

2.1.2 Troubleshooting flow

(1) List of troubles

Model FDC90, 100VNP-W

| Remote control display | Description of trouble | Reference page |
|------------------------|--|----------------|
| None | Operates but does not cool. | 66 |
| None | Operates but does not heat. | 67 |
| None | Earth leakage breaker activated | 68 |
| None | Excessive noise/vibration (1/3) | 69 |
| None | Excessive noise/vibration (2/3) | 70 |
| None | Excessive noise/vibration (3/3) | 71 |
| None | Louver motor failure (FDT, FDE series) | 72 |
| None | Power source system error (Power source to indoor unit control PCB) | 73 |
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| INSPECT I/U | INSPECT I/U (When 1 or 2 remote controls are connected) | 75 |
| INSPECT I/U | INSPECT I/U (Connection of 3 units or more remote controls) | 76 |
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(2) Troubleshooting

| | | | | |
|------------------------------------|--------|----------------|-----------|--|
| Error code Remote control: None | LED | Green | Red | Content Operates but does not cool |
| | Indoor | Keeps flashing | Stays OFF | |

| | | |
|---|---|----------------|
| <p>1. Applicable model</p> <p>All models</p> | 5. Troubleshooting | |
| <p>2. Error detection method</p> | Diagnosis | Countermeasure |
| <p>3. Condition of Error displayed</p> | <pre> graph TD Start[Check the indoor unit fan operation. Check the temperature difference between return and supply air.] --> D1{Is the temperature difference between return and supply air 10-20°C at cooling?} D1 -- YES --> D2{Does the heat load increase after installtion?} D1 -- NO --> D3{Is the compressor operating?} D2 -- YES --> C1[Mistake in model selection. Calculate heat load once more.] D2 -- NO --> D4{"⌚ WAIT ⌚" message is displayed (for 3 seconds) when performing cooling, defrosting and heating operations from the remote control.} D3 -- NO --> D4 D3 -- YES --> D5{Is the compressor rotation speed low?} C1 --> C2[It is necessary to replace to higher capacity one or to install additional unit.] D4 -- YES --> C3[Compressor refrigerant oil protection control at starting is activated.] D4 -- NO --> C4[Compressor may be stopped by the error detection control. For the contents of control, refer to anomalous stop control by controlling compressor rotation speed of microcomputer control functions.] D5 -- NO --> C5[Inspect the followings. • Minor clogging of filter • Minor clogging of heat exchanger • Minor short-circuit • Minor shortage of refrigerant amount • Poor compression of compressor] D5 -- YES --> C6[Check which control "Determination control of compressor rotation speed" or "Protective control by controlling compressor rotation speed" is appropriate to this phenomenon.] C6 --> D6{Are the temperature conditions of room and outdoor air close to the rated conditions? (1)} D6 -- YES --> C7[Considering appropriate operation control, check suspicious points. Inspect the followings for reference. • Major clogging of filter • Major clogging of heat exchanger • Major short-circuit • Major shortage of refrigerant amount • Compressor protection ON • Indoor fan tap] D6 -- NO --> C8[The unit is operating normally but is operating under the contol for protecting compressor or other respective parts.] Note(1) Outdoor: 35°C, Indoor: 27°C </pre> | |
| <p>4. Presumable cause</p> <ul style="list-style-type: none"> • Poor compression of compressor • Faulty expansion valve operation | | |

Note:

| | | | | |
|------------------------------------|--------|----------------|-----------|--|
| Error code Remote control: None | LED | Green | Red | Content Operates but does not heat |
| | Indoor | Keeps flashing | Stays OFF | |

| | | |
|--|--|---|
| <p>1. Applicable model</p> <p>All models</p> | <p>5. Troubleshooting</p> | |
| <p>2. Error detection method</p> | <p style="text-align: center;">Diagnosis</p> <pre> graph TD Start[Check the indoor unit fan operation. Check the temperature difference between return and supply air.] --> D1{Is the temperature difference between return and supply air 10-30°C at heating?} D1 -- YES --> D2{Does the heat load increase after installation?} D1 -- NO --> D3{Is the compressor operating?} D2 -- YES --> Box1[Mistake in model selection. Calculate heat load once again.] D2 -- NO --> CM1[It is normal. (This unit is designed to start in the soft start mode by detecting the under dome temperature of compressor when it restart after power reset.)] D3 -- NO --> D4{"⏸️WAIT⏸️" message is displayed (for 3 seconds) when performing cooling, defrosting and heating operations from the remote control.} D3 -- YES --> CM2[Compressor refrigerant oil protection control at starting is activated.] D4 -- YES --> CM2 D4 -- NO --> CM3[Compressor may be stopped by the error detection control. For the contents of control, refer to anomalous stop control by controlling compressor rotation speed of microcomputer control functions.] D5{Is the compressor rotation speed low?} D5 -- NO --> CM4[Inspect the followings. • Minor clogging of filter • Minor clogging of heat exchanger • Minor short-circuit • Minor shortage of refrigerant amount • Poor compression of compressor] D5 -- YES --> Box2[Check which control "Determination control of compressor rotation speed" or "Protective control by controlling compressor rotation speed" is appropriate to this phenomenon.] Box2 --> D6{Are the (1) temperature conditions of room and outdoor air close to the rated conditions?} D6 -- YES --> CM5[Considering appropriate operation control, check suspicious points. Inspect the followings for reference. • Major clogging of filter • Major clogging of heat exchanger • Major short-circuit • Major shortage of refrigerant amount • Compressor protection ON • Indoor fan tap] D6 -- NO --> Box3[The unit is operating normally but is operating under the control for protecting compressor or other respective parts.] </pre> | <p style="text-align: center;">Countermeasure</p> <p>It is normal. (This unit is designed to start in the soft start mode by detecting the under dome temperature of compressor when it restart after power reset.)</p> <p>It is necessary to replace to higher capacity one or to install additional unit.</p> <p>Compressor refrigerant oil protection control at starting is activated.</p> <p>Compressor may be stopped by the error detection control. For the contents of control, refer to anomalous stop control by controlling compressor rotation speed of microcomputer control functions.</p> <p>Inspect the followings. • Minor clogging of filter • Minor clogging of heat exchanger • Minor short-circuit • Minor shortage of refrigerant amount • Poor compression of compressor</p> <p>Considering appropriate operation control, check suspicious points. Inspect the followings for reference. • Major clogging of filter • Major clogging of heat exchanger • Major short-circuit • Major shortage of refrigerant amount • Compressor protection ON • Indoor fan tap</p> |
| <p>3. Condition of Error displayed</p> | <p>4. Presumable cause</p> <ul style="list-style-type: none"> • Faulty 4-way valve operation • Poor compression of compressor • Faulty expansion valve operation | |

Note:

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|------------------------------------|--------|-----------|-----------|---|
| Error code Remote control: None | LED | Green | Red | Content Earth leakage breaker activated |
| | Indoor | Stays OFF | Stays OFF | |

| | | | |
|--|--|--|-----------------------|
| 1. Applicable model | 5. Troubleshooting | | |
| All models | Diagnosis | | Countermeasure |
| 2. Error detection method | <pre> graph TD D1{Are OK the insulation resistance and coil resistance of compressor?} D2{Is insulation of respective harnesses OK? Is any harness bitten between pannel and casing or etc?} C1[Check the outdoor unit grounding wire/earth leakage breaker.] D1 -- NO --> CM1[Replace compressor.*] D1 -- YES --> D2 D2 -- NO --> CM2[Secure insulation resistance.] D2 -- YES --> C1 </pre> | | |
| 3. Condition of Error displayed | <p>Check of the outdoor unit grounding wire/earth leakage breaker</p> <p>① Run an independent grounding wire from the grounding screw of outdoor unit to the grounding terminal on the distribution panel. (Do not connect to another grounding wire.)</p> <p>② In order to prevent malfunction of the earth leakage breaker itself, confirm that it is conformed to higher harmonic regulation.</p> <p>* Insulation resistance of compressor</p> <ul style="list-style-type: none"> • Immediately after installation or when the unit has been left for long time without power source, the insulation resistance may drop to a few MΩ because of refrigerant migrated in the compressor. <p>When the earth breaker is activated at lower insulation resistance, check the following points.</p> <p>① Check if the earth leakage breaker is conformed to higher harmonic regulation or not.</p> <p>Since the unit is equipped with inverter, it is necessary to use components conformed to higher harmonic regulation in order to prevent malfunction of earth leakage breaker.</p> | | |
| 4. Presumable cause | <ul style="list-style-type: none"> • Defective compressor • Noise | | |

Note:

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|------------------------------------|--------|-------|-----|---|
| Error code Remote control: None | LED | Green | Red | Content Excessive noise/vibration (1/3) |
| | Indoor | – | – | |

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|----------------------------|
| 1. Applicable model |
| All models |

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|----------------------------------|
| 2. Error detection method |
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|--|
| 3. Condition of Error displayed |
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|---|
| 4. Presumable cause |
| <ul style="list-style-type: none"> ① Improper installation work <ul style="list-style-type: none"> • Improper anti-vibration work at installation • Insufficient strength of mounting face ② Defective product <ul style="list-style-type: none"> • Before/after shipping from factory ③ Improper adjustment during commissioning <ul style="list-style-type: none"> • Excess/shortage of refrigerant, etc. |

| | |
|--|---|
| 5. Troubleshooting | |
| Diagnosis | Countermeasure |
| <pre> graph TD D1{Does noise/vibration occur during or soon after stopping operation of air-conditioner?} D2{[Installation work] Does noise/vibration occur not only from the air-conditioner but also from entire building?} D3{Does the installation of indoor/outdoor unit loose?} D4{Are pipes touching the wall, etc?} D5{[Product] Does noise/vibration occur from operating fan (fan only)?} D6{Is there a fan or louver touching other components?} C1[To next page] D1 -- NO --> CM1 D1 -- YES --> D2 D2 -- YES --> D3 D2 -- NO --> D5 D3 -- YES --> CM2 D3 -- NO --> D4 D4 -- YES --> CM3 D4 -- NO --> CM4 D5 -- YES --> D6 D5 -- NO --> C1 D6 -- YES --> CM5 D6 -- NO --> CM6 </pre> | <p>If excessive noise/vibration persists when sufficient time has elapsed after stopping the unit, it is considered that the air-conditioner is not the source.</p> <p>Check the installed condition carefully, and correct the position or insert rubber cushions or others into the gap, if necessary.</p> <p>Prevent the vibration from transmitting to wall and etc by fixing pipes on the wall or wrapping rubber cushion around the pipe which goes through the hole in the wall or applying other appropriate means.</p> <p>Strength of ceiling wall, floor, etc. may be insufficient. Review the installing position or reinforce it.</p> <p>Check for leaning of installed unit or anomalous mounting of fan, louver or motor and specify the contacting point and correct it.</p> <p>When the heat exchanger or filter is clogged, clean them. In case that the unit is installed at the site where background noise is very low, small noise from indoor unit can be heard, but it is normal. Before installation, check for background noise. If background noise is very low, convince client prior to installation.</p> |

Note:

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|--|------------|-------|-------|---------------------------------|---------|----------------------|--------|---|---|---------------------------------|
| <table border="1"> <tr> <td>Error code</td> <td>LED</td> <td>Green</td> <td>Red</td> <td>Content</td> </tr> <tr> <td>Remote control: None</td> <td>Indoor</td> <td>–</td> <td>–</td> <td>Excessive noise/vibration (2/3)</td> </tr> </table> | Error code | LED | Green | Red | Content | Remote control: None | Indoor | – | – | Excessive noise/vibration (2/3) |
| Error code | LED | Green | Red | Content | | | | | | |
| Remote control: None | Indoor | – | – | Excessive noise/vibration (2/3) | | | | | | |

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|---------------------------------|
| 1. Applicable model |
| All models |
| 2. Error detection method |
| 3. Condition of Error displayed |
| 4. Presumable cause |

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|--------------------|-----------------------|
| 5. Troubleshooting | |
| Diagnosis | Countermeasure |
| | |

Note:

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|------------------------------------|--------|-------|-----|---|
| Error code Remote control: None | LED | Green | Red | Content Excessive noise/vibration (3/3) |
| | Indoor | – | – | |

| | | |
|--|---|-----------------------|
| <p>1. Applicable model</p> <p>All models</p> | <p>5. Troubleshooting</p> | |
| <p>2. Error detection method</p> | <p>Diagnosis</p> <pre> graph TD A[From previous page] --> B{Adjustment during commissioning Does noise/vibration occur when the cooling/heating operation is in anomalous condition?} B -- YES --> C[Countermeasure] </pre> | <p>Countermeasure</p> |
| <p>3. Condition of Error displayed</p> | <p>If insufficient cooling/heating problem happens due to anomalous operating conditions at cooling/heating, followings are suspicious.</p> <ul style="list-style-type: none"> • Overcharge of refrigerant • Insufficient charge of refrigerant • Intrusion of air, nitrogen, etc. <p>In such occasion, it is necessary to recover refrigerant, vacuum-dry and recharge refrigerant.</p> <p>* Since there could be many causes of noise/vibration, the above do not cover all. In such case, check the conditions when, where, how the noise/vibration occurs according to following check point.</p> <ul style="list-style-type: none"> • Indoor/outdoor unit • Cooling/heating/fan mode • Startup/stop/during operation • Operating condition (Indoor/outdoor temperatures, pressure) • Time it occurred • Operation data retained by the remote control such as compressor rotation speed, heat exchanger temperature, EEV opening degree, etc. • Tone (If available, record the noise) • Any other anomalies | |
| <p>4. Presumable cause</p> | | |

Note:

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|---|--------|----------------|-----------|---|
| Error code Remote control: None | LED | Green | Red | Content <h2 style="text-align: center;">Louver motor failure (FDT, FDE series)</h2> |
| | Indoor | Keeps flashing | Stays OFF | |

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| 1.Applicable model FDT, FDE series only |
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|---------------------------------|
| 2.Error detection method |
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|--|
| 3. Condition of Error displayed |
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|---|
| 4.Presumable cause <ul style="list-style-type: none"> • Defective LM • LM wire breakage • Faulty indoor unit control PCB |
|---|

| | |
|---|-----------------------|
| 5.Troubleshooting | |
| Diagnosis | Countermeasure |
| <p style="text-align: center;">▲ Check at the indoor unit side.</p> <div style="text-align: center;"> <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 0 auto;">Operate after waiting for more than 1 minute.</div> <p>↓</p> <div style="display: flex; justify-content: center; align-items: center;"> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;">Does the louver operate at the power on?</div> <div style="margin-left: 10px;"> <p>NO →</p> <div style="border: 1px solid black; padding: 5px; margin: 5px auto; width: 100px;">Is LM wiring broken?</div> <p>NO →</p> <div style="border: 1px solid black; padding: 5px; margin: 5px auto; width: 100px;">Is LM locked?</div> <p>NO →</p> <div style="border: 1px solid black; padding: 5px; margin: 5px auto; width: 100px;">Is the louver operable with the remote control?</div> </div> </div> <p>YES →</p> </div> <pre> graph TD Start[Operate after waiting for more than 1 minute.] --> Q1{Does the louver operate at the power on?} Q1 -- NO --> Q2{Is LM wiring broken?} Q2 -- YES --> C1[Repair wiring.] Q2 -- NO --> Q3{Is LM locked?} Q3 -- NO --> C2[Defective indoor unit control PCB → Replace.] Q3 -- YES --> C3[Replace LM.] Q1 -- YES --> Q4{Is the louver operable with the remote control?} Q4 -- YES --> C4[Normal] Q4 -- NO --> C5[Adjust LM lever and then check again.] </pre> <p style="text-align: center;">LM: louver motor</p> | |

Note:

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|------------------------------------|--------|----------------|-----------|--|
| Error code Remote control: None | LED | Green | Red | Content Power source system error (Power source to remote control) |
| | Indoor | Keeps flashing | Stays OFF | |

| | | | |
|---------------------------------------|--|-----------------------|--|
| 1.Applicable model | 5.Troubleshooting | | |
| All models | Diagnosis | Countermeasure | |
| 2.Error detection method | <pre> graph TD D1{Isn't there any loose connection of remote control wires?} -- YES --> C1[Correct.] D1 -- NO --> D2{Isn't remote control wire broken or short-circuited?} D2 -- YES --> C2[Replace wires.] D2 -- NO --> P1[Disconnect remote control wires.] P1 --> D3{Is DC15V or higher detected between X-Y of indoor unit terminal block?} D3 -- YES --> C3[Replace remote control.] D3 -- NO --> D4{Is DC180V between ①-② of CNW2?} D4 -- YES --> C4[Defective indoor unit control PCB → Replace.] D4 -- NO --> C5[Defective indoor unit power PCB → Replace.] </pre> | | |
| 3.Condition of Error displayed | | | |
| 4.Presumable cause | <ul style="list-style-type: none"> • Remote control wire breakage/short-circuit • Defective remote control • Malfunction by noise • Faulty indoor unit power PCB • Broken harness • Faulty indoor unit control PCB | | |

Note:

| | | | | |
|---|--------|----------------|-----------|--|
| Error code Remote control: INSPECT I/U | LED | Green | Red | Content INSPECT I/U (When 1 or 2 remote controls are connected) |
| | Indoor | Keeps flashing | Stays OFF | |

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|---|
| 1. Applicable model |
| All models |
| 2. Error detection method |
| Communication between indoor unit and remote control is disabled for more than 30 minutes after the power on. |
| 3. Condition of Error displayed |
| Same as above |
| 4. Presumable cause |
| <ul style="list-style-type: none"> • Improper setting • Surrounding environment • Defective remote control communication circuit • Faulty indoor unit control PCB |

| | |
|---|-----------------------|
| 5. Troubleshooting | |
| Diagnosis | Countermeasure |
| <pre> graph TD Q1{Are 2 units of remote control connected?} Q2{Does it become normal?} Q3{Is it set at the slave remote control?} Q4{Do more than one indoor units have the same address?} Q5{Are remote control wires laid along high voltage wires?} Q6{Does DM start 60 seconds later automatically.} Q1 -- YES --> S1[Set one remote control for "Master" and the other for "Slave"] S1 --> Q2 Q2 -- NO --> Q3 Q3 -- YES --> C1[Set SW1 on remote control PCB at "Master".] Q3 -- NO --> Q4 Q4 -- YES --> C2[Set address again. (SW2 on indoor unit control PCB)] Q4 -- NO --> Q5 Q5 -- YES --> C3[Separate remote control wires from high voltage wires.] Q5 -- NO --> S2[Disconnect the connecting wire ③ between the indoor and outdoor unit.] S2 --> S3[Power source reset] S3 --> Q6 Q6 -- YES --> C4[Defective indoor unit control PCB -> Replace.] Q6 -- NO --> C5[Defective remote control -> Change.] </pre> | |

Note: If any error is detected 30 minutes after displaying “WAIT” on the remote control, the display changes to “INSPECT I/U”.

| | | | | |
|---|--------|----------------|-----------|--|
| Error code Remote control: INSPECT I/U | LED | Green | Red | Content INSPECT I/U (Connection of 3 units or more remote controls) |
| | Indoor | Keeps flashing | Stays OFF | |

| |
|---------------------------|
| 1.Applicable model |
| All models |

| |
|---|
| 2.Error detection method |
| Indoor unit cannot communicate for more than 30 minutes after the power on with remote control. |

| |
|---------------------------------------|
| 3.Condition of Error displayed |
| Same as above |

| |
|---|
| 4.Presumable cause |
| <ul style="list-style-type: none"> • Improper setting • Surrounding environment • Defective remote control communication circuit • Faulty indoor unit control or power PCB • Faulty outdoor unit PCB |

| 5.Troubleshooting | | | | | | | | | | | | | | | | | | |
|--|--|----------------|---|----------------------------|---|--|---|--|--|---|---|----------|--|----------|--|---------------------------------------|---|--|
| <table border="1"> <thead> <tr> <th>Diagnosis</th> <th>Countermeasure</th> </tr> </thead> <tbody> <tr> <td> Are more than 3 units of remote control connected? YES → NO ↓ </td> <td>Reduce to 2 units or less.</td> </tr> <tr> <td> Does remote control display "Slave"? YES → NO ↓ </td> <td>Change remote control setting to "Master". (SW1 on remote control PCB)</td> </tr> <tr> <td> Do more than one indoor units have the same address? YES → NO ↓ </td> <td>Change address. (SW2 on indoor unit control PCB)</td> </tr> <tr> <td> Is it set to a slave indoor unit. SW5-1, 2? YES → NO ↓ </td> <td>Change to master. (SW5-1, 2 on indoor unit control PCB)</td> </tr> <tr> <td> Is there loose or wrong connection at the terminal of wiring between indoor and outdoor units? YES → NO ↓ </td> <td>Correct.</td> </tr> <tr> <td> Is the grounding wire connected properly? YES ↓ NO → </td> <td>Correct.</td> </tr> <tr> <td> Is approx. DC20V detected between ②-③ on the outdoor unit terminal block? YES ↓ NO → </td> <td>Defective outdoor unit PCB → Replace.</td> </tr> <tr> <td> Is approx. DC20V detected between ②-③ on the indoor unit terminal block? YES ↓ NO → </td> <td>Broken connecting wire → Correct. Defective indoor unit control or power PCB → Replace.</td> </tr> </tbody> </table> | Diagnosis | Countermeasure | Are more than 3 units of remote control connected? YES → NO ↓ | Reduce to 2 units or less. | Does remote control display "Slave"? YES → NO ↓ | Change remote control setting to "Master". (SW1 on remote control PCB) | Do more than one indoor units have the same address? YES → NO ↓ | Change address. (SW2 on indoor unit control PCB) | Is it set to a slave indoor unit. SW5-1, 2? YES → NO ↓ | Change to master. (SW5-1, 2 on indoor unit control PCB) | Is there loose or wrong connection at the terminal of wiring between indoor and outdoor units? YES → NO ↓ | Correct. | Is the grounding wire connected properly? YES ↓ NO → | Correct. | Is approx. DC20V detected between ②-③ on the outdoor unit terminal block? YES ↓ NO → | Defective outdoor unit PCB → Replace. | Is approx. DC20V detected between ②-③ on the indoor unit terminal block? YES ↓ NO → | Broken connecting wire → Correct. Defective indoor unit control or power PCB → Replace. |
| Diagnosis | Countermeasure | | | | | | | | | | | | | | | | | |
| Are more than 3 units of remote control connected? YES → NO ↓ | Reduce to 2 units or less. | | | | | | | | | | | | | | | | | |
| Does remote control display "Slave"? YES → NO ↓ | Change remote control setting to "Master". (SW1 on remote control PCB) | | | | | | | | | | | | | | | | | |
| Do more than one indoor units have the same address? YES → NO ↓ | Change address. (SW2 on indoor unit control PCB) | | | | | | | | | | | | | | | | | |
| Is it set to a slave indoor unit. SW5-1, 2? YES → NO ↓ | Change to master. (SW5-1, 2 on indoor unit control PCB) | | | | | | | | | | | | | | | | | |
| Is there loose or wrong connection at the terminal of wiring between indoor and outdoor units? YES → NO ↓ | Correct. | | | | | | | | | | | | | | | | | |
| Is the grounding wire connected properly? YES ↓ NO → | Correct. | | | | | | | | | | | | | | | | | |
| Is approx. DC20V detected between ②-③ on the outdoor unit terminal block? YES ↓ NO → | Defective outdoor unit PCB → Replace. | | | | | | | | | | | | | | | | | |
| Is approx. DC20V detected between ②-③ on the indoor unit terminal block? YES ↓ NO → | Broken connecting wire → Correct. Defective indoor unit control or power PCB → Replace. | | | | | | | | | | | | | | | | | |

Note: If any error is detected 30 minutes after displaying "WAIT" on the remote control, the display changes to "INSPECT I/U".

