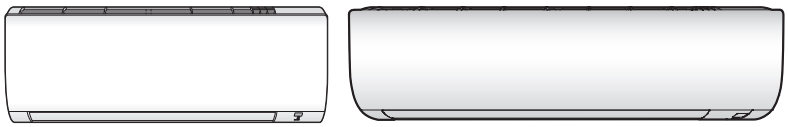
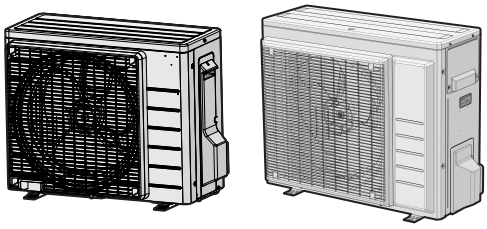
Service manual

Split Comfora R32





FTXP20~71L
FTXP20~71M
ATXP20~35L
ATXP20~35M

RXP20~71L
RXP20~71M
ARXP20~35L
ARXP20~35M

Service manual
Split Comfora R32

English

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The following updates have been applied to the Service Manual:
- Outdoor unit models ARXP20~25M and RXP20~71M added.
- Indoor unit models ATXP20~35M and FTXP20~71M added.
- Components – Swing raster motor: Check + Repair procedures added.
- Technical data – Wiring diagram: Wiring diagrams for new models added.
- Technical data – Piping diagram: Piping diagrams for new models added.
- Technical data – Component overview: Component overviews for new models added.

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1 Troubleshooting

1.1 To display the error code on the user interface

1 Hold CANCEL for about 5 seconds.

Result: 00 blinks in the temperature display section.

2 Press CANCEL repeatedly until a continuous beep is heard.

Result: The code is now displayed on the display.

INFORMATION

- A short beep and 2 consecutive beeps indicate non-corresponding codes.
- To cancel the code display, hold the CANCEL cancel button for 5 seconds. The code will also disappear from the display if the button is NOT pressed within 1 minute.

1.2 To reset the error code via remote controller

Prerequisite: Problem is solved.

1 Press the ON/OFF button of the remote controller to reset the error.

1.3 To reset the error code via outdoor unit

Prerequisite: Problem is solved.

1 Perform a power reset to reset the error code.

1.4 To perform a test run

Prerequisite: Power supply MUST be in the specified range.

Prerequisite: Test run may be performed in cooling or heating mode.

Prerequisite: Test run should be performed in accordance with the operation manual of the indoor unit to make sure that all functions and parts are working properly.

1 In cooling mode, select the lowest programmable temperature. In heating mode, select the highest programmable temperature. Test run can be disabled if necessary.

2 When the test run is finished, set the temperature to a normal level. In cooling mode: 26~28°C, in heating mode: 20~24°C.

3 The system stops operating 3 minutes after the unit is turned OFF.

INFORMATION

- Even if the unit is turned OFF, it consumes electricity.
- When the power turns back on after a power break, the previously selected mode will be resumed.

1.4.1 To perform a test run in winter season

When operating the air conditioner in **Cooling** mode in winter, set it to test run operation using the following method.

For FTXP and ATXP units

1 Press TEMP, TEMP, and OFF simultaneously.

2 Press TEMP.

3 Select 7.

4 Press FAN.

5 Press COOL to switch the system on.

Result: Test run operation will stop automatically after about 30 minutes.

6 To stop operation, press OFF.

INFORMATION

Some of the functions CANNOT be used in the test run operation mode.

If a power failure occurs during operation, the system automatically restarts immediately after power is restored.

1.5 Error based troubleshooting

1.5.1 A1-00 – PCB abnormality

Trigger	Effect	Reset
The system CANNOT set the internal settings.	Unit will stop operating.	Power reset via outdoor unit.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Check for improper combination of the indoor unit and the outdoor unit. See the combination table in the Databook for more information.

2 Perform a check of the power supply, connections, wiring,… between the outdoor unit and the indoor unit. See "3.1 Electrical circuit" on page 50.

Possible cause: Faulty wiring between the outdoor unit and the indoor unit.

3 Check if the power supply is conform with the regulations. See "3.1 Electrical circuit" on page 50.

Possible cause:
- Faulty or disturbance of the power supply (imbalance >10%),
- Power drop,
- Short circuit.

4 Perform a check of the indoor unit PCB. See "2.6 Indoor unit PCB" on page 31.

Possible cause: Faulty indoor unit PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

1.5.2 A5-00 – Freeze-up protection / heating peak cut control

Trigger	Effect	Reset
During cooling operation, indoor heat exchanger temperature is below 0°C (freeze-up protection control).	Unit will stop operating.	Automatic reset when temperature is within range.
During heating operation, indoor heat exchanger temperature is above 65°C (heating peak-cut control).		

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Check for objects near the indoor unit that may block the airflow. See "3.3 External factors" on page 55.

Possible cause: Airflow of the indoor unit is blocked.

2 Clean the air filter. See "4 Maintenance" on page 55.

Possible cause: Faulty or dirty air filter.

3 Clean the indoor unit heat exchanger. See "4 Maintenance" on page 55.

Possible cause: Dirty indoor unit heat exchanger.

4 Perform a check of the indoor unit heat exchanger thermistor. See "2.14 Thermistors" on page 46.

Possible cause: Faulty indoor unit heat exchanger thermistor.

5 Perform a check of the indoor unit PCB. See "2.6 Indoor unit PCB" on page 31.

Possible cause: Faulty indoor unit PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

1.5.3 A6-00 – Indoor unit fan motor abnormality

Trigger	Effect	Reset
The rotation speed of the fan motor is NOT detected while the output voltage to the fan is at its maximum.	Unit will stop operating.	Power reset via the outdoor unit.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the indoor unit PCB. See "2.6 Indoor unit PCB" on page 31.

Possible cause: Faulty indoor unit PCB.

2 Perform a check of the indoor unit fan motor. See "2.5 Indoor unit fan motor" on page 30.

Possible cause: Faulty indoor unit fan motor.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

1.5.4 C4-00 – Indoor heat exchanger thermistor abnormality

Trigger	Effect	Reset
Refrigerant liquid thermistor detects an open or short circuit during compressor operation.	Unit will stop operating.	Power reset via outdoor unit.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

INFORMATION

In case of preferential kWh rate, the indoor unit also needs a power reset.

1 Perform a check of the refrigerant liquid thermistor. See "2.14 Thermistors" on page 46.

Possible cause: Faulty refrigerant liquid thermistor.

2 Perform a check of the indoor unit PCB. See "2.6 Indoor unit PCB" on page 31.

Possible cause: Faulty indoor unit PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

1.5.5 C9-00 – Room thermistor abnormality

Trigger	Effect	Reset
Resistance value is out of range. Temperature measured <–43.6°C or >90°C.	Unit will stop operating.	Automatic reset when resistance is within range.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the room thermistor. See "2.14 Thermistors" on page 46.

Possible cause: Faulty room thermistor.

2 Perform a check of the indoor unit PCB. See "2.6 Indoor unit PCB" on page 31.

Possible cause: Faulty indoor unit PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

1.5.6 E1-00 – PCB defect

Trigger	Effect	Reset
Main PCB detects that EEPROM is abnormal.	Unit will stop operating.	Manual reset via user interface.
		Power reset via outdoor unit.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

INFORMATION

In case of preferential kWh rate, the indoor unit also needs a power reset.

1 Perform a check of the main PCB. See "2.8 Main PCB" on page 34.

Possible cause: Faulty main PCB.

2 Check if the power supply is conform with the regulations. See "3.1 Electrical circuit" on page 50.

Possible cause:
- Faulty or disturbance of the power supply (imbalance >10%),
- Power drop,
- Short circuit.

3 Perform a check of the outdoor unit fan motor. See "2.9 Outdoor unit fan motor" on page 37.

Possible cause: Faulty outdoor unit fan motor.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

1.5.7 E3-00 – High pressure switch abnormality

Trigger	Effect	Reset
High pressure switch opens due to measured pressure above high pressure switch operating point.	Unit will stop operating.	Manual reset via user interface.
High pressure control (measured pressure just below high pressure switch operating point) occurs 16 times within 300 minutes.		

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the high pressure switch. See "2.4 High pressure switch" on page 28.

Possible cause: Faulty high pressure switch.

2 Perform a check of the main PCB. See "2.8 Main PCB" on page 34.

Possible cause: Faulty main PCB.

3 Perform a check of the refrigerant circuit. See "3.2 Refrigerant circuit" on page 51.

Possible cause:
- Stop valve is closed,
- Clogged refrigerant circuit,
- Refrigerant circuit NOT charged correctly,
- Humidity in the refrigerant circuit,
- Non-condensables in the refrigerant circuit,
- Leaking refrigerant circuit.

4 Perform a check of the outdoor unit fan motor. See "2.9 Outdoor unit fan motor" on page 37.

Possible cause: Faulty outdoor unit fan motor.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

1.5.8 E5-00 – Overheat of inverter compressor motor

Trigger	Effect	Reset
Compressor overload is detected.	Unit will NOT stop operating.	Automatic reset if the unit runs without warning for 60 seconds.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the discharge pipe thermistor. See "2.14 Thermistors" on page 46.

Possible cause: Faulty discharge pipe thermistor.

2 Perform a check of the outdoor unit fan motor. See "2.9 Outdoor unit fan motor" on page 37.

Possible cause: Faulty outdoor unit fan motor.

3 Perform a check of the compressor. See "2.2 Compressor" on page 21.

Possible cause: Faulty compressor.

4 Perform a check of the expansion valve. See "2.3 Expansion valve" on page 25.

Possible cause: Faulty expansion valve.

5 Perform a check of the 4-way valve. See "2.1 4-way valve" on page 19.

Possible cause: Faulty 4-way valve.

6 Perform a check of the main PCB. See "2.8 Main PCB" on page 34.

Possible cause: Faulty main PCB.

7 Perform a check of the inverter PCB. See "2.7 Inverter PCB" on page 33.

Possible cause: Faulty inverter PCB.

8 Perform a check of the refrigerant circuit. See "3.2 Refrigerant circuit" on page 51.

Possible cause:
- Stop valve is closed,
- Clogged refrigerant circuit,
- Refrigerant circuit NOT charged correctly,
- Humidity in the refrigerant circuit,
- Non-condensables in the refrigerant circuit,
- Leaking refrigerant circuit.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

1.5.9 E6-00 – Compressor startup defect

Trigger	Effect	Reset
The motor rotor does NOT rotate when the compressor is energized.	Unit will NOT stop operating.	Automatic reset after a continuous run for 10 minutes.
	Unit will stop operating	Manual reset via user interface.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the discharge pipe thermistor. See "2.14 Thermistors" on page 46.

Possible cause: Faulty discharge pipe thermistor.

2 Perform a check of the refrigerant circuit. See "3.2 Refrigerant circuit" on page 51.

Possible cause:
- Stop valve is closed,
- Clogged refrigerant circuit,
- Refrigerant circuit NOT charged correctly,
- Humidity in the refrigerant circuit,
- Non-condensables in the refrigerant circuit,
- Leaking refrigerant circuit.

3 Perform a check of the compressor. See "2.2 Compressor" on page 21.

Possible cause: Faulty compressor.

4 Perform a check of the main PCB. See "2.8 Main PCB" on page 34.

Possible cause: Faulty main PCB.

5 Perform a check of the inverter PCB. See "2.7 Inverter PCB" on page 33.

Possible cause: Faulty inverter PCB.

6 Perform a check of the 4-way valve. See "2.1 4-way valve" on page 19.

Possible cause: Faulty 4-way valve.

7 Perform a check of the expansion valve. See "2.3 Expansion valve" on page 25.

Possible cause: Faulty expansion valve.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

1.5.10 E7-00 – Fan lock abnormality

Trigger	Effect	Reset
Fan does NOT start 15~30 seconds after ON signal. It can occur that the error code is triggered when the fan motor is running caused by a faulty rotating sensor signal.	Unit will stop operating.	Manual reset via user interface.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the outdoor unit fan motor. See "2.9 Outdoor unit fan motor" on page 37.

Possible cause: Faulty outdoor unit fan motor.

2 Perform a check of the inverter PCB. See "2.7 Inverter PCB" on page 33.

Possible cause: Faulty inverter PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

1.5.11 E8-00 – Input overvoltage abnormality

Trigger	Effect	Reset
Compressor running current exceeds standard value for 2.5 seconds.	Unit will stop operating.	Manual reset via user interface.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Check the outdoor temperature. See "3.3 External factors" on page 55.

Possible cause: Outdoor temperature is out of operation range.

2 Perform a check of the compressor. See "2.2 Compressor" on page 21.

Possible cause: Faulty compressor.

3 Perform a check of the inverter PCB. See "2.7 Inverter PCB" on page 33.

Possible cause: Faulty inverter PCB.

4 Check if the power supply is conform with the regulations. See "3.1 Electrical circuit" on page 50.

Possible cause:
- Faulty or disturbance of the power supply (imbalance >10%),
- Power drop,
- Short circuit.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

1.5.12 EA-00 – Cooling/Heating switch abnormality

Trigger	Effect	Reset
Room thermistor is NOT functioning within operation range.	Unit will NOT stop operating.	Automatic reset after a continuous operation of 10 minutes.
	If the error occurs too soon: unit will stop operating.	Manual reset via user interface.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the 4-way valve. See "2.1 4-way valve" on page 19.

Possible cause: Faulty 4-way valve.

2 Perform a check of the main PCB. See "2.8 Main PCB" on page 34.

Possible cause: Faulty main PCB.

3 Perform a check of the room thermistor. See "2.14 Thermistors" on page 46.

Possible cause: Faulty room thermistor.

4 Perform a check of the indoor unit PCB. See "2.6 Indoor unit PCB" on page 31.

Possible cause: Faulty indoor unit PCB.

5 Perform a check of the refrigerant circuit. See "3.2 Refrigerant circuit" on page 51.

Possible cause:
- Stop valve is closed,
- Clogged refrigerant circuit,
- Refrigerant circuit NOT charged correctly,
- Humidity in the refrigerant circuit,
- Non-condensables in the refrigerant circuit,
- Leaking refrigerant circuit.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

1.5.13 F3-00 – Discharge pipe temperature abnormality

Trigger	Effect	Reset
Discharge pipe thermistor detects a too high temperature.	Unit will NOT stop operating.	Automatic reset when temperature drops normal level.
	If the error re-occurs too soon: unit will stop operating.	Manual reset via user interface.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the refrigerant circuit. See "3.2 Refrigerant circuit" on page 51.

Possible cause:
- Stop valve is closed,
- Clogged refrigerant circuit,
- Refrigerant circuit NOT charged correctly,
- Humidity in the refrigerant circuit,
- Non-condensables in the refrigerant circuit,
- Leaking refrigerant circuit.

2 Perform a check of the 4-way valve. See "2.1 4-way valve" on page 19.

Possible cause: Faulty 4-way valve.

3 Perform a check of the expansion valve. See "2.3 Expansion valve" on page 25.

Possible cause: Faulty expansion valve.

4 Perform a check of the main PCB. See "2.8 Main PCB" on page 34.

Possible cause: Faulty main PCB.

5 Perform a check of all refrigerant side thermistors. See "2.14 Thermistors" on page 46.

Possible cause: Faulty refrigerant side thermistor(s).

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

1.5.14 F6-00 – Stop due to cooling high pressure

Trigger	Effect	Reset
Outdoor heat exchanger thermistor measures a too high temperature.	Unit will NOT stop operating.	Automatic reset when temperature drops.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Clean the outdoor heat exchanger. See "4 Maintenance" on page 55.

Possible cause: Dirty outdoor heat exchanger.

2 Perform a check of the refrigerant circuit. See "3.2 Refrigerant circuit" on page 51.

Possible cause:
- Stop valve is closed,
- Clogged refrigerant circuit,
- Refrigerant circuit NOT charged correctly,
- Humidity in the refrigerant circuit,
- Non-condensables in the refrigerant circuit,
- Leaking refrigerant circuit.

3 Perform a check of the heat exchanger thermistor. See "2.14 Thermistors" on page 46.

Possible cause: Faulty heat exchanger thermistor.

4 Perform a check of the expansion valve. See "2.3 Expansion valve" on page 25.

Possible cause: Faulty expansion valve.

5 Perform a check of the main PCB. See "2.8 Main PCB" on page 34.

Possible cause: Faulty main PCB.

6 Perform a check of the outdoor unit fan motor. See "2.9 Outdoor unit fan motor" on page 37.

Possible cause: Faulty outdoor unit fan motor.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

1.5.15 F8-00 – System shutdown due to compressor internal temperature abnormality

Trigger	Effect	Reset
Temperature discharge pipe thermistor exceeds the determined limit.	Unit will stop operating.	Manual reset via user interface.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the refrigerant circuit. See "3.2 Refrigerant circuit" on page 51.

Possible cause:
- Stop valve is closed,
- Clogged refrigerant circuit,
- Refrigerant circuit NOT charged correctly,
- Humidity in the refrigerant circuit,
- Non-condensables in the refrigerant circuit,
- Leaking refrigerant circuit.

2 Perform a check of the discharge pipe thermistor. See "2.14 Thermistors" on page 46.

Possible cause: Faulty discharge pipe thermistor.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

1.5.16 H0-00 – Current sensor abnormality

Trigger	Effect	Reset
Compressor voltage (DC) is out of range before start-up.	Unit will stop operating.	Manual reset via user interface.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the main PCB. See "2.8 Main PCB" on page 34.

Possible cause: Faulty main PCB.

2 Perform a check of the inverter PCB. See "2.7 Inverter PCB" on page 33.

Possible cause: Faulty inverter PCB.

3 Check if the power supply is conform with the regulations. See "3.1 Electrical circuit" on page 50.

Possible cause:
- Faulty or disturbance of the power supply (imbalance >10%),
- Power drop,
- Short circuit.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

1.5.17 H3-00 – High pressure switch defect

Trigger	Effect	Reset
High pressure switch is activated when compressor is off.	Unit will stop operating.	Manual reset via user interface.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the high pressure switch. See "2.4 High pressure switch" on page 28.

Possible cause: Faulty high pressure switch.

2 Perform a check of the refrigerant circuit. See "3.2 Refrigerant circuit" on page 51.

Possible cause:
- Stop valve is closed,
- Clogged refrigerant circuit,
- Refrigerant circuit NOT charged correctly,
- Humidity in the refrigerant circuit,
- Non-condensables in the refrigerant circuit,
- Leaking refrigerant circuit.

3 Perform a check of the main PCB. See "2.8 Main PCB" on page 34.

Possible cause: Faulty main PCB.

4 Perform a check of the inverter PCB. See "2.7 Inverter PCB" on page 33.

Possible cause: Faulty inverter PCB.

5 Check if the power supply is conform with the regulations. See "3.1 Electrical circuit" on page 50.

Possible cause:
- Faulty or disturbance of the power supply (imbalance >10%),
- Power drop,
- Short circuit.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

1.5.18 H6-00 – Location detection sensor abnormality

Trigger	Effect	Reset
Compressor fails to start within 15 seconds after the compressor run command signal is sent.	Unit will NOT stop operating.	Automatic reset after a continuous operation of 10 minutes.
	If the error re-occurs within 8 minutes: unit will stop operating.	Manual reset via user interface.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the compressor. See "2.2 Compressor" on page 21.

Possible cause: Faulty compressor.

2 Perform a check of the main PCB. See "2.8 Main PCB" on page 34.

Possible cause: Faulty main PCB.

3 Perform a check of the inverter PCB. See "2.7 Inverter PCB" on page 33.

Possible cause: Faulty inverter PCB.

4 Perform a check of the refrigerant circuit. See "3.2 Refrigerant circuit" on page 51.

Possible cause:
- Stop valve is closed,
- Clogged refrigerant circuit,
- Refrigerant circuit NOT charged correctly,
- Humidity in the refrigerant circuit,
- Non-condensables in the refrigerant circuit,
- Leaking refrigerant circuit.

5 Check if the power supply is conform with the regulations. See "3.1 Electrical circuit" on page 50.

Possible cause:
- Faulty or disturbance of the power supply (imbalance >10%),
- Power drop,
- Short circuit.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

1.5.19 H8-00 – Compressor input abnormality

Trigger	Effect	Reset
DC voltage or current sensor abnormality based on the compressor running frequency and the input current.	Unit will NOT stop operating.	Automatic reset when compressor runs normally for 60 minutes.
	If the error re-occurs too soon: unit will stop operating.	Manual reset via user interface.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the main PCB. See "2.8 Main PCB" on page 34.

Possible cause: Faulty main PCB.

2 Perform a check of the inverter PCB. See "2.7 Inverter PCB" on page 33.

Possible cause: Faulty inverter PCB.

3 Perform a check of the compressor. See "2.2 Compressor" on page 21.

Possible cause: Faulty compressor.

4 Perform a check of the reactor. See "2.11 Reactor" on page 42.

Possible cause: Faulty reactor.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

1.5.20 H9-00 – Outdoor air thermistor abnormality

Trigger	Effect	Reset
Outdoor air thermistor input is out of range.	Unit will stop operating.	Manual reset via user interface.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the outdoor air thermistor. See "2.14 Thermistors" on page 46.

Possible cause: Faulty outdoor air thermistor.

2 Perform a check of the main PCB. See "2.8 Main PCB" on page 34.

Possible cause: Faulty main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

1.5.21 J3-00 – Discharge pipe thermistor dislocation abnormality

Trigger	Effect	Reset
Discharge pipe thermistor input is out of range.	Unit will stop operating.	Manual reset via user interface.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the discharge pipe thermistor. See "2.14 Thermistors" on page 46.

Possible cause: Faulty discharge pipe thermistor.

2 Perform a check of the main PCB. See "2.8 Main PCB" on page 34.

Possible cause: Faulty main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

1.5.22 J6-00 – Outdoor heat exchanger thermistor abnormality

Trigger	Effect	Reset
Outdoor heat exchanger thermistor input is out of range.	Unit will stop operating.	Manual reset via user interface.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the heat exchanger thermistor. See "2.14 Thermistors" on page 46.

Possible cause: Faulty heat exchanger thermistor.

2 Perform a check of the main PCB. See "2.8 Main PCB" on page 34.

Possible cause: Faulty main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

1.5.23 L3-00 – Electrical component temperature abnormality

Trigger	Effect	Reset
Switch box temperature is too high.	Unit will stop operating.	Manual reset via remote controller.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the inverter PCB. See "2.7 Inverter PCB" on page 33.

Possible cause: Faulty inverter PCB.

2 Perform a check of the outdoor unit fan motor. See "2.9 Outdoor unit fan motor" on page 37.

Possible cause: Faulty outdoor unit fan motor.

3 Check if the power supply is conform with the regulations. See "3.1 Electrical circuit" on page 50.

Possible cause:
- Faulty or disturbance of the power supply (imbalance >10%),
- Power drop,
- Short circuit.

4 Clean the outdoor heat exchanger. See "4 Maintenance" on page 55.

Possible cause: Dirty outdoor heat exchanger.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

1.5.24 L4-00 – Fin temperature increase abnormality

Trigger	Effect	Reset
Radiating fin thermistor measures a too high temperature.	Unit will stop operating.	Manual reset via user interface.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the outdoor unit fan motor. See "2.9 Outdoor unit fan motor" on page 37.

Possible cause: Faulty outdoor unit fan motor.

2 Check if the power supply is conform with the regulations. See "3.1 Electrical circuit" on page 50.

Possible cause:
- Faulty or disturbance of the power supply (imbalance >10%),
- Power drop,
- Short circuit.

3 Perform a check of the inverter PCB. See "2.7 Inverter PCB" on page 33.

Possible cause: Faulty inverter PCB.

4 Perform a check of the main PCB. See "2.8 Main PCB" on page 34.

Possible cause: Faulty main PCB.

5 Check that the silicon grease is applied properly on the radiation fin of the outdoor unit PCB. Adjust if needed.

Possible cause: Silicon grease NOT applied properly on the radiation fin.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

1.5.25 L5-00 – Output over current abnormality

Trigger	Effect	Reset
An output overcurrent is detected by checking the current that flows in the inverter DC section.	Unit will stop operating.	Manual reset via user interface.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the refrigerant circuit. See "3.2 Refrigerant circuit" on page 51.

Possible cause:
- Stop valve is closed,
- Clogged refrigerant circuit,
- Refrigerant circuit NOT charged correctly,
- Humidity in the refrigerant circuit,
- Non-condensables in the refrigerant circuit,
- Leaking refrigerant circuit.

2 Perform a check of the inverter PCB. See "2.7 Inverter PCB" on page 33.

Possible cause: Faulty inverter PCB.

3 Perform a check of the compressor. See "2.2 Compressor" on page 21.

Possible cause: Faulty compressor.

4 Check if the power supply is conform with the regulations. See "3.1 Electrical circuit" on page 50.

Possible cause:
- Faulty or disturbance of the power supply (imbalance >10%),
- Power drop,
- Short circuit.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

1.5.26 P4-00 – Fin thermistor abnormality

Trigger	Effect	Reset
Radiating fin thermistor input is out of range.	Unit will stop operating.	Manual reset via user interface.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the inverter PCB. See "2.7 Inverter PCB" on page 33.

Possible cause: Faulty inverter PCB.

2 Perform a check of the main PCB. See "2.8 Main PCB" on page 34.

Possible cause: Faulty main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

1.5.27 U0-00 – Shortage of refrigerant

Trigger	Effect	Reset
Refrigerant shortage detected.	Unit will stop operating.	Automatic reset.
		Power reset via outdoor unit.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of all refrigerant side thermistors. See "2.14 Thermistors" on page 46.

Possible cause: Faulty refrigerant side thermistor(s).

2 Perform a check of the refrigerant circuit. See "3.2 Refrigerant circuit" on page 51.

Possible cause:
- Stop valve is closed,
- Clogged refrigerant circuit,
- Refrigerant circuit NOT charged correctly,
- Humidity in the refrigerant circuit,
- Non-condensables in the refrigerant circuit,
- Leaking refrigerant circuit.

3 Perform a check of the compressor. See "2.2 Compressor" on page 21.

Possible cause: Faulty compressor.

4 Perform a check of the expansion valve. See "2.3 Expansion valve" on page 25.

Possible cause: Faulty expansion valve.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

1.5.28 U2-00 – Main circuit voltage abnormality

Trigger	Effect	Reset
Power supply abnormality or instant power failure is detected.	Unit will stop operating.	Power reset via outdoor unit.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

INFORMATION

In case of preferential kWh rate, the indoor unit also needs a power reset.

1 Check if the power supply is conform with the regulations. See "3.1 Electrical circuit" on page 50.

Possible cause:
- Faulty or disturbance of the power supply (imbalance >10%),
- Power drop,
- Short circuit.

2 Perform a check of the compressor. See "2.2 Compressor" on page 21.

Possible cause: Faulty compressor.

3 Perform a check of the outdoor unit fan motor. See "2.9 Outdoor unit fan motor" on page 37.

Possible cause: Faulty outdoor unit fan motor.

4 Perform a check of the main PCB. See "2.8 Main PCB" on page 34.

Possible cause: Faulty main PCB.

5 Perform a check of the indoor unit PCB. See "2.6 Indoor unit PCB" on page 31.

Possible cause: Faulty indoor unit PCB.

6 Wait until the compressor restarts.

Possible cause:
- Momentary drop of voltage,
- Momentary power failure.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

1.5.29 U4-00 – Indoor/outdoor transmission abnormality

Trigger	Effect	Reset
Communication failure between outdoor and indoor unit.	Unit will stop operating.	Power reset via outdoor unit.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

INFORMATION

In case of preferential kWh rate, the indoor unit also needs a power reset.

1 Check if the power supply is conform with the regulations. See "3.1 Electrical circuit" on page 50.

Possible cause:
- Faulty or disturbance of the power supply (imbalance >10%),
- Power drop,
- Short circuit.

2 Perform a check of the power supply, connections, wiring,… between the outdoor unit and the indoor unit. See "3.1 Electrical circuit" on page 50.

Possible cause: Faulty wiring between the outdoor unit and the indoor unit.

3 Perform a check of the main PCB. See "2.8 Main PCB" on page 34.

Possible cause: Faulty main PCB.

4 Perform a check of the outdoor unit fan motor. See "2.9 Outdoor unit fan motor" on page 37.

Possible cause: Faulty outdoor unit fan motor.

5 Perform a check of the indoor unit PCB. See "2.6 Indoor unit PCB" on page 31.

Possible cause: Faulty indoor unit PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

1.5.30 UA-00 – Indoor/outdoor combination abnormality

Trigger	Effect	Reset
Signal transmission between outdoor and indoor unit abnormality. Improper combination of outdoor and indoor unit.	Unit will stop operating.	Power reset via outdoor unit.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

INFORMATION

In case of preferential kWh rate, the indoor unit also needs a power reset.

1 Check for improper combination of the indoor unit and the outdoor unit. See the combination table in the Databook for more information.

2 Perform a check of the power supply, connections, wiring,… between the outdoor unit and the indoor unit. See "3.1 Electrical circuit" on page 50.

Possible cause: Faulty wiring between the outdoor unit and the indoor unit.

3 Perform a check of the main PCB. See "2.8 Main PCB" on page 34.

Possible cause: Faulty main PCB.

4 Perform a check of the indoor unit PCB. See "2.6 Indoor unit PCB" on page 31.

Possible cause: Faulty indoor unit PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

1.6 Symptom based troubleshooting

1.6.1 Operation does not start

Check	Detail
When the operation lamp is off, there is a power failure. Check the power supply.	▪ Is the power supply breaker ON? ▪ Do other electrical appliances work? ▪ Is the rated voltage (± 10%) supplied? ▪ Check the insulation of the electric system.
Check the type of the indoor unit.	Is the indoor unit type compatible with the outdoor unit?
Check the transmission between indoor and outdoor.	▪ Connection wires.
Check the outdoor temperature.	▪ Heating operation cannot be used when the outdoor temperature is 18°C WB or higher. ▪ Cooling operation cannot be used when the outdoor temperature is below –10°C DB.
When the operation lamp blinks, there may be an error code, activating the protection device. Diagnose with remote controller indication.	See "1.5 Error based troubleshooting" on page 5.
Check the remote controller addresses.	Are the address settings for the remote controller and indoor unit correct?
Check the operation circuit.	▪ Is the thermal fuse blown. ▪ Are wire size and wire connections OK?.
Check fan motor.	▪ Is the magnetic switch defective? ▪ Is the overcurrent relay defective?
Check compressor.	▪ Is the contact defective? ▪ Is the protection thermostat defective? ▪ Is the compressor itself defective?
Check remote controller.	▪ Are the batteries LOW? ▪ Are there incorrect settings?

1.6.2 Operation sometimes stops

Check	Detail
When the operation lamp is off, there is a power failure. Check the power supply.	▪ A power failure of 2 to 10 cycles stops air conditioner operation.
Check the outdoor temperature.	▪ Heating operation cannot be used when the outdoor temperature is 18°C WB or higher. ▪ Cooling operation cannot be used when the outdoor temperature is below –10°C DB.
When the operation lamp blinks, there may be an error code, activating the protection device. Diagnose with remote controller indication.	See "1.5 Error based troubleshooting" on page 5.

1.6.3 Operation starts but the unit does not cool/heat

Check	Detail
Check the electrical power supply.	Is the rated voltage (± 10%) supplied?
Check for piping and wiring errors in the connection between the indoor unit and outdoor unit.	▪ Refrigerant piping is too long; is the length within specified range? ▪ Field piping is defective; is there a refrigerant leakage? ▪ Is there capacity loss over the condensor, saturation pressure or sound because of air mixed in to the circuit? ▪ Incorrect size of connection wiring.
When the operation lamp blinks, there may be a thermistor detection error code, activating the protection device.	▪ Check the resistance of all thermistors. ▪ Check the connection of all thermistors. ▪ Is there a malfunction in the room temperature thermistor or outdoor temperature thermistor?
Check for faulty operation of the electronic expansion valve.	Set the unit to cooling operation, and check the temperature of the liquid pipe to see if the electronic expansion valve works.
Diagnose by service port pressure and operating current.	Check for refrigerant shortage.
Check if the set temperature is appropriate.	thermostat "off" can be activated, set the appropriate temperature.
Check the type of the indoor and outdoor units.	Is the indoor unit type compatible with the outdoor unit?
Check the air filter.	Is the air filter clean?
Check the installation conditions (specified in the installation manual).	▪ Does the installed model has sufficient capacity? ▪ Is there a short circuit air flow caused by insufficient installation space?
Check the outdoor temperature.	▪ Heating operation cannot be used when the outdoor temperature is 18°C WB or higher. ▪ Cooling operation cannot be used when the outdoor temperature is below –10°C DB.

