



2.2 Troubleshooting flow

(1) List of troubles

Remote control display	Description of trouble	Reference page
None	Operates but does not cool.	47
None	Operates but does not heat.	48
None	Earth leakage breaker activated	49
None	Excessive noise/vibration (1/3)	50
None	Excessive noise/vibration (2/3)	51
None	Excessive noise/vibration (3/3)	52
None	Louver motor failure (FDTC and FDE series)	53
None	Power source system error (Power source to indoor unit control PCB)	54
None	Power source system error (Power source to remote control)	55
INSPECT I/U	INSPECT I/U (When 1 or 2 remote controls are connected)	56
INSPECT I/U	INSPECT I/U (Connection of 3 units or more remote controls)	57
 WAIT 	Communication error at initial operation	58-60
None	No display	61
E1	Remote control communication circuit error	62
E5	Communication error during operation	63
E6	Indoor heat exchanger temperature sensor anomaly	64
E7	Return air temperature sensor anomaly	65
E8	Heating overload operation	66
E9	Drain trouble (FDTC and FDUM series)	67
E10	Excessive number of connected indoor units (more than 17 units) by controlling with one remote control	68
E11	Address setting error of indoor units	69
E16	Indoor fan motor anomaly	70
E19	Indoor unit operation check, drain pump motor check setting error	71
E20	Indoor fan motor rotation speed anomaly	72
E28	Remote control temperature sensor anomaly	73
E35	Cooling overload operation	74
E36	Discharge pipe temperature error	75
E37	Outdoor heat exchanger temperature sensor anomaly	76
E38	Outdoor air temperature sensor anomaly	77
E39	Discharge pipe temperature sensor anomaly	78
E40	Service valve (gas side) closing operation	79
E42	Current cut	80 • 81
E47	Active filter voltage error	82
E48	Outdoor fan motor anomaly	83
E51	Power transistor anomaly	84
E57	Insufficient refrigerant amount or detection of service valve closure	85
E58	Current safe stop	86
E59	Compressor startup failure	87
E60	Compressor rotor lock error	88

(2) Troubleshooting

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

1. Applicable model
All models
2. Error detection method
3. Condition of error displayed
4. Presumable cause
<ul style="list-style-type: none"> Poor compression of compressor Faulty expansion valve operation

5. Troubleshooting	
Diagnosis	Countermeasure
<p>Check the indoor fan operation. Check the temperature difference between return and supply air.</p> <pre> graph TD Start[Check indoor fan operation and temperature difference] --> D1{Is the temperature difference between return and supply air 10-20°C at cooling?} 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 more.] 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.] Box1 --> CM2[It is necessary to replace to higher capacity one or to install additional unit.] D3 -- YES --> D4{Is the compressor rotation speed low?} D3 -- NO --> D5{“WAIT” message is displayed for 3 seconds when performing cooling, defrosting and heating operations from the remote control.} D5 -- YES --> CM3[Compressor refrigerant oil protection control at starting is activated. For the contents of control, refer to the compressor start control of the microcomputer control functions.] D5 -- NO --> CM4[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.] D4 -- YES --> Box2[Check which control “Determination control of compressor rotation speed” or “Protective control by controlling compressor rotation speed” is appropriate to this phenomenon.] D4 -- NO --> CM5[Inspect the followings: Minor clogging of filter, Minor clogging of heat exchanger, Minor short-circuit, Minor shortage of refrigerant amount, Poor compression of compressor] Box2 --> D6{Are the temperature conditions of room and outdoor air close to the rated conditions? (1)} D6 -- YES --> CM6[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, Valid setting of silent mode] D6 -- NO --> End[The unit is operating normally but is operating under the control for protecting compressor or other respective parts.] Note[Note (1) Outdoor: 35°C, Indoor: 27°C] </pre>	<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. For the contents of control, refer to the compressor start control of the microcomputer control functions.</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.</p> <ul style="list-style-type: none"> Minor clogging of filter Minor clogging of heat exchanger Minor short-circuit Minor shortage of refrigerant amount Poor compression of compressor <p>Considering appropriate operation control, check suspicious points. Inspect the followings for reference.</p> <ul style="list-style-type: none"> Major clogging of filter Major clogging of heat exchanger Major short-circuit Major shortage of refrigerant amount Compressor protection ON Indoor fan tap Valid setting of silent mode

Note:

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

1. Applicable model
All models
2. Error detection method
3. Condition of error displayed
4. Presumable cause
<ul style="list-style-type: none"> Faulty 4-way valve operation Poor compression of compressor Faulty expansion valve operation

5. Troubleshooting	
Diagnosis	Countermeasure
<p>Check the indoor fan operation. Check the temperature difference between return and supply air.</p> <pre> graph TD Start([Start]) --> Step1[Check the indoor fan operation. Check the temperature difference between return and supply air.] Step1 --> 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 --> C1[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 --> D5{Is the compressor rotation speed low?} D4 -- YES --> C2[It is necessary to replace to higher capacity one or to install additional unit.] D4 -- NO --> C3[Compressor refrigerant oil protection control at starting is activated. For the contents of control, refer to the compressor start control of the microcomputer control functions.] 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.] D5 -- 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.] Box2 --> D6{Are the (1) temperature conditions of room and outdoor air close to the rated conditions?} D6 -- YES --> 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] D6 -- NO --> Box3[The unit is operating normally but is operating under the control for protecting compressor or other respective parts.] </pre>	
<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. For the contents of control, refer to the compressor start control of the microcomputer control functions.</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.</p> <ul style="list-style-type: none"> Minor clogging of filter Minor clogging of heat exchanger Minor short-circuit Minor shortage of refrigerant amount Poor compression of compressor <p>Considering appropriate operation control, check suspicious points. Inspect the followings for reference.</p> <ul style="list-style-type: none"> Major clogging of filter Major clogging of heat exchanger Major short-circuit Major shortage of refrigerant amount Compressor protection ON Indoor fan tap Valid setting of silent mode 	

Note:

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

1. Applicable model
All models

2. Error detection method

3. Condition of error displayed

4. Presumable cause

- Defective compressor
- Noise

5. Troubleshooting

Diagnosis	Countermeasure
<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?} P1[Check the outdoor unit grounding wire/earth leakage breaker.] D1 -- NO --> C1[Replace compressor.*] D1 -- YES --> D2 D2 -- NO --> C2[Secure insulation resistance.] D2 -- YES --> P1 </pre>	<p>Replace compressor.*</p> <p>Secure insulation resistance.</p>
<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 When power ON, crankcase heater heat up compressor and evaporate the refrigerant migrated in the compressor.</p> <p>② 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>	

Note:

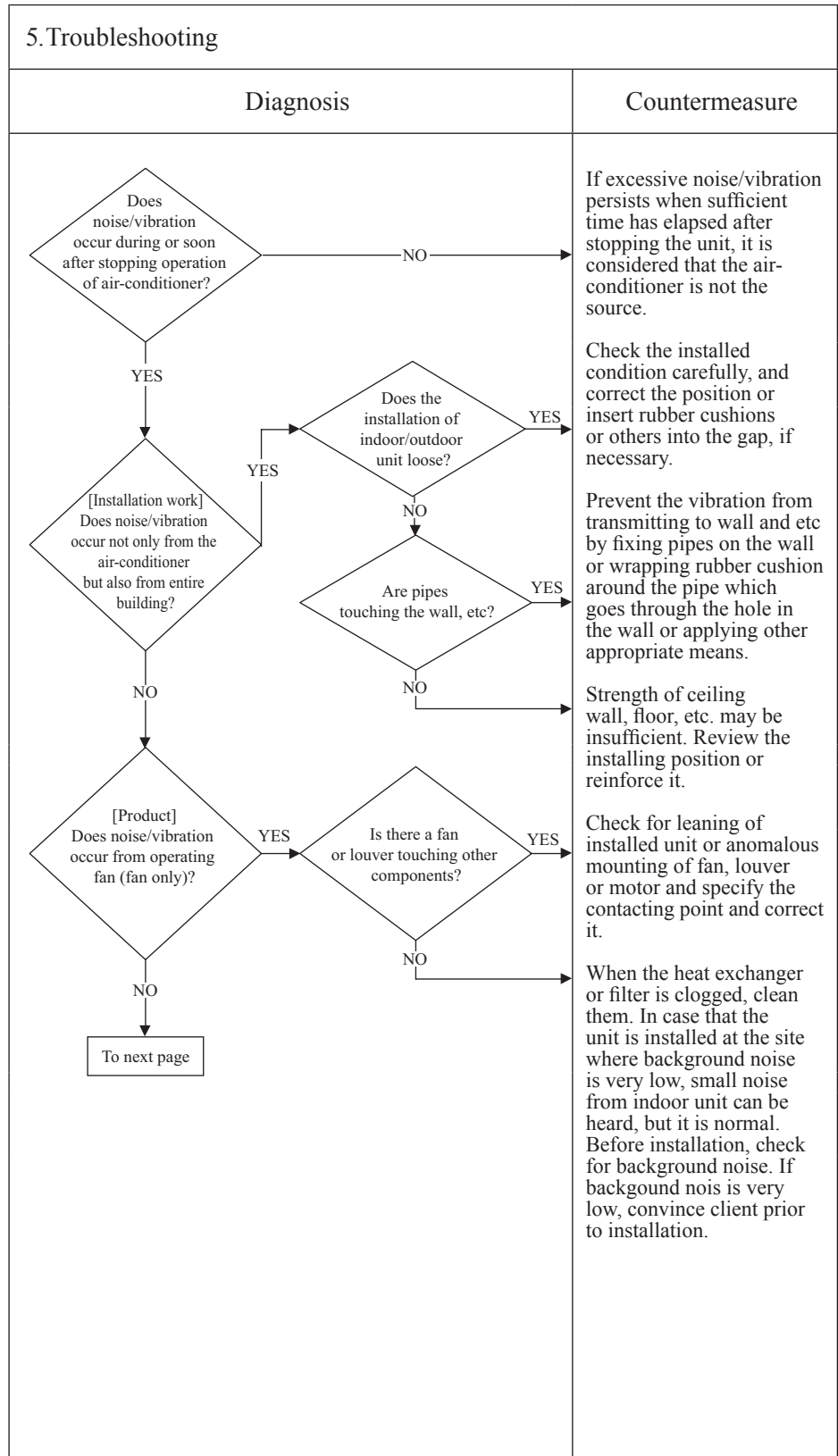
Error code Remote control: None	LED	Green	Red	Content Excessive noise/vibration (1/3)
	Indoor	—	—	
	Outdoor	—	—	

