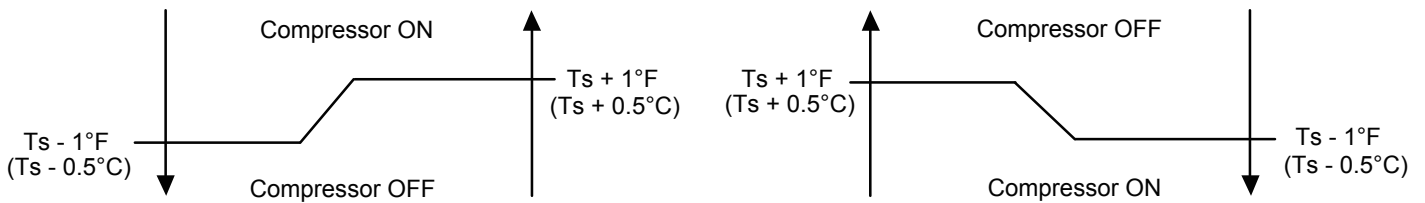
19. THERMO CONTROL (FOR INDOOR UNIT SENSOR)

When room temperature is controlled by the Indoor unit sensor, compressor operation is as shown in Fig. 12 and 13.

But, adjustment is possible by the room temperature correction function setting. (Function Number 30 or 31)

(Fig. 12 : For Cooling operation)

(Fig. 13 : For Heating operation)



• T_s : Setting temperature

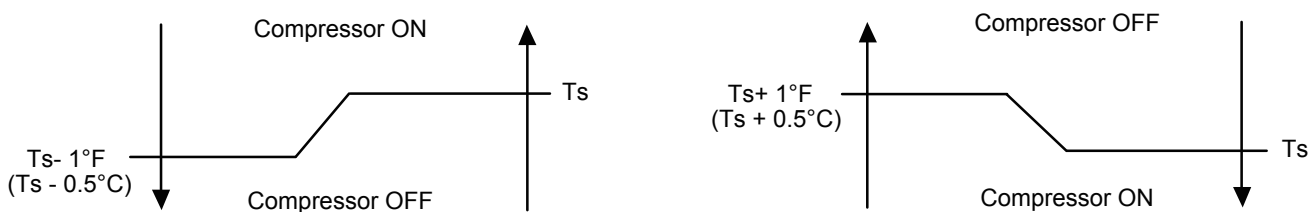
20. THERMO CONTROL (FOR WIRED REMOTE SENSOR)

When room temperature is controlled by the Wired remote sensor, compressor operation is as shown in Fig. 14 and 15.

But, adjustment is possible by the room temperature correction function setting. (Function Number 92 or 93)

(Fig. 14 : For Cooling operation)

(Fig. 15 : For Heating operation)

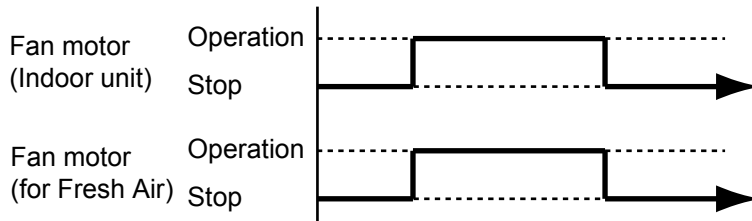


• T_s : Setting temperature

21. FRESH AIR CONTROL (For AU type)

The fan motor for Fresh Air is operated in synchronization with the indoor fan operation as shown in Fig. 16 .

(Fig. 16 : Fresh air control)



*It needs the external relay and power supply.

22. EXTERNAL ELECTRICAL HEATER CONTROL (For AR type)

The External Electrical Heater is operated as below.

< Heater : ON condition >

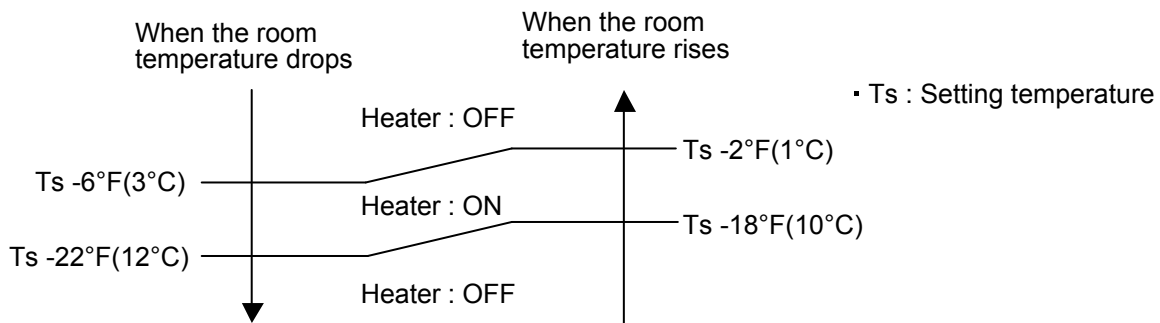
When all of the following conditions are met, external electrical heater will operate according to Fig. 17 .

| | |
|----------------|-----------------------|
| System type | Heatpump |
| Operation mode | Heating |
| Compressor | ON |
| Indoor fan | ON (S-Lo is excluded) |

< Heater : OFF condition >

- 1). When one of the ON conditions is not met.
- 2). When Defrost operation or Oil recovery operation starts

(Fig. 17 : External electrical heater control)

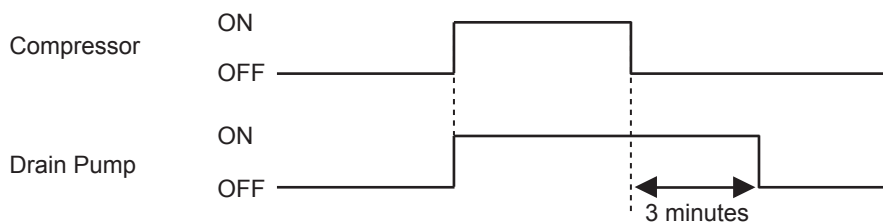


23. DRAIN PUMP OPERATION (For AU / AR type)

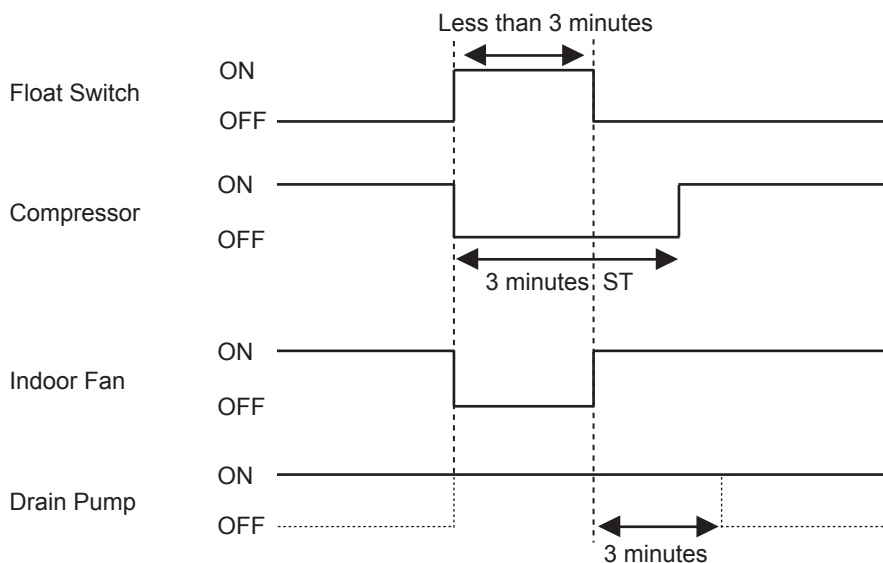
During Cooling / Dry mode

1. When the compressor starts, the drain pump starts simultaneously.
2. The drain pump operates continuously for 3 minutes after the compressor is turned off.
3. When the compressor stops by the "Anti-freezing protection", the drain pump is turned off in 1 hour after the compressor stops.
4. When the water level in the drain pan rises up and then the float switch functions:
 - ① The compressor, indoor and outdoor fan motor operation are stopped.
 - ② Drain pump operates continuously for 3 minutes after the float switch is turned off.
 - (Almost condensing water may be drained)
 - ③ The indoor unit fan motor operates after the float switch is turned off.
5. When the float switch turns ON continuously for 3 minutes, "FAILURE INDICATION" operates. (It is necessary to turn off power for release it.)
6. When the float switch turns OFF less than 3 minutes, the unit starts Cooling operation.

(Fig. 18 : Detail of drain pump operation in Cooling / Dry)



<Float Switch turns OFF less than 3 minutes>



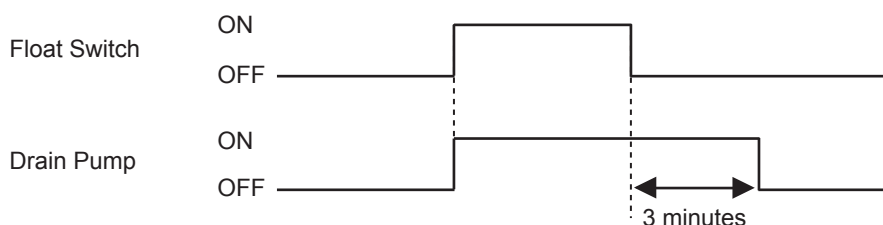
During HEATING / FAN mode / Stop operation

1. When the water level in the drain pan rises up and then the float switch functions:

Drain pump operates continuously for 3 minutes after the float switch is turned off.

(Almost condensing water may be drained)
2. When the float switch turns ON continuously for 3 minutes, "FAILURE INDICATION" operates. Thereafter, even if the float switch turns OFF, the "FAILURE INDICATION" is not released. (It is necessary to turn off power for release it.)

(Fig. 19 : Detail of drain pump operation in Heating)



24. DEFROST OPERATION CONTROL

1. CONDITION OF STARTING THE DEFROST OPERATION

The defrost operation starts when the outdoor heat exchanger temperature sensor detects the temperature lower than the values shown in Table 16, 17 .

1-1 NORMAL DEFROST

(Table 16 : Condition of starting defrost operation)

| Normal defrost | Compressor integrating operation time | |
|------------------|---------------------------------------|---|
| | Less than 35 minutes | More than 35minutes |
| Does not operate | | Outdoor heat exchanger temp. $\leq 1.4^{\circ}\text{F}(-17^{\circ}\text{C})$ (at outside air temp. $\geq 14^{\circ}\text{F}(-10^{\circ}\text{C})$) |
| | | Outdoor heat exchanger temp. \leq Outside air temp. $-(30.6^{\circ}\text{F}(17^{\circ}\text{C}))$ or Outdoor heat exchanger temp. $\leq -13^{\circ}\text{F}(-25^{\circ}\text{C})$ (at $4^{\circ}\text{F}(-20^{\circ}\text{C}) \leq$ outside air temp. $< 14^{\circ}\text{F}(-10^{\circ}\text{C})$) |
| | | Outdoor heat exchanger temp. \leq Outside air temp. $-(30.6^{\circ}\text{F}(17^{\circ}\text{C}))$ or Outdoor heat exchanger temp. $\leq -22^{\circ}\text{F}(-30^{\circ}\text{C})$ (at outside air temp. $< 4^{\circ}\text{F}(-20^{\circ}\text{C})$) |
| | | $T_n - T_{n10} < -41^{\circ}\text{F}(5^{\circ}\text{C})$ but $T_n \leq 42.8^{\circ}\text{F}(-6^{\circ}\text{C})$ (Outdoor heat exchanger temp. detected for every 5 minutes) |
| | | $T_n - T_{nA} < -35.6^{\circ}\text{F}(2^{\circ}\text{C})$ but $T_n \leq 42.8^{\circ}\text{F}(-6^{\circ}\text{C})$ (Outdoor heat exchanger temp. detected for every 5 minutes) |

T_n : Outdoor heat exchanger temp.

T_{n10} : Temperature of continuous operation at 10 minutes.

T_{nA} : Back 5 minutes temperature.

1-2. INTEGRATING DEFROST

(Table 17 : Condition of starting defrost operation)

| Integrating defrost | Compressor integrating operation time | |
|---------------------|--|--|
| | More than 210 minutes (For continuous operation) | Less than 10 minutes* (For intermittent operation) |
| | When the compressor is stopped, If detected outside air temp. at $35.6^{\circ}\text{F}(2^{\circ}\text{C})$ | OFF count of the compressor 40 times (at outside air temp. $< 35.6^{\circ}\text{F}(2^{\circ}\text{C})$) |

*If the compressor continuous operation time is less than 10 minutes, the OFF number of the compressor is counted.

If any defrost operated, the compressor OFF count is cleared.

2. CONDITION OF THE DEFROST OPERATION COMPLETION

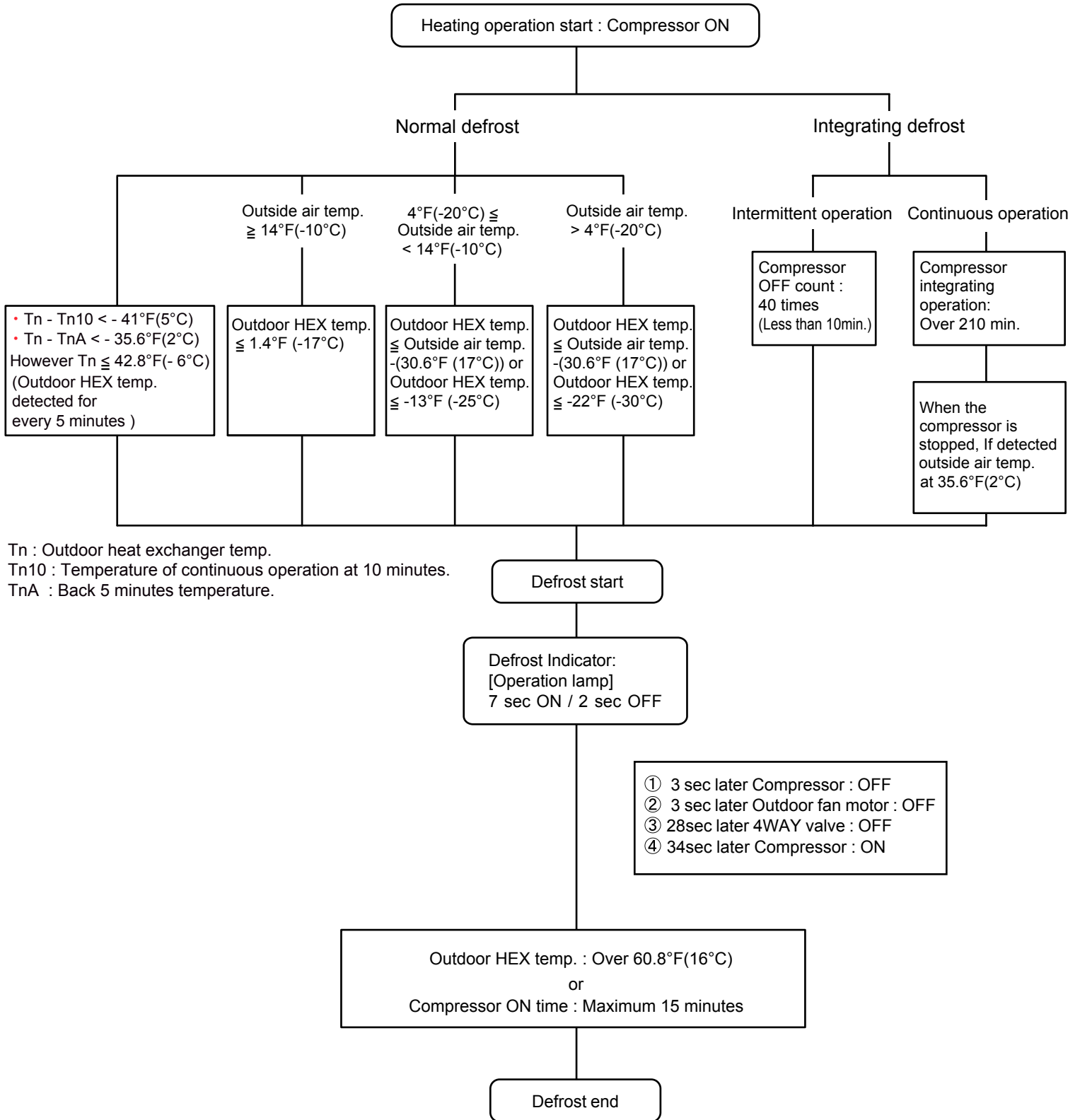
Defrost operation is released when the conditions become as shown in Table 18 .

(Table 18 : Defrost release condition)

| Release Condition |
|---|
| Outdoor heat exchanger temperature sensor value is higher than $60.8^{\circ}\text{F}(16^{\circ}\text{C})$ or Compressor operation time has passed 15 minutes. |

3. Defrost Flow Chart

The defrosting shall proceed by the integrating operation time, outdoor temperature and outdoor heat exchanger temperature as follows.



25. VARIOUS PROTECTIONS

1. DISCHARGE GAS TEMPERATURE OVER RISE PREVENTION CONTROL

The discharge gas thermosensor (discharge thermistor : Outdoor side) will detect discharge gas temperature.

When the discharge temperature becomes higher than Temperature I , the compressor frequency is decreased 10rps, and it continues to decrease the frequency for 10rps every 120 seconds until the temperature becomes lower than Temperature II.

When the discharge temperature becomes lower than Temperature II ,the control of the compressor frequency is released.

When the discharge temperature becomes higher than Temperature III ,the compressor stops.

(Table 19 : Discharge temperature over rise prevention control / Release temperature)

| | Temperature I | Temperature II | Temperature III |
|-------------|---------------|----------------|-----------------|
| AOU36RLXFZ1 | 219°F (104°C) | 214°F (101°C) | 230°F (110°C) |

2. CURRENT RELEASE CONTROL

The compressor frequency is controlled so that the outdoor unit input current does not exceeds the current limit value that was set up with the outdoor temperature.

The compressor frequency returns to the designated frequency of the indoor unit at the time when the frequency becomes lower than the release value.

3. ANTI-FREEZING CONTROL (Cooling / Dry mode)

When the indoor unit heat exchanger and 2-way valve temperature becomes lower than Temperature I , the compressor frequency is decreased 10rps, and it continues to decrease the frequency for 10rps every 120 seconds until the temperature becomes higher than Temperature II .

This operation is not released until both the temperature of the indoor unit heat exchanger and 2-way valve temperature exceed the release temperature.

(Table 20 : Anti-freezing protection operation / Release temperature)

| Outside air Temperature | Temperature I | | Temperature II | |
|-------------------------|-----------------------------|-------------------------|-----------------------------|-------------------------|
| | Indoor Heat Ex. Temperature | 2-way valve Temperature | Indoor Heat Ex. Temperature | 2-way valve Temperature |
| ≥ 53.6°F(12°C) | 37.4°F(3°C) | 35.6°F(2°C) | 42.8°F(6°C) | 41.0°F(5°C) |
| < 53.6°F(12°C) | 37.4°F(3°C) | 35.6°F(2°C) | 55.4°F(13°C) | 53.6°F(12°C) |

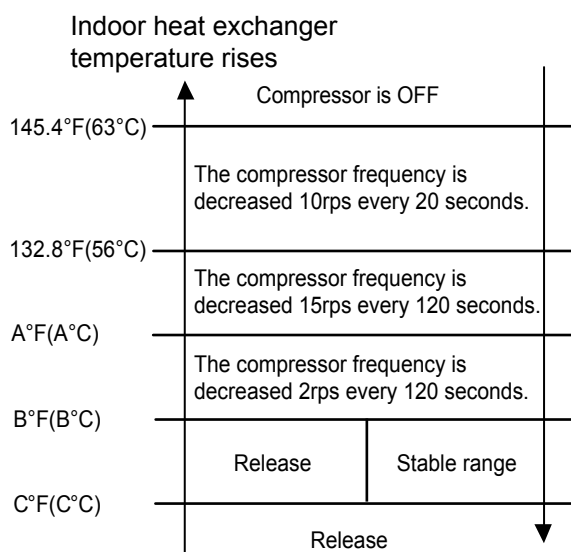
4. COOLING PRESSURE OVER RISE PROTECTION

When the outdoor unit heat exchange sensor temperature rises to 154.4 °F (68 °C) or greater, the compressor is stopped and error display is indicated.

