DAIKIN

ESIE19-12A

Service Manual

R32 Sky-Air RZAG-N

Indoor unit

FCAHG/FCAG/FFA/FBA/
FDA/FAA/FHA/FUA/FVA/
FNA 71~140

Outdoor unit

RZAG71N7V1B
RZAG100N7V1B
RZAG125N7V1B
RZAG140N7V1B

RZAG71N7Y1B
RZAG100N7Y1B
RZAG125N7Y1B
RZAG140N7Y1B

RZAG71N2V1B
RZAG100N2V1B
RZAG125N2V1B
RZAG140N2V1B

RZAG71N2Y1B
RZAG100N2Y1B
RZAG125N2Y1B
RZAG140N2Y1B

Part 1. Introduction

This part contains the following chapters:

1.1. Version log

Version code	Description	Date
ESIE19-12	Document release	29/04/20
ESIE19-12A	Outdoor unit models RZAG71N2V1B, RZAG100N2V1B, RZAG125N2V1B, RZAG140N2V1B, RZAG71N2Y1B, RZAG100N2Y1B, RZAG125N2Y1B and RZAG140N2Y1B added.	17/11/22

1.2. Safety precautions

The precautions described in this document cover very important topics, follow them carefully.

All activities described in the service manual must be performed by an authorized person.

If you are not sure how to install, operate or service the unit, contact your dealer.

In accordance with the applicable legislation, it might be necessary to provide a logbook with the product containing at least: information on maintenance, repair work, results of tests, stand-by periods, …

Also, at least, following information must be provided at an accessible place at the product:

- Instructions for shutting down the system in case of an emergency
- Name and address of fire department, police and hospital
- Name, address and day and night telephone numbers for obtaining service

In Europe, EN378 provides the necessary guidance for this logbook.

1.2.1. Meaning of symbols

	**WARNING** Indicates a situation that could result in death or serious injury.
	**WARNING: RISK OF ELECTROCUTION** Indicates a situation that could result in electrocution.
	**WARNING: RISK OF BURNING** Indicates a situation that could result in burning because of extreme hot or cold temperatures.
	**WARNING: RISK OF EXPLOSION** Indicates a situation that could result in explosion.
	**WARNING: RISK OF POISONING** Indicates a situation that could result in poisoning.
	**WARNING: RISK OF FIRE** Indicates a situation that could result in fire.
	**CAUTION** Indicates a situation that could result in equipment or property damage.
	**INFORMATION** Indicates useful tips or additional information.

1.2.2. Warnings

	**WARNING** Improper installation or attachment of equipment or accessories could result in electric shock, short-circuit, leaks, fire or other damage to the equipment. Only use accessories, optional equipment and spare parts made or approved by Daikin.

WARNING

Make sure installation, testing and applied materials comply with applicable legislation (on top of the instructions described in the Daikin documentation).

WARNING

Make sure the work site environment is clean and safe to work in. Beware of spilled fluids, like water, oil or other substances. Protect bystanders from injury and property from possible damage cause by service works.

WARNING

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

WARNING

Tear apart and throw away plastic packaging bags so that nobody, especially children, can play with them. Possible risk: suffocation.

WARNING

Do NOT touch the air inlet or aluminium fins of the unit.

WARNING

- Do NOT place any objects or equipment on top of the unit.
- Do NOT sit, climb or stand on the unit.

WARNING

During tests, NEVER pressurize the product with a pressure higher than the maximum allowable pressure (as indicated on the nameplate of the unit).

WARNING

- Never mix different refrigerants or allow air to enter the refrigerant system.
- Never charge recovered refrigerant from another unit. Use recovered refrigerant only on the same unit where it was recovered from, or have it recycled at a certified facility.

WARNING: RISK OF FIRE

- When reconnecting a connector to the PCB, do not apply force or damage the connector or the connector pins on the PCB.

WARNING: RISK OF BURNING

- Do NOT touch the refrigerant piping, water piping or internal parts during and immediately after operation. It could be too hot or too cold. Give it time to return to normal temperature. If you must touch it, wear protective gloves.
- Do NOT touch any accidental leaking refrigerant.

WARNING

Always recover the refrigerants. Do NOT release them directly into the environment. Use a recovery pump to evacuate the installation.

Take sufficient precautions in case of refrigerant leakage. If refrigerant gas leaks, ventilate the area immediately.

Possible risks:

- Excessive refrigerant concentrations in a closed room can lead to oxygen deficiency.
- Toxic gas may be produced if refrigerant gas comes into contact with fire.

Where applicable, pump down the system and close the service valve, before leaving the site if leak was not repaired, to avoid further leaking of the refrigerant.

WARNING: RISK OF ELECTROCUTION

- Turn OFF all power supply before removing the switch box cover, connecting electrical wiring or touching electrical parts. Where applicable, stop the equipment's operation first and allow (refrigerant) pressure to equalize, before turning OFF the power. Disconnect the power supply for more than 1 minute, and measure the voltage at the terminals of main circuit capacitors or electrical components before servicing. The voltage must be less than 50 V DC before you can touch electrical components. For the location of the terminals, refer to "Wiring diagram" on page 136.
- Do NOT touch electrical components with wet hands.
- Do NOT leave the unit unattended when the service cover is removed.
- Protect electric components from getting wet while the service cover is opened.

WARNING

- Only use copper wires.
- All field wiring must be performed in accordance with the wiring diagram and installation manual supplied with the product.
- If the power cable and lead wires have scratches or deteriorated, be sure to replace them. Damaged cable and wires may cause an electrical shock, excessive heat generation or fire.
- Secure all terminal connections and provide proper routing for cables, both inside and outside the switchbox.
- NEVER squeeze bundled cables and make sure they do not come in contact with the piping and sharp edges.
- Make sure no external pressure is applied to the terminal connections.
- Make sure to check the earth wiring. Do NOT earth the unit to a utility pipe, surge absorber, or telephone earth. Improper earth wiring may cause electrical shock.
- Make sure to use a dedicated power circuit. NEVER use a power supply shared by another appliance.
- Make sure to check the required fuses and/or circuit breakers before starting works.

WARNING

- After finishing the electrical work, confirm that each electrical component and terminal inside the electrical components box is connected securely.
- Make sure all covers are closed before starting the unit again.

WARNING

- The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially toxic or flammable atmospheres.
- Ensure that the leak detection equipment being used is suitable for use with all applicable refrigerants, i.e. non-sparking, adequately sealed or intrinsically safe.

WARNING

- Equipment shall be labelled stating that it has been de-commissioned and emptied of refrigerant.
- The label shall be dated and signed.
- For appliances containing flammable refrigerants, ensure that there are labels on the equipment stating the equipment contains flammable refrigerant.

1.2.3. Cautions

CAUTION

Provide adequate measures to prevent that the unit can be used as a shelter by small animals. Small animals that make contact with electrical parts can cause malfunctions, smoke or fire.

CAUTION

- Make sure water quality complies with EU directive 98/83 EC.
- Check the system for leaks after each repair/modification of the water side.
- Check drainage system(s) after repairs.
- Be careful when tilting units as water may leak.

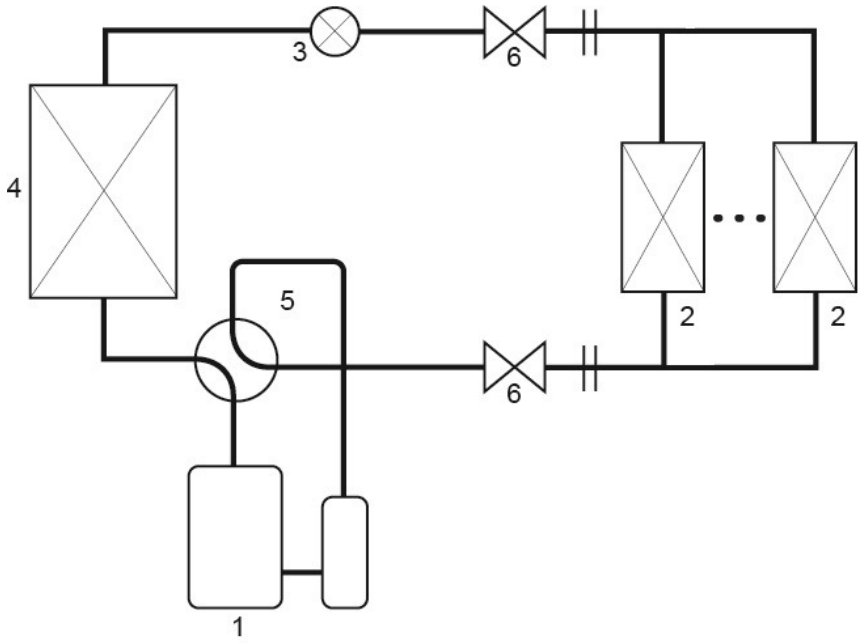
1.2.4. Information

	**INFORMATION** Make sure refrigerant piping installation complies with applicable legislation. In Europe, EN378 is the applicable standard.
	**INFORMATION** Make sure the field piping and connections are not subjected to stress.

1.3. General operation

- The Sky-Air is typically used for cooling or heating in commercial applications. Some units also have settings to perform technical cooling. The medium which is used to transfer the heat from inside to outside or vice versa, is refrigerant. In case of the RZAG-N, the refrigerant which is used, is R32.
- There are four different piping combinations to indoor units:
  - Pair
  - Twin
  - Triple
  - Double twin

  They all have the same operation principle. Unlike multi-system, they have only one main expansion valve controlling the refrigerant flow to all indoor unit(s).

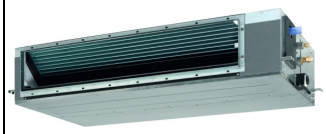


1. Compressor	4. Outdoor heat exchanger
2. Indoor heat exchanger	5. 4-way valve
3. Expansion valve	6. Stop valves

- In case of heating, the compressor builds up pressure and hence the temperature of the refrigerant is increased. The hot refrigerant is blown into the room by fan(s) which blow over heat exchanger(s). Colder refrigerant flows back to the outdoor unit, where temperature is further decreased by expansion through an expansion valve. After the expansion valve, the refrigerant is capable of taking up heat again. This is enabled by a fan that sucks outdoor air over a heat exchanger. This refrigerant is then transported to the compressor where temperature is further built up again and the cycle starts again. For cooling, it's just the other way round.

1.3.1. Indoor units

- Sky-Air systems have combination limits for different types of indoor units and also limits for piping length and connection ratio for each indoor unit combination pattern. Refer to the Engineering Databook.
- The list below is only for reference of compatible units. Always refer to Engineering Databook for compatibility.

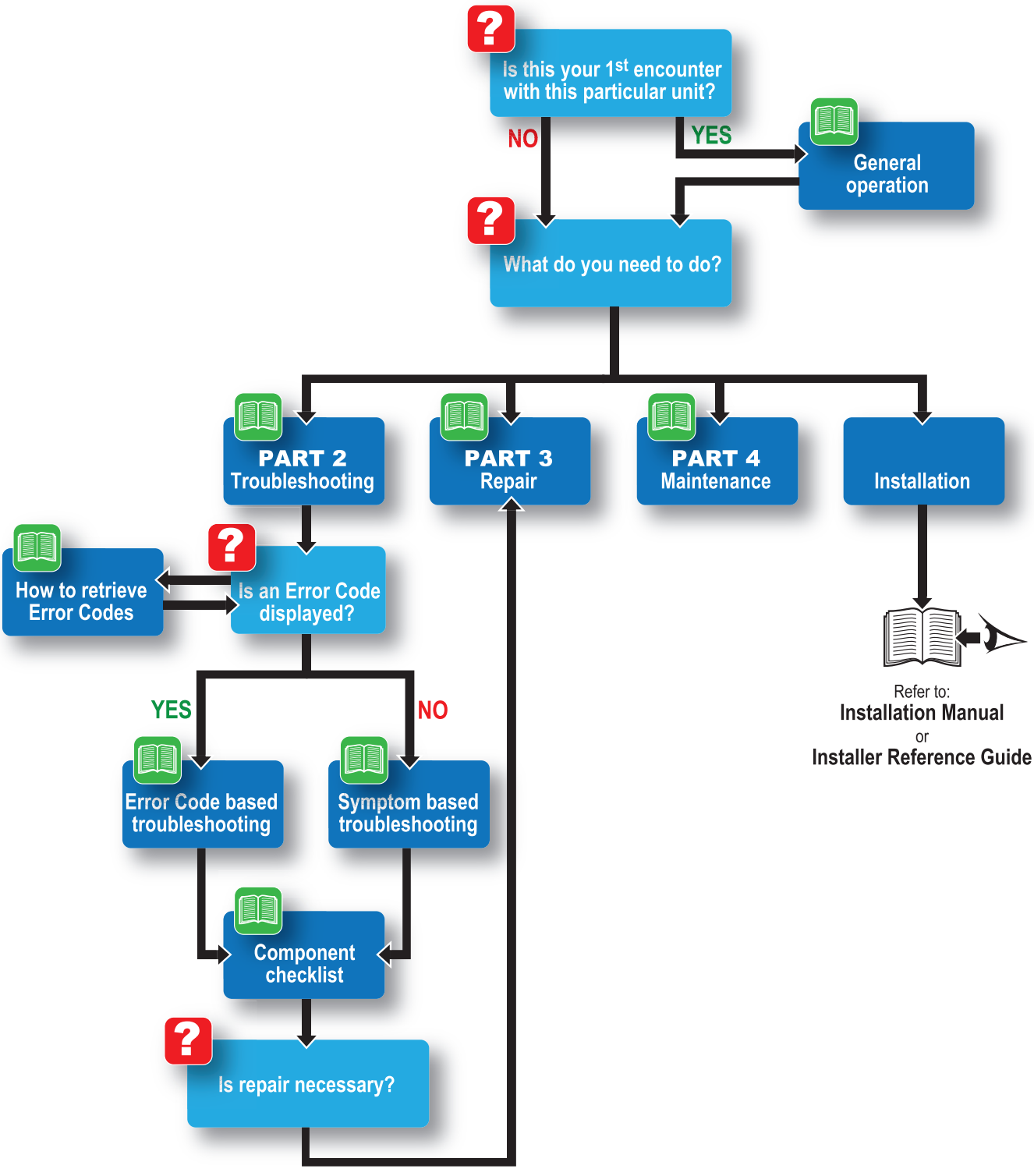
High cassette FCAG + FCAHG		2x2 cassette FFA	
Wall mounted type FAA		Duct (high ESP) FDA	
Duct (medium ESP) FBA		Ceiling mounted 4-way blow FUA	
Ceiling suspended FHA		Concealed floor standing type FNA71~140	
Floor standing type FVA			

1.4. How to use

1.4.1. Interactive information flow

This Daikin product Service Manual is intended for professional use only. The actions described hereafter, are only to be performed by qualified and certified persons, taking into account the safety precautions mentioned in this manual and the local regulations as well.

By following the diagram below, the reader can find the relevant information related to his/her task. The digital (pdf) version of this book allows direct page access through all active links. When Adobe Acrobat Reader is used, the <Alt> + <Back Arrow> keys or the arrow in the top right-hand corner of this page can be used to return to the previously viewed page.



1.4.2. Parts of the book

This Daikin product Service Manual is intended for professional use only. The actions described hereafter, are only to be performed by qualified and certified persons, taking into account the safety precautions mentioned in this manual and the local regulations as well.

As can be observed from the Table of Contents, this manual is split up into several chapters:

1.4.2.1. The introduction chapter

The chapter "Introduction" on page 9 includes the safety precautions, this topic and the general operation description of the product(s) this manual refers to.

1.4.2.2. The troubleshooting chapter

The chapter "Troubleshooting" on page 19 not only deals with the methods to recognize and resolve occurring error codes; it also describes the methods how to solve a problem that does not immediately trigger an error code. Such problems are referred to as 'symptom based'. Both the error code based and symptom based troubleshooting tables, indicate possible causes, the necessary checks and in case required, how to repair. The possible causes have been sorted to probability of occurrence and speed of execution.

1.4.2.3. The repair chapter

The chapter "Repair" on page 75 handles the removal and replacement of the major components in the product and discusses cleaning methods as well if applicable, such as for filters. Where applicable, refrigerant handling precautions are mentioned for certain actions; please consider these carefully for your own safety.

1.4.2.4. The maintenance chapter

The chapter "Maintenance" on page 119 of this manual describes the maintenance intervals and procedures to be performed on the product. Remember that a well maintained product, is a more reliable and efficient product.

1.4.2.5. Appendices

Finally, the service manual provides in chapter "Appendix" on page 121 valuable reference data such as piping/wiring diagrams, field settings overview and a checklist to be filled in when you need to escalate an issue to your dealer.

1.4.3. Contact information

This manual has been made with much care and effort. Use it in your daily jobs, as it has been made for you.

Despite our efforts, there is always a chance some cleric or other mistake has been made during the creation of this manual. We kindly ask you to send the found mistakes, or remarks for improvement, to the no-reply email address servicemanual@daikineurope.com.

Part 2. Troubleshooting

This part contains the following chapters:

2.1. Error codes check

2.1.1. Error codes via service monitoring tool

With the service monitoring tool, it is possible to monitor not only error codes but also some common retries and stepping down controls:

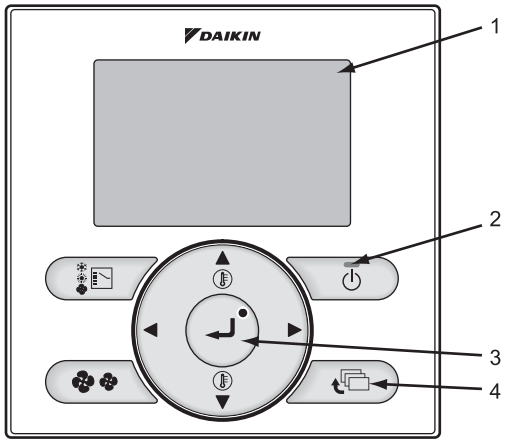
- Unit error
- Error code
- High pressure retry
- Low pressure retry
- Discharge pipe retry
- Inverter retry
- High pressure stepping down control
- Low pressure stepping down control
- Over current stepping down control
- Fin temperature stepping down control
- Compressor discharging stepping down control

2.1.2. Error codes via remote controller

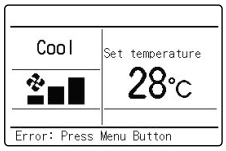
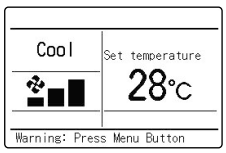
2.1.2.1. Error codes via wired remote controller BRC1E

2.1.2.1.1 How to retrieve error codes

The following message will be displayed on the screen when a malfunction or a warning occurs during operation.



1. Screen
2. Operation lamp
3. ‘menu’ button
4. ‘cancel’ button

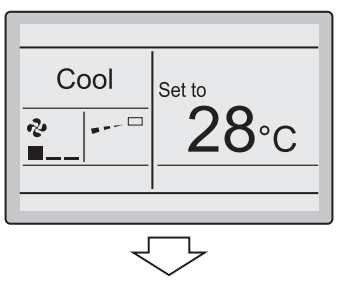
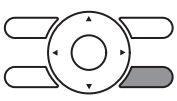
	Operation Status	Display	
Abnormal shut-down	The system stops operating.	The operation lamp (green) starts to blink. The message “Error: Press Menu button” will appear and blink at the bottom of the screen.	
Warning	The system continues its operation.	The operation lamp (green) remains on. The message “Warning: Press Menu button” will appear and blink at the bottom of the screen.	

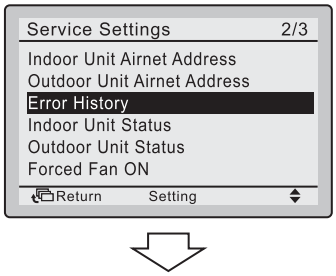
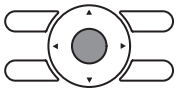
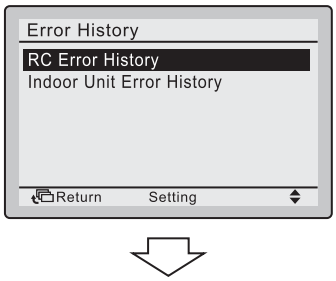
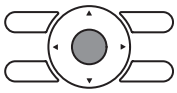
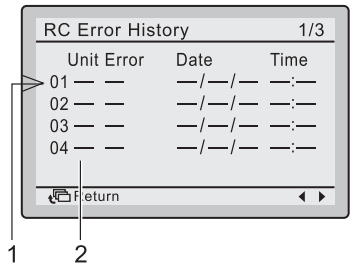
If an error or warning is present, it will be displayed on the user interface screen: for more information about troubleshooting, refer to "Error based troubleshooting" on page 30.

2.1.2.1.2 How to reset error codes

In "Error based troubleshooting" on page 30 you find a description of how to reset the specific error or warning.

2.1.2.1.3 History of error codes

			<Basic screen>	
8-1	Press and hold the Cancel button for 4 seconds or longer in the Basic screen. The Service Settings menu is displayed.	8-1		 Press and hold the Cancel button for 4 seconds or longer while the backlight is lit.

			<Service Settings>
8-2	Select *Error History* and press the Menu/Enter button. The Error History menu is displayed	8-2	
			 Press the Menu/Enter button.
8-3	Select *RC Error History* and press the Menu/Enter button. The error codes and unit No. can be confirmed in the RC Error History screen.	8-3	
			 Press the Menu/Enter button.
8-4	In the RC Error History screen the last 10 items are displayed in order.	8-4	
8-5	Press the Cancel button in the RC Error History screen 3 times. The Basic screen returns.	8-5	1. Latest record 2. Unit no.

INFORMATION

The indoor unit error history of each indoor unit can be independently consulted. The last 5 items are displayed in order of appearance.

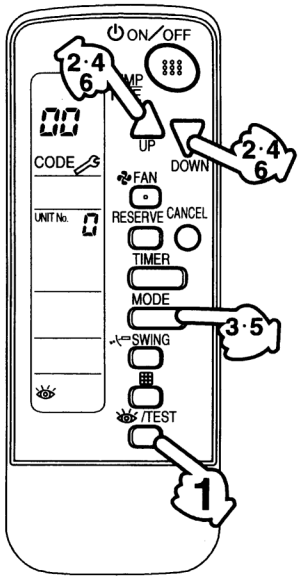
2.1.2.2. Error codes via wireless remote controller BRC7

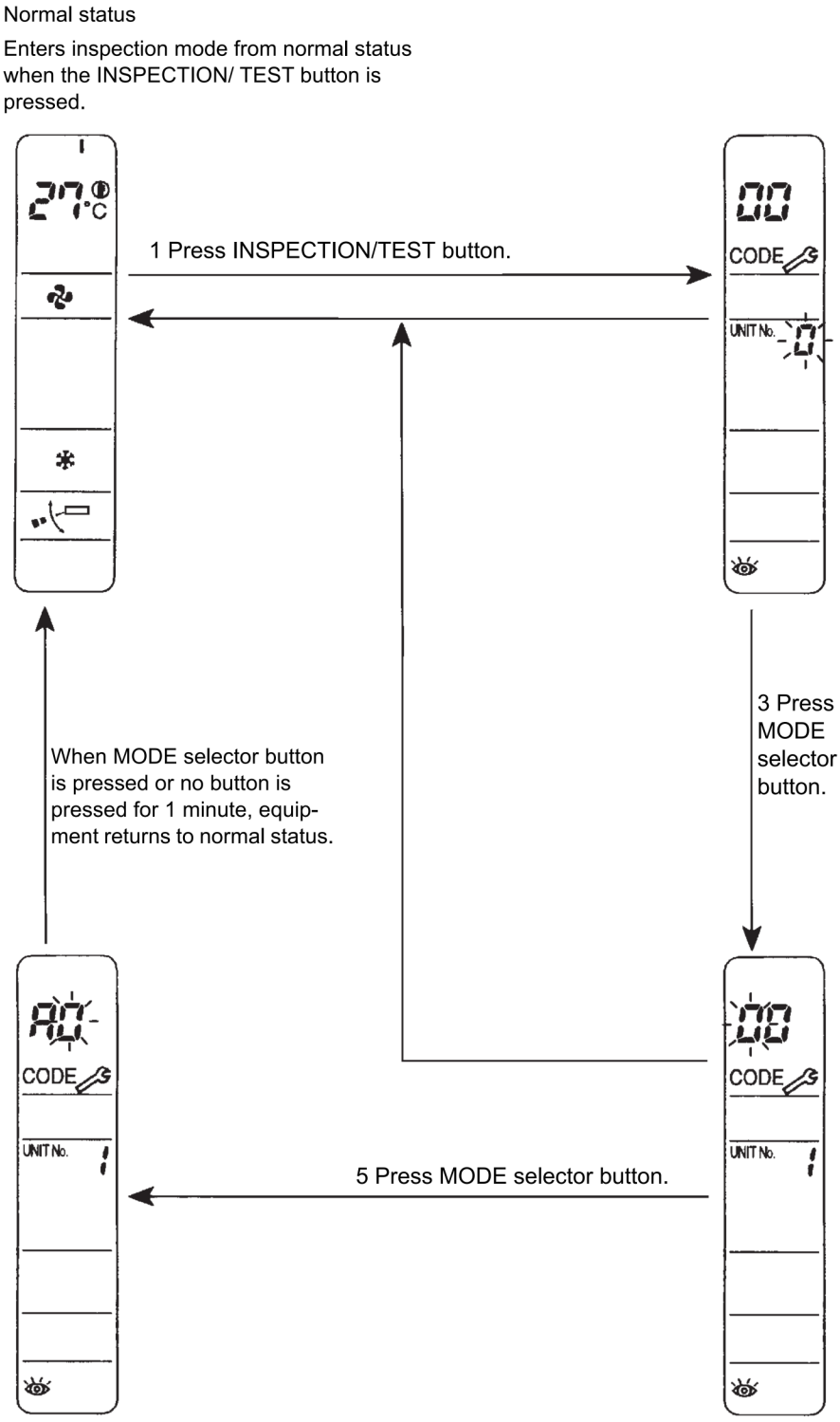
2.1.2.2.1 How to retrieve error codes

If the unit stops due to an error, the operation indicating LED on the wired remote controller/indoor unit flashes.

The error code can be determined through the wireless remote controller by following the procedure described below.

If an error or warning is present, it will be displayed on the screen: for more information about troubleshooting, refer to "Error based troubleshooting" on page 30.

1	Press the INSPECTION/TEST button to select “inspection”. The equipment enters the inspection mode. The “Unit” indication is displayed and the Unit No. display shows flashing “0” indication.	
2	Set the Unit No. Press the UP or DOWN button and change the Unit No. display until the buzzer (*1) is generated from the indoor unit. *1 Number of beeps 3 short beeps: Conduct all of the following operations. 1 short beep: Conduct steps 3 and 4. Continue the operation in step 4 until a buzzer remains ON. The continuous buzzer indicates that the error code is confirmed. Continuous beep: No abnormality.	
3	Press the MODE selector button. The left “0” (upper digit) indication of the error code flashes.	
4	Error code upper digit diagnosis Press the UP or DOWN button and change the error code upper digit until the error code matching buzzer (*2) is generated. • The upper digit of the code changes as shown below when the UP and DOWN buttons are pressed.  ⇨ “UP” button ⇦ “DOWN” button *2 Number of beeps Continuous beep: Both upper and lower digits matched. (Error code confirmed) 2 short beeps: Upper digit matched. 1 short beep: Lower digit matched.	
5	Press the MODE selector button. The right “0” (lower digit) indication of the error code flashes.	
6	Error code lower digit diagnosis Press the UP or DOWN button and change the error code lower digit until the continuous error code matching buzzer (*2) is generated. • The lower digit of the code changes as shown below when the UP and DOWN buttons are pressed.  ⇨ “UP” button ⇦ “DOWN” button	



2.1.2.2.2 How to reset error codes

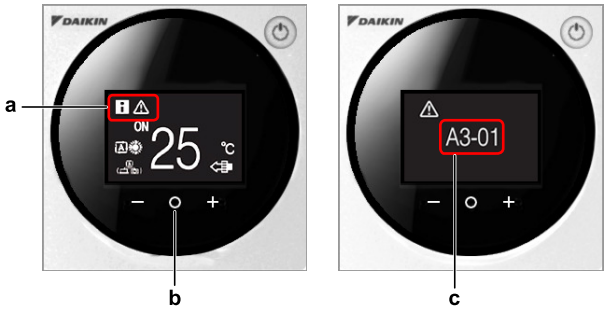
In "Error based troubleshooting" on page 30 you find a description of how to reset the specific error or warning.

2.1.2.3. Error codes via Indoor Remote Controller BRC1H

2.1.2.3.1 How to retrieve error codes

To indicate a system error, the controller displays ⚠ on the message zone (a) of the home screen.

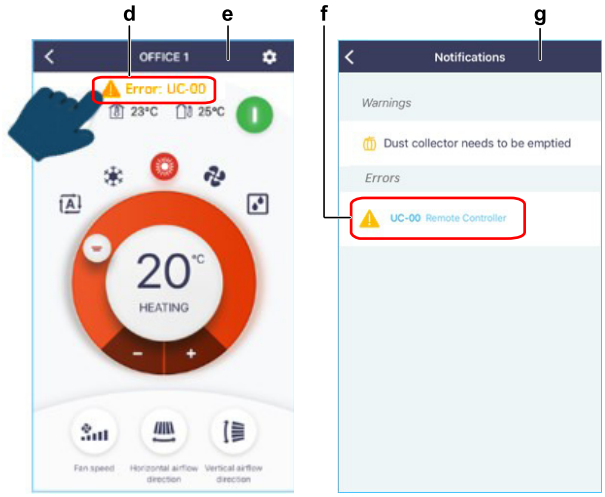
1. Press the middle button ○ (b) to enter the main menu from the home screen; an error screen is (c) displayed.



2. Press the middle button ○ (b) to return to the home screen.

Active error codes are also available through the Madoka Assistant for BRC1H.

The active error (d) is shown on the home screen (e).



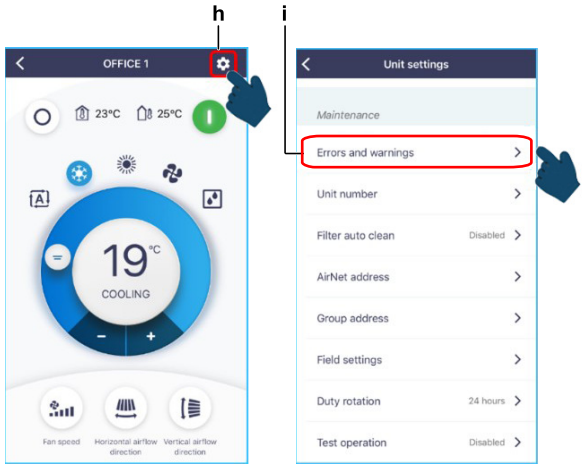
3. Tap the error message (d); the details of the error(s) (f) are shown on the notifications screen (g).

2.1.2.3.2 How to reset error codes

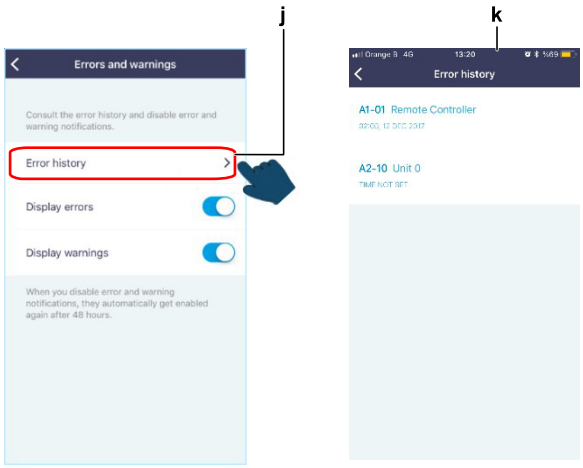
In "Error based troubleshooting" on page 30 you find a description of how to reset the specific error or warning.

2.1.2.3.3 History of error codes

1. Tap the settings icon (h); the “Unit settings” screen appears.



2. Choose “Errors and warnings” (i); the “Errors and warnings” screen appears.

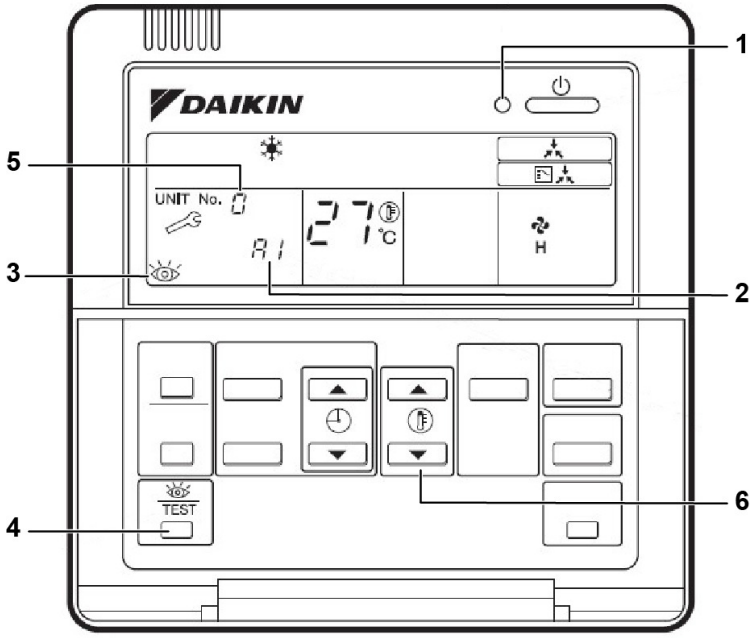


3. Choose “Error history” (j); the “Error history” screen (k) appears.

For more details on the Madoka Assistant please refer to the BRC1H training course material which is available on the Daikin Business Portal.

2.1.2.4. Error codes via wireless remote controller BRC1D

2.1.2.4.1 How to retrieve error codes



1. Remote controller's operation LED	4. TEST button
2. Error code	5. Unit No.
3. Inspection display	6. Temperature set button

If operation stops due to a malfunction, the remote controller's operation LED will blink and an error code will be displayed.

The error code will stay available at inspection mode even after forced off operation or after the error is reset.

The inspection display and error code blink while an error is active.

To access the error code while in normal operation; follow the procedure below:

1. Press TEST button once.

Error code for corresponding Unit No will be displayed.