1. Applicable model
All models

2. Error detection method

3. Condition of error displayed

- 4. Presumable cause**
- ① Improper installation work
 - Improper anti-vibration work at installation
 - Insufficient strength of mounting face
 - ② Defective product
 - Before/after shipping from factory
 - ③ Improper adjustment during commissioning
 - Excess/shortage of refrigerant, etc.



Note:

Error code Remote control: None	LED	Green	Red	Content Excessive noise/vibration (2/3)
	Indoor	—	—	
	Outdoor	—	—	

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

5. Troubleshooting	
Diagnosis	Countermeasure
<pre> graph TD Start([From previous page]) --> D1{[Unit side] Does noise/vibration occur when the cooling/heating operation is performed normally?} D1 -- NO --> Next([To next page]) D1 -- YES --> D2{Are the pipes contacting the casing?} D2 -- YES --> C1[Rearrange the piping to avoid contact with the casing.] D2 -- NO --> D3{Is it heard continuous hissing or roaring sound?} D3 -- YES --> C2[It is noise/vibration that is generated when the refrigerant gas or liquid flow through inside of piping of air-conditioner. It is likely to occur particularly during cooling or defrost operation in the heating mode. It is normal.] D3 -- NO --> D4{Are hissing sounds heard at the startup or stopping?} D4 -- YES --> C3[The noise/vibration occurs when the refrigerant starts or stops flowing. It is normal.] D4 -- NO --> D5{Is blowing sound heard at the start/stop of defrost operation during heating?} D5 -- YES --> C4[When the defrost operation starts or stops during heating, the refrigerant flow is reversed due to switching 4-way valve. This causes a large change in pressure which produces a blowing sound. It may accompany also the hissing sounds as mentioned above. They are normal.] D5 -- NO --> D6{Is cracking noise heard during heating operation?} D6 -- YES --> C5[After the start or stop of heating operation or during defrost operation, abrupt changes in temperature cause resin parts to shrink or expand. This is normal.] D6 -- NO --> D7{Hissing noise is heard during cooling operation or after stopping.} D7 -- YES --> C6[It is the sound produced by the drain pump that discharges drain from the indoor unit. The pump continues to run for 5 minutes after stopping the cooling operation. This is normal.] D7 -- NO --> C7[Apply the damper sealant at places considered to be the sources such as the pressure reducing mechanism (expansion valve), capillary, etc.] </pre>	

Note:

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

<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 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>4. Presumable cause</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 	

Note:

Error code Remote control: None	LED	Green	Red	Content Louver motor failure (FDTC and FDE only)
	Indoor	Keeps flashing	Stays OFF	
	Outdoor	Keeps flashing	Stays OFF	

1. Applicable model
FDTC and FDE series only

2. Error detection method

3. Condition of error displayed

4. Presumable cause
<ul style="list-style-type: none"> • Defective LM • LM wire breakage • Faulty indoor unit control PCB

5. Troubleshooting	
Diagnosis	Countermeasure
<p>▲ Check at the indoor unit side.</p> <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:

Error code Remote control: None	LED	Green	Red	Content Power source system error (Power source to indoor unit control PCB)
	Indoor	Stays OFF	Stays OFF	
	Outdoor	Keeps flashing	2-time flash	

1. Applicable model
All models

2. Error detection method

3. Condition of error displayed

4. Presumable cause
<ul style="list-style-type: none"> • Misconnection or breakage of connecting wires • Blown fuse • Faulty transformer • Faulty indoor unit control PCB • Broken harness • Faulty outdoor unit control PCB (Noise filter)

5. Troubleshooting	
Diagnosis	Countermeasure
<pre> graph TD D1{Is AC220/240V detected between ① and ② on the terminal block of indoor unit?} D2{Are fuses OK (F1,2)} D3{Is the check of resistance between ①-③ of CNW0 OK?} D4{Is the checked result of resistance of FM, LM, etc OK?} D5{Is DC5V detected between ④-⑤ of CNW2?} D6{Is JX1 open?} D7{Is AC380/415V for 3-phase unit detected between ①, ② and ③ on the terminal block of outdoor unit or is AC220/240V for 1-phase unit detected between ① and ② on the terminal block of outdoor unit?} D1 -- YES --> D2 D1 -- NO --> D7 D2 -- YES --> D5 D2 -- NO --> D3 D3 -- YES --> D4 D3 -- NO --> C1[Defective outdoor unit control PCB (Noise filter).] D4 -- YES --> C2[Replace fuse.] D4 -- NO --> C3[Replace FM, LM, etc.] D5 -- YES --> C4[Defective indoor unit control PCB → Replace.] D5 -- NO --> C5[Defective indoor unit control PCB → Replace.] D6 -- YES --> C6[Defective indoor unit control PCB → Replace.] D6 -- NO --> C7[Open JX1.] D7 -- YES --> C8[Misconnection or breakage of connecting wires.] D7 -- NO --> C1 </pre>	

Note:

Error code Remote control: None	LED	Green	Red	Content Power source system error (Power source to remote control)
	Indoor	Keeps flashing	Stays OFF	
	Outdoor	Keeps flashing	2-time flash	

1. Applicable model
All models

2. Error detection method

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 • Broken harness • Faulty indoor unit control PCB

5. Troubleshooting	
Diagnosis	Countermeasure
<pre> graph TD D1{Is the connection of the remote control's wiring OK? X (white), Y (black)} -- NO --> C[Correct.] D1 -- YES --> D2{Does the voltage between X and Y in the indoor terminal block exceed 15 VDC?} D2 -- NO --> R[Remove wire for the remote control] D2 -- YES --> P[Power source reset] P --> D3{Does resetting the power source return it to normal?} D3 -- NO --> C1[Remote control wire breakage? Replace remote control. Malfunction by temporary noise.] D3 -- YES --> D4{Does the re-measured voltage between X and Y in the indoor terminal block exceed 15 VDC?} D4 -- NO --> C2[Defective indoor unit control PCB -> Replace.] D4 -- YES --> C3[Remote control wire breakage? Replace remote control.] </pre>	

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	
	Outdoor	Keeps flashing	2-time flash	

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{Is it set at the slave remote control?} Q3{Does it become normal?} 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 --> Q3 Q3 -- NO --> Q4 Q1 -- NO --> Q2 Q2 -- NO --> Q4 Q2 -- YES --> C1[Set SW1 on remote control PCB at "Master".] 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	
	Outdoor	Keeps flashing	2-time flash	

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 PCB • Faulty outdoor unit control PCB