5. HIGH TEMPERATURE RELEASE CONTROL (Heating mode)

On heating mode, the compressor frequency is controlled as following based on the detection value of the indoor heat exchanger temperature sensor.

(Fig. 20 : Heating overload protection control)



| Outdoor heat exchange temperature | In one operation of the indoor unit : Qu air than | | | All indoor unit opeate, : Qu air | | |
|------------------------------------|---|----------------|----------------|----------------------------------|----------------|----------------|
| | A°F (A°C) | B°F (B°C) | C°F (C°C) | A°F (A°C) | B°F (B°C) | C°F (C°C) |
| 12.2°F(-11°C) ≤ Th | 125.6°F (54°C) | 125.6°F (52°C) | 122.0°F (50°C) | 118.4°F (50°C) | 114.8°F (48°C) | 114.8°F (46°C) |
| 8.6°F(-13°C) ≤ Th < 12.2°F(-11°C) | 129.2°F (54°C) | 125.6°F (52°C) | 118.4°F (48°C) | 122.0°F (50°C) | 118.4°F (48°C) | 114.8°F (46°C) |
| 5°F(-15°C) ≤ Th < 8.6°F(-13°C) | 125.6°F (52°C) | 122.0°F (50°C) | 114.8°F (46°C) | 122.0°F (50°C) | 118.4°F (48°C) | 114.8°F (46°C) |
| -13°F(-25°C) ≤ Th < 5°F(-15°C) | 122.0°F (50°C) | 118.4°F (48°C) | 111.2°F (44°C) | 114.8°F (46°C) | 111.2°F (44°C) | 104.0°F (40°C) |
| -20.2°F(-29°C) ≤ Th < -13°F(-25°C) | 113.0°F (45°C) | 109.4°F (43°C) | 102.2°F (39°C) | 113.0°F (45°C) | 109.4°F (43°C) | 102.2°F (39°C) |
| Th < -20.2°F(-29°C) | 104.0°F (40°C) | 100.4°F (38°C) | 93.2°F (34°C) | 104.0°F (40°C) | 100.4°F (38°C) | 93.2°F (34°C) |

6. HIGH PRESSURE PROTECTION

- When the pressure switch becomes OFF (Open : higher than 609.2 psi / 4.2 MPa), the compressor is stopped.
It is released when the pressure switch becomes ON (Close : lower than 464.1 psi / 3.2 MPa) after 3 minutes of compressor stop.
- When the pressure switch is opened for 10 seconds from power on, all of outdoor unit operation is stopped.
The outdoor unit will start up if the pressure switch is returned to ON after 10 seconds has passed.
When 10 minutes (Cooling) or 3 minutes (Heating) has passed from the compressor stop and pressure switch becomes ON, protection is released and the compressor will restart.

7. COMPRESSOR TEMPERATURE PROTECTION

Compressor temperature sensor is monitoring the compressor temperature. I
When the compressor temperature sensor detects higher than Temperature I , the compressor is stopped.
When 3 minutes has passed from the compressor stop and the compressor temperature sensor detects lower than Temperature II, protection is released and the compressor will restart.

| | Temperature I | Temperature II |
|-------------|---------------|----------------|
| AOU36RLXFZ1 | 226°F (108°C) | 176°F (80°C) |

***Slim Duct / Compact Cassette
Compact Wall Mounted /
Wall Mounted / Floor type***

INVERTER (MULTI)

2 . TROUBLE SHOOTING

2-1 ERROR DISPLAY

2-1-1 INDOOR UNIT AND WIRED REMOTE CONTROLLER DISPLAY

Please refer the flashing pattern as follows.

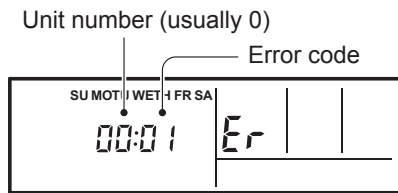
The Operation, Timer, Economy lamps operate as follows according to the error contents.

| Error Contents | Indoor Unit Display | | | Wired Remote Controller Display | Trouble shooting |
|--|---------------------|----------------|-----------------|---------------------------------|------------------|
| | Operation (Green) | Timer (Orange) | Economy (Green) | | |
| Serial Communication Error | 1 times | 1 times | Continuous | 11 | 1,2 |
| Wired Remote Controller Communication Error | 1 times | 2 times | Continuous | 12 | 3 |
| Indoor Unit Capacity Error | 2 times | 2 times | Continuous | 22 | 4 |
| Indoor Unit Model Information Error EEPROM Access Abnormal | 3 times | 2 times | Continuous | 32 | 5 |
| Manual Auto Switch Error | 3 times | 5 times | Continuous | 35 | 6 |
| Indoor Room Thermistor Error | 4 times | 1 times | Continuous | 41 | 7 |
| Indoor Heat Ex. Thermistor Error | 4 times | 2 times | Continuous | 42 | 8 |
| Indoor Unit Fan Motor Error | 5 times | 1 times | Continuous | 51 | 9 |
| Drain Pump Error | 5 times | 3 times | Continuous | 53 | 10 |
| Damper Error | 5 times | 7 times | Continuous | 57 | 11-1,11-2 |
| Intake Grille Error | 5 times | 8 times | Continuous | 58 | 12 |
| Outdoor Unit Model Information Error | 6 times | 2 times | Continuous | 62 | 13 |
| Active Filter Error | 6 times | 4 times | Continuous | 64 | 14 |
| IPM Error | 6 times | 5 times | Continuous | 65 | 15 |
| Discharge Thermistor Error | 7 times | 1 times | Continuous | 71 | 16 |
| Compressor Thermistor Error | 7 times | 2 times | Continuous | 72 | 17 |
| Heat Ex. Thermistor Error (OUT or MID) | 7 times | 3 times | Continuous | 73 | 18-1,18-2 |
| Outdoor Thermistor Error | 7 times | 4 times | Continuous | 74 | 19 |
| 2-Way Valve Thermistor Error | 7 times | 6 times | Continuous | 76 | 20 |
| 3-Way Valve Thermistor Error | 7 times | 6 times | Continuous | 76 | 21 |
| Heat Sink Thermistor Error | 7 times | 7 times | Continuous | 77 | 22 |
| High Pressure Switch Error | 8 times | 6 times | Continuous | 86 | 23 |
| Over Current Error | 9 times | 4 times | Continuous | 94 | 24 |
| Compressor Control Error | 9 times | 5 times | Continuous | 95 | 25 |
| Outdoor Unit Fan Motor Error | 9 times | 7 times | Continuous | 97 | 26 |
| 4-Way Valve Error | 9 times | 9 times | Continuous | 99 | 27 |
| Discharge Temp. Error | 10 times | 1 times | Continuous | A1 | 28 |
| Compressure Temp. Error | 10 times | 3 times | Continuous | A3 | 29 |

2-1-2 WIRED REMOTE CONTROLLER DISPLAY

1. SELF - DIAGNOSIS

When "Er" in Temperature Display is displayed, inspection of the air conditioning system is necessary. Please consult authorized service personnel.



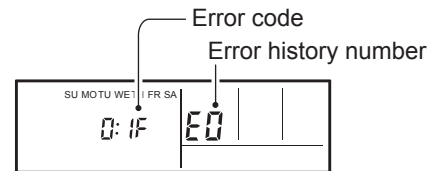
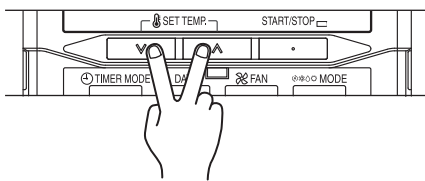
ex. Self-diagnosis check

2. ERROR CODE HISTORY DISPLAY

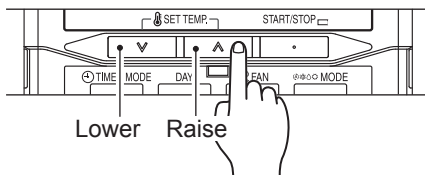
Up to 16 memorized error codes may be displayed for the indoor unit connected to the remote controller.

1. Stop the air conditioner operation.

2. Press the SET TEMPERATURE buttons ∇ , \blacktriangle simultaneously for 3 seconds or more to start the self-diagnosis.



3. Press the SET TEMPERATURE button to select the error history number.



0 ↔ 1 ↔ 2 ↔ 3 ↔ 4 ↔ 5 ↔ 6 ↔ 7
F ↔ E ↔ d ↔ c ↔ b ↔ A ↔ 9 ↔ 8

4. Press the SET TEMPERATURE buttons ∇ , \blacktriangle simultaneously for 3 seconds or more or there is no key input for 60 seconds to stop the display.

2-1-3 OUTDOOR UNIT DISPLAY

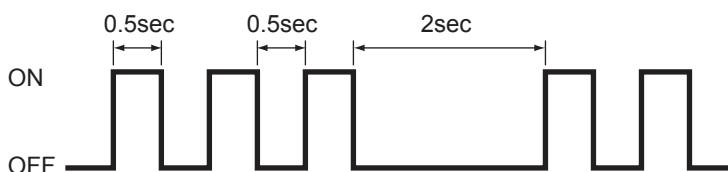
1. ERROR DISPLAY

| Error Contents | LED1 | LED2 | LED3 | LED4 | Trouble shooting |
|--|------------|-----------|-----------|-----------|------------------|
| Discharge Thermistor Error | ● 2 times | OFF | OFF | OFF | 16 |
| Heat Ex. Thermistor Error | ● 3 times | OFF | OFF | OFF | 18-1 |
| Outdoor Thermistor Error | ● 4 times | OFF | OFF | OFF | 19 |
| 2-way Valve Thermistor Error (for Indoor unit A) | ● 5 times | OFF | OFF | OFF | 20 |
| 2-Way Valve Thermistor Error (for Indoor unit B) | OFF | ● 5 times | OFF | OFF | |
| 2-Way Valve Thermistor Error (for Indoor unit C) | OFF | OFF | ● 5 times | OFF | |
| 2-Way Valve Thermistor Error (for Indoor unit D) | OFF | OFF | OFF | ● 5 times | |
| 3-Way Valve Thermistor Error (for Indoor unit A) | ● 6 times | OFF | OFF | OFF | 21 |
| 3-Way Valve Thermistor Error (for Indoor unit B) | OFF | ● 6 times | OFF | OFF | |
| 3-Way Valve Thermistor Error (for Indoor unit C) | OFF | OFF | ● 6 times | OFF | |
| 3-Way Valve Thermistor Error (for Indoor unit D) | OFF | OFF | OFF | ● 6 times | |
| Compressor Thermistor Error | ● 7 times | OFF | OFF | OFF | 17 |
| Heat Sink Thermistor Error | ● 8 times | OFF | OFF | OFF | 22 |
| High Pressure Switch Error | ● 9 times | OFF | OFF | OFF | 23 |
| Indoor Unit Capacity Error | ● 11 times | OFF | OFF | OFF | 4 |
| Over Current Error | ● 12 times | OFF | OFF | OFF | 24 |
| Compressor Control Error | ● 13 times | OFF | OFF | OFF | 25 |
| IPM Error | ● 14 times | OFF | OFF | OFF | 15 |
| Outdoor Unit Fan Motor Error | ● 15 times | OFF | OFF | OFF | 26 |
| Heat Ex. MID Thermistor Error | ● 16 times | OFF | OFF | OFF | 18-2 |
| Outdoor Unit PCB Microcomputer Communication Error | ● 17 times | OFF | OFF | OFF | 13 |
| Discharge Temp. Error | ● 18 times | OFF | OFF | OFF | 28 |
| Compressor Temp. Error | ● 19 times | OFF | OFF | OFF | 29 |
| 4-Way Valve Error | ● 20 times | OFF | OFF | OFF | 27 |
| Outdoor Unit PCB Model Information Error | ● 21 times | OFF | OFF | OFF | 13 |
| Active Filter Error | ● 22 times | OFF | OFF | OFF | 14 |

● : Flashing

2. ERROR DISPLAY METHOD

Outdoor LED Blink (1 to 22 times) 0.5sec ON / 0.5sec OFF blinking



2-2 TROUBLE SHOOTING WITH ERROR CODE

Trouble shooting 1
OUTDOOR UNIT Error Method:
Serial Communication Error
(Serial Reverse Transfer Error)

Indicate or Display:

Outdoor Unit : No indication
 Indoor Unit : Operation lamp: 1 time Flash, Timer lamp: 1 time Flash
 Economy lamp: Continuous flash.
ERROR CODE : [E : 11]

Detective Actuators:

Outdoor unit Main PCB
 Outdoor unit Fan motor

Detective details:

When the indoor unit cannot receive the serial signal from Outdoor unit more than 2minutes after power ON, or the indoor unit cannot receive the serial signal more than 15seconds during normal operation.

Forecast of Cause:

1. Connection failure
2. External cause
3. Main PCB failure
4. Active filter module failure
5. Transistor PCB (IPM) failure
6. Filter PCB failure
7. Outdoor unit Fan motor failure

Check Point 1-1 : Reset the power and operate

- Does error indication reappear?

YES

Check Point 2 : Check connection

- Check any loose or removed connection line of between indoor unit and outdoor unit.
 >> **If there is an abnormal condition, correct it by referring to Installation Manual or Data & Technical Manual.**
- Check connection condition in control unit.
 (If there is loose connector, open cable or miss-wiring)

OK

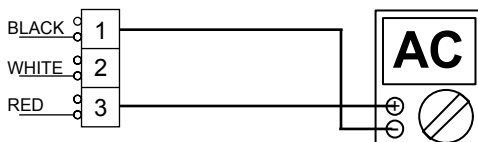
Check Point 3 : Check the voltage of power supply

- Check the voltage of power supply
 >> **Check if AC187V(AC208V-10%) - 253V(AC230V+10%) appears at outdoor unit terminal L1 - L2.**

OK

Check Point 4 : Check serial signal (Reverse transfer signal)

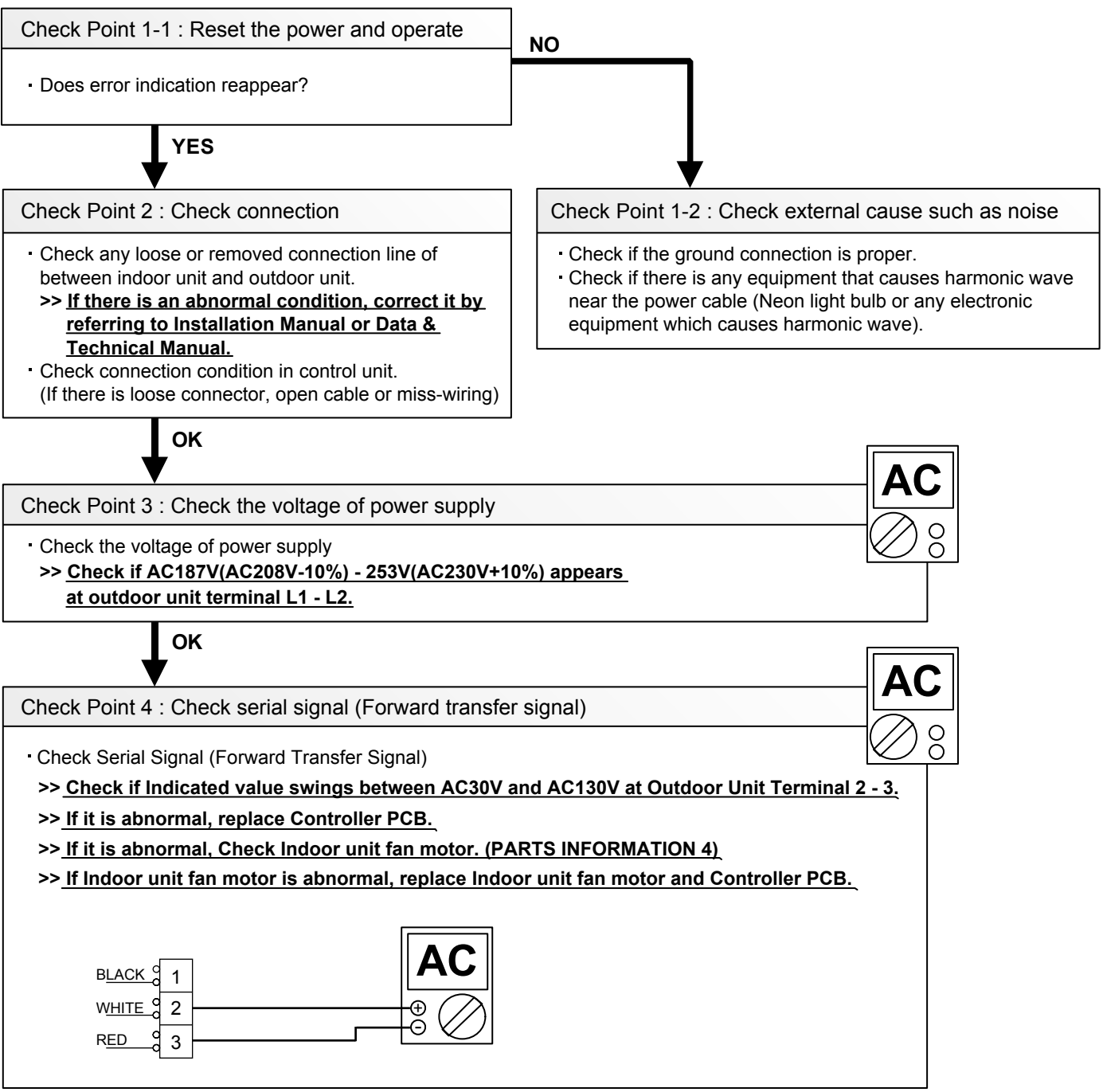
- Check serial signal (Reverse transfer signal)
 >> **Check if indicated value swings between AC90V and AC270V at outdoor unit terminal 1 - 3.**
 >> **If it is abnormal, Check the parts as follows.**
 - Outdoor unit fan motor (PARTS INFORMATION 5)
 - Active filter module (PARTS INFORMATION 6)
 - Filter PCB (Check the wire of CN34)
 >> **If Outdoor fan motor is abnormal, replace Outdoor unit fan motor and Main PCB.**
 >> **If Active filter module or IPM is abnormal, replace it.**
 >> **If the parts are normal, replace Main PCB.**



| | |
|--|--|
| Trouble shooting 2 INDOOR UNIT Error Method: Serial Communication Error (Serial Forward Transfer Error) | Indicate or Display: Outdoor Unit : No indication Indoor Unit : Operation lamp: 1 time Flash, Timer lamp: 1 time Flash Economy lamp: Continuous flash. ERROR CODE : [E : 11] |
|--|--|

| | |
|---|---|
| Detective Actuators: Indoor unit Controller PCB | Detective details: When the outdoor unit cannot properly receive the serial signal from indoor unit for 15 seconds or more. |
|---|---|

Forecast of Cause:
1. Connection failure 2. External cause 3. Controller PCB failure



| | |
|--|---|
| Trouble shooting 3 <u>INDOOR UNIT Error Method:</u> Wired Remote Controller Communication Error | <u>Indicate or Display:</u> Outdoor Unit : No indication Indoor Unit : Operation lamp: 1 time Flash, Timer lamp: 2 time Flash Economy lamp: Continuous flash. ERROR CODE : [E : 12] |
|--|---|

| | |
|--|---|
| <u>Detective Actuators:</u> Indoor unit Controller PCB Wired Remote Controller (Option) | <u>Detective details:</u> When the indoor unit cannot properly receive the signal from Wired Remote Controller for 1 minute or more. |
|--|---|

Forecast of Cause:
1. Connection failure 2. Wired Remote Controller failure 3. Controller PCB failure

Check Point 1 : Check the connection of terminal

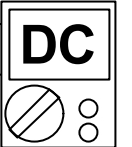
Check & correct the followings.
• Check the connection of terminal between Wired Remote Controller and indoor unit,
and check if there is a disconnection of the cable.