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|--------------------------------------|--------|----------------|-----------|--|
| Error code Remote control: 🏠WAIT🏠 | LED | Green | Red | Content Communication error at initial operation (1/3) |
| | Indoor | Keeps flashing | Stays OFF | |

1.Applicable model

All models

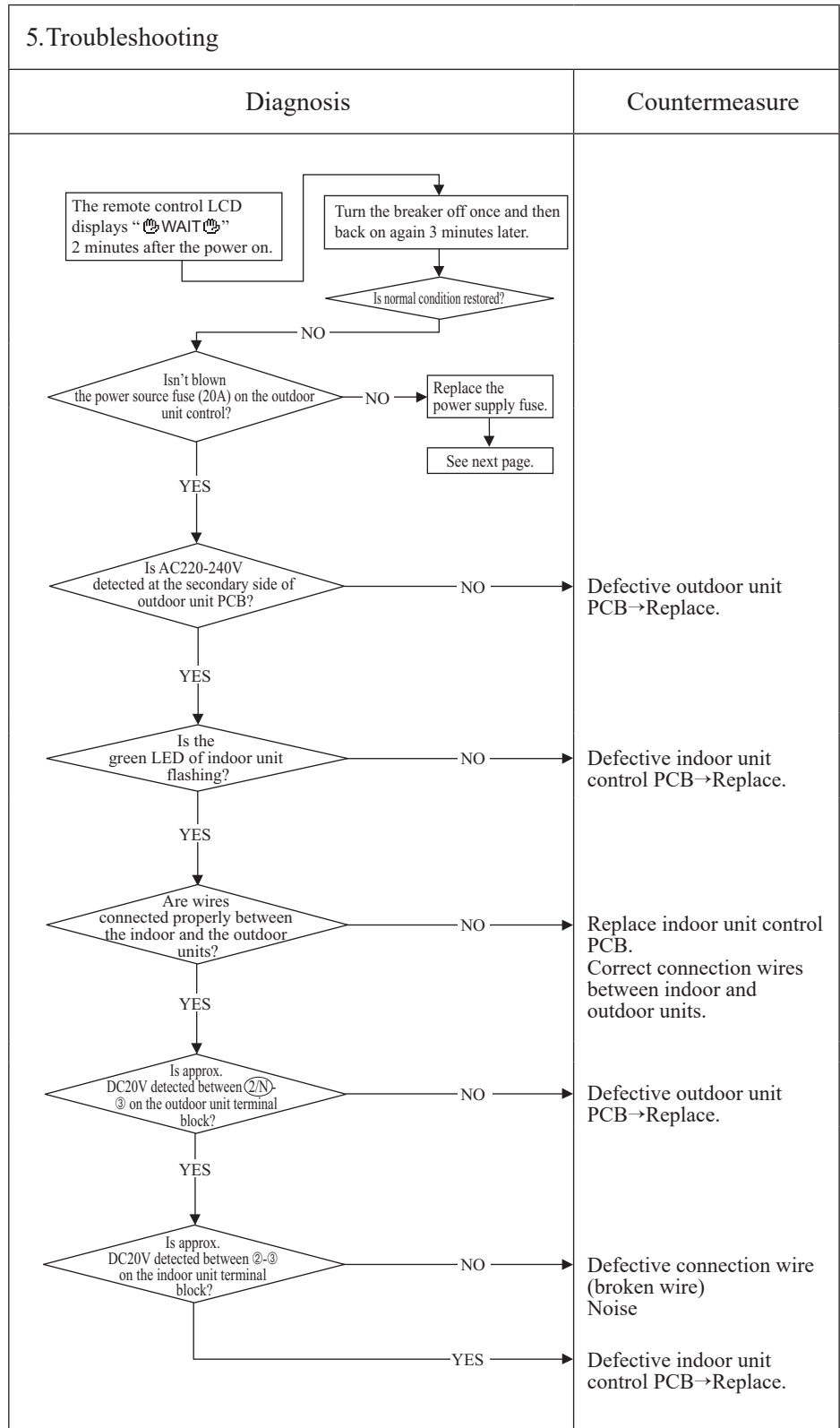
When the remote control LCD displays “🏠WAIT🏠” 2 minutes after the power on.

2.Error detection method

3.Condition of Error displayed

4.Presumable cause

- Blown fuse
- Faulty outdoor unit PCB
- Connection between PCB's
- Faulty indoor unit control PCB
- Defective remote control
- Broken remote control wire



Note: If any anomaly is detected during communication, the error code E5 is displayed. Inspection procedure is same as above. (Excluding matters related to connection) When the power source is reset after the occurrence of E5, the LED will display “🏠WAIT🏠” if the anomaly continues. If the breaker ON/OFF is repeated in a short period of time (within 1 minute), “🏠WAIT🏠” may be displayed. In such occasion, turn the breaker off and wait for 3 minutes.

| | | | | |
|--|--------|----------------|-----------|--|
| Error code Remote control: 🏠 WAIT 🏠 | LED | Green | Red | Content Communication error at initial operation (2/3) |
| | Indoor | Keeps flashing | Stays OFF | |

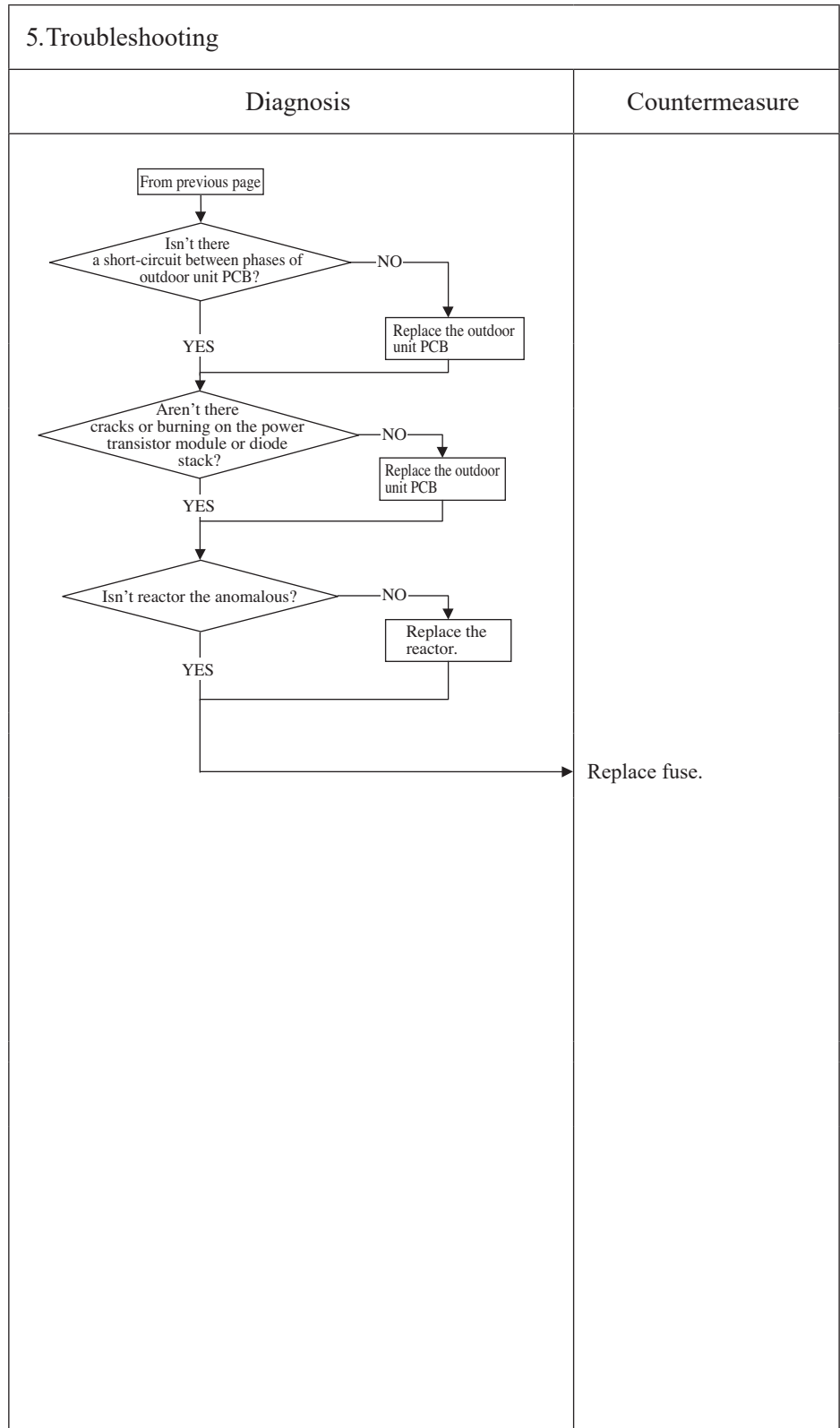
1. Applicable model
All models
When the fuse is blown, the method to inspect outdoor unit PCB before replacing the power source fuse

2. Error detection method

3. Condition of Error displayed

4. Presumable cause

- Blown fuse
- Faulty outdoor unit PCB
- Faulty reactor



Note:

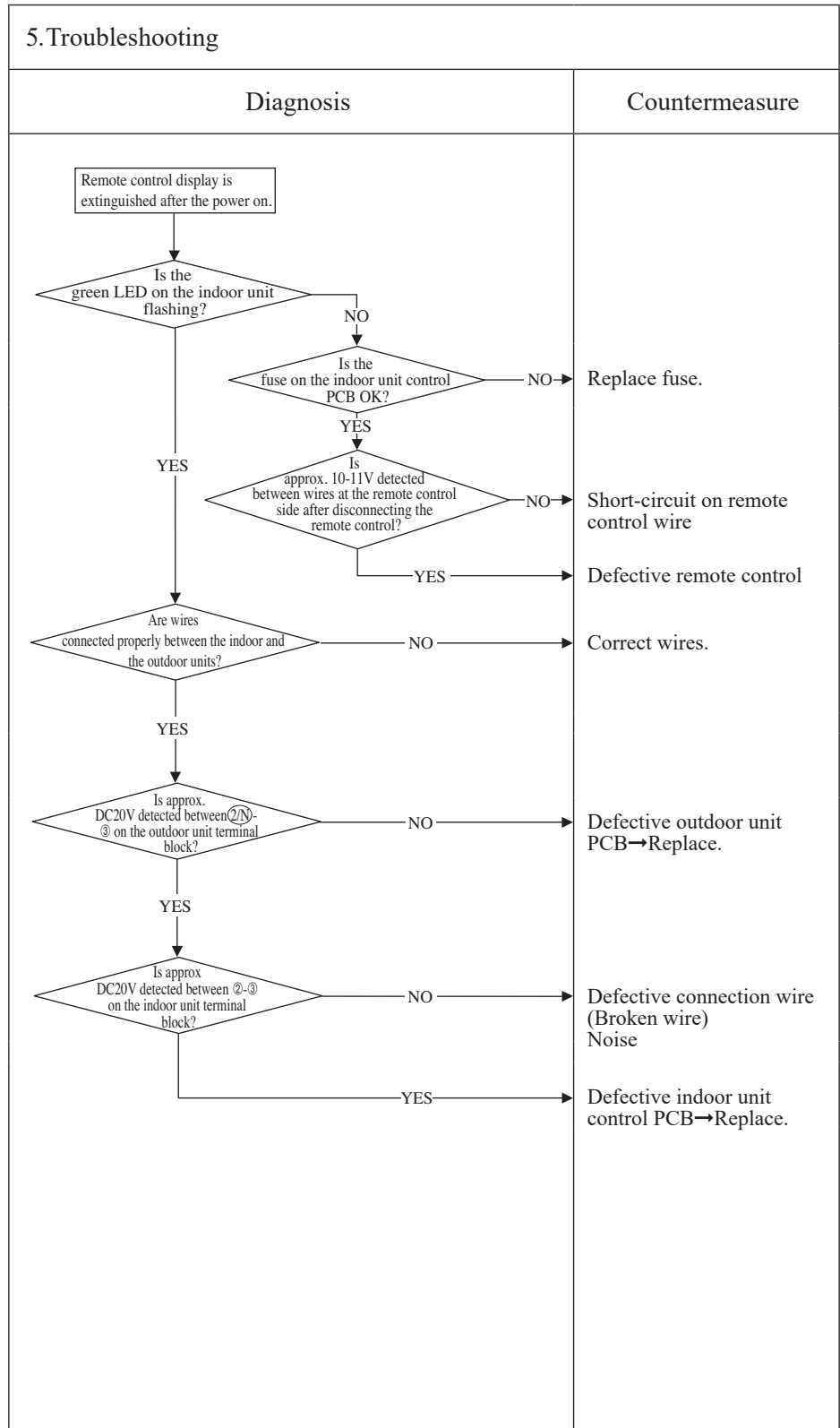
| | | | | |
|--|--------|----------------|-----------|--|
| Error code Remote control: 🖱️ WAIT 🖱️ | LED | Green | Red | Content Communication error at initial operation (3/3) |
| | Indoor | Keeps flashing | Stays OFF | |

1.Applicable model
All models
When the remote control display is extinguished after the power on.

2.Error detection method

3.Condition of Error displayed

- 4.Presumable cause**
- Blown fuse
 - Connection between PCB's
 - Blown fuse
 - Faulty indoor unit control PCB
 - Defective remote control
 - Wire breakage on remote control
 - Faulty outdoor unit PCB



Note:

| | | | | |
|----------------------------------|--------|----------------|-----------|---------|
| Error code Remote control: E1 | LED | Green | Red | Content |
| | Indoor | Keeps flashing | Stays OFF | |

Remote control communication circuit error

| |
|---|
| 1. Applicable model |
| All models |
| 2. Error detection method |
| When normal communication between the remote control and the indoor unit is interrupted for more than 2 minutes. (Detectable only with the remote control) |
| 3. Condition of Error displayed |
| Same as above |
| 4. Presumable cause |
| <ul style="list-style-type: none"> • Defective communication circuit between remote control-indoor unit • Noise • Defective remote control • Faulty indoor unit control PCB |

| | |
|--|-----------------------|
| 5. Troubleshooting | |
| Diagnosis | Countermeasure |
| <pre> graph TD A{Is it possible to reset normally by the power reset?} -- YES --> B[Malfunction by noise Check peripheral environment.] A -- NO --> C[Turn SW7-1 to OFF. → ON Remove the wire ③ connecting between indoor/outdoor units.] C --> D[Power source reset] D --> E{Does the drain pump restart automatically 1 minute later?} E --- F[Note (1) Only indoor unit with drain pump] E -- YES --> G[Defective indoor unit control PCB → Replace.] E -- NO --> H[Connect the wire ③ connecting between indoor / outdoor units.] H --> I[Move to E5. (Communication error during operation) check.] </pre> | |

Note: If the indoor unit cannot communicate normally with the remote control for 180 seconds, the indoor unit PCB starts to reset automatically.

| | | | | |
|----------------------------------|--------|----------------|--------------|--|
| Error code Remote control: E5 | LED | Green | Red | Content Communication error during operation |
| | Indoor | Keeps flashing | 2-time flash | |

| |
|---------------------------|
| 1.Applicable model |
| All models |

| |
|---|
| 2.Error detection method |
| When normal communication between indoor and outdoor unit is interrupted for more than 2 minutes. |

| |
|---|
| 3.Condition of Error displayed |
| Same as above is detected during operation. |

| |
|--|
| 4.Presumable cause |
| <ul style="list-style-type: none"> • Unit No. setting error • Broken remote control wire • Faulty remote control wire connection • Faulty outdoor unit PCB |

| | |
|---|-----------------------|
| 5.Troubleshooting | |
| Diagnosis | Countermeasure |
| <p style="text-align: center;">Note (1) Inspect faulty connections (disconnection, looseness) on the outdoor unit terminal block.</p> <p style="text-align: center;">Is the connection of signal wires at the outdoor unit side OK?</p> <p style="text-align: center;">NO → Repair signal wires.</p> <p style="text-align: center;">YES</p> <p style="text-align: center;">Note (2) Check for faulty connection or breakage of signal wires between indoor-outdoor units.</p> <p style="text-align: center;">Is the connection of signal wires between indoor-outdoor units OK?</p> <p style="text-align: center;">NO → Repair signal wires.</p> <p style="text-align: center;">YES</p> <p style="text-align: center;">Power source reset</p> <p style="text-align: center;">Has the remote control LCD returned to normal state?</p> <p style="text-align: center;">NO → Defective outdoor unit PCB (Defective network communication circuit) → Replace.</p> <p style="text-align: center;">YES → Unit is normal. (Malfunction by temporary noise, etc.)</p> | |

Note:

| | | | | |
|----------------------------------|--------|----------------|--------------|--|
| Error code Remote control: E6 | LED | Green | Red | Content Indoor heat exchanger temperature sensor anomaly |
| | Indoor | Keeps flashing | 1-time flash | |

1. Applicable model
All models

2. Error detection method
Anomalously low temperature or high temperature (resistance) is detected on the indoor heat exchanger thermistor (Thi-R1, R2 or R3).