2. Press TEST button.

Indoor unit model code will be displayed.

3. Press TEST button.

Outdoor unit model code will be displayed.

4. Press TEST button.

TEST operation will be displayed.

5. Press TEST button for the last time to return to home screen.

The home screen appears.

2.1.2.4.2 How to reset error codes

In "Error based troubleshooting" on page 30 you find a description of how to reset the specific error or warning.

2.1.2.4.3 History of error codes

To check the malfunction history, you will need to access Mode 40 on the BRC1D. Mode 40 stands for malfunction history display.

1. While in home screen, press TEST button for 5 seconds.

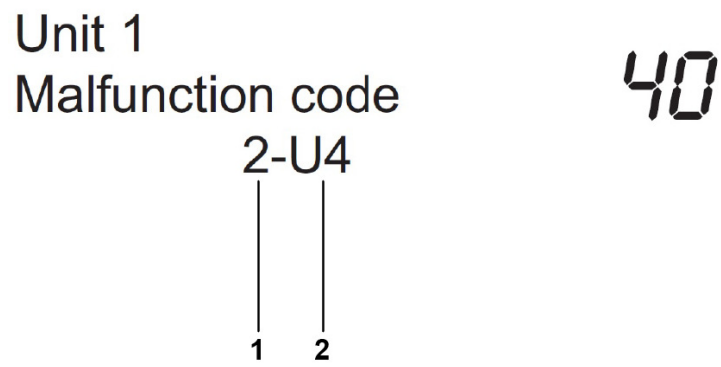
Field settings mode is accessed.

2. While in field settings mode, press TEST button for 5 seconds.

Mode 40 is accessed.

3. Push the temperature set button to change the History No. No 1 stands for the latest error.

The History No. and error code are displayed.



1. History No	2. Error code

4. Press TEST button to return to the home screen.

2.1.3. Error codes via outdoor unit PCB

2.1.3.1. How to retrieve error codes

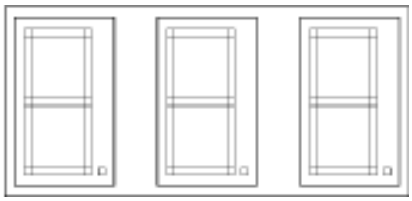
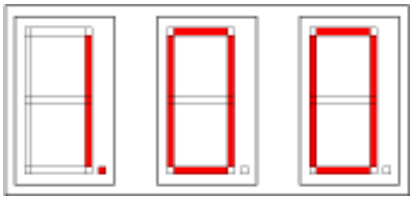
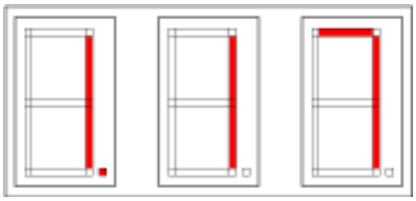
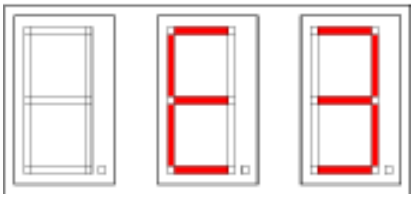
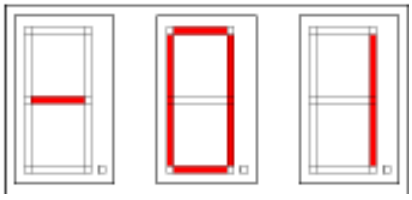
Error code descriptions are accessible on “Mode 1: Monitor Mode”.

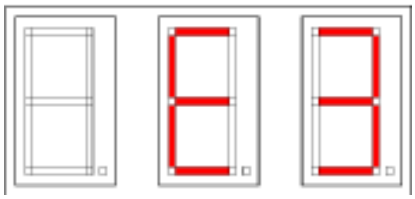
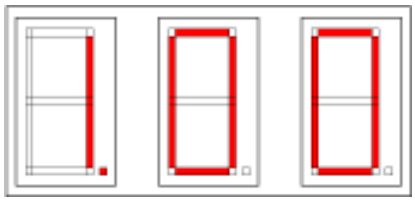
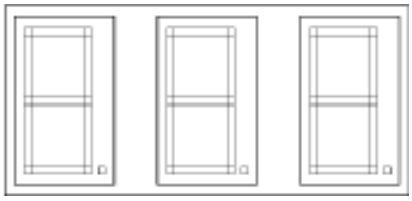
The table below shows which setting shows the error codes that led to an outdoor unit forced stop.

When an error is generated, the unit performs a forced off until the error is retrieved.The current error code will be shown on the 7-segment display. You can also access the error history on “Mode 1: Monitor Mode”.

Mode	Setting	Description
Mode 1: Monitor mode	4	Last error code
	5	2nd last error code
	6	3rd last error code

Please follow the procedure described below to access the regarding error code for outdoor unit forced stop and/or retry description:

Action	Result	Display
Make sure the 7-segment display indication is as during normal operation.		
To enter “Mode 1”, push the (BS1) button one time	Mode 1 is accessed.	
Push the (BS2) button as many times as the setting you want to go to.	The setting is accessed (e.g. 17, Error code last forced off)	
Press the RETURN (BS3) Button.	Malfunction/Retry item will appear on display.	
Press the SET (BS2) Button.	Detailed Malfunction/ Retry sub-code will appear on display.	

Action	Result	Display
Press SET (BS2) once again to return to main Malfunction/Retry display.	Main Malfunction/Retry item will appear on display.	
Press the RETURN (BS3) Button to return to Home Screen for “Monitoring Mode”.	Home Screen for “Monitoring Mode” will appear on display.	
Press the MODE (BS1) Button to return to “Normal Mode”.	Back in normal mode.	

2.2. Error based troubleshooting

Overview of error codes:

2.2.1. Indoor unit

2.2.1.1. “A0-11” – Detection of refrigerant leak

Trigger	Effect	Reset
Detect gas leakage (R32 or other gasses).	Outdoor unit stops running Indoor fan start in fan only Blinking LED.	Auto reset indoor unit after 320s no gas detection.

Possible cause	Check	Corrective action
Refrigerant leakage.	Check for refrigerant leak indoor unit.	Repair leak and recharge refrigerant if required.
No refrigerant leakage.	Check possible other gasses: hairspray, alcohol, cleaning agent,….	Ventilate the room.

2.2.1.2. “A1-01” – Indoor unit PCB abnormality

Trigger	Effect	Reset
EEPROM data is not received correctly.	Unit will stop operating.	Power reset via outdoor unit.

Possible cause	Check	Corrective action
Indoor Unit - Electrical components		
Faulty indoor PCB.	Check if error still occurs after turning off power and turning it back on again. Check if the indoor PCB receives power. Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check the wiring to indoor PCB.	Adjust power to the indoor PCB. Replace indoor PCB when HAP LED is not blinking in regular intervals. Install correct spare part or update indoor PCB. Adjust wiring to indoor PCB when required.

2.2.1.3. “A3-00” – Drain water level system abnormality

Trigger	Effect	Reset
Drain water level reaches its upper limit and float switch turns OFF.	Unit will stop operating.	Automatic reset.

Possible cause	Check	Corrective action
Defective drain pump.	Check drain pump.	Replace drain pump when required.
Improper drain piping work or clogging.	Check if drain piping is executed correctly. Check if drain piping is clogged.	Correct or clean drain piping when required.
Defective flow switch.	Check flow switch.	Replace flow switch when required.
(for optional drain pump kit) Defective short circuit connector X15A.	Check if connector is firmly connected. Check the continuity of the short circuit connector.	Connect the short circuit connector. Replace the short circuit connector when required. Replace the indoor PCB when required.

Possible cause	Check	Corrective action
Faulty indoor PCB.	Check if error still occurs after turning off power and turning it back on again. Check if the indoor PCB receives power. Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check the wiring to indoor PCB.	Adjust power to the indoor PCB. Replace indoor PCB when HAP LED is not blinking in regular intervals. Install correct spare part or update indoor PCB. Adjust wiring to indoor PCB when required.

2.2.1.4. “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 outdoor unit.

Possible cause	Check	Corrective action
Faulty indoor PCB.	Check if error still occurs after turning off power and turning it back on again. Check if the indoor PCB receives power. Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check the wiring to indoor PCB.	Adjust power to the indoor PCB. Replace indoor PCB when HAP LED is not blinking in regular intervals. Install correct spare part or update indoor PCB. Adjust wiring to indoor PCB when required.
Faulty indoor fan motor.	Check the fan motor. Check fan motor connections and wiring.	Replace fan motor when required. Adjust wiring when required.
Indoor fan motor locked.	Switch of the power. Turn fan manually.	Replace fan motor when the fan does not turn smoothly.

2.2.1.5. “AJ-00” – Capacity setting abnormality

Trigger	Effect	Reset
The capacity setting adaptor is not connected or not recognised by the indoor PCB.	Unit will stop operating.	Power reset via outdoor unit.

Possible cause	Check	Corrective action
Faulty indoor PCB.	Check if error still occurs after turning off power and turning it back on again. Check if the indoor PCB receives power. Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check the wiring to indoor PCB.	Adjust power to the indoor PCB. Replace indoor PCB when HAP LED is not blinking in regular intervals. Install correct spare part or update indoor PCB. Adjust wiring to indoor PCB when required.
Faulty capacity adapter on indoor PCB (in case of spare part PCB).	Check if the correct adapter is installed. Check if the correct spare part is installed.	Adjust capacity adapter when required.

2.2.1.6. “C1-00” – Transmission error (indoor & adapter PCB)

Trigger	Effect	Reset
When normal transmission between indoor unit PCB & adaptor PCB is not conducted for a certain duration (15 seconds or more).	Unit will stop operating.	Power reset via outdoor unit.

Possible cause	Check	Corrective action
Faulty adaptor PCB.	Check if the adaptor PCB is installed. Check if the connector X8A on the adaptor PCB is not circuited. Check the wire harness.	Adjust when required.
Faulty indoor PCB.	Check if error still occurs after turning off power and turning it back on again. Check if the indoor PCB receives power. Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check the wiring to indoor PCB.	Adjust power to the indoor PCB. Replace indoor PCB when HAP LED is not blinking in regular intervals. Install correct spare part or update indoor PCB. Adjust wiring to indoor PCB when required.
External factory (e.g. electrical noise) (cause when error is reset after power reset, and error happens again after a while).	Check for source which could cause electrical interference.	Avoid electrical interference.
Internal wiring is not OK.	Check if wiring between PCB’s is correct (refer to wiring diagram).	Correct wiring.

2.2.1.7. “C4-00” – Liquid pipe thermistor for heat exchanger abnormality

Trigger	Effect	Reset
Thermistor input is > 4.96 V or < 0.04 V during compressor operation.	Unit will stop operating.	Power reset via outdoor unit.

Possible cause	Check	Corrective action
Faulty liquid pipe thermistor.	Check liquid pipe thermistor.	Replace liquid pipe thermistor when required.
Faulty indoor unit main PCB.	Check if error still occurs after turning off power and turning it back on again. Check if the indoor PCB receives power. Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check the wiring to indoor PCB.	Adjust the power to the indoor main PCB. Replace indoor main PCB when HAP LED is not blinking in regular intervals.

2.2.1.8. “C5-00” – Intermediate heat exchanger thermistor abnormality

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

Possible cause	Check	Corrective action
Faulty Intermediate Heat Exchanger thermistor.	Check intermediate heat exchanger thermistor (see "Refrigerant thermistors" on page 72).	Replace intermediate heat exchanger thermistor when required.
Faulty indoor PCB.	Check if error still occurs after turning off power and turning it back on again. Check if the indoor PCB receives power. Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check the wiring to indoor PCB.	Adjust power to the indoor PCB. Replace indoor PCB when HAP LED is not blinking in regular intervals. Install correct spare part or update indoor PCB. Adjust wiring to indoor PCB when required.

2.2.1.9. “C9-00” – Suction air thermistor abnormality

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

Possible cause	Check	Corrective action
Faulty suction air thermistor.	Check suction air thermistor.	Replace suction air thermistor when required.
Faulty indoor PCB.	Check if error still occurs after turning off power and turning it back on again. Check if the indoor PCB receives power. Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check the wiring to indoor PCB.	Adjust power to the indoor PCB. Replace indoor PCB when HAP LED is not blinking in regular intervals. Install correct spare part or update indoor PCB. Adjust wiring to indoor PCB when required.

2.2.1.10. “CC-00” – Humidity sensor system abnormality

Trigger	Effect	Reset
The humidity sensor is disconnected or short circuit when the unit is running.	Unit will not stop operating.	Manual reset via user interface.

Possible cause	Check	Corrective action
Faulty humidity sensor.	Check good connection to indoor PCB.	Replace the humidity sensor when required.
External factory (e.g. electrical noise) (cause when error is reset after power reset, and error happens again after a while).	Check for source which could cause electrical interference.	Avoid electrical interference.

2.2.1.11. “CH-01” – Refrigerant leakage sensor abnormality

Trigger	Effect	Reset
Sensor error.	Unit will stop operating. Buzzer beeps in some of the remote controllers. Blinking LED.	Power reset via outdoor unit.

Possible cause	Check	Corrective action
Sensor connection is not OK.	Check If connection and wiring of sensor to PCB is OK.	Correct wiring connection or repair wring.
Sensor error.	Outdoor unit off and indoor fan unit will operate for 250 min.	Replace sensor and power reset outdoor unit (if needed: pump down and remove field piping).

2.2.1.12. “CJ-00” – Remote controller thermistor abnormality

Trigger	Effect	Reset
Disconnected or short circuit remote controller thermistor.	Unit will not stop operating.	Automatic reset.

Possible cause	Check	Corrective action
Indoor Unit - Electrical components		
Faulty remote controller thermistor.	Erase the error record from the remote controller.	Push the ON/OFF button on the remote controller for 5 seconds in the check mode. Replace the remote controller.
External factory (e.g. electrical noise) (cause when error is reset after power reset, and error happens again after a while).	Check for source which could cause electrical interference.	Avoid electrical interference.

2.2.2. Outdoor unit

2.2.2.1. "E1-00" – Outdoor unit PCB abnormality

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

Possible cause	Check	Corrective action
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Restore the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals.
Faulty capacity adapter on outdoor main PCB installed.	Check if the correct capacity adapter is used.	Replace capacity adapter when required.
External factor (e.g. electrical noise) (cause when error is reset after power reset, and error happens again after a while).	Check for source which could cause electrical interference.	Avoid electrical interference.
Faulty outdoor fan motor.	Check the fan motor. Check fan motor connections and wiring.	Replace fan motor when required. Adjust wiring when required.
Faulty or disturbance of the power supply (imbalance > 10%). Power drop. Short circuit.	Check if the power supply is conform with regulations. No fluctuations in frequency.	Adjust power supply when required. Power reset via outdoor unit.

2.2.2.2. "E3-00" – Discharge pressure abnormality

Trigger	Effect	Reset
High pressure switch opens due to measure pressure > 41.7 bar.	Unit will stop operating.	Manual reset via user interface.
High pressure control (measure pressure > 38 bar) occurs 16 times within 300 minutes.		

Possible cause	Check	Corrective action
Faulty high pressure switch.	Check high pressure switch.	Replace high pressure switch.
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Adjust the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals.
Faulty capacity adapter on outdoor PCB.	Check if the correct adapter is installed. Check if the correct spare part is installed.	Adjust capacity adapter when required.
Refrigerant overcharge.	Check for refrigerant overcharge. Refer to the nameplate for the correct charge.	Charge the correct refrigerant amount when required.
Humidity in refrigerant (ice formation in expansion valve).	Check for humidity in the refrigerant.	In case of suspicion of humidity, recover, vacuum and recharge with virgin refrigerant.
Non condensables in refrigerant.	Check for non condensables in refrigerant.	In case of suspicion of non condensables, recover, vacuum and recharge with virgin refrigerant.

Possible cause	Check	Corrective action
Refrigerant is contaminated.	Check for non condensables in refrigerant.	In case of suspicion of non condensables. Recover, vacuum and recharge refrigerant.
Stop valve is closed.	Check if stop valve is open.	Open stop valve when required.
Faulty outdoor fan motor.	Check the fan motor. Check fan motor connections and wiring.	Replace fan motor when required. Adjust wiring when required.

2.2.2.3. “E4-00” – Suction pressure abnormality

Trigger	Effect	Reset
When refrigerant pressure is below 0,8 bar for 5 minutes.	Unit will stop operating.	Manual reset via user interface.

Possible cause	Check	Corrective action
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Adjust the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals (see "Replacing main PCB" on page 107).
Bad contact through pressure sensor cable.	Check if pressure sensor connector is properly connected to the outdoor PCB board.	Connect or replace sensor cable when required.
Faulty capacity adapter on outdoor PCB.	Check if the correct adapter is installed. Check if the correct spare part is installed.	Adjust capacity adapter when required.
Stop valve is closed.	Check if stop valve is open.	Open stop valve when required.
Abnormal drop of low pressure, caused by inadequate refrigerant, abnormal refrigerant piping system or faulty electronic expansion valve.	Check for possible blockage. (Blockages can be checked by measuring the refrigerant/pipe temperature. Sudden drop in temperature could indicate a blockage (remark: this is not valid for the expansion valve.))	Replace the blocked part.

2.2.2.4. “E5-00” – Compressor motor lock or overheated

Trigger	Effect	Reset
Compressor overload is detected.	Unit will stop operating.	Automatic reset if the unit runs for 60 seconds without error.

Possible cause	Check	Corrective action
Faulty discharge pipe thermistor.	Check discharge pipe thermistor.	Replace discharge pipe thermistor when required.
Faulty outdoor fan motor.	Check the fan motor. Check fan motor connections and wiring.	Replace fan motor when required. Adjust wiring when required.
Faulty overload protection.	Check the overload protection. Check the overload protection connections and wiring.	Replace the overload protection when required. Adjust wiring when required.
Faulty expansion valve.	Check the expansion valve.	Replace the expansion valve body or motor when required.
Faulty 4-way valve.	Check the 4-way valve.	Replace the 4-way valve coil or body when required.

Possible cause	Check	Corrective action
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Restore the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals.
Faulty power module = faulty outdoor inverter PCB.	Check outdoor inverter PCB. Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed.	Restore the power to the outdoor inverter PCB. Replace the outdoor inverter PCB when required.
Refrigerant shortage.	Check for refrigerant shortage. Refer to the nameplate for the correct charge.	Charge the correct refrigerant amount when required.
Humidity in refrigerant (ice formation in expansion valve).	Check for humidity in the refrigerant.	In case of suspicion of humidity, recover, vacuum and recharge with virgin refrigerant.
Non condensables in refrigerant.	Check for non condensables in refrigerant.	In case of suspicion of non condensables, recover, vacuum and recharge with virgin refrigerant.
Stop valve is closed.	Check stop valve.	Open stop valve when required.

2.2.2.5. “E7-00” – Fan motor abnormality

Trigger	Effect	Reset
Fan does not start in about 15~30 seconds = fan motor lock. It can occur that E7-00 error is triggered even when the fan motor is running caused by a faulty hall signal.	Unit will not stop operating.	Automatic reset after a continuous run.
	Unit will stop operating.	Manual reset via user interface.

Possible cause	Check	Corrective action
Faulty outdoor fan motor.	Check the fan motor. Check fan motor connections and wiring.	Replace fan motor when required. Adjust wiring when required.
Faulty outdoor inverter PCB.	Check outdoor inverter PCB. Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed.	Restore the power to the outdoor inverter PCB. Replace the outdoor inverter PCB when required.
Blown fuse.	Check the fuse on the outdoor unit PCB's.	Replace fuse when required.

2.2.2.6. “E9-00” – Electronic expansion valve abnormality

Trigger	Effect	Reset
1. No continuity of expansion valve. 2. Minimum expansion valve opening and suction superheat < A K and discharge superheat < B K.	Unit will stop operating.	Manual reset via user interface. Power reset via outdoor unit.

Possible cause	Check	Corrective action
Wet operation.	Check for wet operation. (Wet operation can be detected by checking the suction superheat. If the suction superheat is 0°C then liquid refrigerant is returned to the compressor.)	In case wet operation was detected, confirm the cause: • Refrigerant overcharge. • Faulty expansion valve.

Possible cause	Check	Corrective action
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Adjust the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals.
Faulty thermistor.	Check thermistor.	Replace thermistor when required.
Faulty or disturbance of the power supply (imbalance >10%). Power drop. Short circuit.	Check if the power supply is conform with regulations. No fluctuations in frequency.	Adjust power supply when required. Power reset via outdoor unit.
Faulty expansion valve.	Check the expansion valve.	Replace the expansion valve body or motor when required.
Faulty capacity adapter on outdoor PCB.	Check if the correct adapter is installed. Check if the correct spare part is installed.	Adjust capacity adapter when required.
External factory (e.g. electrical noise) (cause when error is reset after power reset, and error happens again after a while).	Check for source which could cause electrical interference.	Avoid electrical interference.

2.2.2.7. “EA-00” – 4-way valve abnormality

Trigger	Effect	Reset
The room thermistor / indoor heat exchanger are not functioning within operation range.	Unit will not stop operating.	Automatic reset when unit runs without error for 60 minutes.
	Unit will stop operating.	Manual reset via user interface.

Possible cause	Check	Corrective action
Faulty 4-way valve coil.	Check 4-way valve coil.	Replace 4-way valve coil when required.
Faulty 4-way valve body, blocked.	Check 4-way valve body.	Replace 4-way valve body when required.
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Restore the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals.
Faulty room thermistor.	Check room thermistor.	Replace room thermistor when required.
Faulty indoor heat exchanger thermistor.	Check indoor heat exchanger thermistor.	Replace indoor heat exchanger thermistor when required.
Refrigerant shortage.	Check for refrigerant shortage. Refer to the nameplate for the correct charge.	Charge the correct refrigerant amount when required.
Humidity in refrigerant (ice formation in expansion valve).	Check for humidity in the refrigerant.	In case of suspicion of humidity, recover, vacuum and recharge with virgin refrigerant.
Non condensables in refrigerant.	Check for non condensables in refrigerant.	In case of suspicion of non condensables, recover, vacuum and recharge with virgin refrigerant.
Stop valve is closed.	Check stop valve.	Open stop valve when required.
Faulty stop valve.	Check the stop valve.	Replace the stop valve when required.
Wrong combination hybrid and outdoor unit.	Check if correct hybrid is installed.	Make official combination hybrid and outdoor unit.

2.2.2.8. "F3-00" – Discharge pipe temperature abnormality

Trigger	Effect	Reset
1. Discharge temperature is too high if the discharge temperature detected is above A°C, 10 times within 200 min.. 2. Discharge thermistor is not inserted correctly.	Unit will not stop operating.	Manual reset via remote controller if discharge temperature drops below B°C.
	Unit will stop operating.	Manual reset via remote controller.

Possible cause	Check	Corrective action
Discharge thermistor is not inserted correctly.	Check if the discharge thermistor is inserted in the correct location.	Insert the discharge thermistor in the correct location.
Refrigerant shortage.	Check for refrigerant shortage. Refer to the nameplate for the correct charge.	Charge the correct refrigerant amount when required.
Humidity in refrigerant (ice formation in expansion valve).	Check for humidity in the refrigerant.	In case of suspicion of humidity, recover, vacuum and recharge with virgin refrigerant.
Non condensables in refrigerant.	Check for non condensables in refrigerant.	In case of suspicion of non condensables, recover, vacuum and recharge with virgin refrigerant.
Stop valve is closed.	Check if stop valve is open.	Open stop valve when required.
Faulty 4-way valve.	Check the 4-way valve.	Replace the 4-way valve coil or body when required.
Faulty expansion valve.	Check the expansion valve.	Replace the expansion valve body or motor when required.
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Restore the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals.
Faulty discharge thermistor.	Check discharge thermistor.	Replace discharge thermistor when required.
Faulty heat exchanger thermistor.	Check heat exchanger thermistor.	Replace heat exchanger thermistor when required.
Faulty outdoor temperature thermistor.	Check outdoor temperature thermistor.	Replace outdoor temperature thermistor when required.

2.2.2.9. "H3-00" – High pressure switch abnormality

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

Possible cause	Check	Corrective action
Stop valve is closed.	Check if stop valve is open.	Open stop valve when required.
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Adjust the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals.
Faulty outdoor inverter PCB.	Check outdoor inverter PCB. Check if the alive led is blinking in regular intervals. Check if the correct spare part is installed.	Adjust the power to the outdoor inverter PCB. Replace outdoor inverter PCB.

Possible cause	Check	Corrective action
Faulty or disturbance of the power supply (imbalance > 10%). Power drop. Short circuit.	Check if the power supply is conform with regulations. No fluctuations in frequency.	Adjust power supply when required. Power reset via outdoor unit.
Faulty high pressure switch.	Check high pressure switch.	Replace the high pressure switch.
Faulty capacity adapter on outdoor PCB.	Check if the correct adapter is installed. Check if the correct spare part is installed.	Adjust capacity adapter when required.

2.2.2.10. “H4-00” – Low pressure switch abnormality

Trigger	Effect	Reset
When there is no continuity in the low pressure switch during compressor start.	Unit will stop operating.	Automatic reset.

Possible cause	Check	Corrective action
Refrigerant shortage.	Check for refrigerant shortage. Refer to the nameplate for the correct charge.	Charge the correct refrigerant amount when required.
Stop valve is closed.	Check if stop valve is open.	Open stop valve when required.
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Adjust the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals.
Faulty expansion valve.	Check the expansion valve.	Replace the expansion valve body or motor when required.
Faulty low pressure switch.	Check low pressure switch.	Replace low pressure switch.

2.2.2.11. “H5-00” – Malfunction of compressor overload protection

Trigger	Effect	Reset
Compressor overload protection failure.	Unit will stop operating.	Manual reset via user interface.

Possible cause	Check	Corrective action
Open circuit of connector.	Check if the circuit from Q1E to X33A is normal.	Correct wiring connection or repair wring
Faulty overload protection relay.	Perform a check of overload protection relay and wiring. Overload protection is activated at 120(±3)°C.	Replace overload protection relay if required
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Adjust the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals.

2.2.2.12. "H9-00" – Outdoor air temperature thermistor abnormality

Trigger	Effect	Reset
Thermistor input voltage is > 4.96 V or < 0.04 V when power is on.	Unit will stop operating.	Manual reset via user interface.

Possible cause	Check	Corrective action
Faulty outdoor air temperature thermistor.	Check outdoor temperature thermistor.	Replace outdoor temperature thermistor when required.
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Restore the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals.

2.2.2.13. "J3-00" – Discharge pipe thermistor abnormality

Trigger	Effect	Reset
Thermistor input voltage is > 4.96 V or < 0.04 V when power is on.	Unit will stop operating.	Manual reset via user interface.
Discharge pipe temperature is lower than the heat exchanger temperature.		

Possible cause	Check	Corrective action
Faulty discharge pipe thermistor.	Check discharge pipe thermistor.	Replace discharge pipe thermistor when required.
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Restore the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals.

2.2.2.14. "J5-00" – Suction pipe thermistor abnormality

Trigger	Effect	Reset
Suction pipe thermistor detects an abnormal value (open or short circuit).	Unit will stop operating.	Automatic reset.

Possible cause	Check	Corrective action
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Adjust the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals.
Faulty suction pipe thermistor.	Check suction pipe thermistor.	Replace suction pipe thermistor when required.
Faulty capacity adapter on outdoor PCB.	Check if the correct adapter is installed. Check if the correct spare part is installed.	Adjust capacity adapter when required.

2.2.2.15. "J6-00" – Outdoor heat exchanger thermistor abnormality

Trigger	Effect	Reset
Thermistor input voltage is > 4.96 V or < 0.04 V when power is on.	Unit will stop operating.	Manual reset via user interface.

Possible cause	Check	Corrective action
Faulty heat exchanger thermistor.	Check heat exchanger thermistor.	Replace heat exchanger thermistor when required.
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Restore the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals.

2.2.2.16. "J7-00" – Intermediate heat exchanger thermistor abnormality

Trigger	Effect	Reset
Intermediate heat exchanger thermistor R5T detects an abnormal value (open or short circuit).	Unit will stop operating.	Automatic reset.

Possible cause	Check	Corrective action
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Adjust the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals.
Faulty intermediate heat exchanger thermistor.	Check intermediate heat exchanger thermistor.	Replace intermediate heat exchanger thermistor when required.
Faulty capacity adapter on outdoor PCB.	Check if the correct adapter is installed. Check if the correct spare part is installed.	Adjust capacity adapter when required.

2.2.2.17. "J8-00" – Liquid pipe thermistor abnormality

Trigger	Effect	Reset
Liquid pipe thermistor detects an abnormal value (open or short circuit).	Unit will stop operating.	Automatic reset.

Possible cause	Check	Corrective action
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Adjust the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals.
Faulty liquid pipe thermistor.	Check liquid pipe thermistor.	Replace liquid pipe thermistor when required.
Faulty capacity adapter on outdoor PCB.	Check if the correct adapter is installed. Check if the correct spare part is installed.	Adjust capacity adapter when required.

2.2.18. "L1-00" – Outdoor main PCB abnormality

Trigger	Effect	Reset
Outdoor main PCB detects current/voltage errors.	Unit will stop operating.	Manual reset via user interface. Power reset via outdoor unit.

Possible cause	Check	Corrective action
Blown fuse.	Check fuse on outdoor main PCB.	Replace fuse if blown.
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Adjust the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals.
Faulty outdoor inverter PCB.	Check outdoor inverter PCB. Check if the alive led is blinking in regular intervals. Check if the correct spare part is installed.	Adjust the power to the outdoor inverter PCB. Replace outdoor inverter PCB.
Faulty compressor.	Check compressor. Check connections and wiring of the compressor. Check expansion valve (liquid back issue). Check the refrigerant charge. Refer to the nameplate for correct charge.	Replace compressor when required. Investigate reason of breakdown. Replace expansion valve when required. Fix possible leak.
Faulty or disturbance of the power supply (imbalance > 10%). Power drop. Short circuit.	Check if the power supply is conform with regulations. No fluctuations in frequency.	Adjust power supply when required. Power reset via outdoor unit.
Faulty outdoor fan motor.	Check the fan motor. Check fan motor connections and wiring.	Replace fan motor when required. Adjust wiring when required.
Faulty capacity adapter on outdoor PCB.	Check if the correct adapter is installed. Check if the correct spare part is installed.	Adjust capacity adapter when required.
External factory (e.g. electrical noise). (cause when error is reset after power reset, and error happens again after a while).	Check for source which could cause electrical interference.	Avoid electrical interference.

2.2.19. "L4-00" – Inverter radiating fin temperature abnormality

Trigger	Effect	Reset
Radiation fin temperature rise is detected.	Unit will stop operating.	Manual reset via user interface.

Possible cause	Check	Corrective action
Faulty outdoor unit fan motor.	Check the fan motor. Check fan motor connections and wiring.	Replace fan motor when required. Adjust wiring when required.
Faulty or disturbance of the power supply (imbalance > 10%). Power drop. Short circuit.	Check if the power supply is conform with regulations. No fluctuations in frequency.	Adjust power supply when required. Power reset via outdoor unit.
Faulty radiating fin thermistor.	Check radiating fin thermistor.	Replace radiating fin thermistor when required.

Possible cause	Check	Corrective action
Faulty outdoor unit PCB in which radiating fin thermistor is connected.	Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check if outdoor main PCB receives power.	Restore the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals.
Silicon grease is not applied properly on the radiation fin.	Check the silicon grease on the outdoor unit PCB.	Adjust silicon grease when required.

2.2.2.20. "L5-00" – Inverter instantaneous overcurrent (AC output)

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.

Possible cause	Check	Corrective action
Installation of the unit is not in line with specifications.	Check the installation specifications. Refer to the installation manual.	Adjust the installation when required.
Refrigerant shortage.	Check for refrigerant shortage. Refer to the nameplate for the correct charge.	Charge the correct refrigerant amount when required.
Humidity in refrigerant (ice formation in expansion valve).	Check for humidity in the refrigerant.	In case of suspicion of humidity, recover, vacuum and recharge with virgin refrigerant.
Non condensables in refrigerant.	Check for non condensables in refrigerant.	In case of suspicion of non condensables, recover, vacuum and recharge with virgin refrigerant.
Stop valve is closed.	Check stop valve.	Open stop valve when required.
Faulty power module = faulty outdoor inverter PCB.	Check outdoor inverter PCB. Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed.	Restore the power to the outdoor inverter PCB. Replace the outdoor inverter PCB when required.
Faulty compressor.	Check compressor. Check connections and wiring of the compressor. Check expansion valve (liquid back issue). Check the refrigerant charge. Refer to the nameplate for correct charge.	Replace compressor when required. Investigate reason of breakdown. Replace expansion valve when required. Fix possible leak.
Faulty or disturbance of the power supply (imbalance > 10%). Power drop. Short circuit.	Check if the power supply is conform with regulations. No fluctuations in frequency.	Adjust power supply when required. Power reset via outdoor unit.

2.2.2.21. "L8-00" – Electronic thermal overload

Trigger	Effect	Reset
When compressor overload (except during start-up) is detected.	Unit will stop operating.	Manual reset via user interface.

Possible cause	Check	Corrective action
Refrigerant circuit is clogged.	Check for possible blockage.	Replace blocked part when required.
Refrigerant overcharge.	Check for refrigerant overcharge. Refer to the nameplate for the correct charge.	Charge the correct refrigerant amount when required.

Possible cause	Check	Corrective action
Refrigerant is contaminated.		Replace refrigerant.
Faulty outdoor inverter PCB.	Check outdoor inverter PCB. Check if the alive led is blinking in regular intervals. Check if the correct spare part is installed.	Adjust the power to the outdoor inverter PCB. Replace outdoor inverter PCB.
Faulty compressor	Check compressor. Check connections and wiring of the compressor. Check expansion valve (liquid back issue). Check the refrigerant charge. Refer to the nameplate for correct charge.	Replace compressor when required. Investigate reason of breakdown. Replace expansion valve when required. Fix possible leak.

2.2.2.22. “L9-00” – Stall prevention time lag

Trigger	Effect	Reset
Outdoor inverter PCB detects compressor overload at start up.	Unit will stop operating.	Manual reset via user interface.