1.6.4 Operating noise and vibrations

Check	Detail
Check the installation conditions (specified in the installation manual).	▪ Use general vibration prevention where needed. ▪ If the mounting wall is too thin, you must use cushion material or rubber, or change the installation place. ▪ Refrigerant piping is too short; is the length within specified range? ▪ Due to bad installation or general conditions there may be deformation of the unit. ▪ Are all the screws installed and tightened properly? ▪ Is all piping secured, fixed and supported by inserting a cushion material where needed? ▪ Install piping weights or correct by hand if any piping is in contact with other parts. ▪ Is the fan in contact with other parts? If so separate the fan from the other parts.
Check refrigerant charge.	▪ Is the unit filled with the specified refrigerant volume? ▪ Is there a flushing noise, due to refrigerant shortage? ▪ Is there air in the system?
Check the expansion valve.	If a passing sound is heard from the pressure reducing valve, apply sound insulation sheets of putty to reduce the valve noise.

1.6.5 Abnormal high pressure

In cooling mode

Check item	Detail
Does the outdoor unit fan run normally?	Visual inspection
Is the outdoor unit heat exchanger clogged?	Visual inspection
Is there clogging before or after the expansion valve (capillary)?	▪ Check if there is a temperature difference before and after expansion valve (capillary). ▪ Check if the main valve unit of expansion valve operates (by noise, vibration).
Is the High Pressure Switch normal?	Check continuity by using a tester.
Is the outdoor unit installed under such conditions that short circuit easily occurs?	Visual inspection
Is the piping length ≤5 m?	Visual inspection
Does air enter the refrigerant system?	Conduct refrigerant collection and vacuum drying, and then add proper amount refrigerant.
Is the refrigerant overcharged?	Conduct refrigerant collection and vacuum drying, and then add proper amount refrigerant.

In cooling mode

Check item	Detail
Does the indoor unit fan run normally?	Visual inspection
Is the indoor unit heat exchanger clogged?	Visual inspection
Is the indoor unit installed under such conditions that short circuit easily occurs?	Visual inspection
Is there clogging before or after the expansion valve (capillary)?	▪ Check if there is a temperature difference before and after expansion valve (capillary). ▪ Check if the main valve unit of expansion valve operates (by noise, vibration).
Is the High Presure Switch normal?	Check continuity by using a tester.
Is the minimum piping length respected?	Visual inspection
Does air enter the refrigerant system?	Conduct refrigerant collection and vacuum drying, and then add proper amount refrigerant.
Is the refrigerant overcharged?	Conduct refrigerant collection and vacuum drying, and then add proper amount refrigerant.

1.6.6 Abnormal low pressure

Abnormally low pressure level is mostly caused by the evaporator side. The following contents are provided based on field checking of service engineer. Further, the number is listed in the order of degree of influence.

In cooling mode

Check item	Detail
Does the outdoor unit fan run normally?	Visual inspection
Is the indoor unit heat exchanger clogged?	Visual inspection
Is there clogging before or after the expansion valve (capillary)?	▪ Check if there is a temperature difference before and after expansion valve (capillary). ▪ Check if the main valve unit of expansion valve operates (by noise, vibration).
Is the check valve clogged?	Check if there is a temperature difference before and after check valve. If YES, the check valve is caught.
Is the indoor unit installed under such conditions that short circuit easily occurs?	Visual inspection
Is the refrigerant gas short?	Conduct refrigerant collection and vacuum drying, and then add proper amount refrigerant.

In cooling mode

Check item	Detail
Does the outdoor unit fan run normally?	Visual inspection
Is the outdoor unit heat exchanger clogged?	Visual inspection
Is the outdoor unit installed under such conditions that short circuit easily occurs?	Visual inspection

Check item	Detail
Is there clogging before or after the expansion valve (capillary)?	▪ Check if there is a temperature difference before and after expansion valve (capillary). ▪ Check if the main valve unit of expansion valve operates (by noise, vibration).
Is the check valve clogged?	after check valve. If YES, the check valve is caught.
Is the refrigerant gas short?	Conduct refrigerant collection and vacuum drying, and then add proper amount refrigerant.

1.6.7 Indoor fan starts operating but the compressor does not operate

Check	Detail
Check the power supply.	▪ Is the rated voltage (± 10%) supplied? ▪ Check the insulation of the electric system.
Check the thermistor.	▪ Connection witch PCB. ▪ Output.
Check PCB's.	▪ if green led on the control PCB is not blinking, then the microprocessor is not working. ▪ if the green led on the main PCB is not blinking, then the microprocessor is not working. ▪ if first green LED on the service monitor PCB is not blinking, then the microprocessor is not working.
Check the magnetic switch.	
Check the power transistor.	
Check the compressor.	▪ Defective contact. ▪ Defective compressor. ▪ Defective protection thermostat.
Check the outdoor temperature.	▪ Heating operation cannot be used when the outdoor temperature is 18°C WB or higher. ▪ Cooling operation cannot be used when the outdoor temperature is below –10°C DB.

1.6.8 Operation starts and the unit stops immediately

Check	Detail
Check the power supply.	▪ Is the capacity of the safety breaker as specified? ▪ If the earth leakage breaker is too sensitive, then increase the set value of the earth leakage current of the breaker or replace the breaker. ▪ Is the circuit exclusive? ▪ Is the rated voltage (± 10%) supplied? ▪ Is there an incorrect size of connection wiring?
Check the refrigerant charge.	▪ Overcharge. ▪ Air in the system. ▪ Water in the system.
Check the fan motor.	▪ Check the magnetic switch. ▪ Check the overcurrent relay.
Check the four way valve coil.	▪ Is there a short circuit? ▪ Is the four way valve coil broken?
Check the outdoor PCB.	▪ Is there a short circuit? ▪ Is the outdoor PCB broken?
Check the heat exchanger.	Soiled heat exchanger, obstruction.
Check the airflow.	Soiled air filter, obstruction, installation space.

1.6.9 Operation stops, unit cannot start for a while

Check	Detail
Check if standby function is activated.	▪ Compressor delay timer is counting. ▪ Wait for minimum 3 minutes.
Check the power supply.	▪ Low voltage? ▪ Is the size of the power cable sufficient?
Check the refrigerant charge.	▪ Incorrect charge. ▪ Air in the system. ▪ Water in the system. ▪ Obstruction in the system.
Check compressor.	▪ Overcurrent relay. ▪ Protection thermostat.

1.6.10 Unit discharges white mist

Check	Detail
Check installation conditions.	▪ Humid site. ▪ Dirty site. ▪ Oil mist.
Check installation conditions.	Dirty heat exchanger.
Air filter.	Dirty air filter.
Fan motor.	Defective fan motor.

1.6.11 Swing flap does not operate

Symptom	Check	Detail
Swing flap does not operate	Check swing flap motor	Some functions can force the swing flap into a fixed position, although swing mode is selected on the remote controller. This is not a unit error, but a control function to prevent draft to the customer.
	Check indoor unit PCB	Connector connection

2 Components

2.1 4-way valve

2.1.1 Checking procedures

INFORMATION

It is recommended to perform the checks in the listed order.

To perform a mechanical check of the 4-way valve

Prerequisite: Stop the unit operation (via the user interface, operation switch, …).

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "2.10 Plate work" on page 38.

1 Verify that the screw is firmly fixing the coil to the valve body.

2 Check if any damage or burst is present.

Is the 4-way valve coil firmly fixed and not visually damaged?	Action
Yes	Perform an electrical check of the 4-way valve, see "2.1.1 Checking procedures" on page 19.
No	Fix or replace the 4-way valve coil, see "2.1.2 Repair procedures" on page 20.

To perform an electrical check of the 4-way valve

Prerequisite: First perform a mechanical check of the 4-way valve, see "2.1.1 Checking procedures" on page 19.

1 Unplug the 4-way valve connector from the appropriate PCB.

2 Measure the resistance of the 4-way valve coil between the pins of the 4-way valve connector.

Result: The measured value must be 46 ± 4 Ω ± 10%.

Is the measured value correct?	Action
Yes	Continue with the next step.
No	Replace the 4-way valve coil, see "2.1.2 Repair procedures" on page 20.

When outdoor temperature is mild and unit can switch between heating and cooling

INFORMATION

This procedure is ONLY possible when the outdoor temperature is within the temperature range for both `Heating` and `Cooling` operation mode. See the databook on Business Portal for the temperature range of the operation modes.

3 Connect the 4-way valve connector to the appropriate PCB.

4 Turn ON the unit using the respective circuit breaker.

5 With the 4-way valve connector connected to the PCB, measure the voltage on the 4-way valve connection of the PCB.

Result: The measured voltage MUST be 12 V DC.

6 Measure the voltage on the 4-way valve connection on the PCB.

Result: The measured voltage MUST be 0 V DC.

Are the measured voltages correct?	Action
Yes	Perform a position check of the 4-way valve, see "2.1.1 Checking procedures" on page 19.
No	Perform a check the main PCB, see "2.8 Main PCB" on page 34.

When outdoor temperature does not allow the unit to run in cooling or heating mode

INFORMATION

Follow this procedure when the outdoor temperature is outside the temperature range for one of the operation modes (`Heating` or `Cooling`). The unit CANNOT operate in the mode for which the outdoor temperature is outside its temperature range. See the databook on Business Portal for the temperature range of the operation modes.

7 Connect the 4-way valve connector to the appropriate PCB.

8 Turn ON the unit using the respective circuit breaker.

9 With the unit operating, connect the service monitoring tool to the unit and check whether the unit is operating in `Heating` or `Cooling` mode.

10 With the 4-way valve connector connected to the PCB, measure the voltage on the 4-way valve connection of the PCB. The measured voltage MUST be:

- 12 V DC when operating in `Heating` mode
- 0 V DC when operating in `Cooling` mode

Is the measured voltage correct?	Action
Yes	Perform a position check of the 4-way valve, see "2.1.1 Checking procedures" on page 19.
No	Perform a check the main PCB, see "2.8 Main PCB" on page 34.

To perform a position check of the 4-way valve

1 First perform an electrical check of the 4-way valve, see "2.1.1 Checking procedures" on page 19.

When outdoor temperature is mild and unit can switch between heating and cooling

INFORMATION

This procedure is ONLY possible when the outdoor temperature is within the temperature range for both `Heating` and `Cooling` operation mode. See the databook on Business Portal for the temperature range of the operation modes.

INFORMATION

It is recommended to connect the service monitoring tool to the unit and verify the operation mode of the 4-way valve.

2 Check with a contact thermometer (or by touching) if the flow through the 4-way valve corresponds with the flow shown in the flow diagram. (See "5.3 Piping diagram" on page 60).

Is the flow correct?	Action
Yes	Skip the next step of this procedure.
No	Perform the next step of this procedure.

3 Connect a manifold to one of the service ports of the refrigerant circuit and check the pressure (suction, discharge). Compare with normal operation conditions of the unit.

Refrigerant pressure correct?	Action
Yes	Replace the body of the 4-way valve, see "2.1.2 Repair procedures" on page 20.
No	Leaks may be found in the refrigerant circuit. Perform a pressure test of the refrigerant circuit, see "3.2.1 Checking procedures" on page 51.

4 Check with a contact thermometer (or by touching) if the flow through the 4-way valve corresponds with the flow shown in the flow diagram. (See "5.3 Piping diagram" on page 60).

Is the flow correct?	Action
Yes	4-way valve is OK. Return to the troubleshooting of the specific error and continue with the next procedure.
No	Replace the body of the 4-way valve, see "2.1.2 Repair procedures" on page 20.

When outdoor temperature does not allow the unit to run in cooling or heating mode

INFORMATION

Follow this procedure when the outdoor temperature is outside the temperature range for one of the operation modes (`Heating` or `Cooling`). The unit CANNOT operate in the mode for which the outdoor temperature is outside its temperature range. See the databook on Business Portal for the temperature range of the operation modes.

5 With the unit operating, connect the service monitoring tool to the unit and check whether the unit is operating in `Heating` or `Cooling` mode.

6 Check with a contact thermometer (or by touching) if the flow through the 4-way valve corresponds with the flow shown in the flow diagram of the specific operation mode. (See "5.3 Piping diagram" on page 60).

Is the flow correct?	Action
Yes	4-way valve is OK. Return to the troubleshooting of the specific error and continue with the next procedure.
No	Perform the next step of this procedure.

7 Connect a manifold to one of the service ports of the refrigerant circuit and check the pressure (suction, discharge). Compare with normal operation conditions of the unit.

Refrigerant pressure correct?	Action
Yes	Replace the body of the 4-way valve, see "2.1.2 Repair procedures" on page 20.
No	Leaks may be found in the refrigerant circuit. Perform a pressure test of the refrigerant circuit, see "3.2.1 Checking procedures" on page 51.

2.1.2 Repair procedures

To remove the main 4-way valve coil

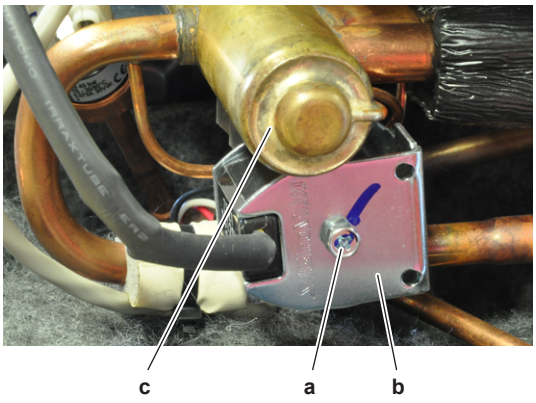
Prerequisite: Stop the unit operation (via the user interface, operation switch, …).

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "2.10 Plate work" on page 38.

Prerequisite: If needed, remove any parts to create more space for the removal of the 4-way valve coil.

1 Remove the screw and remove the 4-way valve coil from the 4-way valve body.



a Screw
b 4-way valve coil
c 4-way valve body

2 Cut all tie straps that fix the 4-way valve coil harness.

3 Disconnect the 4-way valve coil connector from the appropriate PCB.

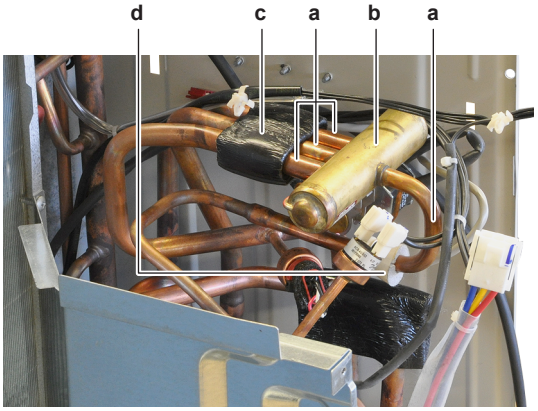
4 To install the 4-way valve coil, see "2.1.2 Repair procedures" on page 20.

To remove the main 4-way valve body

Prerequisite: Recuperate the refrigerant from the refrigerant circuit, see "3.2.2 Repair procedures" on page 53.

1 Remove the 4-way valve coil from the 4-way valve body, see "2.1.2 Repair procedures" on page 20.

2 Cut the 4-way valve pipes using a pipe cutter.



a 4-way valve pipe
b 4-way valve
c Putty
d Insulation

3 Remove the 4-way valve.

4 Keep the putty and the insulation for re-use.

5 To install the 4-way valve body, see "2.1.2 Repair procedures" on page 20.

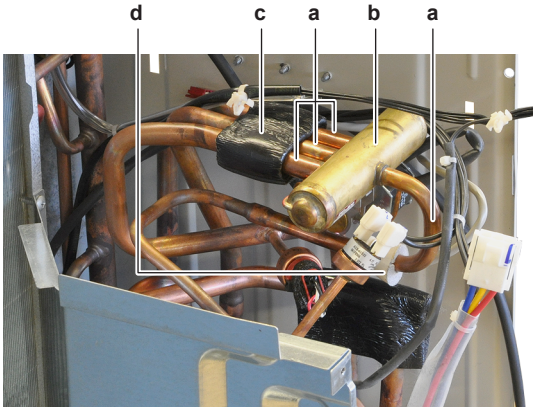
To install the main 4-way valve body

1 Install the 4-way valve in the correct location.

2 Wrap a wet rag around the 4-way valve and solder the 4-way valve pipes to the 4-way valve.

CAUTION

Overheating the valve will damage or destroy it.



a 4-way valve pipe
b 4-way valve
c Putty
d Insulation

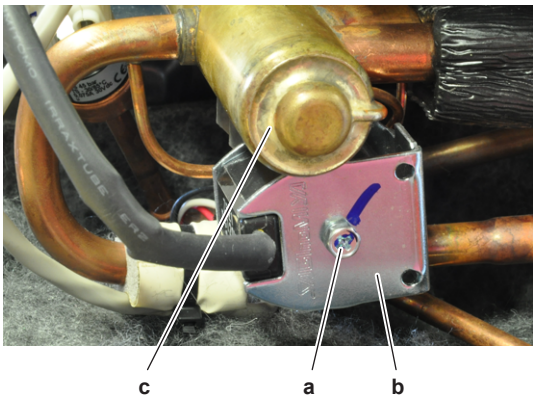
3 Install the putty and the insulation in their original location.

4 Install the 4-way valve coil on the 4-way valve body, see "2.1.2 Repair procedures" on page 20.

5 Add refrigerant to the refrigerant circuit, see "3.2.2 Repair procedures" on page 53.

To install the 4-way valve coil

1 Install the 4-way valve coil on the 4-way valve body.



a Screw
b 4-way valve coil
c 4-way valve body

2 Install and tighten the screw to fix the 4-way valve coil.

3 Route the 4-way valve coil harness towards the appropriate PCB.

4 Connect the 4-way valve coil connector to the PCB.

WARNING

When reconnecting a connector to the PCB, do NOT apply force, as this may damage the connector or connector pins of the PCB.

5 Fix the 4-way valve coil harness using new tie straps.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

2.2 Compressor

2.2.1 Checking procedures

INFORMATION

It is recommended to perform the checks in the listed order.

To perform an auditive check of the compressor

Prerequisite: Stop the unit operation (via the user interface, operation switch, …).

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "2.10 Plate work" on page 38.

1 Open the compressor insulation.

2 Turn ON the unit using the respective circuit breaker.

3 Start the unit operation (via the user interface, operation switch, …).

4 Listen to the compressor when it tries to operate. Judge if a mechanical lock is present.

INFORMATION

If a mechanical lock is present, also check for the root cause of impurities in the refrigerant causing mechanical lock of the compressor. See "3.2.1 Checking procedures" on page 51.

A mechanical lock is present on the compressor?	Action
Yes	Replace the compressor, see "2.2.2 Repair procedures" on page 23.
No	Perform an mechanical check of the compressor, see "2.2.1 Checking procedures" on page 21.

To perform a mechanical check of the compressor

1 First perform an auditive check of the compressor, see "2.2.1 Checking procedures" on page 21.

2 Open the compressor insulation.

3 Check the compressor dampers and piping for any damage.



a Damper

INFORMATION

The compressor dampers may look different.

Compressor dampers and piping are in a good condition?	Action
Yes	Perform an electrical check of the compressor, see "2.2.1 Checking procedures" on page 21.
No	Replace the compressor, see "2.2.2 Repair procedures" on page 23.

To perform an electrical check of the compressor

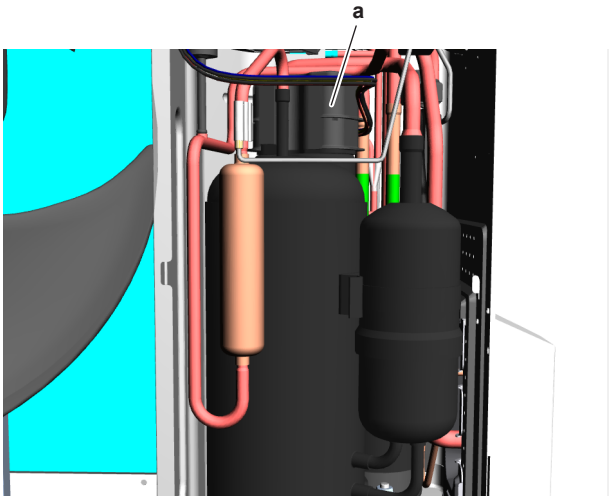
1 First perform a mechanical check of the compressor, see "2.2.1 Checking procedures" on page 21.

2 Open the compressor insulation.

DANGER: RISK OF ELECTROCUTION

Confirm rectifier voltage is below 10 V DC before proceeding.

3 Remove the cover of the compressor wire terminals.

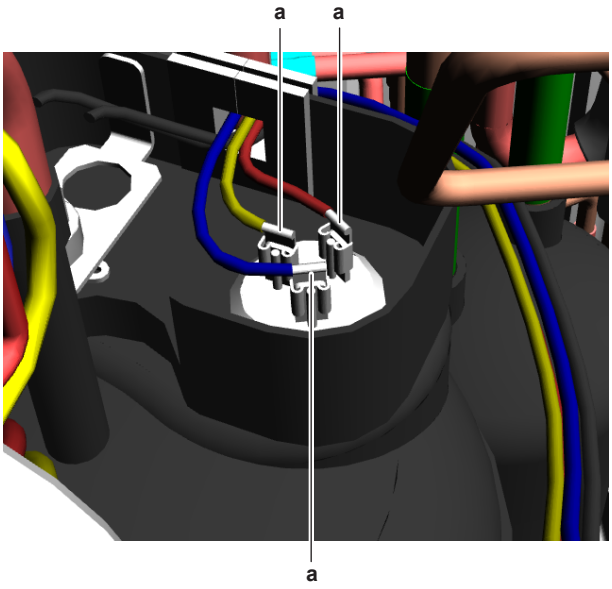


a Compressor wire terminals cover

4 Disconnect the Faston connectors from the compressor wire terminals U, V and W.

INFORMATION

Note the position of the Faston connectors on the compressor wire terminals to allow correct connection during installation.



a Faston connectors

5 Measure the resistance between the compressor motor windings U-V, V-W and U-W. All measurements MUST be the same.

CAUTION

Before measuring the compressor motor windings resistance, measure the resistance of the multimeter probes by holding the probes against each other. If the measured resistance is NOT 0 Ω, this value MUST be substracted from the measured winding resistance.

Compressor motor winding measurements are correct?	Action
Yes	Continue with the next step.
No	Replace the compressor, see "2.2.2 Repair procedures" on page 23.

6 Re-connect the Faston connectors and install the cover of the compressor wire terminals.

7 Install the compressor insulation.

8 Turn ON the unit using the respective circuit breaker.

9 Start the unit operation (via the user interface, operation switch, …).

10 Once the compressor operates, measure the U-V-W inverter voltages. All measurements MUST be the same.

Inverter voltage measurements are correct?	Action
Yes	Continue with the next step.
No	Replace the inverter PCB, see "2.7 Inverter PCB" on page 33.

11 Measure the current in each phase U-V, V-W and U-W. All measurements MUST be the same.

Compressor motor winding current measurements are correct?	Action
Yes	Perform an insulation check of the compressor, see "2.2.1 Checking procedures" on page 21.
No	Preventively replace the compressor, see "2.2.2 Repair procedures" on page 23.

To perform an insulation check of the compressor

Prerequisite: First perform an electrical check of the compressor, see "2.2.1 Checking procedures" on page 21.

Prerequisite: Stop the unit operation (via the user interface, operation switch, …).

Prerequisite: Turn OFF the respective circuit breaker.

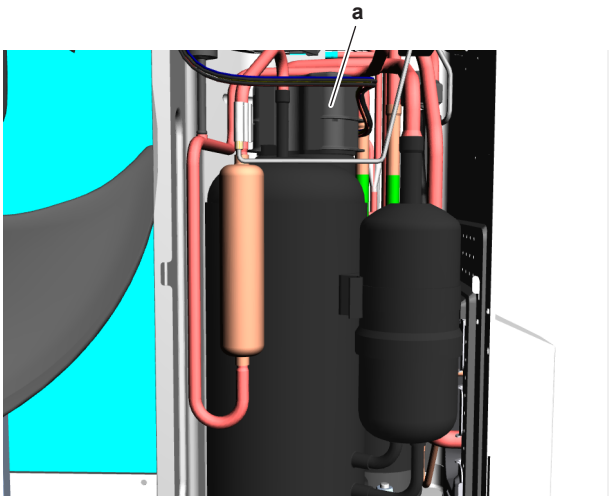
Prerequisite: Remove the required plate work, see "2.10 Plate work" on page 38.

1 Open the compressor insulation.

DANGER: RISK OF ELECTROCUTION

Confirm rectifier voltage is below 10 V DC before proceeding.

2 Remove the cover of the compressor wire terminals.

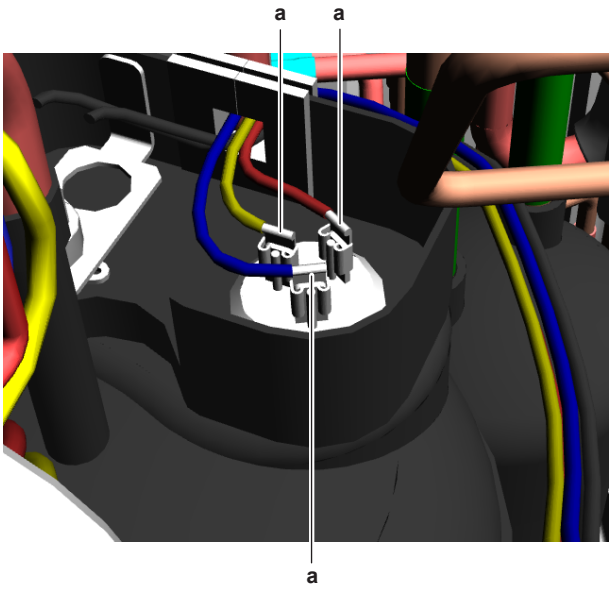


a Compressor wire terminals cover

3 Disconnect the Faston connectors from the compressor wire terminals U, V and W.

INFORMATION

Note the position of the Faston connectors on the compressor wire terminals to allow correct connection during installation.



a Faston connectors

4 Set the Megger voltage to 500 V DC or 1000 V DC.

5 Measure the insulation resistance between the following terminals. The measured insulation resistance MUST be >3 MΩ.

- U–ground,
- V–ground,
- W–ground.

Compressor insulation measurements are correct?	Action
Yes	Perform a check of the compressor overload protection, see "2.2.1 Checking procedures" on page 21..
No	Replace the compressor, see "2.2.2 Repair procedures" on page 23.

2.2.2 Repair procedures

To remove the compressor

Prerequisite: Stop the unit operation (via the user interface, operation switch, …).

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "2.10 Plate work" on page 38.

Prerequisite: Remove the compressor insulation.

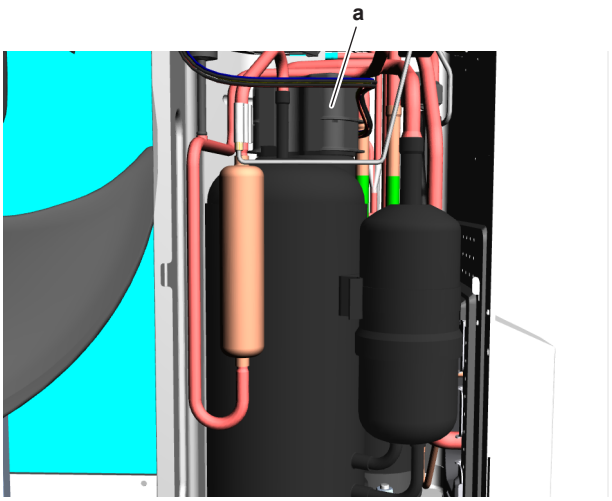
Prerequisite: Recuperate the refrigerant from the refrigerant circuit, see "3.2.2 Repair procedures" on page 53.

1 If needed, remove any parts to create more space for the removal of the compressor.

DANGER: RISK OF ELECTROCUTION

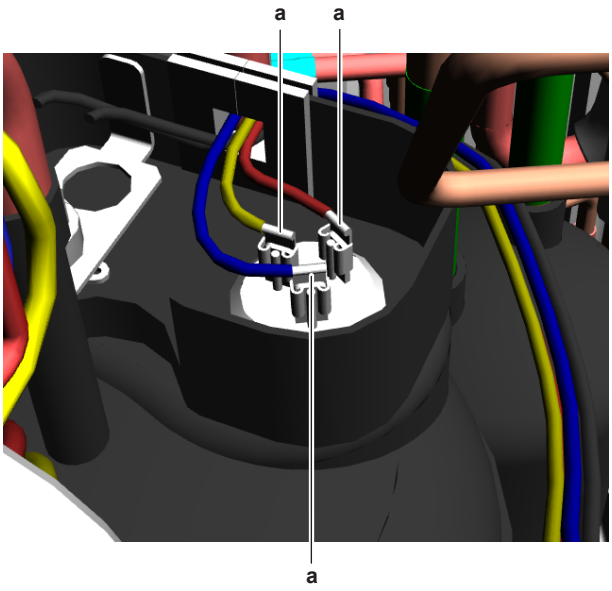
Confirm rectifier voltage is below 10 V DC before proceeding.

2 Remove the cover of the compressor wire terminals.



a Compressor wire terminals cover

3 Disconnect the Faston connectors from the compressor wire terminals U, V and W.

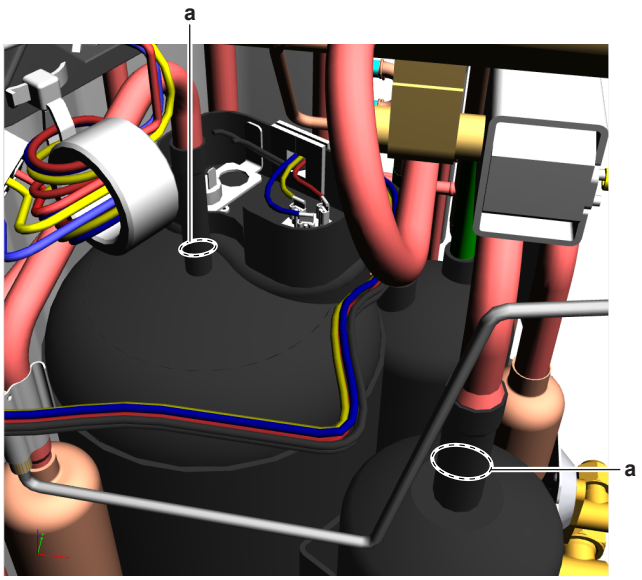


a Faston connectors

INFORMATION

Note the position of the Faston connectors on the compressor wire terminals to allow correct connection during installation.

4 Cut the compressor pipes (below the soldered joint) using a pipe cutter.



a Compressor pipe

5 Remove the 3 nuts and remove the compressor from the unit.
- **a** Nut
- **b** Compressor
- **c** Damper

6 Remove the 3 dampers from the compressor.

INFORMATION

The compressor dampers may look different.

7 Remove the bushings and keep them for re-use.

8 Keep the putty for re-use.

9 To install the compressor, see "2.2.2 Repair procedures" on page 23.

To install the compressor

1 Check the state of the dampers. Replace if worn.

2 Install the 3 dampers in the correct location on the unit.
- **a** Nut
- **b** Compressor
- **c** Damper

INFORMATION

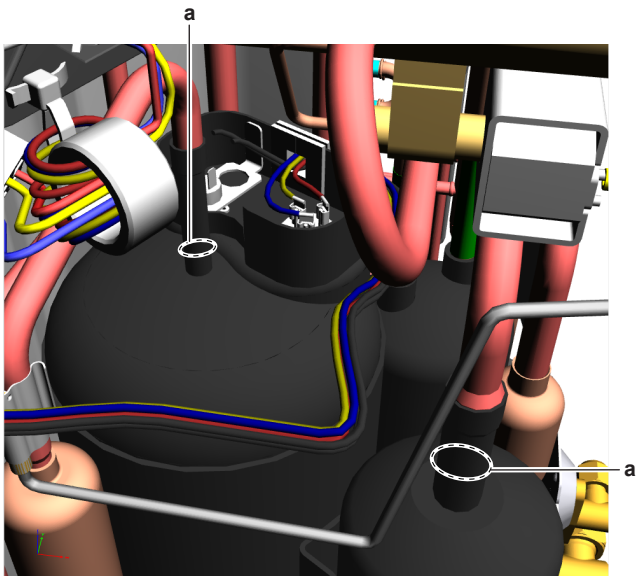
The compressor dampers may look different.