5. Troubleshooting	
Diagnosis	Countermeasure
<pre> graph TD Q1{Are more than 3 units of remote control connected?} -- YES --> C1[Reduce to 2 units or less.] Q1 -- NO --> Q2{Does remote control display "Slave"?} Q2 -- YES --> C2[Change remote control setting to "Master". (SW1 on remote control PCB)] Q2 -- NO --> Q3{Do more than one indoor units have the same address?} Q3 -- YES --> C3[Change address. (SW2 on indoor unit control PCB)] Q3 -- NO --> Q4{Is it set to a slave indoor unit. SW5-1, 2?} Q4 -- YES --> C4[Change to master. (SW5-1, 2 on indoor unit control PCB)] Q4 -- NO --> Q5{Is there loose or wrong connection at the terminal of wiring between indoor and outdoor units?} Q5 -- YES --> C5[Correct.] Q5 -- NO --> Q6{Is the grounding wire connected properly?} Q6 -- YES --> C6[Correct.] Q6 -- NO --> Q7{Is approx. DC20V detected between ②-③ on the outdoor unit terminal block?} Q7 -- YES --> C7[Defective outdoor unit control PCB → Replace.] Q7 -- NO --> Q8{Is approx. DC20V detected between ②-③ on the indoor unit terminal block?} Q8 -- YES --> C8[Broken connecting wire → Correct.] Q8 -- NO --> C9[Defective indoor unit control PCB → Replace.] </pre>	

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

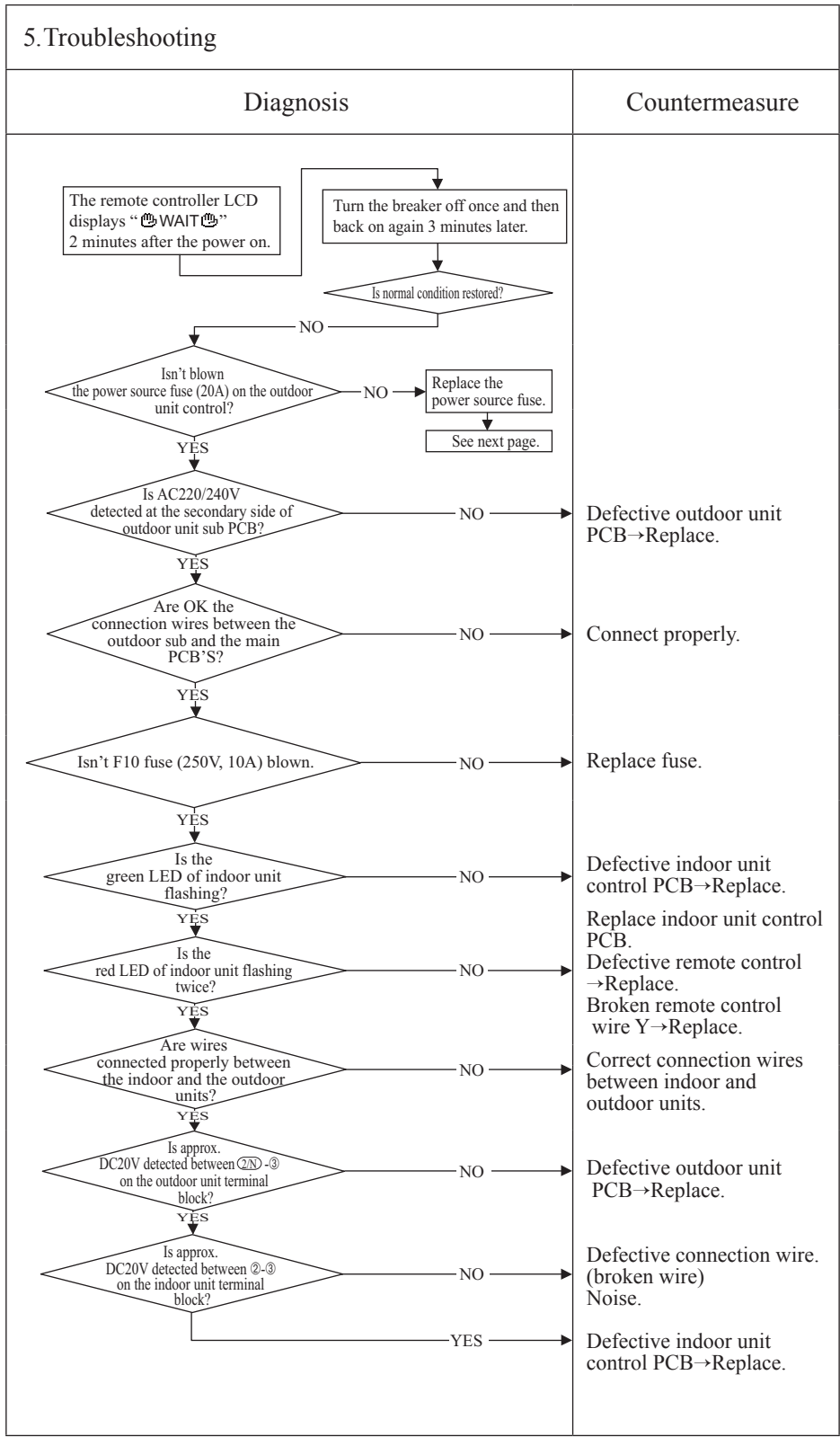
Error code Remote control: 𠄎WAIT𠄎	LED	Green	Red	Content Communication error at initial operation (1/3)
	Indoor	Keeps flashing	Stays OFF	
	Outdoor	—	2-time flash	

1. Applicable model
All models
When the remote control LCD displays “𠄎WAIT𠄎” 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
 - Blown fuse on single phase model
 - 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. (Outdoor unit red LED flashes twice.) 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 “𠄎WAIT𠄎” if the anomaly continues. If the breaker ON/OFF is repeated in a short period of time (within 1 minute), “𠄎WAIT𠄎” 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	
	Outdoor	—	2-time flash	

1. Applicable model

All models

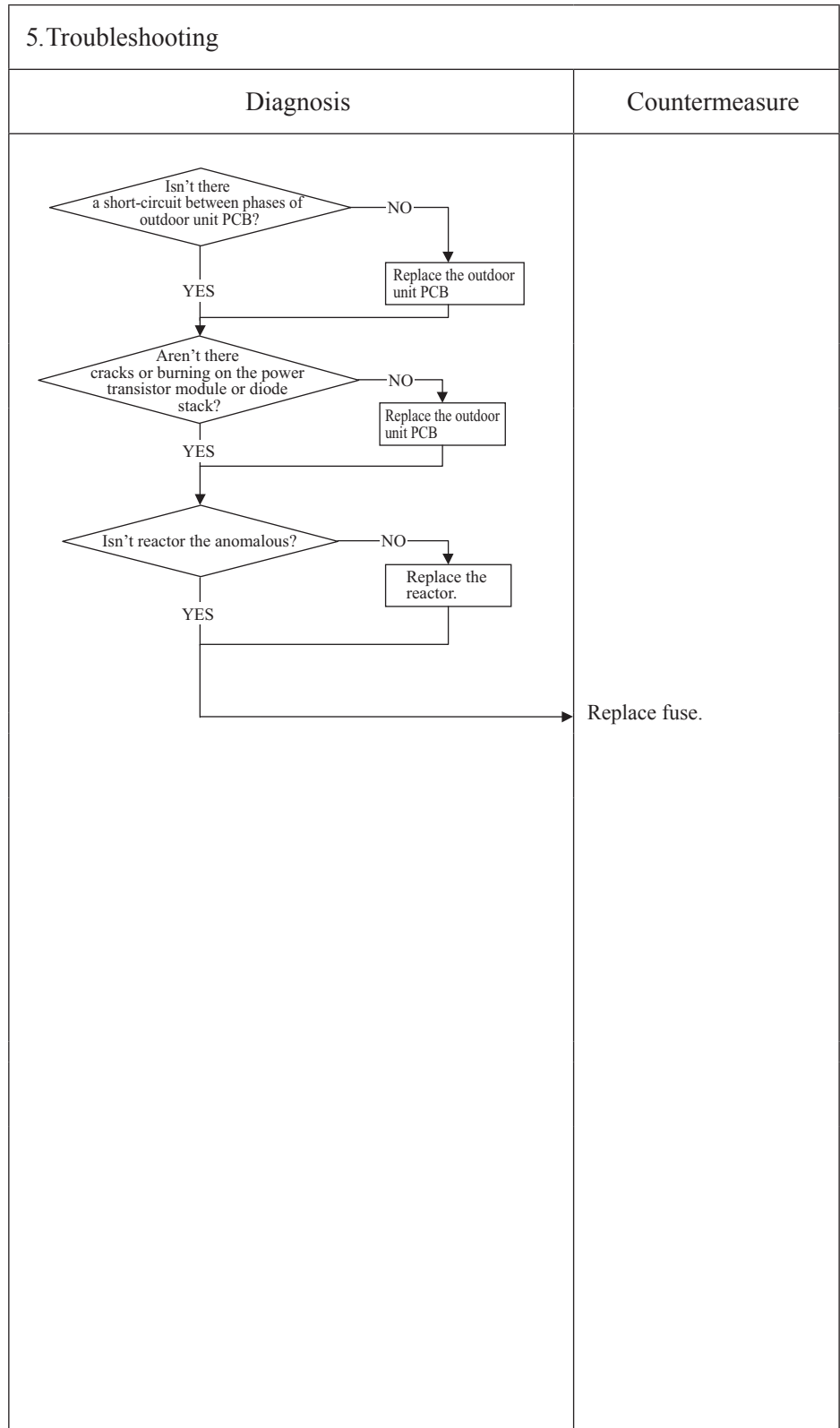
When the fuse is blown, the method to inspect inverter before replacing the power source fuse