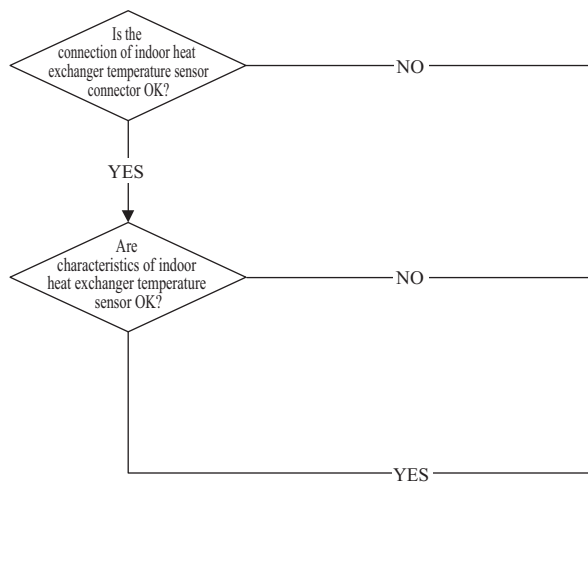
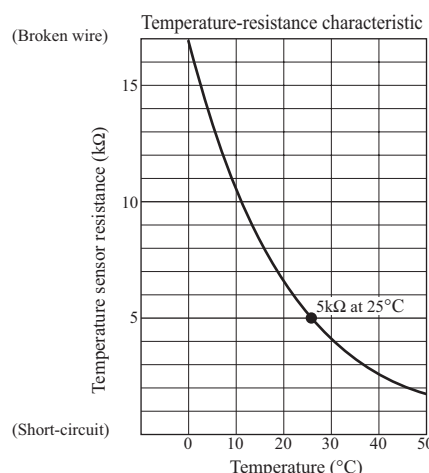
3. Condition of Error displayed

- When the temperature sensor detects -50°C or lower for 5 seconds continuously, the compressor stops. After 3-minutes delay, the compressor starts again automatically, but if this error occurs again within 60 minutes after the initial detection.
- Or if 70°C or higher is detected for 5 seconds continuously.

4. Presumable cause

- Defective indoor heat exchanger sensor connector
- Indoor heat exchanger temperature sensor anomaly
- Faulty indoor unit control PCB

5. Troubleshooting

| Diagnosis | Countermeasure |
|---|----------------|
|  <pre> graph TD Q1{Is the connection of indoor heat exchanger temperature sensor connector OK?} Q2{Are characteristics of indoor heat exchanger temperature sensor OK?} Q1 -- NO --> C1[Correct. -> Insert connector securely.] Q1 -- YES --> Q2 Q2 -- NO --> C2[Defective indoor heat exchanger temperature sensor -> Replace.] Q2 -- YES --> C3[Defective indoor unit control PCB -> Replace. (Defective indoor unit heat exchanger temperature sensor input circuit)] </pre> | |
| <p>(Broken wire)</p>  <p>(Short-circuit)</p> | |

Note:

| | | | | |
|----------------------------------|--------|----------------|--------------|---|
| Error code Remote control: E7 | LED | Green | Red | Content Return air temperature sensor anomaly |
| | Indoor | Keeps flashing | 1-time flash | |

1. Applicable model
All models

2. Error detection method
Anomalously low temperature or high temperature (resistance) is detected by indoor return air temperature sensor (Thi-A)

3. Condition of Error displayed

- When the temperature sensor detects -50°C or lower for 5 seconds continuously, the compressor stops. After 3-minute delay, the compressor starts again automatically, but if this error occurs again within 60 minutes after the initial detection.
- Or if 48°C or higher is detected for 5 seconds continuously.

4. Presumable cause

- Defective return air temperature sensor connector
- Defective return air temperature sensor
- Faulty indoor unit control PCB

5. Troubleshooting

| Diagnosis | Countermeasure |
|---|--|
| <p>Is the connection of return air temperature sensor connector OK?</p> <p>NO →</p> <p>YES →</p> <p>Are the characteristics of return air temperature sensor OK?</p> <p>NO →</p> <p>YES →</p> | <p>Correct. → Connect connector.</p> <p>Defective return air temperature sensor → Replace.</p> <p>Defective indoor unit control PCB → Replace. (Defective return air temperature sensor input circuit)</p> |

Temperature-resistance characteristic

| Temperature (°C) | Temperature sensor resistance (kΩ) |
|------------------|------------------------------------|
| 0 | 15 |
| 10 | 10 |
| 20 | 6 |
| 25 | 5 |
| 30 | 4 |
| 40 | 3 |
| 50 | 2 |

Note:

| | | | | |
|----------------------------------|--------|----------------|--------------|--|
| Error code Remote control: E8 | LED | Green | Red | Content Heating overload operation |
| | Indoor | Keeps flashing | 1-time flash | |

| |
|--|
| 1. Applicable model |
| All models |
| 2. Error detection method |
| Indoor heat exchanger temperature sensor (Thi-R1, R2, R3) |
| 3. Condition of Error displayed |
| When it is detected 5 times within 60 minutes from initial detection or when the overload condition is detected for 6 minutes continuously. |
| 4. Presumable cause |
| <ul style="list-style-type: none"> • Clogged air filter • Defective indoor heat exchanger temperature sensor connector • Defective indoor heat exchanger temperature sensor • Anomalous refrigerant system |

| | |
|--|-----------------------|
| 5. Troubleshooting | |
| Diagnosis | Countermeasure |
| <pre> graph TD Q1{Is the air filter clogged?} -- YES --> C1[Wash.] Q1 -- NO --> Q2{Is the indoor heat exchanger temperature sensor connection OK?} Q2 -- YES --> Q3{Are the characteristics of indoor heat exchanger temperature sensor OK?} Q2 -- NO --> C2[Defective indoor heat exchanger temperature sensor connector -> Correct.] Q3 -- YES --> R1[Check the error data with the remote control.] Q3 -- NO --> C3[Defective indoor heat exchanger temperature sensor.] R1 --> Q4{Is the unit operating in the state of heating overload?} Q4 -- YES --> C4[Adjust] Q4 -- NO --> C5[Check refrigerant system.] </pre> <p>Note (1) Judge if it is in the state of overload or not as follows. ▲ Is there any short-circuit of air? ▲ Isn't there any fouling or clogging on the indoor heat exchanger? ▲ Is the outdoor fan control normal? ▲ Isn't the indoor and outdoor air temperature too high?</p> <p>Note (2) For characteristics of indoor heat exchanger temperature sensor, see the error display E6.</p> <p style="text-align: center;">Indoor heat exchanger temperature (°C)</p> | |

Note: During heating operation; After starting compressor, compressor rotation speed is decreased by detecting indoor heat exchanger temperature (Thi-R) in order to control high pressure.

| | | | | |
|----------------------------------|--------|----------------|--------------|---|
| Error code Remote control: E9 | LED | Green | Red | Content Drain trouble (FDT, FDU, FDUM series) |
| | Indoor | Keeps flashing | 1-time flash | |

| |
|---|
| 1.Applicable model |
| FDT, FDU, FDUM series only |
| 2.Error detection method |
| Float switch is activated |
| 3.Condition of Error displayed |
| If the float switch OPEN is detected for 3 seconds continuously or if float switch connector or wire is disconnected. |
| 4.Presumable cause |
| <ul style="list-style-type: none"> • Defective indoor unit control or power PCB • Float switch setting error • Humidifier drain pump motor interlock setting error • Optional equipment setting error • Drain piping error • Defective drain pump motor • Disconnection of drain pump motor wiring |

| | |
|---|-----------------------|
| 5.Troubleshooting | |
| Diagnosis | Countermeasure |
| <pre> graph TD Start[Check the error data in the remote control.] --> Q1{Is there any overflow?} Q1 -- NO --> Q2{Is DC 12V at CNI connector.} Q2 -- YES --> C1[Check float switch.] Q2 -- NO --> Q3{Is the CNI connected firmly?} Q3 -- NO --> C2[Defective indoor unit control PCB → Replace.] Q3 -- YES --> Q4{Is there any anomaly on the optional equipment?} Q4 -- NO --> C3[Defective indoor unit control PCB → Replace.] Q4 -- YES --> C4[Check option equipment.] Q1 -- YES --> Q5{Is the humidifier connected?} Q5 -- YES --> Q6{Is the humidifier drain pump motor interlocked by the indoor unit function setting of remote control?} Q6 -- YES --> C5[Correct setting to "Humidifier drain pump motor interlock".] Q6 -- NO --> C6[Correct setting to "Humidifier drain pump motor interlock".] Q5 -- NO --> C6 Q6 -- YES --> Start2[Drain pump motor ON from the remote control] Start2 --> Q7{Does drain pump motor operate?} Q7 -- NO --> Q8{Is DC12V detected at CNR connector?} Q8 -- YES --> C7[Check wiring of drain pump motor.] Q8 -- NO --> C8[Defective indoor unit control PCB → Replace.] Q7 -- YES --> Q9{Is the drain piping unclogged? Is the drain pipe slop OK?} Q9 -- NO --> C9[Correct.] Q9 -- YES --> C10[Check drain pump motor.] </pre> | |

Note: When this error occurred at power ON, disconnection of wire or connector of the float switch is suspected. Check and correct it (or replace it, if necessary).

| | | | | |
|-----------------------------------|--------|----------------|-----------|---|
| Error code Remote control: E10 | LED | Green | Red | Content Excessive number of connected indoor units (more than 17 units) by controlling with one remote control |
| | Indoor | Keeps flashing | Stays OFF | |

| | | |
|--|---|-----------------------|
| 1.Applicable model | 5.Troubleshooting | |
| All models | | |
| 2.Error detection method | Diagnosis | Countermeasure |
| When it detects more than 17 of indoor units connected to one remote control | <pre> graph LR A{Aren't more than 17 indoor units connected to one remote control?} -- NO --> B[Defective remote control -> Replace.] A -- YES --> C[Reduce to 16 or less units.] </pre> | |
| 3.Condition of Error displayed | | |
| Same as above | | |
| 4.Presumable cause | | |
| <ul style="list-style-type: none"> • Excessive number of indoor units connected • Defective remote control | | |

Note:

| | | | | |
|-----------------------------------|--------|----------------|----------------|---|
| Error code Remote control: E11 | LED | Green | Red | Content Address setting error of indoor units |
| | Indoor | Keeps flashing | Keeps flashing | |

| | | | |
|---|---|-----------------------|---|
| 1. Applicable model | 5. Troubleshooting | | |
| All models | Diagnosis | Countermeasure | |
| 2. Error detection method | <pre> graph TD A[E11 occurs] --> B{Is "Master IU address set" function of remote control used?} B -- YES --> C[Countermeasure] </pre> | | <ul style="list-style-type: none"> • In cases of RC-EX3A Menu → Service setting → IU settings → Select IU • In cases of RC-E5 Return address No. to "IU ..." using [▲] or [▼] button. |
| IU address has been set using the "Master IU address set" function of remote control. | <p>In case the wiring is below and "Master IU address set" is used, E11 is appeared.</p> | | |
| 3. Condition of Error displayed | Same as above | | |
| 4. Presumable cause | Same as above | | |

Note:

| | | | | |
|-----------------------------------|--------|----------------|--------------|---|
| Error code Remote control: E14 | LED | Green | Red | Content Communication error between master and slave indoor units |
| | Indoor | Keeps flashing | 3-time flash | |

| |
|---------------------------|
| 1.Applicable model |
| All models |

| |
|---|
| 2.Error detection method |
| When communication error between master and slave indoor units occurs |

| |
|---------------------------------------|
| 3.Condition of Error displayed |
| Same as above |

| |
|---|
| 4.Presumable cause |
| <ul style="list-style-type: none"> • Unit address setting error • Broken remote control wire • Defective remote control wire connection • Defective indoor unit control PCB |

| 5.Troubleshooting | | | | | | | | | | | | | | | | | | |
|---|--|--------|---------|-------------|--|--|--------|---------|---------|------------|-------|-----|-----|----|-------|-----|----|-----|
| Diagnosis | Countermeasure | | | | | | | | | | | | | | | | | |
| <pre> graph TD D1{Is it OK the unit address setting for master and slave indoor units?} -- NO --> C1[Correct unit address setting.] D1 -- YES --> D2{Isn't the remote control wiring between indoor units defective?} D2 -- YES --> C2[Correct wiring.] D2 -- NO --> D3{Is it restored by resetting the power source?} D3 -- NO --> C3[Defective indoor unit control PCB -> Replace.] D3 -- YES --> C4["• Malfunction by noise • Check surrounding environment."] </pre> | <p>Defective indoor unit control PCB → Replace.</p> <ul style="list-style-type: none"> • Malfunction by noise • Check surrounding environment. | | | | | | | | | | | | | | | | | |
| <p>Note (1) Set dip switches SW5-1 and SW5-2 as shown in the following table. (Factory default setting – “Master”)</p> <table border="1"> <thead> <tr> <th colspan="2" rowspan="2"></th> <th colspan="3">Indoor unit</th> </tr> <tr> <th>Master</th> <th>Slave-a</th> <th>Slave-b</th> </tr> </thead> <tbody> <tr> <th rowspan="2">DIP switch</th> <th>SW5-1</th> <td>OFF</td> <td>OFF</td> <td>ON</td> </tr> <tr> <th>SW5-2</th> <td>OFF</td> <td>ON</td> <td>OFF</td> </tr> </tbody> </table> | | | | Indoor unit | | | Master | Slave-a | Slave-b | DIP switch | SW5-1 | OFF | OFF | ON | SW5-2 | OFF | ON | OFF |
| | | | | Indoor unit | | | | | | | | | | | | | | |
| | | Master | Slave-a | Slave-b | | | | | | | | | | | | | | |
| DIP switch | SW5-1 | OFF | OFF | ON | | | | | | | | | | | | | | |
| | SW5-2 | OFF | ON | OFF | | | | | | | | | | | | | | |

Note:

| | | | | |
|---------------------|--------|----------------|-----------------|--------------------------|
| Error code | LED | Green | Red | Content |
| Remote control: E16 | Indoor | Keeps flashing | 1(2)-time flash | Indoor fan motor anomaly |

Note(1) Value in () is for the FDU, FDUM series FMi2 only.

| <p>1.Applicable model</p> <p>All models</p> | <p>5.Troubleshooting</p> <table border="1"> <thead> <tr> <th>Diagnosis</th> <th>Countermeasure</th> </tr> </thead> <tbody> <tr> <td> <p>Does any foreign material intervene in rotational area of fan propeller?</p> <p>NO</p> <p>Does the fan rotate smoothly when turned by hand?</p> <p>YES</p> <p>Is DC280V detected between ①-④ of fan motor connector CNM? (1)</p> <p>NO</p> <p>Is the fuse F1, 2 or F3, 4 blown?</p> <p>NO</p> <p>Power source reset</p> <p>Is it normalized?</p> </td> <td> <p>Remove foreign material.</p> <p>Replace the fan motor.</p> <p>Check power voltage.</p> <p>Replace faulty fan motor and power PCB.</p> <p>Replace fan motor. (If the error persists after replacing the fan motor, replace the indoor unit control PCB.)</p> <p>Malfunction by temporary noise</p> </td> </tr> </tbody> </table> | Diagnosis | Countermeasure | <p>Does any foreign material intervene in rotational area of fan propeller?</p> <p>NO</p> <p>Does the fan rotate smoothly when turned by hand?</p> <p>YES</p> <p>Is DC280V detected between ①-④ of fan motor connector CNM? (1)</p> <p>NO</p> <p>Is the fuse F1, 2 or F3, 4 blown?</p> <p>NO</p> <p>Power source reset</p> <p>Is it normalized?</p> | <p>Remove foreign material.</p> <p>Replace the fan motor.</p> <p>Check power voltage.</p> <p>Replace faulty fan motor and power PCB.</p> <p>Replace fan motor. (If the error persists after replacing the fan motor, replace the indoor unit control PCB.)</p> <p>Malfunction by temporary noise</p> |
|---|---|--|----------------|---|--|
| Diagnosis | | Countermeasure | | | |
| <p>Does any foreign material intervene in rotational area of fan propeller?</p> <p>NO</p> <p>Does the fan rotate smoothly when turned by hand?</p> <p>YES</p> <p>Is DC280V detected between ①-④ of fan motor connector CNM? (1)</p> <p>NO</p> <p>Is the fuse F1, 2 or F3, 4 blown?</p> <p>NO</p> <p>Power source reset</p> <p>Is it normalized?</p> | | <p>Remove foreign material.</p> <p>Replace the fan motor.</p> <p>Check power voltage.</p> <p>Replace faulty fan motor and power PCB.</p> <p>Replace fan motor. (If the error persists after replacing the fan motor, replace the indoor unit control PCB.)</p> <p>Malfunction by temporary noise</p> | | | |
| <p>2.Error detection method</p> <p>Detected by rotation speed of indoor fan motor</p> | | | | | |
| <p>3.Condition of Error displayed</p> <p>When actual rotation speed of indoor fan motor drops to lower than 200min^{-1} for 30 seconds continuously, the compressor and the indoor fan motor stop. After 2-seconds, it starts again automatically, but if this error occurs 4 times within 60 minutes after the initial detection.</p> | | | | | |
| <p>4.Presumable cause</p> <ul style="list-style-type: none"> • Defective indoor unit power PCB • Foreign material at rotational area of fan propeller • Defective fan motor • Dust on control PCB • Blown fuse • External noise, surge | | | | | |

Note:

| | | | | |
|-----------------------------------|--------|----------------|--------------|--|
| Error code Remote control: E18 | LED | Green | Red | Content Address setting error of master and slave indoor units |
| | Indoor | Keeps flashing | 1-time flash | |

| |
|---------------------------|
| 1.Applicable model |
| All models |

| |
|---|
| 2.Error detection method |
| IU address has been set using the “Master IU address set” function of remote control. |

| |
|---------------------------------------|
| 3.Condition of Error displayed |
| Same as above |

| |
|---------------------------|
| 4.Presumable cause |
| Same as above |

| | |
|---|---|
| 5.Troubleshooting | |
| Diagnosis | Countermeasure |
| <pre> graph TD A[E18 occurs] --> B{Is "Master IU address set" function of remote control used?} B -- YES --> C[Countermeasure] </pre> | |
| | <ul style="list-style-type: none"> • In cases of RC-EX3A Menu → Service setting → IU settings → Select IU • In cases of RC-E5 Return address No. to “IU ...” using [▲] or [▼] button. |

Note:

| | | | | |
|-----------------------------------|--------|----------------|--------------|---|
| Error code Remote control: E19 | LED | Green | Red | Content Indoor unit operation check, drain pump motor check setting error |
| | Indoor | Keeps flashing | 1-time flash | |

1.Applicable model
All models

2.Error detection method
After indoor operation check, when the communication between indoor and outdoor unit is established and SW7-1 is still kept ON.