3 Remove the caps from the compression pipe and suction pipe.

CAUTION

The oil in the compressor is hygroscopic. Therefore remove the caps from the compressor pipes as late as possible.

4 Wrap a wet rag around the compressor pipes and solder the compressor pipes to the refrigerant pipes.



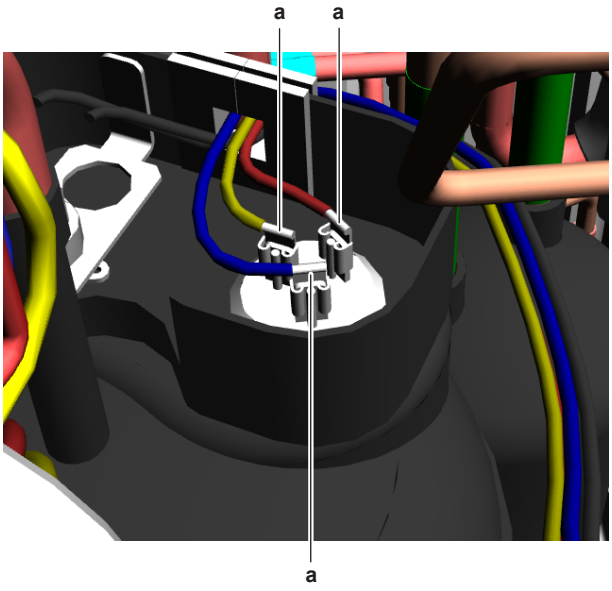
a Compressor pipe

CAUTION

Overheating the compressor pipes (and the oil inside the compressor pipes) will damage or destroy the compressor.

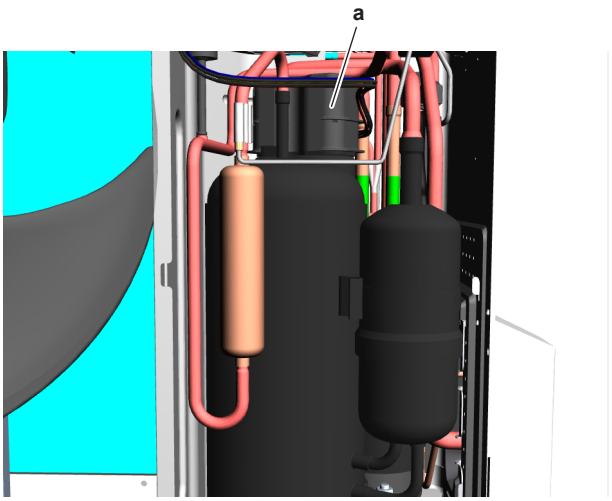
5 Install the putty in the correct location.

6 Connect the Faston connectors to the compressor wire terminals U, V and W



a Faston connectors

7 Install the cover of the compressor wire terminals.



a Compressor wire terminals cover

8 Add refrigerant to the refrigerant circuit, see "3.2.2 Repair procedures" on page 53.

9 Install the compressor insulation, see "2.2.2 Repair procedures" on page 23.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

2.3 Expansion valve

2.3.1 Checking procedures

INFORMATION

It is recommended to perform the checks in the listed order.

To perform a mechanical check of the expansion valve

Prerequisite: Power OFF the unit for 3 minutes. Then turn ON the unit and listen to the expansion valve assembly. If the expansion valve does NOT make a latching sound, continue with the electrical check of the expansion valve, see "2.3.1 Checking procedures" on page 25.

Prerequisite: Stop the unit operation (via the user interface, operation switch, …).

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "2.10 Plate work" on page 38.

1 Remove the expansion valve motor from the expansion valve body, see "2.3.2 Repair procedures" on page 26.

2 Slide the magnet (tool part number 9950038) over the expansion valve body and gently rotate the magnet clockwise/counterclockwise to manually close/open the expansion valve.

Does the expansion valve open?	Action
Yes	Perform an electrical check of the expansion valve, see "2.3.1 Checking procedures" on page 25.
No	Replace the expansion valve body, see "2.3.2 Repair procedures" on page 26.

To perform an electrical check of the expansion valve

Prerequisite: First perform a mechanical check of the expansion valve, see "2.3.1 Checking procedures" on page 25.

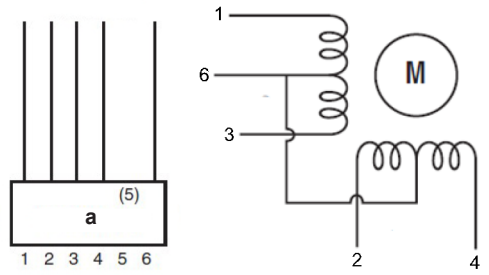
1 Make sure that the valve coil is firmly slid onto the valve body.

2 Disconnect the electrical connector of the expansion valve motor from the appropriate PCB and measure the resistance of all windings (between the pins of each phase (wire) and the common wire) using a multi meter. All measurements MUST be approximately the same.

INFORMATION

Below is an example of the resistance measurements in which the common wire is connected to pin 6 of the expansion valve motor connector. Connections may differ according to the type of expansion valve.

- Connector pin 1-6,
- Connector pin 2-6,
- Connector pin 3-6,
- Connector pin 4-6.



a Connector

Is the measured resistance correct?	Action
Yes	Component is OK. Return to the troubleshooting of the specific error and continue with the next step.
No	Replace the expansion valve motor, "2.3.2 Repair procedures" on page 26.

Problem solved?

After all checking procedures listed above have been performed:

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

2.3.2 Repair procedures

To remove the expansion valve motor

Prerequisite: Stop the unit operation (via the user interface, operation switch, …).

Prerequisite: Turn OFF the respective circuit breaker.

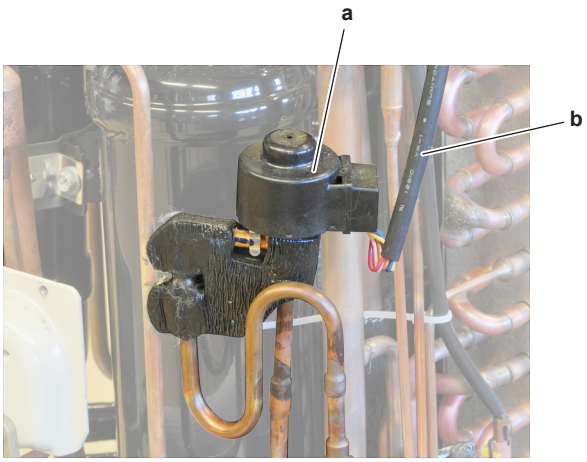
Prerequisite: Remove the required plate work, see "2.10 Plate work" on page 38.

Prerequisite: If needed, remove any parts or insulation to create more space for the removal.

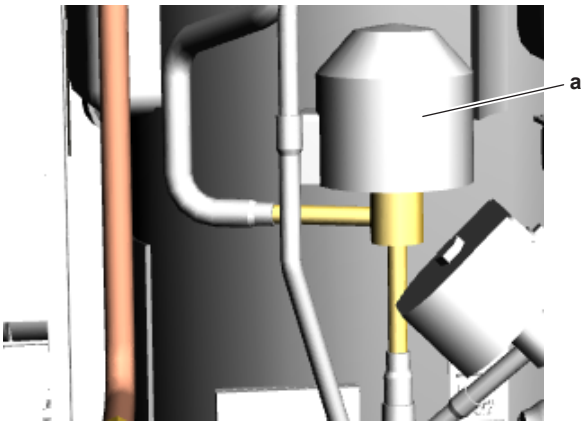
1 Pull up the expansion valve motor to remove it from the expansion valve body.

INFORMATION

It may be needed to turn the expansion valve motor 1/8 turn counter clockwise to unlock it.



a Expansion valve motor
b Expansion valve motor harness



a Expansion valve motor

INFORMATION

The expansion valve and motor can have a different configuration / layout.

2 Cut all tie straps that fix the expansion valve motor harness.

3 Disconnect the expansion valve motor connector from the main PCB.

4 To install the expansion valve motor, see "2.3.2 Repair procedures" on page 26.

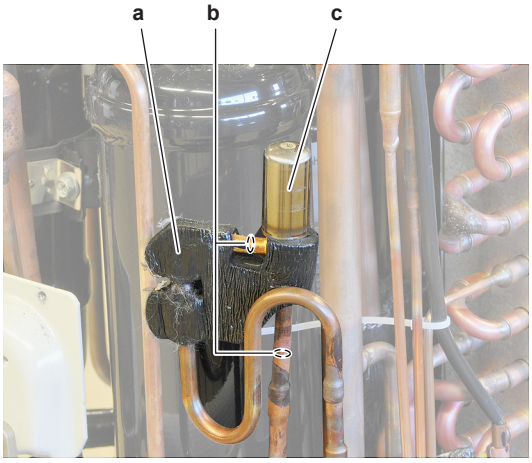
To remove the expansion valve body

Prerequisite: Recuperate the refrigerant from the refrigerant circuit, see "3.2.2 Repair procedures" on page 53.

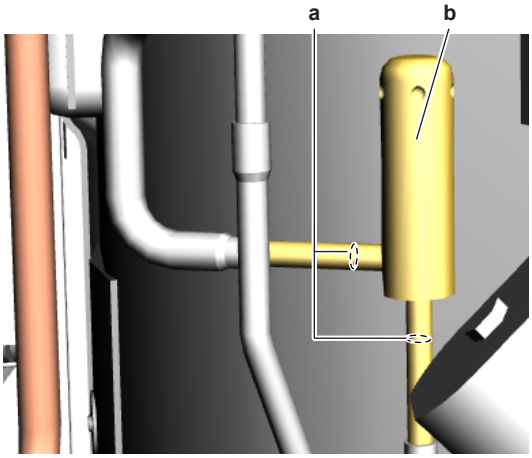
Prerequisite: If needed, remove any parts or insulation to create more space for the removal.

1 Remove the expansion valve motor, see "2.3.2 Repair procedures" on page 26.

2 Remove the putty. Keep for re-use.



a Putty
b Expansion valve pipe
c Expansion valve body



a Expansion valve pipe
b Expansion valve body

INFORMATION

The expansion valve and motor can have a different configuration / layout.

3 Cut the expansion valve pipes using a pipe cutter.

4 Remove the expansion valve body.

5 To install the expansion valve body, see "2.3.2 Repair procedures" on page 26.

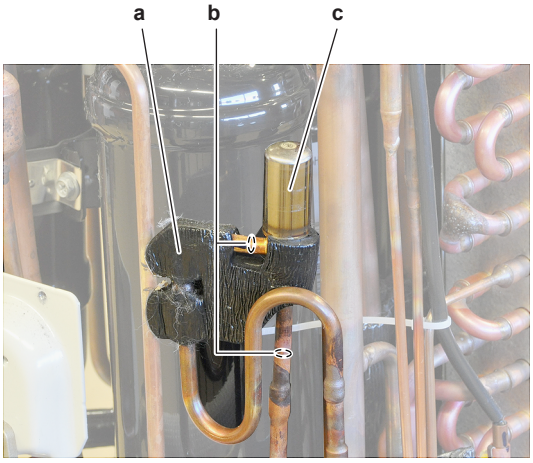
To install the expansion valve body

1 Install the expansion valve body in the correct location.

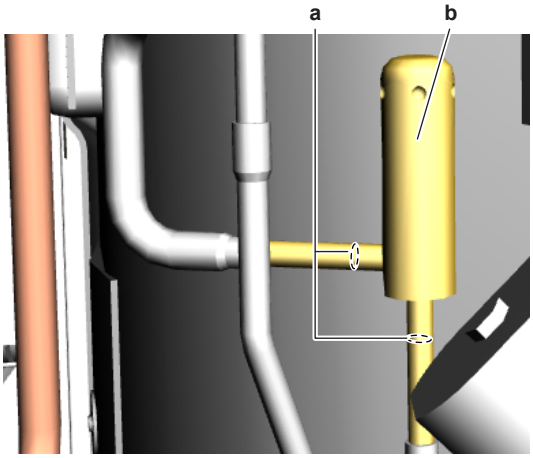
2 Wrap a wet rag around the expansion valve body and solder the refrigerant pipes to the expansion valve body.

CAUTION

Overheating the valve will damage or destroy it.



a Putty
b Expansion valve pipe
c Expansion valve body



a Expansion valve pipe
b Expansion valve body

INFORMATION

The expansion valve and motor can have a different configuration / layout.

3 Reinstall the putty.

4 To install the expansion valve motor, see "2.3.2 Repair procedures" on page 26.

5 Add refrigerant to the refrigerant circuit, see "3.2.2 Repair procedures" on page 53.

About the installation of the expansion valve motor

NOTICE

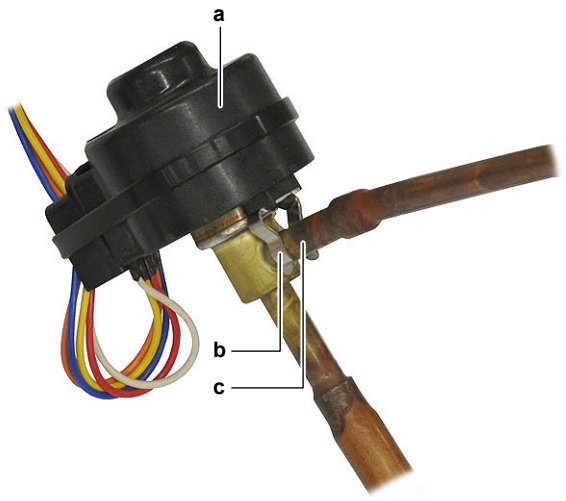
Select the correct type.

To install the expansion valve motor with clip

1 Install the expansion valve motor on the expansion valve body.

INFORMATION

The expansion valve motor is equipped with a pipe retention clip. Install the pipe retention clip over the pipe to lock the expansion valve motor.



a Expansion valve motor
b Pipe retention clip
c Pipe

2 Route the expansion valve motor harness towards the main PCB.

3 Connect the expansion valve motor connector to the main PCB.

WARNING

When reconnecting a connector to the PCB, do NOT apply force, as this may damage the connector or connector pins of the PCB.

4 Fix the expansion valve motor harness using new tie straps.

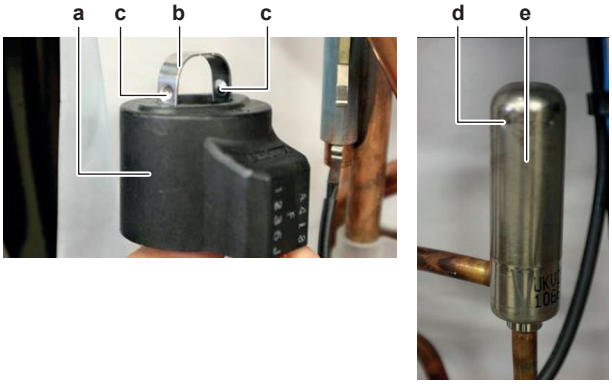
Is the problem solved?	Action
Yes	No further actions required.
No	Return to "2.3.1 Checking procedures" on page 25 of the expansion valve and continue with the next procedure.

To install the expansion valve motor with bracket

1 Install the expansion valve motor on the expansion valve body.

INFORMATION

The expansion valve motor is equipped with a metal bracket. Fit the nipples of the metal bracket into the notches of the expansion valve body.



a Expansion valve motor
b Metal bracket
c Nipple
d Notch
e Expanion valve body

2 Route the expansion valve motor harness towards the main PCB.

3 Connect the expansion valve motor connector to the main PCB.

WARNING

When reconnecting a connector to the PCB, do NOT apply force, as this may damage the connector or connector pins of the PCB.

4 Fix the expansion valve motor harness using new tie straps.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to "2.3.1 Checking procedures" on page 25 of the expansion valve and continue with the next procedure.

2.4 High pressure switch

2.4.1 Checking procedures

To perform an electrical check of the high pressure switch (general procedure)

Prerequisite: Stop the unit operation (via the user interface, operation switch, …).

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "2.10 Plate work" on page 38.

1 Turn ON the power of the unit.

2 Start the unit operation (via the user interface, operation switch, …).

3 Disconnect the Faston connectors from the high pressure switch.

4 Connect a pressure gauge to the refrigerant circuit high pressure service port and read the refrigerant pressure.

INFORMATION

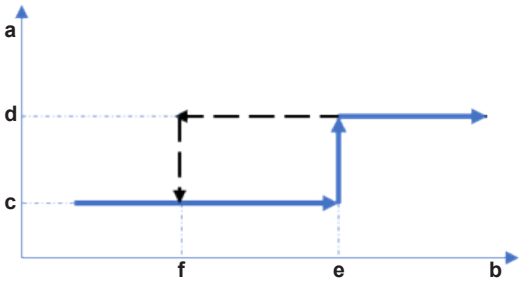
When the unit is operating in heating mode, the high pressure port is the gas service port. When the unit is operating in cooling (defrost) mode, the high pressure port is the liquid service port.

5 Measure the resistance between the Faston connections of the high pressure switch to check if it is open or closed.

6 Compare the result with the trigger and reset conditions of the high pressure switch (graphic below).

INFORMATION

If the high pressure switch was triggered open, it will stay open until the refrigerant pressure drops below the reset pressure of the high pressure switch.



a High pressure switch protection control
b Pressure
c High pressure switch closed
d High pressure switch open
e High pressure switch operating pressure
f High pressure switch reset pressure

INFORMATION

In most cases, the user interface allows to monitor the high pressure.

If the state of the high pressure switch (open or closed) matches the state determined through the measured pressure, but the pressure is NOT correct on the user interface display, replace the applicable PCB.

High pressure switch connector measurements are correct?	Then
Yes	High pressure switch is OK. Return to the troubleshooting of the specific error and continue with the next procedure.
No	Replace the high pressure switch, see "2.4.2 Repair procedures" on page 29.

To perform an electrical check of the high pressure switch (detailed procedure)

Prerequisite: Stop the unit operation (via the user interface, operation switch, …).

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "2.10 Plate work" on page 38.

1 Recuperate the refrigerant from the refrigerant circuit, see "3.2.2 Repair procedures" on page 53.

2 Fill the refrigerant circuit with nitrogen until pressurized just below operating pressure of the high pressure switch.

3 Disconnect the Faston connectors from the high pressure switch.

4 Measure the resistance between the Faston connections of the high pressure switch. The switch MUST be closed.

5 Fill the refrigerant circuit with nitrogen until pressurized just above operating pressure of the high pressure switch.

6 Measure the resistance between the Faston connections of the high pressure switch. The switch MUST be open.

7 Lower the pressure of the nitrogen in the refrigerant circuit just above reset pressure of the high pressure switch.

8 Measure the resistance between the Faston connections of the high pressure switch. The switch MUST be open.

9 Lower the pressure of the nitrogen in the refrigerant circuit just below reset pressure of the high pressure switch.

10 Measure the resistance between the Faston connections of the high pressure switch. The switch MUST be closed.

High pressure switch connector measurements are correct?	Then
Yes	High pressure switch is OK. Return to the troubleshooting of the specific error and continue with the next procedure.
No	Replace the high pressure switch, see "2.4.2 Repair procedures" on page 29.

2.4.2 Repair procedures

To remove the high pressure switch

Prerequisite: Stop the unit operation (via the user interface, operation switch, …).

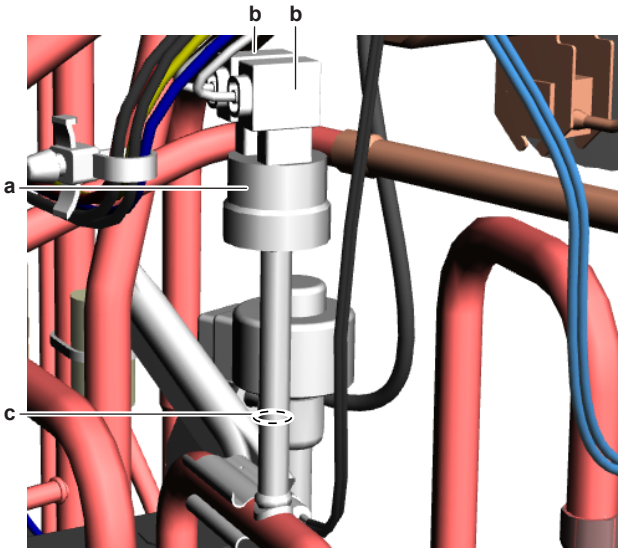
Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "2.10 Plate work" on page 38.

Prerequisite: Recuperate the refrigerant from the refrigerant circuit, see "3.2.2 Repair procedures" on page 53.

1 If needed, remove any parts to create more space for the removal of the high pressure switch.

2 Disconnect the Faston connectors from the high pressure switch.



a High pressure switch
b Faston connector
c High pressure switch pipe

3 Cut the high pressure switch pipe using a pipe cutter.

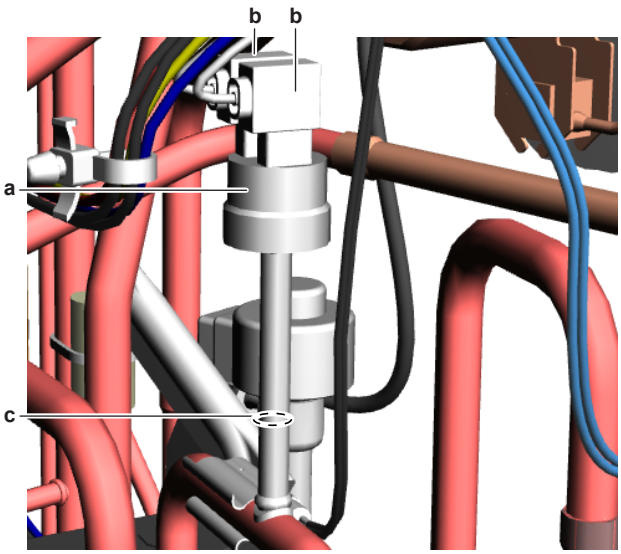
4 Remove the high pressure switch from the unit.

5 To install the high pressure switch, see "2.4.2 Repair procedures" on page 29.

To install the high pressure switch

1 Install the high pressure switch in the correct location.

2 Wrap a wet rag around the high pressure switch and solder the high pressure switch pipe to the high pressure switch.



a High pressure switch
b Faston connector
c High pressure switch pipe

CAUTION

Overheating the pressure switch will damage or destroy it.

3 Connect the Faston connectors to the high pressure switch.

4 Add refrigerant to the refrigerant circuit, see "3.2.2 Repair procedures" on page 53.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

2.5 Indoor unit fan motor

2.5.1 Checking procedures

INFORMATION

It is recommended to perform the checks in the listed order.

To perform a mechanical check of the DC fan motor assembly

1 Check the friction of the DC fan motor shaft bearing.

Is the DC fan motor shaft friction normal?	Action
Yes	Perform an electrical check of the DC fan motor assembly, see "2.5.1 Checking procedures" on page 30.
No	Replace the DC fan motor assembly, see "2.5.2 Repair procedures" on page 30.

To perform an electrical check of the DC fan motor assembly

1 First perform a mechanical check of the DC fan motor assembly, see "2.5.1 Checking procedures" on page 30.

2 Measure the resistance between the pins 1-2, 1-3, and 2-3 of the DC fan motor connector. All measurements MUST be 15~20 Ω.

DC fan motor resistance measurements are correct?	Action
Yes	Return to the troubleshooting of the specific error and continue with the next procedure.
No	Replace the DC fan motor, see "2.5.2 Repair procedures" on page 30.

2.5.2 Repair procedures

To remove the DC fan motor assembly

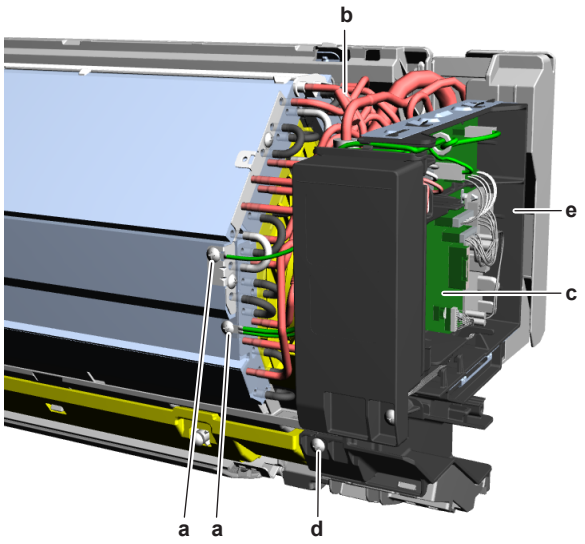
Prerequisite: Stop the unit operation (via the user interface, operation switch, …).

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "2.10 Plate work" on page 38.

1 Pull the clip and remove the heat exchanger thermistor from its holder.

2 Remove the screws to disconnect the grounding wires from the heat exchanger.

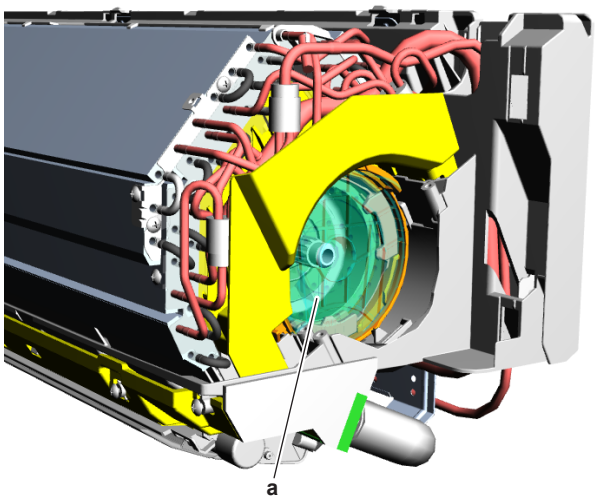


a Grouding wire screw
b Heat exchanger thermistor
c Indoor unit PCB
d Switch box screw
e Switch box

3 Disconnect the connectors of the indoor unit fan motor, the swing flap motor and the swing raster motor (if equipped) from the indoor unit PCB.

4 Remove the screw and remove the switch box from the indoor unit.

5 Click the indoor unit fan motor cover out of the indoor unit.



a Indoor unit fan motor cover

6 Remove the rubber from the indoor unit.

7 Remove the indoor unit fan motor from the indoor unit.

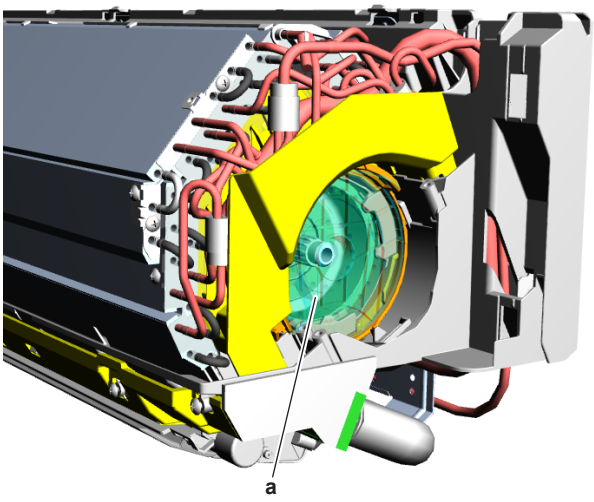
8 To install the indoor unit fan motor, see "2.5.2 Repair procedures" on page 30.

To install the DC fan motor assembly

1 Install the indoor unit fan motor in its correct location on the fan.

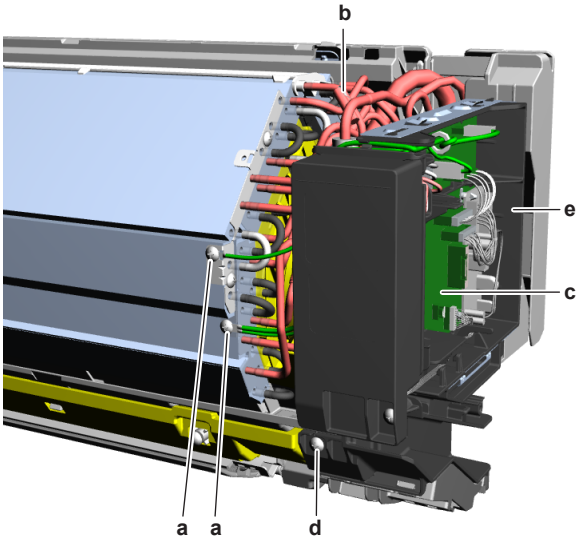
2 Install the rubber in front of the fan motor.

3 Click the indoor unit fan motor cover on the indoor unit.



a Indoor unit fan motor cover

4 Put the switch box in place.



a Grouding wire screw
b Heat exchanger thermistor
c Indoor unit PCB
d Switch box screw
e Switch box

5 Route the connectors of the indoor unit fan motor, swing flap motor and swing raster motor (if equipped) inside the switch box and connect them to the indoor unit PCB.

6 Install and tighten the screw to secure the switch box.

7 Install the heat exchanger thermistor in its holder.

8 Connect the grounding wires to the heat exchanger using the screws.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

2.6 Indoor unit PCB

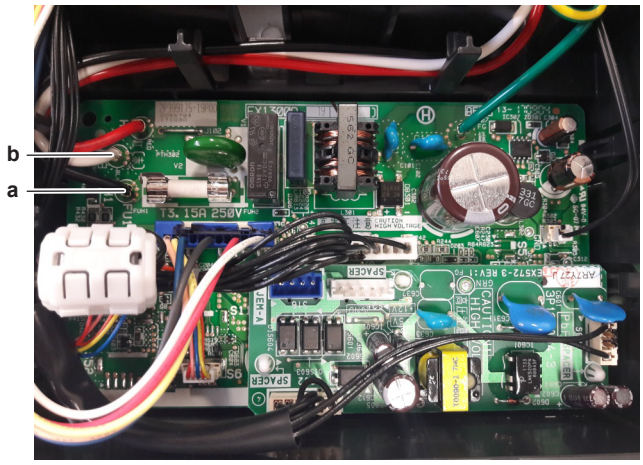
2.6.1 Checking procedures

INFORMATION

It is recommended to perform the checks in the listed order.

To perform a power check of the indoor unit PCB

1 Measure the voltage between the black and white wires on the PCB. The measured voltage MUST be 16 V DC.



a Black wire
b White wire

Is the measured voltage on the indoor unit PCB correct?	Action
Yes	Return to "2.6.1 Checking procedures" on page 31 of the indoor unit PCB and continue with the next procedure.
No	Continue with the next step.

2 Check the power supply from the outdoor unit to the indoor unit, see "3.1.1 Checking procedures" on page 50.

Is the power supply from the outdoor unit to the indoor unit correct?	Action
Yes	Correct the wiring between the power supply terminal of the indoor unit and the indoor unit PCB, see "2.6.2 Repair procedures" on page 32.
No	See "To check the power supply from the outdoor unit to the indoor unit" ("3.1.2 Repair procedures" on page 51) for the next steps.

To perform an electrical check of the indoor unit PCB

Procedure not available yet.

To check if the correct spare part is installed

1 Visit your local spare parts webbank.

2 Enter the model name of your unit and check if the installed spare part number corresponds with the spare part number indicated in the webbank.

Is the correct spare part for the indoor unit PCB installed?	Action
Yes	Return to "2.6.1 Checking procedures" on page 31 of the indoor unit PCB and continue with the next procedure.
No	Replace the indoor unit PCB, see "2.6.2 Repair procedures" on page 32.

To check the wiring of the indoor unit PCB

1 Check that all wires are properly connected and that all connectors are fully plugged-in. All colour codes MUST correspond.

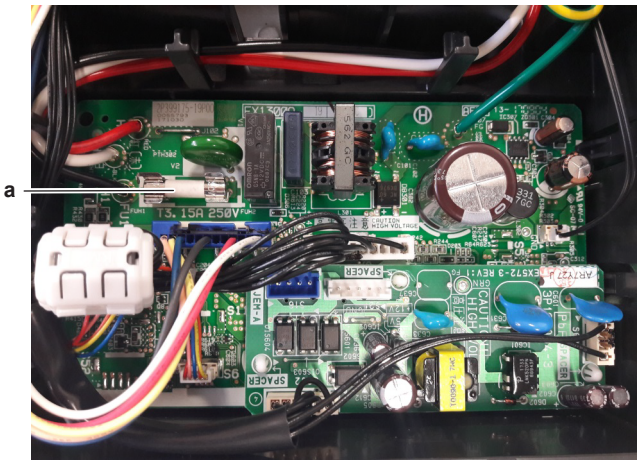
2 Check that no connectors or wires are damaged.