Check Point 2 : Check Wired Remote Controller and Controller PCB

• Check Voltage at terminal 1-3 of Controller PCB or Communication PCB.
(Power supply to Remote Control)
Compact Cassette, Slim Duct Type : CN14
Wall Mount , Floor Type : CN16
Compact Wall Mount Type : CNC01 (UTY-XCBXZ2)

>> If it is DC12V, Remote Control is failure. (Controller PCB is normal) >> Replace Remote Control
>> If it is DC 0V, Controller PCB is failure. (Check Remote Control once again) >> Replace Controller PCB



| | |
|---|---|
| <p>Trouble shooting 4 INDOOR UNIT Error Method: Indoor Unit Capacity Error</p> | <p>Indicate or Display: Outdoor Unit : LED 1 : 11 time Flash Indoor Unit : Operation lamp: 2 time Flash, Timer lamp: 2 time Flash Economy lamp: Continuous flash. ERROR CODE : [E : 22]</p> |
|---|---|

| | |
|--|---|
| <p>Detective Actuators: All indoor unit</p> | <p>Detective details: The total capacity of the indoor unit if it is install beyond.</p> |
|--|---|

| |
|---|
| <p>Forecast of Cause : 1. The selection of indoor units is incorrect 2. Main PCB(Outdoor unit) failure</p> |
|---|

| |
|--|
| <p>Check Point 1 : Check the total capacity of indoor unit</p> |
| <p>· Check the total capacity of the connected indoor units. >> If abnormal condition is found, correct it by referring to Installation Manual or Design & Technical Manual.</p> |

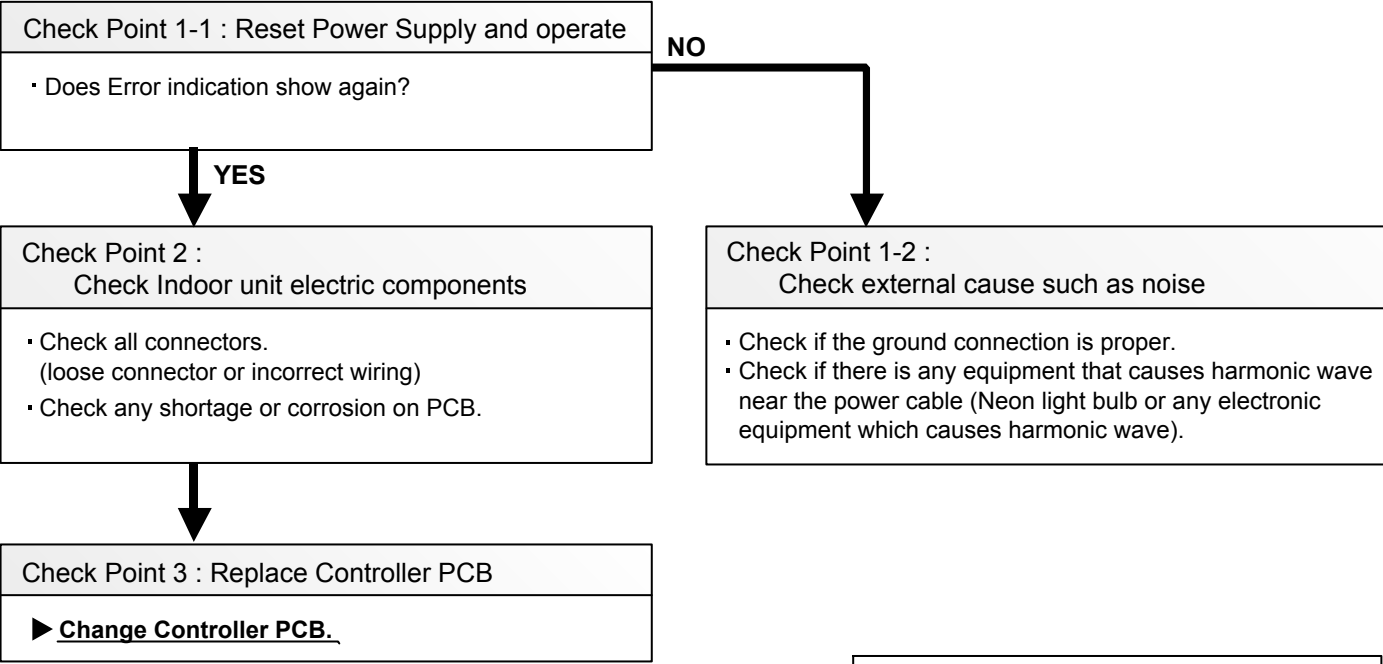


| |
|--|
| <p>Check Point 2 : Replace Main PCB</p> |
| <p>▶ If Check Point 1 do not improve the symptom, replace Main PCB of Outdoor unit.</p> |

| | |
|--|--|
| Trouble shooting 5 INDOOR UNIT Error Method: Indoor Unit Model Information Error EEPROM Access Abnormal | Indicate or Display: Outdoor Unit : No indication Indoor Unit : Operation lamp: 3 time Flash, Timer lamp: 2 time Flash Economy lamp: Continuous flash. ERROR CODE : [E : 32] |
|--|--|

| | |
|---|--|
| Detective Actuators: Indoor unit Controller PCB | Detective details: When power is on and there is some below case. ① When model information of EEPROM is incorrect. ② When the access to EEPROM failed. |
|---|--|

Forecast of Cause:
1. External cause 2. Defective connection of electric components 3. Controller PCB failure




Note : EEPROM
EEPROM(Electronically Erasable and Programmable Read Only Memory) is a non-volatile memory which keeps memorized information even if power is turned off. It can change the contents electronically. To change the contents, it uses higher voltage than normal, and it can not change a partial contents. (Rewriting shall be done upon erasing the all contents.) There is a limit in a number of rewriting.

| | |
|--|--|
| <p>Trouble shooting 6 <u>INDOOR UNIT Error Method:</u> Manual Auto Switch Error</p> | <p><u>Indicate or Display:</u> Outdoor Unit : No indication Indoor Unit : Operation lamp: 3 time Flash, Timer lamp: 5 time Flash Economy lamp: Continuous flash. ERROR CODE : [E : 35]</p> |
|--|--|

| | |
|--|---|
| <p><u>Detective Actuators:</u> Indoor Unit Controller PCB Indicator PCB Manual Auto Switch</p> | <p><u>Detective details:</u> When the Manual Auto Switch becomes ON for consecutive 60 or more seconds.</p> |
|--|---|

| |
|--|
| <p><u>Forecast of Cause :</u> 1. Manual Auto Switch failure 2. Controller PCB and Indicator PCB failure</p> |
|--|

| | |
|---|---|
| <p>Check Point 1 : Check the Manual Auto Switch</p> |  |
| <ul style="list-style-type: none"> • Check if Manual Auto Switch is kept pressed. • Check ON/OFF switching operation by using a meter. <p>>> If Manual Auto Switch is disabled (on/off switching), replace it.</p> | |



| |
|--|
| <p>Check Point 2 : Replace Controller PCB and Indicator PCB</p> |
| <p>▶ If Check Point 1 do not improve the symptom, replace Controller PCB and Indicator PCB.</p> |

| | |
|--|---|
| Trouble shooting 7 INDOOR UNIT Error Method: Indoor Room Thermistor Error | Indicate or Display: Outdoor Unit : No indication Indoor Unit : Operation lamp: 4 time Flash, Timer lamp: 1 time Flash Economy lamp: Continuous flash. ERROR CODE : [E : 41] |
|--|---|

| | |
|--|---|
| Detective Actuators: Indoor Unit Controller PCB Circuit Room temperature Thermistor | Detective details: Room temperature thermistor is open or short is detected always. |
|--|---|

Forecast of Cause : 1. Connector failure connection 2. Thermistor failure 3. Controller PCB failure

Check Point 1 : Check connection of Connector

- Check if connector is loose or removed
- Check erroneous connection
- Check if thermistor cable is open

>>Reset Power when reinstalling due to removed connector or incorrect wiring.



Check Point 2 : Remove connector and check Thermistor resistance value

Thermistor Characteristics (Rough value)

| | | | | | | | | |
|-----------------------|------|------|------|------|------|------|-----|-----|
| Temperature (°F) | 32 | 41 | 50 | 59 | 68 | 77 | 86 | 95 |
| Resistance Value (kΩ) | 33.6 | 25.2 | 20.1 | 15.8 | 12.5 | 10.0 | 8.0 | 6.5 |

| | | | |
|-----------------------|-----|-----|-----|
| Temperature (°F) | 104 | 113 | 122 |
| Resistance Value (kΩ) | 5.3 | 4.3 | 3.5 |

▶ **If Thermistor is either open or shorted, replace it and reset the power.**



Check Point 3 : Check voltage of Controller PCB (DC5.0V)

Make sure circuit diagram of each indoor unit and check terminal voltage at Thermistor (DC5.0V)

- Compact wall mount circuit diagram(Connector connection)
- Compact cassette circuit diagram (Connector connection)
- Wall mount circuit diagram (Direct soldering to PCB)
- Slim duct circuit diagram (Connector connection)
- Floor circuit diagram (Connector connection and Direct soldering to PCB)

▶ **If the voltage does not appear, replace Controller PCB and execute the check operation again.**

Trouble shooting 8
INDOOR UNIT Error Method:
Indoor Heat Ex. Thermistor Error

Indicate or Display:
Outdoor Unit : No indication
Indoor Unit : Operation lamp: 4 time Flash, Timer lamp: 2 time Flash
 Economy lamp: Continuous flash.
ERROR CODE : [E : 42]

Detective Actuators:
 Indoor Unit Controller PCB
 Heat Exchanger (MID) Thermistor

Detective details:
 Heat Exchanger (MID) thermistor is open or short is detected always.

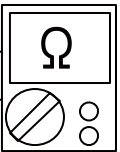
Forecast of Cause : 1. Connector failure connection 2. Thermistor failure 3. Controller PCB failure

Check Point 1 : Check connection of Connector

- Check if connector is loose or removed
 - Check erroneous connection
 - Check if thermistor cable is open
- >>Reset Power when reinstalling due to removed connector or incorrect wiring.**



Check Point 2 : Remove connector and check Thermistor resistance value



Thermistor Characteristics (Rough value)

| | | | | | | | | |
|-----------------------|-------|-------|-------|------|-------|------|------|------|
| Temperature (°F) | 32 | 41 | 50 | 59 | 68 | 77 | 86 | 95 |
| Resistance Value (kΩ) | 176.0 | 134.2 | 103.3 | 80.3 | 62.95 | 49.7 | 39.6 | 31.7 |

| | | | |
|-----------------------|------|------|------|
| Temperature (°F) | 104 | 113 | 122 |
| Resistance Value (kΩ) | 25.6 | 20.9 | 17.1 |

► **If Thermistor is either open or shorted, replace it and reset the power.**

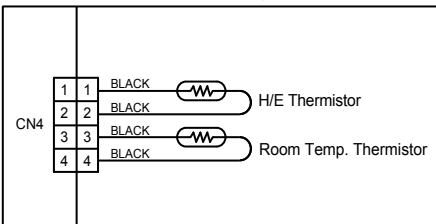


Check Point 3 : Check voltage of Controller PCB (DC5.0V)

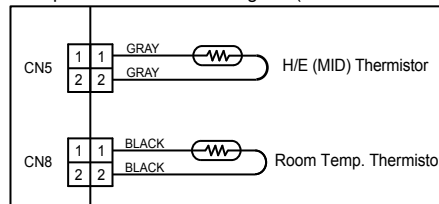


Make sure circuit diagram of each indoor unit and check terminal voltage at Thermistor (DC5.0V)

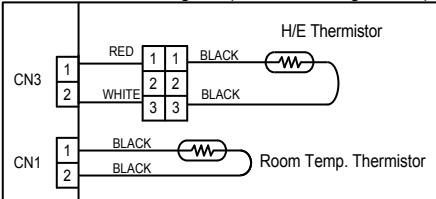
• Compact wall mount circuit diagram (Connector connection)



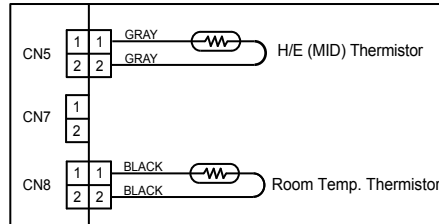
• Compact cassette circuit diagram (Connector connection)



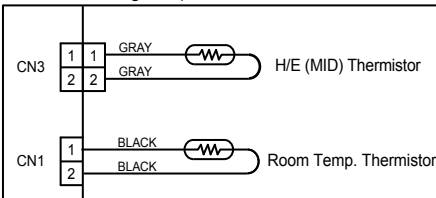
• Wall mount circuit diagram (Direct soldering to PCB)



• Slim duct circuit diagram (Connector connection)



• Floor circuit diagram (Connector connection and Direct soldering to PCB)



► **If the voltage does not appear, replace Controller PCB and execute the check operation again.**

| | |
|---|--|
| Trouble shooting 9 INDOOR UNIT Error Method: Indoor Unit Fan Motor Error | Indicate or Display: Outdoor Unit : No indication Indoor Unit : Operation lamp: 5 time Flash, Timer lamp: 1 time Flash Economy lamp: Continuous flash. ERROR CODE : [E : 51] |
|---|--|

| | |
|--|---|
| Detective Actuators: Indoor unit Controller PCB Indoor unit fan motor | Detective details: When the condition that actual frequency of Indoor Fan is below 1/3 of target frequency is continued more than 56 seconds. |
|--|---|

| |
|--|
| Forecast of Cause: 1. Fan rotation failure 2. Fan motor winding open 3. Motor protection by surrounding temperature rise 4. Control PCB failure 5. Indoor unit fan motor failure |
|--|

| |
|--|
| Check Point 1 : Check rotation of Fan |
| <ul style="list-style-type: none"> · Rotate the fan by hand when operation is off. (Check if fan is caught, dropped off or locked motor) >>If Fan or Bearing is abnormal, replace it. |



| |
|--|
| Check Point 2 : Check ambient temp. around motor |
| <ul style="list-style-type: none"> · Check excessively high temperature around the motor. (If there is any surrounding equipment that causes heat) >>Upon the temperature coming down, restart operation. |



| |
|---|
| Check Point 3 : Check Indoor unit fan motor |
| <ul style="list-style-type: none"> · Check Indoor unit fan motor. (PARTS INFORMATION 4) >>If Indoor unit fan motor is abnormal, replace Indoor unit fan motor. |



| |
|--|
| Check Point 4 : Replace Controller PCB |
| ▶ If Check Point 1- 3 do not improve the symptom, replace Controller PCB. |

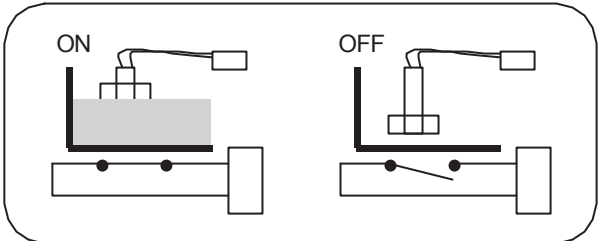
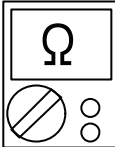
| | |
|---|--|
| Trouble shooting 10 INDOOR UNIT Error Method: Drain Pump Error | Indicate or Display: Outdoor Unit : No indication Indoor Unit : Operation lamp: 5 time Flash, Timer lamp: 3 time Flash Economy lamp: Continuous flash. ERROR CODE : [E : 53] |
|---|--|

| | |
|---|---|
| Detective Actuators: Indoor Unit Controller PCB Circuit Float Switch | Detective details: When Float switch is ON for more than 3 minutes. |
|---|---|

Forecast of Cause : 1. Float switch failure 2. Shorted connector/wire 3. Controller PCB failure
 4. Drain pump failure 5. Hose clogging

Check Point 1 : Check Float Switch

- Check operation of float switch. (any blocking by dust, etc.)
- Remove Float switch and check ON/OFF switching operation by using a meter.
 >>**If Float switch is abnormal, replace it.**

↓
OK

Check Point 2 : Check Connector (CN 9) / Wire

- Check loose contact of CN9 /shorted wire (pinched wire).
 >>**Replace Float switch if the wire is abnormal**

↓
OK

Check Point 3 : Check Drain Hose

- Check Drain Hose .
 >>**If there is Hose clogging. Please clear the clog.**

↓
OK

Check Point 4 : Check Controller PCB

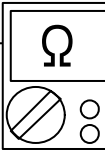
- ▶ **If Check Point 1 - 3 do not improve the symptom, change Controller PCB and execute the check operation again.**

Attention!!
 Wall mount / Compact wall mount type does not have a float switch.
 In this case, replace Controller PCB and set up the original address.
 Please refer to.

| | |
|--|--|
| Trouble shooting 11-1 INDOOR UNIT Error Method: Damper Error (Damper(Open/Close) detection Limit switch error) | Indicate or Display: Outdoor Unit : No indication Indoor Unit : Operation lamp: 5 time Flash, Timer lamp: 7 time Flash Economy lamp: Continuous flash. ERROR CODE : [E : 57] |
|--|--|

| | |
|---|---|
| Detective Actuators: Indoor unit Controller PCB Limit switch Damper | Detective details: When limit switch were not able to detect the close though the damper close. (Upper air flow) When limit switch were not able to detect the open though the damper open. (Upper & Lower air flow) |
|---|---|

| |
|---|
| Forecast of Cause : 1. Limit switch failure 2. Shorted connector/ wire 3. Damper faulure 4. Controller PCB failure |
|---|

| | |
|---|---|
| Check Point 1 : Check Limit switch <ul style="list-style-type: none"> • Check operation of limit switch. (any blocking by dust, etc.) • Remove Limit switch and check ON/OFF switching operation by using a meter. >>If Limit switch is detective, replace it. |  |
|---|---|



| |
|---|
| Check Point 2 : Check Connector (CN18) / Wire <ul style="list-style-type: none"> • Check loose contact of CN18 /shorted wire (pinched wire). >>Replace Limit switch if the wire is abnormal |
|---|



| |
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| Check Point 3 : Check Damper <ul style="list-style-type: none"> • Check the obstruction of damper movement. • Check the damper movement. >>Replace Damper if the damper is abnormal |
|--|

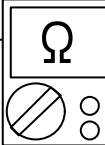


| |
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| Check Point 4 : Replace Controller PCB ▶ If Check Point 1 - 3 do not improve the symptom, change Controller PCB. |
|---|

| | |
|---|---|
| <p>Trouble shooting 11-2 INDOOR UNIT Error Method: Damper Error (Damper(Open/Close) simultaneous detection Limit switch error)</p> | <p>Indicate or Display: Outdoor Unit : No indication Indoor Unit : Operation lamp: 5 time Flash, Timer lamp: 7 time Flash Economy lamp: Continuous flash. ERROR CODE : [E : 57]</p> |
|---|---|

| | |
|--|---|
| <p>Detective Actuators: Indoor unit Controller PCB Limit switch</p> | <p>Detective details: When the limit switch detects open and close at the simultaneous.</p> |
|--|---|

| |
|---|
| <p>Forecast of Cause : 1. Limit switch failure 2. Shorted connector/ wire 3. Controller PCB failure</p> |
|---|

| | |
|--|---|
| <p>Check Point 1 : Check Limit switch</p> <ul style="list-style-type: none"> • Check operation of limit switch. (any blocking by dust, etc.) • Remove Limit switch and check ON/OFF switching operation by using a meter. <p>>>If Limit switch is detective, replace it.</p> |  |
|--|---|



| |
|--|
| <p>Check Point 2 : Check Connector (CN18) / Wire</p> <ul style="list-style-type: none"> • Check loose contact of CN18 /shorted wire (pinched wire). <p>>>Replace Limit switch if the wire is abnormal</p> |
|--|

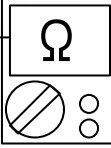


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| <p>Check Point 3 : Replace Controller PCB</p> <p>▶ If Check Point 1 - 2 do not improve the symptom, change Controller PCB.</p> |
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|--|--|
| Trouble shooting 12 INDOOR UNIT Error Method: Intake Grille Error | Indicate or Display: Outdoor Unit : No indication Indoor Unit : Operation lamp: 5 time Flash, Timer lamp: 8 time Flash Economy lamp: Continuous flash. ERROR CODE : [E : 58] |
|--|--|