3.Condition of Error displayed
Same as above

4.Presumable cause
Mistake in SW7-1 setting (Due to forgetting to turn OFF SW7-1 after indoor operation check)

5.Troubleshooting

| Diagnosis | Countermeasure |
|---|---|
| <pre> graph TD Start[E19 occurs when the power ON] --> Decision{Is SW7-1 on the indoor unit control PCB ON?} Decision -- YES --> CM1[Turn SW7-1 on the indoor unit control PCB OFF and reset the power.] Decision -- NO --> CM2[Defective indoor unit control PCB (Defective SW7) -> Replace.] </pre> | <p>Defective indoor unit control PCB (Defective SW7)→Replace.</p> <p>Turn SW7-1 on the indoor unit control PCB OFF and reset the power.</p> |

Note:

| | | | | |
|-----------------------------------|--------|----------------|-----------------|---|
| Error code Remote control: E20 | LED | Green | Red | Content Indoor fan motor rotation speed anomaly |
| | Indoor | Keeps flashing | 1(2)-time flash | |

Note(1) Value in () is for the FDU, FDUM series FMi2 only.

| | | | |
|---|--|-----------------------|--|
| 1.Applicable model | 5.Troubleshooting | | |
| All models | Diagnosis | Countermeasure | |
| 2.Error detection method | <pre> graph TD Q1{Does any foreign material intervene in rotational area of fan propeller?} -- YES --> C1[Remove foreign material.] Q1 -- NO --> Q2{Does the fan rotate smoothly when turned by hand?} Q2 -- NO --> C2[Replace the fan motor.] Q2 -- YES --> Q3{Is DC280V detected between ①-④ of fan motor connector CNM?} Q3 -- YES --> R1[Power source reset] R1 --> Q4{Is it normalized?} Q4 -- YES --> C3[Malfunction by temporary noise] Q4 -- NO --> Q5{Is the fuse F1, 2 or F3, 4 blown?} Q5 -- YES --> C4[Replace faulty fan motor and power PCB.] Q5 -- NO --> C5[Check power voltage.] </pre> | | |
| Detected by rotation speed of indoor fan motor | | | |
| 3.Condition of Error displayed | | | |
| When the actual fan rotation speed does not reach to the speed of [required speed -50 (FDU:-500) min ⁻¹] after 2 minutes have been elapsed since the fan motor rotation speed command was output, the unit stops by detecting indoor fan motor anomaly. | | | |
| 4.Presumable cause | <ul style="list-style-type: none"> • Defective indoor unit power PCB • Foreign material at rotational area of fan propeller • Defective fan motor • Dust on indoor unit control PCB • Blown fuse • External noise, surge | | |

Note:

| | | | | |
|-----------------------------------|--------|----------------|-----------|---|
| Error code Remote control: E28 | LED | Green | Red | Content Remote control temperature sensor anomaly |
| | Indoor | Keeps flashing | Stays OFF | |

1. Applicable model
All models

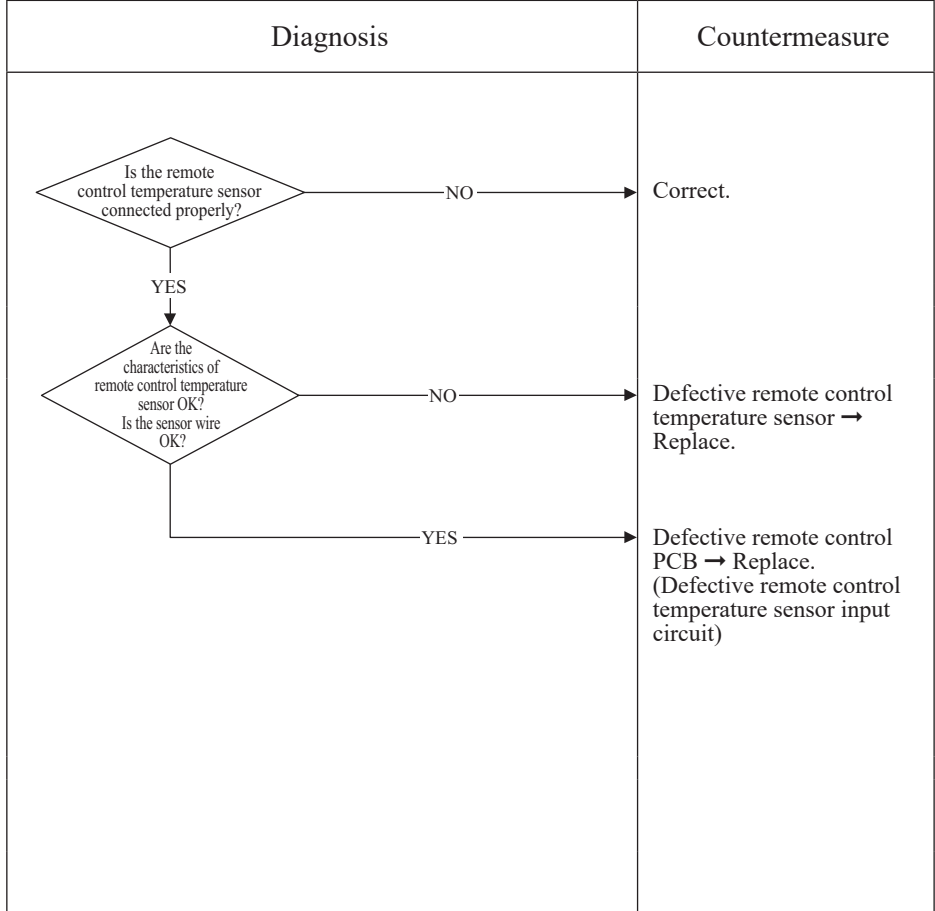
2. Error detection method
Detection of anomalously low temperature (resistance) of remote control temperature sensor (Thc)

3. Condition of Error displayed
When the temperature sensor detects -50°C or lower for 5 seconds continuously, the compressor stops. After 3-minute delay, the compressor starts again automatically, but if this error occurs again within 60 minutes after the initial detection.

4. Presumable cause

- Faulty connection of remote control temperature sensor
- Defective remote control temperature sensor
- Defective remote control PCB

5. Troubleshooting



Resistance-temperature characteristics of remote control temperature sensor (Thc)

| Temperature (°C) | Resistance value (kΩ) | Temperature (°C) | Resistance value (kΩ) |
|------------------|-----------------------|------------------|-----------------------|
| 0 | 65 | 30 | 16 |
| 1 | 62 | 32 | 15 |
| 2 | 59 | 34 | 14 |
| 4 | 53 | 36 | 13 |
| 6 | 48 | 38 | 12 |
| 8 | 44 | 40 | 11 |
| 10 | 40 | 42 | 9.9 |
| 12 | 36 | 44 | 9.2 |
| 14 | 33 | 46 | 8.5 |
| 16 | 30 | 48 | 7.8 |
| 18 | 27 | 50 | 7.3 |
| 20 | 25 | 52 | 6.7 |
| 22 | 23 | 54 | 6.3 |
| 24 | 21 | 56 | 5.8 |
| 26 | 19 | 58 | 5.4 |
| 28 | 18 | 60 | 5.0 |

Note: After 10 seconds has passed since remote control sensor was switched from valid to invalid, E28 will not be displayed even if the sensor harness is disconnected. At same time the temperature sensor, which is effective, is switched from remote control sensor to indoor return air temperature sensor. Even though the remote control sensor is set to be Effective, the return air temperature displayed on remote control for checking still shows the value detected by indoor return air temperature sensor, not by remote control temperature sensor.

| | | | | |
|-----------------------------------|--------|----------------|-----------|--|
| Error code Remote control: E35 | LED | Green | Red | Content Cooling overload operation |
| | Indoor | Keeps flashing | Stays OFF | |

| |
|---------------------------|
| 1.Applicable model |
| All models |

| |
|--|
| 2.Error detection method |
| <p>Outdoor heat exchanger temperature (°C)</p> <p>Note (1) Values in () are applicable when outdoor temperature (TH2) is lower than 32 °C</p> |

| |
|---|
| 3.Condition of Error displayed |
| When anomalous outdoor heat exchanger temperature occurs 5 times within 60 minutes or 60(56)°C or higher continues for 10 minutes, including the compressor stop. |

| |
|---|
| 4.Presumable cause |
| <ul style="list-style-type: none"> • Defective outdoor heat exchanger temperature sensor • Defective outdoor unit PCB • Indoor, outdoor unit installation spaces • Short-circuit of air on indoor, outdoor units • Fouling, clogging of heat exchanger • Excessive refrigerant quantity |

| | |
|---|--|
| 5.Troubleshooting | |
| Diagnosis | Countermeasure |
| <p style="text-align: right;">* For the characteristics of outdoor heat exchanger temperature sensor, refer to E37.</p> <p style="text-align: center;">* For the contents of control, refer to the protective control by controlling compressor rotation speed and cooling high pressure protective control of microcomputer control function for corresponding models.</p> | <p>Replace outdoor heat exchanger temperature sensor.</p> <p>Check unit side.</p> <ul style="list-style-type: none"> • Isn't the air circulation of outdoor unit short-circuited? • Are installation spaces adequate? • Isn't there any fouling or clogging on heat exchanger? <p>Control operation check*</p> <p>Defective outdoor unit PCB→Replace.</p> <p>Excessive refrigerant amount: Recharge refrigerant by weighing proper amount on a scale.</p> |

Note:

| | | | | |
|-----------------------------------|--------|----------------|-----------|--|
| Error code Remote control: E36 | LED | Green | Red | Content Discharge pipe temperature error |
| | Indoor | Keeps flashing | Stays OFF | |

| |
|---|
| 1. Applicable model |
| All models |
| 2. Error detection method |
| For the error detection method, refer to the protective control by controlling compressor rotation speed and cooling high pressure protective control of micro-computer control function for corresponding models. |
| 3. Condition of Error displayed |
| When discharge pipe temperature anomaly is detected 2 times within 60 minutes is compressor stop. |
| 4. Presumable cause |
| <ul style="list-style-type: none"> • Defective outdoor unit PCB • Defective discharge pipe temperature sensor • Clogged filter • Indoor, outdoor unit installation spaces • Short-circuit of air on indoor, outdoor units • Fouling, clogging of heat exchanger |

| | |
|--|-----------------------|
| 5. Troubleshooting | |
| Diagnosis | Countermeasure |
| <p style="text-align: right;">* For the characteristics of discharge pipe temperature, refer to E39.</p> <pre> graph TD D1{Are the characteristics of discharge pipe temperature sensor normal?} -- NO --> C1[Replace discharge pipe temperature sensor.] D1 -- YES --> D2{Is the discharge pipe temperature error persisted during cooling operation?} D2 -- YES --> C2[Insufficient refrigerant amount : Recharge refrigerant by weighing proper amount on a scale.] D2 -- NO --> D3{Is the discharge pipe temperature control normal?} D3 -- NO --> C3[Control operation check *] D3 -- YES --> D4{Is the temperature (measured actually) at detection of error correct?} D4 -- NO --> C4[Defective outdoor unit PCB → Replace.] D4 -- YES --> C5[Check unit side: • Isn't filter clogged? • Are adequate indoor, outdoor unit installation spaces? • Isn't there any short-circuit of air? • Isn't there any fouling, clogging on indoor heat exchanger?] </pre> <p>* For the contents of control, refer to the protective control by controlling compressor rotation speed and cooling high pressure protective control of microcomputer control function for corresponding models.</p> | |

Note:

| | | | | |
|-----------------------------------|--------|----------------|-----------|---|
| Error code Remote control: E37 | LED | Green | Red | Content Outdoor heat exchanger temperature sensor anomaly |
| | Indoor | Keeps flashing | Stays OFF | |

1. Applicable model
All models

2. Error detection method
Detection of anomalously low temperature (resistance) on the outdoor heat exchanger temperature sensor

3. Condition of Error displayed

- When the temperature sensor detects -55 °C or lower for 20 seconds continuously within 2 minutes to 2 minutes 20 seconds after the compressor ON, the compressor stops. After 3-minutes delay, the compressor starts again automatically, but if this anomalous temperature is detected 3 times within 40 minutes.
- When -55 °C or lower is detected for 5 seconds continuously within 20 seconds after power ON.

4. Presumable cause

- Defective outdoor unit PCB
- Broken sensor harness or temperature sensing section
- Disconnected wire connection (connector)

5. Troubleshooting

| Diagnosis | Countermeasure | | | | | | | | | | | | | | | | |
|--|------------------------------------|------------------------------------|---|-----|----|-----|----|----|----|---|----|----|----|----|----|----|--|
| <pre> graph TD Q1{Is the outdoor heat exchanger temperature sensor connector connected properly?} Q2{Are the characteristics of outdoor heat exchanger temperature sensor OK?} C1[Correct connector.] C2[Defective outdoor heat exchanger temperature sensor -> Replace.] C3[Defective outdoor unit PCB -> Replace. (Defective outdoor heat exchanger temperature sensor input circuit)] Q1 -- NO --> C1 Q1 -- YES --> Q2 Q2 -- NO --> C2 Q2 -- YES --> C3 </pre> | | | | | | | | | | | | | | | | | |
| <p>Temperature-resistance characteristics</p> <table border="1"> <caption>Temperature-resistance characteristics</caption> <thead> <tr> <th>Temperature (°C)</th> <th>Temperature sensor resistance (kΩ)</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>~16</td> </tr> <tr> <td>10</td> <td>~10</td> </tr> <tr> <td>20</td> <td>~6</td> </tr> <tr> <td>25</td> <td>5</td> </tr> <tr> <td>30</td> <td>~4</td> </tr> <tr> <td>40</td> <td>~3</td> </tr> <tr> <td>50</td> <td>~2</td> </tr> </tbody> </table> | Temperature (°C) | Temperature sensor resistance (kΩ) | 0 | ~16 | 10 | ~10 | 20 | ~6 | 25 | 5 | 30 | ~4 | 40 | ~3 | 50 | ~2 | |
| Temperature (°C) | Temperature sensor resistance (kΩ) | | | | | | | | | | | | | | | | |
| 0 | ~16 | | | | | | | | | | | | | | | | |
| 10 | ~10 | | | | | | | | | | | | | | | | |
| 20 | ~6 | | | | | | | | | | | | | | | | |
| 25 | 5 | | | | | | | | | | | | | | | | |
| 30 | ~4 | | | | | | | | | | | | | | | | |
| 40 | ~3 | | | | | | | | | | | | | | | | |
| 50 | ~2 | | | | | | | | | | | | | | | | |

Note:

| | | | | |
|-----------------------------------|--------|----------------|-----------|--|
| Error code Remote control: E38 | LED | Green | Red | Content Outdoor air temperature sensor anomaly |
| | Indoor | Keeps flashing | Stays OFF | |

| |
|---|
| 1.Applicable model |
| All models |
| 2.Error detection method |
| Detection of anomalously low temperature (resistance) on outdoor air temperature sensor |
| 3.Condition of Error displayed |
| <ul style="list-style-type: none"> When the temperature sensor detects -55 °C or lower for 5 seconds continuously within 2 minutes to 2 minutes 20 seconds after the compressor ON, the compressor stops. After 3-minutes delay, the compressor starts again automatically, but if this anomalous temperature is detected 3 times within 40 minutes. When -55 °C or lower is detected for 5 seconds continuously within 20 seconds safter power ON. |
| 4.Presumable cause |
| <ul style="list-style-type: none"> Defective outdoor unit PCB Broken sensor harness or temperature sensing section (Check molding.) Disconnected wire connection (connector) |

| | |
|--|-----------------------|
| 5.Troubleshooting | |
| Diagnosis | Countermeasure |
| | |
| <p style="text-align: center;">Temperature-resistance characteristics</p> | |

Note:

| | | | | |
|-----------------------------------|--------|----------------|-----------|---|
| Error code Remote control: E39 | LED | Green | Red | Content Discharge pipe temperature sensor anomaly |
| | Indoor | Keeps flashing | Stays OFF | |

1.Applicable model
All models

2.Error detection method
Detection of anomalously low temperature (resistance) on the discharge pipe temperature sensor

3.Condition of Error displayed
When the temperature sensor detects -25 °C or lower for 5 seconds continuously within 10 minutes to 10 minutes 20 seconds after the compressor ON, the compressor stops. After 3-minute delay, the compressor starts again automatically, but if this anomalous temperature is detected 3 times within 40 minutes.

- 4.Presumable cause**
- Defective outdoor unit PCB
 - Broken sensor harness or temperature sensing section (Check molding.)
 - Disconnected wire connection (connector)

5.Troubleshooting

| Diagnosis | Countermeasure | | | | | | | | | | | | | | | | | | |
|---|------------------------------------|------------------------------------|---|-----|----|----|----|----|----|----|----|---|-----|---|-----|---|-----|-----|--|
| <pre> graph TD Q1{Is the discharge pipe temperature sensor connector connected properly?} Q2{Are the characteristics of discharge pipe temperature sensor OK?} C1[Correct connector.] C2[Defective discharge pipe temperature sensor → Replace.] C3[Defective outdoor unit PCB → Replace. (Defective temperature sensor input circuit)] Q1 -- NO --> C1 Q1 -- YES --> Q2 Q2 -- NO --> C2 Q2 -- YES --> C3 </pre> | | | | | | | | | | | | | | | | | | | |
| <p>(Broken wire) Temperature-resistance characteristics</p> <table border="1"> <caption>Temperature-resistance characteristics</caption> <thead> <tr> <th>Temperature (°C)</th> <th>Temperature sensor resistance (kΩ)</th> </tr> </thead> <tbody> <tr><td>0</td><td>100</td></tr> <tr><td>20</td><td>50</td></tr> <tr><td>40</td><td>25</td></tr> <tr><td>60</td><td>10</td></tr> <tr><td>80</td><td>5</td></tr> <tr><td>100</td><td>2</td></tr> <tr><td>120</td><td>1</td></tr> <tr><td>140</td><td>0.5</td></tr> </tbody> </table> | Temperature (°C) | Temperature sensor resistance (kΩ) | 0 | 100 | 20 | 50 | 40 | 25 | 60 | 10 | 80 | 5 | 100 | 2 | 120 | 1 | 140 | 0.5 | |
| Temperature (°C) | Temperature sensor resistance (kΩ) | | | | | | | | | | | | | | | | | | |
| 0 | 100 | | | | | | | | | | | | | | | | | | |
| 20 | 50 | | | | | | | | | | | | | | | | | | |
| 40 | 25 | | | | | | | | | | | | | | | | | | |
| 60 | 10 | | | | | | | | | | | | | | | | | | |
| 80 | 5 | | | | | | | | | | | | | | | | | | |
| 100 | 2 | | | | | | | | | | | | | | | | | | |
| 120 | 1 | | | | | | | | | | | | | | | | | | |
| 140 | 0.5 | | | | | | | | | | | | | | | | | | |

Note:

| | | | | |
|-----------------------------------|--------|----------------|-----------|---|
| Error code Remote control: E40 | LED | Green | Red | Content Service valve (gas side) closing operation |
| | Indoor | Keeps flashing | Stays OFF | |

| |
|---------------------------|
| 1.Applicable model |
| All models |

| |
|---|
| 2. Error detection method |
| If the inverter output current value exceeds the setting value within 80 seconds after the compressor ON in the heating mode, the compressor stops. |

| |
|---|
| 3. Condition of Error displayed |
| <ul style="list-style-type: none"> • If the output current of inveter exceeds the specifications, it makes the compressor stopping. (In heating mode) • After 3-minute delay, the compressor restarts, but if this anomaly occurs 2 times within 20 minutes after the intial detection. |

| |
|--|
| 4. Presumable cause |
| <ul style="list-style-type: none"> • Service valve (gas side) closing • Defective outdoor unit PCB |

| | |
|--|-----------------------|
| 5.Troubleshooting | |
| Diagnosis | Countermeasure |
| <pre> graph TD Q1{Are the service valve (gas side) opened?} -- NO --> C1[Open the service valve.] Q1 -- YES --> Q2{Is the checked result of power transistor module OK?} Q2 -- NO --> C2[Defective outdoor unit PCB -> Replace.] Q2 -- YES --> D1[Is the space for installation of indoor and/or outdoor unit enough? Is there any short-circuit of air on indoor and/or outdoor unit? At heating, does the indoor fan motor run? Is the filter clogged? Is there any liquid flooding? Is there any anomalous sound on the compressor?] D1 --> Q3{After resetting power for several times does it become normal?} Q3 -- NO --> C3[Defective outdoor unit PCB -> Replace.] Q3 -- YES --> C4[Temporary noise may cause of anomaly. If noise source can be found, take countermeasure.] </pre> | |

Note:

| | | | | |
|-----------------------------------|--------|----------------|-----------|-------------------------------------|
| Error code Remote control: E42 | LED | Green | Red | Content Current cut (1/2) |
| | Indoor | Keeps flashing | Stays OFF | |

| |
|---------------------------|
| 1.Applicable model |
| All models |

| |
|--|
| 2.Error detection method |
| In order to prevent from overcurrent of inverter, if the current exceeds the specifications, it makes the compressor stopping. |

| |
|---|
| 3.Condition of Error displayed |
| <ul style="list-style-type: none"> • If the output current of inverter exceeds the specifications, it makes the compressor stopping. |

| |
|--|
| 4.Presumable cause |
| <ul style="list-style-type: none"> • The valves closed • Faulty power source • Insufficient refrigerant amount • Faulty compressor • Faulty power transistor module |

| | |
|---|-----------------------|
| 5.Troubleshooting | |
| Diagnosis | Countermeasure |
| <pre> graph TD D1{Is the power source voltage OK?} -- NO --> C1[Check power source.] D1 -- YES --> D2{Are the service valves opened?} D2 -- NO --> C2[Open the service valves.] D2 -- YES --> D3{Is the high pressure during operation OK?} D3 -- NO --> C3[Check refrigerant amount and refrigerant circuit. *In case of transitional increase of high pressure and/or test run, several times restarting may recover it, because liquid refrigerant (migrated) in the compressor is discharged from the compressor.] D3 -- YES --> D4{Is the checked result of insulation resistance and resistance between terminals (1) of compressor motor OK? (1) 0.724Ω or more at 20°C (Model FDC90, 100)} D4 -- NO --> C4[Replace compressor.] D4 -- YES --> E[To next page.] </pre> | |

Note:

| | | | | |
|-----------------------------------|--------|----------------|-----------|-------------------------------------|
| Error code Remote control: E42 | LED | Green | Red | Content Current cut (2/2) |
| | Indoor | Keeps flashing | Stays OFF | |

| |
|---|
| 1.Applicable model |
| All models |
| 2.Error detection method |
| In order to prevent from overcurrent of inverter, if the current exceeds the specifications, it makes the compressor stopping. |
| 3.Condition of Error displayed |
| • If the output current of inveter exceeds the specifications, it makes the compressor stopping. |
| 4.Presumable cause |
| <ul style="list-style-type: none"> • Defective outdoor unit PCB • Faulty power source • Insufficient refrigerant amount • Faulty compressor • Faulty power transistor module |

| | |
|---|-----------------------|
| 5.Troubleshooting | |
| Diagnosis | Countermeasure |
| <pre> graph TD Start[From previous page] --> D1{Is the checked result of power transistor module OK?} D1 -- NO --> C1[Defective outdoor unit PCB -> Replace.] D1 -- YES --> L1[Is the space for installation of indoor and/or outdoor unit enough? Is there any short circuit of air on indoor and/or outdoor unit? At cooling, does the outdoor fan motor run? Are the service valves fully opened? Is the filter clogged? At heating, does the indoor fan motor run? Are the service valves fully opened? Is the filter clogged? Is there any liquid flooding? Is the superheat within normal range? Is there any anomalous sound on the compressor?] L1 --> D2{After resetting power for several times does it become normal?} D2 -- NO --> C2[Defective outdoor unit PCB -> Replace.] D2 -- YES --> E1[Temporary noise may cause of anomaly. If noise source can be found, take countermeasure.] </pre> | |