3 Check that the wiring corresponds with the wiring diagram, see "5.2 Wiring diagram" on page 58.

Is the wiring on the indoor unit PCB correct?	Action
Yes	Return to "2.6.1 Checking procedures" on page 31 of the indoor unit PCB and continue with the next procedure.
No	Adjust the wiring of the indoor unit PCB, see "2.6.2 Repair procedures" on page 32.

To check the fuse of the indoor unit PCB

1 Measure the continuity of the fuse. If no continuity is measured, the fuse is blown.



a Fuse

Blown fuse on the indoor unit PCB?	Action
Yes	Replace the blown fuse, see "2.6.2 Repair procedures" on page 32.
No	Return to "2.6.1 Checking procedures" on page 31 of the indoor unit PCB and continue with the next procedure.

Problem solved?

After all checking procedures listed above have been performed:

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

2.6.2 Repair procedures

To correct the wiring from the indoor unit power supply terminal to the indoor unit PCB

1 Correct the wiring from the indoor unit power supply terminal to the PCB, see "5.2 Wiring diagram" on page 58.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to "2.6.1 Checking procedures" on page 31 of the indoor unit PCB and continue with the next procedure.

To remove the indoor unit PCB

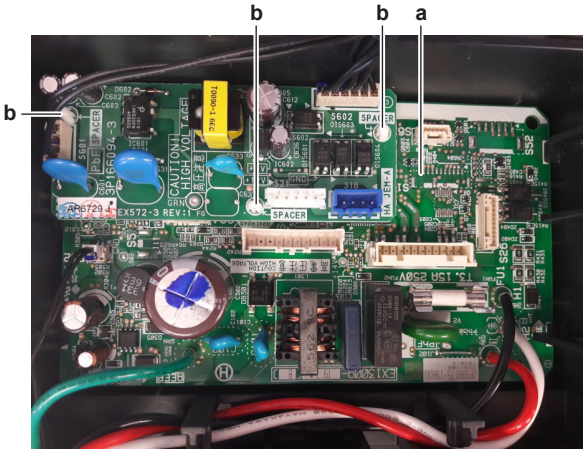
Prerequisite: Stop the unit operation (via the user interface, operation switch, …).

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "2.10 Plate work" on page 38.

1 Disconnect all connectors from the indoor unit PCB.

2 Carefully pull the indoor unit PCB from the PCB supports.



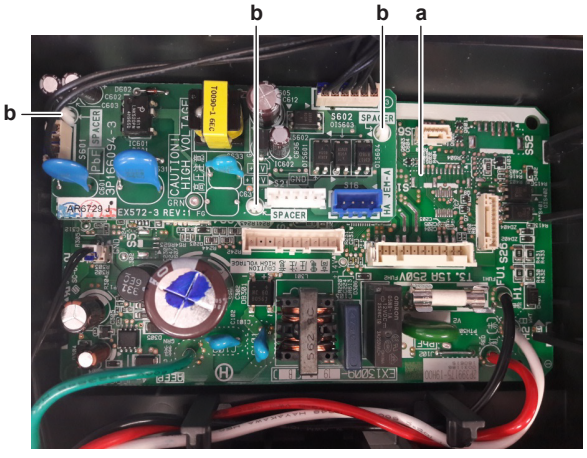
a Indoor unit PCB
b PCB support

3 Remove the indoor unit PCB from the indoor unit.

4 To install the indoor unit PCB, see "2.6.2 Repair procedures" on page 32.

To install the indoor unit PCB

1 Install the indoor unit PCB in the correct location on the PCB supports.



a Indoor unit PCB
b PCB support

2 Connect all connectors to the indoor unit PCB.

INFORMATION

Use the wiring diagram and connection diagram for correct installation of the connectors, see "5.2 Wiring diagram" on page 58.

WARNING

When reconnecting a connector to the PCB, do NOT apply force, as this may damage the connector or connector pins of the PCB.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to "2.6.1 Checking procedures" on page 31 of the indoor unit PCB and continue with the next procedure.

To adjust the wiring of the indoor unit PCB

1 Adjust the wiring according to the wiring diagram and connection diagram, see "5.2 Wiring diagram" on page 58.

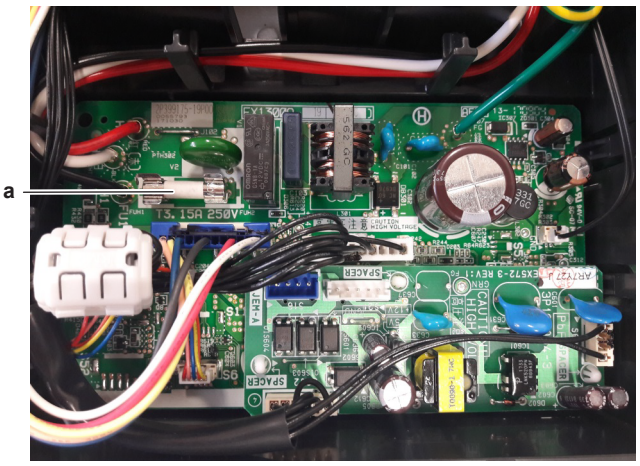
2 Check that all wires are properly connected and that all connectors are fully plugged-in. All colour codes MUST correspond.

3 Check that no connectors or wires are damaged.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to "2.6.1 Checking procedures" on page 31 of the indoor unit PCB and continue with the next procedure.

To remove a fuse of the indoor unit PCB

1 Remove the fuse from the PCB.



a Fuse

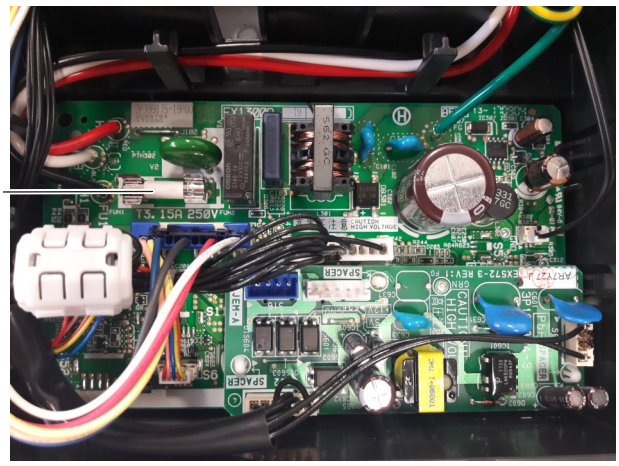
2 To install a fuse on the indoor unit PCB, see "2.6.2 Repair procedures" on page 32.

To install a fuse on the indoor unit PCB

1 Install the fuse on the correct location on the PCB.

CAUTION

Make sure the fuse is plugged-in correctly (contact with the fuse holder).



a Fuse

Is the problem solved?	Action
Yes	No further actions required.
No	Return to "2.6.1 Checking procedures" on page 31 of the indoor unit PCB and continue with the next procedure.

2.7 Inverter PCB

2.7.1 Checking procedures

As the inverter PCB is integrated in the main PCB of the unit, see "2.8 Main PCB" on page 34 for the other check procedures.

To perform an electrical check of the inverter PCB

Prerequisite: Stop the unit operation (via the user interface, operation switch, …).

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "2.10 Plate work" on page 38.

1 Open the compressor insulation.

2 Remove the cover of the compressor wire terminals.

3 Measure the voltage between the pins 7-4 of the connector S70. Wait until the voltage drops below 10 V DC.

WARNING

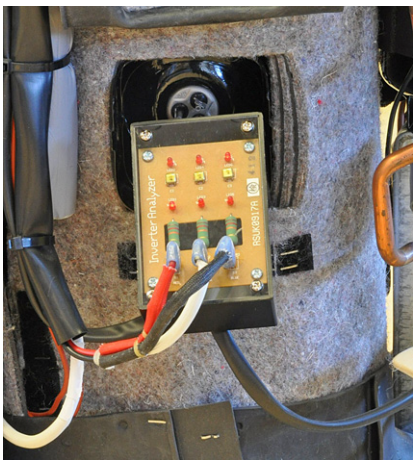
The smoothing capacitor MUST discharge below 10 V DC before disconnecting the Faston connectors from the compressor wiring terminals. Risk of electrocution.

4 Disconnect the Faston connectors from the compressor wire terminals U, V and W.

INFORMATION

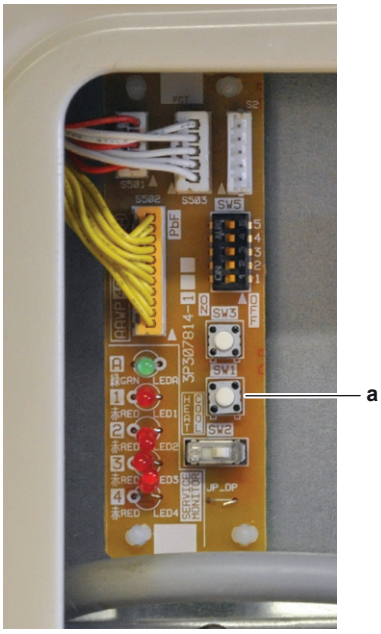
Note the position of the Faston connectors on the compressor wire terminals to allow correct connection during installation.

5 Connect the Faston connectors to the Inverter Analyzer (SPP number 1368521).



6 Turn ON the power of the unit.

7 Locate the switch SW1 on the Inverter Analyzer and press for 5 seconds to activate the inverter test.



a SW1

8 All LED's on the Inverter Analyzer must lit.

9 Turn off the respective circuit breaker.

10 Wait a few minutes and confirm that the LED's of the Inverter Analyzer are off.

11 Disconnect the Inverter Analyzer from the Faston connectors.

12 Connect the Faston connectors to the wire terminals U, V and W of the compressor.

INFORMATION

Use the notes made during disconnection to connect the Faston connectors to the correct wire terminals of the compressor.

All LED's of the inverter analyzer are lit during inverter test?	Action
Yes	Return to "2.7.1 Checking procedures" on page 33 of the inverter PCB and continue with the next procedure.
No	Replace the inverter PCB, see "2.7.2 Repair procedures" on page 34.

Problem solved?

After all checking procedures listed above have been performed:

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

2.7.2 Repair procedures

As the inverter PCB is integrated in the main PCB of the unit, see "2.8 Main PCB" on page 34 for the repair procedures.

2.8 Main PCB

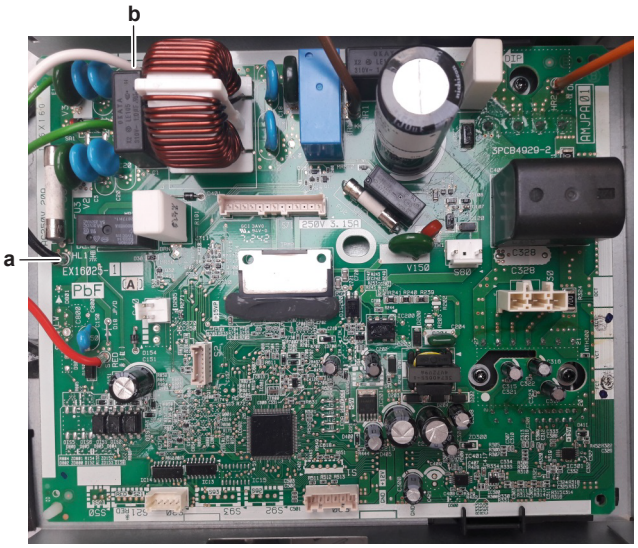
2.8.1 Checking procedures

INFORMATION

It is recommended to perform the checks in the listed order.

To perform a power check of the main PCB

1 Measure the voltage between the black and white wires.



a Black wire
b White wire

Is the measured voltage on the PCB correct?	Action
Yes	Return to "2.8.1 Checking procedures" on page 34 of the PCB and continue with the next procedure.
No	Continue with the next step.

2 Check the power supply to the unit, see "3.1.1 Checking procedures" on page 50.

Does the unit receive power?	Action
Yes	Correct the wiring from the main power supply terminal to the main PCB, see "2.8.2 Repair procedures" on page 35.
No	Adjust the power supply to the unit, see "3.1.2 Repair procedures" on page 51.

To check the HAP LED of the main PCB

Prerequisite: Stop the unit operation (via the user interface, operation switch, …).

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "2.10 Plate work" on page 38.

1 Turn ON the power of the unit.

2 Locate the HAP LED on the main PCB.



a HAP LED

Does the HAP LED blink in regular intervals (1 second ON/1 second OFF)?	Action
Yes	Return to "2.8.1 Checking procedures" on page 34 of the main PCB and continue with the next procedure.
No	Replace the main PCB, see "2.8.2 Repair procedures" on page 35.

To check if the correct spare part is installed

1 Visit your local spare parts webbank.

2 Enter the model name of your unit and check if the installed spare part number corresponds with the spare part number indicated in the webbank.

NOTICE

Also check that the correct spare part is installed for the capacity adapter.

Is the correct spare part for the PCB installed?	Action
Yes	Return to "2.8.1 Checking procedures" on page 34 of the main PCB and continue with the next procedure.
No	Replace the main PCB, see "2.8.2 Repair procedures" on page 35.

To check the wiring of the main PCB

1 Check that all wires are properly connected and that all connectors are fully plugged-in. All colour codes MUST correspond.

2 Check that no connectors or wires are damaged.

3 Check that the wiring corresponds with the wiring diagram, see "5.2 Wiring diagram" on page 58.

Is the wiring on the main PCB correct?	Action
Yes	Return to "2.8.1 Checking procedures" on page 34 of the main PCB and continue with the next procedure.
No	Adjust the wiring of the main PCB, see "2.8.2 Repair procedures" on page 35.

To check the fuse of the main PCB

1 Measure the continuity of the fuse. If no continuity is measured, the fuse is blown.



a Fuse

Blown fuse on the main PCB?	Action
Yes	Replace the blown fuse, see "2.8.2 Repair procedures" on page 35.
No	Return to "2.8.1 Checking procedures" on page 34 of the main PCB and continue with the next procedure.

Problem solved?

After all checking procedures listed above have been performed:

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

2.8.2 Repair procedures

To correct the wiring from the main power supply terminal to the main PCB

1 Make sure that all wires are firmly and correctly connected, see "5.2 Wiring diagram" on page 58.

2 Check the continuity of all wires.

3 Replace any damaged or broken wires.

Is the problem solved?	Action
Yes	No further actions required.

Is the problem solved?	Action
No	Return to "2.8.1 Checking procedures" on page 34 of the PCB and continue with the next procedure.

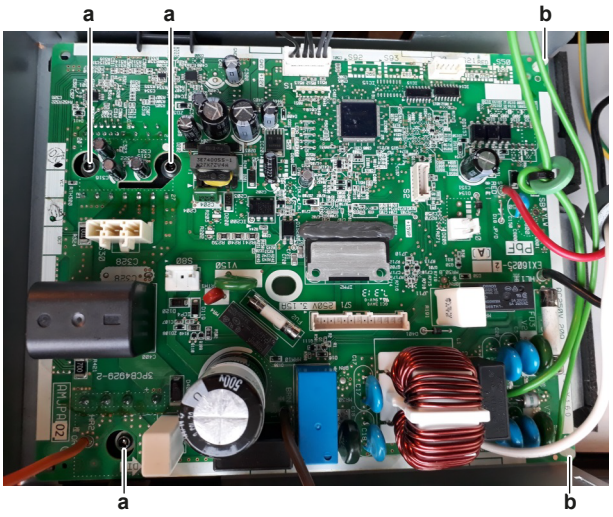
To remove the main PCB

Prerequisite: Stop the unit operation (via the user interface, operation switch, …).

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "2.10 Plate work" on page 38.

1 Disconnect all connectors from the main PCB.



a Screw
b PCB support

2 Remove the screws from the main PCB.

3 Carefully pull the main PCB from the PCB supports

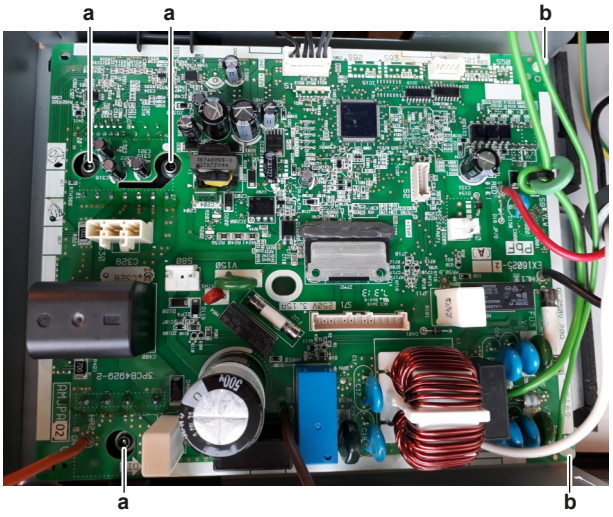
4 Remove the main PCB from the unit.

5 To install the main PCB, see "2.8.2 Repair procedures" on page 35.

To install the main PCB

1 Apply heat sink compound to the heat sink.

2 Install the main PCB in the correct location on the PCB supports.



a Screw
b PCB support

3 Install and tighten the screws.

4 Connect all connectors to the main PCB.

INFORMATION

Use the wiring diagram and connection diagram for correct installation of the connectors, see "5.2 Wiring diagram" on page 58.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to "2.8.1 Checking procedures" on page 34 of the PCB and continue with the next procedure.

To adjust the wiring of the main PCB

1 Adjust the wiring according to the wiring diagram and connection diagram, see "5.2 Wiring diagram" on page 58.

2 Check that all wires are properly connected and that all connectors are fully plugged-in. All colour codes MUST correspond.

3 Check that no connectors or wires are damaged.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to "2.8.1 Checking procedures" on page 34 of the PCB and continue with the next procedure.

To remove a fuse of the main PCB

1 Remove the fuse from the PCB.



a Fuse

2 To install a fuse on the main PCB, see "2.8.2 Repair procedures" on page 35.

To install a fuse on the main PCB

1 Install the fuse on the correct location on the PCB.

CAUTION

Make sure the fuse is plugged-in correctly (contact with the fuse holder).



a Fuse

Is the problem solved?	Action
Yes	No further actions required.
No	Return to "2.8.1 Checking procedures" on page 34 of the PCB and continue with the next procedure.

2.9 Outdoor unit fan motor

2.9.1 Checking procedures

INFORMATION

It is recommended to perform the checks in the listed order.

To perform a mechanical check of the propeller fan blade assembly

Prerequisite: Stop the unit operation (via the user interface, operation switch, …).

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "2.10 Plate work" on page 38.

1 If propeller fan blade touches the bellmouth, check if the fan motor is correctly mounted on its base, see "2.9.2 Repair procedures" on page 37.

2 Check the state of the propeller fan blade assembly for damage, deformations and cracks.

Is the propeller fan blade assembly damaged?	Action
Yes	Replace the propeller fan blade assembly, see "2.9.2 Repair procedures" on page 37.
No	Perform a mechanical check of the DC fan motor assembly, see "2.9.1 Checking procedures" on page 37.

To perform a mechanical check of the DC fan motor assembly

Prerequisite: First perform a mechanical check of the propeller fan blade assembly, see "2.9.1 Checking procedures" on page 37.

1 Manually rotate the fan motor shaft. Check that it rotates smoothly.

2 Check the friction of the DC fan motor shaft bearing.

Is the DC fan motor shaft friction normal?	Action
Yes	Perform an electrical check of the DC fan motor assembly, see "2.9.1 Checking procedures" on page 37.
No	Replace the DC fan motor assembly, see "2.9.2 Repair procedures" on page 37.

To perform an electrical check of the DC fan motor assembly

1 First perform a mechanical check of the DC fan motor assembly, see "2.9.1 Checking procedures" on page 37.

2 Measure the resistance between the pins 1-2, 1-3, and 2-3 of the DC fan motor connector. All measurements MUST be 15~20Ω.

INFORMATION

Winding resistance values above are given for reference. You should NOT be reading a value in kΩ or a short-circuit. Make sure that the propeller fan blade does NOT rotate, as this could affect resistance measurements.

3 Measure the insulation resistance for the motor terminals. Measurements between each phase and ground must be >1°MΩ.

DC fan motor resistance measurements are correct?	Action
Yes	Return to the troubleshooting of the specific error and continue with the next procedure.
No	Replace the DC fan motor, see "2.9.2 Repair procedures" on page 37.

Problem solved?

After all checking procedures listed above have been performed:

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

2.9.2 Repair procedures

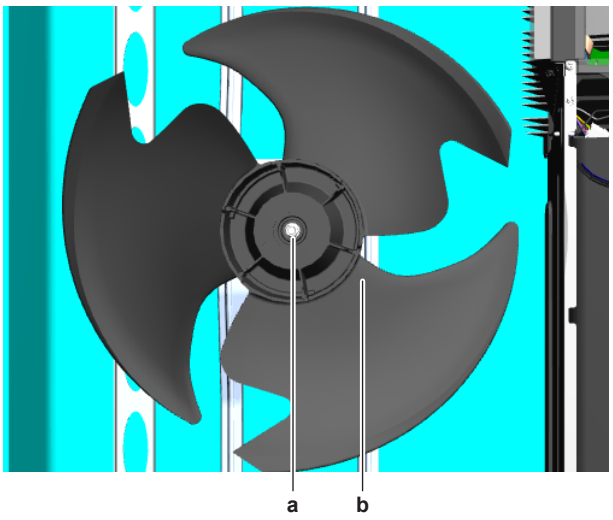
To remove the propeller fan blade assembly

Prerequisite: Stop the unit operation (via the user interface, operation switch, …).

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "2.10 Plate work" on page 38.

1 Remove the nut that fixes the propeller fan blade assembly.



a Nut
b Propeller fan blade assembly

2 Pull and remove the propeller fan blade assembly from the DC fan motor assembly.

3 To install the propeller fan blade assembly, see "2.9.2 Repair procedures" on page 37.

To remove the DC fan motor assembly

1 Remove the propeller fan blade assembly from the DC fan motor assembly, see "2.9.2 Repair procedures" on page 37.

2 Disconnect the DC fan motor connector from the main PCB.

3 Unlock the ferrite bead.

4 Cut the tie strap.

5 Detach the DC fan motor harness from the switch box.

6 Slightly bend the harness retainers to detach the DC fan motor harness.

7 Remove the 4 screws that fix the DC fan motor assembly.

8 Remove the DC fan motor assembly from the unit.

9 To install the DC fan motor assembly, see "2.9.2 Repair procedures" on page 37.

To install the DC fan motor assembly

1 Install the DC fan motor assembly in the correct location.

2 Fix the DC fan motor assembly to the unit by tightening the screws.

3 Route the DC fan motor harness through the harness retainers and bend the harness retainers to attach the DC fan motor harness.

4 Attach the DC fan motor harness to the switch box.

5 Install a new tie strap to fix the DC fan motor harness to the switch box.

6 Connect the DC fan motor connector to the connector on the main PCB.

7 Lock the ferrite bead.

8 Install the propeller fan blade assembly, see "2.9.2 Repair procedures" on page 37.

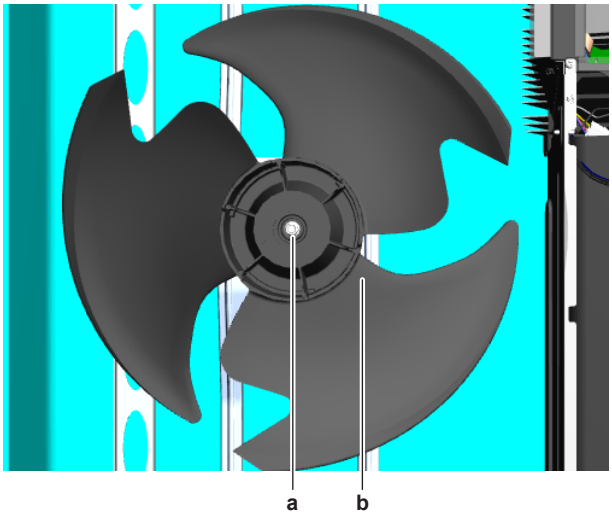
To install the propeller fan blade assembly

1 Install the propeller fan blade assembly on the DC fan motor assembly.

CAUTION

Do NOT install a damaged propeller fan blade assembly.

2 Install and tighten the nut to fix the propeller fan blade assembly.



a Nut
b Propeller fan blade assembly

Is the problem solved?	Action
Yes	No further actions required.
No	Return to "2.9.1 Checking procedures" on page 37 of the outdoor unit fan motor and continue with the next procedure.

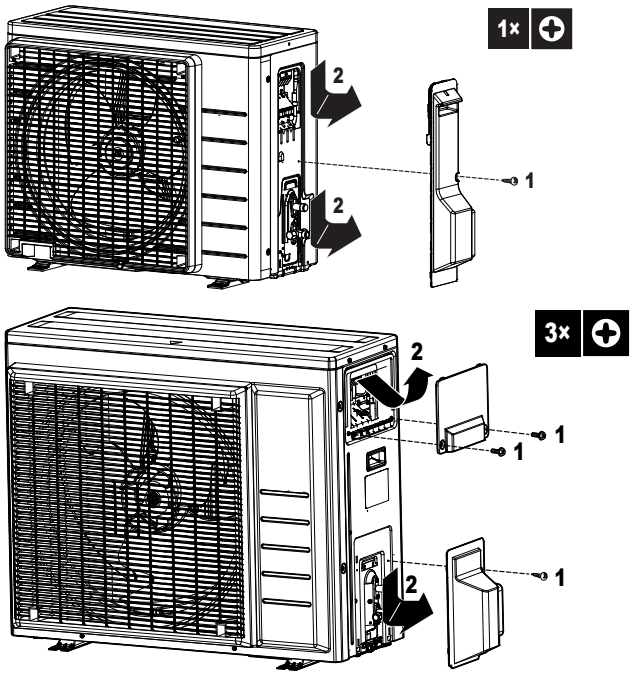
2.10 Plate work

2.10.1 Outdoor unit

To remove the refrigerant connection cover

DANGER: RISK OF ELECTROCUTION

DANGER: RISK OF BURNING



To remove the top plate

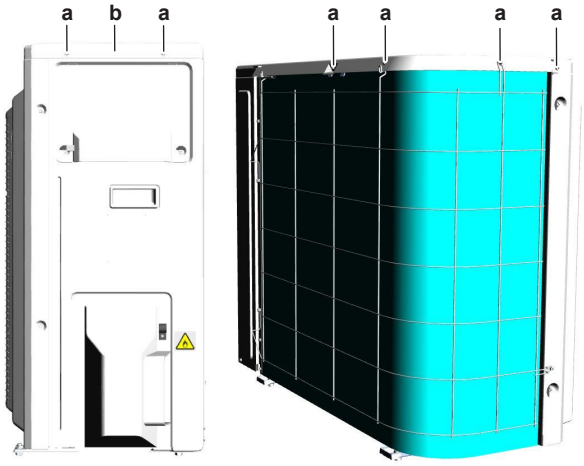
INFORMATION

This procedure is just an example and may differ on some details for your actual unit.

Prerequisite: Stop the unit operation (via the user interface, operation switch, …).

Prerequisite: Turn OFF the respective circuit breaker.

1 Loosen and remove the screws that fix the top plate.



a Screw
b Top plate

2 Remove the top plate.

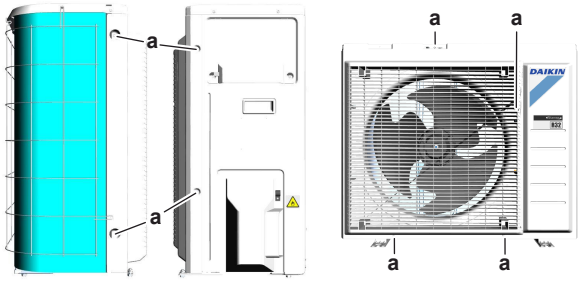
To remove the front plate

INFORMATION

This procedure is just an example and may differ on some details for your actual unit.

Prerequisite: Remove the top plate, see "2.10 Plate work" on page 38.

1 Loosen and remove the screws that fix the front plate.



a Screw
b Front plate

2 Remove the front plate.

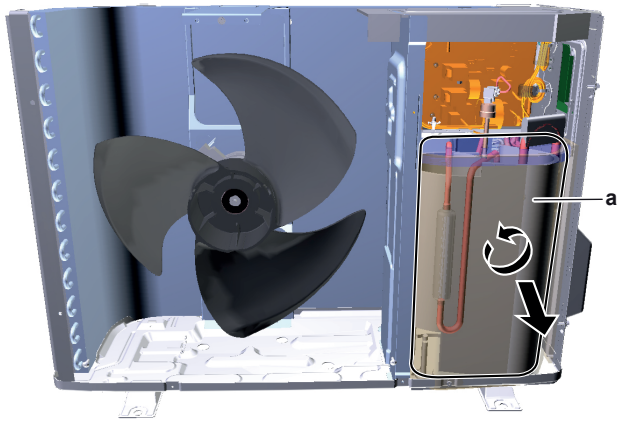
To remove the compressor sound insulation

INFORMATION

This procedure is just an example and may differ on some details for your actual unit.

Prerequisite: Remove the front plate, see "2.10 Plate work" on page 38.

1 Untwist the cord and remove the compressor sound insulation.



a Compressor sound insulation

To remove the switch box

INFORMATION

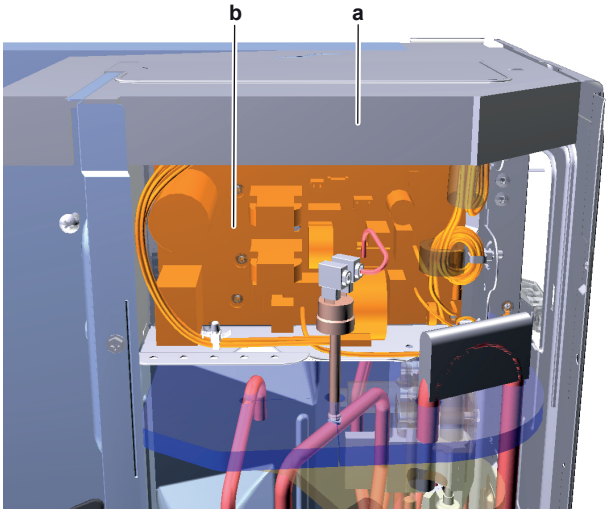
This procedure is just an example and may differ on some details for your actual unit.

Prerequisite: Stop the unit operation (via the user interface, operation switch, …).

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "2.10 Plate work" on page 38.