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|---|---|
| Detective Actuators: Indoor unit Controller PCB Micro switch | Detective details: When the Micro switch is detected open while running the compressor. |
|---|---|

| |
|--|
| Forecast of Cause : 1. Micro switch failure 2. Shorted connector/ wire 3. Controller PCB failure |
|--|

| | |
|---|---|
| Check Point 1 : Check Limit switch |  |
| <ul style="list-style-type: none"> • Check operation of Micro switch. (any blocking by dust, etc.) • Remove Micro switch and check ON/OFF switching operation by using a meter. <p>>>If Micro switch is detective, replace it.</p> | |



| |
|--|
| Check Point 2 : Check Connector (CN11) / Wire |
| <ul style="list-style-type: none"> • Check loose contact of CN11 /shorted wire (pinched wire). <p>>>Replace Micro switch if the wire is abnormal</p> |

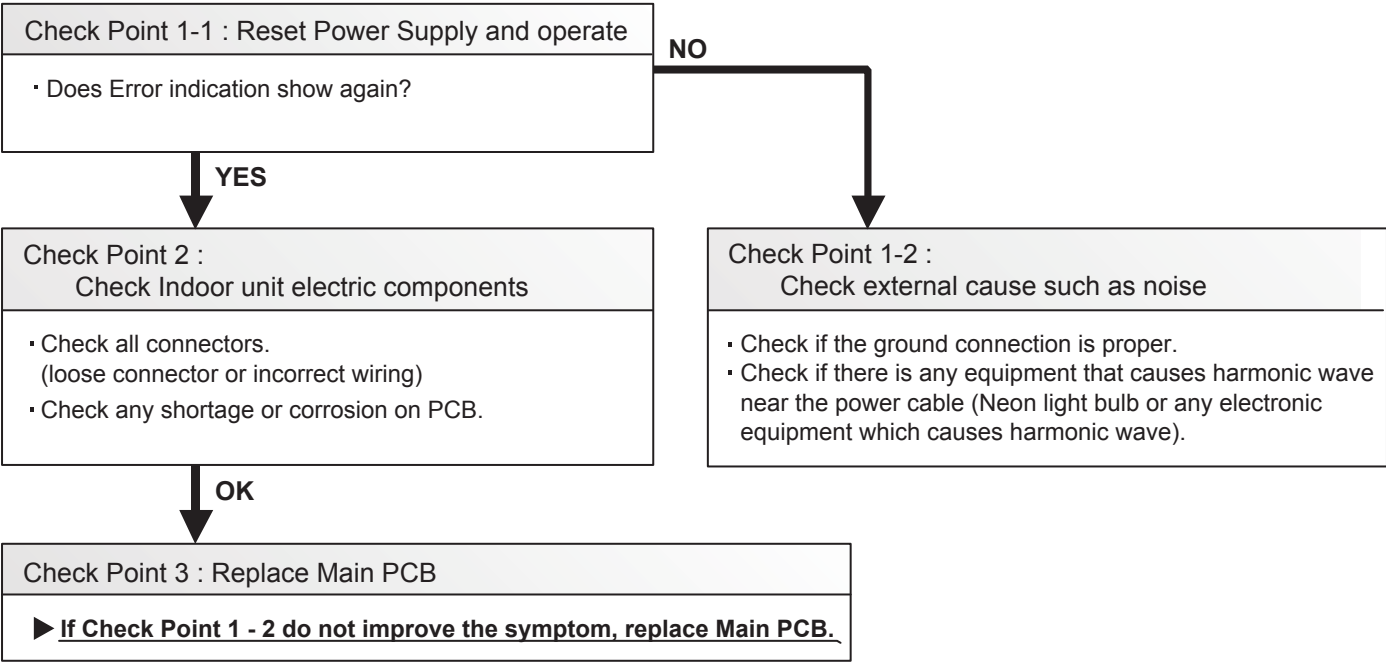


| |
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| Check Point 3 : Replace Controller PCB |
| <p>▶ <u>If Check Point 1 - 2 do not improve the symptom, change Controller PCB.</u></p> |

| | |
|---|--|
| Trouble shooting 13 INDOOR UNIT Error Method: Outdoor Unit Model Information Error | Indicate or Display: Outdoor Unit : LED 1 : 17 time Flash or 21 time Flash Indoor Unit : Operation lamp: 6 time Flash, Timer lamp: 2 time Flash Economy lamp: Continuous flash. ERROR CODE : [E : 62] |
|---|--|

| | |
|--|--|
| Detective Actuators: Outdoor unit Main PCB | Detective details: When power is on and there is some below case. ① When model information of EEPROM is incorrect. ② When the access to EEPROM failed. |
|--|--|

Forecast of Cause:
 1. External cause 2. Defective connection of electric components 3. Main PCB failure



Note : EEPROM

EEPROM(Electronically Erasable and Programmable Read Only Memory) is a non-volatile memory which keeps memorized information even if power is turned off. It can change the contents electronically. To change the contents, it uses higher voltage than normal, and it can not change a partial contents. (Rewriting shall be done upon erasing the all contents.) There is a limit in a number of rewriting.

| | |
|--|---|
| Trouble shooting 14 <u>OUTDOOR UNIT Error Method:</u> Active Filter Error | <u>Indicate or Display:</u> Outdoor Unit : LED 1 : 22 time Flash Indoor Unit : Operation lamp: 6 time Flash, Timer lamp: 4 time Flash Economy lamp: Continuous flash. ERROR CODE : [E : 64] |
|--|---|

| | |
|---|---|
| <u>Detective Actuators:</u> Outdoor unit Main PCB Active filter module | <u>Detective details:</u> ① When inverter input DC voltage is higher than 425V or lower than 80V. ② When a momentary power cut off occurred on low voltage |
|---|---|

| |
|---|
| <u>Forecast of Cause :</u> 1. External cause 2. Connector connection failure 3. Main PCB failure 4. Active filter module failure |
|---|

| |
|---|
| Check Point 1 : Check external cause at Indoor and Outdoor (Voltage drop or Noise) |
| <ul style="list-style-type: none"> • Instant drop : Check if there is a large load electric apparatus in the same circuit. • Momentary power failure : Check if there is a defective contact or leak current in the power supply circuit. • Noise : Check if there is any equipment causing harmonic wave near electric line. (Neon bulb or electric equipment that may cause harmonic wave) Check the complete insulation of grounding. |



| |
|--|
| Check Point 2 : Check connection of Connector |
| <ul style="list-style-type: none"> • Check if connector is removed. • Check erroneous connection. • Check if cable is open. >><u>Upon correcting the removed connector or miss-swiring, reset the power.</u> |



| |
|--|
| Check Point 3 : Check Active filter module |
| <ul style="list-style-type: none"> • Check Active filter module. (PARTS INFORMATION 6) >><u>If Active filter module is abnormal, replace it.</u> |



| |
|---|
| Check Point 4 : Replace Main PCB |
| ▶ <u>If Check Point 1 - 3 do not improve the symptom, change Main PCB.</u> |

| | |
|--|---|
| Trouble shooting 15 <u>OUTDOOR UNIT Error Method:</u> IPM Error | <u>Indicate or Display:</u> Outdoor Unit : LED 1 : 14 time Flash Indoor Unit : Operation lamp: 6 time Flash, Timer lamp: 5 time Flash Economy lamp: Continuous flash. ERROR CODE : [E : 65] |
|--|---|

| | |
|---|--|
| <u>Detective Actuators:</u> Outdoor unit Main PCB Compressor | <u>Detective details:</u> ① When more than normal operating current to IPM in Main PCB flows, the compressor stops. ② After the compressor restarts, if the same operation is repeated within 40sec, the compressor stops again. ③ If ① and ② repeats 5 times, the compressor stops permanently. |
|---|--|

| | | |
|--|--|--|
| <u>Forecast of Cause :</u> 1. Defective connection of electric components 2. Outdoor Fan Operation failure 3. Outdoor Heat Exchanger clogged 4. Compressor failure 5. Main PCB failure | | |
|--|--|--|

| |
|--|
| Check Point 1 : Check connections of Outdoor Unit Electrical Components |
| <ul style="list-style-type: none"> • Check if the terminal connection is loose. • Check if connector is removed. • Check erroneous connection. • Check if cable is open. >> <u>Upon correcting the removed connector or miss-wiring, reset the power.</u> |



| |
|---|
| Check Point 2 : Check Outdoor Fan, Heat Exchanger |
| <ul style="list-style-type: none"> • Is there anything obstructing the air distribution circuit? • Is there any clogging of Outdoor Heat Exchanger? • Is the Fan rotating by hand when operation is off ? >> <u>If the Fan Motor is locked, replace it.</u> |



| |
|---|
| Check Point 3 : Check Outdoor Fan |
| <ul style="list-style-type: none"> • Check Outdoor Fan Motor. (Refer to Trouble shooting 26) >> <u>If the Fan Motor is failure, replace it.</u> |



| |
|--|
| Check Point 4 : Check Compressor |
| <ul style="list-style-type: none"> • Check Compressor. (PARTS INFORMATION 2) |



| |
|---|
| Check Point 5 : Replace Main PCB |
| ▶ <u>If Check Point 1 - 4 do not improve the symptom, change Main PCB.</u> |

| | |
|--|---|
| Trouble shooting 16 OUTDOOR UNIT Error Method: Discharge Thermistor Error | Indicate or Display: Outdoor Unit : LED 1 : 2 time Flash Indoor Unit : Operation lamp: 7 time Flash, Timer lamp: 1 time Flash Economy lamp: Continuous flash. ERROR CODE : [E : 71] |
|--|---|

| | |
|---|--|
| Detective Actuators: Outdoor Unit Main PCB Circuit Discharge Pipe Temperature Thermistor | Detective details: When Discharge Pipe Temperature Thermistor open or short-circuit is detected at power ON or while running the compressor. |
|---|--|

Forecast of Cause :
 1. Connector connection failure 2. Thermistor failure 3. Main PCB failure

Check Point 1 : Check connection of Connector

- Check if connector is removed.
- Check erroneous connection.
- Check if thermistor cable is open.

>>Upon correcting the removed connector or miss-wiring, reset the power.



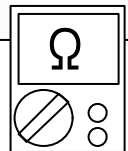
Check Point 2 : Remove connector and check Thermistor resistance value

Thermistor Characteristics (Approx. value)

| | | | | | | | | | |
|-----------------------|------|------|------|------|------|------|-------|-------|-------|
| Temperature(°F) | 32°F | 41°F | 50°F | 59°F | 68°F | 86°F | 104°F | 122°F | 140°F |
| Resistance Value (kΩ) | 167 | 128 | 101 | 78.5 | 62.5 | 40.0 | 26.3 | 17.8 | 12.3 |

| | | | | | |
|-----------------------|-------|-------|-------|-------|-------|
| Temperature(°F) | 158°F | 176°F | 194°F | 212°F | 248°F |
| Resistance Value (kΩ) | 8.69 | 6.27 | 4.60 | 3.43 | 2.00 |

▶ **If Thermistor is either open or shorted, replace it and reset the power.**

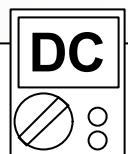


Check Point 3 : Check voltage of Main PCB (DC5.0V)

Make sure circuit diagram of outdoor unit and check terminal voltage at Thermistor (DC5.0V)

| | | | |
|----------------|--------|-------|----------------------------|
| CN24 WHITE | 1 2 | BLACK | THERMISTOR (PIPE MID) |
| CN25 BLACK | 1 2 | BLACK | THERMISTOR (HEAT SINK) |
| CN26 GREEN | 1 2 | BROWN | THERMISTOR (COMPRESSOR) |
| CN23 BLUE | 1 2 | BLUE | THERMISTOR (OUTDOOR) |
| CN22 RED | 1 2 | BLACK | THERMISTOR (PIPE) |
| CN21 YELLOW | 1 2 | BROWN | THERMISTOR (DISCHARGE) |

▶ **If the voltage does not appear, replace Main PCB.**



| | |
|---|--|
| Trouble shooting 17 OUTDOOR UNIT Error Method: Compressor Thermistor Error | Indicate or Display: Outdoor Unit : LED 1 : 7 time Flash Indoor Unit : Operation lamp: 7 time Flash, Timer lamp: 2 time Flash Economy lamp: Continuous flash. ERROR CODE : [E : 72] |
|---|--|

| | |
|---|--|
| Detective Actuators: Outdoor Unit Main PCB Circuit Compressor Temperature Thermistor | Detective details: When Compressor Temperature Thermistor open or short-circuit is detected at power ON or while running the compressor. |
|---|--|

Forecast of Cause :
1. Connector connection failure 2. Thermistor failure 3. Main PCB failure

Check Point 1 : Check connection of Connector

- Check if connector is removed.
- Check erroneous connection.
- Check if thermistor cable is open.

>>Upon correcting the removed connector or miss-wiring, reset the power.



Check Point 2 : Remove connector and check Thermistor resistance value

Ω

Thermistor Characteristics (Rough value)

| | | | | | | | | | |
|--------------------------------|------|------|------|------|------|------|-------|-------|-------|
| Temperature(°F) | 32°F | 41°F | 50°F | 59°F | 68°F | 86°F | 104°F | 122°F | 140°F |
| Resistance Value (k Ω) | 169 | 130 | 101 | 79.1 | 62.5 | 40.0 | 26.3 | 17.8 | 12.3 |

| | | | | | |
|--------------------------------|-------|-------|-------|-------|-------|
| Temperature(°F) | 158°F | 176°F | 194°F | 212°F | 248°F |
| Resistance Value (k Ω) | 8.69 | 6.27 | 4.60 | 3.43 | 2.00 |

► If Thermistor is either open or shorted, replace it and reset the power.



Check Point 3 : Check voltage of Main PCB (DC5.0V)

DC

Make sure circuit diagram of outdoor unit and check terminal voltage at Thermistor (DC5.0V)

| | | | | |
|----------------|--------|-------|----------------------------|--|
| CN24 WHITE | 1 2 | BLACK | THERMISTOR (PIPE MID) | |
| | | | | |
| CN25 BLACK | 1 2 | BLACK | THERMISTOR (HEAT SINK) | |
| | | | | |
| CN26 GREEN | 1 2 | BROWN | THERMISTOR (COMPRESSOR) | |
| | | | | |
| CN23 BLUE | 1 2 | BLUE | THERMISTOR (OUTDOOR) | |
| | | | | |
| CN22 RED | 1 2 | BLACK | THERMISTOR (PIPE) | |
| | | | | |
| CN21 YELLOW | 1 2 | BROWN | THERMISTOR (DISCHARGE) | |
| | | | | |

► If the voltage does not appear, replace Main PCB.

| | |
|---|---|
| Trouble shooting 18-1 OUTDOOR UNIT Error Method: Heat Ex. OUT Thermistor Error | Indicate or Display: Outdoor Unit : LED 1 : 3 time Flash Indoor Unit : Operation lamp: 7 time Flash, Timer lamp: 3 time Flash Economy lamp: Continuous flash. ERROR CODE : [E : 73] |
|---|---|

| | |
|---|--|
| Detective Actuators: Outdoor Unit Main PCB Circuit Heat Exchanger Temperature Thermistor | Detective details: When Heat Exchanger Temperature Thermistor open or short-circuit is detected at power ON or while running the compressor. |
|---|--|

Forecast of Cause :
1. Connector connection failure 2. Thermistor failure 3. Main PCB failure

Check Point 1 : Check connection of Connector

- Check if connector is removed.
- Check erroneous connection.
- Check if thermistor cable is open.

>>Upon correcting the removed connector or miss-wiring, reset the power.



Check Point 2 : Remove connector and check Thermistor resistance value

Thermistor Characteristics (Approx. value)

| | | | | | | | | | |
|-----------------------|------|------|------|------|------|------|------|------|------|
| Temperature(°F) | 14°F | 23°F | 32°F | 41°F | 50°F | 59°F | 68°C | 77°F | 86°F |
| Resistance Value (kΩ) | 27.8 | 21.0 | 16.1 | 12.4 | 9.63 | 7.56 | 5.98 | 4.77 | 3.84 |

► If Thermistor is either open or shorted, replace it and reset the power.



Check Point 3 : Check voltage of Main PCB (DC5.0V)

Make sure circuit diagram of outdoor unit and check terminal voltage at Thermistor (DC5.0V)

| | | | | |
|----------------|--------|-------|----------------------------|--|
| CN24 WHITE | 1 2 | BLACK | THERMISTOR (PIPE MID) | |
| CN25 BLACK | 1 2 | BLACK | THERMISTOR (HEAT SINK) | |
| CN26 GREEN | 1 2 | BROWN | THERMISTOR (COMPRESSOR) | |
| CN23 BLUE | 1 2 | BLUE | THERMISTOR (OUTDOOR) | |
| CN22 RED | 1 2 | BLACK | THERMISTOR (PIPE) | |
| CN21 YELLOW | 1 2 | BROWN | THERMISTOR (DISCHARGE) | |

► If the voltage does not appear, replace Main PCB.

| | |
|---|--|
| Trouble shooting 18-2 OUTDOOR UNIT Error Method: Heat Ex. MID Thermistor Error | Indicate or Display: Outdoor Unit : LED 1 : 16 time Flash Indoor Unit : Operation lamp: 7 time Flash, Timer lamp: 3 time Flash Economy lamp: Continuous flash. ERROR CODE : [E : 73] |
|---|--|

| | |
|---|--|
| Detective Actuators: Outdoor Unit Main PCB Circuit Heat Exchanger Temperature Thermistor | Detective details: When Heat Exchanger Temperature Thermistor open or short-circuit is detected at power ON or while running the compressor. |
|---|--|

Forecast of Cause :
1. Connector connection failure 2. Thermistor failure 3. Main PCB failure

Check Point 1 : Check connection of Connector

- Check if connector is removed.
- Check erroneous connection.
- Check if thermistor cable is open.

>>Upon correcting the removed connector or miss-wiring, reset the power.



Check Point 2 : Remove connector and check Thermistor resistance value

Ω

Thermistor Characteristics (Approx. value)

| | | | | | | | | | |
|--------------------------------|------|------|------|------|------|------|------|------|------|
| Temperature(°F) | 14°F | 23°F | 32°F | 41°F | 50°F | 59°F | 68°C | 77°F | 86°F |
| Resistance Value (k Ω) | 27.8 | 21.0 | 16.1 | 12.4 | 9.63 | 7.56 | 5.98 | 4.77 | 3.84 |

► If Thermistor is either open or shorted, replace it and reset the power.



Check Point 3 : Check voltage of Main PCB (DC5.0V)

DC

Make sure circuit diagram of outdoor unit and check terminal voltage at Thermistor (DC5.0V)

| | | | | |
|-----------------------|--------|--------------|--|--------------------------------|
| CN24 WHITE | 1 2 | BLACK | | THERMISTOR (PIPE MID) |
| CN25 BLACK | 1 2 | BLACK | | THERMISTOR (HEAT SINK) |
| CN26 GREEN | 1 2 | BROWN | | THERMISTOR (COMPRESSOR) |
| CN23 BLUE | 1 2 | BLUE | | THERMISTOR (OUTDOOR) |
| CN22 RED | 1 2 | BLACK | | THERMISTOR (PIPE) |
| CN21 YELLOW | 1 2 | BROWN | | THERMISTOR (DISCHARGE) |

► If the voltage does not appear, replace Main PCB.

| | |
|--|---|
| Trouble shooting 19 OUTDOOR UNIT Error Method: Outdoor Thermistor Error | Indicate or Display: Outdoor Unit : LED 1 : 4 time Flash Indoor Unit : Operation lamp: 7 time Flash, Timer lamp: 4 time Flash Economy lamp: Continuous flash. ERROR CODE : [E : 74] |
|--|---|

| | |
|--|---|
| Detective Actuators: Outdoor Unit Main PCB Circuit Outdoor Temperature Thermistor | Detective details: When Outdoor Temperature Thermistor open or short-circuit is detected at power ON or while running the compressor. |
|--|---|

Forecast of Cause :
1. Connector connection failure 2. Thermistor failure 3. Main PCB failure

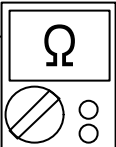
Check Point 1 : Check connection of Connector

- Check if connector is removed.
- Check erroneous connection.
- Check if thermistor cable is open.