Possible cause	Check	Corrective action
Refrigerant circuit is clogged.	Check for possible blockage.	Replace blocked part when required.
Refrigerant condition is not OK (HP-LP > 0,2 MPa at start-up).	Check refrigerant condition.	
Faulty outdoor inverter PCB.	Check outdoor inverter PCB. Check if the alive led is blinking in regular intervals. Check if the correct spare part is installed.	Adjust the power to the outdoor inverter PCB. Replace outdoor inverter PCB.
Faulty compressor.	Check compressor. Check connections and wiring of the compressor. Check expansion valve (liquid back issue). Check the refrigerant charge. Refer to the nameplate for correct charge.	Replace compressor when required. Investigate reason of breakdown. Replace expansion valve when required. Fix possible leak.

2.2.2.23. “LC-00” – Transmission system abnormality

Trigger	Effect	Reset
No transmission between outdoor main PCB and outdoor inverter PCB.	Unit will stop operating.	Automatic reset.

Possible cause	Check	Corrective action
Internal wiring is not OK.	Check if wiring between PCB’s. (refer to wiring diagram).	Correct wiring.
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Adjust the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals.

Possible cause	Check	Corrective action
Faulty outdoor inverter PCB.	Check outdoor inverter PCB. Check if the alive led is blinking in regular intervals. Check if the correct spare part is installed.	Adjust the power to the outdoor inverter PCB. Replace outdoor inverter PCB.
Faulty capacity adapter on outdoor PCB.	Check if the correct adapter is installed. Check if the correct spare part is installed.	Adjust capacity adapter when required.
External factory (e.g. electrical noise). (cause when error is reset after power reset, and error happens again after a while).	Check for source which could cause electrical interference.	Avoid electrical interference.

2.2.2.24. “P1-00” – Open phase or power supply voltage imbalance

Trigger	Effect	Reset
Outdoor inverter PCB detects incorrect power supply.	Unit will stop operating.	Manual reset via user interface. Automatic reset.

Possible cause	Check	Corrective action
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Adjust the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals.
Faulty outdoor inverter PCB.	Check outdoor inverter PCB. Check if the alive led is blinking in regular intervals. Check if the correct spare part is installed.	Adjust the power to the outdoor inverter PCB. Replace outdoor inverter PCB.
Faulty or disturbance of the power supply (imbalance > 10%). Power drop. Short circuit.	Check if the power supply is conform with regulations. No fluctuations in frequency.	Adjust power supply when required. Power reset via outdoor unit.
Faulty capacity adapter on outdoor PCB.	Check if the correct adapter is installed. Check if the correct spare part is installed.	Adjust capacity adapter when required.

2.2.2.25. “P4-00” – Radiating fin temperature sensor abnormality

Trigger	Effect	Reset
Radiating fin thermistor input voltage is < 0.04 V or > 4.96 V when power is on.	Unit will stop operating.	Manual reset via user interface.

Possible cause	Check	Corrective action
Faulty radiating fin thermistor.	Check radiating fin thermistor.	Replace radiating fin thermistor when required.
Faulty outdoor unit PCB in which radiating fin thermistor is connected.	Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Restore the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals.

2.2.2.26. “PJ-00” – Capacity setting abnormality

Trigger	Effect	Reset
Outdoor main PCB detects a defective capacity in EEPROM.	Unit will stop operating.	Manual reset via user interface. Power supply reset.

Possible cause	Check	Corrective action
Position of PCB dip switches are not OK.	Check if dip switches are set to default (OFF) position.	
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Adjust the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals.
Faulty capacity adapter on outdoor PCB.	Check if the correct adapter is installed. Check if the correct spare part is installed.	Adjust capacity adapter when required.

2.2.3. System

2.2.3.1. “U0-00” – Refrigerant shortage

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

Possible cause	Check	Corrective action
Faulty air thermistor.	Check air thermistor.	Replace air thermistor when required.
Faulty discharge thermistor.	Check discharge thermistor.	Replace discharge thermistor when required.
Faulty outdoor heat exchanger thermistor.	Check outdoor heat exchanger thermistor.	Replace outdoor heat exchanger thermistor when required.
Stop valve is closed.	Check stop valve.	Open stop valve when required.
Refrigerant shortage.	Check for refrigerant shortage. Refer to the nameplate for the correct charge.	Charge the correct refrigerant amount when required.
Humidity in refrigerant (ice formation in expansion valve).	Check for humidity in the refrigerant.	In case of suspicion of humidity, recover, vacuum and recharge with virgin refrigerant.
Non condensables in refrigerant.	Check for non condensables in refrigerant.	In case of suspicion of non condensables, recover, vacuum and recharge with virgin refrigerant.
Faulty compressor.	Check compressor. Check connections and wiring of the compressor. Check expansion valve (liquid back issue). Check the refrigerant charge. Refer to the nameplate for the correct charge.	Replace compressor when required. Investigate reason of breakdown. Replace expansion valve when required. Fix possible leak.
Faulty expansion valve.	Check the expansion valve.	Replace the expansion valve body or motor when required.

2.2.3.2. “U1-00” – Reverse phase or open phase

Trigger	Effect	Reset
Outdoor main PCB detects incorrect power supply.	Unit will stop operating.	Manual reset via user interface. Automatic reset.

Possible cause	Check	Corrective action
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Adjust the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals.
Faulty or disturbance of the power supply (imbalance > 10%). Power drop. Short circuit.	Check if the power supply is conform with regulations. No fluctuations in frequency.	Adjust power supply when required. Power reset via outdoor unit.
Faulty capacity adapter on outdoor PCB.	Check if the correct adapter is installed. Check if the correct spare part is installed.	Adjust capacity adapter when required.

2.2.3.3. "U2-00" – Power supply abnormality or instantaneous power failure

Trigger	Effect	Reset
There is no zero-cross detected in approximately 10 seconds (indoor unit PCB).	Unit will stop operating.	Power reset via outdoor unit.
Abnormal voltage drop (< 150-180 V) is detected by the DC voltage detection circuit.	Unit will stop operating.	Automatic restart after compressor stand-by of 3 minutes.
Abnormal voltage rise is detected by the over-voltage detection circuit.	Unit will stop operating.	Automatic restart after compressor stand-by of 3 minutes.

Possible cause	Check	Corrective action
Faulty or disturbance of the power supply (imbalance > 10%). Power drop. Short circuit.	Check if the power supply is conform with regulations. No fluctuations in frequency.	Adjust power supply when required. Power reset via outdoor unit.
Defective DC voltage detection circuit.	Check PCB with DC voltage detection circuit.	Replace PCB when required.
Defective over-voltage detection circuit.	Check PCB with over-voltage detection circuit.	Replace PCB when required.
Defective PAM control part.	Check PAM control part.	Replace PAM control part when required.
Faulty compressor.	Check compressor. Check connections and wiring of the compressor. Check expansion valve (liquid back issue). Check the refrigerant charge. Refer to the nameplate for correct charge.	Replace compressor when required. Investigate reason of breakdown. Replace expansion valve when required. Fix possible leak.
Faulty outdoor fan motor.	Check the fan motor. Check fan motor connections and wiring.	Replace fan motor when required. Adjust wiring when required.
Momentary drop of voltage.	-	Wait until compressor restarts.
Momentary power failure.	-	Wait until compressor restarts.
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Restore the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals.
Faulty indoor unit main PCB.	Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check if the indoor main PCB receives power.	Restore the power to the indoor main PCB. Replace indoor main PCB when HAP LED is not blinking in regular intervals.

2.2.3.4. "U4-00" – Transmission abnormality between indoor unit and outdoor unit

Trigger	Effect	Reset
Data sent from outdoor unit cannot be received normally, content of the send data is abnormal.	Unit will stop operating.	Power reset via outdoor unit.

Possible cause	Check	Corrective action
Faulty or disturbance of the power supply (imbalance > 10%). Power drop. Short circuit.	Check if the power supply is conform with regulations. No fluctuations in frequency.	Adjust power supply when required. Power reset via outdoor unit.

Possible cause	Check	Corrective action
Wiring abnormality between indoor unit and outdoor unit.	Check wiring between indoor unit and outdoor unit.	Adjust wiring between indoor unit and outdoor unit when required. Replace wiring between indoor unit and outdoor unit when required.
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Restore the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals.
Faulty outdoor fan motor.	Check the fan motor. Check fan motor connections and wiring.	Replace fan motor when required. Adjust wiring when required.
Faulty indoor unit main PCB.	Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check if the indoor main PCB receives power.	Restore the power to the indoor main PCB. Replace indoor main PCB when HAP LED is not blinking in regular intervals.
Standby electricity saving mode is ON but there is a sky-air indoor installed on the unit.	If the indoor unit is NOT a sky-air indoor. This mode is only compatible with split indoor units.	Put “standby electricity saving function” OFF (see installation manual).

2.2.3.5. “UA-00” – Improper combination of indoor unit and outdoor unit

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

Possible cause	Check	Corrective action
Improper combination of indoor unit and outdoor unit.	Check combination.	Adjust installation when required.
Wiring abnormality between indoor unit and outdoor unit.	Check wiring between indoor unit and outdoor unit.	Adjust wiring between indoor unit and outdoor unit when required. Replace wiring between indoor unit and outdoor unit when required.
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Restore the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals.
Faulty indoor unit main PCB.	Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check if the indoor main PCB receives power.	Restore the power to the indoor main PCB. Replace indoor main PCB when HAP LED is not blinking in regular intervals.
Standby electricity saving mode is ON but there is a sky-air indoor installed on the unit.	If the indoor unit is NOT a sky-air indoor. This mode is only compatible with split indoor units.	Put “standby electricity saving function” OFF (see installation manual).

2.2.3.6. “UF-00” – Wiring and piping mismatch

Trigger	Effect	Reset
When the interunit wiring between indoor and outdoor unit is incorrect. Piping abnormality.	Unit will stop operating.	Automatic reset.

Possible cause	Check	Corrective action
Faulty wiring between indoor and outdoor unit.	Check wiring between indoor and outdoor unit.	Correct wiring.
Refrigerant shortage (incorrect charge/leakage).	Check for refrigerant shortage. Perform a leak test.	If required, repair the leak and charge the correct amount of refrigerant.
Refrigerant circuit is clogged.	Check for possible blockage (Blockages can be checked by measuring the refrigerant/pipe temperature. Sudden drop in temperature could indicate a blockage. (Remark: This is not valid for the expansion valve.)).	

2.3. Symptom based troubleshooting

Overview of symptom based troubleshooting:

2.3.1. 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 air thermistor.	• Check the resistance of the outdoor air thermistor. • Check the connection of the outdoor air thermistor.
When the operation lamp blinks, there may be an error code, activating the protection device. Diagnose with remote controller indication.	See "Error based troubleshooting" on page 30.
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?

2.3.2. 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 air thermistor.	• Check the resistance of the outdoor air thermistor. • Check the connection of the outdoor air thermistor.
When the operation lamp blinks, there may be an error code, activating the protection device. Diagnose with remote controller indication.	See "Error based troubleshooting" on page 30.

2.3.3. 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 internal leakage of the 4-way valve	• After compressor running for 10 minutes, is there a temperature difference between the suction pipe and the discharge pipe? • Is the pressure difference between the internal service port (small) and the gas pipe service port sufficient (>0.3MPa)?

2.3.4. 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.

2.3.5. Abnormal high pressure

2.3.5.1. In cooling mode

Check	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 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.

2.3.5.2. In heating mode

Check	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.

2.3.6. 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.

2.3.6.1. In cooling mode

Check	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 check valve (if applicable) clogged?	Check if there is a temperature difference before and after check valve. If YES, the check valve is clogged.

Check	Detail
Is there a shortage of refrigerant?	Conduct refrigerant collection and vacuum drying, and then add proper amount refrigerant.

2.3.6.2. In heating mode

Check	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 check valve (if applicable) clogged?	Check if there is a temperature difference before and after check valve. If YES, the check valve is clogged.
Is the outdoor unit installed under such conditions that short circuit easily occurs?	Visual inspection
Is there a shortage of refrigerant?	Conduct refrigerant collection and vacuum drying, and then add proper amount refrigerant.

2.3.7. 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 HAP LED's (if applicable).	• 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.

2.3.8. 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	Detail
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.

2.3.9. Operation stops, unit can not 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.

2.3.10. 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.

2.4. Component checklist

Overview of component checklists:

2.4.1. Indoor unit

2.4.1.1. Fan motor

Technical specification		Description	
The motor has a single connector for DC power and the rotation counter feed back from the integrated pulse generator (4 pulses/revolution).		The fan motor runs on a fixed speed to supply the required air flow rate.	
Location			
Piping diagram	**Wiring diagram**	**Switch box**	**Component overview of unit**
See "Indoor unit" on page 148.	See "Indoor unit" on page 136.	Not applicable.	Not applicable.
Check procedure			

Mechanical check

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove casing when required.

PROCEDURE

1. Check the state of the rotor, replace the rotor if damaged, deformed, cracked or broken.
2. Check the motor shaft bearing friction, only perform electrical check if motor runs with low shaft bearing friction. Replace fan motor if friction is abnormal.

Electrical check

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove casing when required.

PROCEDURE

1. Check fuse on indoor PCB, replace if blown.

WARNING: RISK OF FIRE

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

2. Check if fan motor connector is plugged into PCB.
3. Power the Daikin unit.
4. Check power supply, the measured voltage must be 198 - 240 VAC, if not replace indoor PCB.

2.4.2. Outdoor unit

2.4.2.1. 4-way valve

Technical specification	Description	
-	The 4-way valve directs the super heated refrigerant discharged from the compressor to the indoor heat exchanger in case of heating operation or to the outdoor heat exchanger in case of defrosting and cooling operation.	
Location		
Piping diagram	**Wiring diagram**	**Component overview of unit**
See "Outdoor unit" on page 152.	See "Outdoor unit" on page 145.	See "Outdoor unit" on page 153.
Check procedure		
Mechanical check		

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required (refer to "Basic removal" on page 81).

PROCEDURE

1. Loosen the screw and remove the coil from the 4-way valve (refer to "Replacing 4-way valve coil" on page 89).

> **WARNING: RISK OF FIRE**
>
> When reconnecting a connector to the PCB, do not apply force, as this may damage the connector or connector pins of the PCB.

2. Unplug 4-way valve connector from applicable PCB, see table "Component checklist" on page 162.
3. Switch the circuit breaker on.
4. Switch on the Daikin unit via the user interface, start cooling/defrost operation.

   If the temperature after the heat exchanger drops, proceed with next step.

   If the temperature after the heat exchanger rises, the 4-way valve is stuck in heating position, replace the 4-way valve body (refer to "Replacing 4-way valve body" on page 87).

   If the temperature after the heat exchanger does not rise, check the refrigerant pressure by connecting a manifold to one of the service ports.

   - If no pressure is measured, perform a pressure test and fix any leaks.
   - If pressure is measured, the 4-way valve is stuck in the middle, confirm by determining the position of the 4-way valve as described below and replace the 4-way valve (refer to "Replacing 4-way valve body" on page 87).

> **CAUTION - RISK OF LIQUID ENTERING THE COMPRESSOR**
>
> To prevent damage to the compressor the step below must only be done once.

5. While listening to the 4-way valve, place a round permanent magnet on the core of the solenoid valve. If you do not hear the 4-way valve switching, it must be replaced (refer to "Replacing 4-way valve body" on page 87).

Electrical check

PRELIMINARY ACTIONS

1. Switch off Daikin unit via the user interface.
2. Switch off Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required (refer to "Basic removal" on page 81).

PROCEDURE

1. Switch on the Daikin unit, start heating operation.

> **WARNING: RISK OF FIRE**
>
> When reconnecting a connector to the PCB, do not apply force, as this may damage the connector or connector pins of the PCB.

2. Measure the voltage on 4-way valve connector: pin 1-3, see table "Component checklist" on page 162. If the measured voltage does not range 220-240 VAC during switching / 15 VAC after switching, unplug 4-way valve connector from PCB and measure the voltage directly on the PCB: pin 1-3 of 4-way valve connection.
   - If the voltage, measured directly on the PCB does not range 220-240 VAC during switching / 15 VAC after switching, replace main PCB.
   - If the voltage, measured directly on the PCB does range 220-240 VAC during switching / 15 VAC after switching, replace the 4-way valve coil (refer to "Replacing 4-way valve coil" on page 89).

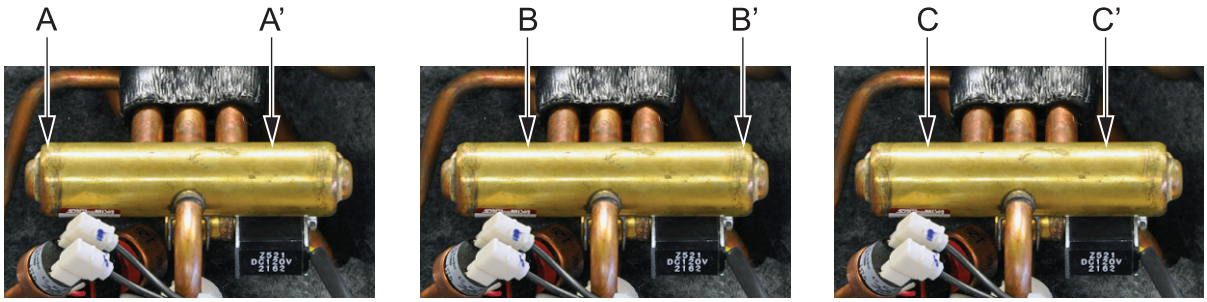
> **WARNING: RISK OF FIRE**
>
> When reconnecting a connector to the PCB, do not apply force, as this may damage the connector or connector pins of the PCB.

3. Unplug 4-way valve connector from PCB and measure the resistance of the 4-way valve coil. If the measured resistance does not range 1000 - 2000 Ω, replace the 4-way valve coil (refer to "Replacing 4-way valve coil" on page 89).
4. Switch on the Daikin unit, start cooling/defrost operation.

   If the temperature after the plate type heat exchanger rises, the control of the 4-way valve is wrong. Replace main PCB.

Determine the position of the 4-way valve

1. Switch off Daikin unit via the user interface.
2. Switch off Daikin unit with the field supplied circuit breaker.
3. Slide a magnet over the front and the rear of the 4-way valve body and sense the attraction of the magnet to determine the valve position.
4. If the magnet is attracted in positions A,A' or B,B', the 4-way valve is OK; if the magnet is attracted in positions C,C' the 4-way valve must be replaced (refer to "Replacing 4-way valve body" on page 87).



2.4.2.2. Compressor

Technical specification	Description	
Type: inverter driven, swing double swing.	The compressor compresses the refrigerant in the refrigerant circuit.	
Location		
Piping diagram	**Wiring diagram**	**Component overview of unit**
See "Outdoor unit" on page 152.	See "Outdoor unit" on page 145.	See "Outdoor unit" on page 153.
Check procedure		

Preliminary check

1. Check if the Daikin unit is connected to earth.
2. Check if the stop valve is open.

Mechanical check

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required (refer to "Basic removal" on page 81).

PROCEDURE

1. Open the compressor insulation.
2. Check if the condition of the compressor dampers and piping is correct.

Electrical check

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required.

PROCEDURE

1. Open the compressor insulation.
2. Switch on the Daikin unit and measure the U, V, W inverter voltages. All voltages must be identical, if not, replace the inverter PCB.
3. Switch off the Daikin unit via the user interface.
4. Switch off the Daikin unit with the field supplied circuit breaker.

INFORMATION

Note the position of the cables on the compressor wire terminals to allow identical wiring during reinstallation.

5. Disconnect the Faston connectors U, V and W from the compressor, take picture.
6. Measure the compressor motor windings U-V, V-W and U-W.
7. Megger the compressor using 500 or 1000 VDC, the insulation must be higher than 3 MΩ.

8. Replace the compressor if the windings and/or insulation measurements fail (refer to "Replacing compressor" on page 90).

9. Run the compressor and measure the current in each phase; the current for each phase should be identical (refer to "Component checklist" on page 162). In that case it can be decided to preventively replace the compressor (refer to "Replacing compressor" on page 90).

2.4.2.3. Electronic expansion valve

Technical specification	Description	
The electronic expansion valve has a hermetically sealed body with a slide-on stepping motor drive coil (480 pulses from fully closed to fully open position).	The electronic expansion valve is used: • To control the flow of refrigerant. Depending on location, the trigger point is sub-cool and/or superheat. • To stop the flow of refrigerant completely when closing (= 0 pulses).	
Location		
Piping diagram	**Wiring diagram**	**Component overview of unit**
See "Outdoor unit" on page 152.	See "Outdoor unit" on page 145.	See "Outdoor unit" on page 153.
Check procedure		

Mechanical check

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Switch on the Daikin unit and listen to the expansion valve assembly, if the expansion valve body does not create a latching sound, continue with the electrical check.
4. Switch off the Daikin unit via the user interface.
5. Switch off the Daikin unit with the field supplied circuit breaker.
6. Remove plate work when required (refer to "Basic removal" on page 81).

PROCEDURE

1. Remove the expansion valve coil from the expansion valve body.
2. Slide the magnet (tool part N° 9950038) over the expansion valve body and gently rotate the magnet to manually operate the expansion valve body clockwise (closing) and counterclockwise (opening).
3. If it is not possible to open the expansion valve body with the magnet, the expansion valve body is blocked and the expansion valve body must be replaced (refer to "Replacing expansion valve body" on page 97).

Electrical check

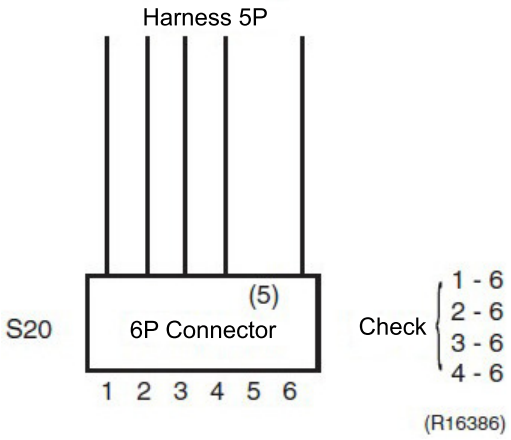
PRELIMINARY ACTIONS

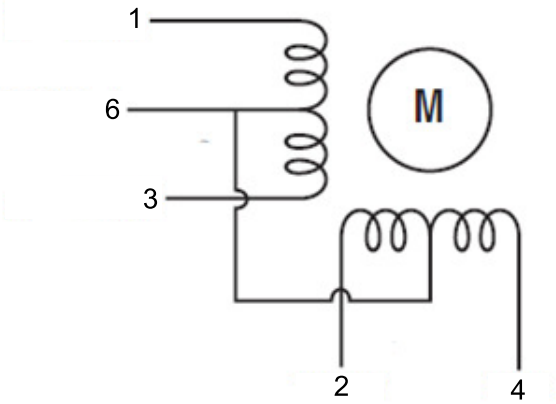
1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required (refer to "Basic removal" on page 81).

PROCEDURE

1. Check if the electrical connector of the expansion valve coil was correctly connected to the PCB, if not, connect the electrical connector.
2. Disconnect the electrical connector of the expansion valve coil and check the continuity between below pins using a multi meter. It should be ± the same value.
   - Connector pin 1-6: connected
   - Connector pin 2-6: connected
   - Connector pin 3-6: connected

- Connector pin 4-6: connected





3. If one or more of the windings have no continuity, replace the expansion valve coil.

2.4.2.4. Fan motor

Technical specification	Description	
The motor has a single connector for DC power and the rotation counter feed back from the integrated pulse generator (4 pulses/revolution).	The fan motor runs on a fixed speed to supply the required air flow rate.	
Location		
Piping diagram	**Wiring diagram**	**Component overview of unit**
See "Indoor unit" on page 148.	See "Outdoor unit" on page 145.	See "Component overview of unit" on page 153.
Check procedure		

Mechanical check

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required (refer to "Basic removal" on page 81).

PROCEDURE

1. Check the state of the propeller, replace the propeller if damaged, deformed, cracked or broken (refer to "Replacing propeller fan blade assembly" on page 115).
2. Check the motor shaft bearing friction, only perform electrical check if motor runs with low shaft bearing friction. Replace fan motor if friction is abnormal (refer to "Replacing DC fan motor assembly" on page 93).

Electrical check

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required (refer to "Basic removal" on page 81).

PROCEDURE

1. Check fuse on PCB, replace if blown, see table "Component checklist" on page 162.

WARNING: RISK OF FIRE

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

2. Check if fan motor connector is plugged into PCB.
3. Power the Daikin unit.
4. Check power supply, the measured voltage must be 198 - 240 VAC, if not replace main PCB (refer to "Replacing main PCB" on page 107).

2.4.2.5. High pressure switch

Technical specification	Description	
The high pressure switch has a normally closed contact. If the pressure exceeds 41.5 (+0 / -1) bar the contact will open; if the pressure drops below 32 (±2) bar the contact will close.	The high pressure switch is a safety component that stops the compressor if overpressure is detected in the refrigerant circuit.	
Location		
Piping diagram	**Wiring diagram**	**Component overview of unit**
See "Outdoor unit" on page 152.	See "Outdoor unit" on page 145.	See "Outdoor unit" on page 153.
Check procedure		
Electrical check		

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required (refer to "Basic removal" on page 81).

PROCEDURE

1. Disconnect the high pressure switch connector from applicable PCB, see table "Component checklist" on page 162.
2. Recover the refrigerant.
3. Pressurize the refrigerant circuit at 41.7 bar with nitrogen.
4. Measure the switch contacts between high pressure switch connector: pins 1-2; the switch must be open.
5. Replace the high pressure switch if the contact is not open (refer to "Replacing high pressure switch" on page 103).
6. Lower the refrigerant circuit pressure to 30 bar.
7. Measure the switch contacts between high pressure switch connector: pins 1-2; the switch must be closed.
8. Replace the high pressure switch if the contact is not closed (refer to "Replacing high pressure switch" on page 103).

2.4.2.6. Low pressure switch

Technical specification	Description	
The low pressure switch has a normally closed contact. If the pressure drops below -0,31 (±0,2) bar, the contact will open. When the pressure rises above 0,51 (±0,3) bar the contact will close again.	The low pressure switch is a safety component that stops the compressor if under-pressure is detected in the refrigerant circuit.	
Location		
Piping diagram	**Wiring diagram**	**Component overview of unit**
See "Outdoor unit" on page 152.	See "Outdoor unit" on page 145.	See "Outdoor unit" on page 153.
Check procedure		
Electrical check		

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required (refer to "Basic removal" on page 81).

PROCEDURE

1. Disconnect the low pressure switch connector from applicable PCB.
2. Recover the refrigerant.
3. Connect vacuum pump to gas service port and vacuum to -0,5 bar.
4. Measure the switch contacts between low pressure switch connector: pins 1-2; the switch must be open.
5. Replace the low pressure switch if the contact is not open (refer to "Replacing high pressure switch" on page 103).
6. Increase the refrigerant circuit pressure to 1 bar.
7. Measure the switch contacts between low pressure switch connector: pins 1-2; the switch must be closed.
8. Replace the low pressure switch if the contact is not closed (refer to "Replacing high pressure switch" on page 103).

2.4.2.7. Main PCB

Technical specification	Description	
Location		
Piping diagram	**Wiring diagram**	**Component overview of unit**
See "Outdoor unit" on page 152.	See "Outdoor unit" on page 145.	See "Outdoor unit" on page 153.
Check procedure		

Mechanical check

Not applicable.

Electrical check

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required (refer to "Basic removal" on page 81).

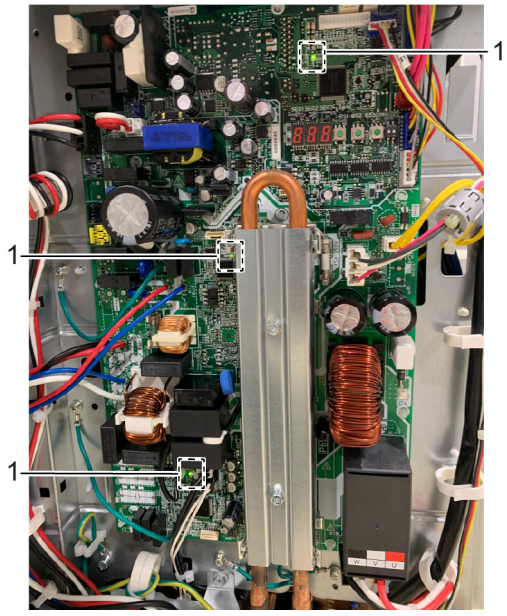
PROCEDURE

1. Switch on the Daikin unit with the field supplied circuit breaker.
2. Switch on the Daikin unit via the user interface.
3. Check if the HAP LED is blinking in regular intervals (1/0.5 sec), if not blinking, replace the main PCB board (refer to "Replacing main PCB" on page 107).

Figure 2-1: HAP LEDs of main PCB on single phase units

1. HAP LED

Figure 2-2: HAP LEDs of main PCB on three phase units



1. HAP LED

4. Measure the supply voltage to the main PCB board: there should be ± 220 V between brown and blue cable. If not correct voltage, replace the electrical noise filter PCB (refer to "Replacing electrical noise filter" on page 94).
5. Switch off the Daikin unit via the user interface.
6. Switch off the Daikin unit with the field supplied circuit breaker.
7. Remove plate work when required.
8. Open the compressor insulation.
9. Remove the terminal cover of compressor wiring.

WARNING: RISK OF ELECTROCUTION

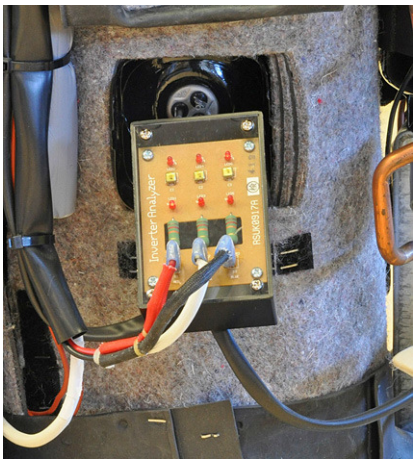
The smoothing capacitor must discharge below 10 VDC before removing the compressor wiring.

10. Measure the voltage on S70: pin 7-4 and wait until it drops below 10 VDC.

INFORMATION

Note the position of the cables on the compressor wire terminals to allow identical wiring during reinstallation.

11. Disconnect the compressor wires and connect the compressor wires to the Inverter Analyzer (SPP number 2238609).



12. Power the Daikin unit.

WARNING

Electrical shock hazard. Do not touch life wires.

13. Activate the inverter test (refer to "Component checklist" on page 162).
14. Check that all LED's on the Inverter Analyzer are lit; if not, replace the inverter board (refer to "Replacing inverter PCB" on page 104).
15. Switch off the Daikin unit with the field supplied circuit breaker.
16. Wait a few minutes and confirm that the LED's on the Inverter Analyzer are off.
17. Disconnect the Inverter Analyzer from the U V W wiring.

CAUTION

When wiring the compressor, observe UV W as indicated on the compressor.

18. Reconnect the U V W leads to the compressor.

2.4.2.8. Refrigerant thermistors

Technical specification	Description	
A single type of thermistor is used; the resistance vs. temperature characteristics is shown in below table "Thermistor resistance / temperature characteristics (type 1)".	The thermistors are used to measure the temperature at multiple locations inside the Daikin unit. The measured temperatures are processed by the main board.	
Location		
Piping diagram	**Wiring diagram**	**Component overview of unit**
See "Outdoor unit" on page 152.	See "Outdoor unit" on page 145.	See "Outdoor unit" on page 153.
Check procedure		

Mechanical check

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Locate the thermistor and check if thermal contact with the piping or ambient is ensured.

Electrical check

INFORMATION

If a thermistor check fails, replace the thermistor.

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required.

PROCEDURE

1. From the table in the appendix ("Component checklist" on page 162), select the thermistor that must be checked.
2. Measure the temperature of the thermistor using a contact thermometer.

WARNING: RISK OF FIRE

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

3. Unplug the connector from the appropriate PCB and measure the resistance between the pins listed in the table in the appendix ("Component checklist" on page 162).
   - Compare the measured resistance with the range determined by the lower and higher temperature.
4. If the measured resistance does not match the listed value, the thermistor must be replaced.

INFORMATION

All thermistors have a tolerance of 5%.

E.g. R3T air thermistor - main PCB - connector S90: pin 1-2 type 1:

- Measured temperature with contact thermometer: 23.1°C.

- Unplug the sensor and measure the resistance between S90: 1-2: 21.86 kΩ.
- The resistance values are defined by below table "Thermistor resistance / temperature characteristics (type 1)":
  - Resistance at 23°C: 21.85 kΩ.
  - Resistance at 24°C: 20.90 kΩ.
- The measured value 21.86 kΩ is inside the range, thermistor R3T passes the check.

INFORMATION

The user interface allows to monitor most thermistors.

If the measured resistance of the thermistor matches the temperature measured with the contact thermometer but the temperature for the corresponding thermistor is not correct on the user interface display, replace applicable PCB.

Table 2-1: Thermistor resistance / temperature characteristics (type 1)

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

Table 2-2: Thermistor resistance / temperature characteristics (type 2)

T °C	kΩ	T °C	kΩ	T °C	kΩ	T °C	kΩ
0	635.1	40	106.2	80	24.9	120	7.5
5	496.6	45	87.1	85	21.1	125	6.5
10	391	50	71.8	90	18	130	5.7
15	310	55	59.5	95	15.4	135	5
20	247.3	60	49.5	100	13.3	140	4.4
25	198.5	65	41.4	105	11.4	145	3.9
30	160.2	70	34.8	110	9.9	150	3.4
35	130.1	75	29.3	115	8.6		

Table 2-3: Thermistor resistance / temperature characteristics (type 3)

T °C	kΩ	T °C	kΩ	T °C	kΩ	T °C	kΩ
0	806.5	50	78.3	100	13.1	150	3.2
10	478.8	60	52.8	110	9.6	160	2.5
20	292.9	70	36.3	120	7.1	170	1.9
30	184.1	80	25.4	130	5.4	180	1.5
40	118.7	90	18.1	140	4.1		

Table 2-4: Thermistor resistance / temperature characteristics (fin thermistor)

T °C	kΩ	T °C	kΩ	T °C	kΩ	T °C	kΩ
-20	191,03	25	18,87	70	3,29	115	0,86
-15	140,99	30	15,15	75	2,79	120	0,76
-10	110,83	35	12,25	80	2,37	125	0,67
-5	83,66	40	9,97	85	2,03	130	0,59
0	63,80	45	8,17	90	1,74	135	0,52
5	49,13	50	6,74	95	1,50	140	0,46
10	38,19	55	5,59	100	1,30	145	0,41
15	29,94	60	4,65	105	1,13	150	0,37
20	23,67	65	3,90	110	0,98		

Part 3. Repair

This part contains the following chapters:

3.1. Refrigerant repair procedures

Overview:

3.1.1. Refrigerant piping handling

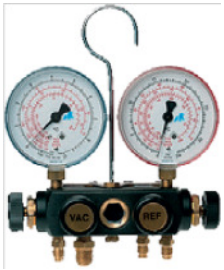
3.1.2. Recovery procedure

- Make sure the applied pressure is never higher than the unit design pressure as indicated on the nameplate (PS).
- Work according the F-gas regulation and/or local regulations.
- Make sure the correct amount according the F-gas regulation label on the unit (factory + additional where required) of refrigerant is charged after repair.
- Make sure to use the appropriate equipment and tools according to the refrigerant and unit type.
- Charge non-azeotropic refrigerant (e.g. R-410A) 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 work:
  - -0,1 MPa / -760 mmHg / -750 Torr / -1 bar for at least 1 hour.
  - Connect the unit according the available service ports, refer to "Recovery procedure" on page 75.
  - Use related field setting where necessary to open expansion valve/solenoid valve.