Note:

| | | | | |
|-----------------------------------|--------|----------------|-----------|---|
| Error code Remote control: E47 | LED | Green | Red | Content Active filter voltage error |
| | Indoor | Keeps flashing | Stays OFF | |

| |
|---------------------------|
| 1.Applicable model |
| All models |

| |
|---|
| 2.Error detection method |
| Error is displayed if the converter voltage exceeds target voltage (3 times within 20 minutes). Remote control may be set after 3-minute delay. Error is displayed if the converter voltage is lower than 210V (1-time within 5 seconds after power ON) |

| |
|---------------------------------------|
| 3.Condition of Error displayed |
| Same as above |

| |
|--|
| 4.Presumable cause |
| <ul style="list-style-type: none"> • Defective outdoor unit PCB • Dust on outdoor unit PCB • Anomalous power source |

| | |
|---|-----------------------|
| 5.Troubleshooting | |
| Diagnosis | Countermeasure |
| <pre> graph TD A{Is the power source normal?} -- NO --> B[Restore normal condition.] A -- YES --> C{Is voltage within the specified range?} C -- NO --> D[Restore normal condition.] C -- YES --> E{Check soldered surfaces on the outdoor unit PCB for foreign matter like dust, fouling, etc.} E -- NO --> F[Remove foreign matter like dust, fouling, etc.] E -- YES --> G[Defective outdoor unit PCB -> Replace.] </pre> | |

| |
|--------------|
| Note: |
|--------------|

| | | | | |
|-----------------------------------|--------|----------------|-----------|---|
| Error code Remote control: E48 | LED | Green | Red | Content Outdoor fan motor anomaly |
| | Indoor | Keeps flashing | Stays OFF | |

| |
|---------------------------|
| 1.Applicable model |
| All models |

| |
|---|
| 2.Error detection method |
| Detected by rotation speed of outdoor fan motor |

| |
|--|
| 3.Condition of Error displayed |
| When actual rotation speed of outdoor fan motor drops to 75min^{-1} or lower for 30 minutes continuously, the compressor and the outdoor fan motor stop. After 3-minute delay, it starts again automatically, but if this anomaly occurs 3 times within 60 minutes after the initial detection. |

| |
|--|
| 4.Presumable cause |
| <ul style="list-style-type: none"> • Defective outdoor unit PCB • Foreign material at rotational area of fan propeller • Defective fan motor • Dust on outdoor unit PCB • Blown F3 fuse |

| | |
|---|-----------------------|
| 5.Troubleshooting | |
| Diagnosis | Countermeasure |
| <pre> graph TD D1{Does any foreign material intervene in rotational area of fan propeller?} D2{Does the fan rotate smoothly when turned by hand?} D3{Is DC308-336V detected between (CNFAN ④ -⑥) of fan motor connector?} D4{Is F3 (250V1A) fuse blown?} D5{Is normal state restored?} D1 -- YES --> C1[Remove foreign matter.] D1 -- NO --> D2 D2 -- YES --> D3 D2 -- NO --> C2[Replace fan motor. If resistance between ① (FG):blue -④(GND):black is detected 1kΩ or lower, it is faulty.] D3 -- YES --> R[Power source reset] D3 -- NO --> D4 R --> D5 D4 -- YES --> C3[Replace faulty fan motor and outdoor unit PCB.] D4 -- NO --> C4[Check power source voltage.] D5 -- YES --> C5[Malfunction by temporary noise] D5 -- NO --> C6[Replace fan motor (If anomaly persists after replacing fan motor, replace outdoor unit PCB.)] </pre> | |

Note: When E48 error occurs, in almost cases F3 fuse (1A) on the outdoor unit PCB is blown. There are a lot of cases that fuse is blown and E48 occurs due to defective fan motor. And even though only the outdoor unit PCB (or fuse) is replaced,, another trouble could occur. Therefore when fuse is blown, check whether the fan motor is OK or not. After confirming the fan motor normal, check by power ON. (Don't power ON without confirming the fan motor normal.)

| | | | | |
|-----------------------------------|--------|----------------|-----------|--|
| Error code Remote control: E51 | LED | Green | Red | Content Power transistor anomaly |
| | Indoor | Keeps flashing | Stays OFF | |

| | | | |
|---|--|-----------------------|---|
| <p>1.Applicable model</p> <p>All models</p> | 5.Troubleshooting | | |
| <p>2.Error detection method</p> <p>Power transistor primary current</p> | Diagnosis | Countermeasure | |
| <p>3.Condition of Error displayed</p> <p>If the power transistor primary current exceeds the setting value for 3 seconds, the compressor stops.</p> | <pre> graph TD A{Check soldered surfaces on the outdoor unit PCB for foreign matter like dust, fouling, etc.} -- NO --> B[Remove foreign matter like dust, fouling, etc.] A -- YES --> C{Isn't F2 fuse (250V, 20A) blown?} C -- YES --> D[Replace fuse.] C -- NO --> E[Defective outdoor unit PCB -> Replace.] </pre> | | <p>Remove foreign matter like dust, fouling, etc.</p> <p>Replace fuse.</p> <p>Defective outdoor unit PCB→Replace.</p> |
| <p>4.Presumable cause</p> <ul style="list-style-type: none"> • Faulty outdoor unit PCB • Dust on outdoor unit PCB • Blown F2 fuse | | | |

Note:

| | | | | |
|-----------------------------------|--------|----------------|-----------|---|
| Error code Remote control: E57 | LED | Green | Red | Content Insufficient refrigerant amount or detection of service valve closure |
| | Indoor | Keeps flashing | Stays OFF | |

| |
|--|
| 1. Applicable model |
| All models |
| 2. Error detection method |
| <ul style="list-style-type: none"> Judge insufficient refrigerant amount by detecting the temperature difference between indoor heat exchanger (Thi-R) and indoor return air (Thi-A). |
| 3. Condition of Error displayed |
| When the insufficient refrigerant amount is detected 3 times within 60 minutes. |
| 4. Presumable cause |
| <ul style="list-style-type: none"> Defective indoor heat exchanger temperature sensor Defective indoor return air temperature sensor Defective indoor unit control PCB Insufficient refrigerant amount |

| 5. Troubleshooting | | | | | | | | | | | | | | | | | |
|--|------------------------------------|------------------|------------------------------------|---|----|----|----|----|---|----|---|----|---|----|---|----|---|
| Diagnosis | Countermeasure | | | | | | | | | | | | | | | | |
| <pre> graph TD Q1{Is the service valve fully opened?} -- NO --> C1[Open fully.] Q1 -- YES --> Q2{Are the connections of indoor heat exchanger and/or return air temperature sensor connectors OK?} Q2 -- NO --> C2[Correct indoor heat exchanger, return air temperature sensor connector connections.] Q2 -- YES --> Q3{Are the characteristics of indoor heat exchanger and/or return air temperature sensor OK?} Q3 -- NO --> C3[Defective indoor heat exchanger, return air temperature sensor -> Replace.] Q3 -- YES --> Q4{Is the low pressure during operation normal?} Q4 -- NO --> C4[Charge refrigerant.] Q4 -- YES --> C5[Defective indoor unit control PCB -> Replace. (Defective indoor heat exchanger, return air temperature sensor input circuits)] </pre> | | | | | | | | | | | | | | | | | |
| <p style="text-align: center;">Indoor heat exchanger, return air temperature sensor Temperature-resistance characteristics</p> <table border="1"> <caption>Temperature-resistance characteristics data (approximate)</caption> <thead> <tr> <th>Temperature (°C)</th> <th>Temperature sensor resistance (kΩ)</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>15</td> </tr> <tr> <td>10</td> <td>10</td> </tr> <tr> <td>20</td> <td>6</td> </tr> <tr> <td>25</td> <td>5</td> </tr> <tr> <td>30</td> <td>4</td> </tr> <tr> <td>40</td> <td>3</td> </tr> <tr> <td>50</td> <td>2</td> </tr> </tbody> </table> | | Temperature (°C) | Temperature sensor resistance (kΩ) | 0 | 15 | 10 | 10 | 20 | 6 | 25 | 5 | 30 | 4 | 40 | 3 | 50 | 2 |
| Temperature (°C) | Temperature sensor resistance (kΩ) | | | | | | | | | | | | | | | | |
| 0 | 15 | | | | | | | | | | | | | | | | |
| 10 | 10 | | | | | | | | | | | | | | | | |
| 20 | 6 | | | | | | | | | | | | | | | | |
| 25 | 5 | | | | | | | | | | | | | | | | |
| 30 | 4 | | | | | | | | | | | | | | | | |
| 40 | 3 | | | | | | | | | | | | | | | | |
| 50 | 2 | | | | | | | | | | | | | | | | |

Note: When the compressor speed is 50 rps or under at 5 minutes after the start of compressor or the completion of defrost operation, the low refrigerant protection control judges, by detecting the difference between the indoor heat exchanger temperature (Thi-R) and the indoor return air temperature (Thi-A), that it is in the state of gas leakage, and stops the compressor.
 Cooling: Indoor return air temperature (Thi-A) – Indoor heat exchanger temperature (Thi-R) < 4 deg C
 Heating: Indoor heat exchanger temperature (Thi-R) – Indoor return air temperature (Thi-A) < 6 deg C

| | | | | |
|-----------------------------------|--------|----------------|-----------|-------------------------------------|
| Error code Remote control: E58 | LED | Green | Red | Content Current safe stop |
| | Indoor | Keeps flashing | Stays OFF | |

| |
|---------------------------|
| 1.Applicable model |
| All models |

| |
|--|
| 2.Error detection method |
| When the current safe control has operated at the compressor speed of 30 rps or under. |

| |
|---------------------------------------|
| 3.Condition of Error displayed |
| Same as above |

| |
|---|
| 4.Presumable cause |
| <ul style="list-style-type: none"> • Excessive refrigerant amount • Indoor, outdoor unit installation spaces • Faulty compressor • Defective outdoor air temperature sensor • Defective outdoor unit PCB |

| | |
|---|-----------------------|
| 5.Troubleshooting | |
| Diagnosis | Countermeasure |
| <pre> graph TD D1{Is the refrigerant amount normal?} -- NO --> C1[Adjust the refrigerant amount properly.] D1 -- YES --> D2{Is outdoor ventilation condition good?} D2 -- NO --> C2[Secure space for inlet and outlet.] D2 -- YES --> D3{Inspect compressor.} D3 -- NO --> C3[Replace compressor.] D3 -- YES --> D4{Inspect outdoor air temperature sensor.} D4 -- NO --> C4[Replace sensor.] D4 -- YES --> C5[Defective outdoor unit PCB -> Replace. (Defective outdoor air temperature sensor input circuit)] </pre> | |

Note:

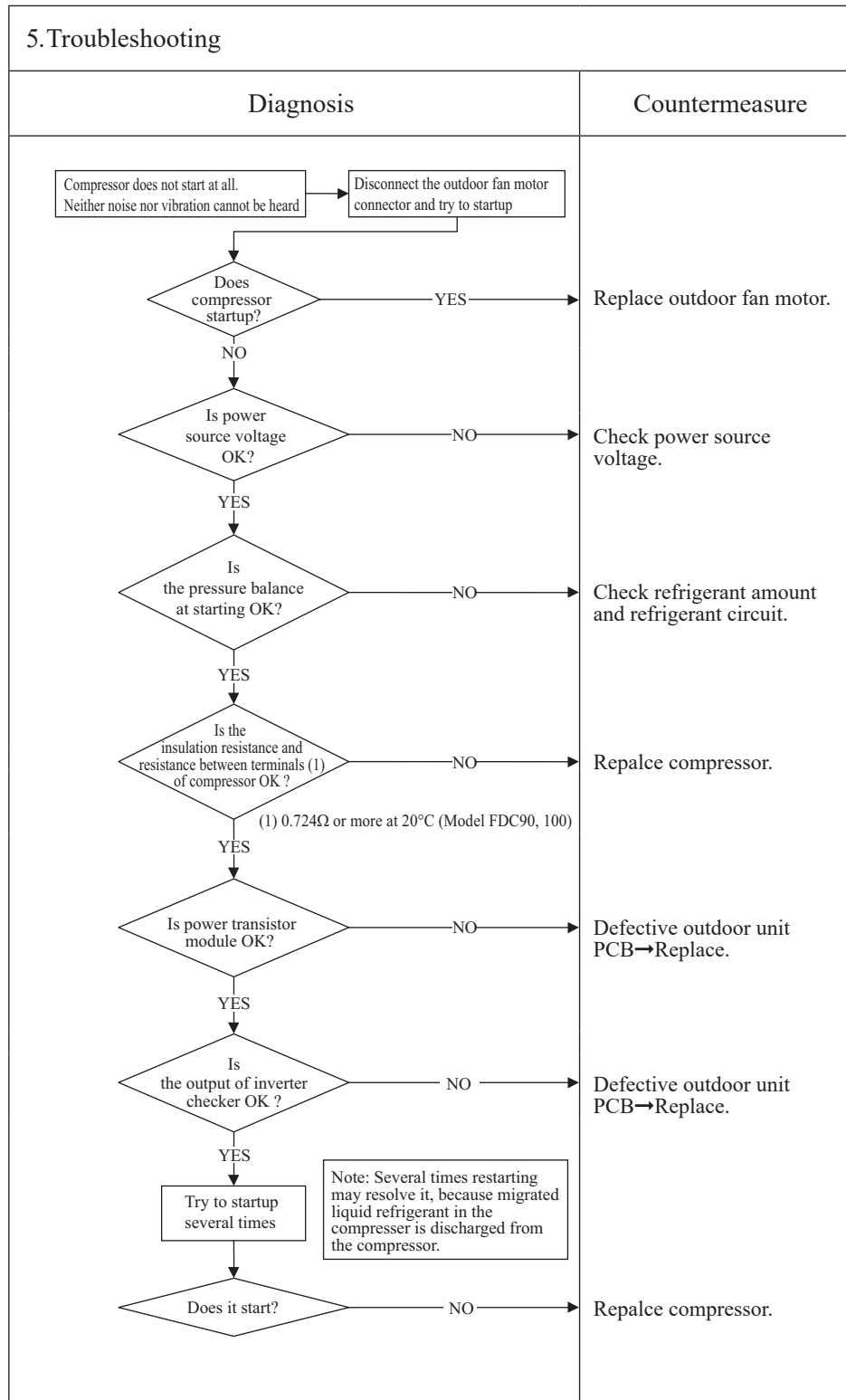
| | | | | | | | | | | |
|---|------------|----------------|-----------|----------------------------|---------|---------------------|--------|----------------|-----------|----------------------------|
| <table border="1"> <tr> <td>Error code</td> <td>LED</td> <td>Green</td> <td>Red</td> <td>Content</td> </tr> <tr> <td>Remote control: E59</td> <td>Indoor</td> <td>Keeps flashing</td> <td>Stays OFF</td> <td rowspan="2">Compressor startup failure</td> </tr> </table> | Error code | LED | Green | Red | Content | Remote control: E59 | Indoor | Keeps flashing | Stays OFF | Compressor startup failure |
| Error code | LED | Green | Red | Content | | | | | | |
| Remote control: E59 | Indoor | Keeps flashing | Stays OFF | Compressor startup failure | | | | | | |

| |
|---------------------------|
| 1.Applicable model |
| All models |

| |
|---|
| 2.Error detection method |
| <ul style="list-style-type: none"> If it fails to change over to the rotor detection operation of compressor motor |

| |
|---|
| 3.Condition of Error displayed |
| If compressor fails to startup for 42 times |

| |
|---|
| 4.Presumable cause |
| <ul style="list-style-type: none"> Faulty outdoor fan motor Faulty outdoor unit PCB Anomalous power source voltage Improper refrigerant amount and refrigerant circuit Faulty compressor (Motor bearing) |



Note: Insulation resistance

- The unit is left for long period without power source or soon after installation, migrated liquid refrigerant may dissolve in the refrigerant oil in the compressor. In such case insulation resistance decreases upto several MΩ or lower. If the electric leakage breaker is activated due to low insulation resistance, check followings.
- ① Check whehter the insulation resistance can recover or not, ater 6 hours has passed since power ON.
(By energize the crankcase heater, migrated liquid refrigerant in the refrigerant oil in compressor can be evaporated)
- ② Check whether the electric leakage breake conforms to high-hermonic specifications
(As units has inverter, in order to prevent from improper operation, be sure to use high-hermonic one.)

| | | | | |
|-----------------------------------|--------|----------------|-----------|---|
| Error code Remote control: E60 | LED | Green | Red | Content Compressor rotor lock error |
| | Indoor | Keeps flashing | Stays OFF | |

| |
|---|
| 1. Applicable model |
| All models |
| 2. Error detection method |
| Compressor rotor position |
| 3. Condition of Error displayed |
| If it fails again to detect the rotor position after shifting to the compressor rotor position detection operation, the compressor stops. |
| 4. Presumable cause |
| <ul style="list-style-type: none"> • Defective outdoor fan motor • Defective outdoor unit PCB • Anomalous power source voltage • Improper refrigerant amount and refrigerant circuit • Defective compressor (motor, bearing) |

| | |
|---|-----------------------|
| 5. Troubleshooting | |
| Diagnosis | Countermeasure |
| <pre> graph TD Q1{Is the power source voltage OK?} -- NO --> C1[Check and correct the power source voltage.] Q1 -- YES --> R1[Reset the power source and restart operation.] R1 --> Q2{Does the compressor start?} Q2 -- NO --> Q3{Does E59 occur?} Q3 -- YES --> C2[Correct it based on the troubleshooting of E59.] Q3 -- NO --> Q4{Does the compressor run without occurrence of E42?} Q4 -- NO --> C3[Correct it based on the troubleshooting of E42.] Q4 -- YES --> Q5{Is the output from inverter checker OK?} Q5 -- NO --> C4[Defective outdoor unit PCB → Replace.] Q5 -- YES --> Q6{Is the noise or vibration of compressor normal?} Q6 -- NO --> C5[Replace compressor.] Q6 -- YES --> Q7{Does it start up normally without recurrence of E60.} Q7 -- NO --> C6[Check compressor for insulation, resistance. Replace compressor if necessary.] Q7 -- YES --> C7[Defective outdoor unit PCB → Replace.] </pre> | |

Note: Insulation resistance

- The unit is left for long period without power source or soon after installation, migrated liquid refrigerant may dissolve in the refrigerant oil in the compressor. In such case insulation resistance decreases upto several MΩ or lower. If the electric leakage breaker is activated due to low insulation resistance, check followings.
 - ① Check whether the insulation resistance can recover or not, after 6 hours has passed since power ON.
(By energize the crankcase heater, migrated liquid refrigerant in the refrigerant oil in compressor can be evaporated.)
 - ② Check whether the electric leakage breaker conforms to high-harmonic specifications.
(As units has inverter, in order to prevent from improper operation, be sure to use high-harmonic one.)

2.2 SRK series

This chapter has described about an indoor unit. Look at 2.1 chapters about the outdoor unit.

(1) Cautions

- (a) If you are disassembling and checking an air-conditioner, be sure to turn off the power before beginning. When working on indoor units, let the unit sit for about 1 minute after turning off the power before you begin work.
- (b) When taking out printed circuit boards, be sure to do so without exerting force on the circuit boards or package components.
- (c) When disconnecting and connecting connectors, take hold of the connector housing and do not pull on the lead wires.