>>Upon correcting the removed connector or miss-wiring, reset the power.



Check Point 2 : Remove connector and check Thermistor resistance value



Thermistor Characteristics (Approx. value)


| | | | | | | | | |
|-----------------------|------|------|------|------|------|------|------|------|
| Temperature(°F) | -4°F | 14°F | 23°F | 32°F | 41°F | 50°F | 59°F | 68°F |
| Resistance Value (kΩ) | 115 | 62.3 | 46.6 | 35.2 | 26.9 | 20.7 | 16.1 | 12.6 |

| | | | | | |
|-----------------------|------|-------|-------|-------|-------|
| Temperature(°F) | 86°F | 104°F | 122°F | 140°F | 158°F |
| Resistance Value (kΩ) | 7.97 | 5.18 | 3.45 | 2.36 | 1.65 |

► **If Thermistor is either open or shorted, replace it and reset the power.**



Check Point 3 : Check voltage of Main PCB (DC5.0V)



Make sure circuit diagram of outdoor unit and check terminal voltage at Thermistor (DC5.0V)

| | | | |
|----------------|--------|-------|----------------------------|
| CN24 WHITE | 1 2 | BLACK | THERMISTOR (PIPE MID) |
| CN25 BLACK | 1 2 | BLACK | THERMISTOR (HEAT SINK) |
| CN26 GREEN | 1 2 | BROWN | THERMISTOR (COMPRESSOR) |
| CN23 BLUE | 1 2 | BLUE | THERMISTOR (OUTDOOR) |
| CN22 RED | 1 2 | BLACK | THERMISTOR (PIPE) |
| CN21 YELLOW | 1 2 | BROWN | THERMISTOR (DISCHARGE) |

► **If the voltage does not appear, replace Main PCB.**

| | |
|--|---|
| <p>Trouble shooting 20</p> <p><u>OUTDOOR UNIT Error Method:</u></p> <p>2-Way Valve Thermistor Error</p> | <p><u>Indicate or Display:</u></p> <p>Outdoor Unit : LED 1 : 5 time Flash (for Indoor unit A) LED 2 : 5 time Flash (for Indoor unit B) LED 3 : 5 time Flash (for Indoor unit C) LED 4 : 5 time Flash (for Indoor unit D)</p> <p>Indoor Unit : Operation lamp: 7 time Flash, Timer lamp: 6 time Flash Economy lamp: Continuous flash.</p> <p>ERROR CODE : [E : 76]</p> |
|--|---|

| | |
|--|---|
| <p><u>Detective Actuators:</u></p> <p>Outdoor Unit Main PCB Circuit 2-way valve Temperature Thermistor</p> | <p><u>Detective details:</u></p> <p>When 2-way valve Temperature Thermistor open or short-circuit is detected at power ON or while running the compressor.</p> |
|--|---|

Forecast of Cause :

1. Connector connection failure 2. Thermistor failure 3. Main PCB failure

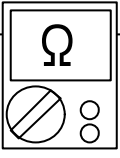
Check Point 1 : Check connection of Connector

- Check if connector is removed.
- Check erroneous connection.
- Check if thermistor cable is open.

>>Upon correcting the removed connector or miss-wiring, reset the power.



Check Point 2 : Remove connector and check Thermistor resistance value



Thermistor Characteristics (Approx. value)


| | | | | | | | | |
|-----------------------|------|------|------|------|------|------|------|------|
| Temperature(°F) | 14°F | 23°F | 32°F | 41°F | 50°F | 59°F | 68°F | 86°F |
| Resistance Value (kΩ) | 312 | 233 | 176 | 134 | 103 | 80.3 | 62.9 | 39.6 |

| | | | | | | | |
|-----------------------|-------|-------|-------|-------|-------|-------|-------|
| Temperature(°F) | 104°F | 122°F | 140°F | 158°F | 176°F | 194°F | 212°F |
| Resistance Value (kΩ) | 25.6 | 17.1 | 11.6 | 8.12 | 5.78 | 4.19 | 3.09 |

► If Thermistor is either open or shorted, replace it and reset the power.



Check Point 3 : Check voltage of Main PCB (DC5.0V)



Make sure circuit diagram of outdoor unit and check terminal voltage at Thermistor (DC5.0V)

VALVE THERMISTOR A, B

| | | | | | | |
|---------------|---|-------|---|---------------|--|---------------|
| CN39 WHITE | 1 | BLACK | 1 | RED | | 2-WAY VALVE A |
| | 3 | WHITE | 2 | RED | | 3-WAY VALVE A |
| | 4 | WHITE | 3 | YELLOW | | 2-WAY VALVE B |
| | 5 | WHITE | 4 | BLUE | | 3-WAY VALVE B |
| | 6 | WHITE | 5 | BLACK | | 2-WAY VALVE B |
| | 7 | WHITE | 6 | WHITE / WHITE | | 2-WAY VALVE C |
| | 8 | WHITE | 7 | GRAY | | 3-WAY VALVE C |
| | 9 | WHITE | 8 | BROWN | | 2-WAY VALVE D |
| | | | | ORANGE | | 3-WAY VALVE D |

VALVE THERMISTOR C, D

| | | | | | | |
|---------------|---|-------|---|-------------|--|---------------|
| CN40 WHITE | 1 | BLACK | 1 | GRAY | | 2-WAY VALVE C |
| | 2 | RED | 2 | BROWN | | 3-WAY VALVE C |
| | 4 | RED | 3 | ORANGE | | 2-WAY VALVE D |
| | 5 | RED | 4 | GREEN | | 3-WAY VALVE D |
| | 6 | RED | 5 | WHITE / RED | | 2-WAY VALVE C |
| | 7 | RED | 6 | WHITE / RED | | 3-WAY VALVE C |
| | 8 | RED | 7 | WHITE / RED | | 2-WAY VALVE D |
| | 9 | RED | 8 | WHITE / RED | | 3-WAY VALVE D |
| | | | | WHITE / RED | | 2-WAY VALVE D |

► If the voltage does not appear, replace Main PCB.

| | |
|--|---|
| Trouble shooting 21 OUTDOOR UNIT Error Method: 3-Way Valve Thermistor Error | Indicate or Display: Outdoor Unit : LED 1 : 6 time Flash (for Indoor unit A) LED 2 : 6 time Flash (for Indoor unit B) LED 3 : 6 time Flash (for Indoor unit C) LED 4 : 6 time Flash (for Indoor unit D) Indoor Unit : Operation lamp: 7 time Flash, Timer lamp: 6 time Flash Economy lamp: Continuous flash. ERROR CODE : [E : 76] |
|--|---|

| | |
|--|---|
| Detective Actuators: Outdoor Unit Main PCB Circuit 3-way valve Temperature Thermistor | Detective details: When 3-way valve Temperature Thermistor open or short-circuit is detected at power ON or while running the compressor. |
|--|---|

Forecast of Cause :
1. Connector connection failure 2. Thermistor failure 3. Main PCB failure

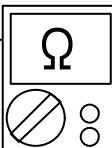
Check Point 1 : Check connection of Connector

- Check if connector is removed.
- Check erroneous connection.
- Check if thermistor cable is open.

>>Upon correcting the removed connector or miss-wiring, reset the power.



Check Point 2 : Remove connector and check Thermistor resistance value



Thermistor Characteristics (Approx. value)


| | | | | | | | | |
|-----------------------|------|------|------|------|------|------|------|------|
| Temperature(°F) | 14°F | 23°F | 32°F | 41°F | 50°F | 59°F | 68°F | 86°F |
| Resistance Value (kΩ) | 312 | 233 | 176 | 134 | 103 | 80.3 | 62.9 | 39.6 |

| | | | | | | | |
|-----------------------|-------|-------|-------|-------|-------|-------|-------|
| Temperature(°F) | 104°F | 122°F | 140°F | 158°F | 176°F | 194°F | 212°F |
| Resistance Value (kΩ) | 25.6 | 17.1 | 11.6 | 8.12 | 5.78 | 4.19 | 3.09 |

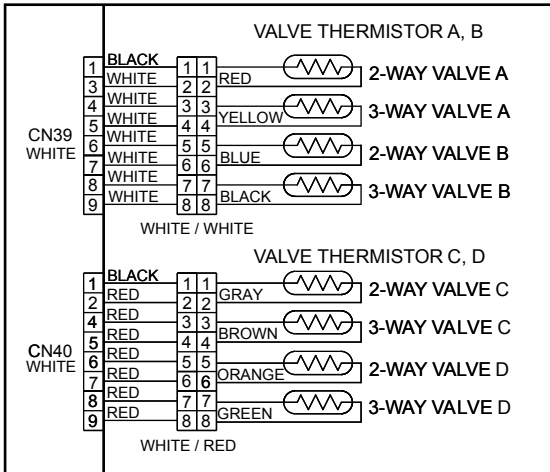
► If Thermistor is either open or shorted, replace it and reset the power.



Check Point 3 : Check voltage of Main PCB (DC5.0V)



Make sure circuit diagram of outdoor unit and check terminal voltage at Thermistor (DC5.0V)



► If the voltage does not appear, replace Main PCB.

| | |
|--|---|
| Trouble shooting 22 OUTDOOR UNIT Error Method: Heat Sink Thermistor Error | Indicate or Display: Outdoor Unit : LED 1 : 8 time Flash Indoor Unit : Operation lamp: 7 time Flash, Timer lamp: 7 time Flash Economy lamp: Continuous flash. ERROR CODE : [E : 77] |
|--|---|

| | |
|--|---|
| Detective Actuators: Outdoor Unit Main PCB Circuit Heat Sink Temperature Thermistor | Detective details: When Heat Sink Temperature Thermistor open or short-circuit is detected at power ON or while running the compressor. |
|--|---|

Forecast of Cause :
1. Connector connection failure 2. Thermistor failure 3. Main PCB failure

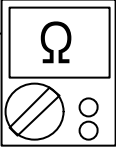
Check Point 1 : Check connection of Connector

- Check if connector is removed.
- Check erroneous connection.
- Check if thermistor cable is open.

>>Upon correcting the removed connector or miss-wiring, reset the power.



Check Point 2 : Remove connector and check Thermistor resistance value



Thermistor Characteristics (Approx. value)


| | | | | | | | | |
|-----------------------|-------|------|------|------|------|------|------|-------|
| Temperature(°F) | -22°F | -4°F | 14°F | 32°F | 50°F | 68°F | 86°F | 104°F |
| Resistance Value (kΩ) | 92.3 | 49.2 | 27.5 | 16.1 | 9.7 | 6.1 | 3.9 | 2.6 |

| | | | | | | |
|-----------------------|-------|-------|-------|-------|-------|-------|
| Temperature(°F) | 122°F | 140°F | 158°F | 176°F | 194°F | 212°F |
| Resistance Value (kΩ) | 1.8 | 1.2 | 0.9 | 0.6 | 0.5 | 0.4 |

► If Thermistor is either open or shorted, replace it and reset the power.



Check Point 3 : Check voltage of Main PCB (DC5.0V)



Make sure circuit diagram of outdoor unit and check terminal voltage at Thermistor (DC5.0V)

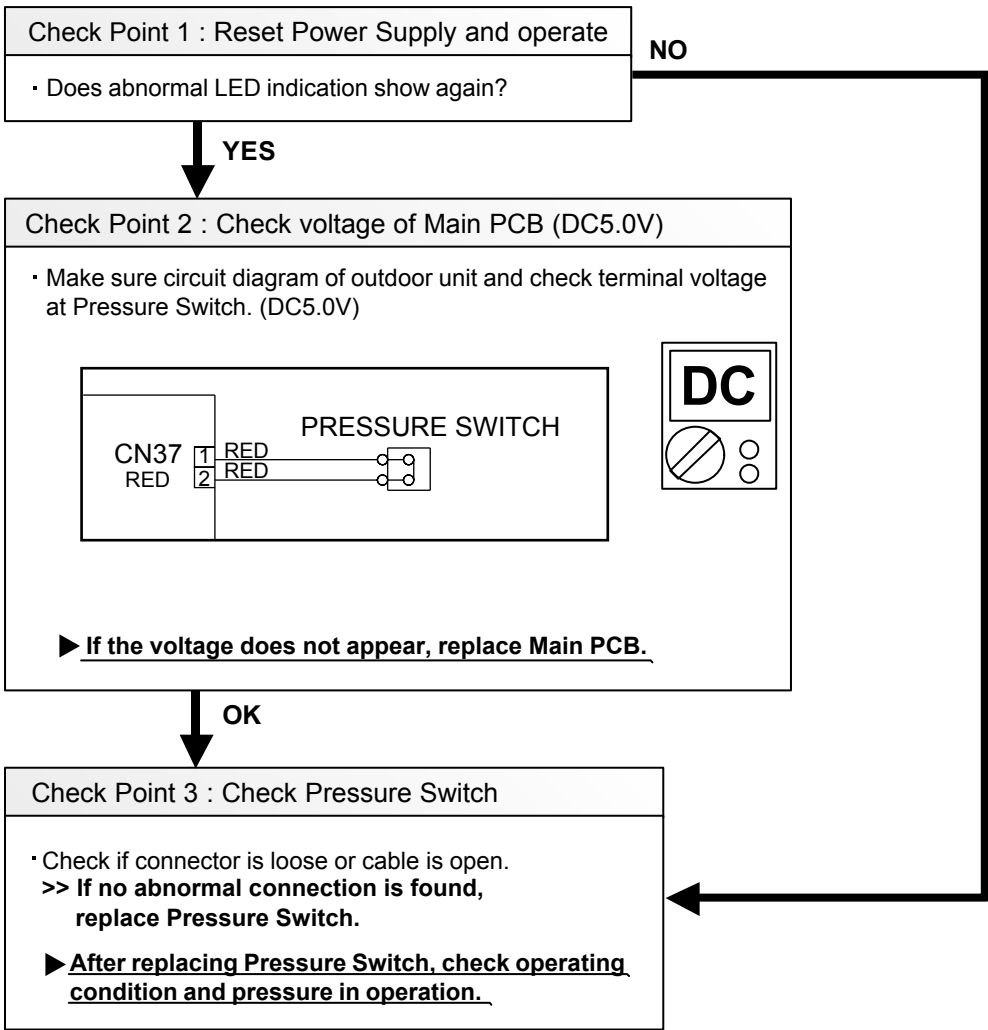
| | | | |
|----------------|--------|-------|----------------------------|
| CN24 WHITE | 1 2 | BLACK | THERMISTOR (PIPE MID) |
| CN25 BLACK | 1 2 | BLACK | THERMISTOR (HEAT SINK) |
| CN26 GREEN | 1 2 | BROWN | THERMISTOR (COMPRESSOR) |
| CN23 BLUE | 1 2 | BLUE | THERMISTOR (OUTDOOR) |
| CN22 RED | 1 2 | BLACK | THERMISTOR (PIPE) |
| CN21 YELLOW | 1 2 | BROWN | THERMISTOR (DISCHARGE) |

► If the voltage does not appear, replace Main PCB.

| | |
|--|---|
| Trouble shooting 23 OUTDOOR UNIT Error Method: High Pressure Switch Error | Indicate or Display: Outdoor Unit : LED 1 : 9 time Flash Indoor Unit : Operation lamp: 8 time Flash, Timer lamp: 6 time Flash Economy lamp: Continuous flash. ERROR CODE : [E : 86] |
|--|---|

| | |
|---|--|
| Detective Actuators: Outdoor Unit Main PCB Circuit Pressure Switch | Detective details: When pressure switch open is detected in 10 seconds after the power is turned on. |
|---|--|

Forecast of Cause :
1. Connector connection failure 2. Pressure Switch failure 3. Main PCB failure



· Characteristics of pressure switch

· PRESSURE SWITCH (CN37)

| | |
|------------------------|------------------|
| | Pressure switch |
| Contact : Short ⇒ Open | 608.7 ± 14.5 PSI |
| Contact : Open ⇒ Short | 463.8 ± 21.7 PSI |

| | |
|--|--|
| Trouble shooting 24 OUTDOOR UNIT Error Method: Over Current Error | Indicate or Display: Outdoor Unit : LED 1 : 12 time Flash Indoor Unit : Operation lamp: 9 time Flash, Timer lamp: 4 time Flash Economy lamp: Continuous flash. ERROR CODE : [E : 94] |
|--|--|

| | |
|--|--|
| Detective Actuators: Outdoor unit Main PCB Compressor | Detective details: "Protection stop by overcurrent generation after inverter compressor start processing completed" generated consecutively 10 times. * The number of generations is reset if the start-up of the compressor succeeds. |
|--|--|

| |
|---|
| Forecast of Cause : <ol style="list-style-type: none"> 1. Outdoor Heat Exchanger clogged 2. Outdoor Fan Operation failure 3. Main PCB 4. Inverter compressor failure (lock, winding short) |
|---|

| |
|--|
| Check Point 1 : Check ambient temp. around motor,Heat Exchanger |
| <ul style="list-style-type: none"> · Check excessively high temperature around the motor. (If there is any surrounding equipment that causes heat) · Is there anything obstructing the air distribution circuit? · Is there any clogging of Outdoor Heat Exchanger? >>Upon the temperature coming down, restart operation. |



| |
|---|
| Check Point 2 : Check Outdoor Fan |
| <ul style="list-style-type: none"> · Is the Fan rotating by hand when operation is off ? >> If the Fan Motor is locked, replace it. |



| |
|--|
| Check Point 3 : Replace Main PCB |
| ▶ If Check Point 1 - 2 do not improve the symptom, change Main PCB. |



| |
|--|
| Check Point 4 : Replace Compressor |
| ▶ If Check Point 3 do not improve the symptom, change Compressor. |

| | |
|--|--|
| Trouble shooting 25 OUTDOOR UNIT Error Method: Compressor Control Error | Indicate or Display: Outdoor Unit : LED 1 : 13 time Flash Indoor Unit : Operation lamp: 9 time Flash, Timer lamp: 5 time Flash Economy lamp: Continuous flash. ERROR CODE : [E : 95] |
|--|--|

| | |
|--|---|
| Detective Actuators: Outdoor unit Main PCB Compressor | Detective details: ① While running the compressor, if the detected rotor location is out of phase with actual rotor location more than 105°, the compressor stops. ② After the compressor restarts, if the same operation is repeated within 40sec, the compressor stops again. ③ If ① and ② repeats 5 times, the compressor stops permanently. |
|--|---|

Forecast of Cause :
1. Defective connection of electric components 2. Main PCB failure 3. Compressor failure

Check Point 1 : Check connection of around the Compressor components

For Compressor Terminal, Main PCB

- Check if connector is removed.
- Check erroneous connection.
- Check if cable is open.

(Refer to PARTS INFORMATION 2)

>>Upon correcting the removed connector or miss-wiring, reset the power.