2. Error detection method

3. Condition of error displayed

4. Presumable cause

- Blown fuse
- Faulty outdoor unit PCB
- Faulty reactor



Note:

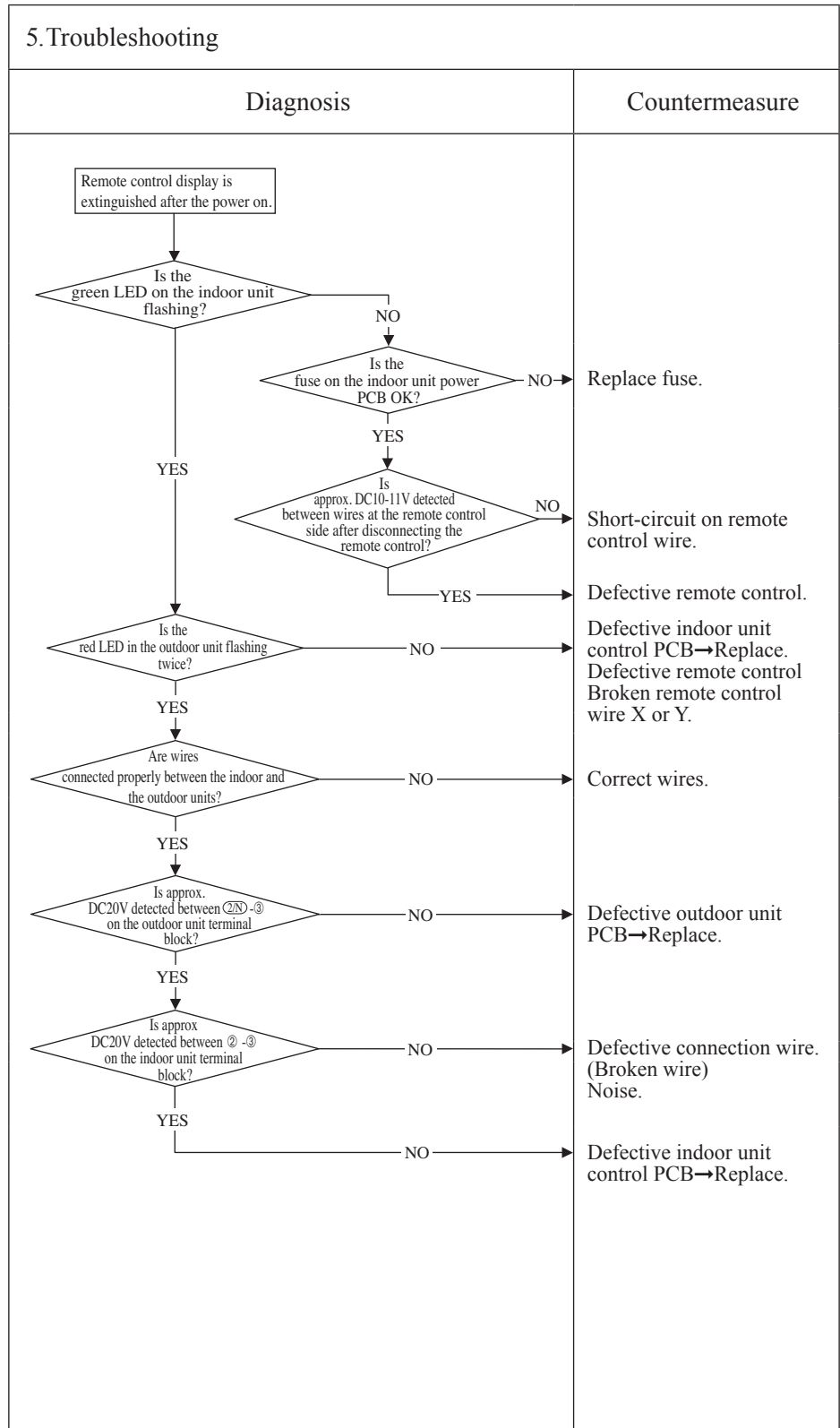
Error code Remote control: 🏠 WAIT 🏠	LED	Green	Red	Content Communication error at initial operation (3/3)
	Indoor	Keeps flashing	Stays OFF	
	Outdoor	—	2-time flash	

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: None	LED	Green	Red	Content No display
	Indoor	Stays OFF	Stays OFF	
	Outdoor	Stays OFF	Stays OFF	

1. Applicable model
All models

2. Error detection method

3. Condition of error displayed

4. Presumable cause
<ul style="list-style-type: none"> • Faulty indoor unit control PCB • Defective remote control • Broken remote control wire

5. Troubleshooting	
Diagnosis	Countermeasure
<pre> graph TD Start[Remote control does not display anything after the power on.] --> D1{Is DC10V or higher detected at remote control connection terminals?} D1 -- YES --> C1[Defective remote control.] D1 -- NO --> D2{Is DC10V or higher detected on remote control wires if the remote control is removed?} D2 -- YES --> C2[Defective remote control.] D2 -- NO --> D3{Are wires connected properly between the indoor/outdoor units?} D3 -- YES --> C3[Defective connecting wire. Defective remote control wire. (Short-circuit, etc.)] D3 -- NO --> C4[Defective indoor unit control PCB -> Replace.] </pre>	

Note:

Error code Remote control: E1	LED	Green	Red	Content
	Indoor	Keeps flashing	Stays OFF	
	Outdoor	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? (1)} E -- YES --> F[Defective indoor unit control PCB → Replace.] E -- NO --> G[Connect the wire ③ connecting between indoor/outdoor units.] G --> H[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	
	Outdoor	Keeps flashing	See below	

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 control PCB

5. Troubleshooting	
Diagnosis	Countermeasure
<p>● In case that the outdoor unit red LED flashes 2-time</p> <p>Note (1) Inspect faulty connections (disconnection, looseness) on the outdoor unit terminal block.</p> <p>Is the connection of signal wires at the outdoor unit side OK?</p> <p>NO → Repair signal wires.</p> <p>YES</p> <p>Note (2) Check for faulty connection or breakage of signal wires between indoor-outdoor units.</p> <p>Is the connection of signal wires between indoor-outdoor units OK?</p> <p>NO → Repair signal wires.</p> <p>YES</p> <p>Power source reset</p> <p>Has the remote control LCD returned to normal state?</p> <p>NO → To the diagnosis of “WAIT”.</p> <p>YES → Unit is normal. (Malfunction by temporary noise, etc.)</p> <p>● In case that the outdoor unit red LED stays OFF</p> <p>Power source reset</p> <p>NO</p> <p>Has the remote control LCD returned to normal state?</p> <p>NO → Defective outdoor unit PCB (Defective network communication circuit) → Replace.</p> <p>YES → Unit is normal. (Malfunction by temporary noise, etc.)</p>	

Note: Pressing the pump-down switch cancels communications between indoor and outdoor unit so that “communication error-E5” is displayed on indoor unit and remote control, but it is normal.

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

1. Applicable model
All models

2. Error detection method
Anomalously low temperature or high temperature (resistance) is detected on the indoor heat exchanger temperature sensor (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-minute 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 temperature sensor connector
- Indoor heat exchanger temperature sensor anomaly
- Faulty indoor unit control PCB

5. Troubleshooting

Diagnosis	Countermeasure
<p>Is the connection of indoor heat exchanger temperature sensor connector OK?</p> <p>NO →</p> <p>YES →</p> <p>Are characteristics of indoor heat exchanger temperature sensor OK?</p> <p>NO →</p> <p>YES →</p>	<p>Correct. → Insert connector securely.</p> <p>Defective indoor heat exchanger temperature sensor → Replace.</p> <p>Defective indoor unit control PCB → Replace. (Defective indoor heat exchanger temperature sensor input circuit)</p>
<p>(Broken wire) Temperature-resistance characteristic</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	
	Outdoor	Keeps flashing	Stays OFF	

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.