(2) Items to check before troubleshooting

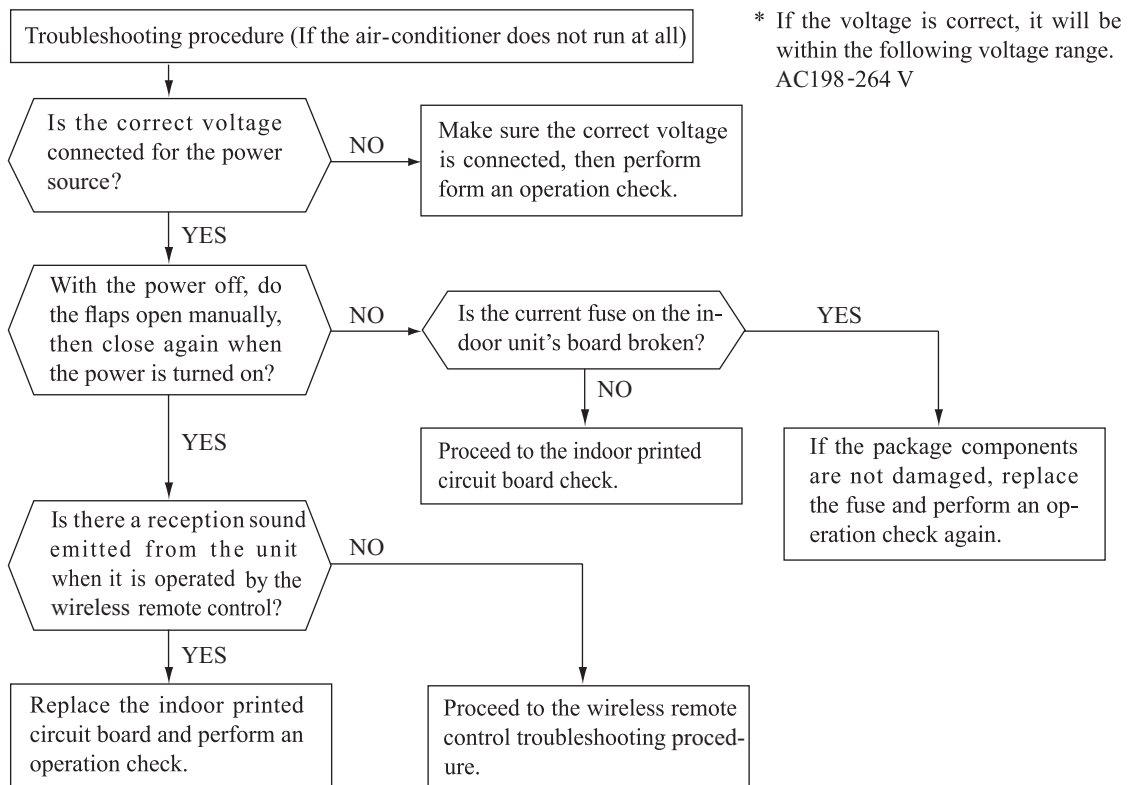
- (a) Have you thoroughly investigated the details of the trouble which the customer is complaining about?
- (b) Is the air-conditioner running? Is it displaying any self-diagnosis information?
- (c) Is a power source with the correct voltage connected?
- (d) Are the control lines connecting the indoor and outdoor units wired correctly and connected securely?
- (e) Is the outdoor unit's service valve open?

(3) Troubleshooting procedure (If the air-conditioner does not run at all)

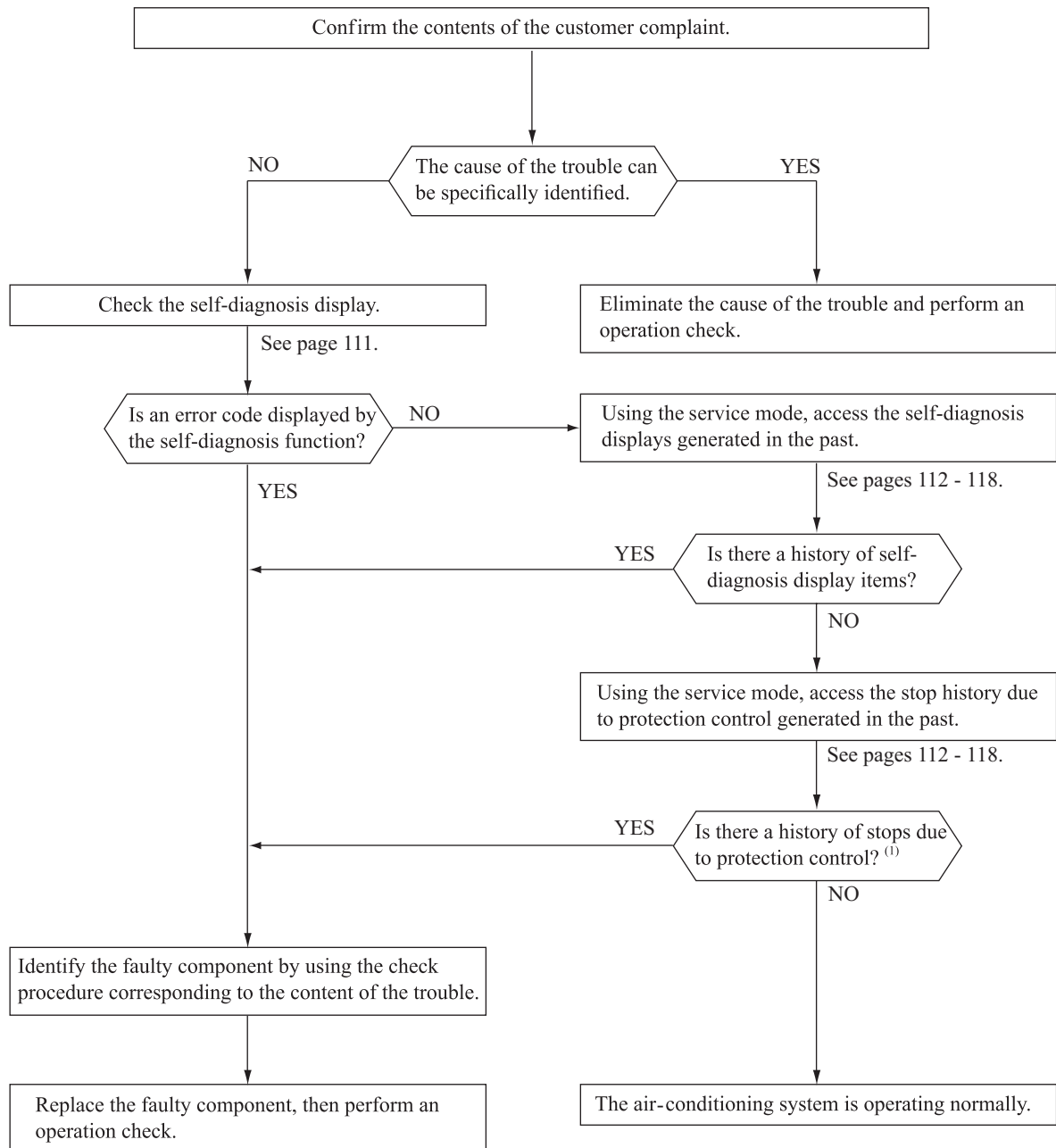
If the air-conditioner does not run at all, diagnose the trouble using the following troubleshooting procedure. If the air-conditioner is running but breaks down, proceed to troubleshooting step (4).

Important When all the following conditions are satisfied, we say that the air-conditioner will not run at all.

- (a) The RUN light does not light up.
- (b) The flaps do not open.
- (c) The indoor unit fan motors do not run.
- (d) The self-diagnosis display does not function.



(4) Troubleshooting procedure (If the air-conditioner runs)



Note (1) Even in cases where only intermittent stop data are generated, the air-conditioning system is normal. However, if the same protective operation recurs repeatedly (3 or more times), it will lead to customer complaints. Judge the conditions in comparison with the contents of the complaints.

(5) Self-diagnosis table

When this air-conditioner performs an emergency stop, the reason why the emergency stop occurred is displayed by the flashing of display lights. If the air-conditioner is operated using the remote control 3 minutes or more after the emergency stop, the trouble display stops and the air-conditioner resumes operation. ⁽¹⁾

| Indoor unit display panel | | Wired remote control display ⁽²⁾ | Description of trouble | Cause | Display (flashing) condition |
|---------------------------|----------------|---|---|---|---|
| RUN light | TIMER light | | | | |
| 1-time flash | ON | — | Heat exchanger sensor 1 error | <ul style="list-style-type: none"> Broken heat exchanger sensor 1 wire, poor connector connection Indoor unit PCB is faulty | When a heat exchanger sensor 1 wire disconnection is detected while operation is stopped. (If a temperature of -28°C or lower is detected for 15 seconds, it is judged that the wire is disconnected.) (Not displayed during operation.) |
| 2-time flash | ON | — | Room temperature sensor error | <ul style="list-style-type: none"> Broken room temperature sensor wire, poor connector connection Indoor unit PCB is faulty | When a room temperature sensor wire disconnection is detected while operation is stopped. (If a temperature of -45°C or lower is detected for 15 seconds, it is judged that the wire is disconnected.) (Not displayed during operation.) |
| 3-time flash | ON | — | Heat exchanger sensor 2 error | <ul style="list-style-type: none"> Broken heat exchanger sensor 2 wire, poor connector connection Indoor unit PCB is faulty | When a heat exchanger sensor 2 wire disconnection is detected while operation is stopped. (If a temperature of -28°C or lower is detected for 15 seconds, it is judged that the wire is disconnected.) (Not displayed during operation.) |
| 6-time flash | ON | E 16 | Indoor fan motor error | <ul style="list-style-type: none"> Defective fan motor, poor connector connection | When conditions for turning the indoor unit's fan motor on exist during air-conditioner operation, an indoor unit fan motor speed of 300 min^{-1} or lower is measured for 30 seconds or longer. (The air-conditioner stops.) |
| Keeps flashing | 1-time flash | E 38 | Outdoor air temperature sensor error | <ul style="list-style-type: none"> Broken outdoor air temp. sensor wire, poor connector connection Outdoor unit PCB is faulty | -55°C or lower is detected for 5 seconds continuously 3 times within 40 minutes after initial detection of this anomalous temperature. Or -55°C or lower is detected for within 20 seconds after power ON. (The compressor is stopped.) |
| Keeps flashing | 2-time flash | E 37 | Outdoor heat exchanger sensor error | <ul style="list-style-type: none"> Broken heat exchanger sensor wire, poor connector connection Outdoor unit PCB is faulty | -55°C or lower is detected for 5 seconds continuously 3 times within 40 minutes after initial detection of this anomalous temperature. Or -55°C or lower is detected for within 20 seconds after power ON. (The compressor is stopped.) |
| Keeps flashing | 4-time flash | E 39 | Discharge pipe sensor error | <ul style="list-style-type: none"> Broken discharge pipe sensor wire, poor connector connection Outdoor PCB is faulty | -25°C or lower is detected for 5 seconds continuously 3 times within 40 minutes after initial detection of this anomalous temperature. (The compressor is stopped.) |
| ON | 1-time flash | E 42 | Current cut | <ul style="list-style-type: none"> Compressor locking, open phase on compressor output, short-circuit on power transistor, service valve is closed | The compressor output current exceeds the set value during compressor start. (The air-conditioner stops.) |
| ON | 2-time flash | E 59 | Compressor startup failure | <ul style="list-style-type: none"> Defective compressor Outdoor unit PCB is faulty | If compressor fails to startup for 42 times. |
| ON | 3-time flash | E 58 | Current safe stop | <ul style="list-style-type: none"> Overload operation Overcharge Compressor locking | When the compressor command speed is lower than the set value and the current safe has operated. (the compressor stops) |
| ON | 4-time flash | E 51 | Power transistor anomaly | <ul style="list-style-type: none"> Power transistor error (Outdoor unit PCB is faulty) | If the power transistor primary current exceeds the setting value for 3 seconds, the compressor stops. |
| ON | 5-time flash | E 36 | Discharge pipe temperature error | <ul style="list-style-type: none"> Installation, operation status Discharge pipe temperature sensor Outdoor unit PCB is faulty | When discharge pipe temperature anomaly is detected 2 times within 60 minutes is compressor stop. |
| ON | 6-time flash | E 5 | Error of signal transmission | <ul style="list-style-type: none"> Defective power source, Broken signal wire, defective indoor/outdoor PCB | When there is no signal between the indoor unit PCB and outdoor unit PCB for 10 seconds or longer (when the power is turned on), or when there is no signal for 7 minute 35 seconds or longer (during operation) (the compressor is stopped). |
| ON | 7-time flash | E 48 | Outdoor fan motor error | <ul style="list-style-type: none"> Defective fan motor, poor connector connection | When the outdoor fan motor speed continues for 30 seconds or longer at 75 min^{-1} or lower. (3 times) (The air-conditioner stops.) |
| ON | Keeps flashing | E 35 | Cooling overload operation | <ul style="list-style-type: none"> Installation, operation status Outdoor heat exchanger temperature sensor Outdoor unit PCB is faulty | When the value of the outdoor heat exchanger sensor exceeds the set value. |
| 2-time flash | 2-time flash | E 60 | Compressor rotor lock error | <ul style="list-style-type: none"> Defective compressor | If it fails again to detect the rotor position after shifting to the compressor rotor position detection operation, the compressor stops. |
| 5-time flash | ON | E 47 | Active filter voltage error | <ul style="list-style-type: none"> Outdoor unit PCB is faulty | Error is displayed if the converter voltage exceeds target voltage (3 times within 20 minutes). Remote control may be set after 3-minute delay. Error is displayed if the converter voltage is lower than 210V. |
| 7-time flash | ON | E 57 | Insufficient refrigerant amount or detection of service valve closure | <ul style="list-style-type: none"> Operation status Installation status | When the insufficient refrigerant amount is detected 3 times within 60 minutes. |
| 7-time flash | 1-time flash | E 40 | Service valve (gas side) closed operation | <ul style="list-style-type: none"> Service valve (gas side) closed Defective outdoor unit PCB | If the output current of inverter exceeds the specifications, it makes the compressor stopping. (In heating mode). |
| — | — | E 1 | Error of wired remote control wiring | <ul style="list-style-type: none"> Broken wired remote control wire, defective indoor unit PCB | The wired remote control wire Y is open. The wired remote control wires X and Y are reversely connected. Noise is penetrating the wired remote control lines. The wired remote control or indoor unit PCB is faulty. (The communications circuit is faulty.) |

Notes (1)The air-conditioner cannot be restarted using the remote control for 3 minutes after operation stops.

(2)The wired remote control is option parts.

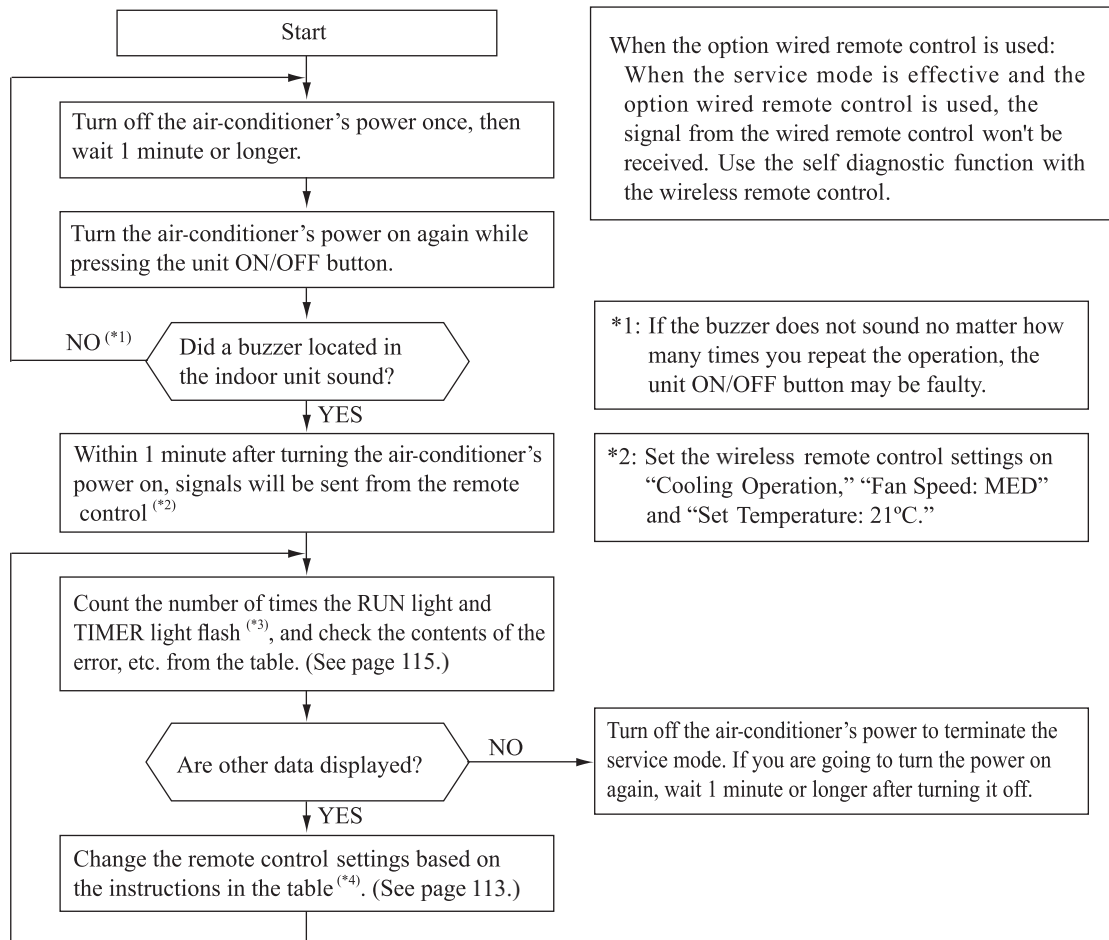
(6) Service mode (Trouble mode access function)

This air-conditioner is capable of recording error displays and protective stops (service data) which have occurred in the past. If self-diagnosis displays cannot be confirmed, it is possible to get a grasp of the conditions at the time trouble occurred by checking these service data.

(a) Explanation of terms

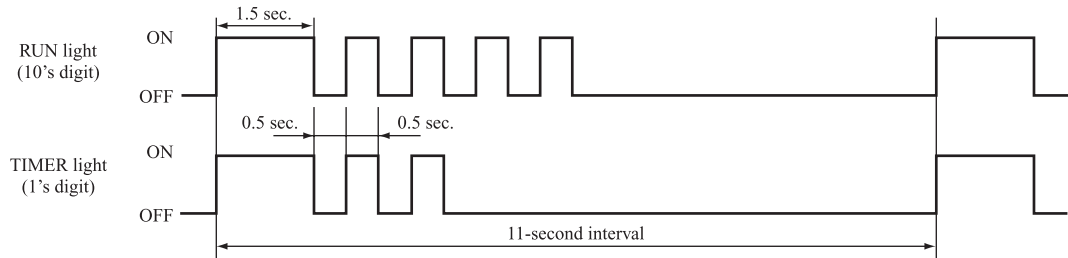
| Term | Explanation |
|----------------------------|---|
| Service mode | The service mode is the mode where service data are displayed by flashing of the display lights when the operations in item (b) below are performed with the indoor control. |
| Service data | These are the contents of error displays and protective stops which occurred in the past in the air-conditioner system. Error display contents and protective stop data from past anomalous operations of the air-conditioner system are saved in the indoor unit control's non-volatile memory (memory which is not erased when the power goes off). There are two types of data, self-diagnosis data and stop data, described below. |
| Self-diagnosis data | These are the data which display the reason why a stop occurred when an error display(self-diagnosis display) occurred in an indoor unit. Data are recorded for up to 5 previous occurrences. Data which are older than the 5th previous occurrence are erased. In addition, data on the temperature of each sensor (room temperature, indoor heat exchanger, outdoor heat exchanger, outdoor air temperature, discharge pipe), remote control information (operation switching, fan speed switching) are recorded when trouble occurs, so more detailed information can be checked. |
| Stop data | These are the data which display the reason by a stop occurred when the air-conditioning system performed protective stops, etc. in the past. Even if stop data alone are generated, the system restarts automatically. (After executing the stop mode while the display is normal, the system restarts automatically.) Data for up to 10 previous occasions are stored. Data older than the 10th previous occasion are erased. (Important) In cases where transient stop data only are generated, the air-conditioner system may still be normal. However, if the same protective stop occurs frequently (3 or more times), it could lead to customer complaints. |

(b) Service mode display procedure



*3: To count the number of flashes in the service mode, count the number of flashes after the light lights up for 1.5 second initially (start signal). (The time that the light lights up for 1.5 second (start signal) is not counted in the number of flashes.)

• In the case of current cut (example: stop code "42")
 The RUN light (10's digit) 4-time flash and the TIMER light (1's digit) 2-time flash.
 $4 \times 10 + 2 \times 1 = 42 \rightarrow$ From the table, read the instructions for error code 42, "current cut".



*4: When in the service mode, when the wireless remote control settings (operation mode, fan speed mode, temperature setting) are set as shown in the following table and sent to the air-conditioner unit, the unit switches to display of service data.

(i) Self-diagnosis data

What are Self-diagnosis Data?

These are control data (reasons for stops, temperature at each sensor, wireless remote control information) from the time when there were error displays (a bnormal stops) in the indoor unit in the past.