Check Point 2 : Replace Main PCB

▶ **If Check Point 1 do not improve the symptom, change Main PCB.**



Check Point 3 : Replace Compressor

▶ **If Check Point 2 do not improve the symptom, change Compressor.**

| | |
|--|--|
| Trouble shooting 26 OUTDOOR UNIT Error Method: Outdoor Unit Fan Motor Error | Indicate or Display: Outdoor Unit : LED 1 : 15 time Flash Indoor Unit : Operation lamp: 9 time Flash, Timer lamp: 7 time Flash Economy lamp: Continuous flash. ERROR CODE : [E : 97] |
|--|--|

| | |
|--|---|
| Detective Actuators: Outdoor unit Main PCB Outdoor unit fan motor | Detective details: ① When outdoor fan rotation speed is less than 100rpm in 20 seconds after fan motor starts, fan motor stops. ② After fan motor restarts, if the same operation within 60sec is repeated 3 times in a row, compressor and fan motor stops. ③ If ① and ② repeats 5 times in a row, compressor and fan motor stops permanently. |
|--|---|

| |
|---|
| Forecast of Cause: 1. Fan rotation failure 2. Motor protection by surrounding temperature rise 3. Main PCB failure 4. Outdoor unit fan motor failure |
|---|

| |
|--|
| Check Point 1 : Check rotation of Fan |
| <ul style="list-style-type: none"> · Rotate the fan by hand when operation is off. (Check if fan is caught, dropped off or locked motor) >>If Fan or Bearing is abnormal, replace it. |



| |
|--|
| Check Point 2 : Check ambient temp. around motor |
| <ul style="list-style-type: none"> · Check excessively high temperature around the motor. (If there is any surrounding equipment that causes heat) >>Upon the temperature coming down, restart operation. |



| |
|---|
| Check Point 3 : Check Outdoor unit fan motor |
| <ul style="list-style-type: none"> · Check Outdoor unit fan motor. (PARTS INFORMATION 5) >>If Outdoor Fan Motor is abnormal, replace Outdoor fan motor and Main PCB. |



| Check Point 4 : Check Output Voltage of Main PCB | <div style="border: 1px solid black; padding: 5px; display: inline-block;"> DC </div> | | | | | | |
|--|---|-----------|------------|-------------|------------|---------------|-----------|
| <ul style="list-style-type: none"> · Check outdoor unit circuit diagram and the voltage. (Measure at Main PCB side connector) | | | | | | | |
| | <table border="1" style="width: 100%;"> <thead> <tr> <th>Read wire</th> <th>DC voltage</th> </tr> </thead> <tbody> <tr> <td>Red - Black</td> <td>260 - 400V</td> </tr> <tr> <td>White - Black</td> <td>15 ± 1.5V</td> </tr> </tbody> </table> | Read wire | DC voltage | Red - Black | 260 - 400V | White - Black | 15 ± 1.5V |
| Read wire | DC voltage | | | | | | |
| Red - Black | 260 - 400V | | | | | | |
| White - Black | 15 ± 1.5V | | | | | | |
| <p>▶ If the voltage is not correct, replace Main PCB.</p> | | | | | | | |

| | |
|--|---|
| Trouble shooting 27 <u>OUTDOOR UNIT Error Method:</u> 4-Way Valve Error | <u>Indicate or Display:</u> Outdoor Unit : LED 1 : 20 time Flash Indoor Unit : Operation lamp: 9 time Flash, Timer lamp: 9 time Flash Economy lamp: Continuous flash. ERROR CODE : [E : 99] |
|--|---|

| | |
|---|---|
| <u>Detective Actuators:</u> Indoor unit Controller PCB Heat exchanger temperature thermistor Room temperature thermistor 4-way valve | <u>Detective details:</u> When the indoor heat exchanger temperature is compared with the room temperature, and either following condition is detected continuously two times, the compressor stops. <ul style="list-style-type: none"> ▪ Cooling or Dry operation [Indoor heat exchanger temp.] - [Room temp.] > 20°F(10°C) ▪ Heating operation [indoor heat exchanger temp.] - [Room temp.] < -20°F(-10°C) If the same operation is repeated 5 times, the compressor stops permanently. |
|---|---|

| |
|--|
| <u>Forecast of Cause :</u> 1. Connector connection failure 2. Thermistor failure 3. Coil failure 4. 4-way valve failure 5. Main PCB failure 6. Controller PCB failure |
|--|

| |
|---|
| Check Point 1 : Check connection of Connector <ul style="list-style-type: none"> • Check if connector is removed. • Check erroneous connection. • Check if thermistor cable is open. >> <u>Upon correcting the removed connector or miss-wiring, reset the power.</u> |
|---|



| |
|---|
| Check Point 2 : Check thermistor of Indoor unit <ul style="list-style-type: none"> • Isn't it fallen off the holder? • Is there a cable pinched? >> <u>Check characteristics of thermistor, (Refer to Trouble shooting 7,8), If defective, replace the thermistor.</u> |
|---|



| |
|--|
| Check Point 3 : Check the solenoid coil and 4-way valve [Solenoid coil] <ul style="list-style-type: none"> • Remove CN30 from PCB and check the resistance value of coil. Resistance value is about 1.4kΩ >> <u>If it is Open or abnormal resistance value, replace Solenoid Coil.</u> [4-way valve] <ul style="list-style-type: none"> • Check each piping temperature, and the location of the valve by the temperature difference. >> <u>If the value location is not proper, replace 4-way valve.</u> |
|--|



| |
|--|
| Check Point 4 : Check the voltage of 4-way valve <ul style="list-style-type: none"> • Check the CN 30 voltage of Main PCB Check if AC187V(AC208V-10%) - 253V(AC230V+10%) appears at CN 30 of Main PCB. [Heating operation] >> <u>If it is not voltage, Replace Main PCB.</u> [Cooling operation] >> <u>If it is voltage, Replace Main PCB.</u> |
|--|

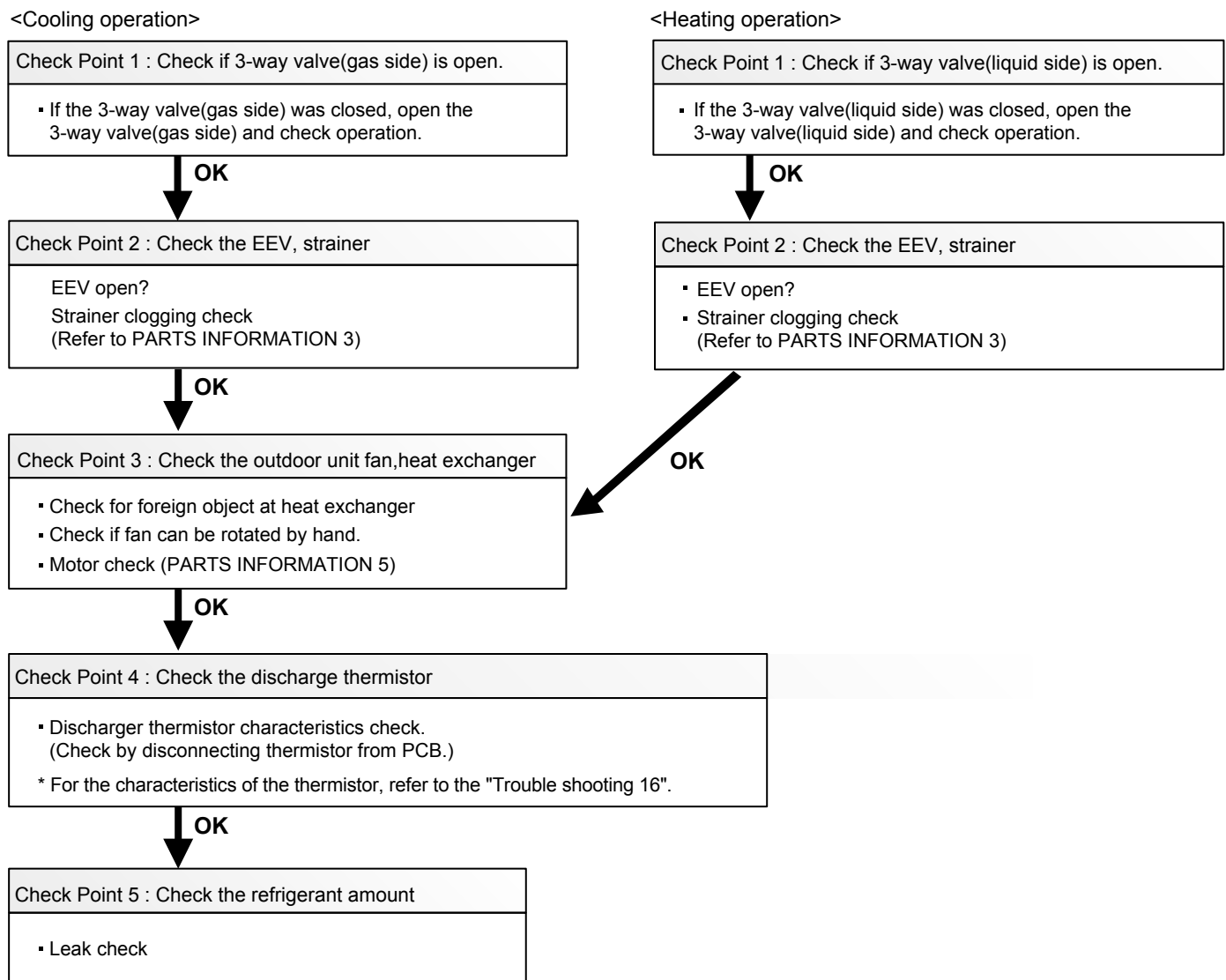


| |
|--|
| Check Point 5 : Replace Controller PCB ▶ <u>If Check Point 1- 4 do not improve the symptom, replace Controller PCB of Indoor unit .</u> |
|--|

| | |
|--|--|
| Trouble shooting 28 <u>OUTDOOR UNIT Error Method:</u> Discharge Temp. Error | <u>Indicate or Display:</u> Outdoor Unit : LED 1 : 18 time Flash Indoor Unit : Operation lamp: 10 time Flash, Timer lamp: 1 time Flash Economy lamp: Continuous flash. ERROR CODE : [E : A1] |
|--|--|

| | |
|---|--|
| <u>Detective Actuators:</u> Outdoor unit Main PCB Discharge temperature thermistor | <u>Detective details:</u> "Protection stop by "discharge temperature \geq 230°F(110°C) during compressor operation" generated 2 times within 24 hours. |
|---|--|

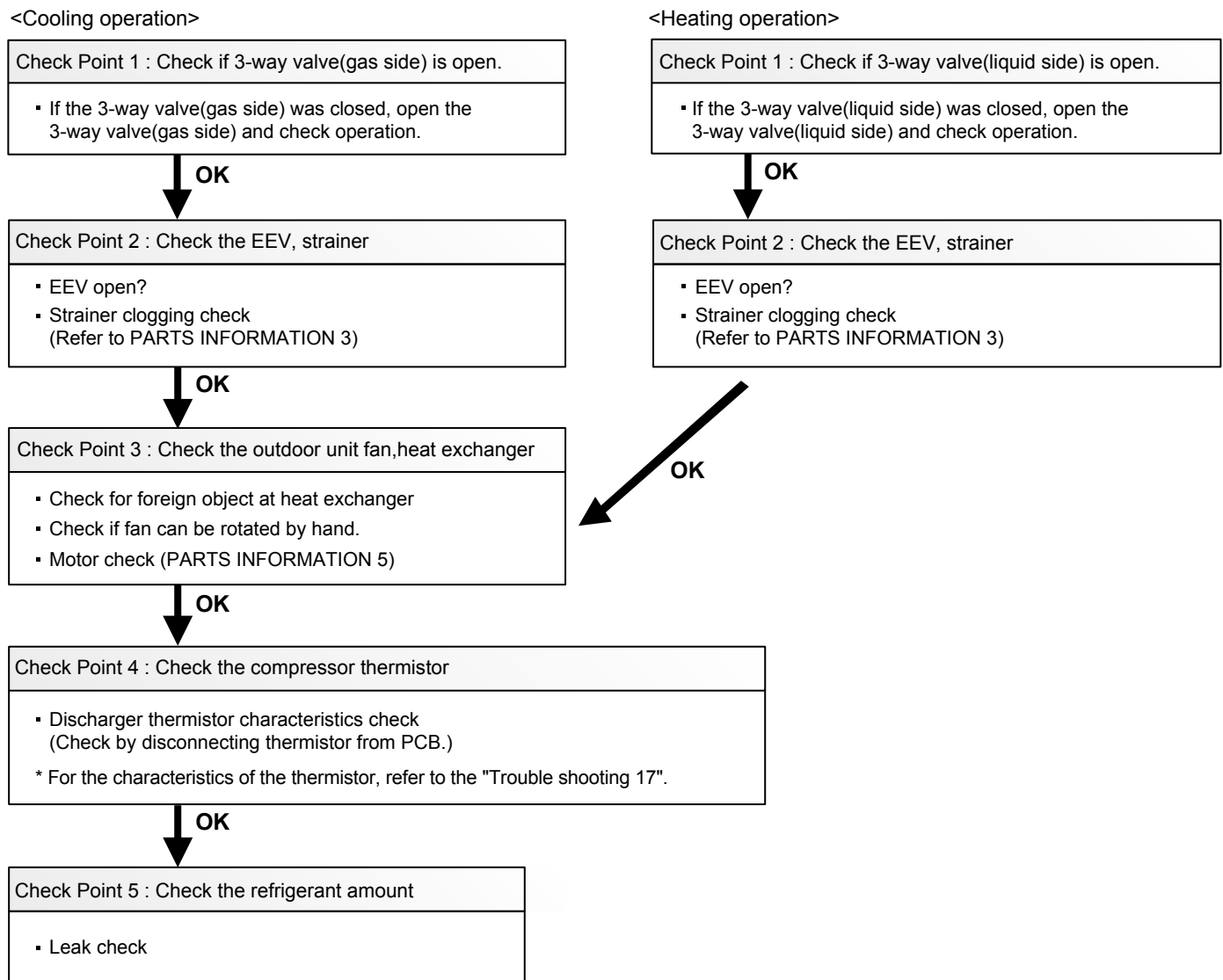
| | |
|-----------------------------------|---|
| <u>Forecast of Cause :</u> | 1. 3-way valve not opened 2. EEV defective, strainer clogged 3. Outdoor unit operation failure, foreign matter on heat exchanger 4. Discharge temperature thermistor failure 5. Insufficient refrigerant 6. Main PCB failure |
|-----------------------------------|---|



| | |
|--|--|
| Trouble shooting 29 OUTDOOR UNIT Error Method: Compressor Temp. Error | Indicate or Display: Outdoor Unit : LED 1 : 19 time Flash Indoor Unit : Operation lamp: 10 time Flash, Timer lamp: 3 time Flash Economy lamp: Continuous flash. ERROR CODE : [E : A3] |
|--|--|

| | |
|--|--|
| Detective Actuators: Compressor temperature thermistor | Detective details: "Protection stop by "compressor temperature $\geq 226.4^{\circ}\text{F}(108^{\circ}\text{C})$ during compressor operation" generated 2 times within 24 hours. |
|--|--|

| | |
|----------------------------|--|
| Forecast of Cause : | 1. 3-way valve not opened 2. EEV defective, strainer clogged 3. Outdoor unit operation failure, foreign matter on heat exchanger 4. Compressor temperature thermistor failure 5. Insufficient refrigerant 6. Main PCB failure |
|----------------------------|--|



2-3 TROUBLE SHOOTING WITH NO ERROR CODE

Trouble shooting 30

Indoor Unit - No Power

Forecast of Cause:

1. Power Supply failure
2. External cause
3. Electrical Components defective

Check Point 1 : Check Installation Condition

- Isn't the breaker down?
- Check loose or removed connection cable.
- >> **If abnormal condition is found, correct it by referring to Installation Manual or Data & Technical Manual.**

↓
OK

Check Point 2 : Check external cause at Indoor and Outdoor (Voltage drop or Noise)

- Instant drop ----- Check if there is a large load electric apparatus in the same circuit.
- Momentary power failure ----- Check if there is a defective contact or leak current in the power supply circuit.
- Noise ----- Check if there is any equipment causing harmonic wave near electric line.
(Neon bulb or electric equipment that may cause harmonic wave)
Check the complete insulation of grounding.

↓
OK

Check Point 3 : Check Electrical Components



- Check the voltage of power supply.
- >> **Check if AC187 - 253V appears at Outdoor Unit Terminal L1 - L2.**

↓
YES

- Check Fuse of between of Terminal and Filter PCB.
- >> **If Fuse is open, check if the wiring between Terminal and Filter PCB is loose, and replace Fuse.**
- Check Varistor in Filter PCB.
- >> **If Varistor is defective, there is a possibility of an abnormal power supply. Check the correct power supply and replace Varistor. Upon checking the normal power supply, replace Varistor.**

↓
OK

Check Point 4 : Replace Filter PCB

- ▶ **If Check Point 1- 3 do not improve the symptom, replace Filter PCB.**

Trouble shooting 31

Outdoor Unit - No Power

Forecast of Cause:

1. Power Supply failure
2. External cause
3. Electrical Components defective

Check Point 1 : Check Installation Condition

- Isn't the breaker down?
 - Check loose or removed connection cable.
- >>If abnormal condition is found, correct it by referring to Installation Manual or Data & Technical Manual.**

↓ OK

Check Point 2 : Check external cause at Indoor and Outdoor (Voltage drop or Noise)

- Instant drop ----- Check if there is a large load electric apparatus in the same circuit.
- Momentary power failure ----- Check if there is a defective contact or leak current in the power supply circuit.
- Noise ----- Check if there is any equipment causing harmonic wave near electric line.
(Neon bulb or electric equipment that may cause harmonic wave)
Check the complete insulation of grounding.

↓ OK

Check Point 3 : Check Electrical Components



- Check the voltage of power supply.
- >> Check if AC187 - 253V appears at Outdoor Unit Terminal L1 - L2.**

↓ YES

- Check Fuse in Main PCB.
- >> If Fuse is open, check if the wiring between Terminal and Main PCB is loose, and replace Fuse.**

↓ YES

- Check Active Filter Module. (PARTS INFORMATION 6)
- >> If Active Filter Module is abnormal, replace it.**

↓ OK

Check Point 4 : Replace Main PCB

- ▶ **If Check Point 1- 3 do not improve the symptom, replace Main PCB.**

Trouble shooting 32

No Operation (Power is ON)

Forecast of Cause:

1. Setting/ Connection failure
2. External cause
3. Electrical Component defective

Check Point 1 : Check indoor and outdoor installation condition

- Indoor Unit - Check incorrect wiring between Indoor Unit - Remote Control.
Or, check if there is an open cable connection.
- Are these Indoor unit, Outdoor unit, and Remote control suitable model numbers to connect?
>> **If there is some abnormal condition, correct it by referring to Installation manual and Data & Technical Manual.**

OK

Turn off Power and check/ correct followings.

- Is there loose or removed communication line of Indoor unit and Outdoor unit?

OK

Check Point 2 : Check external cause at Indoor and Outdoor (Voltage drop or Noise)

- Instant drop ----- Check if there is a large load electric apparatus in the same circuit.
- Momentary power failure ----- Check if there is a defective contact or leak current in the power supply circuit.
- Noise ----- Check if there is any equipment causing harmonic wave near electric line.
(Neon bulb or electric equipment that may cause harmonic wave)
Check the complete insulation of grounding.

OK

Check Point 3 : Check Wired Remote Controller and Controller PCB



- Check Voltage at terminal 1-3 of Controller PCB or Communication PCB.
(Power supply to Remote Control)
Compact Cassette, Slim Duct Type : CN14
Wall Mount , Floor Type : CN16
Compact Wall Mount Type : CNC01(UTY-XCBXZ2)
>> **If it is DC12V, Remote Control is failure. (Controller PCB is normal) >> Replace Remote Control**
>> **If it is DC 0V, Controller PCB is failure. (Check Remote Control once again)**
>> **Check Indoor unit fan motor. (PARTS INFORMATION 4)**
 If it is normal, replace Controller PCB.
 If it is abnormal, replace Indoor unit fan motor and Controller PCB.
>> **If the symptom does not change by above Check 1, 2, 3, replace Main PCB of Outdoor unit.**

Trouble shooting 33

No Cooling / No Heating

Forecast of Cause:

1. Indoor Unit error
2. Outdoor Unit error
3. Effect by Surrounding environment
4. Connection Pipe / Connection Wire failure
5. Refrigeration cycle failure

Check Point 1 : Check Indoor Unit

- Does Indoor unit FAN run on HIGH FAN?
- Is Air filter dirty?
- Is Heat exchanger clogged?
- Check if Energy save function is operated.



Check Point 2 : Check Outdoor Unit Operation

- Check if Outdoor unit is operating
- Check any objects that obstruct the air flow route.
- Check clogged Heat exchanger.
- Is the Valve open?



Check Point 3 : Check Site Condition

- Is capacity of Indoor unit fitted to Room size?
- Any windows open? Or direct sunlight ?