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	7
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	
	Outdoor	Keeps flashing	Stays OFF	

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**
- 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 -- NO --> C2[Defective indoor heat exchanger temperature sensor connector → Correct.] Q2 -- YES --> Q3{Are the characteristics of indoor heat exchanger temperature sensor OK? (2)} Q3 -- NO --> C3[Defective indoor heat exchanger temperature sensor.] Q3 -- YES --> R1[Check the error data with the remote control.] R1 --> Q4{Is the unit operating in the state of heating overload?} Q4 -- NO --> C4[Check refrigerant system.] Q4 -- YES --> C5[Adjust.] </pre>	
<p>Note (1) Judge if it is in the state of overload or not as follows.</p> <ul style="list-style-type: none"> • 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 room and outdoor air temperature too high? <p>Note (2) For characteristics of indoor heat exchanger temperature sensor, see the error display E6.</p> <p>The graph shows a horizontal line representing indoor heat exchanger temperature. A downward arrow labeled 'Reset' points to the line at 56°C. An upward arrow labeled 'Error stop' points to the line at 63°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.

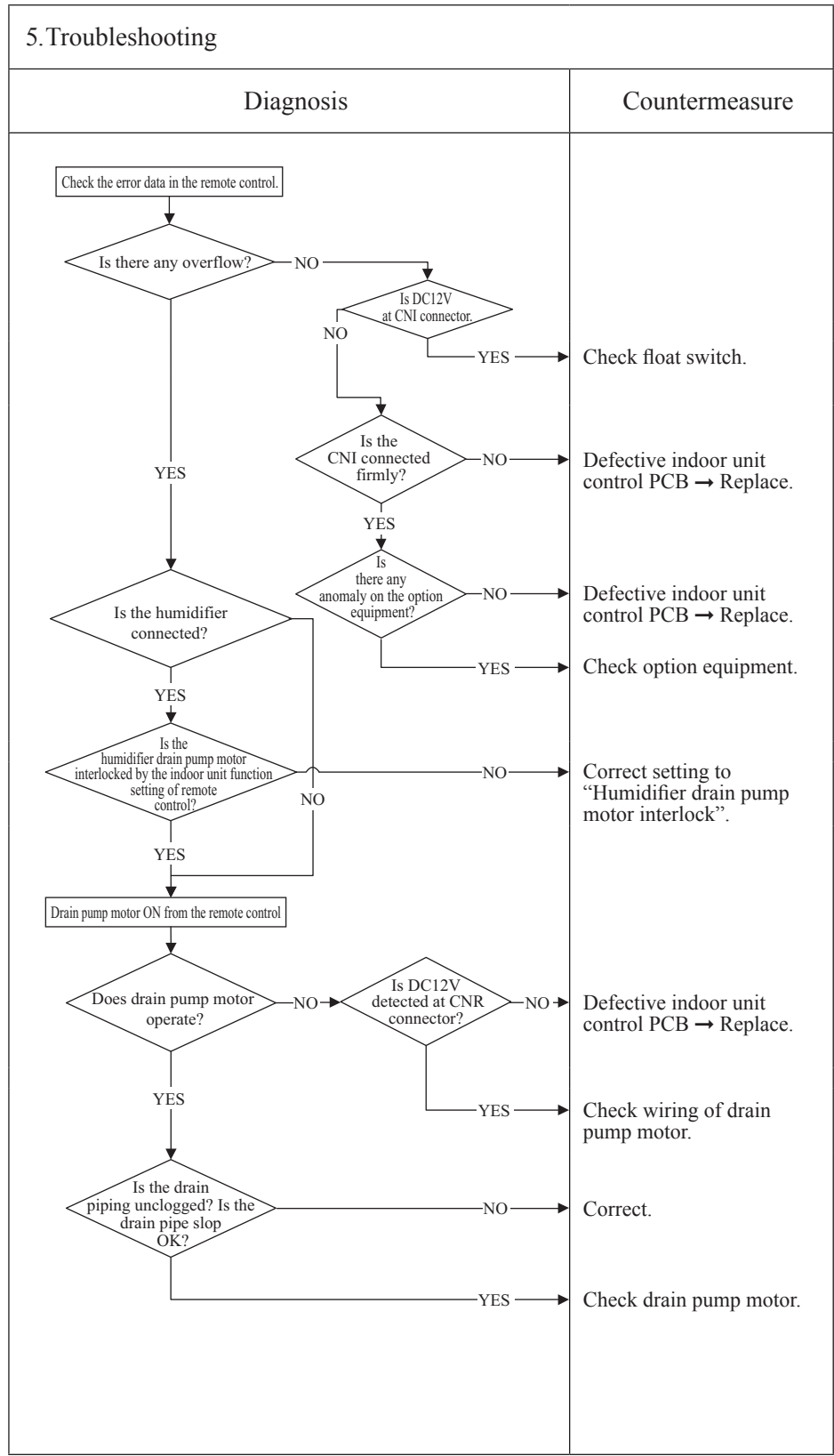
Error code Remote control: E9	LED	Green	Red	Content Drain trouble (FDTC and FDUM series)
	Indoor	Keeps flashing	1-time flash	
	Outdoor	Keeps flashing	Stays OFF	

1. Applicable model
FDTC and 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**
- Defective indoor unit control PCB
 - Float switch setting error
 - Humidifier drain pump motor interlock setting error
 - Option equipment setting error
 - Drain piping error
 - Defective drain pump motor
 - Disconnection of drain pump motor wiring



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	
	Outdoor	Keeps flashing	Stays OFF	

<p>1. Applicable model</p> <p>All models</p>	<p>5. Troubleshooting</p> <table border="1" style="width: 100%;"> <thead> <tr> <th style="width: 50%;">Diagnosis</th> <th style="width: 50%;">Countermeasure</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;"> <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> </td> <td></td> </tr> </tbody> </table>		Diagnosis	Countermeasure	<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>	
Diagnosis	Countermeasure					
<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>						
<p>2. Error detection method</p> <p>When it detects more than 17 of indoor units connected to one remote control</p>						
<p>3. Condition of error displayed</p> <p>Same as above</p>						
<p>4. Presumable cause</p> <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	
	Outdoor	Keeps flashing	Stays OFF	

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[E11 occurs] --> B{Is "Master IU address set" function of remote control used?} B -- YES --> C[Countermeasure] </pre>	
<p>In case the wiring is below and “Master IU address set” is used, E11 is appeared.</p>	
	<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: E16	LED	Green	Red	Content Indoor fan motor anomaly
	Indoor	Keeps flashing	1(2)-time flash	
	Outdoor	Keeps flashing	Stays OFF	

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

<p>1. Applicable model</p> <p>All models</p>	<p>5. Troubleshooting</p>	
<p>2. Error detection method</p> <p>Detected by rotation speed of indoor fan motor</p>	<p style="text-align: center;">Diagnosis</p> <pre> graph TD D1{Does any foreign material intervene in rotational area of fan propeller?} -- YES --> C1[Remove foreign material.] D1 -- NO --> D2{Does the fan rotate smoothly when turned by hand?} D2 -- YES --> D3{Is DC280V detected between ①-④ of fan motor connector CNM?} D2 -- NO --> C2[Replace the fan motor.] D3 -- YES --> B1[Power source reset] D3 -- NO --> D4{Is the fuse F1(F3) or F2(F4) blown?} B1 --> D5{Is it normalized?} D4 -- YES --> C3[Replace faulty fan motor and indoor unit control PCB.] D4 -- NO --> C4[Check power voltage.] D5 -- YES --> C5[Malfunction by temporary noise.] D5 -- NO --> C6[Replace fan motor. (If the error persists after replacing the fan motor, replace the indoor unit control PCB.)] </pre>	<p style="text-align: center;">Countermeasure</p>
<p>3. Condition of error displayed</p> <ul style="list-style-type: none"> 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-second, it starts again automatically, but if this error occurs 4 times within 60 minutes after the initial detection. 		
<p>4. Presumable cause</p> <ul style="list-style-type: none"> Defective indoor unit control 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: E19	LED	Green	Red	Content Indoor unit operation check, drain pump motor check setting error
	Indoor	Keeps flashing	1-time flash	
	Outdoor	Keeps flashing	Stays OFF	