Data from up to 5 previous occasions are stored in memory. Data older than the 5th previous occasion are erased.

The temperature setting indicates how many occasions previous to the present setting the error display data are and the operation mode and fan speed mode data show the type of data.

| Wireless remote control setting | | Contents of output data |
|---------------------------------|----------------|---|
| Operation mode | Fan speed mode | |
| Cooling | MED | Displays the reason for stopping display in the past (error code). |
| | HI | Displays the room temperature sensor temperature at the time the error code was displayed in the past. |
| | AUTO | Displays the indoor heat exchanger sensor temperature at the time the error code was displayed in the past. |
| Heating | LO | Displays the wireless remote control information at the time the error code was displayed in the past. |
| | MED | Displays the outdoor air temperature sensor temperature at the time the error code was displayed in the past. |
| | HI | Displays the outdoor heat exchanger sensor temperature at the time the error code was displayed in the past. |
| | AUTO | Displays the discharge pipe sensor temperature at the time the error code was displayed in the past. |

| Wireless remote control setting | Indicates the number of occasions previous to the present the error display data are from. |
|---------------------------------|--|
| Temperature setting | |
| 21°C | 1 time previous (previous time) |
| 22°C | 2 times previous |
| 23°C | 3 times previous |
| 24°C | 4 times previous |
| 25°C | 5 times previous |

Only for indoor heat exchanger temperature sensor 2

| Wireless remote control setting | Indicates the number of occasions previous to the present the error display data are from. |
|---------------------------------|--|
| Temperature setting | |
| 26°C | 1 time previous (previous time) |
| 27°C | 2 times previous |
| 28°C | 3 times previous |
| 29°C | 4 times previous |
| 30°C | 5 times previous |

(Example)

| Wireless remote control setting | | | Displayed data |
|---------------------------------|----------------|---------------------|---|
| Operation mode | Fan speed mode | Temperature setting | |
| Cooling | MED | 21°C | Displays the reason for the stop (error code) the previous time an error was displayed. |
| | | 22°C | Displays the reason for the stop (error code) 2 times previous when an error was displayed. |
| | | 23°C | Displays the reason for the stop (error code) 3 times previous when an error was displayed. |
| | | 24°C | Displays the reason for the stop (error code) 4 times previous when an error was displayed. |
| | | 25°C | Displays the reason for the stop (error code) 5 times previous when an error was displayed. |

(ii) Stop data

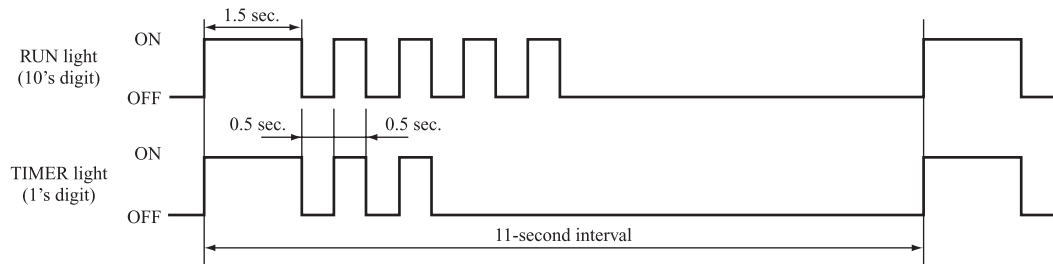
| Wireless remote control setting | | | Displayed data |
|---------------------------------|----------------|---------------------|---|
| Operation mode | Fan speed mode | Temperature setting | |
| Cooling | LO | 21°C | Displays the reason for the stop (stop code) the previous time when the air-conditioner was stopped by protective stop control. |
| | | 22°C | Displays the reason for the stop (stop code) 2 times previous when the air-conditioner was stopped by protective stop control. |
| | | 23°C | Displays the reason for the stop (stop code) 3 times previous when the air-conditioner was stopped by protective stop control. |
| | | 24°C | Displays the reason for the stop (stop code) 4 times previous when the air-conditioner was stopped by protective stop control. |
| | | 25°C | Displays the reason for the stop (stop code) 5 times previous when the air-conditioner was stopped by protective stop control. |
| | | 26°C | Displays the reason for the stop (stop code) 6 times previous when the air-conditioner was stopped by protective stop control. |
| | | 27°C | Displays the reason for the stop (stop code) 7 times previous when the air-conditioner was stopped by protective stop control. |
| | | 28°C | Displays the reason for the stop (stop code) 8 times previous when the air-conditioner was stopped by protective stop control. |
| | | 29°C | Displays the reason for the stop (stop code) 9 times previous when the air-conditioner was stopped by protective stop control. |
| | | 30°C | Displays the reason for the stop (stop code) 10 times previous when the air-conditioner was stopped by protective stop control. |

(c) Error code, stop code table (Assignment of error codes and stop codes is done in common for all models.)

| Number of flashes when in service mode | | Stop code or Error code | Error content | Cause | Occurrence conditions | Error display | Auto recovery |
|--|-------------------------|-------------------------|--|---|--|----------------|---------------|
| RUN light (10's digit) | TIMER light (1's digit) | | | | | | |
| OFF | OFF | 0 | Normal | — | — | — | — |
| | 1-time flash | 01 | Error of wired remote control wiring | Broken wired remote control wire, defective indoor unit PCB | The wired remote control wire Y is open. The wired remote control wires X and Y are reversely connected. Noise is penetrating the wired remote control lines. The wired remote control or indoor unit PCB is faulty. | — | ○ |
| | 5-time flash | 05 | Can not receive signals for 35 seconds (if communications have recovered) | Power source is faulty. Power source cables and signal lines are improperly wired. Indoor or outdoor unit PCB are faulty. | When 35 seconds passes without communications signals from either the outdoor unit or the indoor unit being detected correctly. | ○ | — |
| 3-time flash | 5-time flash | 35 | Cooling high pressure control | Cooling overload operation. Outdoor unit fan speed drops. Outdoor heat exchanger sensor is short-circuit. | When the outdoor heat exchanger sensor's value exceeds the set value. | ○ (5 times) | ○ |
| | 6-time flash | 36 | Compressor overheat 115°C | Refrigerant is insufficient. Discharge pipe sensor is faulty. Service valve is closed. | When the discharge pipe sensor's value exceeds the set value. | ○ (2 times) | ○ |
| | 7-time flash | 37 | Outdoor heat exchanger sensor is abnormal | Outdoor heat exchanger sensor wire is disconnected. Connector connections are poor. Outdoor unit PCB is faulty. | -55°C or lower is detected for 5 seconds continuously 3 times within 40 minutes after initial detection of this anomalous temperature. Or -55°C lower is detected for 5 seconds continuously within 20 seconds after power ON. | ○ (3 times) | ○ |
| | 8-time flash | 38 | Outdoor air temperature sensor is abnormal | Outdoor air temperature sensor wire is disconnected. Connector connections are poor. Outdoor unit PCB is faulty. | -55°C or lower is detected for 5 seconds continuously 3 times within 40 minutes after initial detection of this anomalous temperature. Or -55°C lower is detected for 5 seconds continuously within 20 seconds after power ON. | ○ (3 times) | ○ |
| | 9-time flash | 39 | Discharge pipe sensor is abnormal (anomalous stop) | Discharge pipe sensor wire is disconnected. Connector connections are poor. Outdoor unit PCB is faulty. | -25°C or lower is detected for 5 seconds continuously 3 times within 40 minutes after initial detection of this anomalous temperature. | ○ (3 times) | ○ |
| 4-time flash | OFF | 40 | Service valve (gas side) closed operation | Service valve (gas side) closed Outdoor unit PCB is faulty. | If the inverter output current value exceeds the setting value within 80 seconds after the compressor ON in the heating mode, the compressor stops. | ○ (2 times) | ○ |
| | 2-time flash | 42 | Current cut | Compressor lock. Compressor wiring short-circuit. Compressor output is open phase. Outdoor unit PCB is faulty. Service valve is closed. Electronic expansion valve is faulty. Compressor is faulty. | In order to prevent from overcurrent of inverter, if the current exceeds the specifications, it makes the compressor stopping. | ○ (2 times) | ○ |
| | 7-time flash | 47 | Active filter voltage error | Defective active filter. | Error is displayed if the converter voltage exceeds target voltage (3 times within 20 minutes). Remote control may be set after 3-minute delay. Error is displayed if the converter voltage is lower than 210V (1-time within 5 seconds after power ON). | ○ | — |
| | 8-time flash | 48 | Outdoor unit's fan motor is abnormal | Outdoor fan motor is faulty. Connector connections are poor. Outdoor unit PCB is faulty. | When a fan speed of 75 min ⁻¹ or lower continues for 30 seconds or longer. | ○ (3 times) | ○ |
| 5-time flash | 1-time flash | 51 | Short-circuit in the power transistor (high side) Current cut circuit breakdown | Outdoor unit PCB is faulty. Power transistor is damaged. | When it is judged that the power transistor was damaged at the time the compressor started. | ○ | — |
| | 7-time flash | 57 | Refrigeration cycle system protective control | Service valve is closed. Refrigerant is insufficient. | When refrigeration cycle system protective control operates. | ○ (3 times) | ○ |
| | 8-time flash | 58 | Current safe | Refrigerant is overcharge. Compressor lock. Overload operation. | When there is a current safe stop during operation. | — | ○ |
| | 9-time flash | 59 | Compressor wiring is unconnection voltage drop Low speed protective control | Compressor wiring is disconnected. Power transistor is damaged. Power source construction is defective. Outdoor unit PCB is faulty. Compressor is faulty. | When the current is 1A or less at the time the compressor started. When the power source voltage drops during operation. When the compressor command speed is lower than 32 rps for 60 minutes. | ○ | ○ |
| 6-time flash | OFF | 60 | Rotor lock | Compressor is faulty. Compressor output is open phase. Electronic expansion valve is faulty. Overload operation. Outdoor unit PCB is faulty. | After the compressor starts, when the compressor stops due to rotor lock. | ○ (2 times) | ○ |
| | 1-time flash | 61 | Connection lines between the indoor and outdoor units are faulty | Connection lines are faulty. Indoor or outdoor unit PCB are faulty. | When 10 seconds passes after the power is turned on without communications signals from the indoor or outdoor unit being detected correctly. | ○ | — |
| | 2-time flash | 62 | Serial transmission error | Indoor or outdoor unit PCB are faulty. Noise is causing faulty operation. | When 7 minutes 35 seconds passes without communications signals from either the outdoor unit or the indoor unit being detected correctly. | ○ | — |
| 8-time flash | OFF | 80 | Indoor unit's fan motor is abnormal | Indoor fan motor is faulty. Connector connections are poor. Indoor unit PCB is faulty. | When the indoor fan motor is detected to be running at 300 min ⁻¹ or lower speed with the fan motor in the ON condition while the air-conditioner is running. | ○ | — |
| | 2-time flash | 82 | Indoor heat exchanger sensor is abnormal (anomalous stop) | Indoor heat exchanger sensor wire is disconnected. Connector connections are poor. | When a temperature of -28°C or lower is sensed continuously for 40 minutes during heating operation. (the compressor stops). | ○ | — |
| | 4-time flash | 84 | Anti-condensation control | High humidity condition. Humidity sensor is faulty. | Anti-condensation prevention control is operating. | — | ○ |
| | 5-time flash | 85 | Anti-frost control | Indoor unit fan speed drops. Indoor heat exchanger sensor is broken wire. | When the anti-frost control operates and the compressor stops during cooling operation. | — | ○ |
| | 6-time flash | 86 | Heating high pressure control | Heating overload operation. Indoor unit fan speed drops. Indoor heat exchanger sensor is short-circuit. | When high pressure control operates during heating operation and the compressor stops. | — | ○ |

Notes (1) The number of flashes when in the service mode do not include the 1.5 second period when the lights light up at first (start signal). (See the example shown below.)

• In the case of current cut (example: stop code "42")
 The RUN light (10's digit) 4-time flash and the TIMER light (1's digit) 2-time flash.
 $4 \times 10 + 2 \times 1 = 42 \rightarrow$ From the table, read the instructions for error code 42, "current cut".



- (2) Error display:
 — Is not displayed. (automatic recovery only)
 Displayed.
 If there is a () displayed, the error display shows the number of times that an auto recovery occurred for the same reason has reached the number of times in ().
 If no () is displayed, the error display shows that the trouble has occurred once.
- (3) Auto Recovery:
 — Does not occur
 Auto recovery occurs.

(d) Operation mode, Fan speed mode information tables

(i) Operation mode

| Display pattern when in service mode | Operation mode when there is an abnormal stop |
|--------------------------------------|---|
| RUN light (10's digit) | |
| — | AUTO |
| 1-time flash | DRY |
| 2-time flash | COOL |
| 3-time flash | FAN |
| 4-time flash | HEAT |

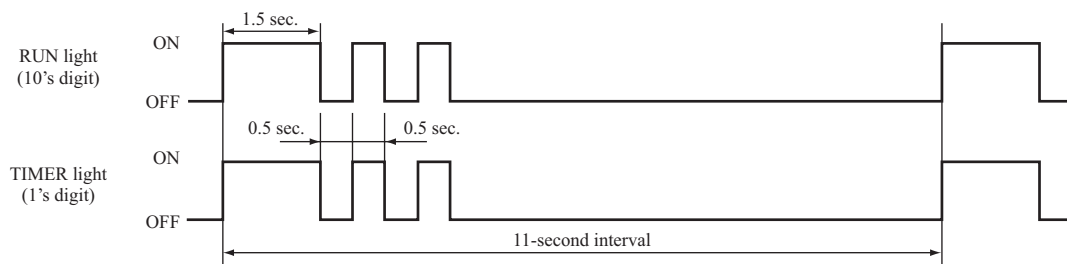
(ii) Fan speed mode

| Display pattern when in service mode | Fan speed mode when there is an abnormal stop |
|--------------------------------------|---|
| TIMER light (1's digit) | |
| — | AUTO |
| 2-time flash | HI |
| 3-time flash | MED |
| 4-time flash | LO |
| 5-time flash | ULO |
| 6-time flash | HI POWER |
| 7-time flash | ECONO |

* If no data are recorded (error code is normal), the information display in the operation mode and fan speed mode becomes as follows.

| Mode | Display when error code is normal |
|----------------|-----------------------------------|
| Operation mode | AUTO |
| Fan speed mode | AUTO |

(Example): Operation mode: COOL, Fan speed mode: HI



(e) Temperature information

(i) Room temperature sensor, indoor heat exchanger temperature sensor, outdoor air temperature sensor, outdoor heat exchanger temperature sensor temperature

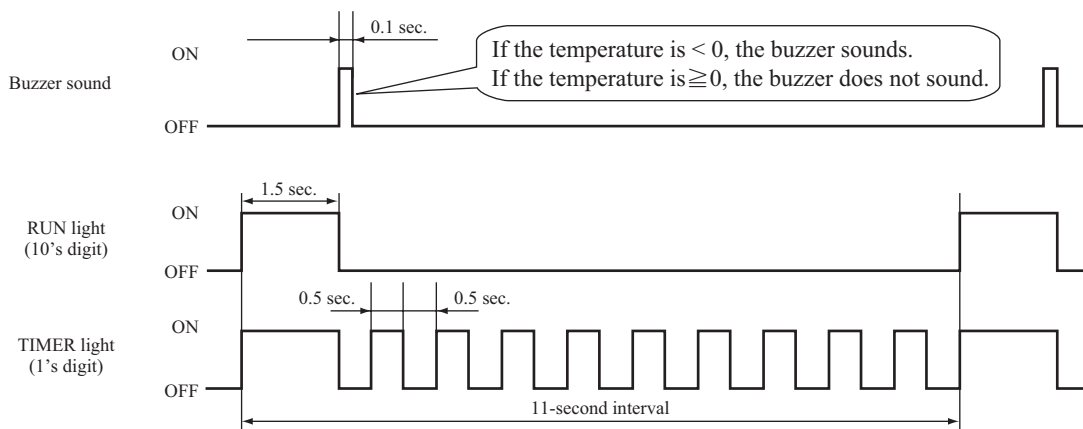
Unit: °C

| Buzzer sound | RUN light (10's digit) | TIMER light (1's digit) | | | | | | | | | | |
|--------------------------------|---------------------------|----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| | | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Yes (sounds for 0.1 second) | 6 | -60 | -61 | -62 | -63 | -64 | | | | | | |
| | 5 | -50 | -51 | -52 | -53 | -54 | -55 | -56 | -57 | -58 | -59 | |
| | 4 | -40 | -41 | -42 | -43 | -44 | -45 | -46 | -47 | -48 | -49 | |
| | 3 | -30 | -31 | -32 | -33 | -34 | -35 | -36 | -37 | -38 | -39 | |
| | 2 | -20 | -21 | -22 | -23 | -24 | -25 | -26 | -27 | -28 | -29 | |
| | 1 | -10 | -11 | -12 | -13 | -14 | -15 | -16 | -17 | -18 | -19 | |
| | 0 | / | -1 | -2 | -3 | -4 | -5 | -6 | -7 | -8 | -9 | |
| No (does not sound) | 0 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| | 1 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | |
| | 2 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | |
| | 3 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | |
| | 4 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | |
| | 5 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | |
| | 6 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | |
| | 7 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | |
| | 8 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | |
| | 9 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | |

* If no data are recorded (error code is normal), the display for each temperature information becomes as shown below.

| Sensor name | Sensor value displayed when the error code is normal |
|---|--|
| Room temperature sensor | -64°C |
| Indoor heat exchanger temperature sensor | -64°C |
| Outdoor air temperature sensor | -64°C |
| Outdoor heat exchanger temperature sensor | -64°C |

(Example) Outdoor heat exchanger temperature data: “-9°C”



(ii) Discharge pipe sensor temperature

Unit: °C

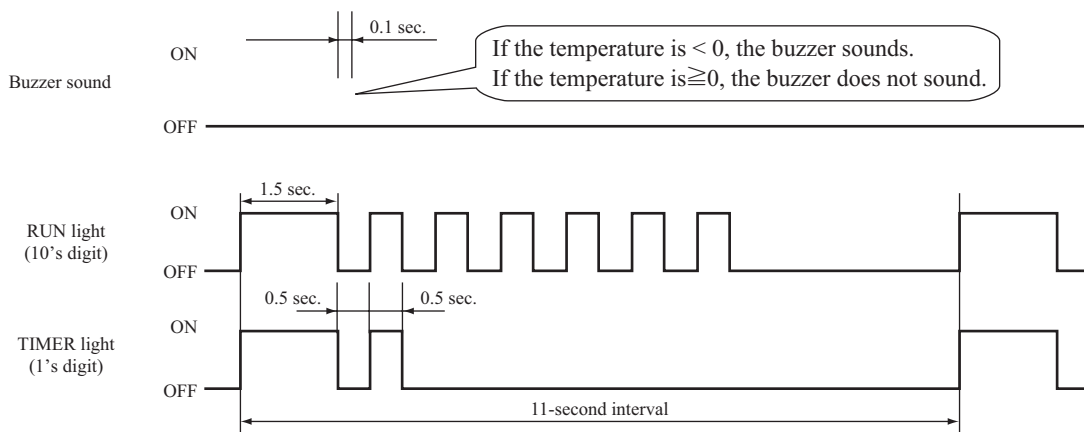
| Buzzer sound | RUN light (10's digit) | TIMER light (1's digit) | | | | | | | | | | | |
|--------------------------------|---------------------------|----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| | | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| Yes (sounds for 0.1 second) | 3 | -60 | -62 | -64 | | | | | | | | | |
| | 2 | -40 | -42 | -44 | -46 | -48 | -50 | -52 | -54 | -56 | -58 | | |
| | 1 | -20 | -22 | -24 | -26 | -28 | -30 | -32 | -34 | -36 | -38 | | |
| | 0 | / | -2 | -4 | -6 | -8 | -10 | -12 | -14 | -16 | -18 | | |
| No (does not sound) | 0 | 0 | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | | |
| | 1 | 20 | 22 | 24 | 26 | 28 | 30 | 32 | 34 | 36 | 38 | | |
| | 2 | 40 | 42 | 44 | 46 | 48 | 50 | 52 | 54 | 56 | 58 | | |
| | 3 | 60 | 62 | 64 | 66 | 68 | 70 | 72 | 74 | 76 | 78 | | |
| | 4 | 80 | 82 | 84 | 86 | 88 | 90 | 92 | 94 | 96 | 98 | | |
| | 5 | 100 | 102 | 104 | 106 | 108 | 110 | 112 | 114 | 116 | 118 | | |
| | 6 | 120 | 122 | 124 | 126 | 128 | 130 | 132 | 134 | 136 | 138 | | |
| | 7 | 140 | 142 | 144 | 146 | 148 | 150 | | | | | | |