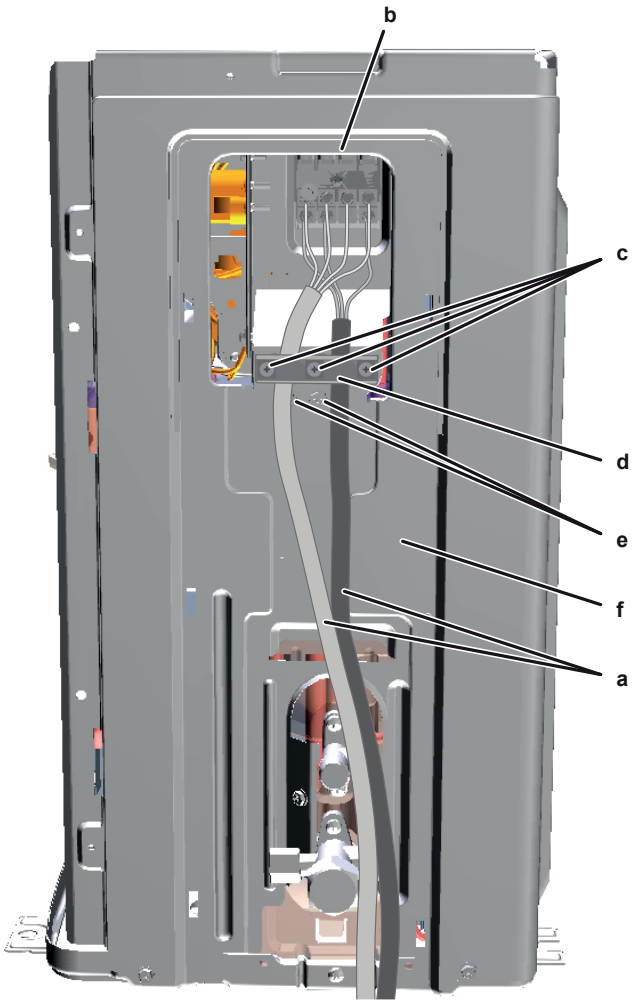
1 Remove the insulation on the upper side of the switch box.



a Insulation
b Main PCB

2 Disconnect all connectors from the main PCB.

3 Disconnect the electrical power supply wiring from the wire terminals.



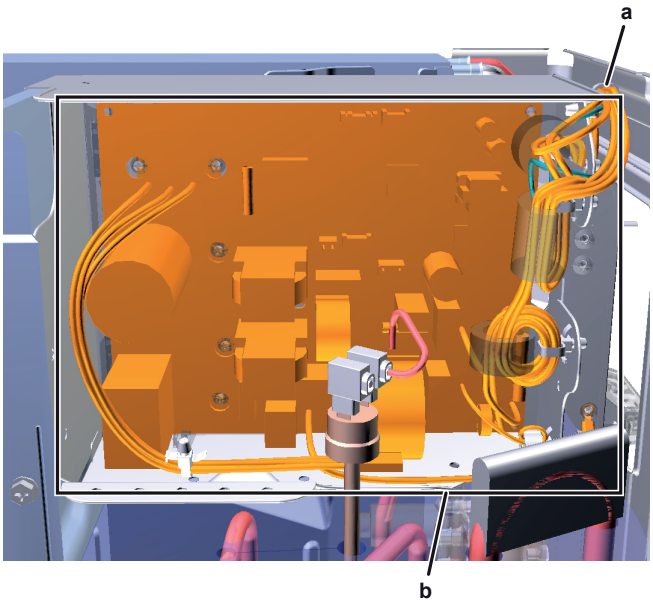
a Electrical power supply wiring
b Wire terminals
c Screws
d Wire clamp
e Screws
f Right side plate assembly

4 Remove the screws that fix the wire clamp.

5 Remove the wire clamp.

6 Remove the screws that fix the right side plate assembly.

7 Cut the cable tie.



a Cable tie
b Switch box

8 Lift and remove the switch box from the outdoor unit.

9 To install the switch box, see "2.10 Plate work" on page 38.

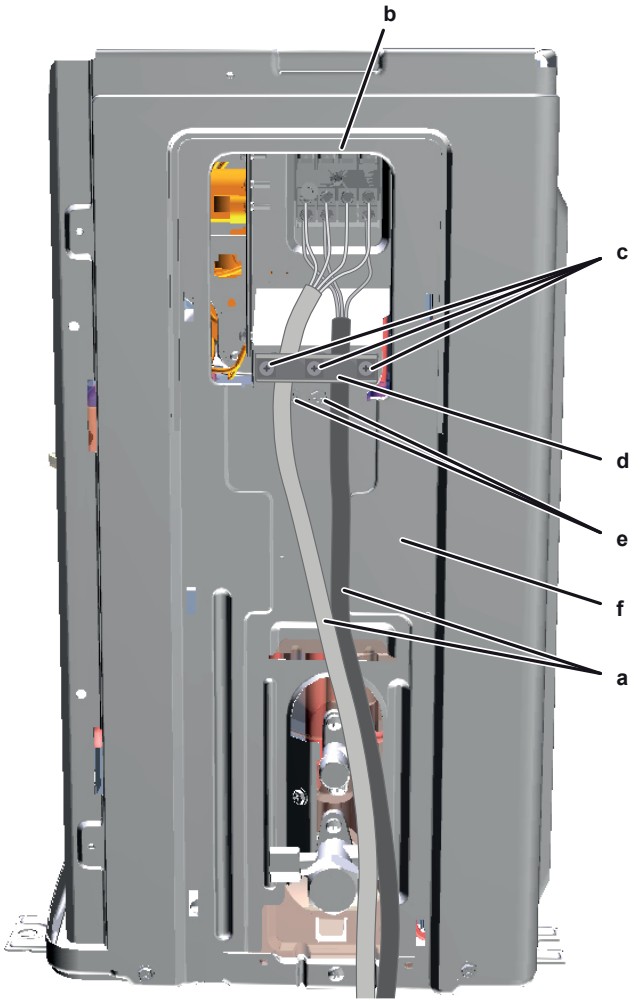
To install the switch box

INFORMATION

This procedure is just an example and may differ on some details for your actual unit.

1 Install the switch box on the correct location in the outdoor unit.

2 Install the right side plate assembly on the outdoor unit and fix it using the screws.



a Electrical power supply wiring
b Wire terminals
c Screws
d Wire clamp
e Screws
f Right side plate assembly

3 Connect the electrical power supply wiring to the wire terminals.

4 Install the wire clamp and fix it using the screws.

5 Connect all connectors to the main PCB.

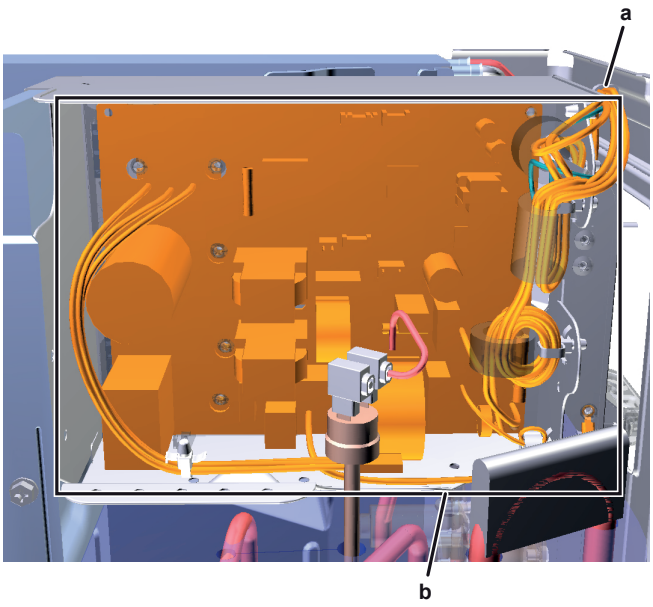
INFORMATION

Use the wiring diagram and connection diagram for correct installation of the connectors, see "5.2 Wiring diagram" on page 58.

WARNING

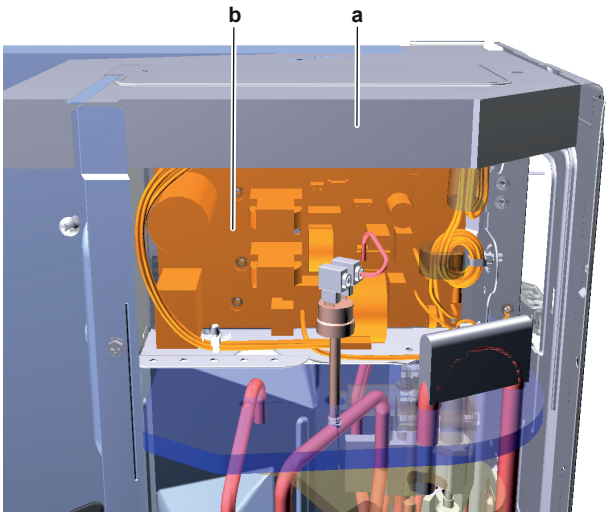
When reconnecting a connector to the PCB, do NOT apply force, as this may damage the connector or connector pins of the PCB.

6 Fix the wiring to the switch box using a new cable tie.



a Cable tie
b Switch box

7 Install the insulation on the upper side of the switch box.

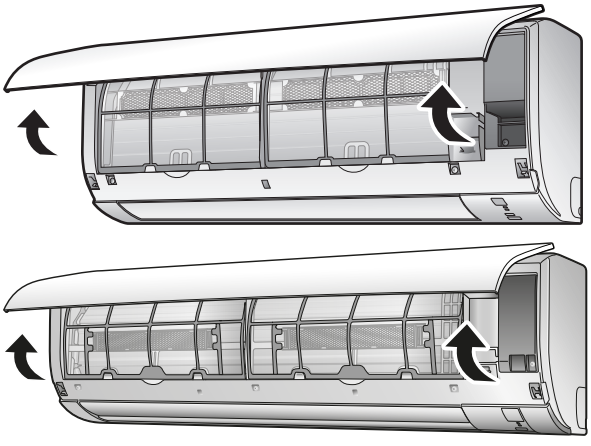


a Insulation
b Main PCB

2.10.2 Indoor unit

To open the front panel

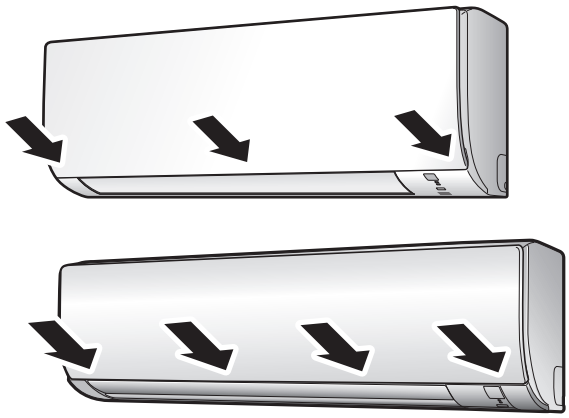
1 Hold the front panel by the panel tabs on both sides and open it.



To close the front panel

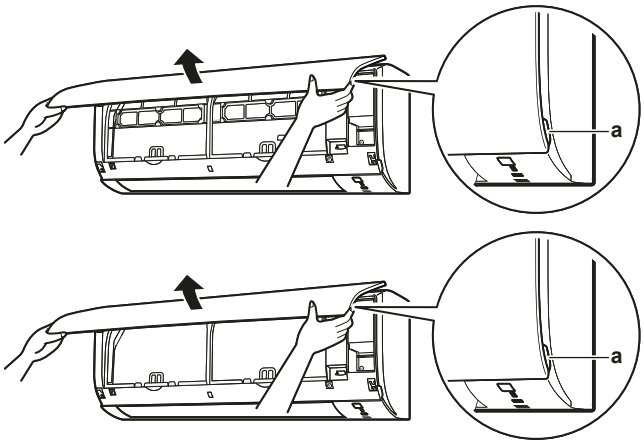
1 Install all filters back in their original positions.

2 Gently press the front panel at both sides and at the center until it clicks.



To remove the front panel

1 Hold the front panel by the panel tabs on both sides and open it.

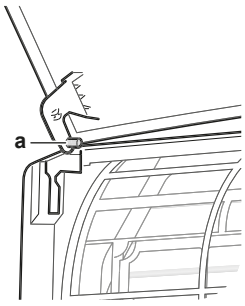


a Panel tabs

2 Remove the front panel by sliding it to the left or the right and pulling it toward you.

Result: The front panel shaft on 1 side will be disconnected.

3 Disconnect the front panel shaft on the other side in the same manner.

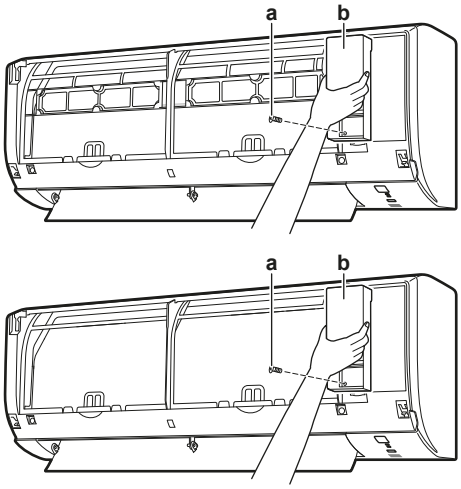


a Front panel shaft

To open the service cover

1 Remove 1 screw from the service cover.

2 Pull out the service cover horizontally away from the unit.



a Service cover screw
b Service cover

To remove the front grille

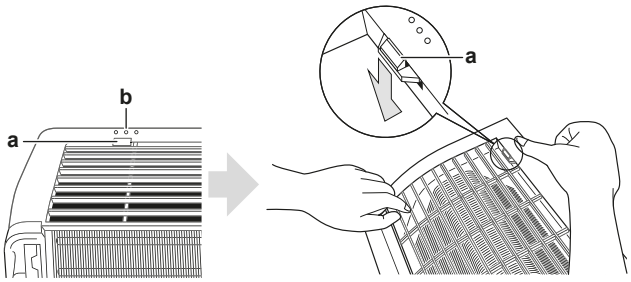
CAUTION

Wear adequate personal protective equipment (protective gloves, safety glasses,…) when installing, maintaining or servicing the system.

1 Remove the front panel to remove the air filter.

2 Remove 2 screws (class 20~35) or 3 screws (class 50~71) from the front grille.

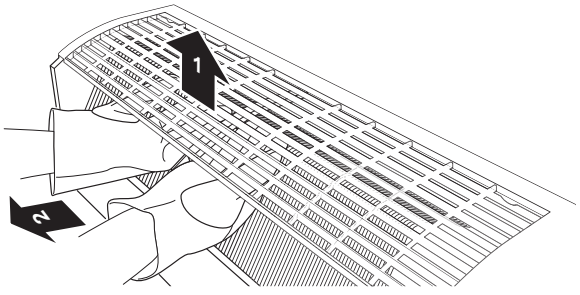
3 Push down the 3 upper hooks marked with a symbol with 3 circles.



a Upper hook
b Symbol with 3 circles

4 We recommend opening the flap before removing the front grille.

5 Place both hands under the centre of the front grille, push it up and then toward you.



To re-install the front grille

1 Install the front grille and firmly engage the 3 upper hooks.

2 Install 2 screws (class 20~35) or 3 screws (class 50~71) back on the front grille.

3 Install the air filter and then mount the front panel.

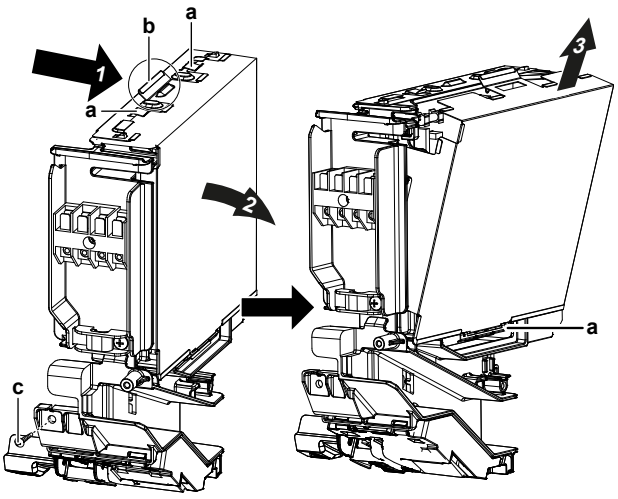
To remove the electrical wiring box cover

1 Remove the front grille.

2 Remove 1 screw from the electrical wiring box.

3 Open the electrical wiring box cover by pulling the protruding part on the top of the cover.

4 Unhook the tab on the bottom and remove the electrical wiring box cover.



a Tab
b Protruding part on the top of the cover
c Screw

5 To re-install the cover, first hook the bottom tab onto the electrical wiring box, and slide the cover into the 2 upper tabs.

2.11 Reactor

2.11.1 Checking procedures

To perform an electrical check of the reactor

Prerequisite: Stop the unit operation (via the user interface, operation switch, …).

Prerequisite: Turn OFF the respective circuit breaker.

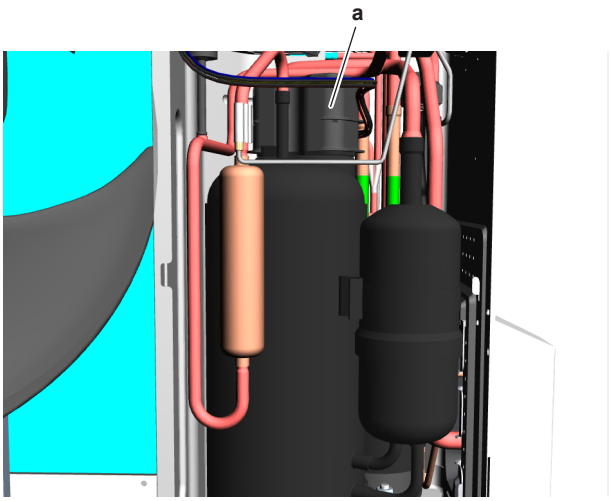
1 Remove the required plate work, see "2.10 Plate work" on page 38.

2 Open the compressor insulation.

DANGER: RISK OF ELECTROCUTION

Confirm rectifier voltage is below 10 V DC before proceeding.

3 Remove the cover of the compressor wire terminals.



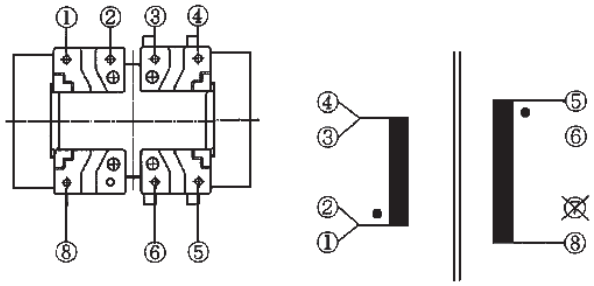
a Compressor wire terminals cover

INFORMATION

The reactor will trip at a temperature of 115°C and will reset at a temperature of 95°C.

4 Measure the resistance on the following locations of the reactor. Resistance values MUST be as follows:

Location	Resistance (Ω)
1,2-3,4	0.037 ± 20%
5-8	0.19 ± 20%



Is the measured resistance correct?	Action
Yes	Return to the troubleshooting of the specific error and continue with the next step.
No	Replace the reactor, see "2.11.2 Repair procedures" on page 43.

2.11.2 Repair procedures

To remove the reactor

Prerequisite: Stop the unit operation (via the user interface, operation switch, …).

Prerequisite: Turn OFF the respective circuit breaker.

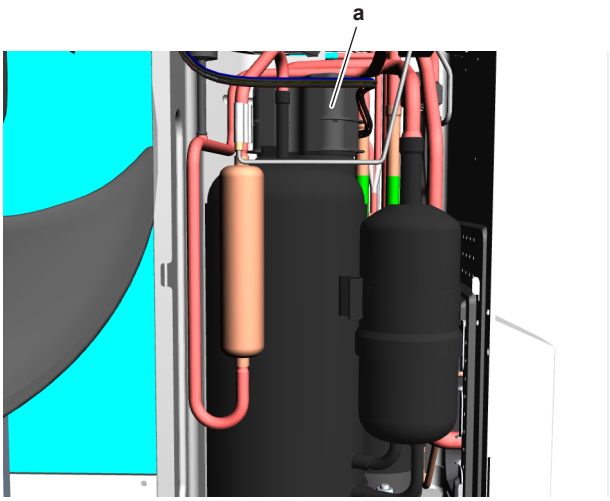
1 Remove the required plate work, see "2.10 Plate work" on page 38.

2 Open the compressor insulation.

DANGER: RISK OF ELECTROCUTION

Confirm rectifier voltage is below 10 V DC before proceeding.

3 Remove the cover of the compressor wire terminals.



a Compressor wire terminals cover

4 Disconnect the connector.

5 Remove the clip and remove the reactor from the compressor.

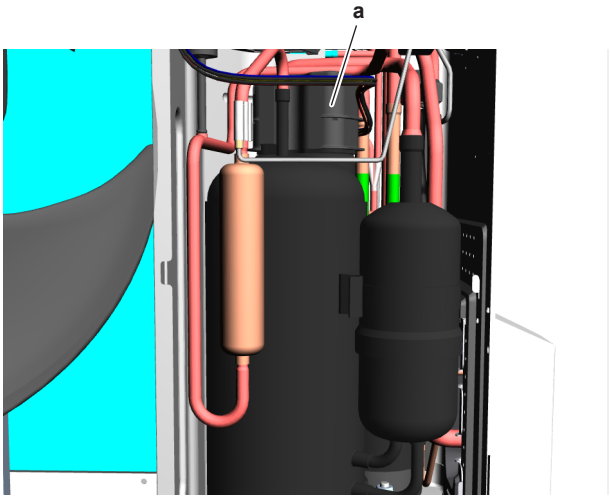
6 To install the reactor, see "2.11.2 Repair procedures" on page 43.

To install the reactor

1 Install the reactor in the correct location and install the clip.

2 Connect the reactor connector.

3 Install the cover of the compressor wire terminals.



a Compressor wire terminals cover

4 Install the compressor insulation.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

2.12 Swing flap motor

2.12.1 Checking procedures

To perform an electrical check of the swing flap motor

Prerequisite: Stop the unit operation (via the user interface, operation switch, …).

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "2.10 Plate work" on page 38.

1 Disconnect the motor connector from the indoor unit PCB.

2 Measure the resistance between the following pins of the motor connector. The measurements MUST be as shown in the table below.

Pins	Measured resistance (Ω)
1-2	235
1-3	
1-4	
1-5	
2-3	470
2-4	
2-5	
3-4	
3-5	
4-5	

Swing flap motor resistance measurements are correct?	Action
Yes	Return to the troubleshooting of the specific error and continue with the next procedure.
No	Replace the swing flap motor, see "2.12.2 Repair procedures" on page 44.

2.12.2 Repair procedures

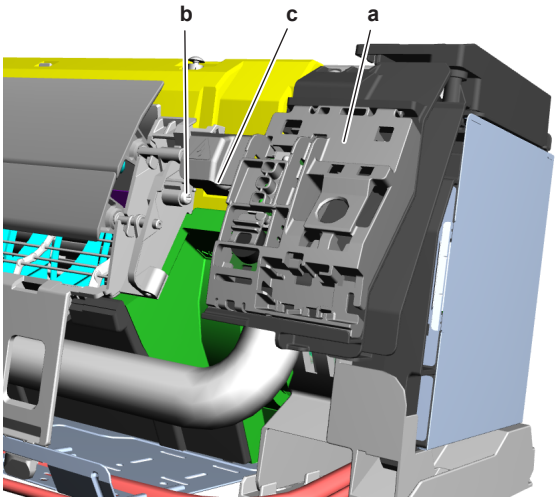
To remove the swing flap motor

Prerequisite: Stop the unit operation (via the user interface, operation switch, …).

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "2.10 Plate work" on page 38.

1 Remove the cover.



a Cover
b Screw
c Swing flap motor

2 Disconnect the connector from the swing flap motor.

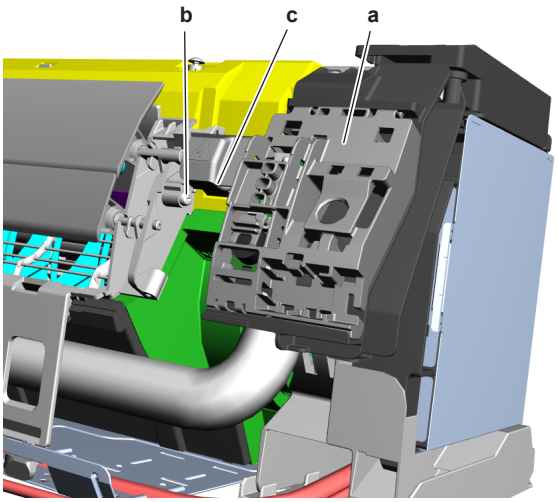
3 Remove the screw from the swing flap motor.

4 Remove the swing flap motor from the swing flap.

5 To install the swing flap motor, see "2.12.2 Repair procedures" on page 44.

To install the swing flap motor

1 Install the swing flap motor in the correct location on the swing flap.



a Cover
b Screw
c Swing flap motor

2 Install and tighten the screw to fix the swing flap motor.

3 Connect the connector to the swing flap motor.

4 Install the cover.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

2.13 Swing raster motor

2.13.1 Checking procedures

To perform an electrical check of the swing raster motor

Prerequisite: Stop the unit operation (via the user interface, operation switch, …).

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "2.10 Plate work" on page 38.

1 Disconnect the motor connector from the indoor unit PCB.

2 Measure the resistance between the following pins of the motor connector. The measurements MUST be as shown in the table below.

Pins	Measured resistance (Ω)
1-2	380
1-3	
1-4	
1-5	
2-3	760
2-4	
2-5	
3-4	
3-5	
4-5	

Swing raster motor resistance measurements are correct?	Action
Yes	Return to the troubleshooting of the specific error and continue with the next procedure.
No	Replace the swing raster motor, see "2.13.2 Repair procedures" on page 45.

2.13.2 Repair procedures

To remove the swing raster motor

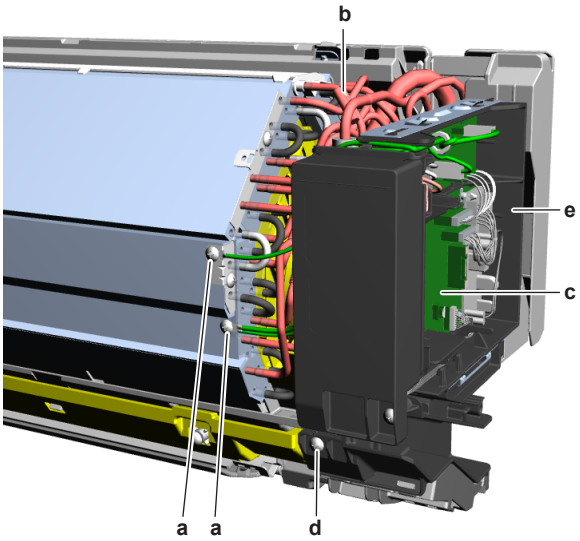
Prerequisite: Stop the unit operation (via the user interface, operation switch, …).

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "2.10 Plate work" on page 38.

1 Pull the clip and remove the heat exchanger thermistor from its holder.

2 Remove the screws to disconnect the grounding wires from the heat exchanger.

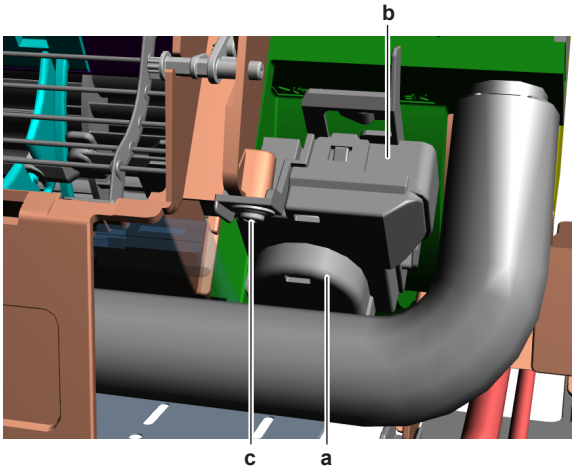


a Grouding wire screw
b Heat exchanger thermistor
c Indoor unit PCB
d Switch box screw
e Switch box

3 Disconnect the connectors of the indoor unit fan motor, the swing flap motor and the swing raster motor (if equipped) from the indoor unit PCB.

4 Remove the screw and remove the switch box from the indoor unit.

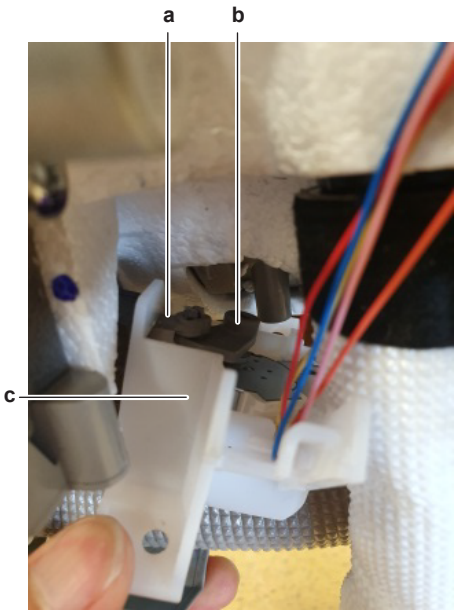
5 Remove the swing raster motor cover.



a Swing raster motor cover
b Swing raster motor assembly
c Screw

6 Remove the 2 screws that fix the swing raster motor assembly to the indoor unit.

7 Disconnect the swing raster shaft from the swing raster motor rod.



a Swing raster shaft
b Swing raster motor rod
c Swing raster motor assembly

8 Remove the swing raster motor assembly from the indoor unit.

9 Remove the 2 screws that fix the swing raster motor to the bracket.

10 Disconnect the rod from the swing raster motor and remove the motor. Keep the rod and bracket for reuse.

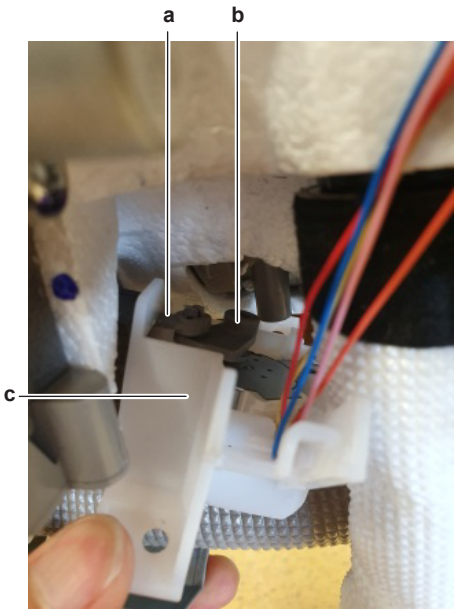
11 To install the swing raster motor, see "2.13.2 Repair procedures" on page 45.

To install the swing raster motor

1 Install the swing raster motor on the bracket using the 2 screws. Do NOT yet tighten the screws.

2 Install the rod on swing raster motor shaft.

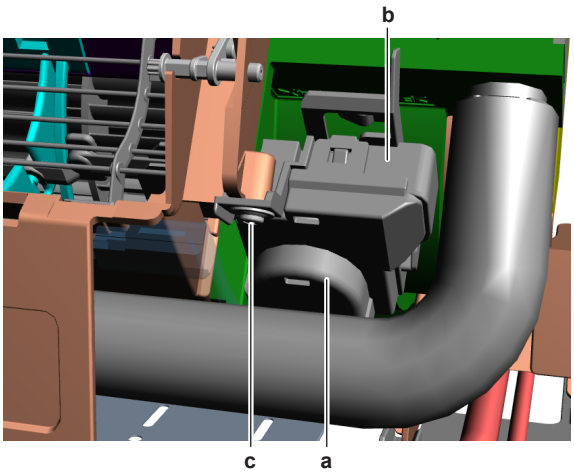
3 Bring the swing raster motor assembly to the correct position in the indoor unit and guide the swing raster shaft in the swing raster motor assembly.



a Swing raster shaft
b Swing raster motor rod
c Swing raster motor assembly

4 Connect the swing raster motor rod to the swing raster shaft using soft tools.

5 Install the swing raster motor assembly on the correct location in the indoor unit using the 2 screws.

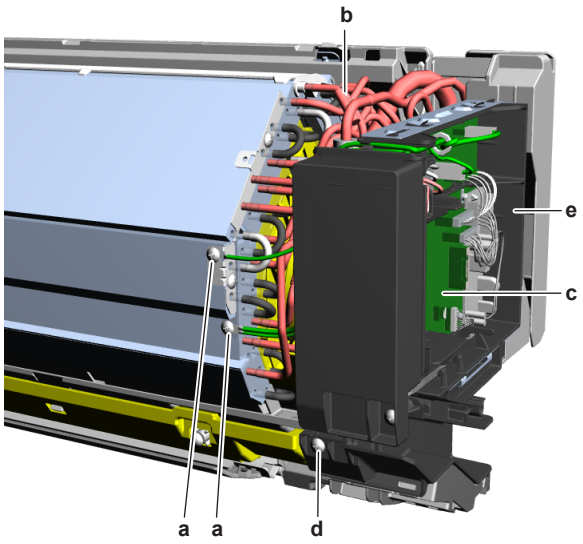


a Swing raster motor cover
b Swing raster motor assembly
c Screw

6 Tighten the 2 screws that fix the swing raster motor to the bracket.

7 Install the swing raster motor cover.

8 Put the switch box in place.



a Grouding wire screw
b Heat exchanger thermistor
c Indoor unit PCB
d Switch box screw
e Switch box

9 Route the connectors of the indoor unit fan motor, swing flap motor and swing raster motor (if equipped) inside the switch box and connect them to the indoor unit PCB.