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 -- NO --> Countermeasure1[Defective indoor unit control PCB (Defective SW7) -> Replace.] Decision -- YES --> Countermeasure2[Turn SW7-1 on the indoor unit control PCB OFF and reset the power.] </pre>	

Note:

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

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

<p>1. Applicable model</p> <p>All models</p>	<p>5. Troubleshooting</p>	
<p>2. Error detection method</p> <p>Detected by rotation speed of indoor fan motor</p>	<p>Diagnosis</p>	<p>Countermeasure</p>
<p>3. Condition of error displayed</p> <p>When the actual fan rotation speed does not reach to the speed of [required speed -50 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.</p>	<pre> graph TD D1{Does any foreign material intervene in rotational area of fan propeller?} -- YES --> C1[Remove foreign material.] D1 -- NO --> D2{Does the fan rotate smoothly when turned by hand?} D2 -- YES --> D3{Is DC280V detected between ①-④ of fan motor connector CNM?} D2 -- NO --> C2[Replace the fan motor.] D3 -- YES --> Box[Power source reset] D3 -- NO --> D4{Is the fuse F1(F3) or F2(F4) blown?} Box --> D5{Is it normalized?} D4 -- YES --> C3[Replace faulty fan motor and indoor unit control PCB.] D4 -- NO --> C4[Check power voltage.] D5 -- YES --> C5[Malfunction by temporary noise.] D5 -- NO --> C6[Replace fan motor. (If the error persists after replacing the fan motor, replace the indoor unit control PCB.)] </pre>	<p>Remove foreign material.</p> <p>Replace the fan motor.</p> <p>Check power voltage.</p> <p>Replace faulty fan motor and indoor unit control 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>4. Presumable cause</p> <ul style="list-style-type: none"> • Defective indoor unit control 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	
	Outdoor	Keeps flashing	Stays OFF	

1. Applicable model
All models

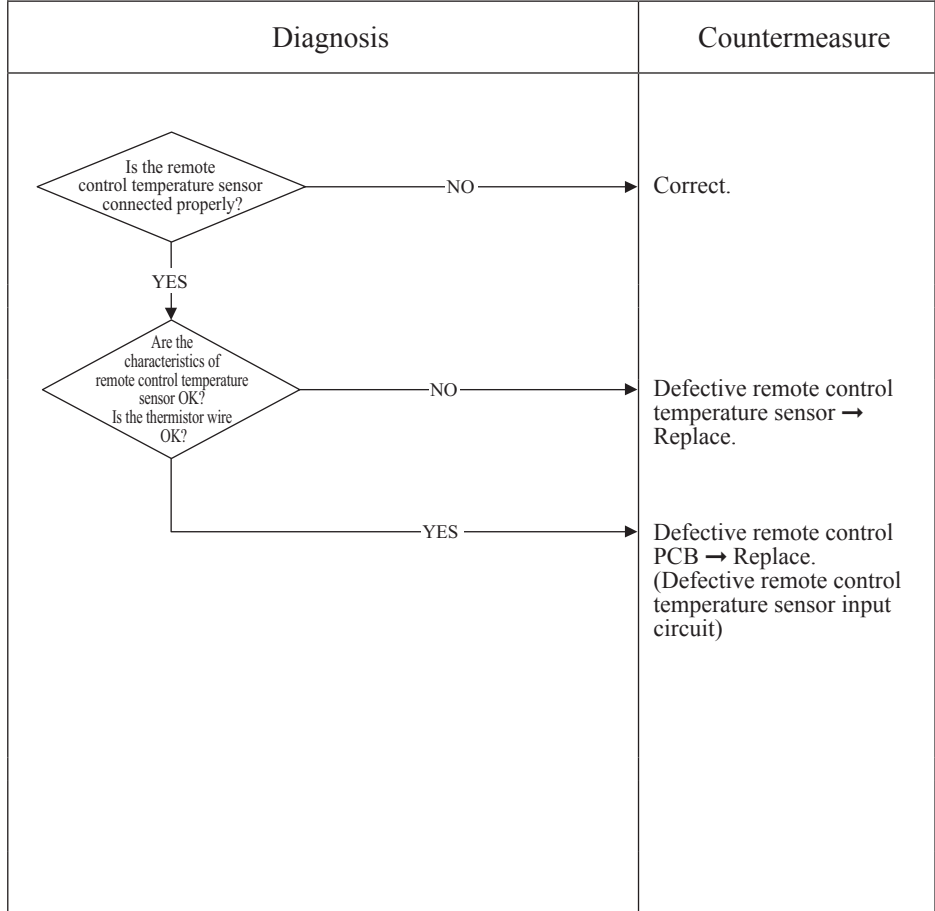
2. Error detection method
Detection of anomalously low temperature (resistance) of remote control temperature sensor (The)

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 (The)

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 temperature sensor was switched from valid to invalid, E28 will not be displayed even if the sensor harness is disconnected. At same time the sensor, which is effective, is switched from remote control temperature sensor to indoor return air temperature sensor. Even though the remote control temperature 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	
	Outdoor	—	2-time flash	

1. Applicable model
All models

2. Error detection method

Outdoor heat exchanger temperature (°C)
Note(1) Values in () are applicable when outdoor temperature (TH2) is lower than 32°C

3. Condition of error displayed
When anomalous outdoor heat exchanger temperature occurs 5 times within 60 minutes or 63(56)°C or higher continues for 10 minutes, including the compressor stop.

4. Presumable cause

- 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>* For the characteristics of outdoor heat exchanger temperature sensor, refer to E37.</p> <p>Are normal the characteristics of outdoor heat exchanger temperature sensor normal?</p> <p>NO →</p> <p>YES →</p> <p>Is the unit operating in the state of cooling overload?</p> <p>YES →</p> <p>NO →</p> <p>Is the high pressure control normal?</p> <p>NO →</p> <p>YES →</p> <p>Is the temperature (measured actually) at direction of error correct?</p> <p>NO →</p> <p>YES →</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>

* 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.

Note:

Error code Remote control: E36	LED	Green	Red	Content	Discharge pipe temperature error
	Indoor	Keeps flashing	Stays OFF		
	Outdoor	-	5-time flash		

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 or this anomalous state is detected 60 minutes continuously including 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>* For the characteristics of discharge pipe temperature, refer to E39.</p> <pre> graph TD D1{Are the characteristics of discharge pipe temperature sensor normal?} D2{Is the discharge pipe temperature error persisted during cooling operation?} D3{Is the discharge pipe temperature control normal?} D4{Is the temperature (measured actually) at detection of error correct?} D1 -- NO --> C1[Replace discharge pipe temperature sensor.] D1 -- YES --> D2 D2 -- YES --> C2[Insufficient refrigerant amount : Recharge refrigerant by weighing proper amount on a scale.] D2 -- NO --> D3 D3 -- NO --> C3[Control operation check *.] D3 -- YES --> D4 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	
	Outdoor	-	8-time flash	

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
<ul style="list-style-type: none"> 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 compressor ON.

4. Presumable cause
<ul style="list-style-type: none"> Defective outdoor unit control PCB Broken sensor harness or temperature sensing section Disconnected wire connection (connector)

5. Troubleshooting	
Diagnosis	Countermeasure
<pre> graph TD A{Is the outdoor heat exchanger temperature sensor connector connected properly?} -- NO --> B[Correct connector.] A -- YES --> C[For the characteristics of outdoor heat exchanger temperature sensor, see the following graph.] C --> D{Are the characteristics of outdoor heat exchanger temperature sensor OK?} D -- NO --> E[Defective outdoor heat exchanger temperature sensor -> Replace.] D -- YES --> F[Defective outdoor unit PCB -> Replace. (Defective outdoor heat exchanger temperature sensor input circuit)] </pre>	
<p style="text-align: center;">Temperature-resistance characteristics</p> <p>(Broken wire)</p> <p>(Short-circuit)</p>	

Note:

Error code Remote control: E38	LED	Green	Red	Content Outdoor air temperature sensor anomaly
	Indoor	Keeps flashing	Stays OFF	
	Outdoor	-	8-time flash	

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 after compressor 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>Is the outdoor air temperature sensor connector connected properly?</p> <p>NO → Correct connector.</p> <p>YES</p> <p>For the characteristics of outdoor air temperature sensor, see the following graph.</p> <p>Is the characteristics of the outdoor air temperature sensor OK?</p> <p>NO → Defective outdoor air temperature sensor → Replace.</p> <p>YES → Defective outdoor unit PCB → Replace. (Defective outdoor air temperature sensor input circuit)</p>																	
<p style="text-align: center;">Temperature-resistance characteristics</p> <table border="1"> <caption>Temperature-resistance characteristics data points (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
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10	10																
20	6																
25	5																
30	4																
40	3																
50	2																