* If no data are recorded (error code is normal), the display for each temperature information becomes as shown below.

| Sensor name | Sensor value displayed when the error code is normal |
|-----------------------|--|
| Discharge pipe sensor | -64°C |

(Example) Discharge pipe temperature data: "122°C"

* In the case of discharge pipe data, multiply the reading value by 2. (Below, 61 x 2 = "122°C")



Service data record form

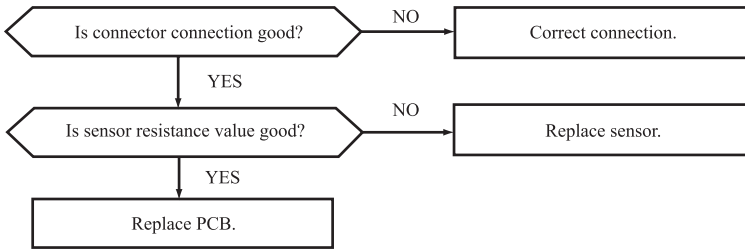
| Customer | | Model | | | | | |
|----------------------------------|----------------|--|--|------------------|-------------------|---------------------|-----------------|
| Date of investigation | | | | | | | |
| Machine name | | | | | | | |
| Content of complaint | | | | | | | |
| Wireless remote control settings | | | Content of displayed data | Display results | | | Display content |
| Temperature setting | Operation mode | Fan speed mode | | Buzzer (Yes/No.) | RUN light (Times) | TIMER light (Times) | |
| 21 | Cooling | MED | Error code on previous occasion. | / | | | |
| | | HI | Room temperature sensor on previous occasion. | | | | |
| | | AUTO | Indoor heat exchanger sensor 1 on previous occasion. | | | | |
| | Heating | LO | Wireless remote control information on previous occasion. | / | | | |
| | | MED | Outdoor air temperature sensor on previous occasion. | | | | |
| | | HI | Outdoor heat exchanger sensor on previous occasion. | | | | |
| | AUTO | Discharge pipe sensor on previous occasion. | | | | | |
| 26 | Cooling | AUTO | Indoor heat exchanger sensor 2 on previous occasion. | | | | |
| 22 | Cooling | MED | Error code on second previous occasion. | / | | | |
| | | HI | Room temperature sensor on second previous occasion. | | | | |
| | | AUTO | Indoor heat exchanger sensor 1 on second previous occasion. | | | | |
| | Heating | LO | Wireless remote control information on second previous occasion. | / | | | |
| | | MED | Outdoor air temperature sensor on second previous occasion. | | | | |
| | | HI | Outdoor heat exchanger sensor on second previous occasion. | | | | |
| | AUTO | Discharge pipe sensor on second previous occasion. | | | | | |
| 27 | Cooling | AUTO | Indoor heat exchanger sensor 2 on second occasion. | | | | |
| 23 | Cooling | MED | Error code on third previous occasion. | / | | | |
| | | HI | Room temperature sensor on third previous occasion. | | | | |
| | | AUTO | Indoor heat exchanger sensor 1 on third previous occasion. | | | | |
| | Heating | LO | Wireless remote control information on third previous occasion. | / | | | |
| | | MED | Outdoor air temperature sensor on third previous occasion. | | | | |
| | | HI | Outdoor heat exchanger sensor on third previous occasion. | | | | |
| | AUTO | Discharge pipe sensor on third previous occasion. | | | | | |
| 28 | Cooling | AUTO | Indoor heat exchanger sensor 2 on third occasion. | | | | |
| 24 | Cooling | MED | Error code on fourth previous occasion. | / | | | |
| | | HI | Room temperature sensor on fourth previous occasion. | | | | |
| | | AUTO | Indoor heat exchanger sensor 1 on fourth previous occasion. | | | | |
| | Heating | LO | Wireless remote control information on fourth previous occasion. | / | | | |
| | | MED | Outdoor air temperature sensor on fourth previous occasion. | | | | |
| | | HI | Outdoor heat exchanger sensor on fourth previous occasion. | | | | |
| | AUTO | Discharge pipe sensor on fourth previous occasion. | | | | | |
| 29 | Cooling | AUTO | Indoor heat exchanger sensor 2 on fourth occasion. | | | | |
| 25 | Cooling | MED | Error code on fifth previous occasion. | / | | | |
| | | HI | Room temperature sensor on fifth previous occasion. | | | | |
| | | AUTO | Indoor heat exchanger sensor 1 on fifth previous occasion. | | | | |
| | Heating | LO | Wireless remote control information on fifth previous occasion. | / | | | |
| | | MED | Outdoor air temperature sensor on fifth previous occasion. | | | | |
| | | HI | Outdoor heat exchanger sensor on fifth previous occasion. | | | | |
| | AUTO | Discharge pipe sensor on fifth previous occasion. | | | | | |
| 30 | Cooling | AUTO | Indoor heat exchanger sensor 2 on fifth occasion. | | | | |
| 21 | Cooling | LO | Stop code on previous occasion. | | | | |
| 22 | | | Stop code on second previous occasion. | | | | |
| 23 | | | Stop code on third previous occasion. | | | | |
| 24 | | | Stop code on fourth previous occasion. | | | | |
| 25 | | | Stop code on fifth previous occasion. | | | | |
| 26 | | | Stop code on sixth previous occasion. | | | | |
| 27 | | | Stop code on seventh previous occasion. | | | | |
| 28 | | | Stop code on eighth previous occasion. | | | | |
| 29 | | | Stop code on ninth previous occasion. | | | | |
| 30 | | | Stop code on tenth previous occasion. | | | | |
| Judgment | | | | | | | Examiner |
| Remarks | | | | | | | |

Note (1) In the case of indoor heat exchanger sensor 2, match from 26 to 30 the temperature setting of wireless remote control. (Refer to page 114)

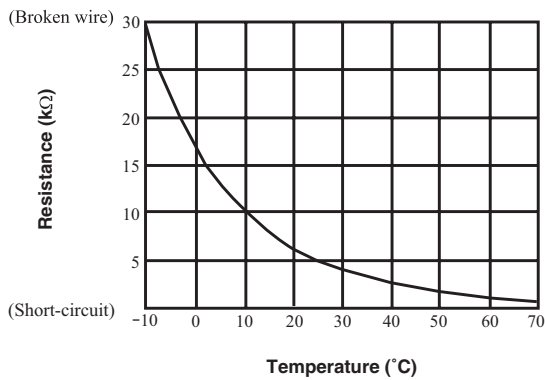
(7) Inspection procedures corresponding to detail of trouble

Sensor error

[Broken sensor wire, connector poor connection]

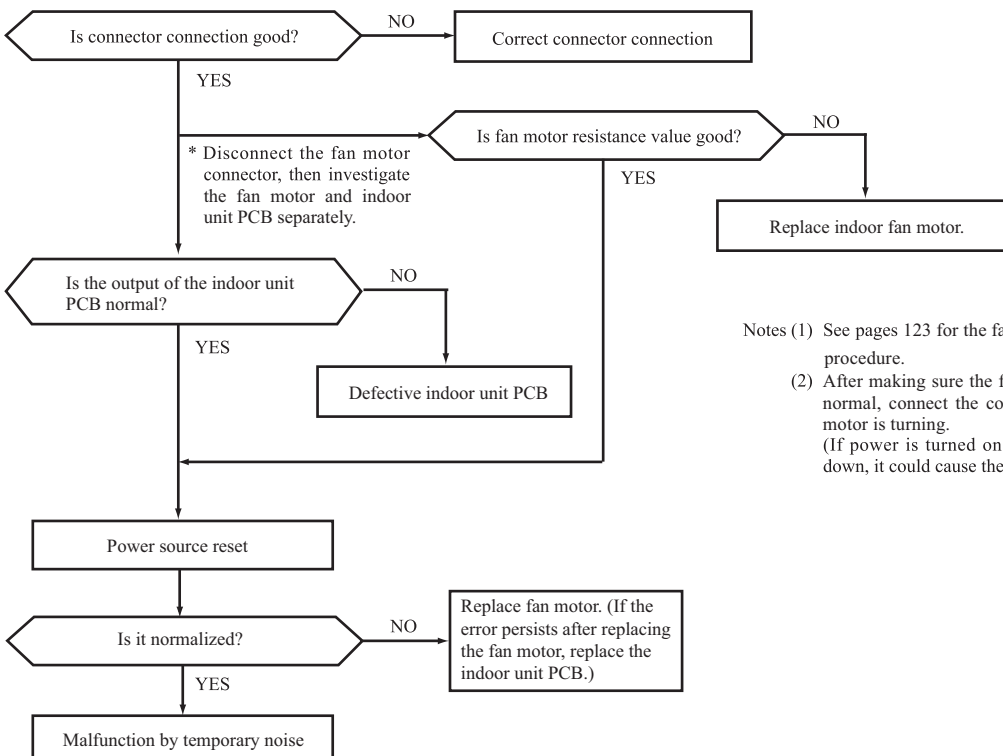


◆ **Sensor temperature characteristics**
(Room temperature, indoor heat exchanger temperature)



Indoor fan motor error

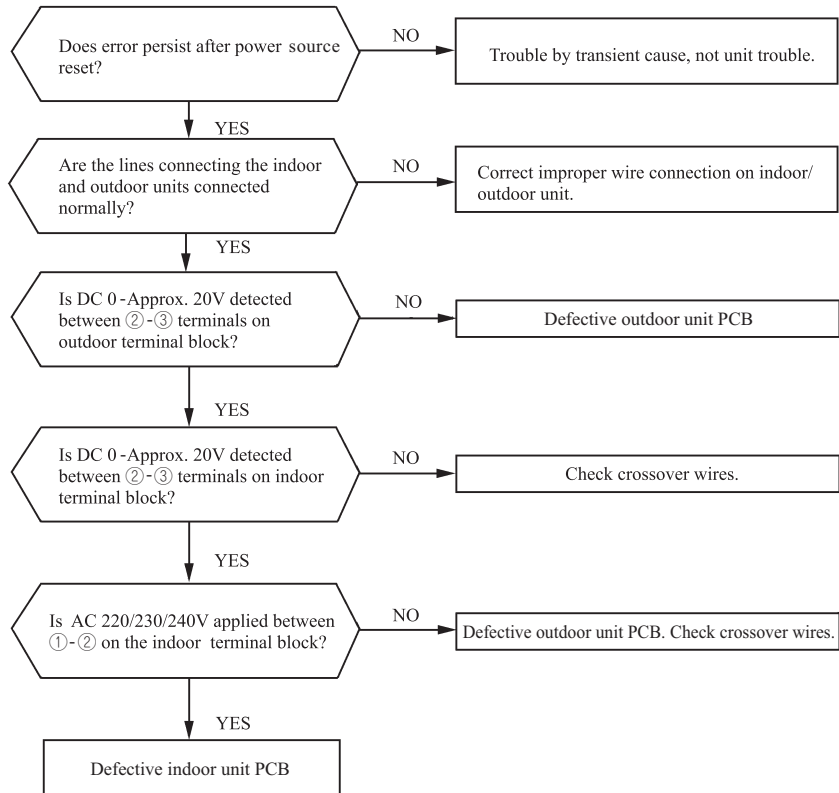
[Defective fan motor, connector poor connection, defective indoor unit PCB]



Notes (1) See pages 123 for the fan motor and indoor unit PCB check procedure.
(2) After making sure the fan motor and indoor unit PCB are normal, connect the connectors and confirm that the fan motor is turning.
(If power is turned on while one or the other is broken down, it could cause the other to break down also.)

Error of signal transmission

[Wiring error including power cable, defective indoor/
outdoor unit PCB]



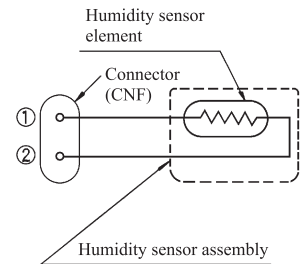
(8) Phenomenon observed after short-circuit, wire breakage on sensor

| Sensor | Operation mode | Phenomenon | |
|-----------------------------------|----------------|--|--|
| | | Shortcircuit | Disconnected wire |
| Room temperature sensor | Cooling | Release of continuous compressor operation command. | Continuous compressor operation command is not released. |
| | Heating | Continuous compressor operation command is not released. | Release of continuous compressor operation command. |
| Heat exchanger temperature sensor | Cooling | Freezing cycle system protection trips and stops the compressor. | Continuous compressor operation command is not released. (Anti-frosting) |
| | Heating | High pressure control mode (Compressor stop command) | Hot keep (Indoor fan stop) |
| Humidity sensor | Cooling | Refer to the table below. | Refer to the table below. |
| | Heating | Normal system operation is possible. | |

■ Humidity sensor operation

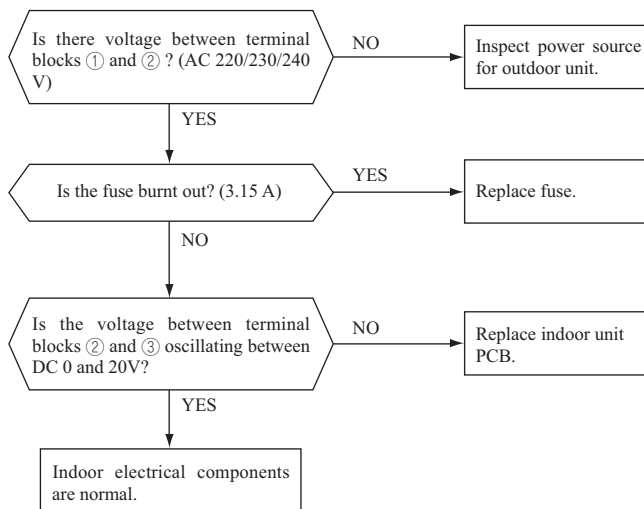
| Failure mode | Control input circuit resding | Air-conditioning system operation |
|-------------------|-------------------------------|-----------------------------------|
| Disconnected wire | ① Disconnected wire | Humidity reading is 0% |
| | ② Disconnected wire | |
| | ①② Disconnected wire | |
| Short-circuit | ① and ② are short-circuited | Humidity reading is 100% |

Remark: Do not perform a continuity check of the humidity sensor with a tester. If DC current is applied, it could damage the sensor.



(9) Checking the indoor electrical equipment

(a) Indoor unit PCB check procedure



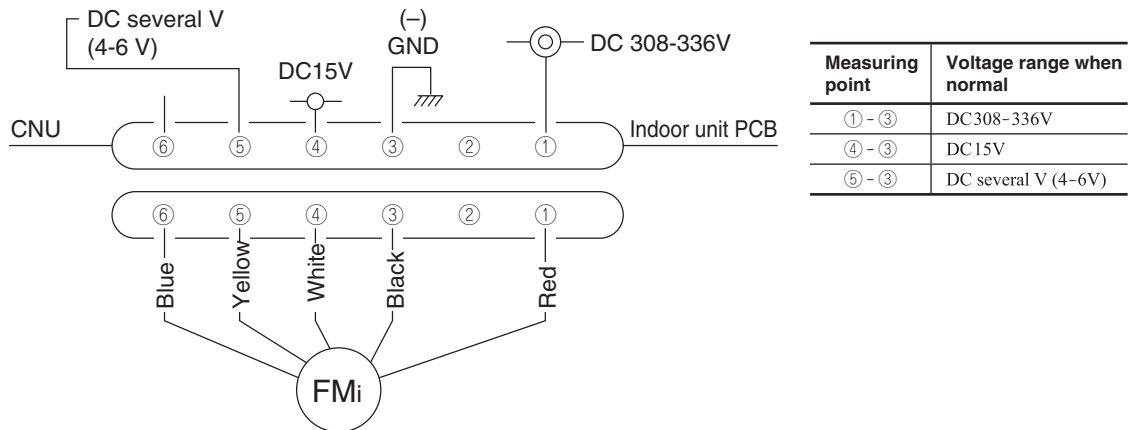
(b) Indoor fan motor check procedure

This is a diagnostic procedure for determining if the indoor fan motor or the indoor unit PCB is broken down.

(i) Indoor unit PCB output check

- 1) Turn off the power.
- 2) Remove the front panel, then disconnect the fan motor lead wire connector.
- 3) Turn on the power. If the unit operates when the ON/OFF button is pressed, if trouble is detected after the voltages in the following figure are output for approximately 30 seconds, it means that the indoor unit PCB is normal and the fan motor is broken down

If the voltages in the following figure are not output at connector pins No. ①, ④ and ⑤, the indoor unit PCB has failed and the fan motor is normal.

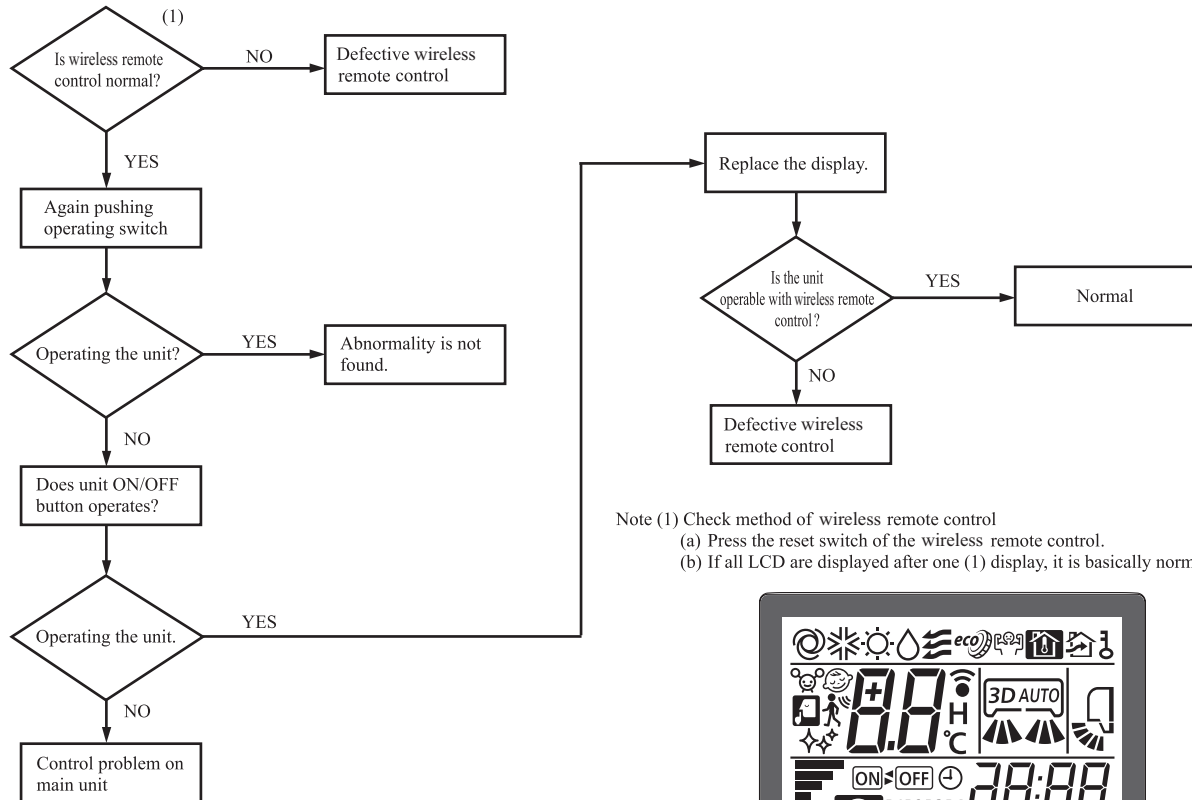


(ii) Fan motor resistance check

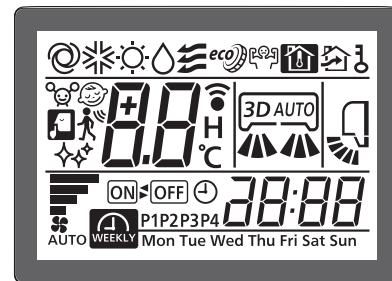
| Measuring point | Resistance when normal |
|-----------------------|------------------------|
| ① - ③ (Red - Black) | 20 MΩ or higher |
| ④ - ③ (White - Black) | 20 kΩ or higher |

- Notes (1) Remove the fan motor and measure it without power connected to it.
 (2) If the measured value is below the value when the motor is normal, it means that the fan motor is faulty.

(10) How to make sure of wireless remote control



Note (1) Check method of wireless remote control
 (a) Press the reset switch of the wireless remote control.
 (b) If all LCD are displayed after one (1) display, it is basically normal.



◆ Simplified check method of wireless remote control
 It is normal if the signal transmission section of the wireless remote control emits a whitish light at each transmission on the monitor of digital camera.

(11) Inspection procedure for blown fuse on the indoor unit PCB