10 Install and tighten the screw to secure the switch box.

11 Install the heat exchanger thermistor in its holder.

12 Connect the grounding wires to the heat exchanger using the screws.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

2.14 Thermistors

2.14.1 Refrigerant side thermistors

Checking procedures

INFORMATION

It is recommended to perform the checks in the listed order.

To perform a mechanical check of the specific thermistor

Prerequisite: Stop the unit operation (via the user interface, operation switch, …).

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "2.10 Plate work" on page 38.

1 Locate the thermistor and remove the insulation if needed. Check that the thermistor is correctly installed and that there is thermal contact between the thermistor and the piping or ambient.

Is the thermistor correctly installed (thermal contact between the thermistor and the piping)?	Action
Yes	Perform an electrical check of the specific thermistor, see "Checking procedures" on page 46.

Is the thermistor correctly installed (thermal contact between the thermistor and the piping)?	Action
No	Correctly install the thermistor, see "Repair procedures" on page 48.

To perform an electrical check of the specific thermistor

Prerequisite: First perform a mechanical check of the thermistor, see "Checking procedures" on page 46.

1 Locate the thermistor.

INFORMATION

Remove the thermistor from its holder if not reachable with a contact thermometer.

2 Measure the temperature using a contact thermometer.

Name	Symbol	Location (PCB)	Connector (pins)	Type
Air thermistor	R1T	Main	S90:1-2	1
Heat exchanger thermistor	R2T	Main	S90:3-4	1
Discharge pipe thermistor	R3T	Main	S90:5-6	1
Heat exchanger thermistor	R2T	Indoor	S32:1-2	1

3 Determine the thermistor resistance that matches the measured temperature.

Type 1 thermistor

T °C	kΩ	T °C	kΩ	T °C	kΩ	T °C	kΩ
–20	197.81	10	39.96	40	10.63	70	3.44
–19	186.53	11	38.08	41	10.21	71	3.32
–18	175.97	12	36.30	42	9.81	72	3.21
–17	166.07	13	34.62	43	9.42	73	3.11
–16	156.80	14	33.02	44	9.06	74	3.01
–15	148.10	15	31.50	45	8.71	75	2.91
–14	139.94	16	30.06	46	8.37	76	2.82
–13	132.28	17	28.70	47	8.05	77	2.72
–12	125.09	18	27.41	48	7.75	78	2.64
–11	118.34	19	26.18	49	7.46	79	2.55
–10	111.99	20	25.01	50	7.18	80	2.47
–9	106.03	21	23.91	51	6.91		
–8	100.41	22	22.85	52	6.65		
–7	95.14	23	21.85	53	6.41		
–6	90.17	24	20.90	54	6.65		
–5	85.49	25	20.00	55	6.41		
–4	81.08	26	19.14	56	6.18		
–3	76.93	27	18.32	57	5.95		
–2	73.01	28	17.54	58	5.74		
–1	69.32	29	16.80	59	5.14		
0	65.84	30	16.10	60	4.87		
1	62.54	31	15.43	61	4.70		
2	59.43	32	14.79	62	4.54		
3	56.49	33	14.18	63	4.38		
4	53.71	34	13.59	64	4.23		
5	51.09	35	13.04	65	4.08		
6	48.61	36	12.51	66	3.94		
7	46.26	37	12.01	67	3.81		
8	44.05	38	11.52	68	3.68		
9	41.95	39	11.06	69	3.56		

4 Disconnect the thermistor connector from the appropriate PCB.

5 Measure the resistance between the appropriate pins of the thermistor connector.

6 Check that the measured resistance value matches the resistance determined through the measured temperature (earlier step in the procedure).

- E.g. R1T thermistor:
- Measured temperature with contact thermometer: 23.1°C,
- Resistance value determined through temperature (using the table for type 1 thermistors):
  Resistance at 23°C: 21.85 kΩ,
  Resistance at 24°C: 20.90 kΩ,
- Disconnect connector and measure resistance between S90 pin 1-2:
  Measured resistance: 21.86 kΩ,
- Measured resistance value is inside the range. R1T thermistor passes the check.

INFORMATION

All thermistors have a resistance tolerance of 5%.

INFORMATION

In most cases, the user interface allows to monitor the thermistors.

If the measured resistance value matches the resistance determined through the measured temperature, but the temperature for the corresponding thermistor is NOT correct on the user interface display, replace the applicable PCB.

Does the measured resistance of the thermistor match with the temperature determined resistance?	Action
Yes	Thermistor is OK. Return to the troubleshooting of the specific error and continue with the next procedure.
No	Replace the specific thermistor, see "Repair procedures" on page 48.

Repair procedures

To remove the thermistor

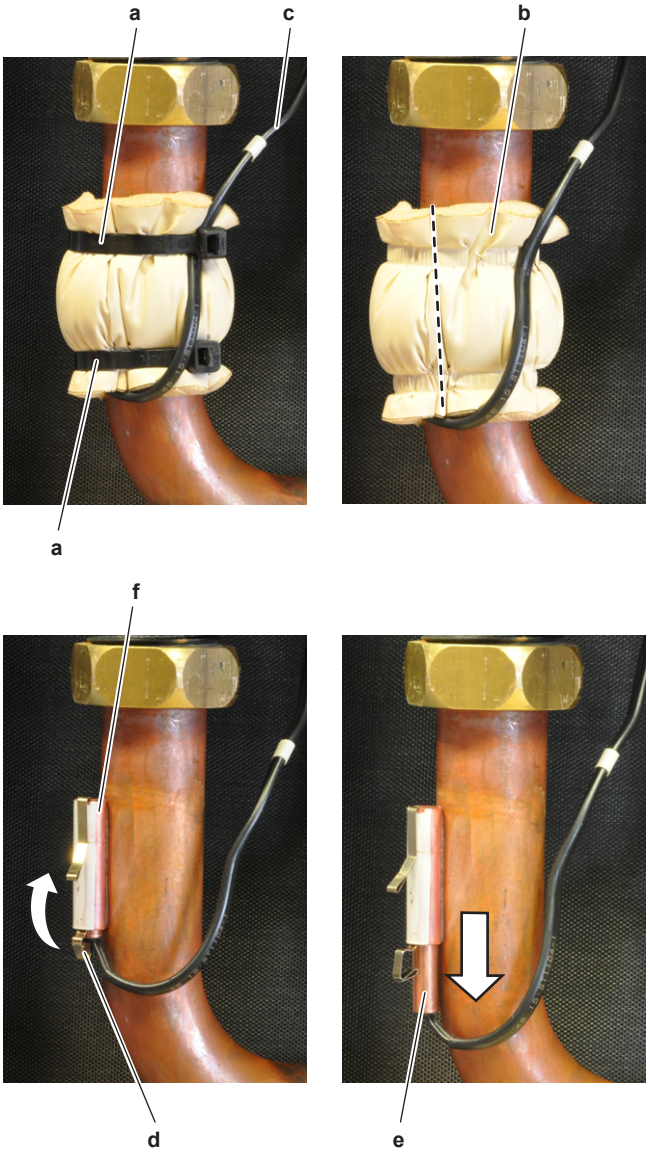
Prerequisite: Stop the unit operation (via the user interface, operation switch, …).

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "2.10 Plate work" on page 38.

1 Locate the thermistor that needs to be removed.

2 Cut the tie straps that fix the insulation and the thermistor wire.



a Tie strap
b Insulation
c Thermistor wire
d Clip
e Thermistor
f Thermistor holder

3 Cut and remove the insulation.

4 Pull the clip that fixes the thermistor.

5 Remove the thermistor from the thermistor holder.

6 Cut all tie straps that fix the thermistor harness.

7 Disconnect the thermistor connector from the appropriate PCB and remove the thermistor.

INFORMATION

Some of the thermistors are wired to the same connector. See connector and pin information of the thermistors at the start of the electrical check procedure and "5.2 Wiring diagram" on page 58. ALWAYS replace the complete set of thermistors wired to the same connector.

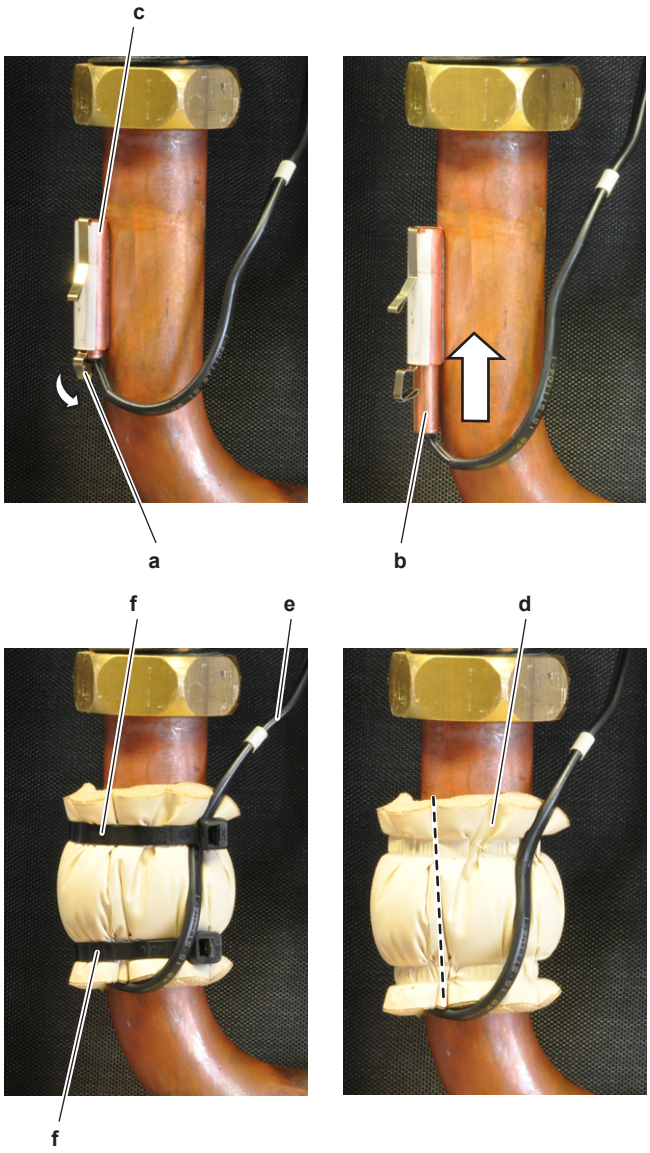
8 When removing the complete set of thermistors wired to the same connector:

- Remove all other thermistors wired to the connector from their thermistor holder,
- Disconnect the thermistor connector from the appropriate PCB,
- Remove the complete set of thermistors.

9 To install the thermistor, see "Repair procedures" on page 48.

To install the thermistor

1 Pull the clip and install the thermistor in the specific thermistor holder. Make sure the clip is in the correct position (blocking the thermistor).



a Clip
b Thermistor
c Thermistor holder
d Insulation
e Thermistor wire
f Tie strap

2 Connect the thermistor connector to the appropriate PCB.

INFORMATION

Some of the thermistors are wired to the same connector. See connector and pin information of the thermistors at the start of the electrical check procedure and "5.2 Wiring diagram" on page 58. ALWAYS replace the complete set of thermistors wired to the same connector.

3 When installing the complete set of thermistors wired to the same connector:

- Install all other thermistors wired to the connector in their thermistor holder,
- Route the thermistor harness of all thermistors towards the appropriate PCB,
- Connect the thermistor connector to the appropriate PCB.

WARNING

When reconnecting a connector to the PCB, do NOT apply force, as this may damage the connector or connector pins of the PCB.

4 Fix the thermistor harness using new tie straps

5 Install the insulation around the thermistor.

6 Fix the insulation and the thermistor wire using new tie straps.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

2.14.2 Other thermistors

Checking procedures

To perform a mechanical check of the room thermistor

Prerequisite: Stop the unit operation (via the user interface, operation switch, …).

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "2.10 Plate work" on page 38.

1 Locate the thermistor and remove the insulation if needed. Check that the thermistor is correctly installed and that there is thermal contact between the thermistor and the piping or ambient.

Is the thermistor correctly installed (thermal contact between the thermistor and the piping or ambient)?	Action
Yes	Perform an electrical check of the specific thermistor, see "Checking procedures" on page 49.
No	Correctly install the thermistor, see "Repair procedures" on page 50.

To perform an electrical check of the room thermistor

Prerequisite: First perform a mechanical check of the thermistor, see "Checking procedures" on page 49.

1 Locate the thermistor.

INFORMATION

Remove the thermistor from its holder if not reachable with a contact thermometer.

2 Measure the temperature using a contact thermometer.

Name	Symbol	Location (PCB)	Connector (pins)	Type
Room thermistor	R1T	Room thermistor PCB on indoor PCB	S26:1-2	1

INFORMATION

The thermistors may vary according to the specific unit.

3 Determine the thermistor resistance that matches the measured temperature.

Type 1 thermistor

T °C	kΩ	T °C	kΩ	T °C	kΩ	T °C	kΩ
–20	197.81	10	39.96	40	10.63	70	3.44
–19	186.53	11	38.08	41	10.21	71	3.32
–18	175.97	12	36.30	42	9.81	72	3.21
–17	166.07	13	34.62	43	9.42	73	3.11
–16	156.80	14	33.02	44	9.06	74	3.01
–15	148.10	15	31.50	45	8.71	75	2.91
–14	139.94	16	30.06	46	8.37	76	2.82
–13	132.28	17	28.70	47	8.05	77	2.72
–12	125.09	18	27.41	48	7.75	78	2.64
–11	118.34	19	26.18	49	7.46	79	2.55
–10	111.99	20	25.01	50	7.18	80	2.47
–9	106.03	21	23.91	51	6.91		
–8	100.41	22	22.85	52	6.65		
–7	95.14	23	21.85	53	6.41		
–6	90.17	24	20.90	54	6.65		
–5	85.49	25	20.00	55	6.41		
–4	81.08	26	19.14	56	6.18		
–3	76.93	27	18.32	57	5.95		
–2	73.01	28	17.54	58	5.74		
–1	69.32	29	16.80	59	5.14		
0	65.84	30	16.10	60	4.87		
1	62.54	31	15.43	61	4.70		
2	59.43	32	14.79	62	4.54		
3	56.49	33	14.18	63	4.38		
4	53.71	34	13.59	64	4.23		
5	51.09	35	13.04	65	4.08		
6	48.61	36	12.51	66	3.94		
7	46.26	37	12.01	67	3.81		
8	44.05	38	11.52	68	3.68		
9	41.95	39	11.06	69	3.56		

4 Disconnect the thermistor connector from the appropriate PCB.

5 Measure the resistance between the appropriate pins of the thermistor connector.

6 Check that the measured resistance value matches the resistance determined through the measured temperature (earlier step in the procedure). E.g. R1T thermistor:

- Measured temperature with contact thermometer: 23.1°C,
- Resistance value determined through temperature (using the table for type 1 thermistors):
  Resistance at 23°C: 21.85 kΩ,
  Resistance at 24°C: 20.90 kΩ,
- Disconnect connector and measure resistance between S26 pin 1-2:
  Measured resistance: 21.86 kΩ,
- Measured resistance value is inside the range. R1T thermistor passes the check.

INFORMATION

All thermistors have a resistance tolerance of 5%.

INFORMATION

In most cases, the user interface allows to monitor the thermistors.

If the measured resistance value matches the resistance determined through the measured temperature, but the temperature for the corresponding thermistor is NOT correct on the user interface display, replace the applicable PCB.

Does the measured resistance of the thermistor match with the temperature determined resistance?	Action
Yes	Thermistor is OK. Return to the troubleshooting of the specific error and continue with the next procedure.
No	Replace the specific thermistor, see "Repair procedures" on page 50.

Repair procedures

To remove the room thermistor PCB

Prerequisite: Stop the unit operation (via the user interface, operation switch, …).

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "2.10 Plate work" on page 38.

1. Locate the room thermistor PCB on the indoor unit PCB.
2. Disconnect the connector of the room thermistor PCB from the indoor unit PCB.
3. Press the latches to unlock and remove the room thermistor PCB from the indoor unit PCB.
4. To install the room thermistor PCB, see "Repair procedures" on page 48.

To install the room thermistor PCB

1. Install the room thermistor PCB in the correct location on the indoor unit PCB.
2. Connect the connector of the room thermistor PCB to the indoor unit PCB.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

3 Third party components

3.1 Electrical circuit

3.1.1 Checking procedures

To check the power supply of the unit

Prerequisite: Stop the unit operation (via the user interface, operation switch, …).

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "2.10 Plate work" on page 38.

1. Check that the power supply cables and earth connection are firmly fixed to the power supply terminal X1M.
2. Measure the insulation resistance between each power supply terminal and the ground using a megger device of at least 500 V DC. All measurements MUST be >1MΩ. If insulation resistance is <1MΩ, earth leakage is present.
3. Turn ON the unit using the respective circuit breaker.
4. Measure the voltage between L and N on the power supply terminal X1M. The voltage MUST be 230 V AC ± 10%.

Is the measured voltage (power supply) correct?	Action
Yes	Return to the troubleshooting of the specific error and continue with the next procedure.
No	Adjust the power supply, see "3.1.2 Repair procedures" on page 51.

To check the power supply from the outdoor unit to the indoor unit

Prerequisite: Stop the unit operation (via the user interface, operation switch, …).

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "2.10 Plate work" on page 38.

1. Check that the power supply cables and earth connection are firmly fixed to the indoor unit power supply terminal X1M.
2. Turn ON the unit using the respective circuit breaker.
3. Measure the voltage between L and N on the indoor unit power supply terminal X1M. The voltage MUST be 230 V AC ± 10%.

Is the measured voltage (power supply) correct?	Action
Yes	Return to the troubleshooting of the specific error and continue with the next procedure.
No	Continue with the next step.

4. Check the power supply to the unit, see "3.1.1 Checking procedures" on page 50.

Does the unit receive power?	Action
Yes	Correct the wiring from the main power supply terminal to the indoor unit power supply terminal, see "3.1.2 Repair procedures" on page 51.
No	Adjust the power supply to the unit, see "3.1.2 Repair procedures" on page 51.

To check the wiring between the outdoor unit and the indoor unit

1 Check that all wires are properly connected and that all connectors are fully plugged-in. All colour codes MUST correspond.

2 Check that no connectors or wires are damaged.

3 Check that the wiring corresponds with the wiring diagram, see "5.2 Wiring diagram" on page 58.

Is all wiring between the outdoor unit and the indoor unit correct?	Action
Yes	Return to the troubleshooting of the specific error and continue with the next procedure.
No	Adjust the wiring where needed, see "3.1.2 Repair procedures" on page 51.

3.1.2 Repair procedures

To adjust the power supply

1 Make sure that the power source is in line with the requirements described in the databook.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

To correct the wiring from the main power supply terminal to the indoor unit power supply terminal

1 Make sure that all wires are firmly and correctly connected, see "5.2 Wiring diagram" on page 58.

2 Check the continuity of all wires.

3 Replace any damaged or broken wires.

INFORMATION

If applicable, also check the electrical components between the main power supply terminal and the indoor unit power supply terminal (e.g. intermediate terminal, noise filter, …).

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

To adjust the wiring between the outdoor unit and the indoor unit

1 Adjust the wiring according to the wiring diagram and connection diagram, see "5.2 Wiring diagram" on page 58.

2 Check that all wires are properly connected and that all connectors are fully plugged-in. All colour codes MUST correspond.

3 Check that no connectors or wires are damaged.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

3.2 Refrigerant circuit

3.2.1 Checking procedures

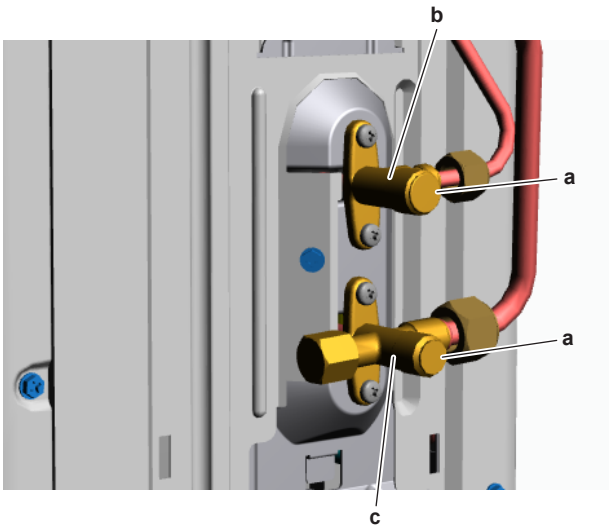
INFORMATION

It is recommended to perform the checks in the listed order.

To check if the stop valves are open

Prerequisite: Remove the required plate work, see "2.10 Plate work" on page 38.

1 Remove the caps.



a Cap
b Liquid stop valve
c Gas stop valve

2 Check if the stop valves are completely open.

The refrigerant circuit stop valves are open?	Action
Yes	Return to the troubleshooting of the specific error and continue with the next procedure.
No	Open the stop valves of the refrigerant circuit, see "3.2.2 Repair procedures" on page 53.

To check if the refrigerant circuit is clogged

Prerequisite: Stop the unit operation (via the user interface, operation switch, …).

Prerequisite: Turn OFF the respective circuit breaker.

1 Wait for the refrigerant to reach the outdoor temperature.

2 Connect a manometer to the service port.

3 Measure the low pressure as a reference.

4 Turn ON the power of the unit.

5 Activate `Cooling` operation via the user interface.

6 Again measure the low pressure.

Low pressure lower than expected?	Then
Yes	Obstruction is possible.
No	Obstruction is less likely.

7 Using a thermometer, check for a temperature drop of minimum 4°C. The obstruction is most likely located where this temperature drop occurs.

Temperature drop found?	Action
Yes	Replace the clogged part, see "3.2.2 Repair procedures" on page 53.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

To check if the refrigerant circuit is correctly charged

Due to the relationship to pressure control and electronic expansion valve control, the amount of refrigerant needs to be examined according to operating conditions.

Refer to the procedures shown below for correct examination.

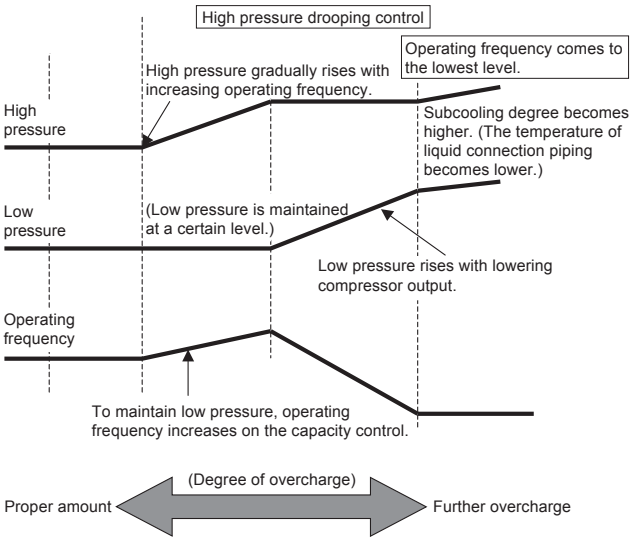
Refrigerant overcharge diagnosis

1 High pressure rises. Consequently, overload control is conducted to cause insufficient cooling capacity.

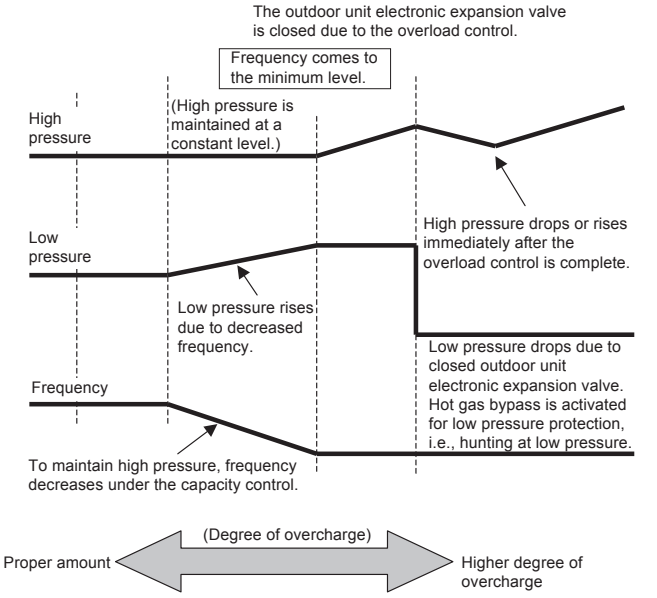
2 The superheated degree of suction gas lowers (or the wet operation is performed). Consequently, the compressor becomes lower in discharge pipe temperature despite of pressure loads.

3 The subcooling degree of condensate rises. Consequently, in heating, the temperature of discharge air through the subcooled section becomes lower.

Cooling



Heating



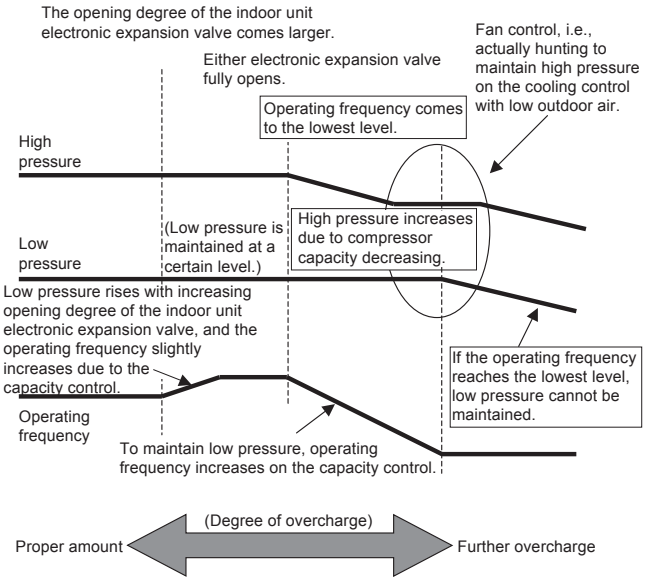
Refrigerant shortage diagnosis

4 The superheated degree of suction gas rises. Consequently, the compressor discharge gas temperature becomes higher.

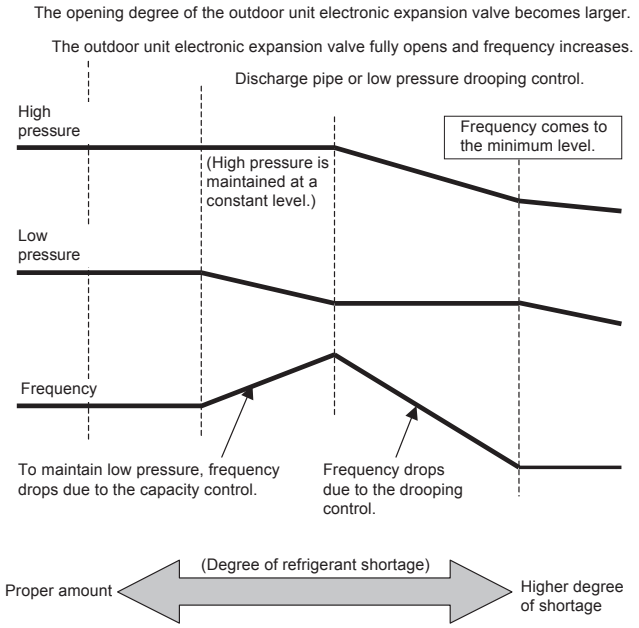
5 The superheated degree of suction gas rises. Consequently, the electronic expansion valve turns open.

6 Low pressure drops to cause the unit not to demonstrate cooling capacity (or heating capacity).

Cooling



Heating



Is the refrigerant circuit charged correctly?	Action
Yes	Return to the troubleshooting of the specific error and continue with the next procedure.
No	Add or recuperate refrigerant until correctly charged, see "3.2.2 Repair procedures" on page 53.

To check for non-condensables in the refrigerant circuit

Prerequisite: Stop the unit operation (via the user interface, operation switch, …).

Prerequisite: Turn OFF the respective circuit breaker.

1 Wait for the refrigerant to reach the outdoor temperature.

2 Connect a manometer to the service port.

3 Measure the pressure of the refrigerant. The measured pressure MUST be in line with the expected pressure at outdoor temperature.

4 If the measured pressure is higher than the expected pressure (at outdoor temperature), other non-condensables are mixed in the refrigerant.

Any non-condensables found in the refrigerant circuit?	Action
Yes	To replace the refrigerant, see "3.2.2 Repair procedures" on page 53.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

To perform a pressure test of the refrigerant circuit

1 Perform a pressure test in line with local legislation.

CAUTION

Perform a pressure test only when leaks are expected.

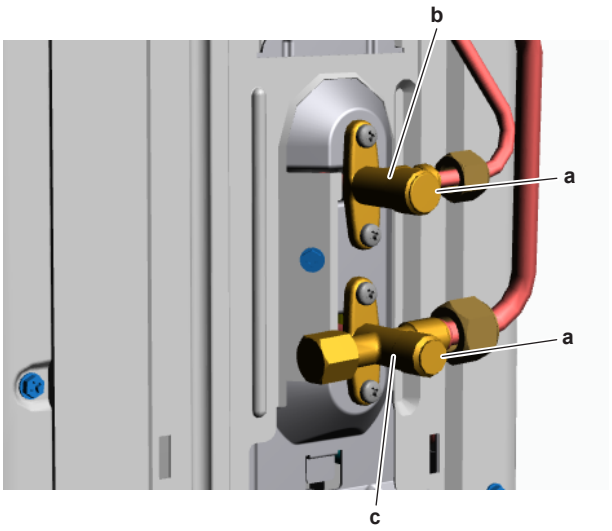
Is the pressure in the refrigerant circuit correct?	Action
Yes	Return to the troubleshooting of the specific error and continue with the next procedure.
No	Replace the leaking part of the refrigerant circuit, see "3.2.2 Repair procedures" on page 53.

3.2.2 Repair procedures

To open the stop valves of the refrigerant circuit

Prerequisite: Remove the required plate work, see "2.10 Plate work" on page 38.

1 Remove the caps.



a Cap
b Liquid stop valve
c Gas stop valve

2 Completely open the stop valves by screwing the stop valve screw counterclockwise.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

To replace the clogged/leaking part of the refrigerant circuit

1 See the correct procedure for the component that needs to be repaired. See also "Repair information" on page 54 for more details.

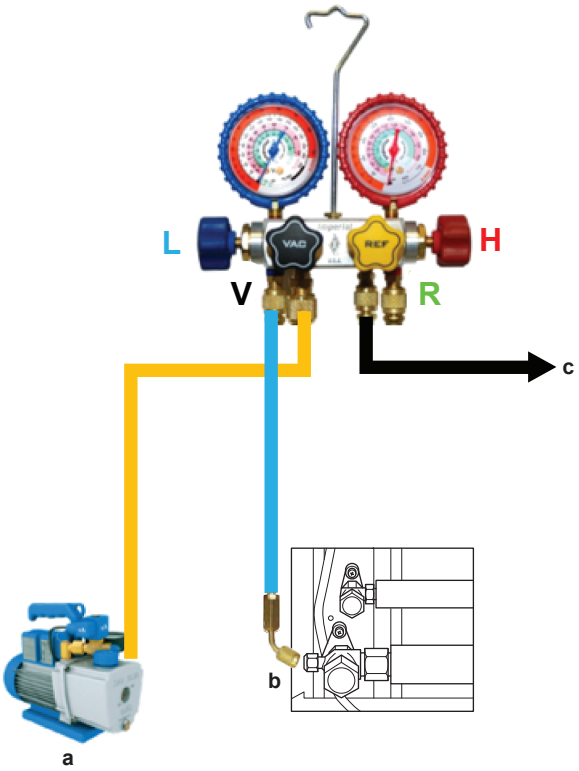
Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

To recuperate the refrigerant

Prerequisite: Stop the unit operation (via the user interface, operation switch, …).

1 Manually open all expansion valves.

2 Connect the vacuum pump, manifold, recovery unit, and refrigerant bottle to the service port of the refrigerant circuit as shown below.



a Vacuum pump
b Connect flexible hose to service port 3 stop valve
c To recovery pump
L Low pressure
H High pressure
V Vacuum
R Refrigerant

3 To add refrigerant, see "3.2.2 Repair procedures" on page 53.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

To add refrigerant

1 See the installer reference guide for the correct procedure.

Is the problem solved?	Action
Yes	No further actions required.
No	Perform a pressure test of the refrigerant circuit, see "3.2.1 Checking procedures" on page 51.