Note:

Error code Remote control: E39	LED	Green	Red	Content Discharge pipe temperature sensor anomaly
	Indoor	Keeps flashing	Stays OFF	
	Outdoor	-	8-time flash	

1.Applicable model
All models

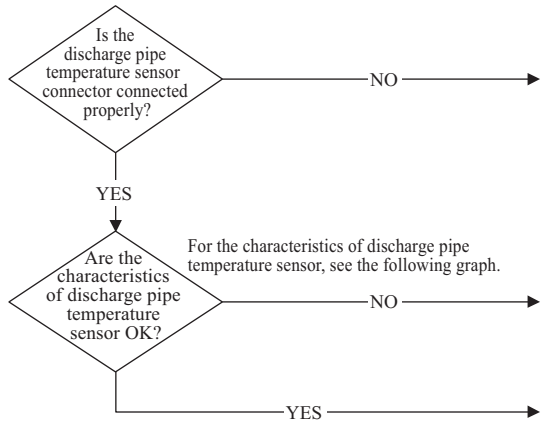
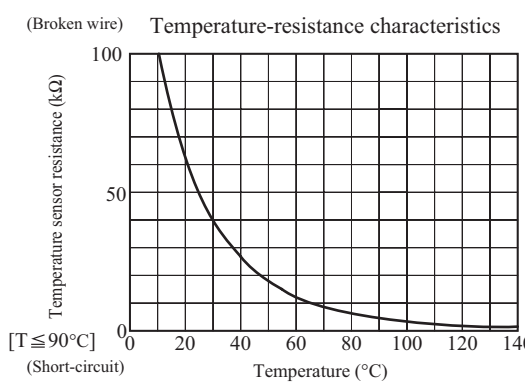
2.Error detection method
Detection of anomalously low temperature (resistance) on the discharge pipe temperature sensor

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?} -- NO --> C1[Correct connector.] Q1 -- YES --> Q2{Are the characteristics of discharge pipe temperature sensor OK?} Q2 -- NO --> C2[Defective discharge pipe temperature sensor -> Replace.] Q2 -- YES --> C3[Defective outdoor unit PCB -> Replace. (Defective temperature sensor input circuit)] </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>75</td></tr> <tr><td>40</td><td>50</td></tr> <tr><td>60</td><td>35</td></tr> <tr><td>80</td><td>25</td></tr> <tr><td>100</td><td>18</td></tr> <tr><td>120</td><td>12</td></tr> <tr><td>140</td><td>8</td></tr> </tbody> </table>	Temperature (°C)	Temperature sensor resistance (kΩ)	0	100	20	75	40	50	60	35	80	25	100	18	120	12	140	8	
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0	100																		
20	75																		
40	50																		
60	35																		
80	25																		
100	18																		
120	12																		
140	8																		

Note:

Error code Remote control: E40	LED	Green	Red	Content Service valve (gas side) closing operation
	Indoor	Keeps flashing	Stays OFF	
	Outdoor	—	4-time flash	

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 inverter 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 initial 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 --> DashedBox subgraph DashedBox [] direction TB L1[• Is the space for installation of indoor and/or outdoor unit enough?] L2[• Is there any short-circuit of air on indoor and/or outdoor unit?] L3[• At heating, does the indoor fan motor run?] L4[Is the filter clogged?] L5[• Is there any liquid flooding?] L6[• Is there any anomalous sound on the compressor?] end DashedBox --> Q3{After resetting power for several times does it become normal?} Q3 -- NO --> C3[Defective outdoor unit PCB -> Replace.] Q3 -- YES --> Note[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	
	Outdoor	-	1-time flash	

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"> • The valves closed • Faulty power source • Insufficient refrigerant amount • Faulty compressor • Faulty power transistor module

5.Troubleshooting	
Diagnosis	Countermeasure
<pre> graph TD Q1{Is the Power source voltage OK?} -- NO --> C1[Check power source.] Q1 -- YES --> Q2{Are the service valves opened?} Q2 -- NO --> C2[Open the valves.] Q2 -- YES --> Q3{Is the high pressure during operation OK?} Q3 -- 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.] Q3 -- YES --> Q4{Is the checked result of insulation resistance and coil resistance (1) of compressor motor OK? (1) 0.864Ω or more at 20°C} Q4 -- NO --> C4[Replace compressor.] Q4 -- 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	
	Outdoor	-	1-time flash	

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 inverter 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 --> DashedBox subgraph DashedBox [] direction TB Q1[Is the space for installation of indoor and/or outdoor unit enough?] Q2[Is there any short-circuit of air on indoor and/or outdoor unit?] Q3[At cooling, does the outdoor fan motor run? Are the service valves fully opened? Is the filter clogged?] Q4[At heating, does the indoor fan motor run? Are the service valves fully opened? Is the filter clogged?] Q5[Is there any liquid flooding? Is the superheat within normal range? Is the low pressure sensor and suction pipe temperature sensor normal?] Q6[Is there any anomalous sound on the compressor?] end DashedBox --> D2{After resetting power for several times does it become normal?} D2 -- NO --> C2[Defective outdoor unit PCB -> Replace.] D2 -- YES --> End[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	
	Outdoor	—	2-time flash	

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 DC210V (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>	
<ul style="list-style-type: none"> • If the overvoltage (DC voltage is higher than 400V) occurs, Red LED flashes 1-time. 	

Note:

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

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 Q1{Does any foreign material intervene in rotational area of fan propeller?} -- YES --> C1[Remove foreign matter.] Q1 -- NO --> Q2{Does the fan rotate smoothly when turned by hand?} Q2 -- NO --> C2["Replace fan motor. If resistance between ① (FG):blue -④(GND):black is detected 1kΩ or lower, it is faulty."] Q2 -- YES --> Q3{Is DC308-336V detected between (CNFAN ④ (black)-⑥ (red)) of fan motor connector?} Q3 -- YES --> R1[Power source reset] Q3 -- NO --> Q4{Is F3 (250V1A) fuse blown?} Q4 -- YES --> C3[Replace faulty fan motor and outdoor unit PCB.] Q4 -- NO --> C4[Check power source voltage.] R1 --> Q5{Is normal state restored?} Q5 -- YES --> C5[Malfunction by temporary noise] Q5 -- NO --> C6["Replace fan motor (If anomaly persists after replacing fan motor, replace outdoor unit PCB.)"] </pre>	<p>Remove foreign matter.</p> <p>Replace fan motor. If resistance between ① (FG):blue -④(GND):black is detected 1kΩ or lower, it is faulty.</p> <p>Check power source voltage.</p> <p>Replace faulty fan motor and outdoor unit PCB.</p> <p>Malfunction by temporary noise</p> <p>Replace fan motor (If anomaly persists after replacing fan motor, replace outdoor unit PCB.)</p>

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	
	Outdoor	—	1-time flash	

1. Applicable model
All models

2. Error detection method
Power transistor primary current

3. Condition of error displayed
If the power transistor primary current exceeds the setting value for 3 seconds, the compressor stops.

4. Presumable cause
<ul style="list-style-type: none"> • Outdoor unit PCB anomaly • Dust on outdoor unit PCB • Blown F2 fuse

5. Troubleshooting	
Diagnosis	Countermeasure
<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>	

Note:

Error code Remote control: E57	LED	Green	Red	Content Insufficient refrigerant amount or detection of service valve closure
	Indoor	Keeps flashing	Stays OFF	
	Outdoor	—	2-time flash	

1. Applicable model
All models

2. Error detection method
• 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

- Defective indoor heat exchanger temperature thermistor
- Defective indoor return air temperature thermistor
- Defective indoor unit control PCB
- Insufficient refrigerant amount

5. Troubleshooting

Diagnosis	Countermeasure
<p>Is the service valve fully opened?</p> <p>NO →</p> <p>YES ↓</p> <p>Are the connections of indoor heat exchanger and/or return air temperature sensor connectors OK?</p> <p>NO →</p> <p>YES ↓</p> <p>Are the characteristics of indoor heat exchanger and/or return air temperature sensor OK?</p> <p>NO →</p> <p>YES ↓</p> <p>Is the low pressure during operation normal?</p> <p>NO →</p> <p>YES →</p>	<p>Open fully.</p> <p>Correct indoor heat exchanger, return air temperature sensor connector connections.</p> <p>Defective indoor heat exchanger, return air temperature sensor → Replace.</p> <p>Charge refrigerant.</p> <p>Defective indoor unit control PCB → Replace. (Defective indoor heat exchanger, return air temperature sensor input circuits)</p>

Indoor heat exchanger, return air temperature thermistor
Temperature-resistance characteristics