3.1.2.1. Outdoor unit casing

1. Switch off the Daikin unit via the user interface.

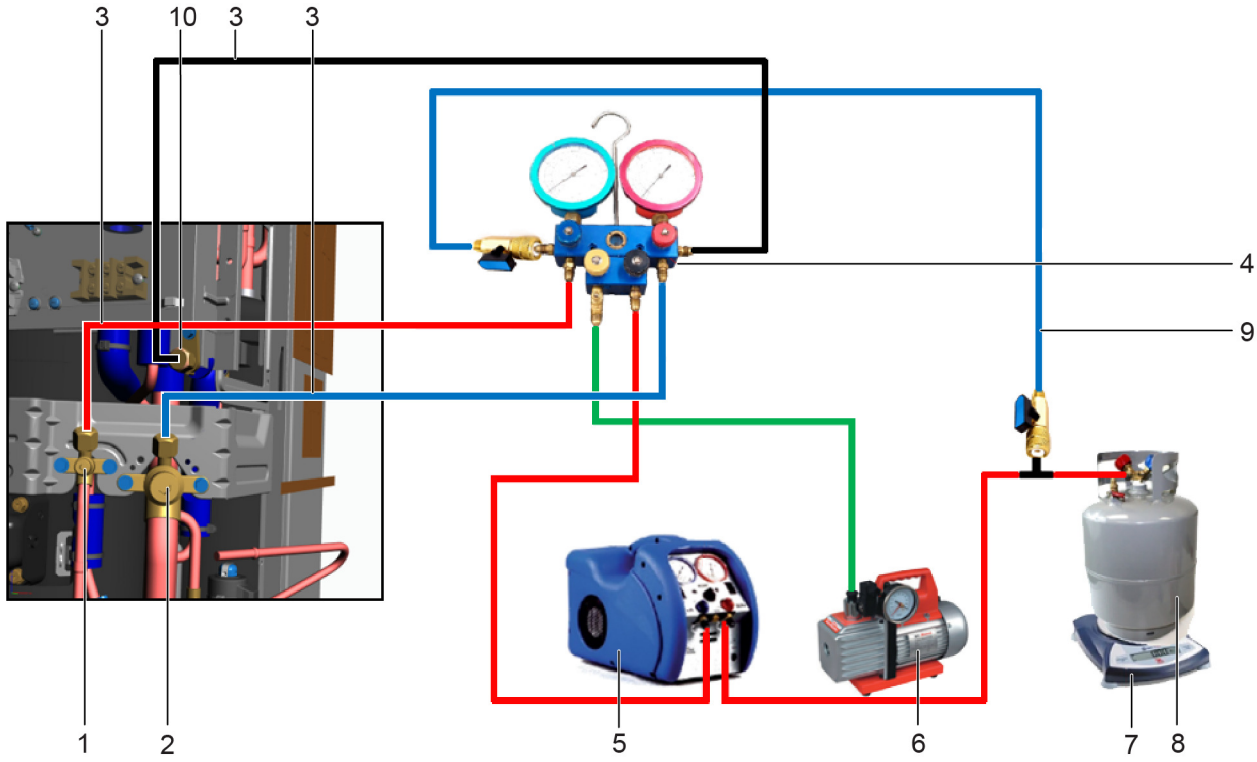
2. Necessary tools:

Service tool		Remark
	Refrigerant recovery unit	Compatible with the refrigerant to be recovered
	Scale	Read-out / 10 grams
	Manifold	Compatible with the refrigerant to be recovered
	Flexible hoses	Compatible with the refrigerant to be recovered
	Recovery cilinder	Compatible with the refrigerant to be recovered
	Vacuum pump	2-stage, equipped with solenoid valve

3. Setup a vacuum line between recovery unit discharge and the recovery bottle. Without this additional setup, the discharge line from the recovery device to the refrigerant cylinder would not have been vacuumed.

4. Connect the vacuum pump, manifold, recovery unit, and refrigerant recovery cylinder to the service ports of the refrigerant circuit as shown below.

Figure 3-3: 1 Recuperate refrigerant



1. Liquid service port
2. Gas service port
3. Flexible hose
4. Manifold
5. Recovery unit
6. Vacuum pump
7. Scale
8. Recovery cylinder
9. Vacuum setup
10. Internal service port

5. Activate vacuum mode via the field settings (see field settings in installation manual or installer reference guide).

To make sure that refrigerant cycle is completely connected and there are no dead-zones because of closed expansion- or solenoid valves, entering the vacuum mode ensures that:

- all outdoor unit expansion valves get fully opened,
- the solenoid valve gets fully opened.

3.1.3. Refrigerant pump down

This 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.

WARNING: RISK OF EXPLOSION

- When the refrigeration circuit has a leak, do not execute pump down with the compressor.
- Use recovery system into separate cylinder.
- Warning, explosive hazard exists when executing pump down.
- Pump down with compressor can lead to self-combustion due to air entering during pump down.

INFORMATION

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 valve lid from liquid stop valve and gas stop valve.
2. Carry out pump down operation.

CAUTION

Refer to Installer Reference Guide for 'Pump down operation' procedure.

3. After 5-10 min (after only 1-2 min in case of very low Ta < -10°C), close the liquid stop valve with a hexagonal wrench.
4. Check on manifold if vacuum is reached, close gas stop valve and forced cooling operation.

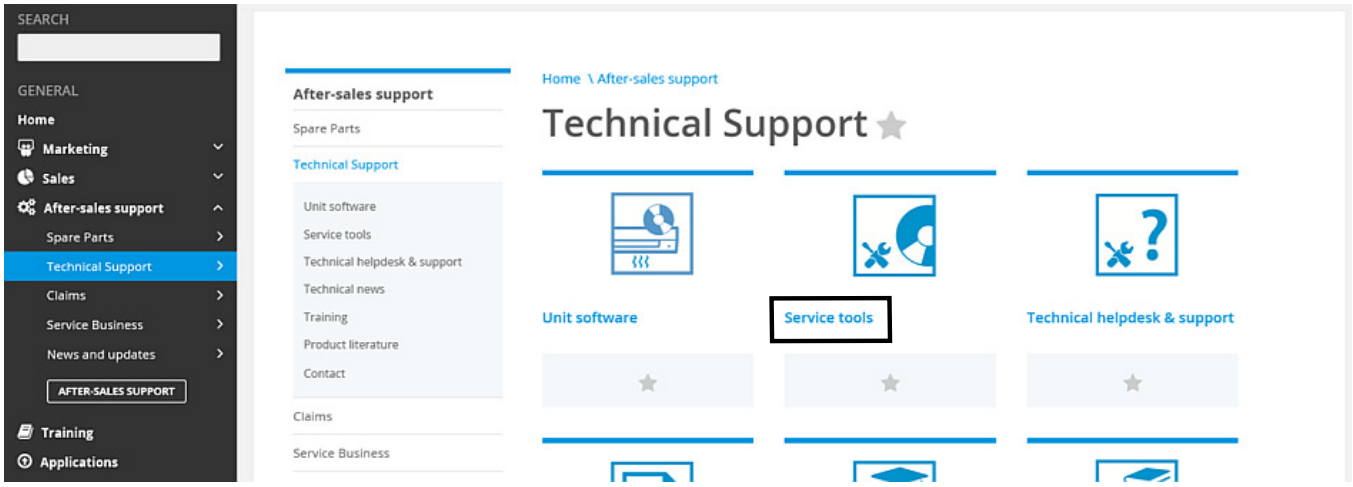
3.1.4. Piping repair procedures

- Make sure to cover open pipe ends during repair work 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 and use 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 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%).

3.2. Service tools

For an overview of the applicable service tools, please check the Daikin Business Portal: http://www.mydaikin.eu

Go to the tab “After-sales support” on the left side and then select “Technical support”.



You will then find a button “Service tools” which gives you an overview on which service tool to use for which product. Also additional information on the service tool (instruction, latest software) can be found there.

3.3. Unit specific repair procedures

Overview:

3.3.1. Outdoor unit

3.3.1.1. Basic removal

PRELIMINARY ACTIONS

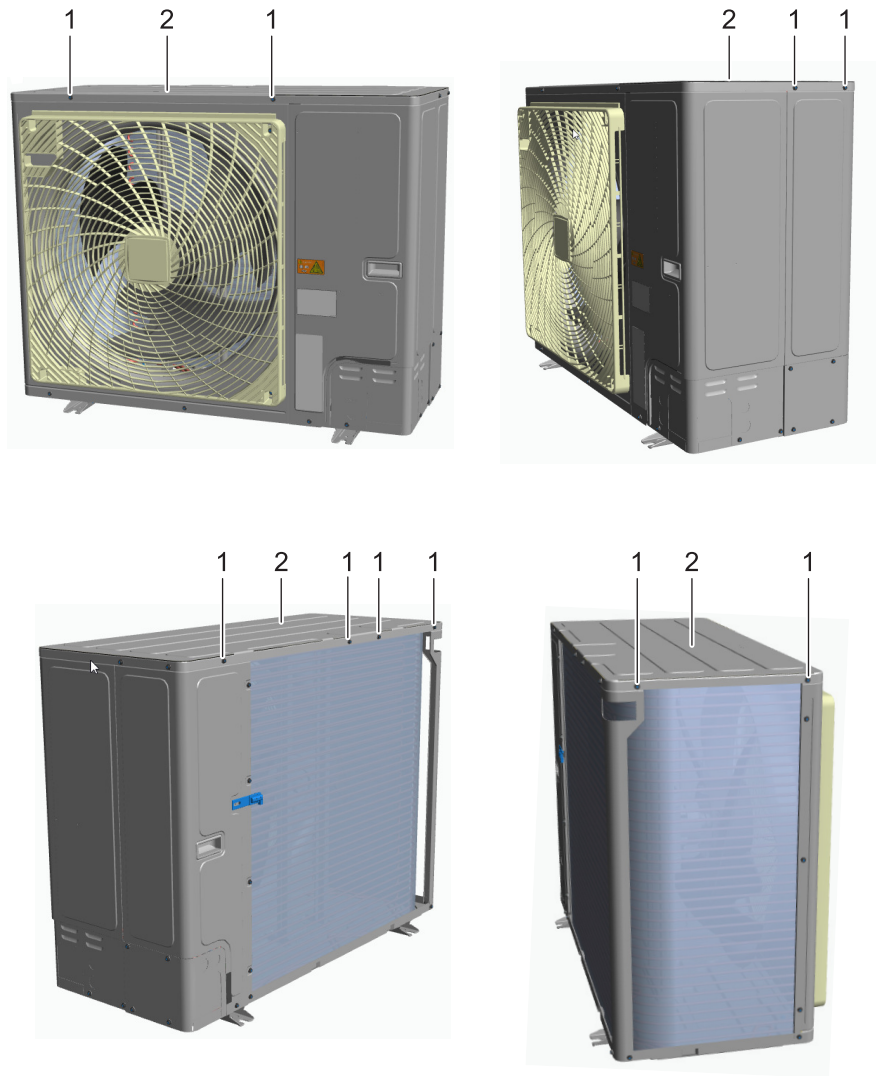
1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.

PROCEDURE

Removal

1. Loosen and remove the 10 screws (1) that fix the top plate assembly (2).
2. Lift the top plate assembly (2) and remove it from the Daikin unit.

Figure 3-4: Removing the top plate assembly



1. Screw
2. Top panel

3. Loosen and remove the screw (1) that fixes the front plate (2).
4. Lift the front plate (2) and remove it from the unit.

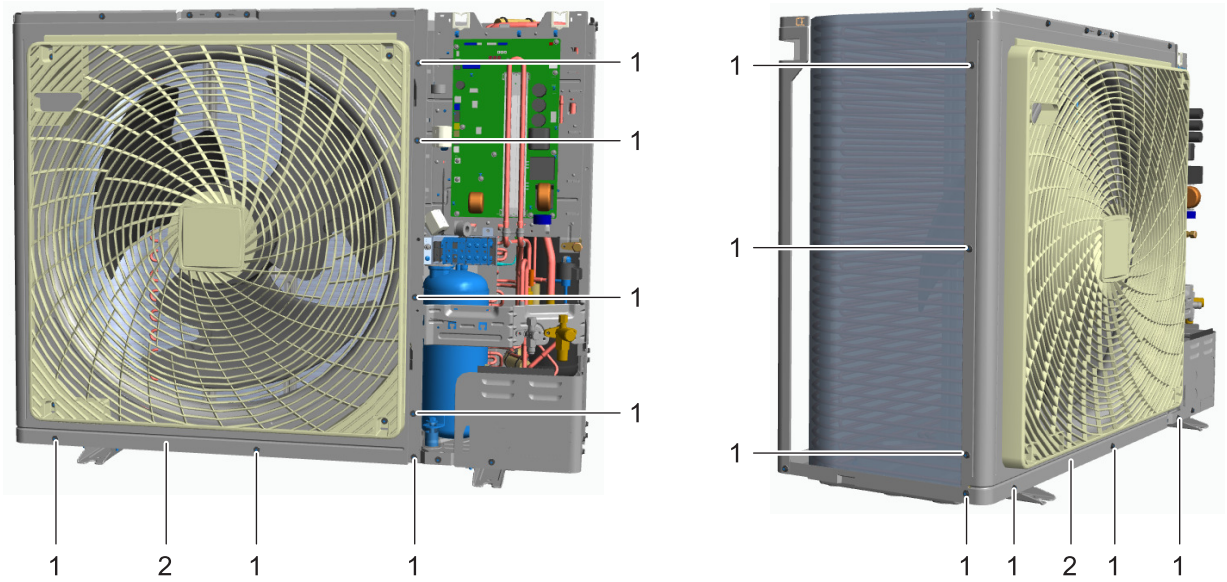
Figure 3-5: Removing the front plate

1. Screw	2. Front plate

5. Loosen and remove the 11 screws (1) that fix the front plate assembly (2).

6. Lift the front plate assembly (2) and remove it from the unit.

Figure 3-6: Removing the front plate assembly

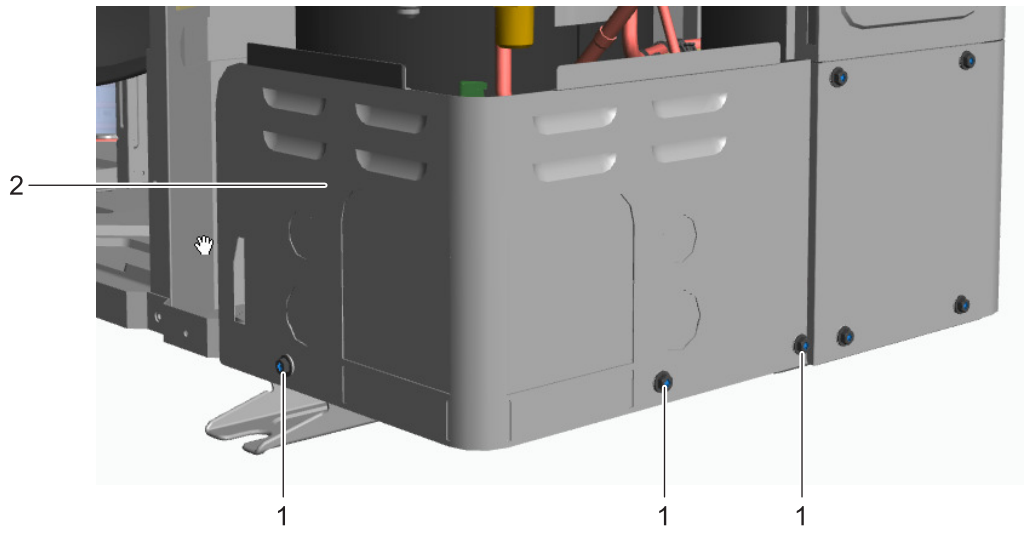


1. Screw	2. Front plate assembly

7. Loosen and remove the 3 screws (1) that fix the cover (2).

8. Remove the cover (2) from the unit.

Figure 3-7: Removing the cover

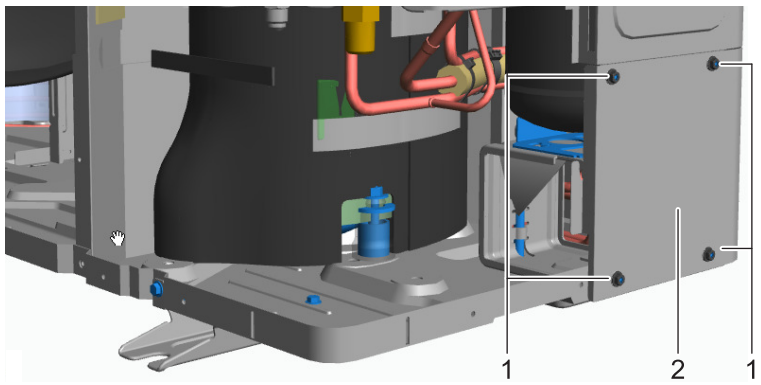


1. Screw	2. Cover

9. Loosen and remove the 4 screws (1) that fixes the piping cover (2).

10. Remove the piping cover (2) from the unit.

Figure 3-8: Removing the piping cover



1. Screw	2. Piping cover

11. Loosen the thermistor fixing plate (2).

12. Slightly twist the right side of the thermistor fixing plate (2), and gently pull the left side of the thermistor fixing plate (2) until it unlatches.

13. Slide the thermistor fixing plate (2) until it detaches from the right side plate (4).

14. Turn over the thermistor fixing plate (2) and unlatch the thermistor cover.

15. Remove thermistor R1T (1) from the thermistor fixing plate (2).

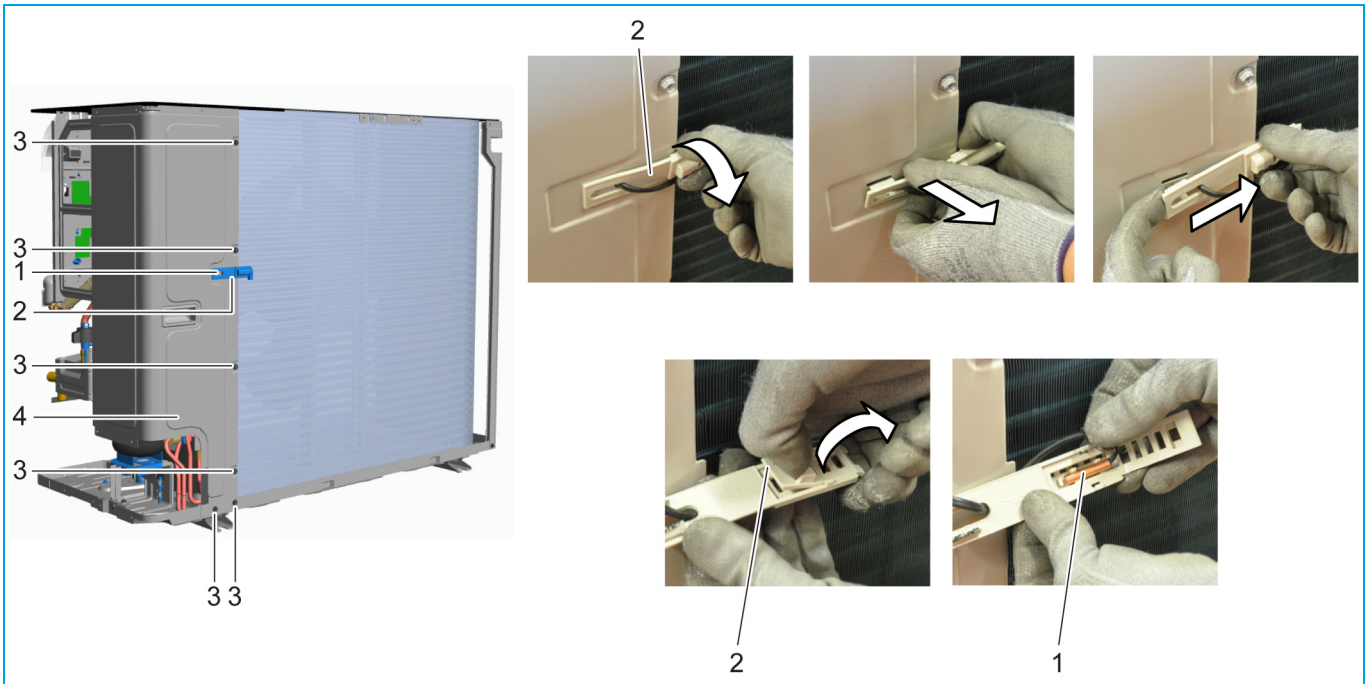
16. Remove the thermistor fixing plate (2).

17. Guide the thermistor R1T (1) into the unit.

18. Loosen and remove the 6 screws (3) that fix the right side plate (4).

19. Remove the right side plate (4) from the unit.

Figure 3-9: Removing the right side plate



1. Thermistor R1T	3. Screw
2. Thermistor fixing plate	4. Right side plate

3.3.1.2. Replacing thermistor

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required (refer to "Basic removal" on page 81).

PROCEDURE

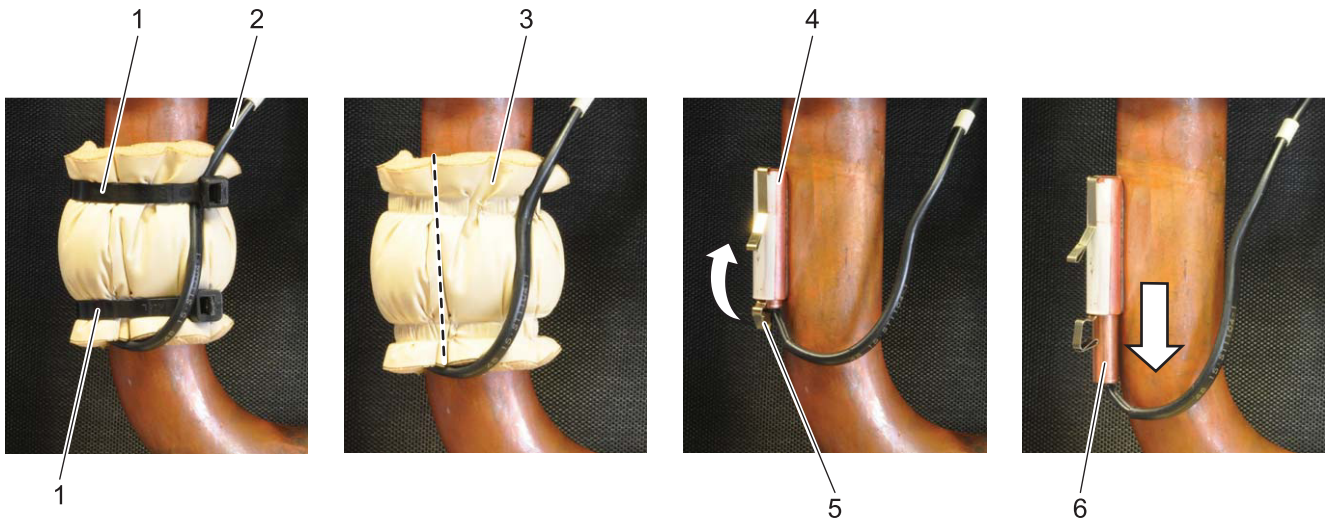
Removal

1. Locate the thermistor that needs to be replaced, see table below and figure 3-11 "Thermistor location" on page 86.

Thermistor	Processed on PCB	Connector / colour
R1T (air)	Main	X11A
R2T (discharge)	Main	X12A / yellow
R3T (suction)	Main	X12A / green
R4T (heat exchanger)	Main	X12A / red
R5T (heat exchanger middle)	Main	X12A / white
R6T (liquid)	Main	X13A: / blue
R7T, R8T (Positive Temperature Coefficient)	-	-

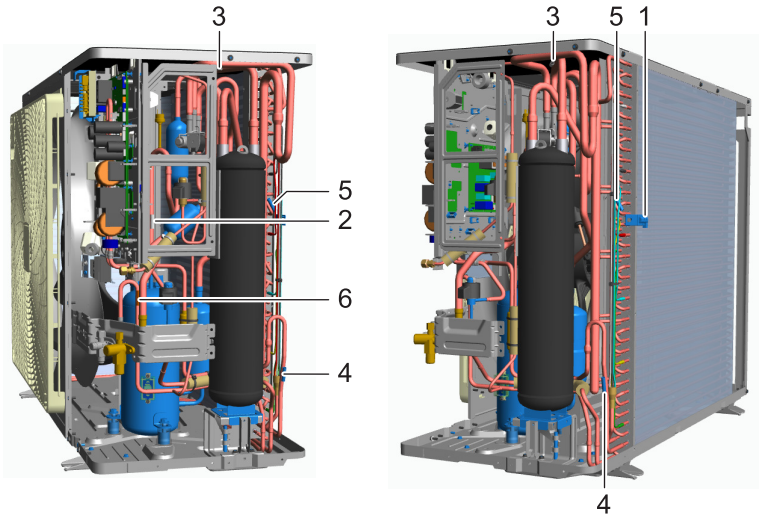
2. Cut the tie wraps (1) that fix the insulation (3) and the thermistor wire (2).
3. Cut the insulation (3) and remove it.
4. Pull the clip (5) that fixes the thermistor (6).
5. Remove the thermistor (6) from the thermistor holder (4).

Figure 3-10: Replacing a thermistor



1. Tie wrap
2. Thermistor wire
3. Insulation
4. Thermistor holder
5. Clip
6. Thermistor

Figure 3-11: Thermistor location



1. R1T	4. R4T
2. R2T	5. R5T
3. R3T	6. R6T

Installation

1. Proceed in reverse order.

3.3.1.3. Replacing 4-way valve body

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required (refer to "Basic removal" on page 81).
4. Recover the refrigerant (refer to "Refrigerant repair procedures" on page 75).
5. Remove the main PCB (refer to "Replacing main PCB" on page 107).
6. Connect a nitrogen hose to the outdoor suction service port.
7. Attach a hose with core-depressor to allow the release of the nitrogen.

PROCEDURE

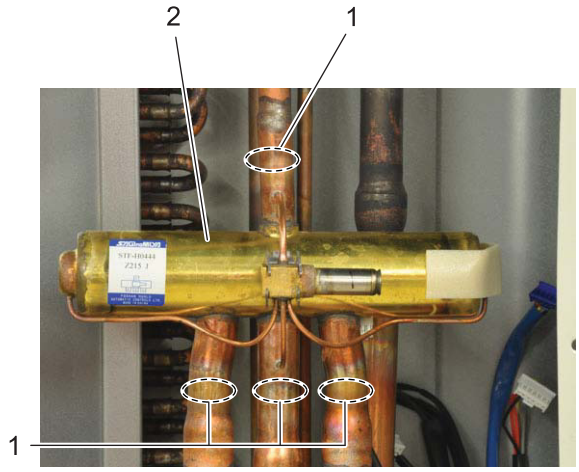
Removal

1. Cut the 4-way valve pipes (1).
2. Remove the 4-way valve (2).

> **CAUTION**
> The maximum applied Nitrogen pressure must not exceed 0.02 MPa.

3. Supply nitrogen to the piping circuit.
4. Using an oxygen acetylene torch, heat a solder connection of the 4-way valve (2).
5. When the solder material is liquid, pull the 4-way valve pipe (1).
6. Repeat steps 4 and 5 for the 3 remaining 4-way valve pipes (1).
7. Cut the nitrogen supply when the piping has cooled down.

Figure 3-12: Removing 4-way valve body



1. 4-way valve pipe
2. 4-way valve

Installation

	**CAUTION** Overheating the 4-way valve will damage or destroy it.

	**INFORMATION** Install the putty on the 4-way valve. Replace all tie wraps that were cut during removal.

1. Wrap a wet rag around the 4-way valve (2).
2. Proceed in reverse order.

3.3.1.4. Replacing 4-way valve coil

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required (refer to "Basic removal" on page 81).

PROCEDURE

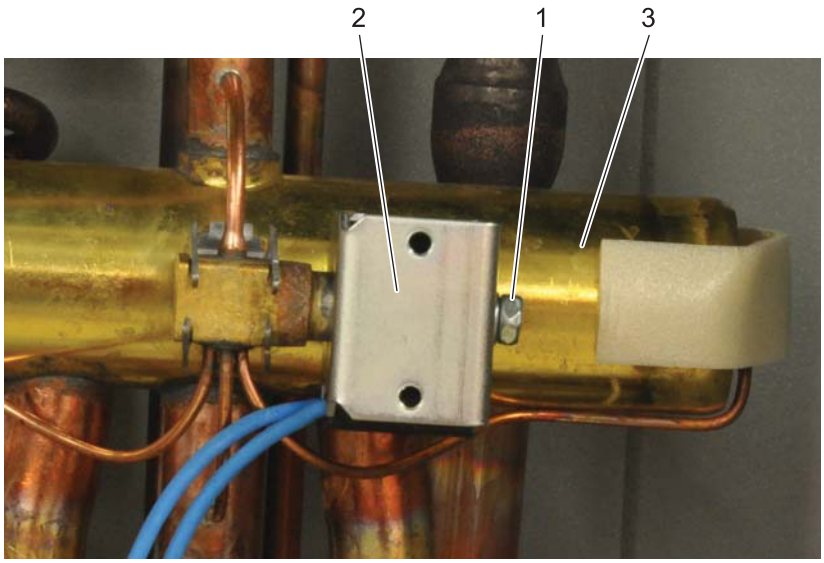
Removal

1. Cut the tie wraps that fix the 4-way valve coil wire.

> **WARNING: RISK OF FIRE**
>
> When reconnecting a connector to the PCB, do not apply force, as this may damage the connector or connector pins of the PCB.

2. Unplug the 4 -way valve connector from the main PCB.
3. Loosen and remove the screw (1) that fixes the 4-way valve coil (2).
4. Remove the 4-way valve coil (2) from the 4-way valve.

Figure 3-13: Removing 4-way valve body



1. Screw
2. 4-way valve coil

Installation

> **INFORMATION**
>
> Replace all tie wraps that were cut during removal.

1. Proceed in reverse order.

3.3.1.5. Replacing compressor

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required (refer to "Basic removal" on page 81).
4. Recover the refrigerant (refer to "Refrigerant repair procedures" on page 75).
5. Remove Main PCB bracket + terminal (power supply) (refer to "Replacing main PCB" on page 107).
6. Remove the compressor jacket.
7. Remove the lower propeller fan (refer to "Replacing propeller fan blade assembly" on page 115).
8. Connect a nitrogen hose to the outdoor suction service port.
9. Attach a hose with core-depressor to allow the release of the nitrogen.

PROCEDURE

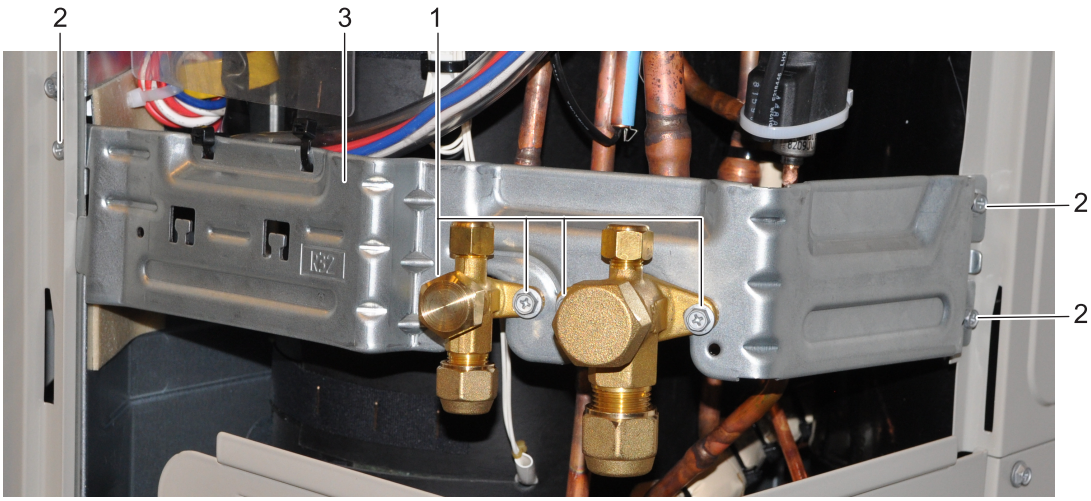
Removal

1. Cut the 2 tie wraps that fix the power and communication wires to the stop valve mounting plate.
2. Loosen and remove the 4 screws (1) that fix the stop valves.

> **CAUTION**
> The 2 screws that are removed in the next step must be re-installed in the same location upon reassembly.

3. Loosen and remove the 3 screws (2) that fix the stop valve mounting plate (3).
4. Lift and remove the stop valve mounting plate (3).