Repair information

Refrigerant piping handling

- Make sure that the applied pressure is never higher than the unit design pressure indicated on the nameplate (PS).
- Work according to the F-gas regulation and/or local regulations.
- Make sure the correct amount of refrigerant is charged after repair according to the F-gas regulation label on the unit (factory + additional where required).
- Make sure to use the appropriate equipment and tools according to the refrigerant and unit type.
- Charge non-azeotropic refrigerant (e.g. R410A) always in a liquid state.
- R32 can be charged in gas phase.
- Make sure to use a digital scale (no charging cylinder).
- Execute correct vacuum drying procedure after repair:
  - –0.1 MPa / –760 mm Hg / –750 Torr / –1 bar for at least 1 hour.
  - Connect the unit according to the available service ports.
  - Use related field setting where necessary to open expansion valve / solenoid valve.

To perform refrigerant pump down operation

The unit is equipped with an automatic pump down operation which will collect all refrigerant from the field piping and indoor unit in the outdoor unit. To protect the environment, make sure to perform the following pump down operation when relocating the unit.

DANGER: RISK OF EXPLOSION

Pump down – Refrigerant leakage. If you want to pump down the system, and there is a leak in the refrigerant circuit:

- Do NOT use the unit's automatic pump down function, with which you can collect all refrigerant from the system into the outdoor unit. **Possible consequence:** Self-combustion and explosion of the compressor because of air going into the operating compressor.
- Use a separate recovery system so that the unit's compressor does NOT have to operate.

CAUTION

Some outdoor units are equipped with a low pressure switch to protect the compressor by switching it off. NEVER short-circuit the low pressure switch during pump down operation.

1 Remove the refrigerant connection cover, see "2.10 Plate work" on page 38.

2 Remove the cap from the stop valves.

3 Perform pump down operation, see installer reference guide for the correct procedure.

4 After 5~10 minutes (after only 1~2 minutes in case temperature <–10°C), close the liquid stop valve using a hexagonal wrench.

5 Check the manifold if vacuum is reached. Close the gas stop valve and stop forced cooling operation.

Refrigerant piping repair

- Make sure to cover open pipe ends during repair so no dust or moisture can enter.
- Make sure to re-apply insulation removed during repair.
- Pipe expansion / flare making:
  - Remove any burrs on the cut surface using the correct tool such as reamer or scraper (note that excessive deburring can thin the pipe walls and cause cracking of the pipe).
  - Make sure the flare has the correct size (use a flare gauge).
  - Make sure no particles remain in the piping.
  - Apply just a drop of refrigerant oil on the inner surface of the flare.
  - Make sure the flare connection is tightened with the correct torque (torque values refer to installation manual).
- Brazing:
  - Use the correct brazing tool.
  - Use a phosphor copper filler metal (silver composition of 0 to 2%). Do not use flux material.
  - Flush the piping before brazing with nitrogen to avoid oxidation of the inside of the copper tubes (nitrogen purity ≥99.99%).

3.3 External factors

3.3.1 Checking procedures

To check the outdoor temperature

1 The temperature ranges for the different operation modes of the unit can be found in the databook on Business Portal.

INFORMATION

If the outdoor temperature is outside this range, the unit may stop operating.

Is the outdoor temperature within the operating range?	Action
Yes	Return to the troubleshooting of the specific error and continue with the next procedure.
No	Wait for the outdoor temperature to return within the operating range.

To check for objects that may block the airflow

1 Check for the presence of objects near the indoor unit that may block the airflow.

Is an object found that may block the airflow?	Action
Yes	Remove the object, see "3.3.2 Repair procedures" on page 55.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

3.3.2 Repair procedures

To remove objects that may block the airflow

1 Remove objects that may block the airflow from the near environment of the indoor unit.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

4 Maintenance

4.1 To clean the outdoor unit heat exchanger

1 Straighten the hair fins.

2 Clear the outdoor unit heat exchanger from dust, leaves,… using a fin-comb or compressed air/N_2.

CAUTION

Avoid bending or damaging the hair fins of the outdoor unit heat exchanger during the cleaning process.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

4.2 To clean the indoor unit heat exchanger

1 Straighten the hair fins.

2 Clear the indoor unit heat exchanger from dust, leaves,… using a fin-comb or compressed air/N_2.

CAUTION

Avoid bending or damaging the hair fins of the indoor unit heat exchanger during the cleaning process.

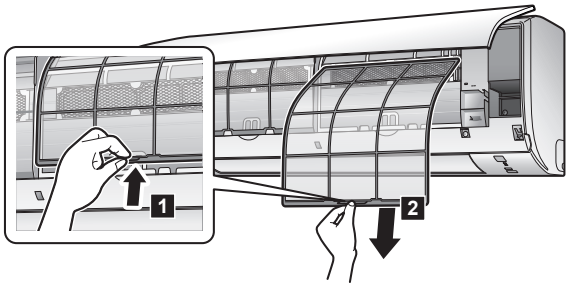
Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

4.3 To clean the air filters

ATXP-L + FTXP-L

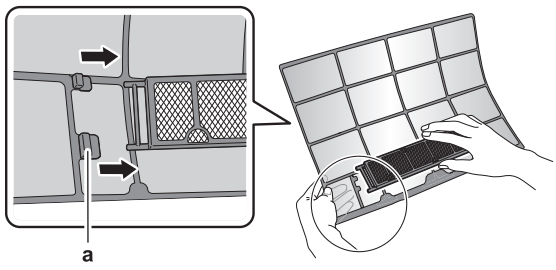
1 Push the tab at the centre of each air filter, then pull it down.

2 Pull out the air filters.



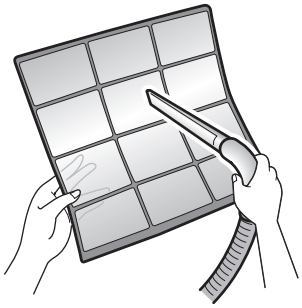
Note: (class 50~71) The titanium apatite deodorizing filter MUST be removed before cleaning the air filter.

3 Remove the titanium apatite deodorizing filter from all 4 claws.

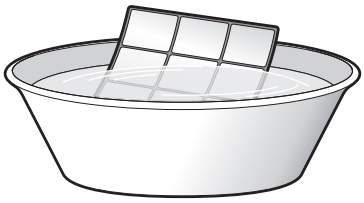


a Claw

4 Wash the air filters with water or clean them with a vacuum cleaner.



5 Soak in lukewarm water for about 10 to 15 minutes.



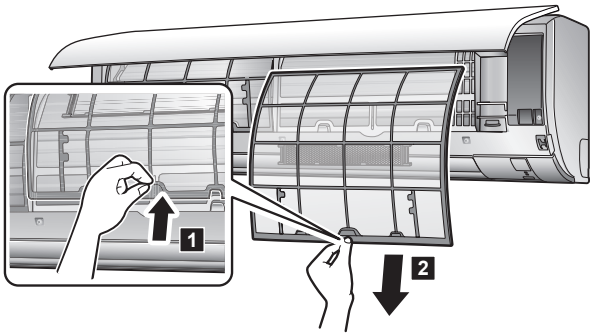
INFORMATION

- If the dust does NOT come off easily, wash the air filters with a neutral detergent diluted in lukewarm water. Dry the air filters in the shade.
- Be sure to remove the titanium apatite deodorizing filter.
- It is recommended to clean the air filters every 2 weeks.

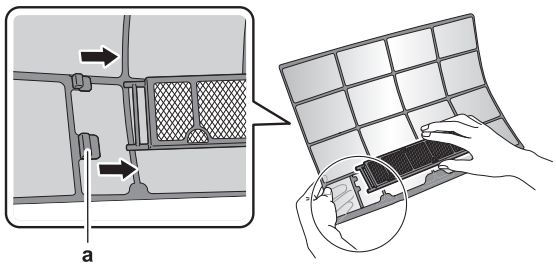
ATXP-M + FTXP-M

6 Push the tab at the centre of each air filter, then pull it down.

7 Pull out the air filters.

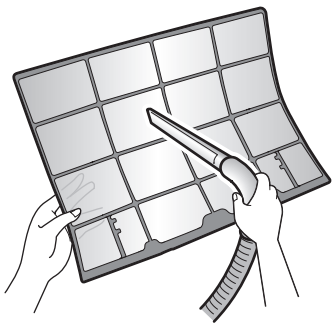


8 Remove the titanium apatite deodorizing filter and silver particle filter from the tabs.

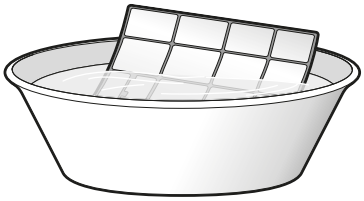


a Tab

9 Wash the air filters with water or clean them with a vacuum cleaner.



10 Soak in lukewarm water for about 10 to 15 minutes.



INFORMATION

- If the dust does NOT come off easily, wash the air filters with a neutral detergent diluted in lukewarm water. Dry the air filters in the shade.
- Be sure to remove the titanium apatite deodorizing and silver particle filters.
- It is recommended to clean the air filters every 2 weeks.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

5 Technical data

5.1 Detailed information setting mode

5.1.1 Detailed information setting mode: Indoor unit

See the installer reference guide on business portal for more information.

5.1.2 Detailed information setting mode: Outdoor unit

See the installer reference guide on business portal for more information.

5.1.3 Detailed information setting mode: Remote controller

See the installer reference guide on business portal for more information.

5.2 Wiring diagram

5.2.1 Wiring diagram: Indoor unit

The wiring diagram is delivered with the unit, located inside of the outdoor unit (bottom side of the top plate).

FTXP20~35L + ATXP20~35L + FTXP20~35M + ATXP20~35M

(1) Wiring diagram

English	Translation
Wiring diagram	Wiring diagram
Indoor	Indoor
Outdoor	Outdoor
Transmission circuit	Transmission circuit
Signal receiver	Signal receiver
Wireless remote control	Wireless remote control
Horizontal	Horizontal
Vertical	Vertical

(2) Notes

English	Translation
⏚	Connection
X1M	Main terminal
– – – – – – –	Field supply
▭	PCB
Ⓔ	Protective earth
Ⓐ	Rectifier
▪▪▪	Field wire

NOTES:

BLK : Black

BLU : Blue

BRN : Brown

GRN : Green

ORG : Orange

PNK : Pink

RED : Red

WHT : White

YLW : Yellow

Caution

When the main power is turned off and then back on again, operation will resume automatically.

(3) Legend

BZ	Buzzer
FG	Frame ground
FU1	Fuse
H*	Harness
IPM*	Intelligent power module
LED 1, LED 2	Light-emitting diode
M1F	Fan motor
M*S	Swing flap motor
MR*	Magnetic relay
PCB1, PCB2, PCB3	Printed circuit board
R1T	Room thermistor
R2T	Suction pipe thermistor
S6-S602	Connector
S1W	Operation switch
V2	Varistor
X1M	Terminal strip
Z*C	Ferrite core

FTXP50~71L + FTXP50~71M

(1) Wiring diagram

English	Translation
Wiring diagram	Wiring diagram
Indoor	Indoor
Outdoor	Outdoor
Transmission circuit	Transmission circuit
Wireless remote control	Wireless remote control
Horizontal	Horizontal
Vertical	Vertical

(2) Notes

English	Translation
⏚	Connection
X1M	Main terminal
– – – – – – –	Field supply
▭	PCB
Ⓔ	Protective earth
▪▪▪	Field wire

NOTES:

BLK : Black

RED : Red

BLU : Blue

WHT : White

GRN : Green

YLW : Yellow

ORG : Orange

Caution

When the main power is turned off and then back on again, operation will resume automatically.

(3) Legend

FG, HE, S6~S900	Connector
F1U (FU1)	Fuse
T1R (L301)	Transformer
M1F	Fan motor
M*S	Swing flap motor
K1R (MR10)	Magnetic relay
A*P	Printed circuit board
R1T, R2T	Thermistor
BS1 (S1W)	Operation switch
R2V (V2)	Varistor
X1M	Terminal strip
Z*C	Ferrite core
IPM*	Intelligent power module
H*P (LED*)	Pilot lamp
V1R (DB301)	Diode bridge
H1O (BZ)	Buzzer
C*	Capacitor
SR (WLU)	Signal receiver

5.2.2 Wiring diagram: Outdoor unit

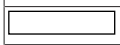
See the internal wiring diagram supplied with the unit (on the inside of the top plate). The abbreviations used are listed below.

RXP20~35L + ARXP20~35L + RXP20~35M + ARXP20~35M

(1) Wiring diagram

English	Translation
Wiring diagram	Wiring diagram
Indoor	Indoor
Outdoor	Outdoor
Condenser	Condenser
Discharge	Discharge

(2) Notes

English	Translation
Note:	Note
	Connection
X1M	Main terminal
– – – – – – –	Field supply
	PCB
	Protective earth
	Field wire

NOTES:

1 Refer to the nameplate for the power requirements.

(3) Legend

C*	Capacitor
D401, D402	Diode
DB1	Diode bridge
FU2, FU3	Fuse
IPM*	Intelligent power module
K30R, K10R, MR4	Magnetic relay
L1R	Reactor
M1C	Compressor motor
M1F	Fan motor
A1P	Printed circuit board
PS	Switching power supply
Q1L	Overload protector
R1T	Thermistor (air)
R2T	Thermistor (heat exchanger)
R3T	Thermistor (discharge)
SA1	Surge arrestor
S20-S90	Connector
V2, V3	Varistor
X1M	Terminal strip
Y1S	Reversing solenoid valve coil
PTC1	Thermistor
Y1E	Electronic expansion valve
Z*C	Noise filter (ferrite core)
Z*F	Noise filter

RXP50~71L + RXP50~71M

(1) Wiring diagram

English	Translation
Wiring diagram	Wiring diagram
Indoor	Indoor
Outdoor	Outdoor
Condenser	Condenser
Discharge	Discharge

(2) Notes

English	Translation
	Connection
X1M	Main terminal
– – – – – – –	Field supply
	PCB
	Protective earth
	Field wire

NOTES:

BLK : Black

BLU : Blue

BRN : Brown

GRN : Green

GRY : Grey

ORG : Orange

RED : Red

WHT : White

YLW : Yellow

For the power requirements, refer to the nameplate.

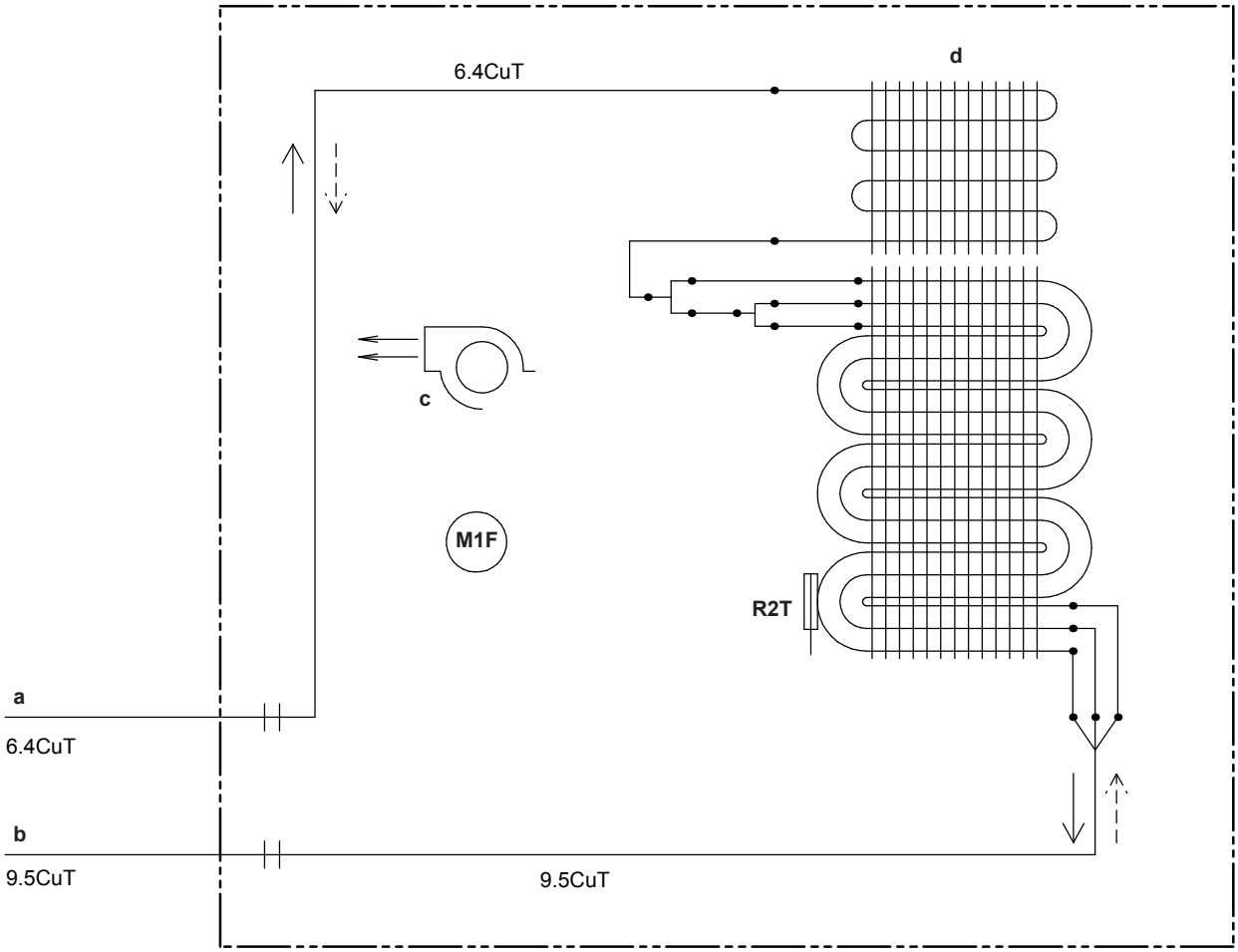
(3) Legend

C*	Capacitor
D*	Diode
DB1	Diode bridge
E1, E2, HL1, HN1, S, U, V, W	Connector
FU1, FU2, FU3	Fuse
IPM*	Intelligent power module
L	Live
M1C	Compressor motor
M1F	Fan motor
MR*	Magnetic relay
N	Neutral
N = 4, N= 5	Number of passes
PAM	Pulse-amplitude modulation
PCB	Printed circuit board
PS	Switching power supply
Q1L	Overload protector
R1T, R2T, R3T	Thermistor
S1PH	High pressure switch
S2 -S90	Terminal connector
SA1	Surge arrestor
V1 , V2, V3	Varistor
X11A	Connector
X1M	Terminal strip
Y1E	Electronic expansion valve
Y1S	Reversing solenoid valve coil
Z*C	Ferrite core
Z*F	Noise filter

5.3 Piping diagram

5.3.1 Piping diagram: Indoor unit

FTXP20~35L + ATXP20~35L + FTXP35M + ATXP35M

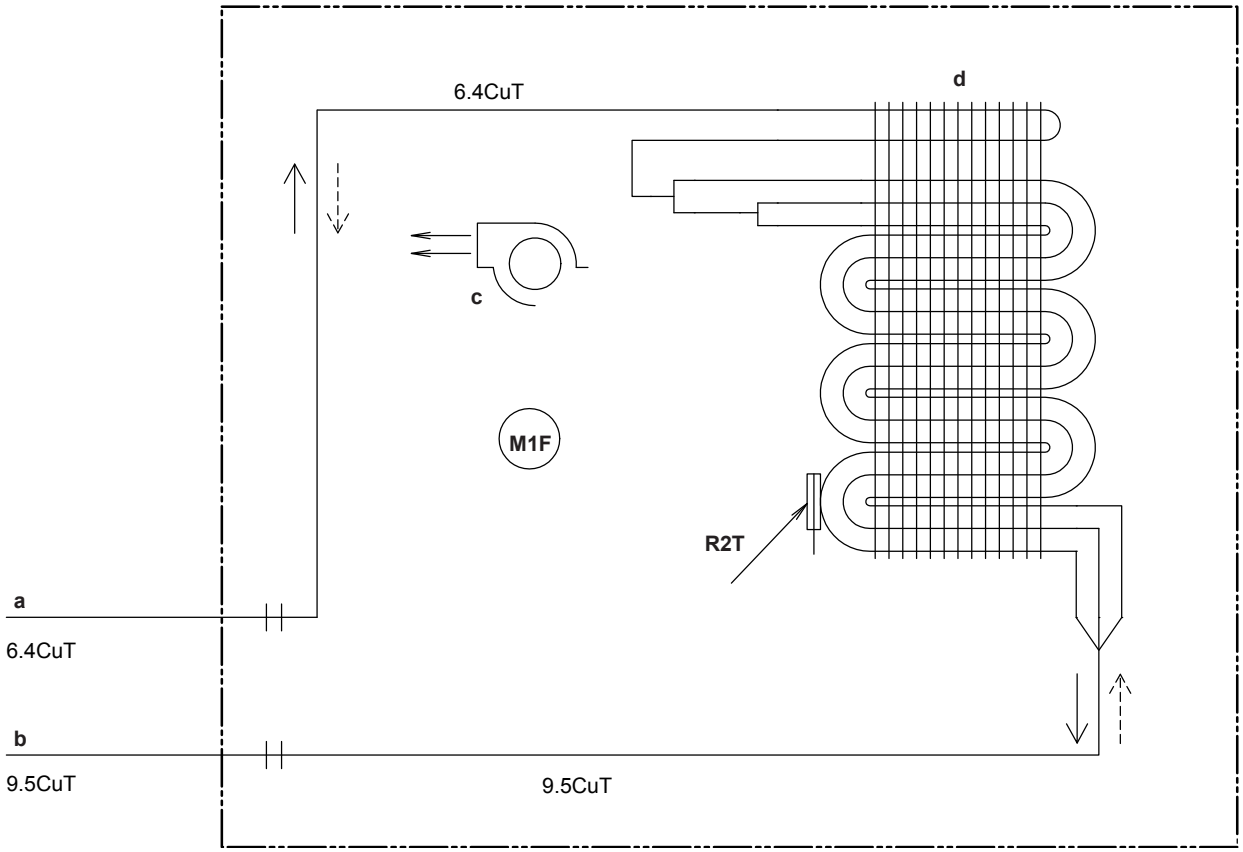


a Field piping (liquid: Ø6.4 mm flare connection)
b Field piping (gas: Ø9.5 mm flare connection)
c Crossflow fan
d Heat exchanger
M1F Fan motor
R2T Thermistor (heat exchanger)
--► Heating
—► Cooling

INFORMATION

The diagrams shown in this manual may be incorrect due to changes/updates to the unit. Correct diagrams are supplied with the unit and can also be found in the technical data book.

FTXP20~25M + ATXP20~25M

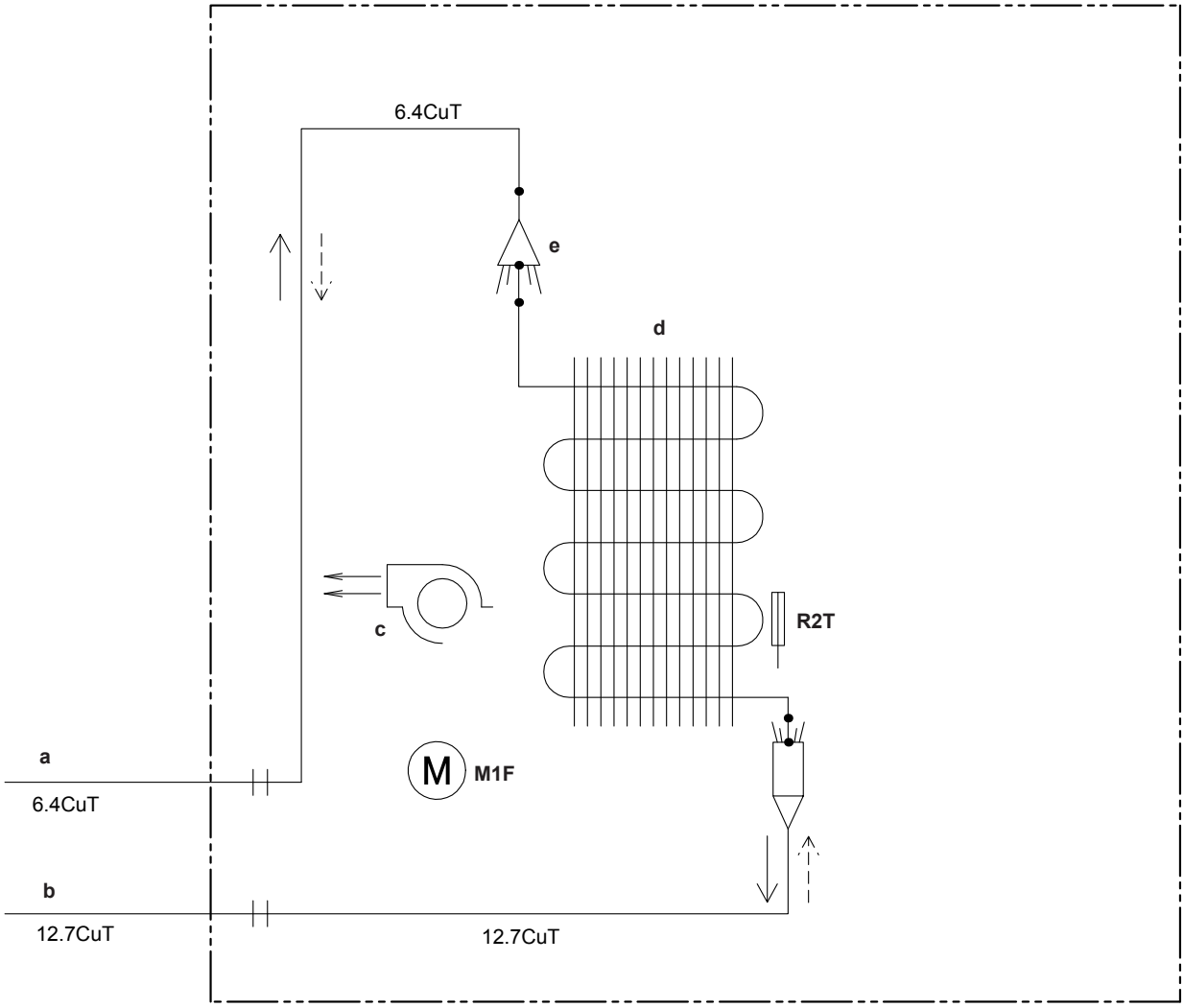


a Field piping (liquid: Ø6.4 mm flare connection)
b Field piping (gas: Ø9.5 mm flare connection)
c Crossflow fan
d Heat exchanger
M1F Fan motor
R2T Thermistor (heat exchanger)
--► Heating
—► Cooling

INFORMATION

The diagrams shown in this manual may be incorrect due to changes/updates to the unit. Correct diagrams are supplied with the unit and can also be found in the technical data book.

FTXP50~71L + FTXP50~71M



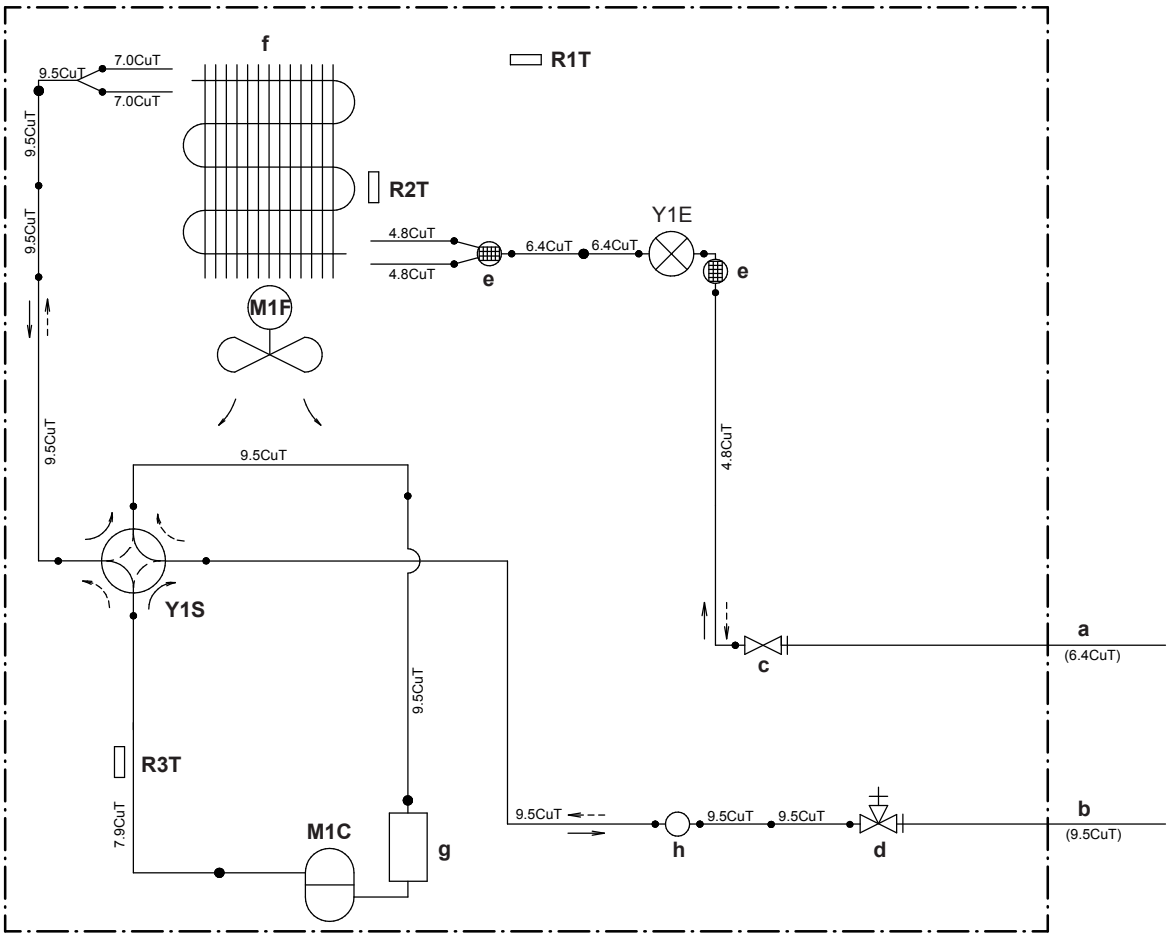
a Field piping (liquid: Ø6.4 mm flare connection)
b Field piping (gas: Ø12.7 mm flare connection)
c Crossflow fan
d Heat exchanger
e Distributor
M1F Fan motor
R2T Thermistor (heat exchanger)
--► Heating
—► Cooling

INFORMATION

The diagrams shown in this manual may be incorrect due to changes/updates to the unit. Correct diagrams are supplied with the unit and can also be found in the technical data book.