(Broken wire)

(Short-circuit)

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	
	Outdoor	—	3-time flash	

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:

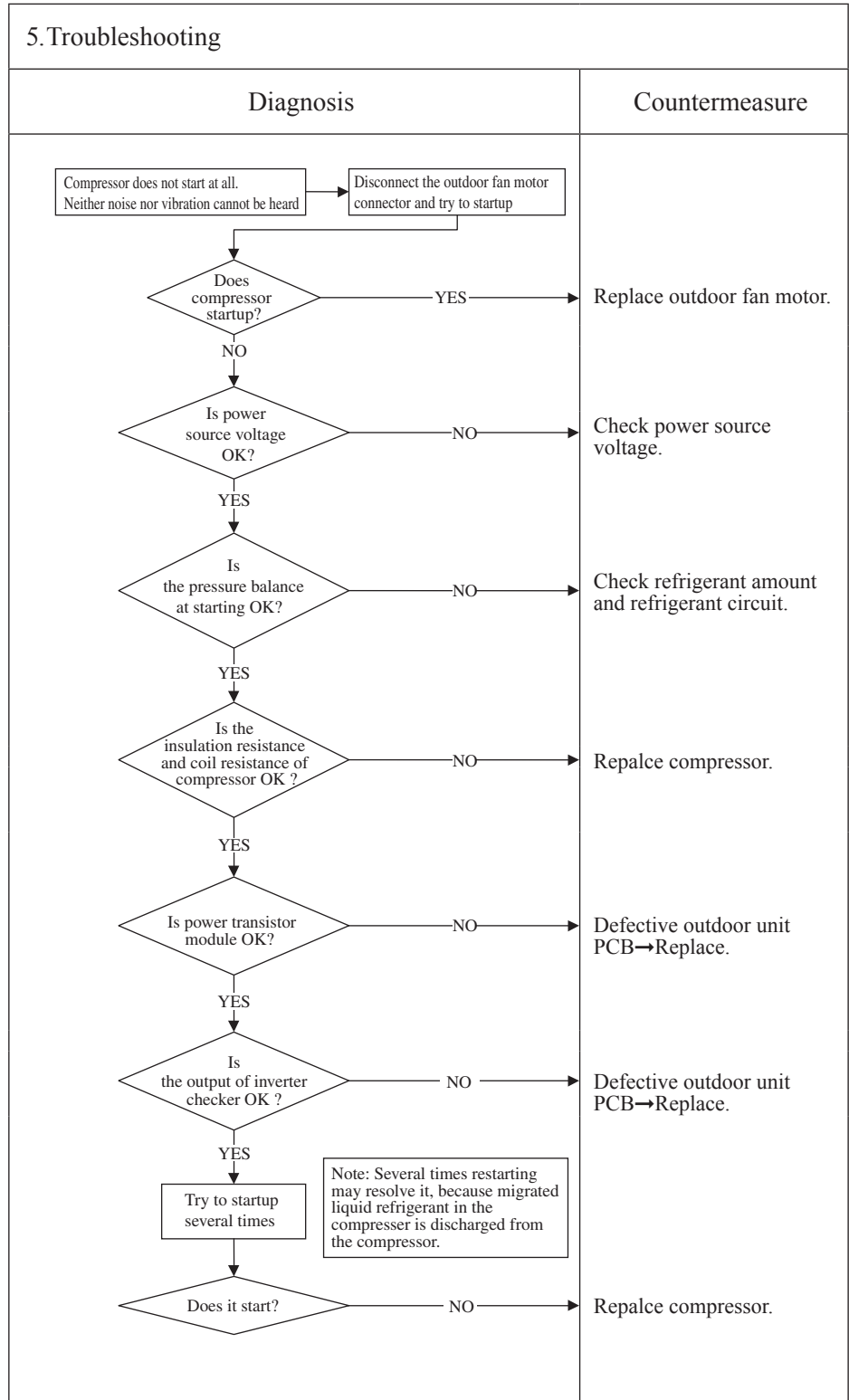
Error code Remote control: E59	LED	Green	Red	Content Compressor startup failure
	Indoor	Keeps flashing	Stays OFF	
	Outdoor	—	2-time flash	

1.Applicable model
All models

2.Error detection method
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"> • Outdoor fan motor anomaly • Outdoor unit PCB anomaly • 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 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 breake conforms to high-hermonic specifications
(As units has inverter, in order to prevent from improper operation, be sure to use high-hermonic one.)

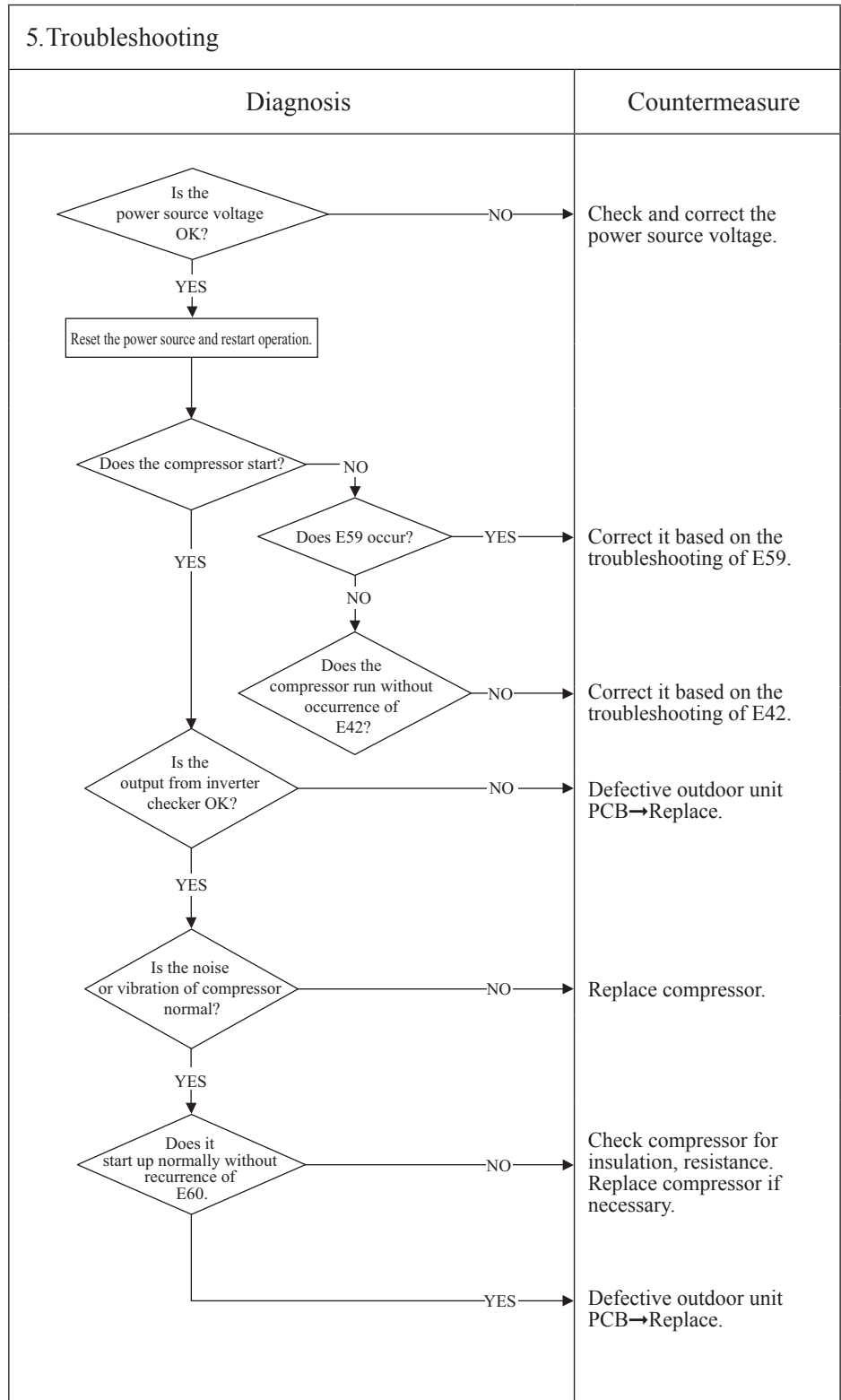
Error code Remote control: E60	LED	Green	Red	Content Compressor rotor lock error
	Indoor	Keeps flashing	Stays OFF	
	Outdoor	—	7-time flash	

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**
- Defective outdoor fan motor
 - Defective outdoor unit PCB
 - Anomalous power source voltage
 - Improper refrigerant amount and refrigerant circuit
 - Defective 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 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.)