Figure 3-14: Removing stop valve mounting plate

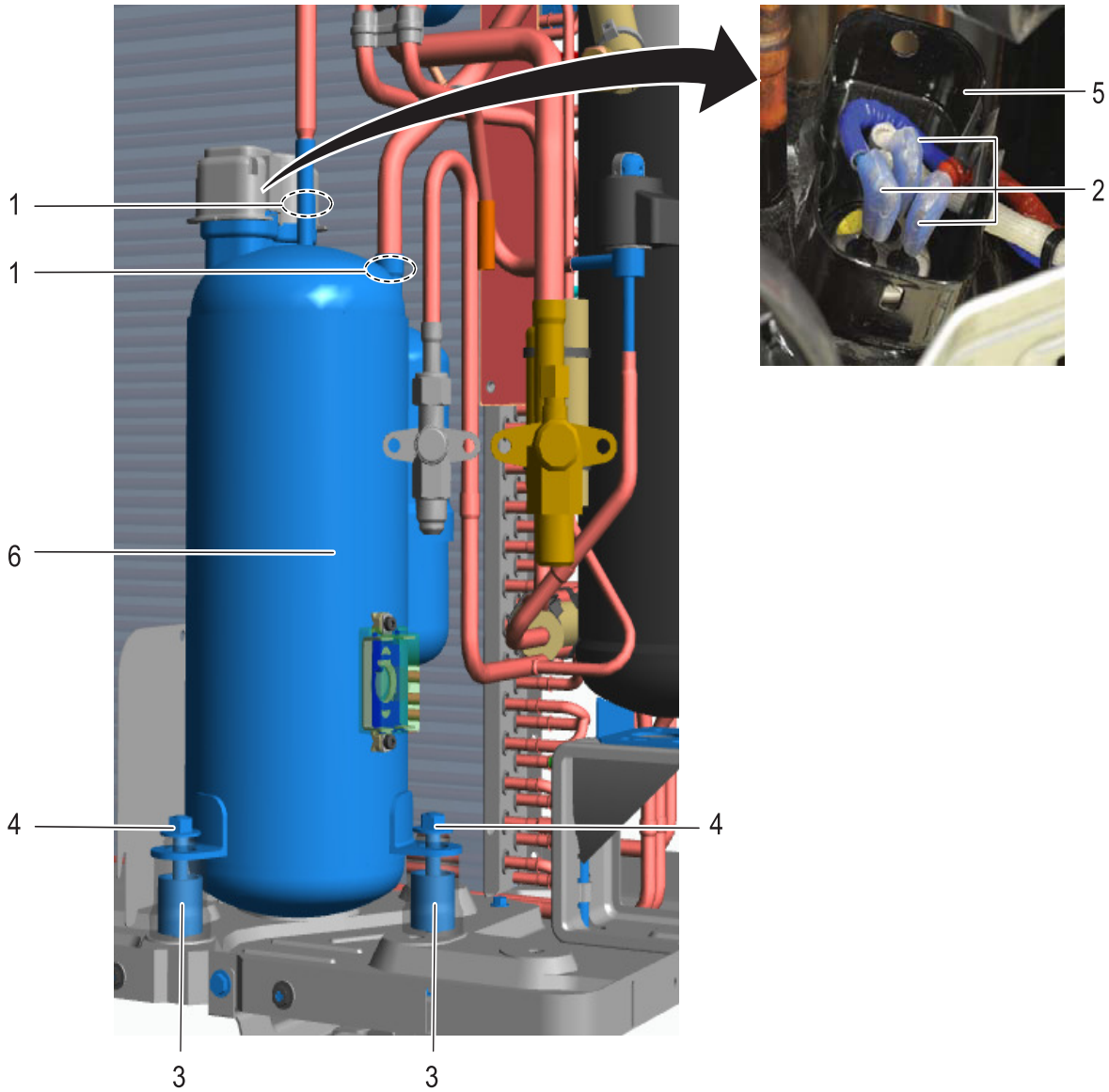


1. Screw
2. Screw
3. Stop valve mounting plate

5. Cut the tie wrap that fixes the R2T thermistor wiring and put the R2T thermistor aside.
6. Put aside the DC fan motor wiring.

7. Remove the terminal cover and unplug the compressor wiring (2).
8. Remove the rubber grommet (5) from the compressor.
9. Cut the compressor pipes (1) below the soldered joint.
10. Loosen and remove the 3 bolts (4) that fix the compressor (6).
11. Remove the compressor (6).
12. Remove the dampers (3) from the compressor (6).
13. Supply nitrogen to the piping circuit.
14. Heat the 2 compressor pipes (1) using an oxygen acetylene torch.
15. When the solder is liquid, remove the 2 compressor pipes (1).
16. Cut the nitrogen supply when the piping has cooled down.

Figure 3-15: Removing compressor



1. Compressor pipe
2. Compressor wiring
3. Dampers
4. Bolt
5. Rubber grommet
6. Compressor

Installation

	**CAUTION** The oil in the compressor is hygroscopic. Remove the caps from the compressor piping as late as possible.
	**INFORMATION** Before installing a new compressor, determine the cause of the compressor failure and take all required corrective actions.
	**INFORMATION** If the dampers are worn, replace the dampers. The bushings inside the dampers are recuperated for use with the new dampers.
	**INFORMATION** Install the compressor sound insulation in the same location.

1. Check damper status, replace when worn.
2. First install the 3 (new) dampers on the new compressor.
3. When installing the new compressor, remove the caps from the compression pipe and the suction pipe as late as possible.
4. When soldering the compressor pipes, cover the compressor pipes with a wet cloth to prevent overheating the compressor (and the oil in the compression pipe).
5. Proceed in reverse order.

3.3.1.6. Replacing DC fan motor assembly

PRELIMINARY ACTIONS

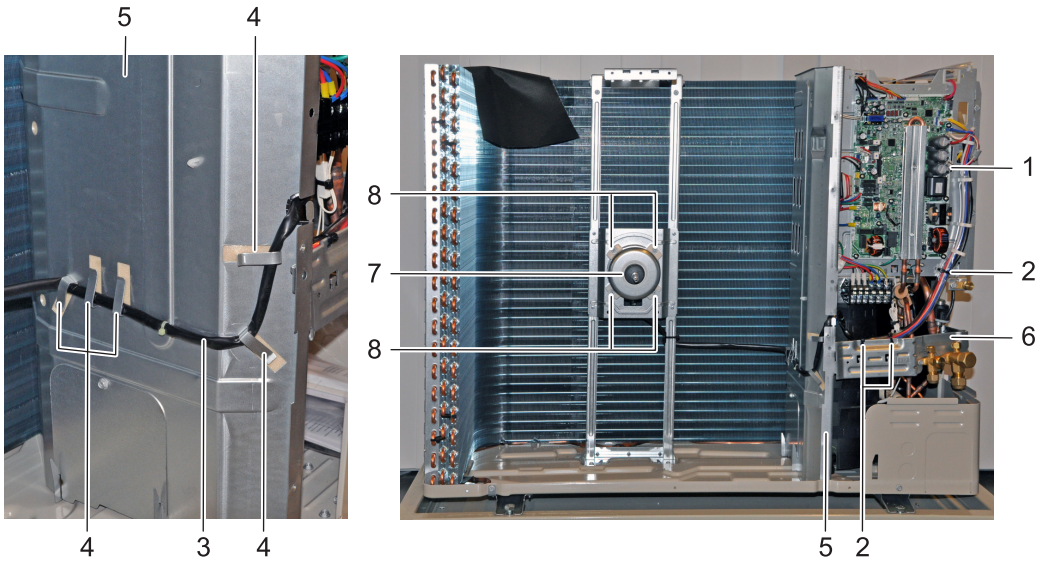
1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove the propeller fan (refer to "Replacing propeller fan blade assembly" on page 115).

PROCEDURE

Removal

1. Disconnect the fan connector (1).
2. Cut the tie wraps (2)
3. Remove the fan motor cable (3) from the cable clamp (4).
4. Guide the fan motor cable (3) through the opening between the partition plate (5) and the stop valve mounting plate (6).
5. Loosen and remove the 4 screws (8) that fix the fan motor (7).
6. Remove the fan motor (7) from the unit.

Figure 3-16: Removing the DC fan motor assembly



1. Upper fan motor connector	5. Partition plate
2. Tie wrap	6. Stop valve mounting plate
3. Fan motor cable	7. Fan motor
4. Cable clamp	8. Screw

Installation

1. Proceed in reverse order.

CAUTION

Plug in the fan connector before installing the plate work (this allows to trace the DC fan motor wiring).

Do not swap DC fan motor connections (main PCB: upper connector = M2F = lower fan, lower connector = M1F = upper fan).

3.3.1.7. Replacing electrical noise filter

INFORMATION

This procedure is only for RZAG125+100N units, as there is no electrical noise filter PCB on the RZAG71+100N units.

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove the main PCB assy (refer to "Replacing main PCB" on page 107).

PROCEDURE 1-PHASE

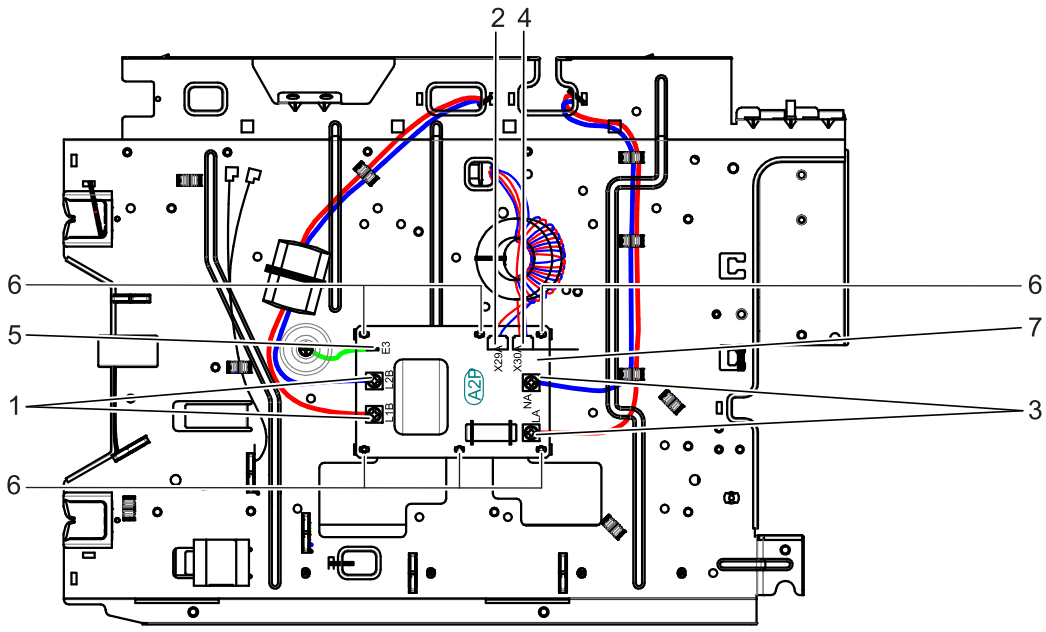
Removal

WARNING: RISK OF FIRE

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

1. Unplug the connectors (2, 4).
2. Remove the wiring from the screw terminals (1, 3).
3. Unplug the ground wire (5).
4. Unlock the 6 standoffs (6) that fix the electrical noise filter PCB.
5. Remove the electrical noise filter PCB (7) from the main PCB assembly.

Figure 3-17: Removing the electrical noise filter (1-phase)



1. Screw terminal
2. Connector
3. Screw terminal
4. Connector
5. Ground wire
6. Standoff
7. Electrical noise filter PCB (1-phase)

Installation

> **INFORMATION**
>
> Replace all tie wraps that were cut during removal.

1. Proceed in reverse order.

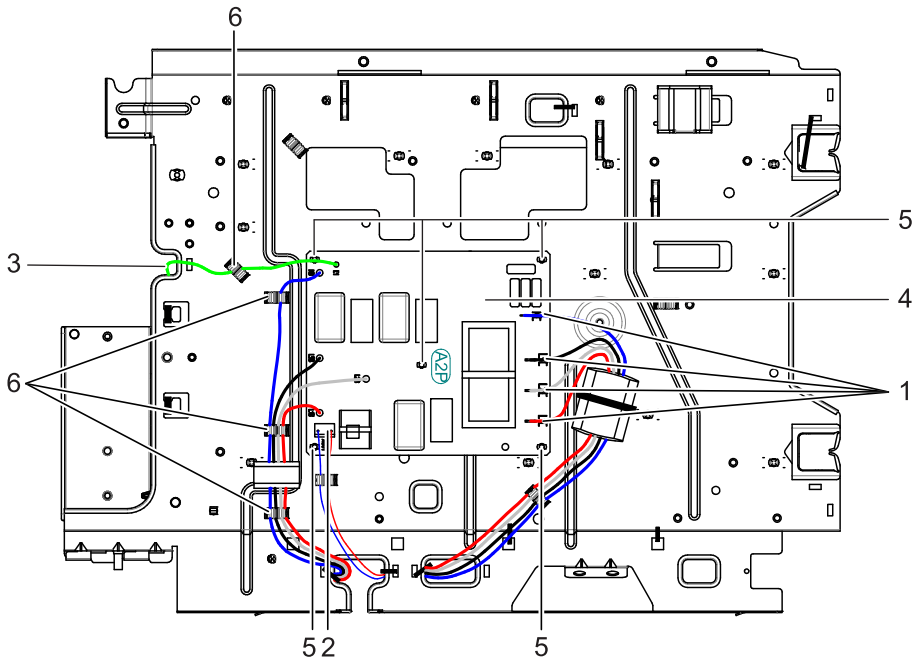
PROCEDURE 3-PHASE

Removal

> **WARNING: RISK OF FIRE**
>
> When reconnecting a connector to the PCB, do not apply force, as this may damage the connector or connector pins of the PCB.

1. Unplug the connector (2).
2. Unplug the terminal wires (1).
3. Unscrew the 4 terminal wires (blue, black, red, white), fixed at the left side of the noise filter PCB, from the main wiring terminal (at the side of the main PCB).
4. Cut all tie wraps that fix these 4 terminal wires and remove the terminal wires from the cable clamps (at the side of the main PCB).
5. Unscrew the ground wire (3) at the side of the main PCB.
6. Remove the wiring from the cable clamps (6).
7. Unlock the 5 standoffs (5) that fix the electrical noise PCB (4).
8. Remove the electrical noise filter PCB (4) from the main PCB assembly.

Figure 3-18: Removing the electrical noise filter (3-phase)



1. Terminal connector
2. Connector
3. Ground wire
4. Electrical noise filter PCB (3-phase)
5. Standoff
6. Cable clamp

Installation

> **INFORMATION**
>
> Replace all tie wraps that were cut during removal.

1. Proceed in reverse order.

3.3.1.8. Replacing expansion valve body

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required (refer to "Basic removal" on page 81).
4. Recover the refrigerant (refer to "Refrigerant repair procedures" on page 75).
5. Remove the expansion valve motor (refer to "Replacing expansion valve motor" on page 98).
6. Connect a nitrogen hose to the outdoor suction service port.
7. Attach a hose with core-depressor to allow the release of the nitrogen.

PROCEDURE

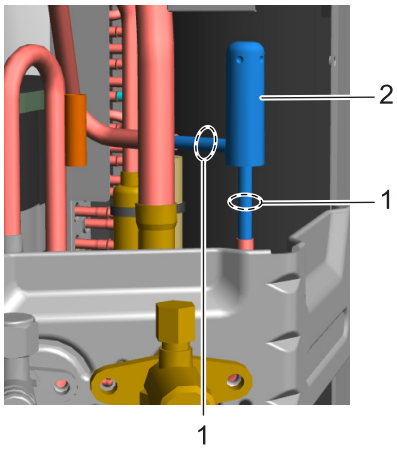
Removal

1. Cut the 2 expansion valve pipes (1).
2. Remove the expansion valve (2).

> **CAUTION**
> The maximum applied Nitrogen pressure must not exceed 0.02 MPa.

3. Supply nitrogen to the piping circuit.
4. Using an oxygen acetylene torch, heat the 2 expansion valve pipes (1).
5. When the solder material is liquid, pull the 2 expansion valve pipes (1).
6. Cut the nitrogen supply when the piping has cooled down.

Figure 3-19: Removing expansion valve



1. Expansion valve pipe
2. Expansion valve

Installation

1. Wrap a wet rag around the expansion valve Y1E (3).

> **WARNING**
> Overheating the expansion valve Y1E will damage or destroy it.

2. Proceed in reverse order.

3.3.1.9. Replacing expansion valve motor

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required (refer to "Basic removal" on page 81).

PROCEDURE

Removal

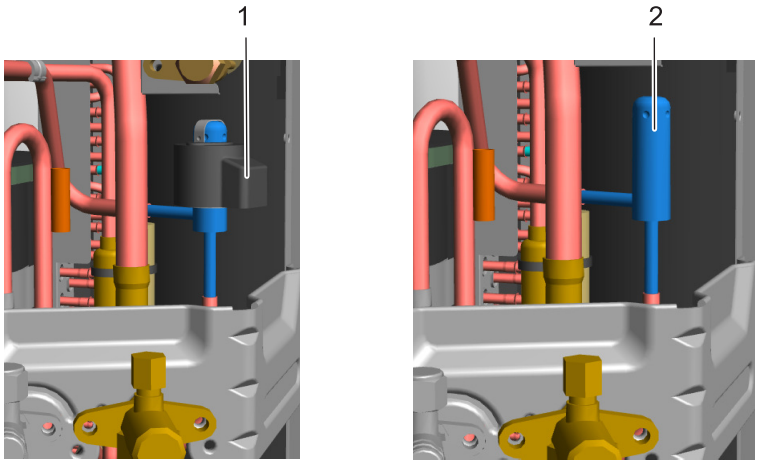
1. Turn the expansion valve Y1E motor (1) 1/8th turn counter clockwise to unlock it.
2. Remove the expansion valve Y1E motor (1) from the expansion valve Y1E (2).
3. Cut all tie wraps that fix the expansion valve motor wiring.

WARNING: RISK OF FIRE

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

4. Unplug the expansion valve motor connector from the Main PCB.

Figure 3-20: Removing expansion valve motor



1. Expansion valve motor
2. Expansion valve

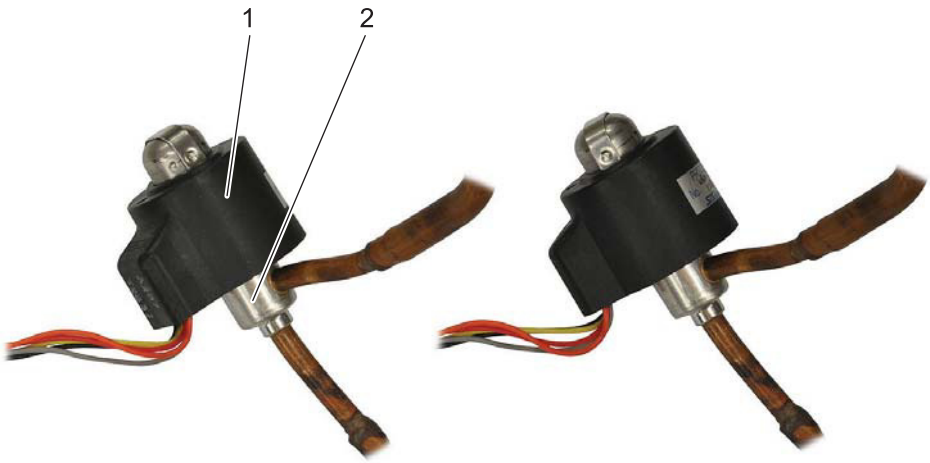
Installation

INFORMATION

Replace all tie wraps that were cut during removal.

1. Proceed in reverse order.
2. When installing the expansion valve motor (1), lock it on the expansion valve (2).

Figure 3-21: Removing expansion valve motor



1. Expansion valve motor
2. Expansion valve

3.3.1.10. Replacing solenoid valve

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required (refer to "Basic removal" on page 81).
4. Recover the refrigerant (refer to "Refrigerant repair procedures" on page 75).
5. Connect a nitrogen hose to the outdoor suction service port.
6. Attach a hose with core-depressor to allow the release of the nitrogen.
7. Remove the solenoid valve coil (refer to "Replacing solenoid valve coil" on page 102).
8. Connect a nitrogen hose to the outdoor suction service port.
9. Attach a hose with core-depressor to allow the release of the nitrogen.

PROCEDURE

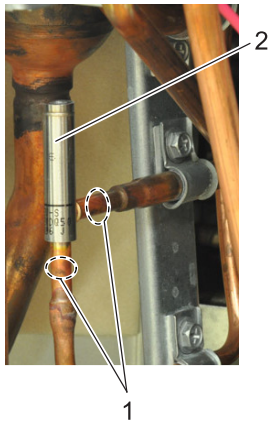
Removal

1. Cut the 2 solenoid valve pipes (1).
2. Remove the solenoid valve (2).

> **CAUTION**
> The maximum applied Nitrogen pressure must not exceed 0.02 MPa.

3. Supply nitrogen to the piping circuit.
4. Using an oxygen acetylene torch, heat the 2 solenoid valve pipes (1).
5. When the solder material is liquid, pull the 2 solenoid valve pipes (1).
6. Cut the nitrogen supply when the piping has cooled down.

Figure 3-22: Removing solenoid valve



1. Solenoid valve pipe	2. Solenoid valve

Installation

1. Wrap a wet rag around the solenoid valve.

WARNING

Overheating the solenoid valve will damage or destroy it.

2. Proceed in reverse order.

3.3.1.11. Replacing solenoid valve coil

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required (refer to "Basic removal" on page 81).
4. Recover the refrigerant (refer to "Refrigerant repair procedures" on page 75).
5. Connect a nitrogen hose to the outdoor suction service port.
6. Attach a hose with core-depressor to allow the release of the nitrogen.

PROCEDURE

Removal

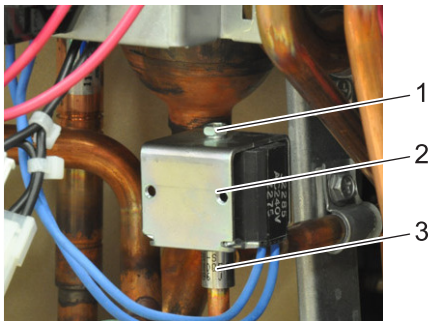
1. Loosen and remove the screw (1) that fixes the solenoid valve coil (2) to the solenoid valve (3).
2. Remove the solenoid valve coil (2) from the solenoid valve (3).
3. Cut tie wraps that fix the solenoid valve coil (2) wiring.

WARNING: RISK OF FIRE

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

4. Unplug the solenoid valve coil connector from the Main PCB.

Figure 3-23: Removing solenoid valve coil



1. Screw
2. Solenoid valve coil
3. Solenoid valve

Installation

INFORMATION

Replace all tie wraps that were cut during removal.

1. Proceed in reverse order.

3.3.1.12. Replacing high pressure switch

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required (refer to "Basic removal" on page 81).
4. Recover the refrigerant (refer to "Refrigerant repair procedures" on page 75).
5. Connect a nitrogen hose to the outdoor suction service port.
6. Attach a hose with core-depressor to allow the release of the nitrogen.

PROCEDURE

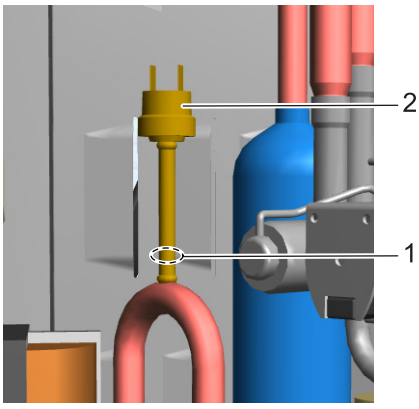
Removal

1. Unplug the high pressure switch connector.
2. Cut the tie wrap.
3. Cut the high pressure switch S1PH pipe (1).
4. Remove the high pressure switch (2).

⚠	**CAUTION** The maximum applied Nitrogen pressure must not exceed 0.02 MPa.

5. Supply nitrogen to the piping circuit.
6. Heat the pressure switch pipe using an oxygen acetylene torch.
7. When the solder is liquid, pull the pressure sensor pipe.
8. Cut the nitrogen supply when the piping has cooled down.

Figure 3-24: Removing high pressure switch



1. High pressure switch pipe
2. High pressure switch

Installation

	**CAUTION** Overheating the high pressure sensor will damage or destroy it.

1. Wrap a wet rag around the pressure sensor.
2. Proceed in reverse order.

3.3.1.13. Replacing inverter PCB

The inverter is integrated in the main PCB, see "Replacing main PCB" on page 107.

3.3.1.14. Replacing low pressure switch

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required (refer to "Basic removal" on page 81).
4. Remove the Main PCB + terminal (power supply), see "Replacing main PCB" on page 107.
5. Recover the refrigerant (refer to "Refrigerant repair procedures" on page 75).
6. Connect a nitrogen hose to the outdoor suction service port.
7. Attach a hose with core-depressor to allow the release of the nitrogen.

PROCEDURE

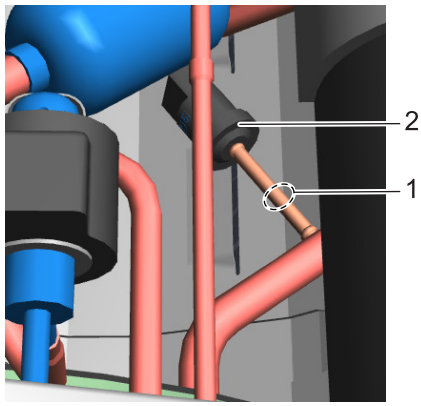
Removal

1. Unplug the low pressure switch connector on the main PCB.
2. Cut the tie wrap that fixes the low pressure switch wiring.
3. Cut the low pressure switch pipe (1).
4. Remove the low pressure switch (2).

> **CAUTION**
> The maximum applied Nitrogen pressure must not exceed 0.02 MPa.

5. Supply nitrogen to the piping circuit.
6. Heat the low pressure switch pipe using an oxygen acetylene torch.
7. When the solder is liquid, pull the low pressure switch pipe.
8. Cut the nitrogen supply when the piping has cooled down.

Figure 3-25: Removing low pressure switch



1. Low pressure switch pipe
2. Low pressure switch

Installation

> **CAUTION**
> Overheating the low pressure switch will damage or destroy it.

1. Wrap a wet rag around the low pressure switch.

2. Proceed in reverse order.

3.3.1.15. Replacing main PCB

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required (refer to "Basic removal" on page 81).

PROCEDURE 1-PHASE

Removal

First, remove Main PCB assembly:

1. Flip over the protection sheet.
2. Remove the power and remote control wiring from the terminal block (1).
3. Cut the tie wrap (9).

> **WARNING: RISK OF FIRE**
> When reconnecting a connector to the PCB, do not apply force, as this may damage the connector or connector pins of the PCB.

4. Unplug all connectors (2) from the main PCB (4).
5. Unplug the 2 ground wires (8).
6. Remove the compressor and fan motor wiring from the cable clamps on the left hand side of the main PCB.
7. Remove the 2 screws (6) that fix the heat sink with a ring spanner or a wrench/socket.

> **INFORMATION**
> Refer to the label for detailed information on how to remove the Main PCB.

> **CAUTION**
> Due to the large size of the PCB it is sensitive to bending.
> Only use a wrench/socket or a ring spanner to loosen or fasten the heat sink screws.
> Do not use a screwdriver.

8. Remove the screws (3) that fix the main PCB support to the Daikin unit (some screws are not visible).
9. Lift and turn the lid (5) to the left.

> **CAUTION**
> Do not remove the main PCB assembly yet, it is still attached by wiring.

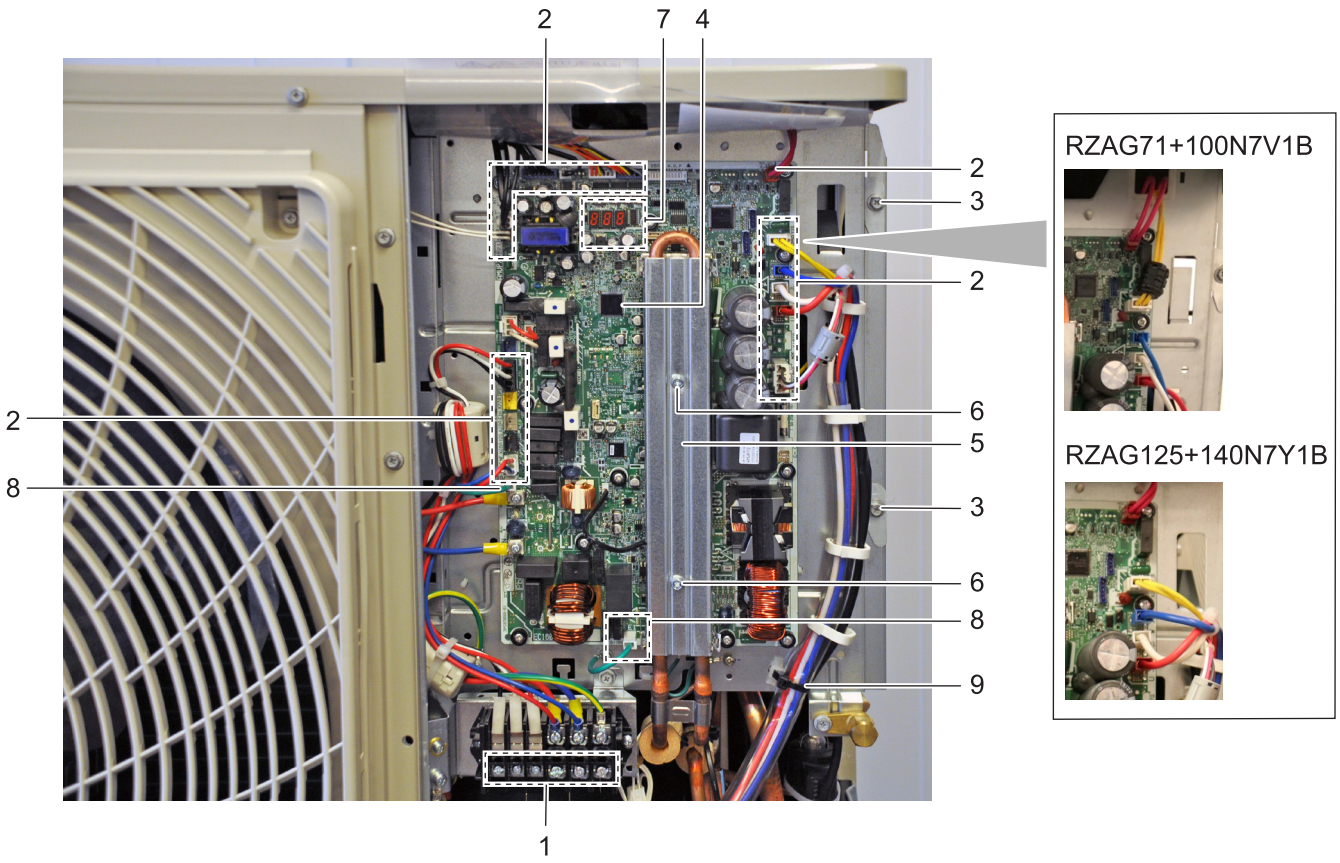
10. Remove the 2 screws that fix the main PCB assy supporting plate (on the left hand side of the main PCB assy) from the unit.
11. Lift and remove (unhook from the main PCB assy) the main PCB assy supporting plate from the unit.
12. Lift the main PCB (4) to release it from the unit.

> **CAUTION**
> Tilting the main PCB stresses the heat pipe, doe not tilt more than 15°.

13. Slightly tilt (max. 15°) the main PCB (4).
14. Guide the wiring through the slots.

15. On the back side of the main PCB assy, cut the tie wraps that fix the thermistor and expansion valve wiring and remove the thermistor and expansion valve wiring from the cable clamps.

Figure 3-26: Removing the main PCB assembly (1-phase)



1. Terminal block
2. Connectors
3. Screw
4. Main PCB 1-phase
5. Lid
6. Screw
7. 7-segment display
8. Ground wire
9. Tie wrap

Secondly, strip the Main PCB assembly (front)

16. Cut the tie wraps that fix the protection sheet; remove the protection sheet (not visible).

17. Cut the tie wraps (1).

18. Loosen and remove the 2 screws (2) that fix the wiring.

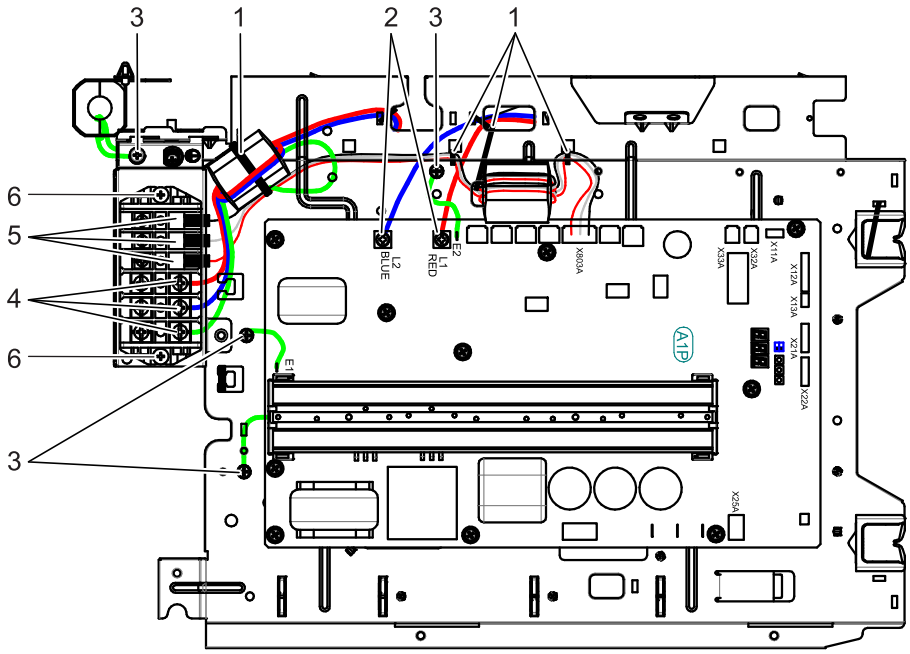
19. Loosen and remove the screws (3) that fix the ground wiring.