5.3.2 Piping diagram: Outdoor unit

RXP20~35L + RXP20~35M + ARXP20~35L

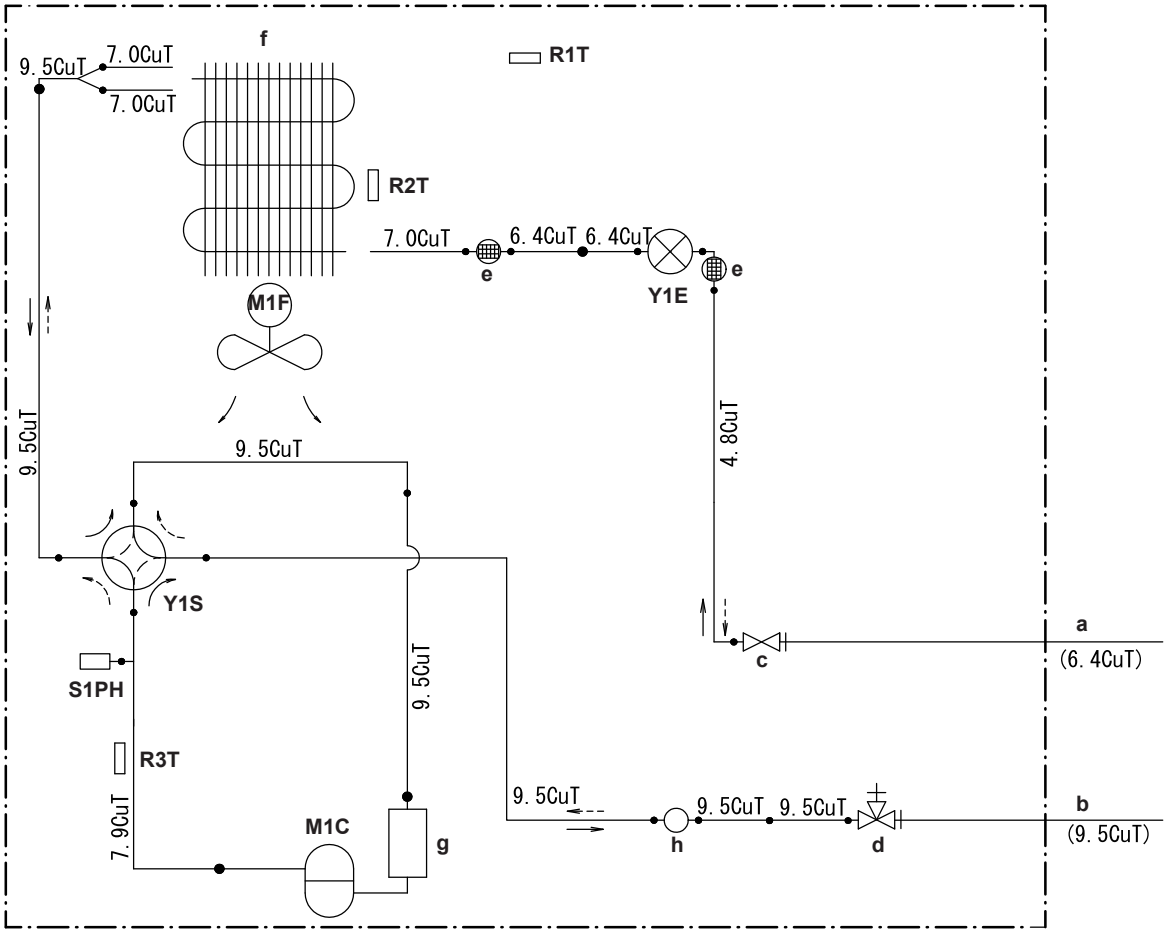


a Field piping (liquid: Ø6.4 mm flare connection)
b Field piping (gas: Ø9.5 mm flare connection)
c Stop valve (liquid)
d Stop valve with service port (gas)
e Muffler with filter
f Heat exchanger
g Accumulator
h Muffler
M1C Compressor
M1F Fan
R1T Thermistor (outdoor air)
R2T Thermistor (heat exchanger)
R3T Thermistor (compressor discharge)
Y1E Electronic expansion valve
Y1S Solenoid valve (4-way valve)(ON: cooling)
--► Heating
—► Cooling

INFORMATION

The diagrams shown in this manual may be incorrect due to changes/updates to the unit. Correct diagrams are supplied with the unit and can also be found in the technical data book.

ARXP20~25M

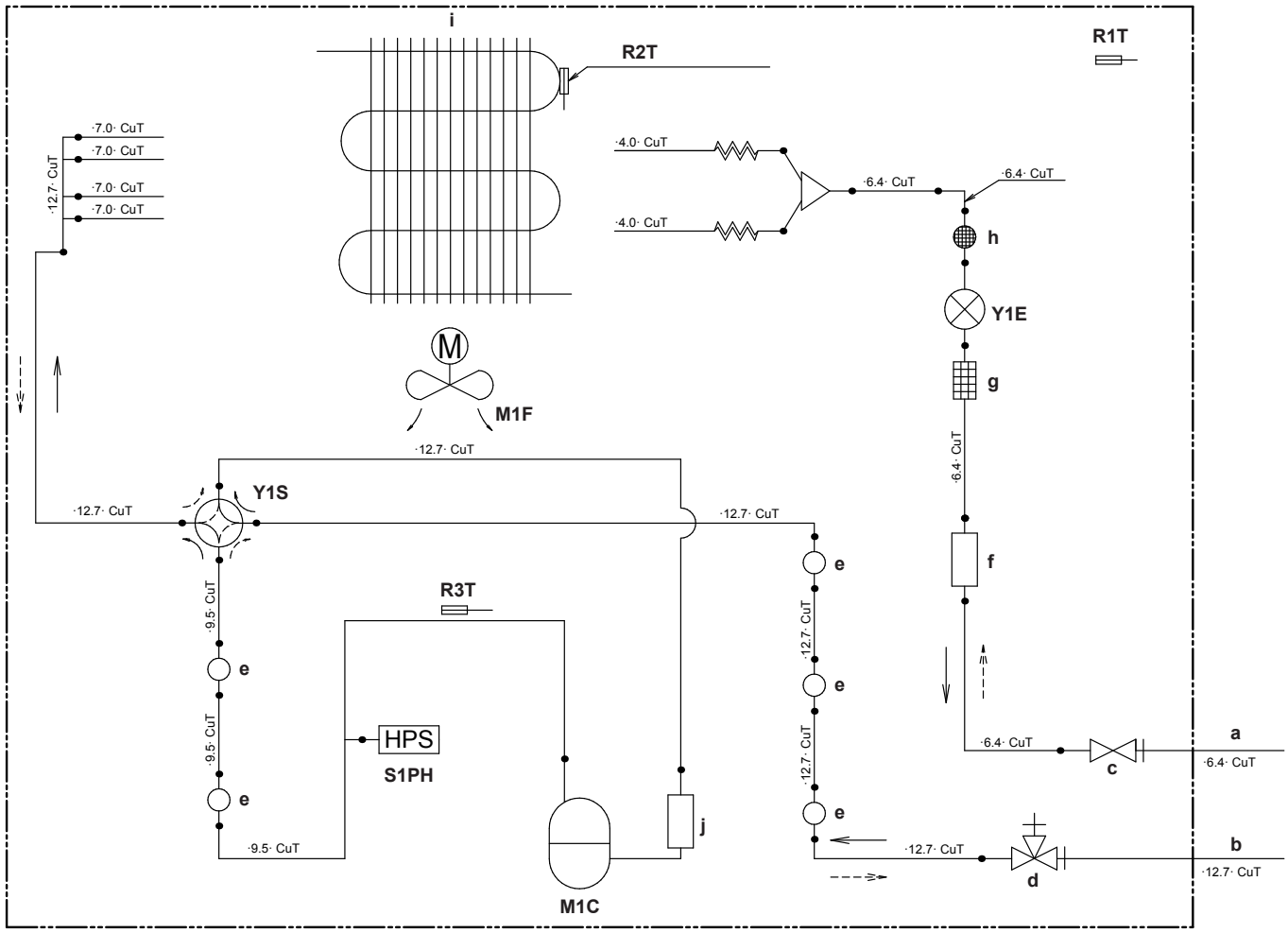


a Field piping (liquid: Ø6.4 mm flare connection)
b Field piping (gas: Ø9.5 mm flare connection)
c Stop valve (liquid)
d Stop valve with service port (gas)
e Muffler with filter
f Heat exchanger
g Accumulator
h Muffler
S1PH High pressure switch
M1C Compressor
M1F Fan
R1T Thermistor (outdoor air)
R2T Thermistor (heat exchanger)
R3T Thermistor (compressor discharge)
Y1E Electronic expansion valve
Y1S Solenoid valve (4-way valve)(ON: cooling)
--► Heating
—► Cooling

INFORMATION

The diagrams shown in this manual may be incorrect due to changes/updates to the unit. Correct diagrams are supplied with the unit and can also be found in the technical data book.

RXP50L + RXP50M

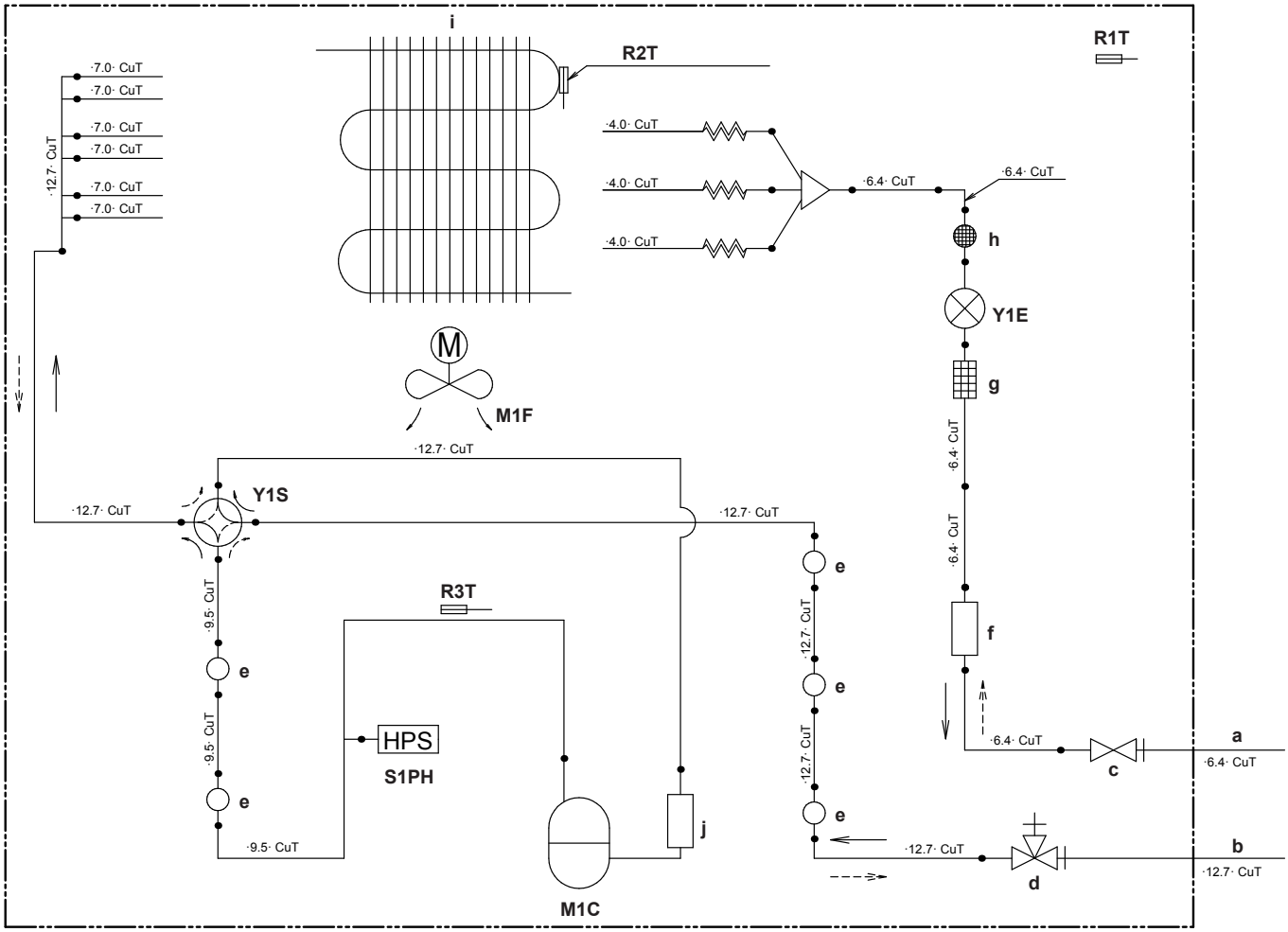


a	Field piping (liquid: Ø6.4 mm flare connection)
b	Field piping (gas: Ø12.7 mm flare connection)
c	Stop valve (liquid)
d	Stop valve (gas)
e	Muffler
f	Liquid receiver
g	Filter
h	Muffler with filter
i	Heat exchanger
j	Compressor
Accumulator	Compressor
M1C	Compressor
M1F	Fan
R1T	Thermistor (outdoor air)
R2T	Thermistor (heat exchanger)
R3T	Thermistor (compressor discharge)
S1PH	High pressure switch
Y1E	Electronic expansion valve
Y1S	Solenoid valve (4-way valve)(ON: heating)
--►	Heating
—►	Cooling

INFORMATION

The diagrams shown in this manual may be incorrect due to changes/updates to the unit. Correct diagrams are supplied with the unit and can also be found in the technical data book.

RXP60~71L + RXP60~71M

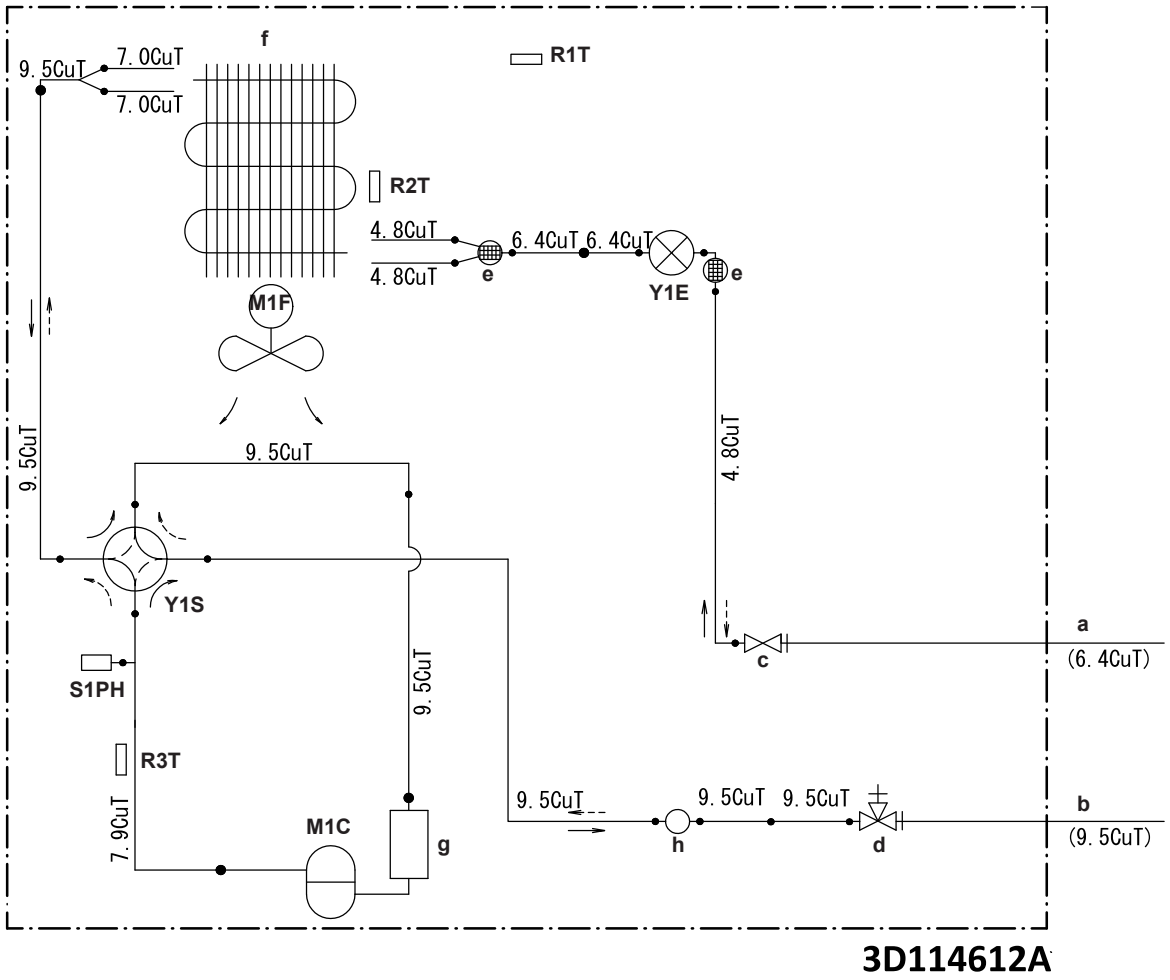


a	Field piping (liquid: Ø6.4 mm flare connection)
b	Field piping (gas: Ø12.7 mm flare connection)
c	Stop valve (liquid)
d	Stop valve (gas)
e	Muffler
f	Liquid receiver
g	Filter
h	Muffler with filter
i	Heat exchanger
j	Accumulator
M1C	Compressor
M1F	Fan
R1T	Thermistor (outdoor air)
R2T	Thermistor (heat exchanger)
R3T	Thermistor (compressor discharge)
S1PH	High pressure switch
Y1E	Electronic expansion valve
Y1S	Solenoid valve (4-way valve)(ON: heating)
--►	Heating
——►	Cooling

INFORMATION

The diagrams shown in this manual may be incorrect due to changes/updates to the unit. Correct diagrams are supplied with the unit and can also be found in the technical data book.

ARXP35M



a Field piping (liquid: Ø6.4 mm flare connection)
b Field piping (gas: Ø9.5 mm flare connection)
c Stop valve (liquid)
d Stop valve with service port (gas)
e Muffler with filter
f Heat exchanger
g Accumulator
h Muffler
S1PH High pressure switch
M1C Compressor
M1F Fan
R1T Thermistor (outdoor air)
R2T Thermistor (heat exchanger)
R3T Thermistor (compressor discharge)
Y1E Electronic expansion valve
Y1S Solenoid valve (4-way valve)(ON: cooling)
--► Heating
——► Cooling

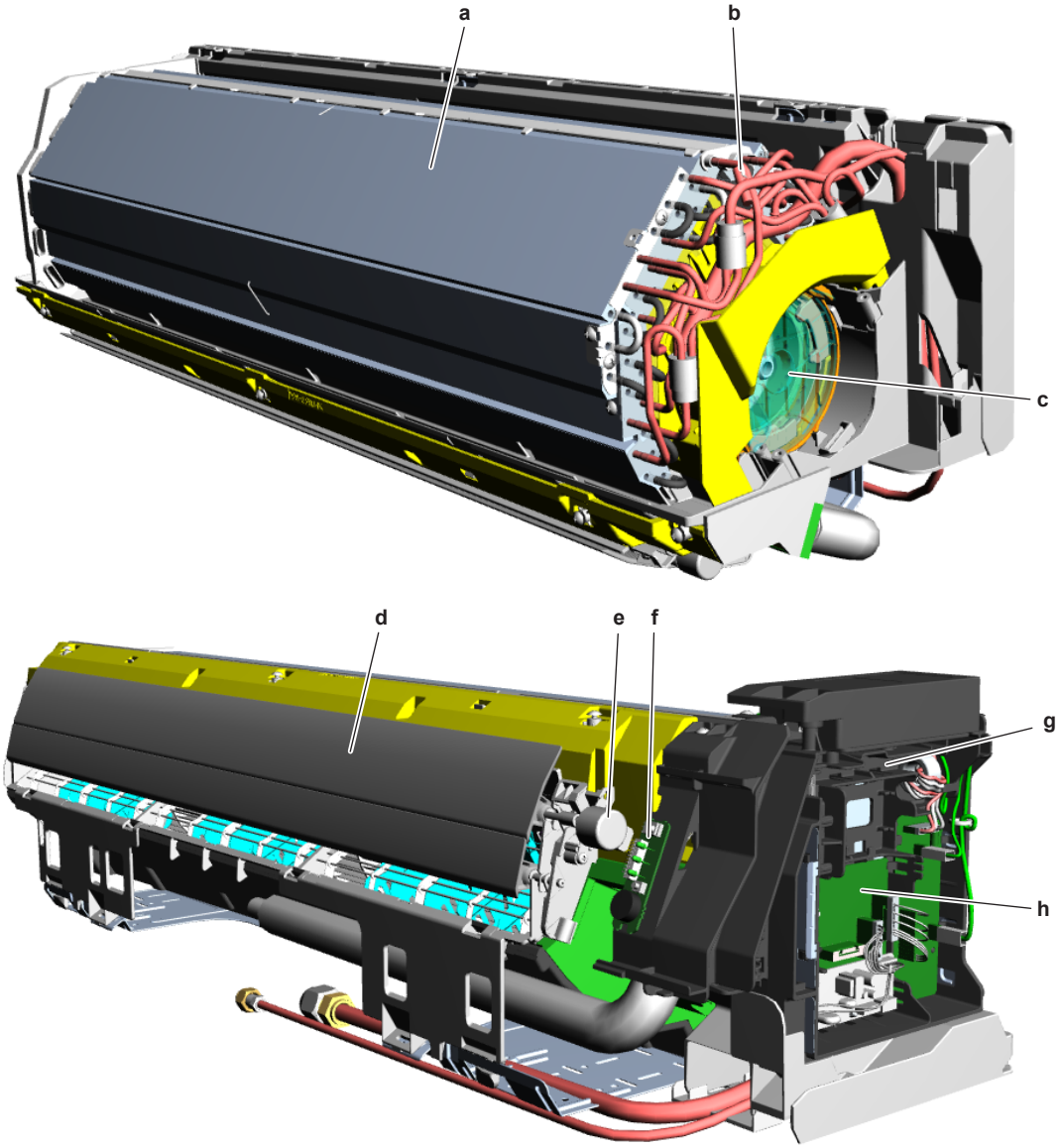
INFORMATION

The diagrams shown in this manual may be incorrect due to changes/updates to the unit. Correct diagrams are supplied with the unit and can also be found in the technical data book.

5.4 Component overview

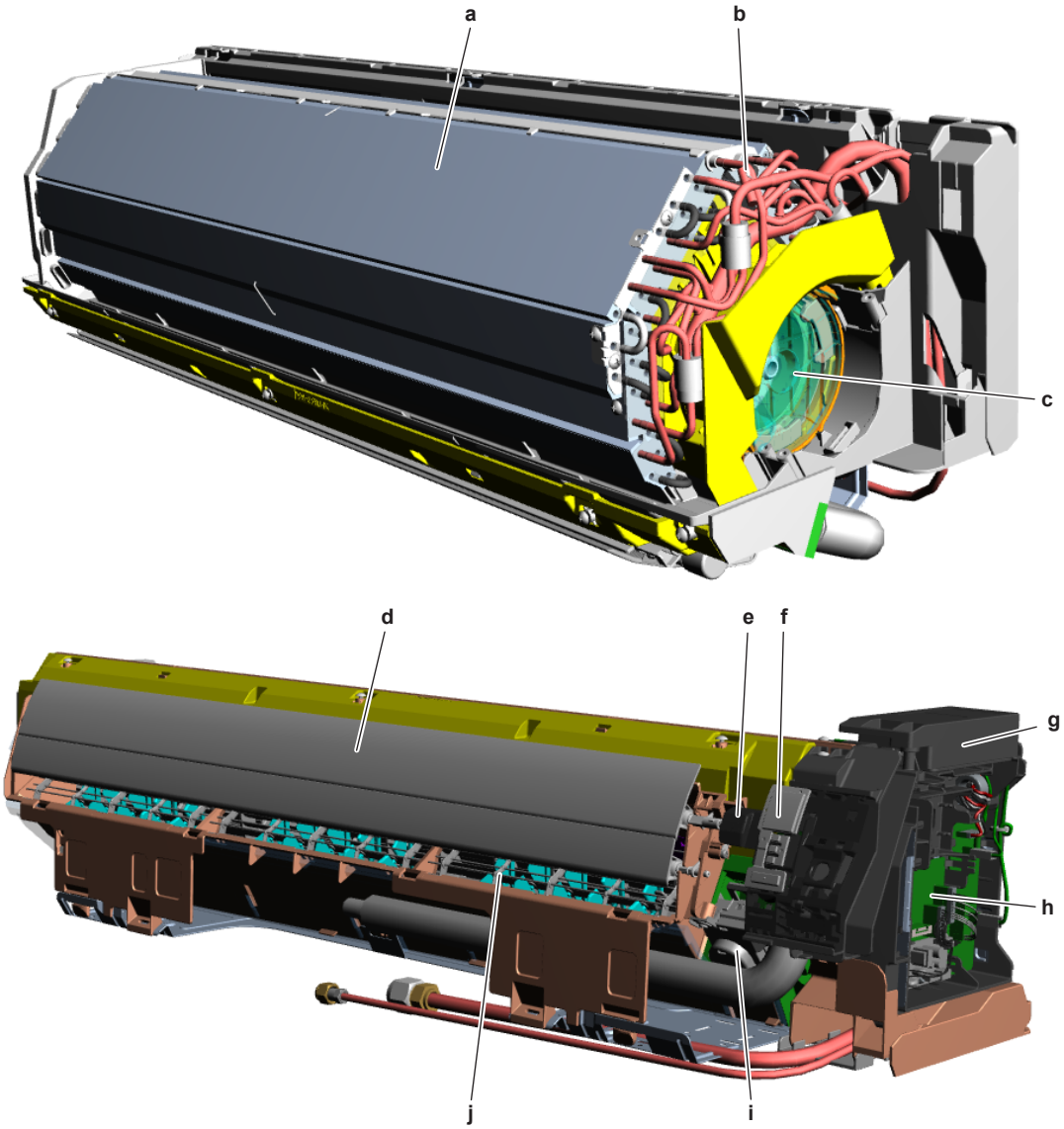
5.4.1 Component overview: Indoor unit

ATXP-L + FTXP-L



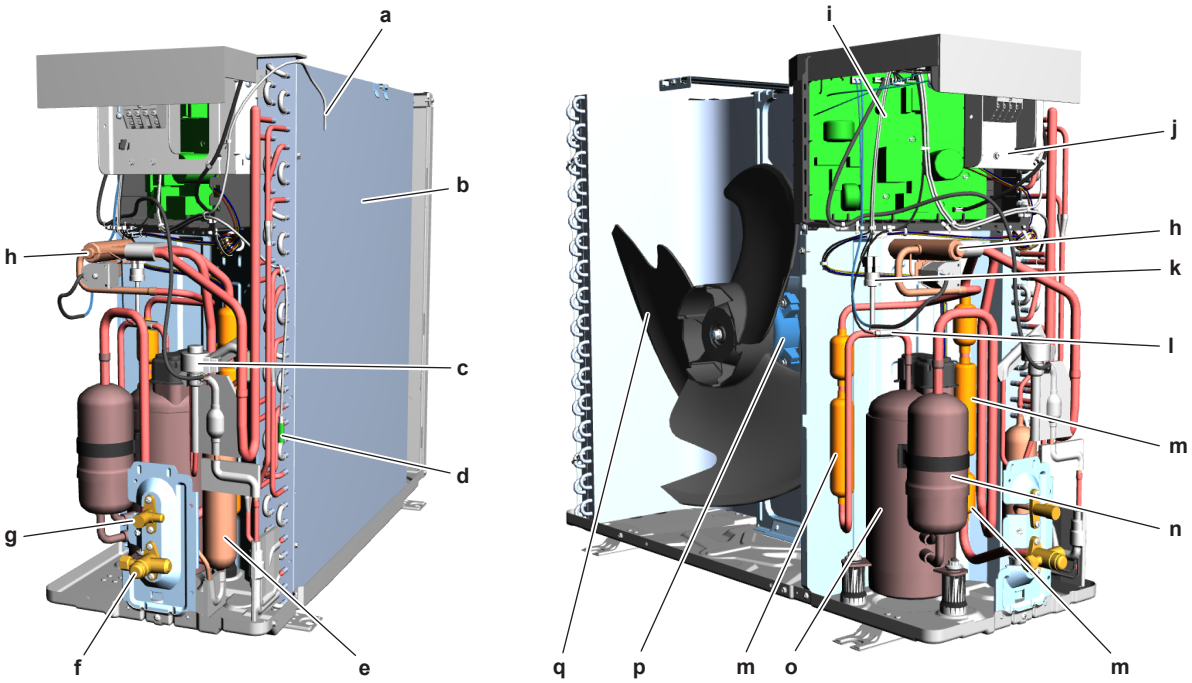
a Heat exchanger
b Heat exchanger thermistor R2T
c Fan motor
d Swing flap
e Swing flap motor
f Room thermistor R1T PCB
g Switch box
h Indoor unit PCB

ATXP-M + FTXP-M



a	Heat exchanger
b	Heat exchanger thermistor R2T
c	Fan motor
d	Swing flap
e	Swing flap motor
f	Room thermistor R1T PCB
g	Switch box
h	Indoor unit PCB
i	Swing raster motor
j	Swing raster

5.4.2 Component overview: Outdoor unit



a	Air thermistor R1T
b	Heat exchanger
c	Expansion valve
d	Heat exchanger thermistor R2T
e	Liquid receiver
f	Stop valve with service port (gas)
g	Stop valve (liquid)
h	4-way valve coil
i	Main + inverter PCB
j	Service PCB
k	High pressure switch (only for RXP50~71L, RXP50~71M and ARXP20~35M)
l	Discharge pipe thermistor R3T
m	Muffler
n	Accumulator
o	Compressor
p	Fan motor
q	Fan

5.5 Field information report

See next page.

In case a problem occurred on the unit which could not be resolved by using the content of this service manual or in case you have a problem which could be resolved but of which the manufacturer should be notified, we advise you to contact your distributor.
To facilitate the investigation, additional information is required. Please fill out the following form before contacting your distributor.

FIELD INFORMATION REPORT	
Key person information	
Name:	Company name:
Your contact details Phone number:	E-mail address:
Site address:	
Your reference:	Date of visit:
Claim information	
Title:	
Problem description:	
Error code:	Trouble date:
Problem frequency:	
Investigation steps done:	
Insert picture of the trouble.	
Current situation (solved, not solved,…):	
Countermeasures taken:	
Comments and proposals:	
Part available for return (if applicable):	

Application information
Application (house, apartment, office,…):
New project or reimbursement:
Heat emitters (radiators / under floor heating / fan coils /…):
Hydraulic layout (simple schematic):

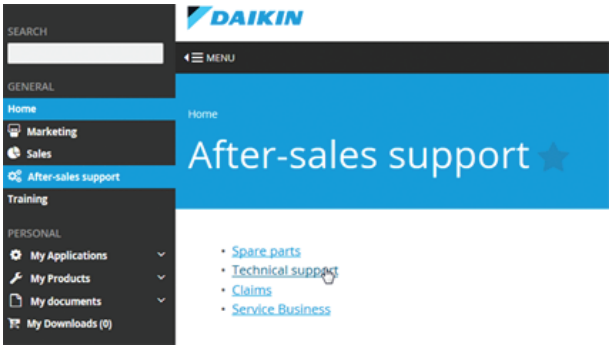
Unit / Installation information	
Model name:	Serial number:
Installation / commissioning date:	Software version hydro PCB A1P
	Software version hydro PCB A5P
Software version user interface:	Software version outdoor PCB:
Minimum water volume:	Maximum water volume:
Brine composition and mixture:	
Brine freeze up temperature:	
Space heating control (leaving water temperature, room thermostat, external room thermostat):	
Space heating setpoint:	
Domestic hot water control (reheat only, schedule only, reheat + schedule):	
Domestic hot water setpoint:	

Provide pictures of the field settings overview (viewable on the user interface).

5.6 Service tools

1 For an overview of the available service tools, check the Business Portal: http://www.mydaikin.eu.

2 Go to the tab After-sales support on the left navigation pane and select Technical support.



3 Click the button Service tools. An overview of the available service tools for the different products is shown. Also additional information on the service tools (instruction, latest software) can be found here.

5.7 Field settings

5.7.1 Field settings: Indoor unit

To control the indoor unit fan during thermostat off in cooling

1 Press TEMP, TEMP, and OFF simultaneously.
2 Press TEMP.
3 Select SU.
4 Press FAN to confirm.
5 Press TEMP.
6 Select 4.
7 Press FAN to confirm.
8 Press TEMP.
9 Select 0 (0: fan ON, 1: fan OFF).
10 Press FAN to confirm.

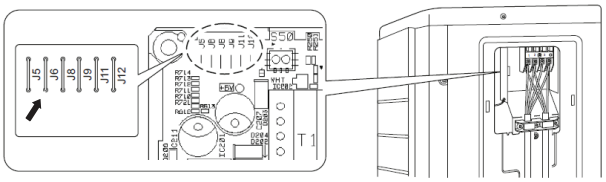
5.7.2 Field settings: Outdoor unit

To adapt the facility settings

INFORMATION

These settings are only to be used for facilities such as equipment or computer rooms and never in a residence or office with people.

1 Cut the jumper J6 on the circuit board using nippers or a similar tool to expand the operation range of the outdoor unit down to –15°C.



INFORMATION

The outdoor unit will stop operating when the temperature drops below –20°C and start back up once the temperature rises again.

2 Below is an overview of the other jumpers settings:

- J5: No function for this unit
- J8: Cold region setting (changing the operating range from –10°C to –15°C)
- J9: No function for this unit
- J11: Protection for error memory overwrite (only to be used during development)
- J12: No function for this unit







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