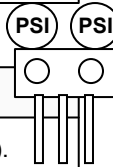
Check Point 4 : Check Indoor/ Outdoor Installation Condition

- Check connection pipe (specified pipe length & Pipe diameter?)
- Check any loose or removed communication line.
- >> **If there is an abnormal condition, correct it by referring to Installation Manual or Data & Technical Manual.**



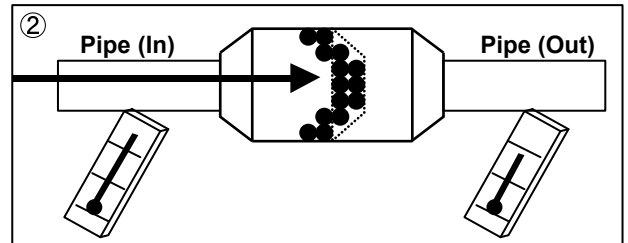
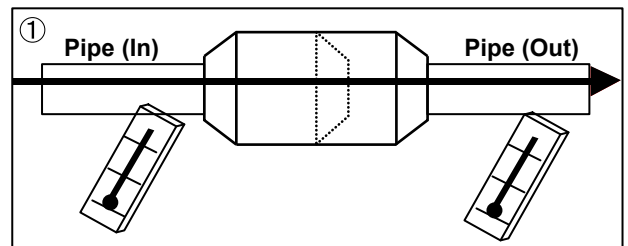
Check Point 5 : Check Refrigeration Cycle

- Check if Strainer is clogged (Refer to the figure at right).
- Measure Gas Pressure and if there is a leakage, correct it.
- >> **When recharging the refrigerant, make sure to perform vacuuming, and recharge the specified amount.**
- Check EEV (PARTS INFORMATION 3)
- Check Compressor (PARTS INFORMATION 1,2)



Attention

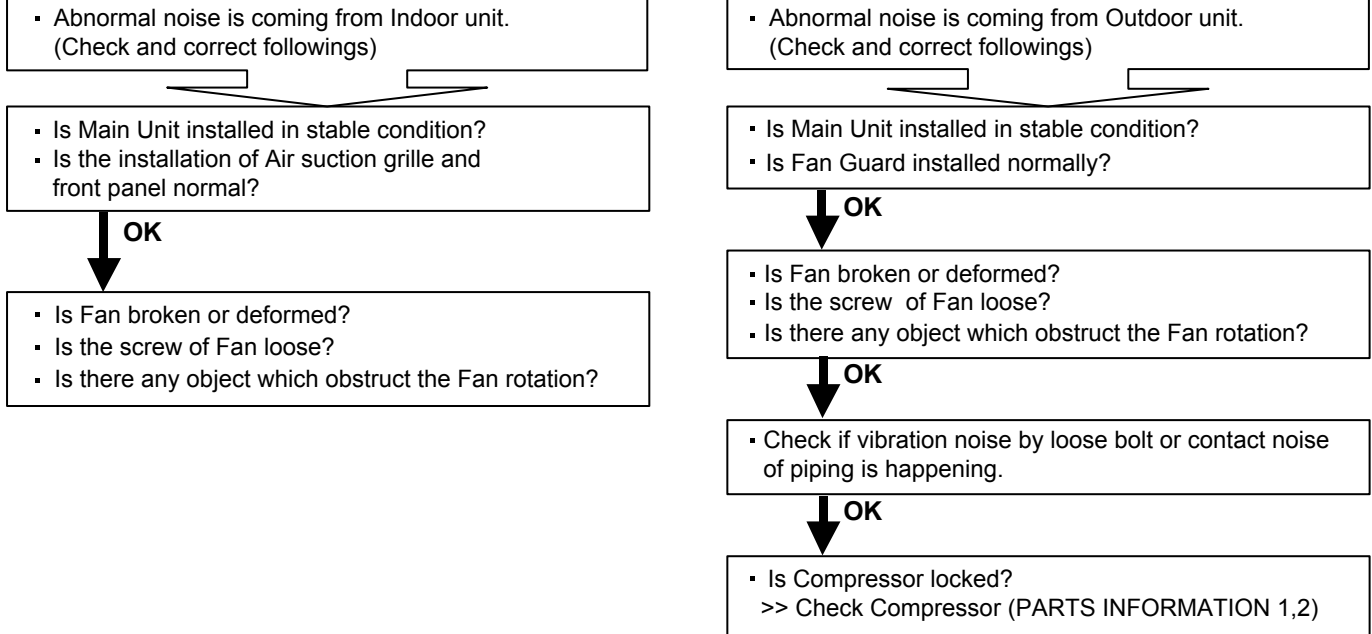
Strainer normally does not have temperature difference between inlet and outlet as shown in ①, but if there is a difference like shown in ②, there is a possibility of inside clogged. In this case, replace Strainer.



Trouble shooting 34
Abnormal Noise

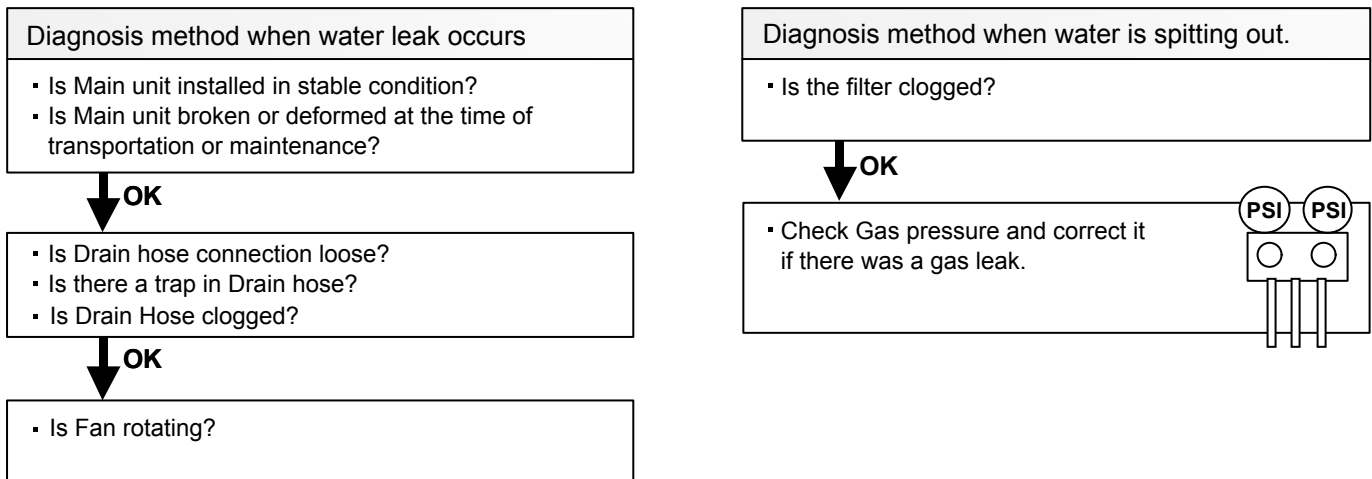
- Forecast of Cause :
1. Abnormal installation (Indoor/ Outdoor)
 2. Fan failure (Indoor/ Outdoor)
 3. Compressor failure (Outdoor)

Diagnosis method when Abnormal Noise is occurred



Trouble shooting 35
Water Leaking

- Forecast of Cause:
1. Erroneous installation
 2. Drain hose failure



Trouble shooting 36
Too Warm

- Forecast of Cause :
1. House insulation setting has not been changed.
 2. Temperature sensing location has not been changed.
 3. Installation location of the wired remote.
 4. Function settings have not been changed.

Check Point 1 : Check insulation level of structure of house
Is insulation level greater than R-13.

YES

Check Point 1-1 : Check Function Setting
If insulation level is greater than R-13 set function 95 to 01. (Ref.)

| Function Number | Setting Value | Setting Description |
|-----------------|---------------|---------------------|
| 95 | 00 | Standard insulation |
| | 01 | High insulation |

OK

Check Point 1-2 : Check effects of Function Setting change
Is the space still too warm in relation to set point.

NO

Too warm

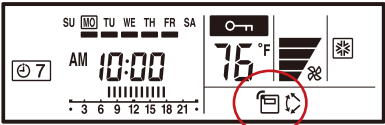
Check Point 2 : Verify room temperature sensing location
Do you want room temperature sensed at the wired remote controller (Wired remote sensor) or by they build in sensor inside the unit (Indoor unit sensor).

"Wired remote sensor"

TO NEXT PAGE

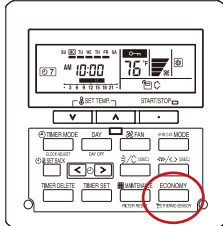
"Indoor unit sensor"

Check Point 3 : Check the remote controller display
Is the "Thermo Sensor Icon" displayed on the screen?



YES

Check Point 3-1 : Check the remote controller
Hold down the THERMO SENSOR button until the thermo sensor icon is turned off.



Too warm

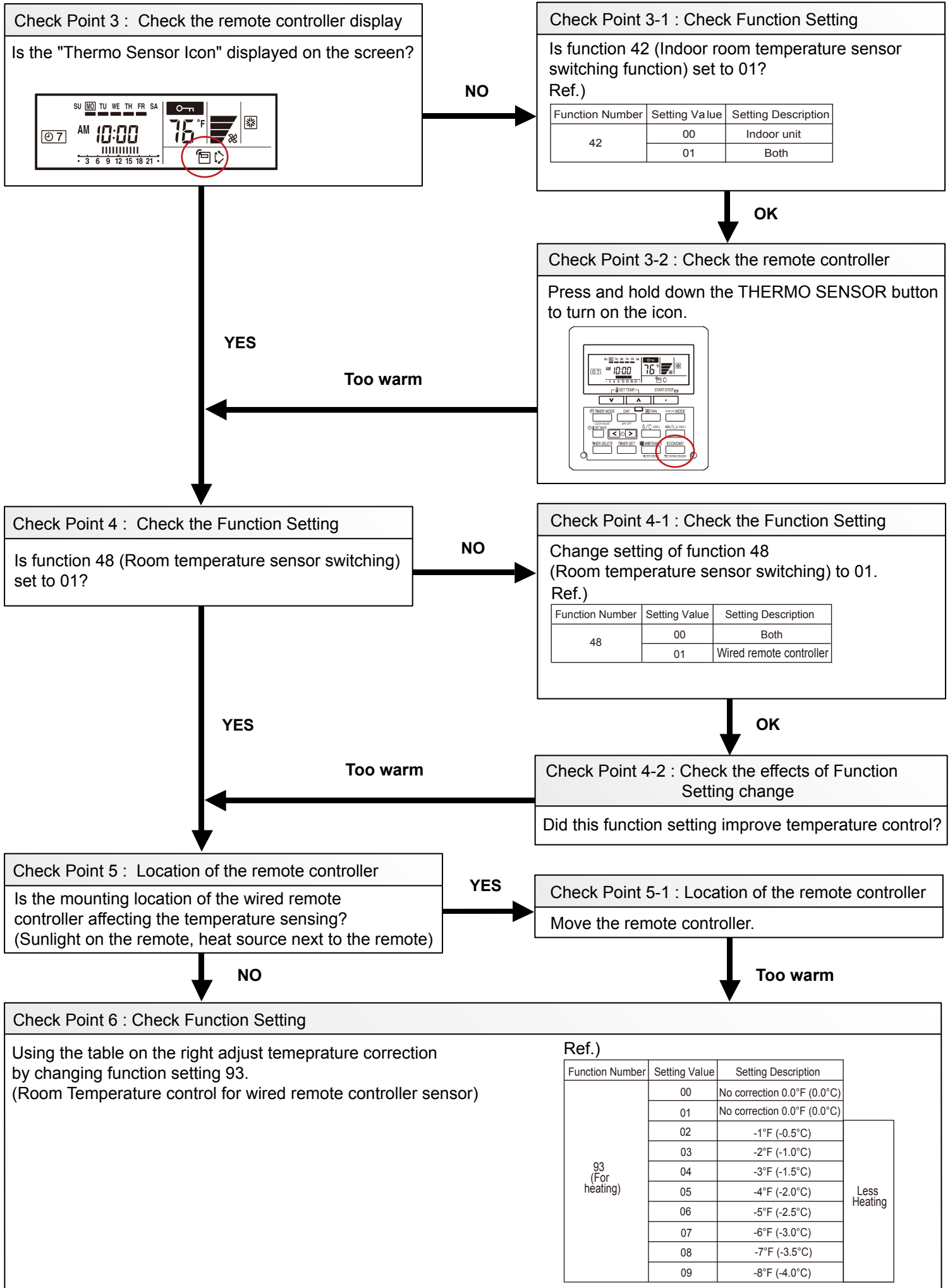
Check Point 4 : Check Function Settings
Using the table on the right adjust function 31. (Room Temperature Control for indoor unit sensor)

Ref.)

| Function Number | Setting Value | Setting Description |
|---------------------|---------------|-----------------------------|
| 31 (For heating) | 00 | Standard setting |
| | 01 | No correction 0.0°F (0.0°C) |
| | 02 | -1°F (-0.5°C) |
| | 03 | -2°F (-1.0°C) |
| | 04 | -3°F (-1.5°C) |
| | 05 | -4°F (-2.0°C) |
| | 06 | -5°F (-2.5°C) |
| | 07 | -6°F (-3.0°C) |
| | 08 | -7°F (-3.5°C) |
| | 09 | -8°F (-4.0°C) |

Less Heating

“Wired remote sensor”



| Function Number | Setting Value | Setting Description |
|-----------------|---------------|---------------------|
| 42 | 00 | Indoor unit |
| | 01 | Both |

| Function Number | Setting Value | Setting Description |
|-----------------|---------------|-------------------------|
| 48 | 00 | Both |
| | 01 | Wired remote controller |

| Function Number | Setting Value | Setting Description |
|---------------------|---------------|-----------------------------|
| 93 (For heating) | 00 | No correction 0.0°F (0.0°C) |
| | 01 | No correction 0.0°F (0.0°C) |
| | 02 | -1°F (-0.5°C) |
| | 03 | -2°F (-1.0°C) |
| | 04 | -3°F (-1.5°C) |
| | 05 | -4°F (-2.0°C) |
| | 06 | -5°F (-2.5°C) |
| | 07 | -6°F (-3.0°C) |
| | 08 | -7°F (-3.5°C) |
| | 09 | -8°F (-4.0°C) |

Less Heating

Trouble shooting 37
Too Cool

- Forecast of Cause :**
1. House insulation setting has not been changed.
 2. Temperature sensing location has not been changed.
 3. Installation location of the wired remote.
 4. Function settings have not been changed.

Check Point 1 : Check insulation level of structure of house
Is insulation level greater than R-13.

YES

Check Point 1-1 : Check Function Setting
If insulation level is greater than R-13 set function 95 to 01. (Ref.)

| Function Number | Setting Value | Setting Description |
|-----------------|---------------|---------------------|
| 95 | 00 | Standard insulation |
| | 01 | High insulation |

OK

Check Point 1-2 : Check effects of Function Setting change
Is the space still too cool in relation to set point.

Too cool

NO

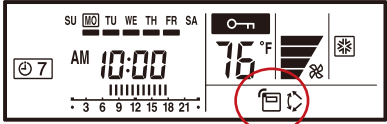
Check Point 2 : Verify room temperature sensing location
Do you want room temperature sensed at the wired remote controller (Wired remote sensor) or by they build in sensor inside the unit (Indoor unit sensor).

"Wired remote sensor"

TO NEXT PAGE

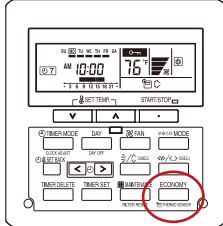
"Indoor unit sensor"

Check Point 3 : Check the remote controller display
Is the "Thermo Sensor Icon" displayed on the screen?



YES

Check Point 3-1 : Check the remote controller
Hold down the THERMO SENSOR button until the thermo sensor icon is turned off.



Too cool

NO

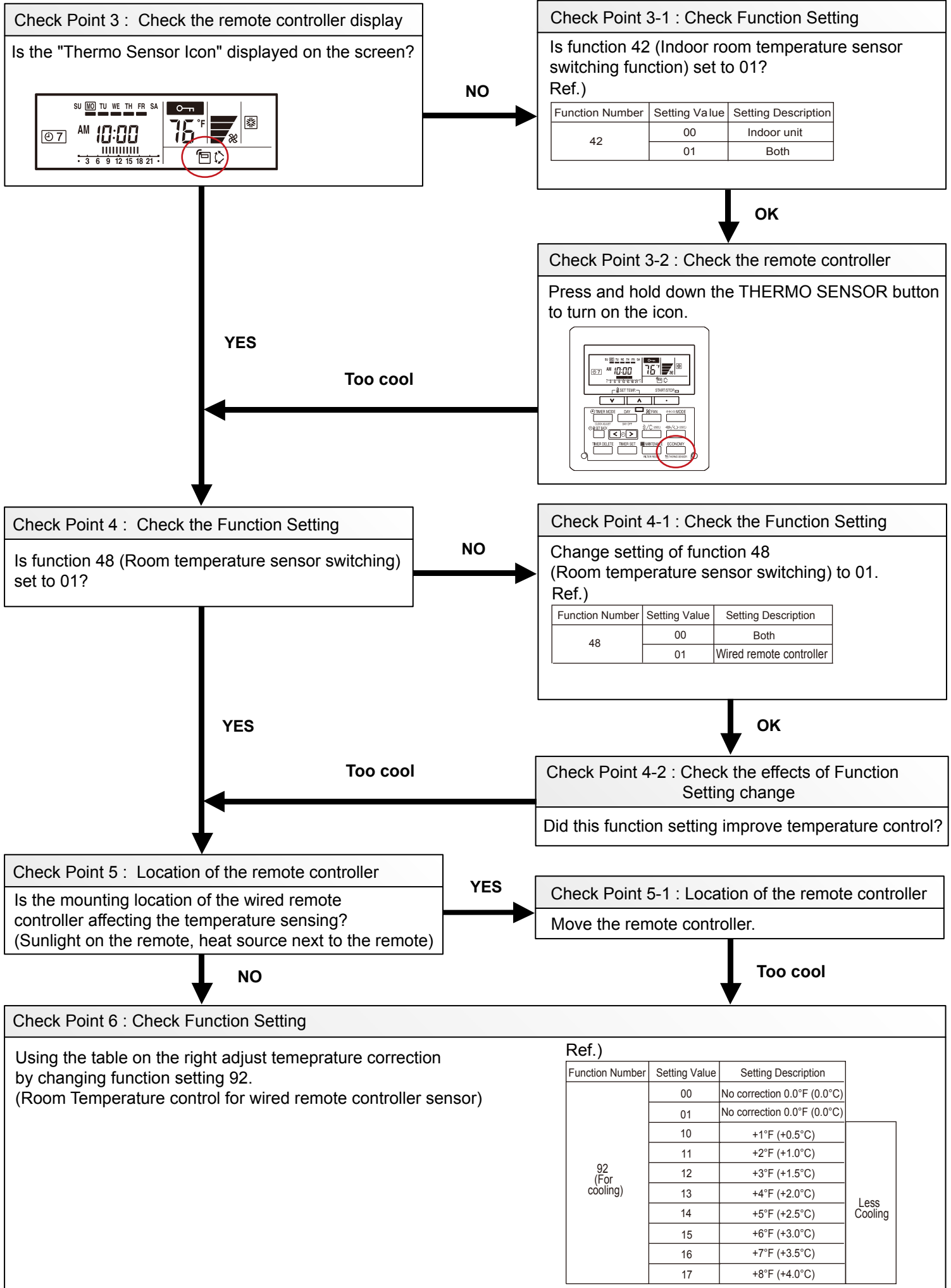
Check Point 4 : Check Function Settings
Using the table on the right adjust function 30. (Room Temperature Control for indoor unit sensor)

Ref.)

| Function Number | Setting Value | Setting Description |
|---------------------|---------------|-----------------------------|
| 30 (For cooling) | 00 | Standard setting |
| | 01 | No correction 0.0°F (0.0°C) |
| | 10 | +1°F (+0.5°C) |
| | 11 | +2°F (+1.0°C) |
| | 12 | +3°F (+1.5°C) |
| | 13 | +4°F (+2.0°C) |
| | 14 | +5°F (+2.5°C) |
| | 15 | +6°F (+3.0°C) |
| | 16 | +7°F (+3.5°C) |
| | 17 | +8°F (+4.0°C) |