20. Loosen and remove the 3 screws (4) that fix the wiring.

21. Disconnect the 3 connectors (5) from the terminal block.

22. Loosen and remove the 2 screws (6) that fix the terminal block.

Figure 3-27: Stripping the main PCB assembly 1-phase (front)



1. Tie wrap
2. Screw
3. Screw for ground wiring
4. Screw
5. Connector
6. Screw

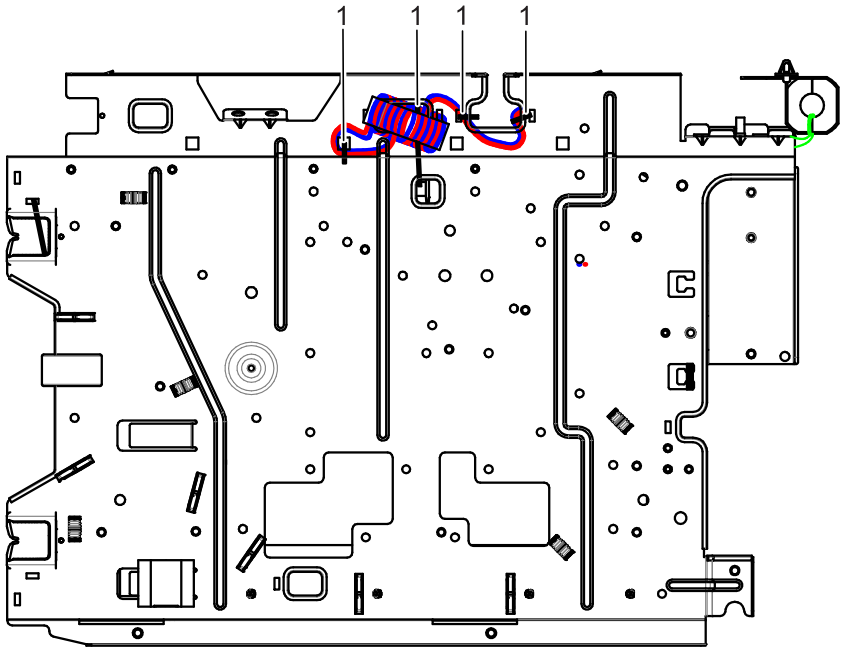
Finally, strip the Main PCB assembly (rear)

For RZAG71+100N7V1B:

23. Cut the tie wraps (1) that fix the wiring.

24. Remove the ferrite core and wiring from the main PCB assy.

Figure 3-28: Stripping the main PCB assembly 1-phase (rear) for RZAG71+100N

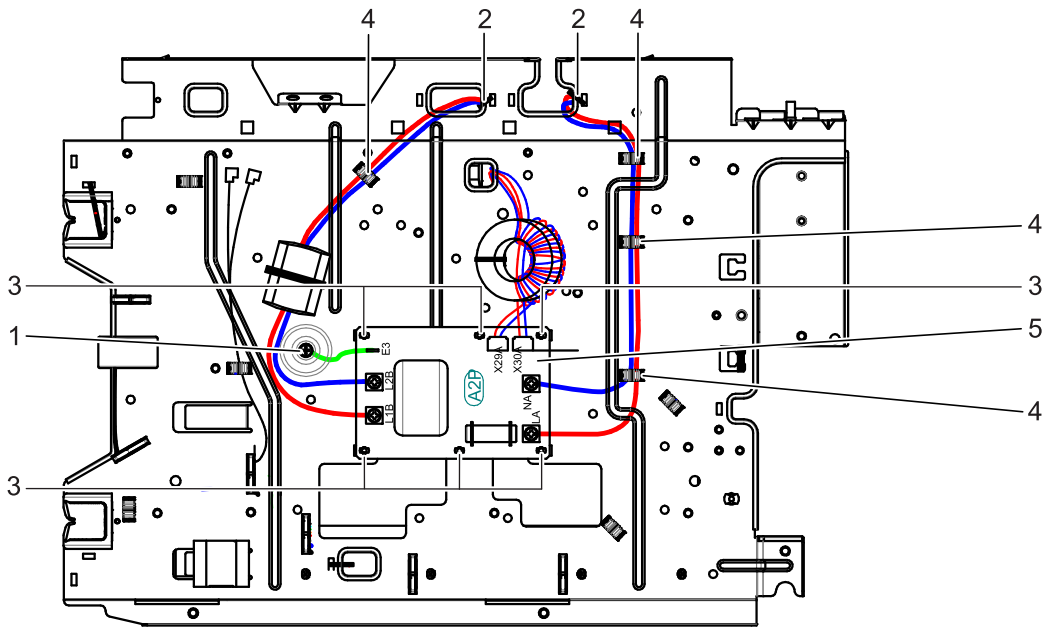


1. Tie wrap

For RZAG125+140N7V1B:

25. Loosen and remove the screw (1) that fixes the ground wire.
26. Cut the 2 tie wraps (2) that fix the wiring.
27. Unlock the 6 standoffs (3) that fix the electrical noise filter PCB.
28. Remove the wiring from the cable clamps (4).
29. Remove the electrical noise filter PCB (5).

Figure 3-29: Stripping the main PCB assembly 1-phase (rear) for RZAG125+140N



1. Screw
2. Tie wrap
3. Standoff
4. Cable clamp
5. Electrical noise filter PCB

Installation

1. Proceed in reverse order.

CAUTION

Make sure all power cables (wiring) are on the right side.

INFORMATION

Refer to the label for detailed information on how to install the Main PCB.

PROCEDURE 3-PHASE

Removal

First, remove Main PCB assembly:

1. Flip over the protection sheet.
2. Remove the power and remote control wiring from the terminal block (1).
3. Cut the 3 tie wraps (8).

> **WARNING: RISK OF FIRE**
> When reconnecting a connector to the PCB, do not apply force, as this may damage the connector or connector pins of the PCB.

4. Unplug all connectors (2) from the main PCB (4).
5. Remove the wiring on the left hand side of the main PCB assy from the cable clamps.
6. Remove the 2 screws (6) that fix the heat sink with a ring spanner or a wrench/socket.

> **CAUTION**
> Due to the large size of the PCB it is sensitive to bending.
> Only use a wrench/socket or a ring spanner to loosen or fasten the heat sink screws.
> Do not use a screwdriver.

7. Remove the screws (3) that fix the main PCB support to the Daikin unit (some screws are not visible).
8. Lift and turn the lid (5) to the left.

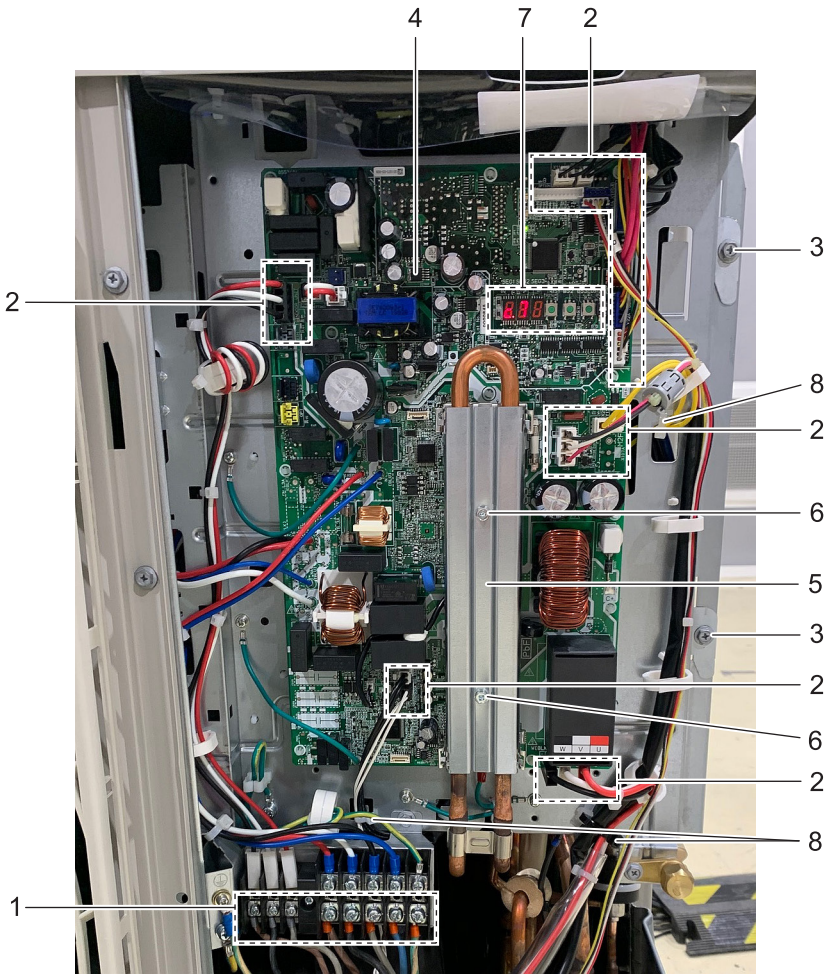
> **CAUTION**
> Do not remove the main PCB assembly yet, it is still attached by wiring.

9. Remove the 2 screws that fix the main PCB assy supporting plate (on the left hand side of the main PCB assy) from the unit.
10. Lift and remove (unhook from the main PCB assy) the main PCB assy supporting plate from the unit.
11. Lift the main PCB (4) to release it from the unit.

> **CAUTION**
> Tilting the main PCB stresses the heat pipe, doe not tilt more than 15°.

12. Slightly tilt (max. 15°) the main PCB (4).
13. Guide the wiring through the slots.
14. On the back side of the main PCB assy, cut the tie wraps that fix the thermistor and expansion valves wiring and remove the thermistor and expansion valves wiring from the cable clamps.

Figure 3-30: Removing the main PCB assembly (3-phase)

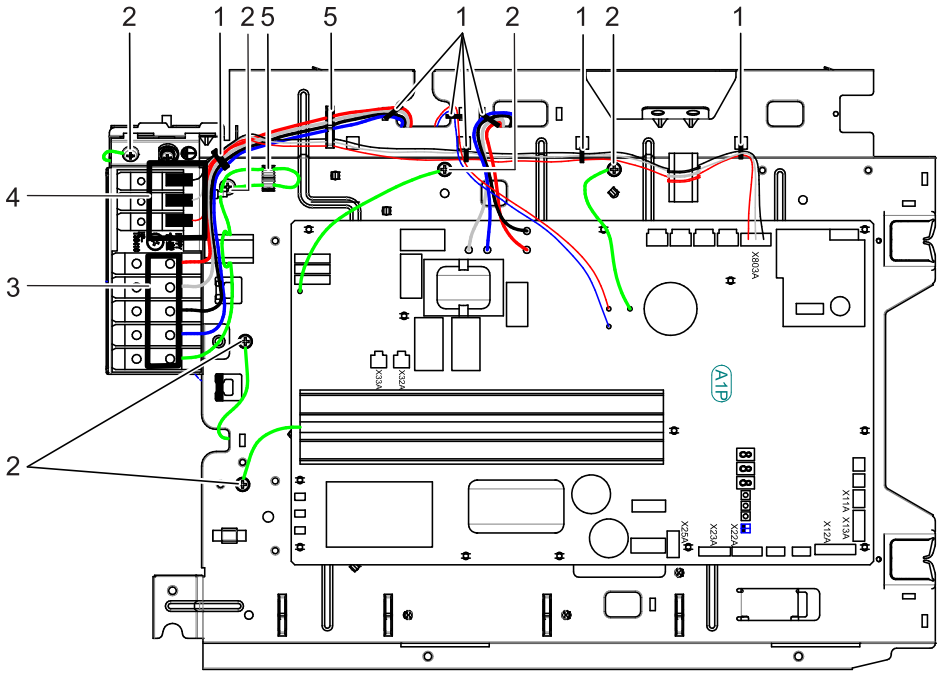


1. Terminal block	5. Lid
2. Connectors	6. Screw
3. Screw	7. 7-segment display
4. Main PCB 3-phase	8. Tie wrap

Secondly, strip the Main PCB assembly (front)

15. Cut the tie wraps that fix the protection sheet; remove the protection sheet.
16. Cut the tie wraps (1).
17. Loosen and remove the screws (2) that fix the ground wiring.
18. Loosen and remove the screws (3) that fix the 4 terminal wires (blue, black, red, white).
19. Disconnect the 3 terminal connectors (4) from the terminal block.
20. Remove the wiring from the cable clamps (5).
21. Loosen and remove the screws that fix the terminal block.

Figure 3-31: Stripping the main PCB assembly 3-phase (front)

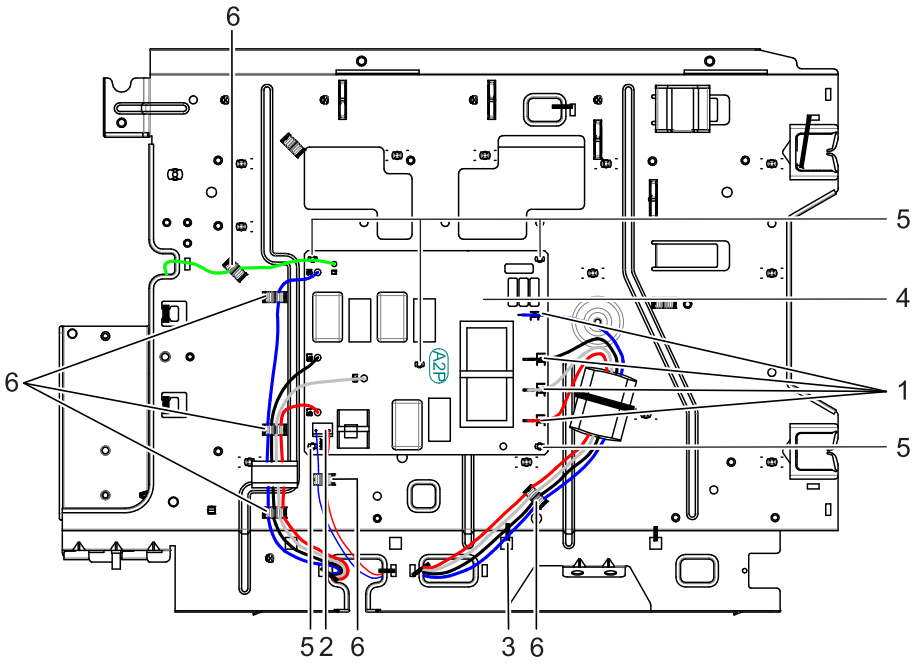


1. Tie wrap
2. Screw ground wire
3. Screw
4. Terminal connectors
5. Cable clamp

Finally, strip the Main PCB assembly (rear)

22. Unplug the connector (2).
23. Unplug the terminal wires (1).
24. Cut the tie wrap (3).
25. Remove the wiring from the cable clamps (6).
26. Unlock the 5 standoffs (5) that fix the electrical noise filter PCB (4).
27. Remove the electrical noise filter PCB (4) from the main PCB assembly.

Figure 3-32: Stripping the main PCB assembly 3-phase (rear)



1. Terminal connector	4. Electrical noise filter PCB (3-phase)
2. Connector	5. Standoff
3. Tie wrap	6. Cable clamp

Installation

1. Proceed in reverse order.

3.3.1.16. Replacing propeller fan blade assembly

PRELIMINARY ACTIONS

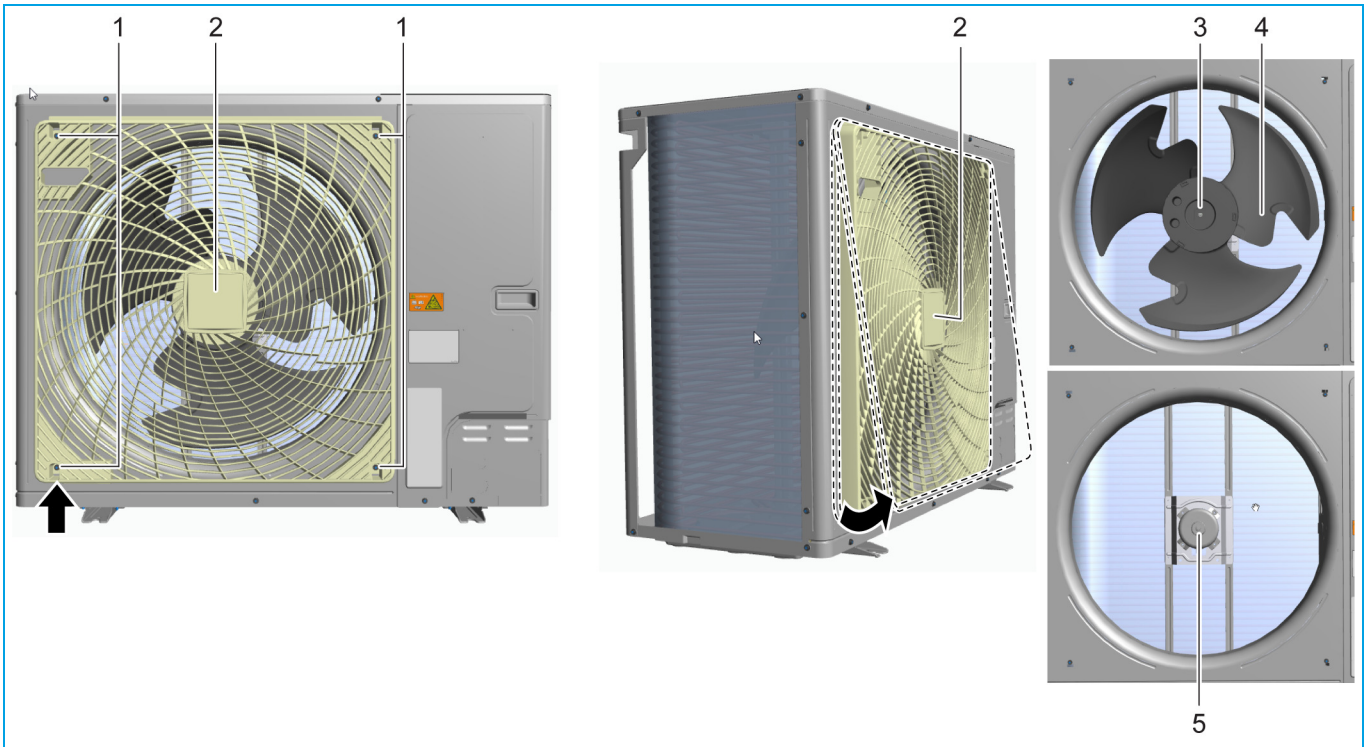
1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.

PROCEDURE

Removal

1. Loosen and remove the 4 nuts (1) that fix the air discharge grill (2).
2. Press (A) the 2 latches to release the air discharge grill (2).
3. Tilt (B) the air discharge grill (2) and remove it from the Daikin unit.
4. Remove the nut (3) that fixes the propeller fan (4).
5. Pull the propeller fan blade assembly (2) from the fan motor (5).

Figure 3-33: Removing the propeller fan blade assembly



1. Nut
2. Air discharge grill
3. Nut
4. Propeller fan
5. Fan motor

3.4. Emergency operation

Overview:

The table below describes the purpose of the emergency operation.

If...	Then...
• R/C is defective • Indoor unit PCB is defective • Outdoor unit PCB is defective	Emergency operation can be used to go to cooling or heating. In emergency operation, the compressor is forced to operate until the defective indoor or outdoor unit PCB is back online.

3.4.1. Starting conditions

In case the customer strongly needs the heating/cooling operation while waiting for the next service visit, you can manually operate the system by changing the emergency switch on the indoor unit and outdoor unit PCB from "normal" to "emergency". When emergency operation is active, the system CANNOT control the room temperature.

Both the indoor and outdoor unit must be set to "emergency" while the power is off.

3.4.2. Ending conditions

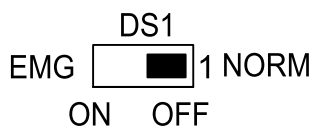
You can end the emergency operation by changing the "emergency" switch on the indoor unit and outdoor unit PCB back to "normal" while the power is OFF.

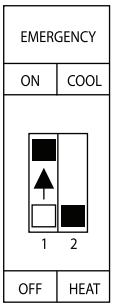
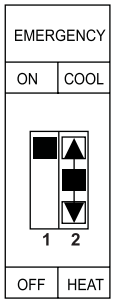
Below table explains what will happen when the switch is set to "emergency":

Changing the switch to “emergency” for the...	Switches ON the...
Indoor unit	• Indoor fan • Drain pump
Outdoor unit	• Compressor • Outdoor unit fan

3.4.3. Emergency operation

To set emergency operation, proceed as follows:

Step	Action
1	Turn OFF the power.
2	Set the emergency DIP switch DS1-1 on the indoor unit PCB to the "emergency" position.. 

Step	Action
3	Set the emergency DIP switch DS1-1 on the outdoor unit PCB to the "ON" position.. 
4	Set the emergency DIP switch DS1-2 on the outdoor unit PCB to the desired forced operating mode (Cooling or Heating).. 
5	Turn ON the power supply.

3.4.4. Active components

Component	Forced cooling	Forced heating	Forced defrosting
Compressor	ON	ON	ON
4-way valve	OFF	ON	OFF
Outdoor unit fan	Steady-state control	Steady-state control	OFF
Indoor unit fan	Steady-state control	Steady-state control	OFF
Drain pump	ON	ON	ON

3.4.5. Additional info

- The unit will not regulate the temperature during emergency operation.
- During emergency operation, do not attempt to operate the system using the remote controller. The remote controller shows "88" while the emergency operation is active on the indoor unit.
- If a safety device is activated during emergency operation, all actuators are turned OFF.
- In cooling operation, the unit runs for 20min and then stops for 10min in order to avoid freeze-up of the indoor coil.
- In heating operation, defrost is activated for 3 minutes once every hour.
- Emergency operation can not be carried out when the PCB itself is seriously damaged.
- Make sure to set the emergency switch on both the outdoor and indoor unit PCB.
- Change the position of the emergency switch only when the power is turned off.
- When the communication between the indoor unit(s) and outdoor unit is repaired, emergency operation will stop and the system returns to normal operation.

Part 4. Maintenance

This part contains the following chapters:

4.1. Indoor unit

4.1.1. General maintenance indoor unit

1. Optimal operation conditions

	Cooling	Heating
Differential between suction temperature and discharge temperature	8~18°C	14~30°C
DB	27°C	20°C
WB	19°C	Not applicable

2. Correlation of air-conditioner's operation status, pressure and running current

COOLING	Low pressure	High pressure	Running current
Dirty air filter	Lower	Lower	Lower
Short circuit of air inlet/outlet	Lower	Lower	Lower
Air mixed in refrigerant	Higher	Higher	Higher
Water mixed in refrigerant	Lower*	Lower	Lower
Dirt mixed in refrigerant	Lower**	Lower	Lower
Refrigerant shortage (gas)	Lower	Lower	Lower
Unsatisfactory compression	Higher***	Lower	Lower

* Water in the refrigerant freezes inside the electronic expansion valve and is basically the same phenomenon as pump down.

** Dirt in the refrigerant clogs filters inside the piping and is basically the same phenomenon as pump down.

*** Pressure differential between high and low pressure becomes low.

3. Clean the indoor heat exchanger (if necessary. Example: contaminated by cooking oil, …).
   - Use proper field supply cleaning agent which is suitable for cleaning heat exchangers and drain pans.
   - Clearly follow the instructions of local supply cleaning agent and do not use household cleaning agents.
   - Please rinse the heat exchanger and drain pan with water after the cleaning process. (*)

CAUTION

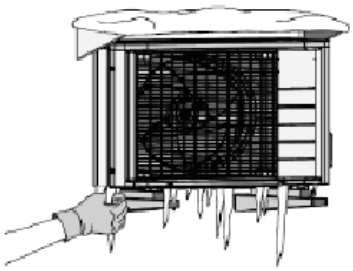
* Rinse out the cleaning agent until there is no cleaning agent left. Otherwise, the corrosion of heat exchanger and drain pan may occur.

Pay attention to the cleaning agent that may also corrode other materials of indoor unit (Aluminium, copper, plastic, ABS, …).

4.2. Outdoor unit

4.2.1. General maintenance outdoor unit

1. Outdoor unit coil
   - Straighten hair fins.
   - Clear coil from dust, leaves, etc. with a fin-comb, or compressed air/N2. Avoid bending or damaging of the Alu fins during the cleaning process.
   - Remove the icicles during winter season. Use gloves to avoid injury and unit damage.



CAUTION

Make sure not to bend the hair fins.

2. Correlation of air-conditioner's operation status, pressure and running current.

COOLING	Low pressure	High pressure	Running current
Dirty air filter	Higher	Higher	Higher
Short circuit of air inlet/outlet	Higher	Higher	Higher
Air mixed in refrigerant	Higher	Higher	Higher
Water mixed in refrigerant	Lower*	Lower	Lower
Dirt mixed in refrigerant	Lower**	Lower	Lower
Refrigerant shortage (gas)	Lower***	Lower	Lower

* Water in the refrigerant freezes inside the electronic expansion valve and is basically the same phenomenon as pump down.

** Dirt in the refrigerant clogs filters inside the piping and is basically the same phenomenon as pump down.

*** Pressure differential between high and low pressure becomes low.

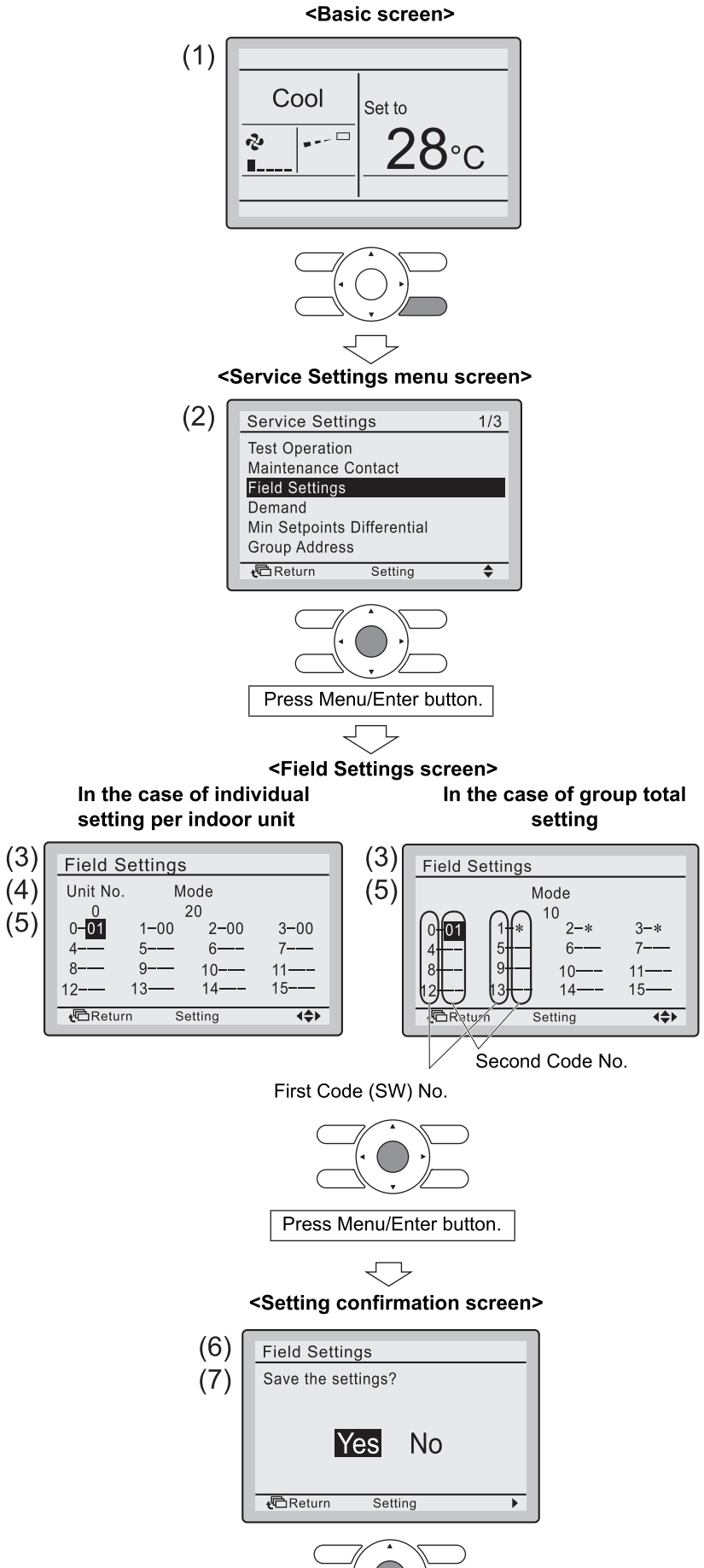
Part 5. Appendix

This part contains the following chapters:

5.1. Field setting

5.1.1. Indoor unit

5.1.1.1. Retrieve field settings BRC1E

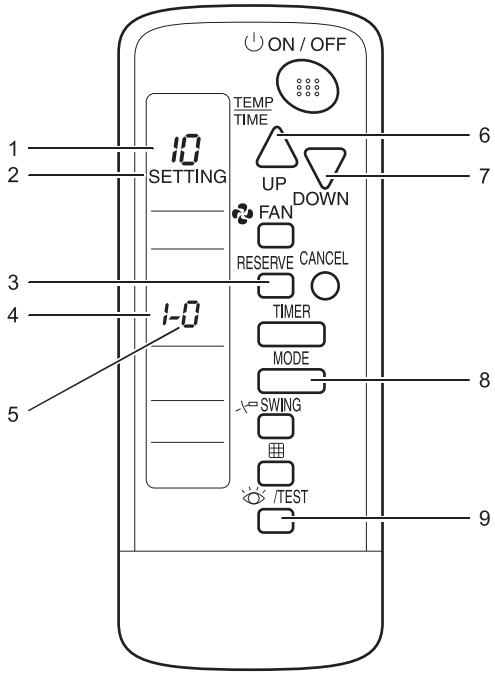


6. Press Menu/Enter button. Setting confirmation screen is displayed.
7. Select *Yes* and press Menu/Enter button. Setting details are determined and Field Settings screen returns.
8. In the case of multiple setting changes, repeat “(3)” to “(7)”.
9. After all setting changes are completed, press Cancel button twice.
10. Backlight goes out, and “Connection under check Please wait for a moment” is displayed for initialization. After the initialization, the basic

CAUTION

- When an optional accessory is installed on the indoor unit, settings of the indoor unit may be changed. See the manual of the optio
- For field setting details of the outdoor unit, see installation manual attached to the outdoor unit.

5.1.1.2. Retrieve field settings BRC7



1. Mode No.
2. Field setting mode
3. RESERVE button
4. First code No.
5. Second code No.
6. UP button
7. DOWN
8. MODE
9. INSPE

Setting

To set the field settings, you have to change:

- “Mode No.”
- “First code No.”
- “Second code No.”.

To change the field settings, proceed as follows:

1. Hold down the INSPECTION/TEST button for at least 4 s during normal mode to enter the “Field setting mode”.
2. Press the MODE button to select the desired “Mode No.”.
3. Press the UP button to select the “First code No.”.
4. Press the DOWN button to select the “Second code No.”
5. Press the RESERVE button to set the present settings.
6. Press the INSPECTION/TEST button to return to the “Normal mode”

5.1.1.3. Retrieve field settings BRC1H

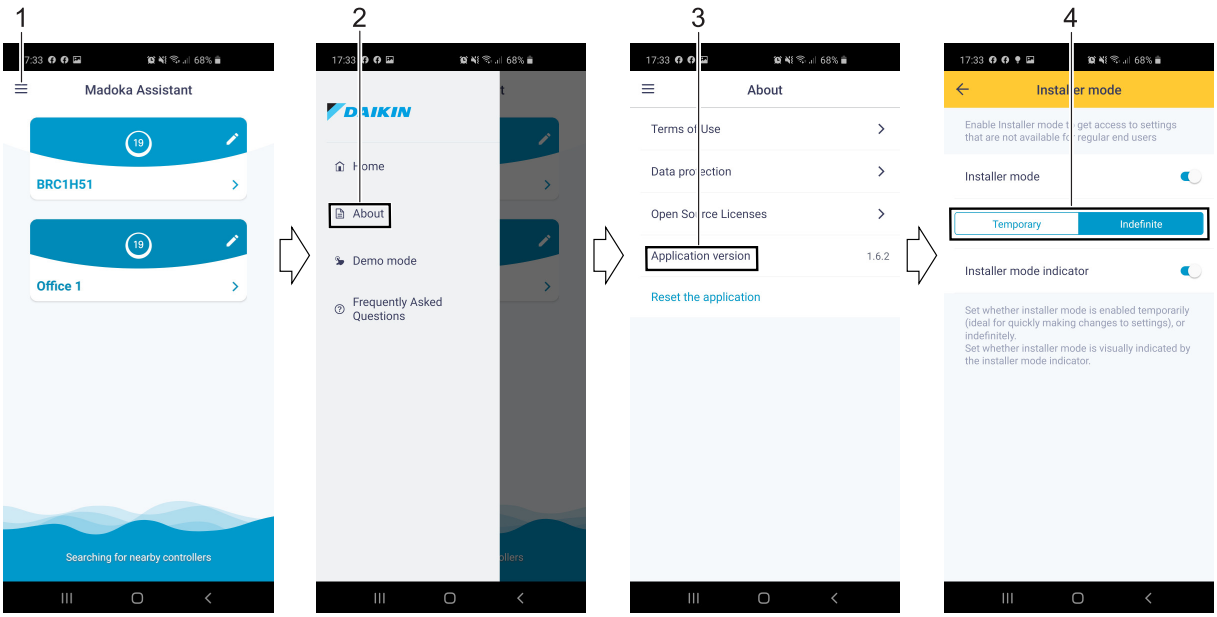
5.1.1.3.1 BRC1H remote controller

See the installer and user reference guide of the Madoka wired remote controller for correct procedure.

5.1.1.3.2 Madoka Assistant for BRC1H

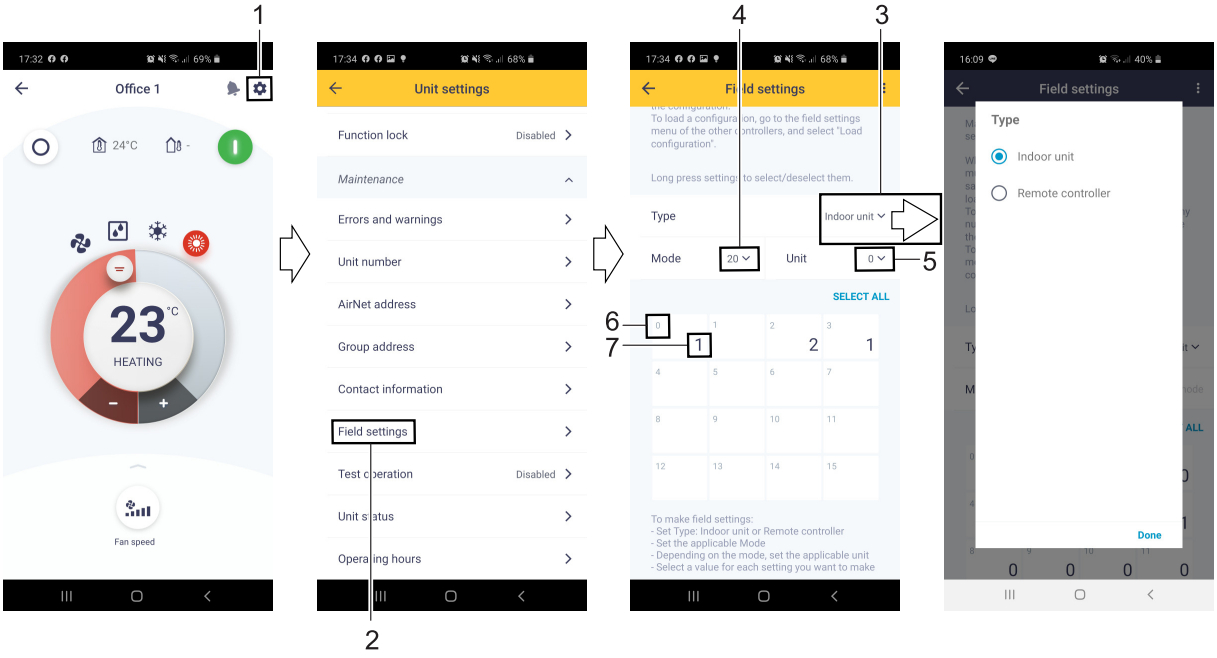
Set as installer mode

In order to retrieve the field settings, the Madoka Assistance app has to be set as installer mode. If already set as installer mode, skip to F



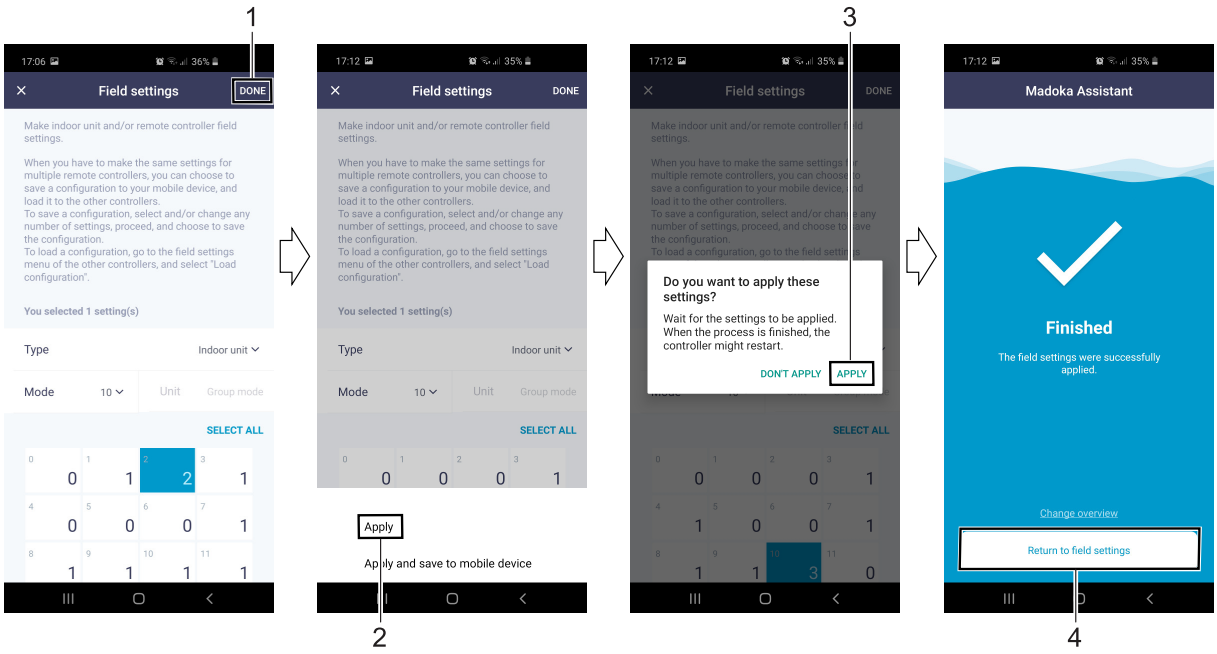
1. Tap the menu icon.
2. Tap "About".
3. Tap "Application version" 5 times. Installer mode screen is displayed.
4. Select (tap) the length of time the Madoka Assistance app is set as installer mode: "Temporary" for 30 minutes and "Indefinite" for un

Retrieve field settings



1. Tap the settings icon. The "Unit settings" screen appears.
2. Tap "Field settings". The "Field settings" screen appears.

Retrieve field settings



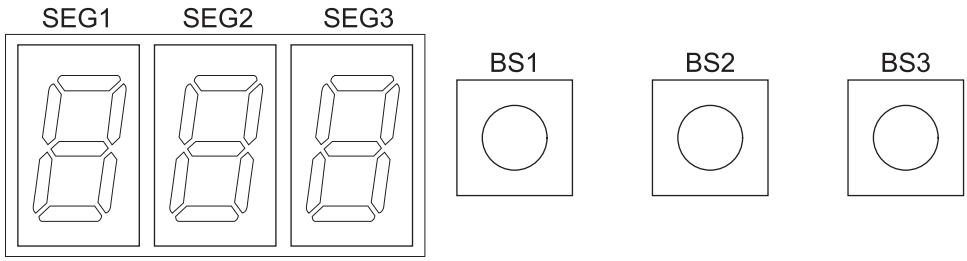
1. After finishing the setting(s), tap the "DONE" icon.
2. Tap "Apply" to apply the set field settings.
3. Tap "Apply" to confirm.
4. Tap "Return to field settings" to end the settings.

	Second Code No.				
	01	02	03	04	05
g life filter	2,500 hrs. (factory setting)	1,250 hrs.	—	—	—
	Long (factory setting)	Super long	—	—	—
	Enabled	Disabled (factory setting)	—	—	—
	Display (factory setting)	No display	—	—	—
	30 min (factory setting)	60 min	—	—	—
n heating mode	COMPENSATE (Temperature [A+2] °C which an air conditioner controls when the temperature of a remote controller is A °C) (factory setting)	NO COMPENSATION (Temperature [A] °C which an air conditioner controls when the temperature of a remote controller is A °C)	—	—	—
	Normal (factory setting)	OFF	—	—	—
	Standard (factory setting)	Slightly up	Up	—	—
	Available (factory setting)	Prohibition	—	—	—
	High	Low	Standard (factory setting)	Sensor does not work	—
	Compressor (factory setting)	Option	Operation	Malfunction	—
han body	Floor sensor does not work	Higher priority on the air temperature	Standard (factory setting)	Higher priority on the floor temperature	—
	-4°C	-2°C	±0°C (factory setting)	+2°C	—
	LL-speed (factory setting)	Set-speed	—	—	—
	Disabled	Enabled (factory setting)	—	—	—
	LL-speed	Set-speed (factory setting)	—	—	—
olications)	Standard (factory setting)	Slightly up	Up	—	—
	4-way flow (factory setting)	3-way flow	—	—	—
	All 4 flaps synchronized	—	Two opposite flaps synchronized (factory setting)	—	—
	Upper	Normal (factory setting)	Lower	—	—
n Sign Display	About 1250 hrs (dusty place)	About 2500 hrs (factory setting)	About 5000 hrs (less dusty place)	—	—
e selfcleaning	Display both: - airconditioning operation, - filter auto cleaning	Non display: - airconditioning operation, Display: - filter auto cleaning (factory setting)	Display: - airconditioning operation, Non display: - filter auto cleaning	—	—
ning	Auto control operation	Not auto control operation (factory setting)	—	—	—
	Normal place in terms of dust (Nor	In case of dusty place			

5.1.2. Outdoor unit

5.1.2.1. Retrieve field settings OU mode 1 / mode 2

5.1.2.1.1 Location of the 7 segment display and BS Buttons



Meaning of the BS buttons:

- BS1:Mode
- BS2:Set
- BS3:Confirm/Back

Two outdoor field setting modes are available by using the BS1 buttons on the PCB.

- Mode 1: used to read out information of the outdoor PCB.
- Mode 2: used to set outdoor unit settings.

5.1.2.1.2 Field Setting for Outdoor Unit

Mode 1

- This mode is used to read out information of the outdoor PCB.
- Press the BS1 button once to activate Mode 1.
- In this mode, the following information can be retrieved via the 7 segment display.

No.	Setting item
0	Indication of low noise
1	Indication of demand operation
2	Indication of oil return
3	Indication of capacity class
4	Last error code (*)
5	2nd last error code
6	3rd last error code
7	Software number
8	Software version (e.g.: version 01/02/…)
9	Compressor stepping down protection
10	Empty
11	Outdoor unit cumulative operating time (Unit: Hours/100)
12	Compressor cumulative operating time (Unit: Hours/100)
13	Inverter secondary current
14	Outdoor fan speed step
15	Inverter output Hz

No.	Setting item
16	Expansion valve opening 1
17	Expansion valve opening 2
18	Outdoor unit compressor discharge se
19	Outdoor unit suction pipe sensor temp
20	Outdoor unit air sensor temperature
21	Outdoor unit liquid pipe sensor temper
22	Outdoor unit middle coil sensor tempe
23	Outdoor unit coil sensor temperature
24	Empty
25	Indoor unit suction air temperature
26	Indoor unit liquid pipe temperature
27	Indoor unit gas pipe temperature
28	High pressure sensor
29	Low pressure sensor
30	High external-static-pressure-mode-lev

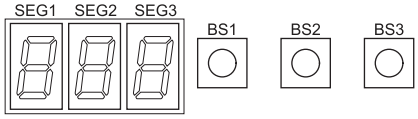
(*) How to read out the last error code:

1. Press the BS1 button once.
2. Press the BS2 button 5 times to select the latest error

5.2. Detailed information setting mode

5.2.1. Outdoor unit

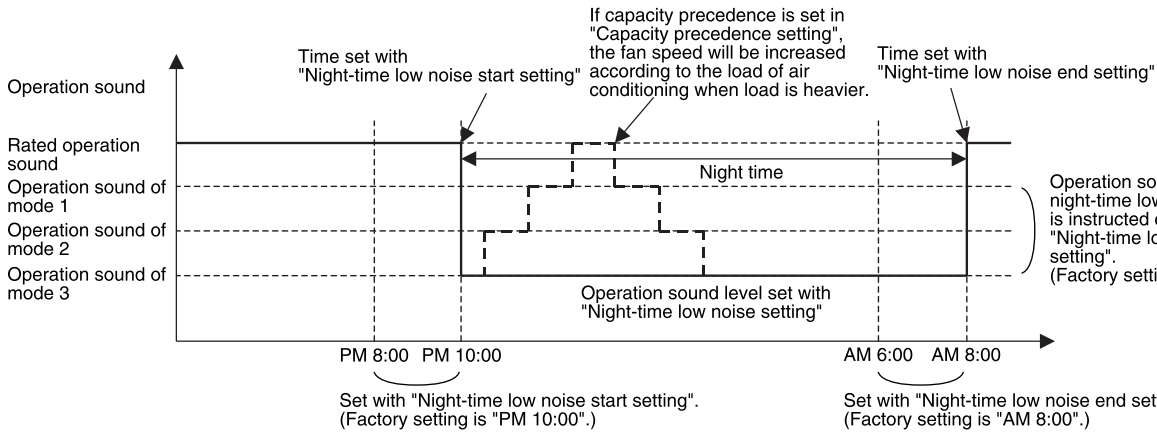
How to Access & Set the Outdoor Unit Settings (Mode 2)



1. Press and hold the BS1 button for 5 seconds to activate the outdoor unit settings (accessing Mode 2).
2. Press the BS2 button (set) for the required setting.
3. Press the BS3 button (return) once to confirm the setting.
4. Press the BS2 button to set the setting condition.
5. Press the BS3 button once to confirm the setting.
6. Press the BS3 button once to exit the setting.

Outdoor Unit Settings (Mode 2)

No.	Setting item	7 segment display			Setting Condition
		SEG1	SEG2	SEG3	
0	Night time low noise settings	2	0	0	OFF (initial value)
					ON
1	Capacity priority setting	2	0	1	OFF (initial value)
					ON
2	Capacity up setting	2	0	2	OFF (initial value)
					ON
3	Low noise settings (see diagram below) (low noise level, start and end time of automatic low noise during nighttime)	2	0	3	Level 1, 22h00~ 6h00
					Level 1, 22h00, 8h00
					Level 2, 22h00, 6h00
					Level 2, 22h00, 8h00 (initial value)
					Level 2, 20h00~8h00
					Level 3, 22h00, 8h00
					Level 3, 20h00, 8h00
4	Freeze up avoidance (combined with EDP room setting)	2	0	4	OFF (initial value)
					ON
5	EDP room setting	2	0	5	OFF (initial value)
					ON
7	Defrost slow starting setting	2	0	7	OFF (initial value)
					ON
8	Defrost quick starting setting	2	0	8	OFF (initial value)
					ON
17	Refrigerant recovery mode setting	2	1	7	OFF (initial value)
					ON
18	Power transistor check mode settings	2	1	8	OFF (initial value)
					ON
56	Drain pan heater ON time after defrost completion	2	5	6	1 min
					5 min
					10 min (initial value)
					15 min
					25 min
					30 min



* "Start time" and "End time" must be regarded as a guide because they are estimated based on the outside air temperature.

5.2.1.1. Night Time Low Noise Operation

Lower the operation sound of the outdoor unit.

Night time low noise operation can be activated by:

1. Automatic control (by field setting from outdoor unit)
2. External activation (from optional PCB KRP58M51 with mounting plate EKMKSA2)

CAUTION

Do NOT change the field settings for night time low noise operation via the remote controller as this might cause interference with the optional PCB KRP58M51.

CAUTION

Make sure to perform a power reset via the outdoor unit after changing the field settings.

Night time low noise operation by automatic control

Night time low noise operation can be set by field setting from the outdoor unit:

No.	Setting item	7 segment display			Setting Condition
		SEG1	SEG2	SEG3	
0	Night time low noise settings	2	0	0	OFF (initial value)
					ON
1	Capacity priority setting	2	0	1	OFF (initial value)
					ON
3	Low noise settings (see diagram below) (low noise level, start and end time of automatic low noise during nighttime)	2	0	3	Level 1, 22h00~ 6h00
					Level 1, 22h00, 8h00
					Level 2, 22h00, 6h00
					Level 2, 22h00, 8h00 (initial value)
					Level 2, 20h00~8h00
					Level 3, 22h00, 8h00
					Level 3, 20h00, 8h00

In case that the time is not obtained by the remote controller or other control devices:

The night time low noise control (setting mode 2.00-02) will be carried out by presuming the current time in accordance with the outside tempe

The maximum outdoor temperature is supposed to occur at 14:00h.

However, the current time will be adjusted by the average time, which is calculated by the maximum temperature occurred in the past 10 days

As the time judgement is made in accordance with the outdoor temperature, the above mentioned timing is an estimation only

When setting mode 2.00-02 in combination with 2.01-02, the night time low noise operation will be stopped when the heating or cooling load inc
to normal operation. The unit will return to night time low noise operation when the heating or cooling load decreases again.

Night time low noise operation ends when the contact is opened.

Use of the optional PCB KRP58M51 enables the use of an external time clock.

Same as with the automatic control, priority for capacity can be set. Priority for capacity will be activated by changing field setting 2.01-02 KRP58M51.

No.	Setting item	7 segment display			Setting Condition
		SEG1	SEG2	SEG3	
1	Capacity priority setting	2	0	1	OFF (initial value)
					ON

The night time low noise operation will be overruled in the following conditions:

- Pump down residual operation
- Startup control
- Defrost operation
- Oil recovery

Model	RZAG71N	RZAG100N	RZAG125N	RZAG140N
Sound reduction	6 dBA	6 dBA	6 dBA	6 dBA

INFORMATION

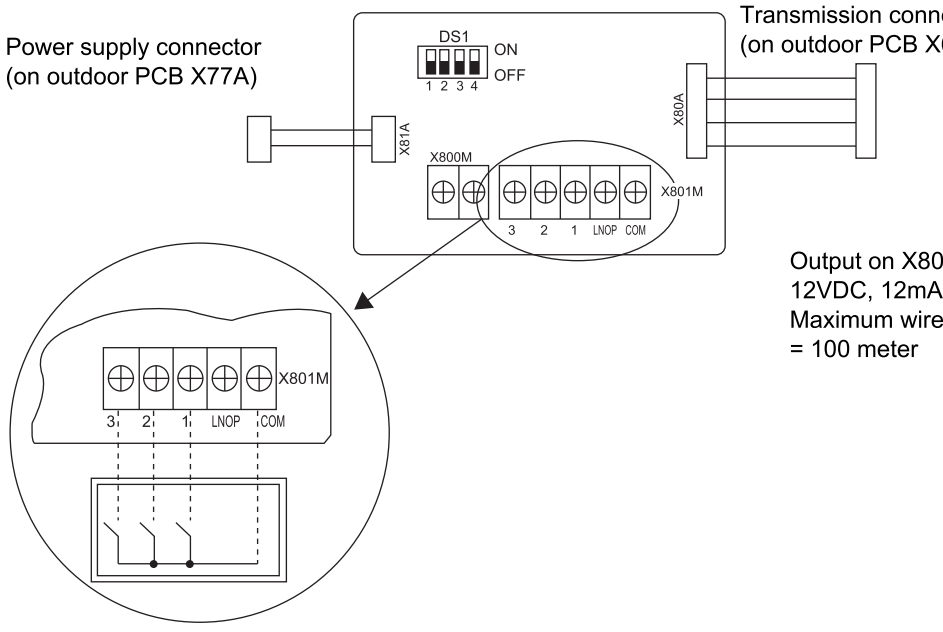
Sound reduction was measured on the condition of Level 3 low noise setting in cooling mode.

5.2.1.2. I-Demand Function

Set a limitation towards the power consumption from the system (e.g. budget control, limit power consumption during peak moments, ...).

3 different demand setting can be selected by using terminal X801M:

- Demand 1 → Close contact between COM and contact 1
- Demand 2 → Close contact between COM and contact 2
- Demand 3 → Close contact between COM and contact 3



Demand 1

Power consumption limitation in function of setting on DS1.

DS1 Setting	Maximum Power

5.2.2. Settings for infrastructure cooling (EDP)

Related field settings:

Description	Setting	Setting location	Note
EDP room setting	2.05-02	Outdoor unit PCB	Continuous Cooling in low humidity applica
Slow start for EDP applications	16(26)-7-02	Remote controller	To enhance the EDP applications by increa Decrease the possibility of dewdrop from ir
Freeze up avoidance (combined with EDP room setting)	2.04-2	Outdoor unit PCB	To decrease the possibility of freeze up pro
Maximize airflow	13(23)-0-03	Remote controller	
Free Cooling	2.58-02	Outdoor unit PCB	
EDP totalization setting*	2.57-02	Outdoor unit PCB	Combined setting of 2.05-02 + 16(26)-7-02

* Daikin recommends to use 2.57-02 for infrastructure cooling (EDP).

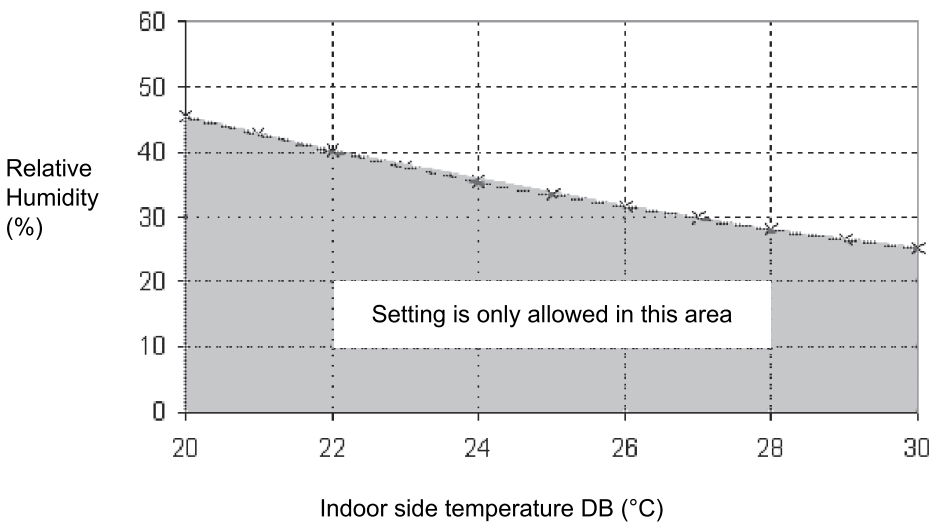
CAUTION

Make sure to perform a power reset via the outdoor unit after changing the field settings.

Possible options:

Option	Description	Note
RTD-10	Backup operation, Duty Rotation, Additional unit comes in to deliver capacity, Visual Alarm Signal, I/O BMS connection - Forced On/Off operation + Alarm Monitoring	High end soluti
DTA113B51	Backup operation, Duty Rotation, I/O BMS connection - Forced On/Off operation, Sequential start control, Minimum Guaranteed units for Operation	Basic solution u
SB.KRP58M52	Free cooling	
DCM601A51	Above-mentioned+ mini-BMS connection and energy management	iTM solution

This can be set when using the RZAG-N units for year round infrastructure cooling such as computer rooms (EDP rooms), technical rooms, et



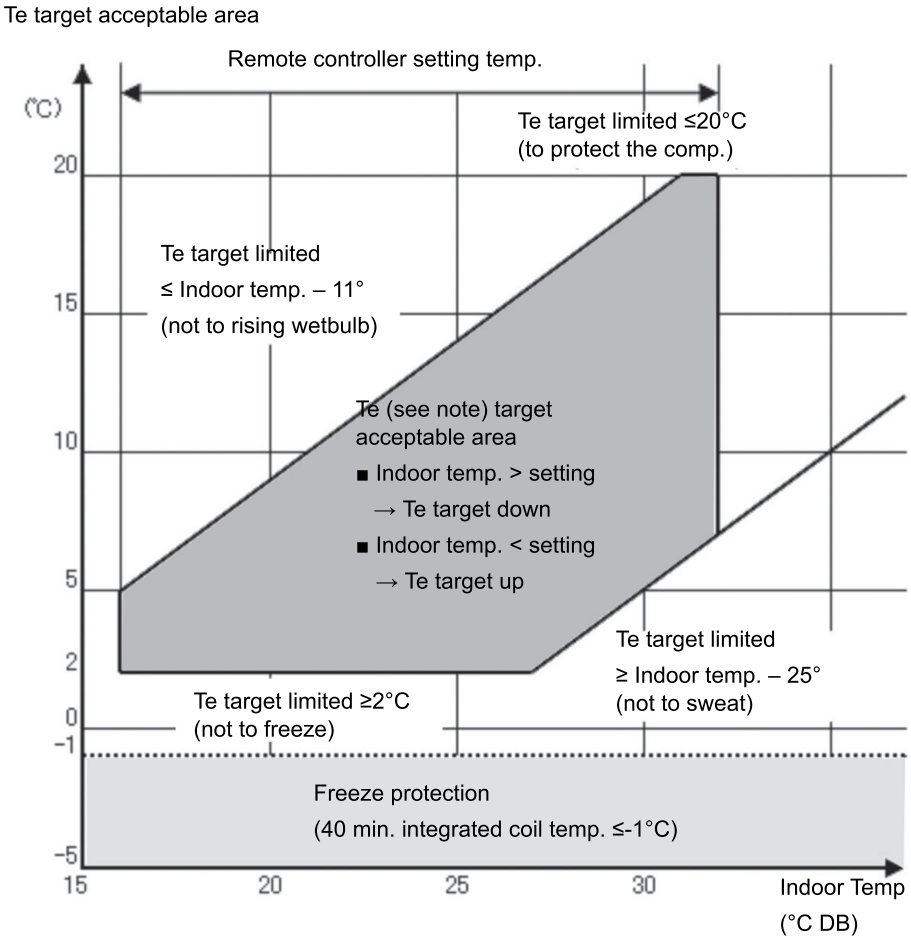
CAUTION

When using the “infrastructure cooling settings” outside the “dark area” indicated in the graph above, there is an increased risk of ice ac out from the indoor unit.

	Factory setting	Infrastructure cooling setting	In a
Field Setting	2.05-01	2.05-02	2.
Compressor control	• The compressor frequency is controlled in function of the target evaporating temperature. • The target evaporating temperature is controlled in function of the cooling load.		
	Minimum target Te = 2°C	Minimum target Te = 0°C	In ch fr •

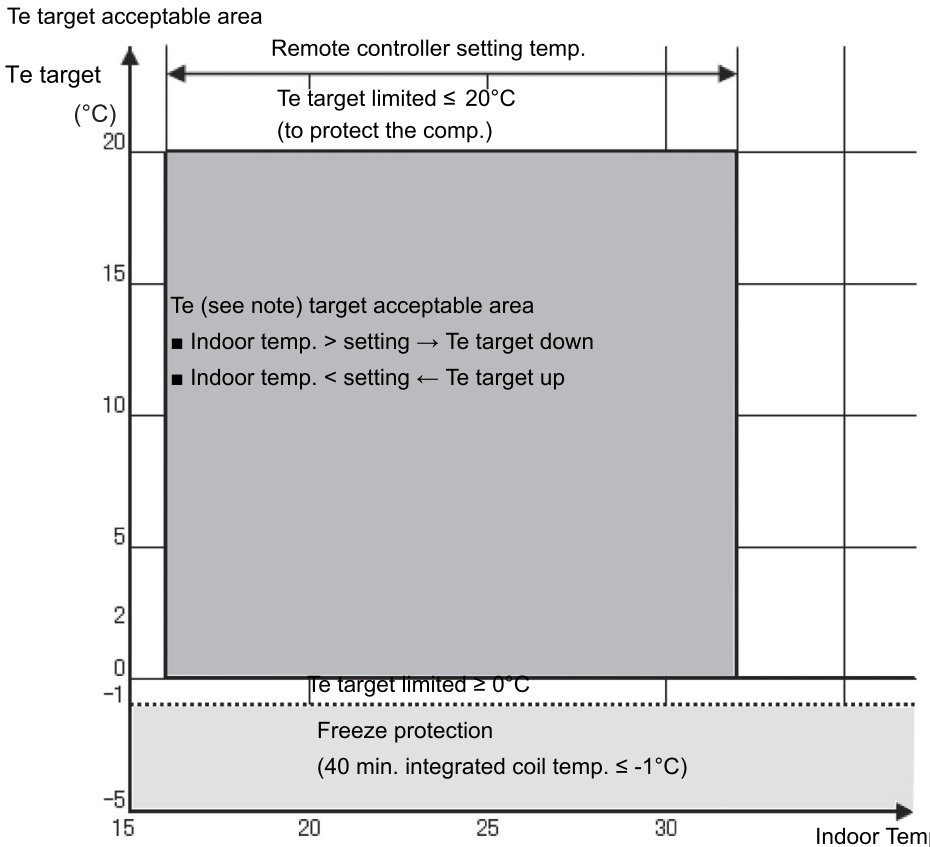
Graph 1

Target evaporating temperature control in case of factory setting 2.05-01:



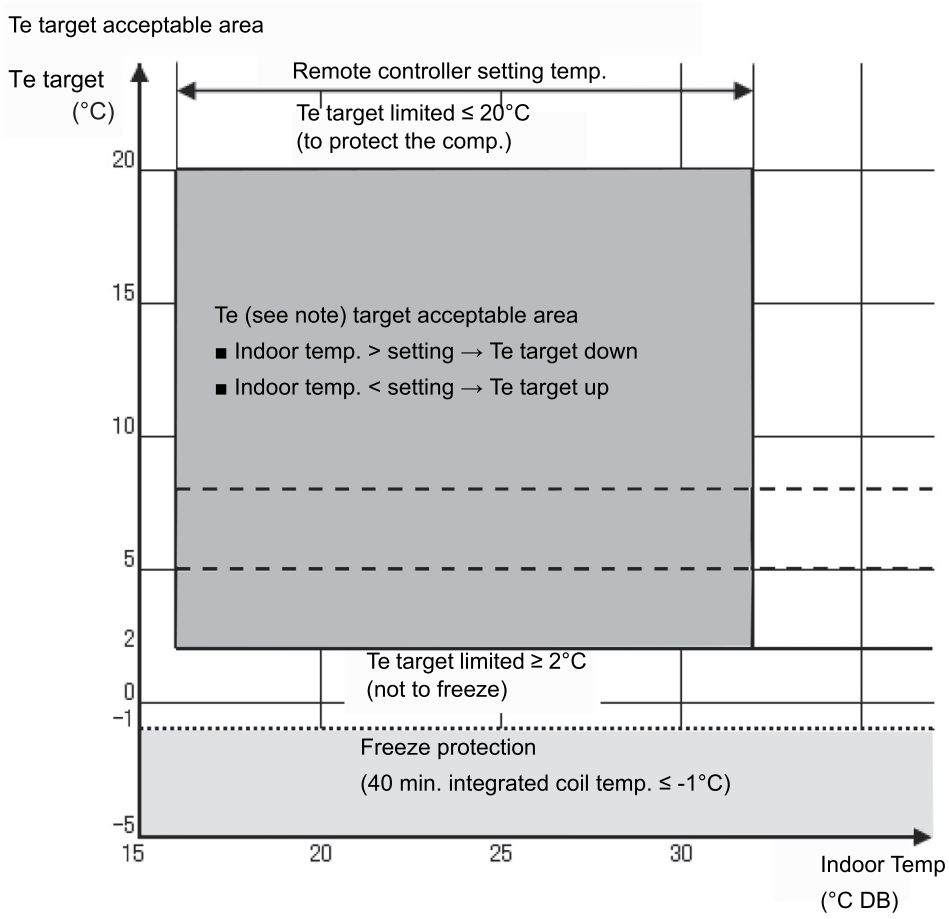
Graph 2

Target evaporating temperature control when “infrastructure cooling” is selected. Field setting 2.05-02:



Graph 3

Target evaporating temperature control when “infrastructure cooling + freeze up avoidance” is selected. Field setting 2.05-01 + 2.04-02:



In order to increase continuous operation of the unit in low latent heat applications and avoid the rise of temperature after thermostat OFF, the using field settings 2.05-02 & 2.05-01 + 2.04-02.

Thermostat ON

- ΔTrs ≥ 0.5°C (No change from standard setting)

Thermostat OFF

- ΔTrs ≤ -2.0°C for 5 minutes continuously.
- ΔTrs ≤ 4.5°C

Capacity

When “infrastructure cooling” is selected. Field setting 2.05-02:

Outdoor Temp. (°C-DB)	Indoor Temp. (°C-WB)							
	11	14	16	18	19	20	22	24
	Capacity (% of standard point)							
-15	0.62	0.76	0.86	0.95	1.00	1.02	1.07	1.11
-10	0.62	0.76	0.86	0.95	1.00	1.02	1.07	1.11
-5	0.62	0.81	0.91	1.01	1.06	1.16	1.21	1.26
0	0.62	0.81	0.91	1.01	1.06	1.16	1.21	1.26
5	0.62	0.81	0.91	1.01	1.06	1.16	1.21	1.26
10	0.62	0.81	0.91	1.01	1.06	1.16	1.21	1.26
15	0.62	0.81	0.91	1.01	1.12	1.14	1.19	1.24
20	0.62	0.81	0.91	1.07	1.10	1.12	1.16	1.21
25	0.62	0.81	0.91	1.05	1.07	1.09	1.13	1.18
30	0.61	0.81	0.91	1.01	1.04	1.06	1.10	1.14
35	0.61	0.81	0.94	0.98	1.00	1.02	1.06	1.11

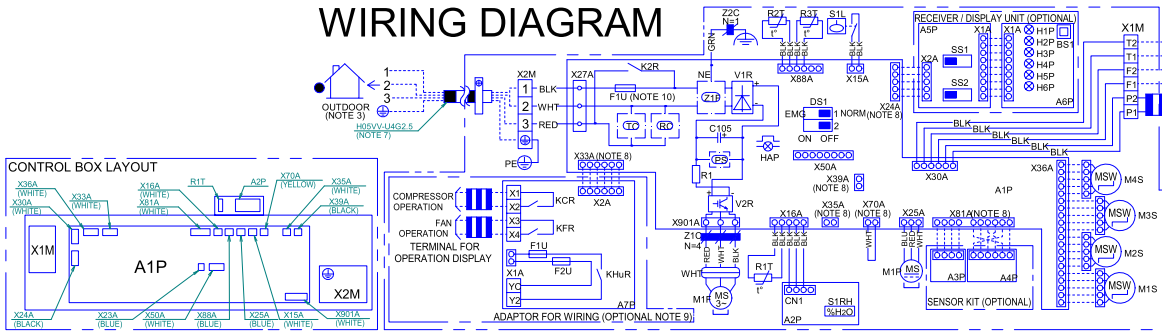
INFORMATION

- Operation range on indoor side expanded from minimum 12°CWB to 11°CWB when using infrastructure cooling setting.
- Do not use a setpoint below 20°C to avoid operation out of the indoor operation range (11°CWB).
- Be sure to set the indoor fan to high speed.

5.3. Wiring diagram

5.3.1. Indoor unit

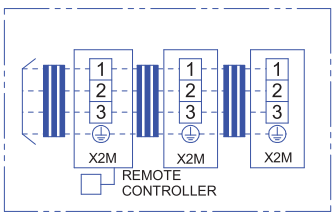
Figure 5-1: Wiring diagram - indoor unit FCAG-B



Notes

1. terminal block, Connector, Field wiring
2. In case of simultaneous operation indoor unit system, see the indoor unit wiring only.
3. For details, see wiring diagram attached to the outdoor unit
4. In case of using central remote controller, connect it to the unit in accordance with the attached installation manual.
5. In case of simultaneous operation system, connected quantity of the indoor units varies according to the connected outdoor unit.
6. In case of main/sub changeover, see installation manual attached to the remote controller
7. Shown only in case of protection piping, use h07rn-f in case of no protection.
8. X24A, X33A, X35A, X39A, X70A, X81A are connected when optional accessories are being used, see wiring diagram of this accessory
9. Connect power of adapter for wiring to terminal block (X2M) of indoor unit directly.
10. Fuse F1U on main PCB (A1P) is present only in following units: FCAG 35, 50, 60, 71.