Less Cooling

“Wired remote sensor”



| Function Number | Setting Value | Setting Description |
|-----------------|---------------|---------------------|
| 42 | 00 | Indoor unit |
| | 01 | Both |

| Function Number | Setting Value | Setting Description |
|-----------------|---------------|-------------------------|
| 48 | 00 | Both |
| | 01 | Wired remote controller |

| Function Number | Setting Value | Setting Description |
|---------------------|---------------|-----------------------------|
| 92 (For cooling) | 00 | No correction 0.0°F (0.0°C) |
| | 01 | No correction 0.0°F (0.0°C) |
| | 10 | +1°F (+0.5°C) |
| | 11 | +2°F (+1.0°C) |
| | 12 | +3°F (+1.5°C) |
| | 13 | +4°F (+2.0°C) |
| | 14 | +5°F (+2.5°C) |
| | 15 | +6°F (+3.0°C) |
| | 16 | +7°F (+3.5°C) |
| 17 | +8°F (+4.0°C) | |

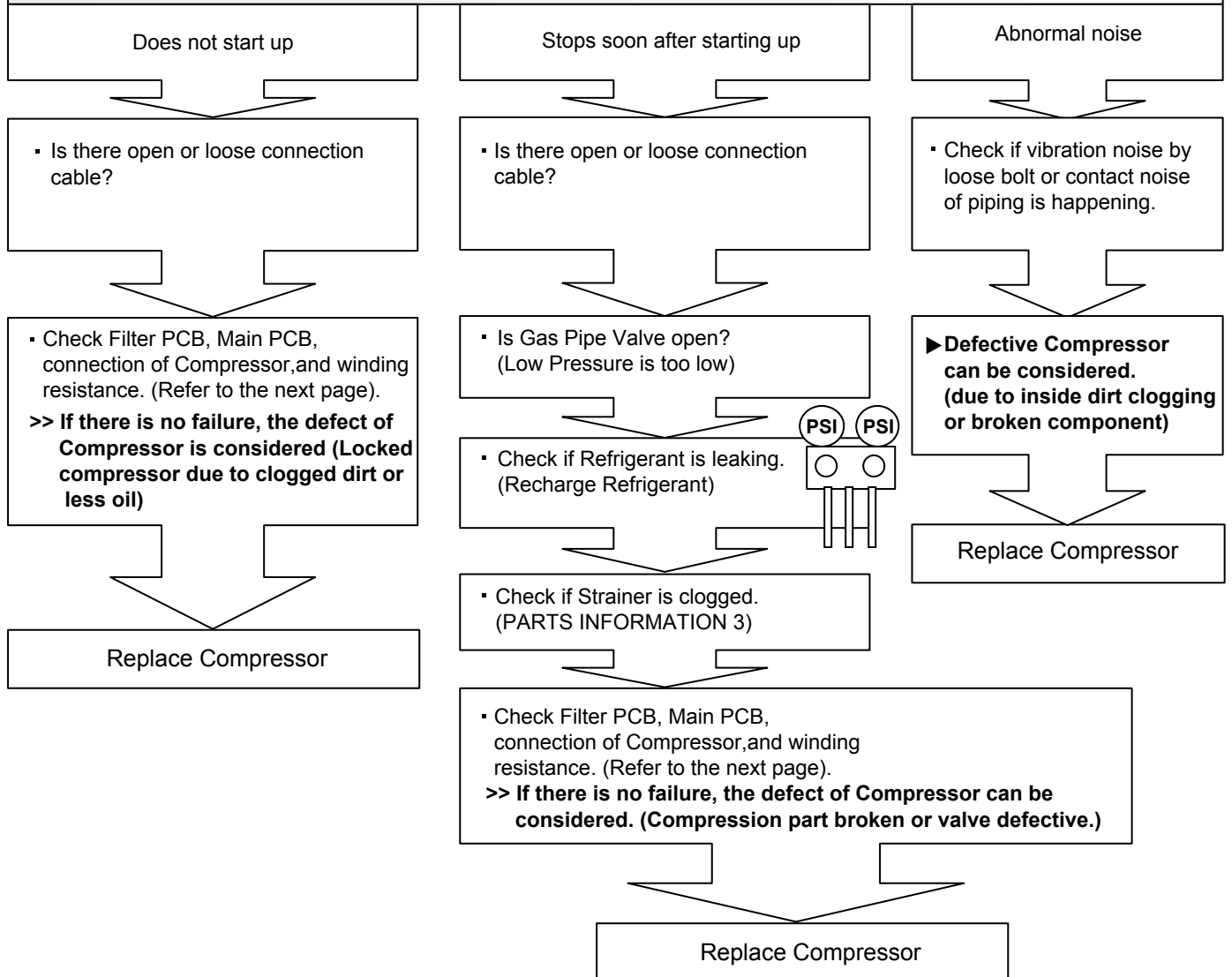
Less Cooling

2-4 SERVICE PARTS INFORMATION

SERVICE PARTS INFORMATION 1

Compressor

Diagnosis method of Compressor (If Outdoor Unit LED displays Error, refer to Trouble shooting)

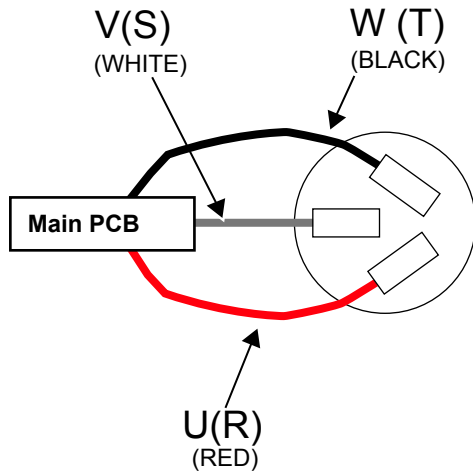


SERVICE PARTS INFORMATION 2

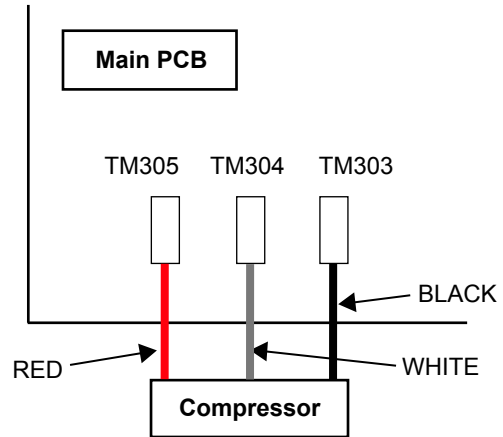
Compressor

Check Point 1 : Check Connection

- Check terminal connection of Compressor (loose or incorrect wiring)



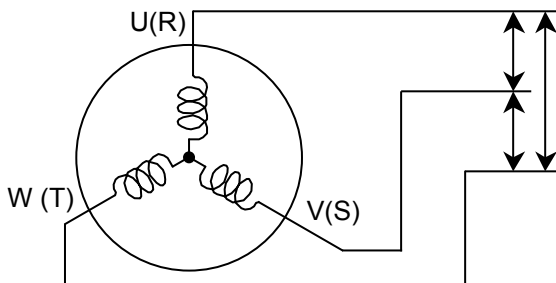
- Check terminal connection of Main PCB (loose or incorrect wiring)



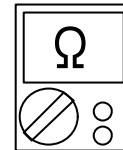
Check Point 2 : Check Winding Resistance

- Check winding resistance of each terminal

► **If the resistance value is $0\ \Omega$ or infinite, replace Compressor.**



For AOU36RLXFZ1
Resistance Value : $0.64\ \Omega$ at 68°F (20°C)



Check Point 3 : Replace Main PCB

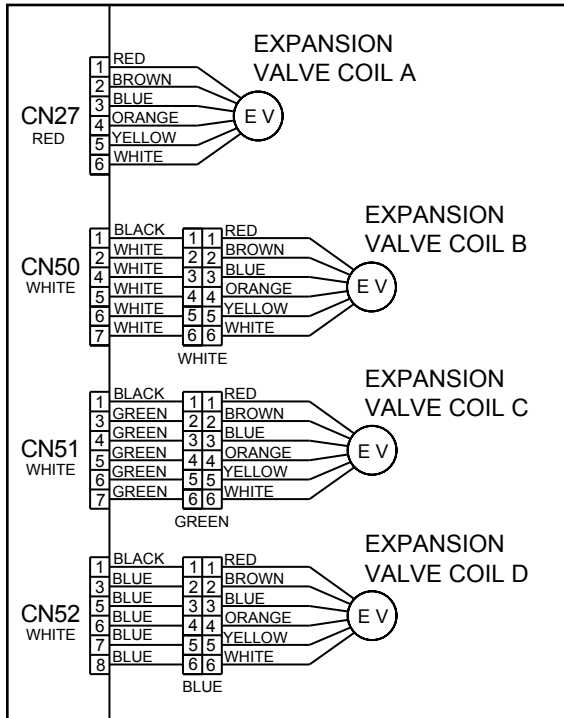
► **If the symptom does not change with above Check 1, 2, replace Main PCB.**

SERVICE PARTS INFORMATION 3

Outdoor unit Electronic Expansion Valve (EEV)

Check Point 1 : Check Connections

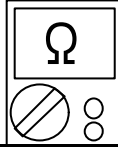
- Check connection of connector
(Loose connector or open cable)



Check Point 2 : Check Coil of EEV

- Remove connector, check each winding resistance of Coil.

| Read wire | Resistance value |
|----------------|---|
| White - Red | $46 \Omega \pm 4 \Omega$ at 68°F(20°C) |
| Yellow - Brown | |
| Orange - Red | |
| Blue - Brown | |



► **If Resistance value is abnormal, replace EEV.**

Check Point 3 : Check Voltage from Main PCB.

- Remove Connector and check Voltage (DC12V)
- **If it does not appear, replace Main PCB.**



Check Point 4 : Check Noise at start up

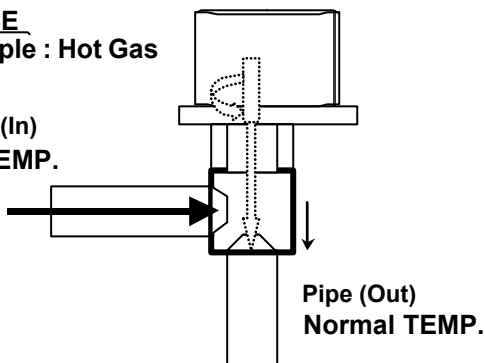
- Turn on Power and check operation noise.
- **If an abnormal noise does not show, replace Main PCB.**

Check Point 5 : Check Opening and Closing Operation of Valve

When Valve is closed, it has a temp. difference between Inlet and Outlet.

CLOSE
Example : Hot Gas

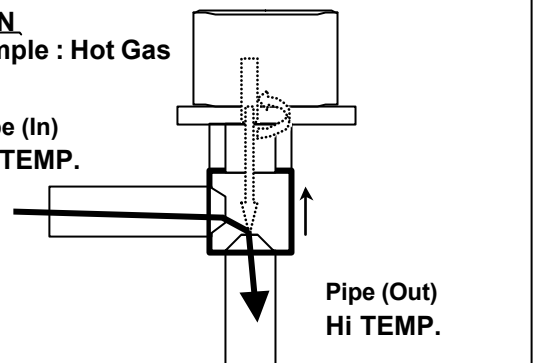
Pipe (In)
Hi TEMP.



If it is open, it has no temp. difference between Inlet and Outlet.

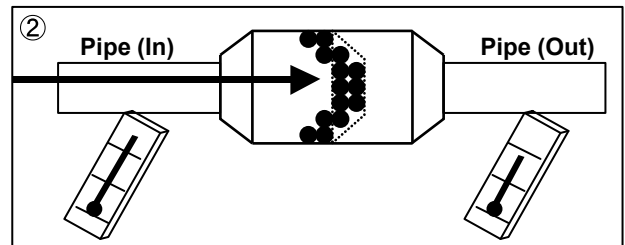
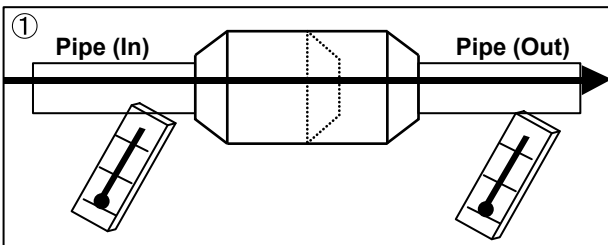
OPEN
Example : Hot Gas

Pipe (In)
Hi TEMP.



Check Point 6 : Check Strainer

Strainer normally does not have temperature difference between inlet and outlet as shown in ①, but if there is a difference as shown in ②, there is a possibility of inside clogged. In this case, replace Strainer.



SERVICE PARTS INFORMATION 4

Indoor unit fan motor

Check Point 1 : Check rotation of Fan

- Rotate the fan by hand when operation is off.
(Check if fan is caught, dropped off or locked motor)
- >>If Fan or Bearing is abnormal, replace it.**

Check Point 2 : Check resistance of Indoor Fan Motor

- Refer to below. Circuit-test "Vm" and "GND" terminal.
(Vm: DC voltage, GND: Ground terminal)
- >>If they are short-circuited (below 300 k Ω), replace Indoor fan motor and Controller PCB.**

For Compact Wall Mount, Wall Mount Type

| Pin number (wire color) | Terminal function (symbol) |
|----------------------------|-------------------------------|
| 1 (Blue) | Feed back (FG) |
| 2 (Yellow) | Speed command (Vsp) |
| 3 (White) | Control voltage (Vcc) |
| 4 (Black) | Ground terminal (GND) |
| 5 | No function |
| 6 (Red) | DC voltage (Vm) |

For Floor Type

| Pin number (wire color) | Terminal function (symbol) |
|----------------------------|-------------------------------|
| 1 (Blue) | Feed back (FG) |
| 2 (Yellow) | Speed command (Vsp) |
| 3 (White) | Control voltage (Vcc) |
| 4 (Black) | Ground terminal (GND) |
| 5 | No function |
| 6 | No function |
| 7 (Red) | DC voltage (Vm) |

For Compact Cassette Type

| Pin number (wire color) | Terminal function (symbol) |
|----------------------------|-------------------------------|
| 1 (Red) | DC voltage (Vm) |
| 2 | No function |
| 3 (White) | Control voltage (Vcc) |
| 4 (Black) | Ground terminal (GND) |
| 5 | No function |
| 6 | No function |
| 7 (Yellow) | Speed command (Vsp) |
| 8 (Brown) | Feed back (FG) |

For Slim Duct Type

| Pin number (wire color) | Terminal function (symbol) |
|----------------------------|-------------------------------|
| 1 (Brown) | Feed back (FG) |
| 2 (Yellow) | Speed command (Vsp) |
| 3 (White) | Control voltage (Vcc) |
| 4 (Black) | Ground terminal (GND) |
| 5 | No function |
| 6 (Red) | DC voltage (Vm) |

SERVICE PARTS INFORMATION 5

Outdoor unit fan motor

Check Point 1 : Check rotation of Fan

- Rotate the fan by hand when operation is off.
(Check if fan is caught, dropped off or locked motor)
- >>If Fan or Bearing is abnormal, replace it.**

Check Point 2 : Check resistance of Outdoor Fan Motor

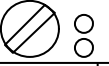
- Refer to below. Circuit-test "Vm" and "GND" terminal.
(Vm: DC voltage, GND: Ground terminal)
- >>If they are short-circuited (below 300 k Ω), replace Outdoor fan motor and Main PCB.**

| Pin number (wire color) | Terminal function (symbol) |
|----------------------------|-------------------------------|
| 1 (Red) | DC voltage (Vm) |
| 2 | No function |
| 3 (Black) | Ground terminal (GND) |
| 4 (White) | Control voltage (Vcc) |
| 5 (Yellow) | Speed command (Vsp) |
| 6 (Brown) | Feed back (FG) |

SERVICE PARTS INFORMATION 6

Active filter module

Check Point 1 : Check Open or Short-circuit and Diode (D1)



• Remove connector, check the open or short-circuit and the diode in the module

Check the open or short-circuit

Table.1 Each type standard value

| Terminal | | Resistance value | | | |
|----------------|----------------|--|--|--|-------------|
| | | Type A | Type B | | |
| multimeter (+) | multimeter (-) | SACT32010 [HITACHI] LACT33020 [HITACHI] | PM-604 [FGEL] PM-703 [FGEL] | | |
| | | PM-601 [FGEL] <u>LOT No. - 1302931395</u> | PM-601 [FGEL] <u>LOT No. 1302931396 -</u> | | |
| + | (+IN)* | - | (-IN)* | 360kΩ ± 20% | 360kΩ ± 20% |
| - | (-IN)* | N1 (N)* | 0 Ω | 0 Ω | |
| ※ | P | + | (+IN)* | 720kΩ ± 20% | 900kΩ ± 20% |
| L1 | L2 | 1.01MΩ / 0.76MΩ (Ref. value 1) (Ref. value 2) | 1.01MΩ / 0.76MΩ (Ref. value 1) (Ref. value 2) | | |
| P | N1 (N)* | 360kΩ ± 20% | 540kΩ ± 20% | | |
| L1, L2 | Control Box | ∞ Ω | ∞ Ω | | |
| ※ | L2 | N1 (N)* | 1.65MΩ / 1.14MΩ (Ref. value 1) (Ref. value 2) | 1.65MΩ / 1.14MΩ (Ref. value 1) (Ref. value 2) | |

* () is FGEL terminal name.

Table.2 Standard value is changed by the tool specification
(Type A and B are the same value)

| Terminal | | Resistance value | |
|----------------|----------------|------------------|--|
| multimeter (+) | multimeter (-) | | |
| ※ | L2 | P | 1.32MΩ / 0.66MΩ (Ref. value 1) (Ref. value 2) |
| ※ | P | L2 | 1.01MΩ / 0.76MΩ (Ref. value 1) (Ref. value 2) |

※ By kind of multimeter , the value may change significantly.

Ref. value 1

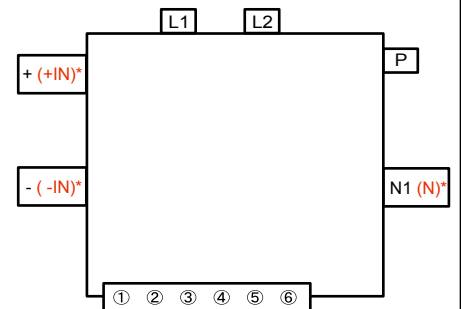
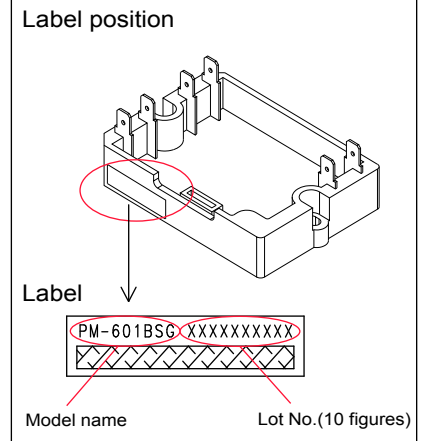
Specifications for Multimeter
Manufacturer : FLUKE
Model name : FLUKE11
Power source : DC9V.

Ref. value 2

Specifications for Multimeter
Manufacturer : SANWA
Model name : PM3
Power source : DC3V.

► If it is abnormal,replace ACTIVE FILTER MODULE

LOT No. of PM-601 [FGEL] type



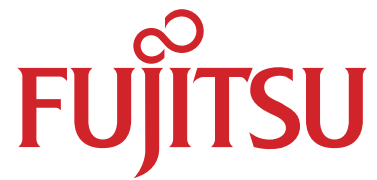
Check Point 2 : Check the Output DC voltage (between P and N)

DC



• Check the Output DC voltage (between P and N) of compressor stopping and operating.

>> If the output voltage of compressor operating is less than the output voltage of compressor stopping,
Active Filter Module is defective. >> Replace Active Filter Module



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