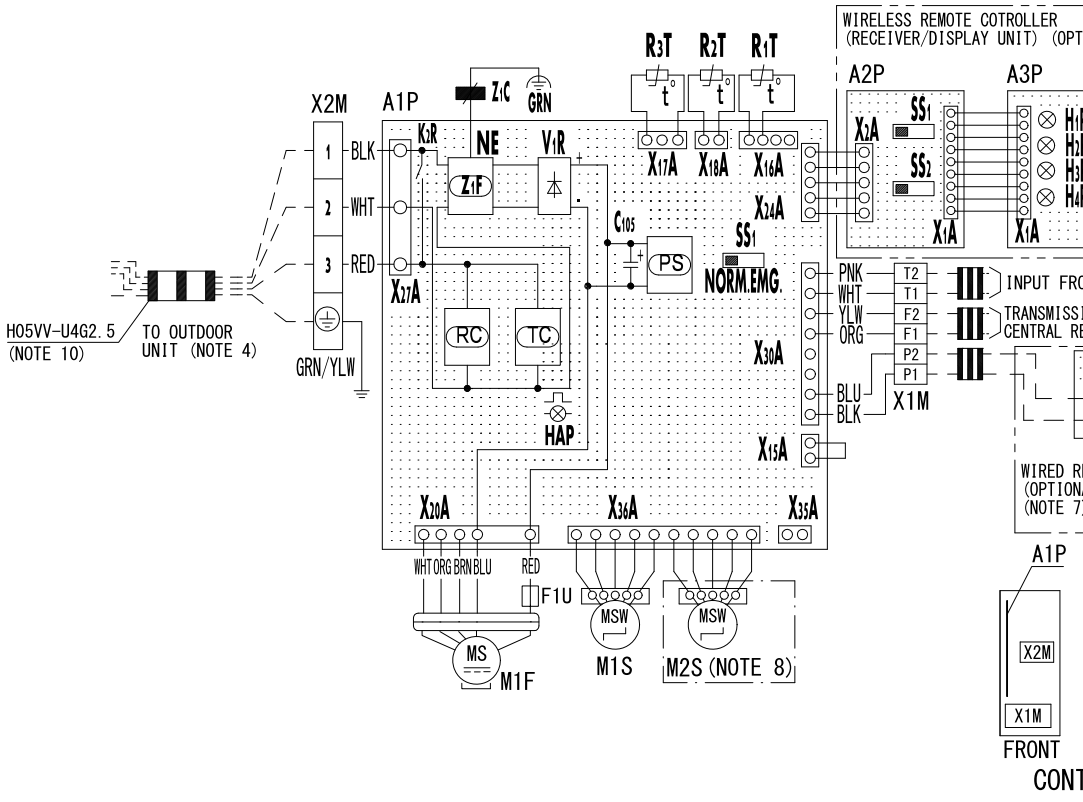
In case of simultaneous operation system (Note 5)



Legend

	INDOOR UNIT		
A1P	Main PCB	H2P	Pilot lamp (Timer: green)
C105	Capacitor	H3P	Pilot lamp (Filter sign: red)
DS1	DIP switch	H4P	Pilot lamp (Defrost: orange
F1U	Fuse (T, 3.15A 250 V)	H5P	Pilot lamp (Element cleanir
HAP (A1P)	Flashing lamp (service monitor-green)	H6P	Pilot lamp (Timer: green)
K2R	Magnetic relay	SS1	DIP switch (MAIN/SUB)
M1P	Motor (drain pump)	SS2	DIP switch (Wireless addre
M1F	Fan motor (indoor)		**ADAPTER FO**
M1S-M4S	Motor (Swing blade)	A7P	Adapter PCB
R1	Resistor	F1U	Fuse (5A, 250V)
R1T	Thermistor (Air)	F2U	Fuse (5A, 250V)
R2T, R3T	Thermistor (Coil)	KHuR	Magnetic relay
S1L	Float switch (Drain pump)	KCR	Magnetic relay
V1R	Diode bridge	KFR	Magnetic relay
V2R	IGBT power module	X1-2A	Connector
X15-901A	Connector		**CONNECTORS FOR C**
		X24A	Connector (Wireless remot

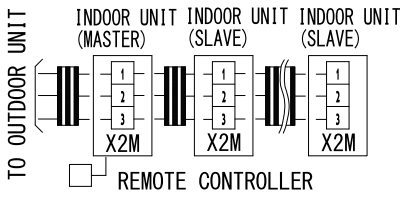
Figure 5-2: Wiring diagram - indoor unit FAA-A



Notes

1. terminal block, connector, short circuit connector
2. field wiring
3. In case of simultaneous operation indoor unit system, see the indoor unit wiring only.
4. For details, see wiring diagram attached to the outdoor unit
5. In case of using central remote controller, connect it to the unit in accordance with the attached installation manual.
6. In case of connection units varies according to the combination system, confirm engineering guide and catalogs, etc, before connecting.
7. In case of main/sub changeover, see installation manual attached to the remote controller
8. M2S is for 100 class only.
9. Symbols show as follows: BLK: black RED: red BLU: blue WHT: white PNK: pink YLW: yellow GRY: grey GRN: green ORG: orange BRN: bro
10. Shows only in case of protected pipes. Use H07RN-F in case of no protection.

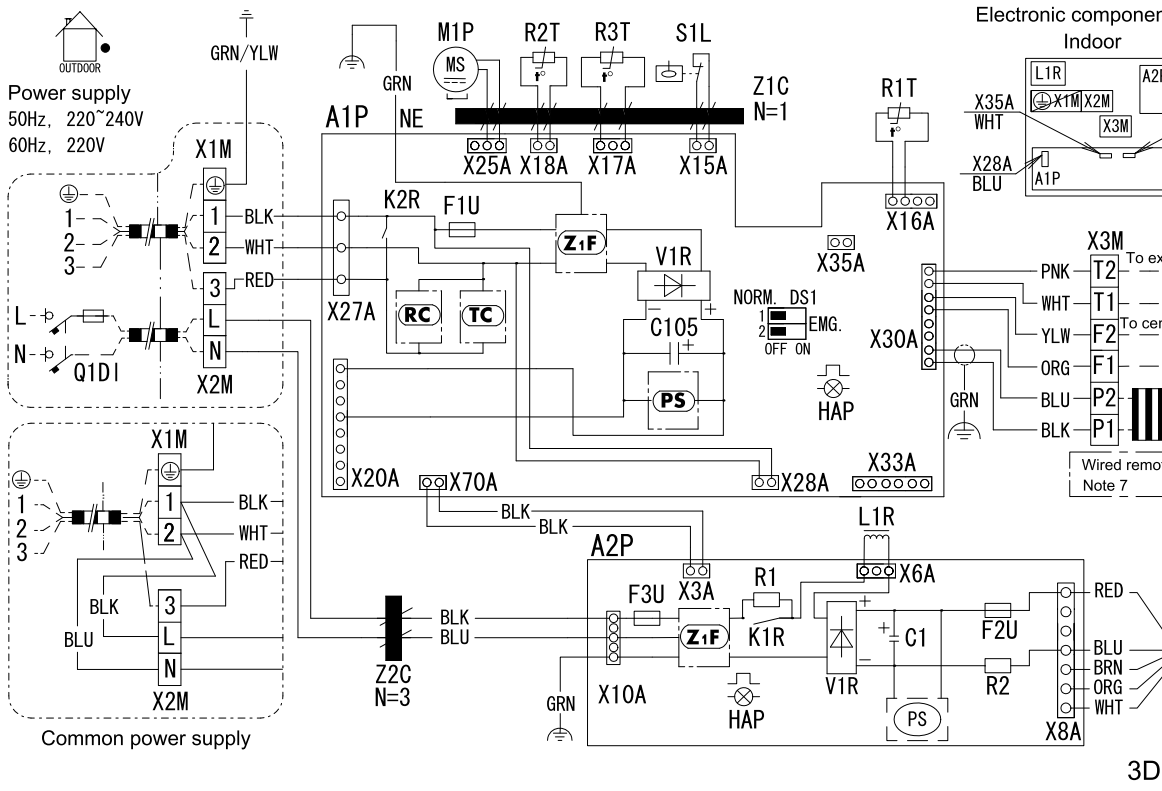
In case of simultaneous operation system (Note 6)



Legend

INDOOR UNIT		WIRELESS REMOTE CONTRO	
A1P	Printed Circuit board	A2P	Printed Circuit board
C105	Capacitor	A3P	Printed Circuit board
F1U	Fuse 3.15A	BS1	Push button switch (O
HAP	Flashing lamp (service monitor green)	H1P	Pilot lamp (On: red)
K2R	Magnetic relay	H2P	Pilot lamp (Timer: gree
M1F	Fan motor (indoor fan)	H3P	Pilot lamp (Filter sign:
M1S	Motor (Swing flap)	H4P	Pilot lamp (Defrost: ora

Figure 5-3: Wiring diagram - indoor unit FBA-A



Notes

1. Screw terminal block, connector, field wiring
2. In case of a multi-indoor-unit system with parallel operation, refer to the documentation of the indoor units.
3. For details, refer to the wiring diagram attached to the outdoor unit.
4. When using a central remote control, connect it to the unit according to the installation manual.
5. When connecting the input wires from outside, forced OFF or control operation can be selected by remote control. For more information, refer to t
6. For a multi-indoor-unit system with parallel operation, the connection ratio (number of indoor units you can connect to the outdoor unit) is different. I or the General catalogue.
7. For how to switch between the main unit and the sub units, refer to the installation manual of the remote control.

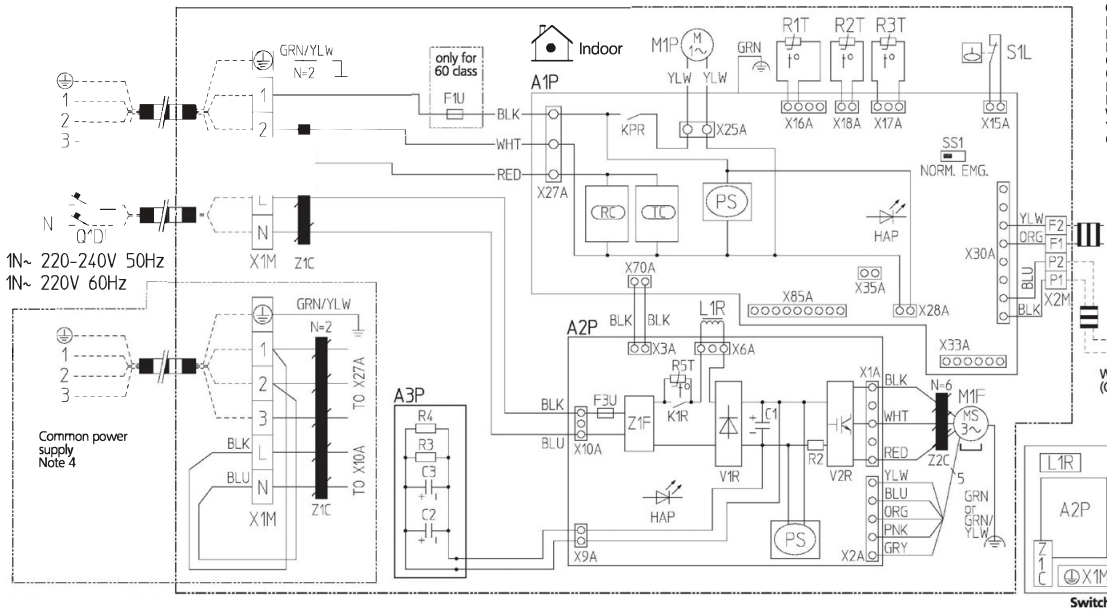
In case of simultaneous operation system (Note 6)

Legend

INDOOR UNIT

A1P	Printed Circuit board	R1T	Thermistor (suction)
A2P	Printed Circuit board (fan)	R2T	Thermistor (liquid)
C1	Capacitor	R3T	Thermistor (coil)
HAP	Flashing lamp (service monitor green)	S1L	Float switch
C105	Capacitor	V1R	Diode bridge
K2R	Magnetic relay	PS	Switching power supply
DS1	Selector switch	RC	Signal receiver circuit
F1U	Fuse 3.15A, 250V	TC	Signal transmission circuit
F2U	Fuse 5A, 250V	X1M	Terminal strip (power suppl
F3U	Fuse 6.3, 250V	X2M	Terminal strip (power suppl
HAP	Indication lamps	X3M	Terminal block (control)
K1R	Magnetic relay	Z1F	Noise filter
K2R	Magnetic relay	Z1C	Ferrite core
L1R	Reactor	Z2C	Ferrite core
M1F	Fan motor (indoor fan)	Q1D1	Earth leakage breaker
M1P	Motor (drain pump)		
R1	Resistor (current sensor)	Connector (optional accessories)	

Figure 5-4: Wiring diagram - indoor unit FDA-A



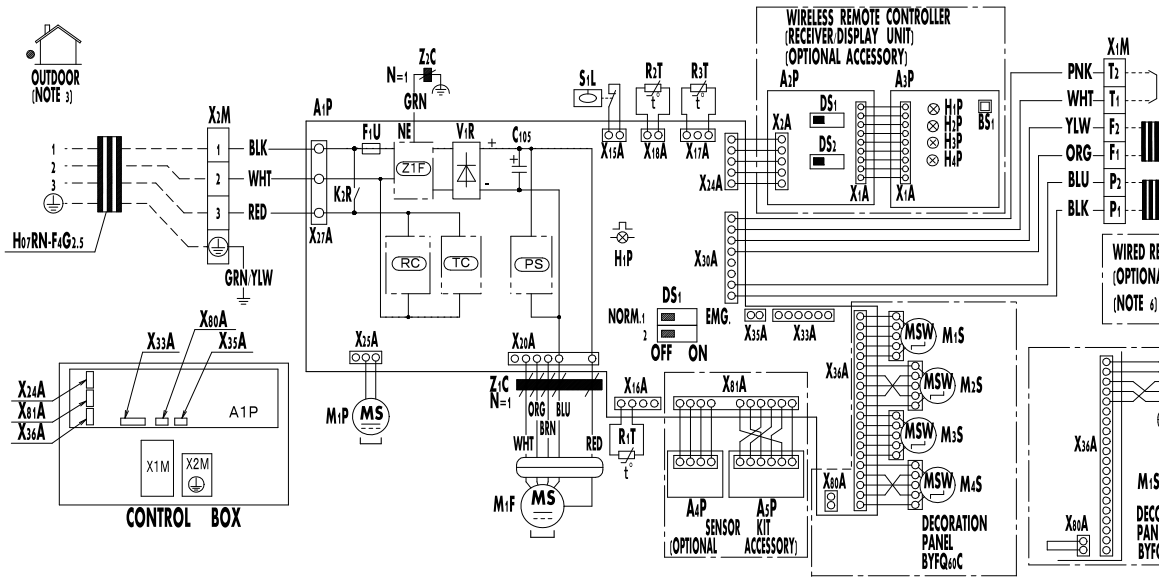
field wiring, L: Live, N: Neutral, Connector, Wire clamp, Protective earth (screw)

1. Use copper conductors only.
2. When using the central remote controller, see manual for connection to the unit.
3. The remote controller model varies according to the combination system. see technical materials and catalogs, etc, before connecting.
4. Refer to the installation manual.

Legend

		INDOOR UNIT	
A1P	Printed Circuit board	SS1	Selector switch (Emerg
A2P	Printed Circuit board (fan)	S1L	Float switch
A3P	Printed Circuit board (capacitor)	V1R	Diode bridge
C1, C2, C3	Capacitor	V2R	Power module
F1U	Fuse (T5A, 250V)	X1M	Terminal strip (power s
F3U	Fuse (T6.31A, 250V)	X2M	Terminal strip (control)
HAP	Light emitting diode (Service monitor - green)	Z1C, Z2C	Ferrite core
KPR,K1R	Magnetic relay	Z1F	Noise filter
L1R	Reactor	RC	Signal receiver output
M1F	Motor (Fan)	TC	Signal transmission cir
M1P	Motor (Drain pump)		
PS	Switching power supply		**CONNECTOR OP**
Q1D1	Earth leakage breaker	X28A	Connector (power supp
R2	Current sensing device	X33A	Connector (for wiring)
R3, R4	Resistor (Electric discharge)	X35A	Connector (adapter)
R1T	Thermistor (Suction air)	X85A	Connector (for multi zo
R2T	Thermistor (liquid)		
R3T	Thermistor (coil)		**WIRED REMO**
R5T	Thermistor NTC (current limiting)	R1T	Thermistor (air)
		SS1	Selector switch (main/s

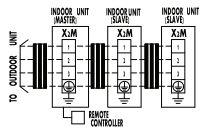
Figure 5-5: Wiring diagram - indoor unit FFA-A



Notes

1. terminal block, connector, field wiring
2. In case of simultaneous operation indoor unit system, see the indoor unit wiring only.
3. For the details, see wiring diagram attached to the outdoor unit
4. In case of using central remote controller, connect it to the unit in accordance with the attached installation manual.
5. In case of simultaneously operating system, connection quantity of the indoor units varies according to the connection outdoor unit, confirm techni
6. In case of main/sub changeover, see the installation manual attached to the remote controller
7. Symbols show as follows: BLK: black RED: red BLU: blue WHT: white PNK: pink YLW: yellow GRY: grey GRN: green ORG: orange BRN: brown
8. When connecting the input wiring from outside, forced OFF or ON/OFF control operation can be selected by the remote controller. See installation

In case of simultaneous operation system (Note 5)

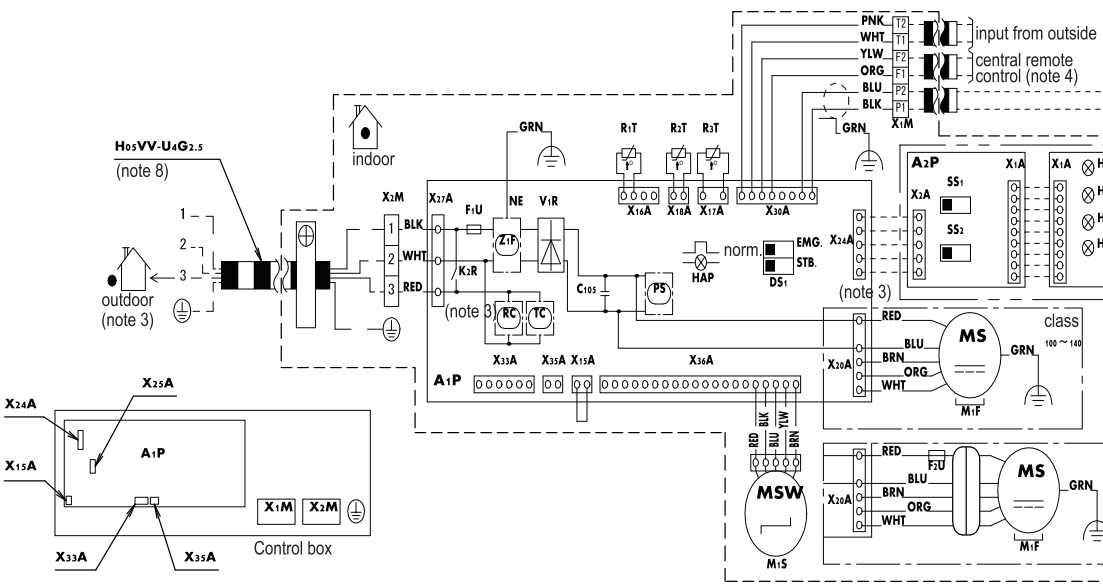


3D109453-1

Legend

	INDOOR UNIT		WIRELESS REMOTE CONTROLLE
A1P	Printed Circuit board	A2P-A3P	Printed Circuit board
C105	Capacitor	BS1	Push button switch on PVB
DS1	DIP switch on PCB	H1P	Pilot lamp (On red)
F1U	Fuse (F3.15A, 250V)	H2P	Pilot lamp (Timer green)
H1P	Flashing lamp (service monitor green)	H3P	Pilot lamp (Filter sign-red)
K2R	Magnetic relay	H4P	Pilot lamp (Defrost-orange)
M1F	Fan motor	DS1	Selector switch (Main/sub)
M1P	Drain pump motor	DS2	Selector switch (Wireless a
M1S, M2S, M3S, M4S	Swing motor		
R1T	Thermistor (suction)		**SENSOR**
R21 - R31	Thermistor (coil)	A4P	Printed Circuit board
S1L	Float switch	A6P	Printed Circuit board
V1R	Diode bridge		
X1M	Terminal block (power supply)		**WIRED REMOTE C**
X2M	Terminal block (power supply)	R4T	Thermistor (air)

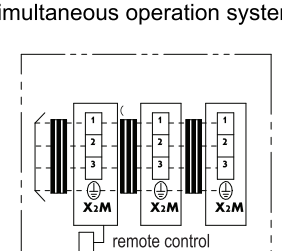
Figure 5-6: Wiring diagram - indoor unit FHA-A



Notes

1. terminal block, connector, field wiring, short circuit connector
2. In case of simultaneous operation indoor unit system, see the indoor unit wiring only. For the details, see wiring diagram attached to the outdo
3. In case of using central remote controller, connect it to the unit in accordance with the attached installation manual.
4. X15, X25A are connected when the drain pump kit is being used.
5. In case of simultaneously operating system, connected quantity of the indoor units varies according to the connection outdoor unit. Confirm te ing.
6. In case of main/sub changeover, see the installation manual attached to the remote control.
7. Show only in case of protection piping, use H07RN-F in case of no protection.

In case of simultaneous operation system (Note 5)



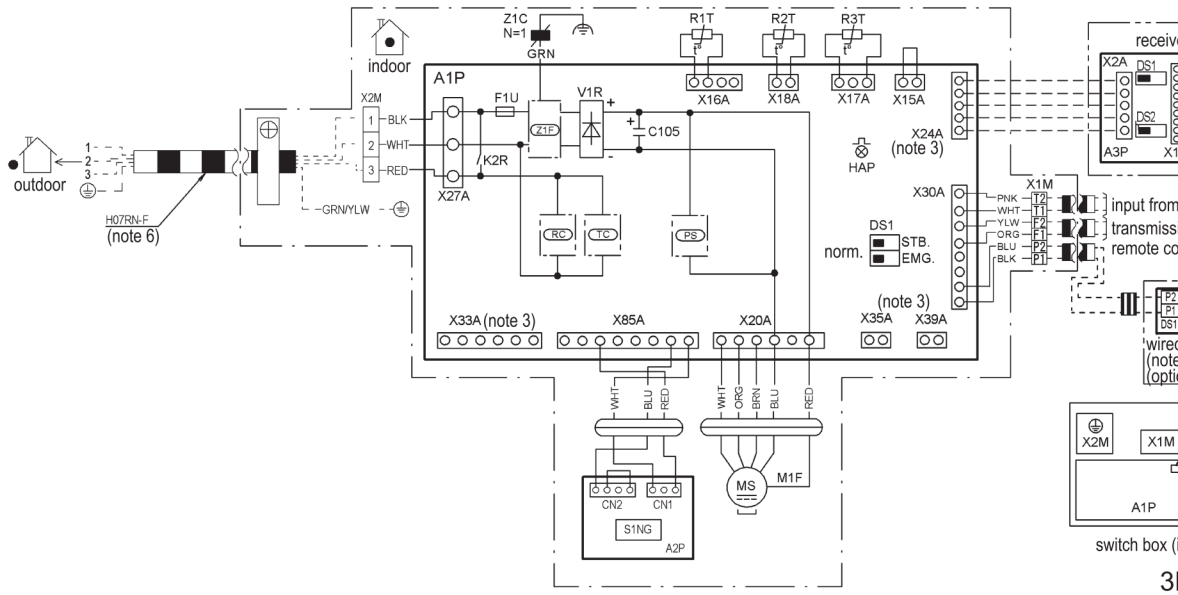
Wire Colors

BLK: Black	BRN: Brown
BLU: Blue	PNK: Pink
YLW: Yellow	GRN: Green
WHT: White	RED: Red

Legend

INDOOR UNIT		WIRED REM	
A1P	Printed Circuit board	R4T	Thermistor (air)
C105	Capacitor (M1F)		
F1U	Fuse (F, 5A, 250V)	INFRARED REMOTE CONTR	
F2U	Fuse (F, 4A, 250V)	A2P	Printed Circuit board
DS1	DIP switch on PCB	A3P	Printed Circuit board
HAP	Flashing lamp (service monitor: green)	BS1	Push button (on/off)
K2R	Magnetic relay	H1P	Pilot lamp (On: red)
M1F	Motor (indoor fan)	H2P	Pilot lamp (Timer: gree
M1S	Motor (Swing blade)	H3P	Pilot lamp (Filter sign:
R1T	Thermistor (suction)	H4P	Pilot lamp (Defrost-ora
R2T - R3T	Thermistor (coil)	SS1	Selector switch (Main/s
V1R	Diode bridge	SS2	Selector switch (Wirele
X1M	Terminal block		

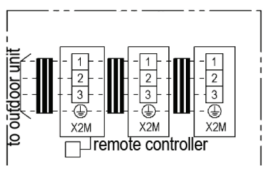
Figure 5-7: Wiring diagram - indoor unit FNA-A9



Notes

1. terminal block, connector, field wiring, wire clamp, Protective earth (screw)
2. In case of using central remote control, connect it to the unit in accordance with the attached installation manual.
3. X24A, X33A, X35A, X39 are connected when the optional accessories are being used.
4. For change over of BRC1E type main/sub refer to manual attached to remote control.
5. Show only in case of protected pipes. Use H07RN-F in case of no protection.
6. For detail, see wiring diagram attached to outdoor unit.
7. When connecting the input wires from outside forced OFF or N/OFF control operation can be selected by the remote control, see manual for detai

In case of simultaneous operation system (Note 5)



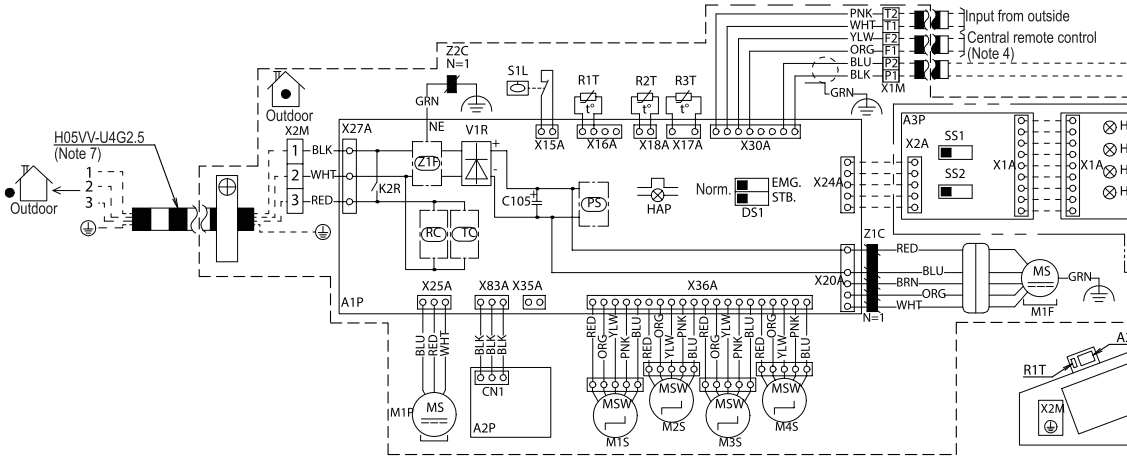
Wire Colors

BLK: Black	BRN: Brown
BLU: Blue	PNK: Pink
YLW: Yellow	GRN: Green
WHT: White	RED: Red

Legend

INDOOR UNIT		RECEIVER / DIS	
A1P	Printed Circuit board	A3P	Printed Circuit board
A2P	Gas sensor board	A4P	Printed Circuit board
C105	Capacitor (M1F)	H1P	Pilot lamp (On: red)
F1U	Fuse (F, 3.15A, 250V)	H2P	Pilot lamp (Filter sign: red)
K2R	Magnetic relay	H3P	Pilot lamp (Timer: green)
DS1	DIP switch on PCB	H4P	Pilot lamp (Defrost-orange)
HAP	Flashing lamp (service monitor: green)	DS1	Selector switch (main/sub)
PS	Power supply circuit	DS2	Selector switch (wireless a
RC	Receiving unit	BS1	Push button (on/off)
TC	Transmission circuit		
HAP	Light emitting diode (service monitor-green)		**CONNECTOR FOR O**
M1F	Motor (fan)	X15A	Connector (floating switch)
R1T	Thermistor (air)	X24A	Connector (infrared remote
R2T - R3T	Thermistor (coil)	X33A	Connector (Adapter for wiri
DS1	Selector switch (emergency)	X35A	Connector (Power supply f
V1R	Diode bridge		
X1M	Terminal strip (control)		**WIRED REMOTE**

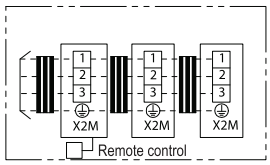
Figure 5-8: Wiring diagram - indoor unit FUA-A



Notes

1. terminal block, connector, field wiring, short circuit connector
2. In case of simultaneous operation indoor unit system, see the indoor unit wiring only.
3. For the details, see wiring diagram attached to the outdoor unit.
4. In case using central remote control, connect it to the unit in accordance with the attached installation manual.
5. In case of simultaneously operating system, connected quantity of the indoor units varies according to the connection outdoor unit. Confirm te ing
6. In case of main/sub changeover, see the installation manual attached to the remote control.
7. Show only in case of protection piping, use H07RN-F in case of no protection.
8. Colors: BLK: Black, RED: Red, BLU: Blue, WHT: White, YLW: Yellow, GRN: Green, BRN: Brown, PNK: Pink

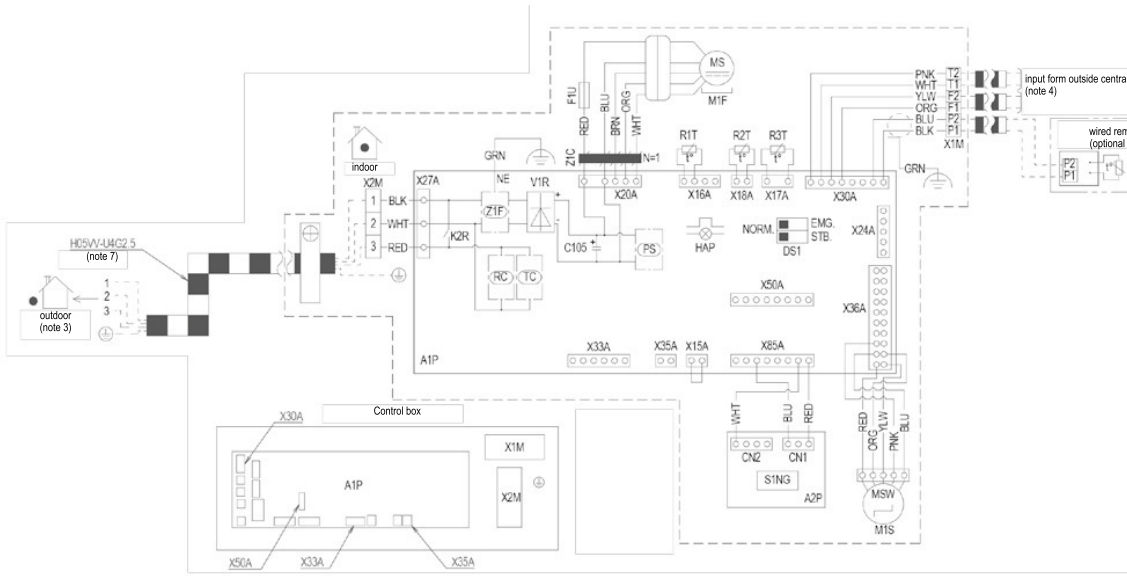
In case of simultaneous operation system (Note 5)



Legend

	INDOOR UNIT		CONNECTOR FO
A1P	Printed circuit board	X24A	Connector (infrared re
A2P	Printed circuit board	X35A	Connector (Power sup
C105	Capacitor (M1F)		
DS1	DIP switch on PCB		INFRARED REMOTE CONTR
HAP	Flashing lamp (service monitor: green)	A3P	Printed circuit board
K2R	Magnetic relay	A4P	Printed circuit board
M1F	Motor (indoor fan)	BS1	Push button (on/off)
M1P	Motor (drain pump)	H1P	Pilot lamp (On: red)
M1~4S	Motor (swing blade)	H2P	Pilot lamp (Filter sign:
R1T	Thermistor (air)	H3P	Pilot lamp (Timer: gree
R2T - R3T	Thermistor (coil)	H4P	Pilot lamp (Defrost-ora
S1L	FLOATING SWITCH	SS1	Selector switch (main/s
V1R	Diode bridge	SS2	Selector switch (wirele
X1M	TERMINAL BLOCK		
X2M	Terminal block		REMOTI
RC	Receiving unit	R1T	Thermistor (air)
TC	Transmission circuit		
Z1F	Noise filter		
Z1C	Ferrite core (noise filter)		

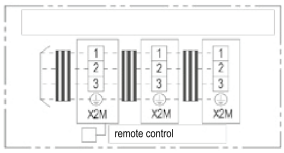
Figure 5-9: Wiring diagram - indoor unit FVA-A



Notes

1. terminal block, connector, field wiring, short circuit connector
2. In case of simultaneous operation indoor unit system, see the indoor unit wiring only.
3. For the detail, see wiring diagram attached to the outdoor unit.
4. In case using central remote control, connect it to the unit in accordance with the attached installation manual.
5. In case of simultaneously operating system, connected quantity of the indoor units varies according to the connection outdoor unit. Confirm technic ing
6. In case of main/sub changeover, see the installation manual attached to remote control.
7. Shows only in case of protection piping, use H07RN-F in case of no protection.

In case of simultaneous operation system (Note 5)



Wire Colors

BLK: Black	BRN: Brown
BLU: Blue	PNK: Pink
YLW: Yellow	GRN: Green
WHT: White	RED: Red

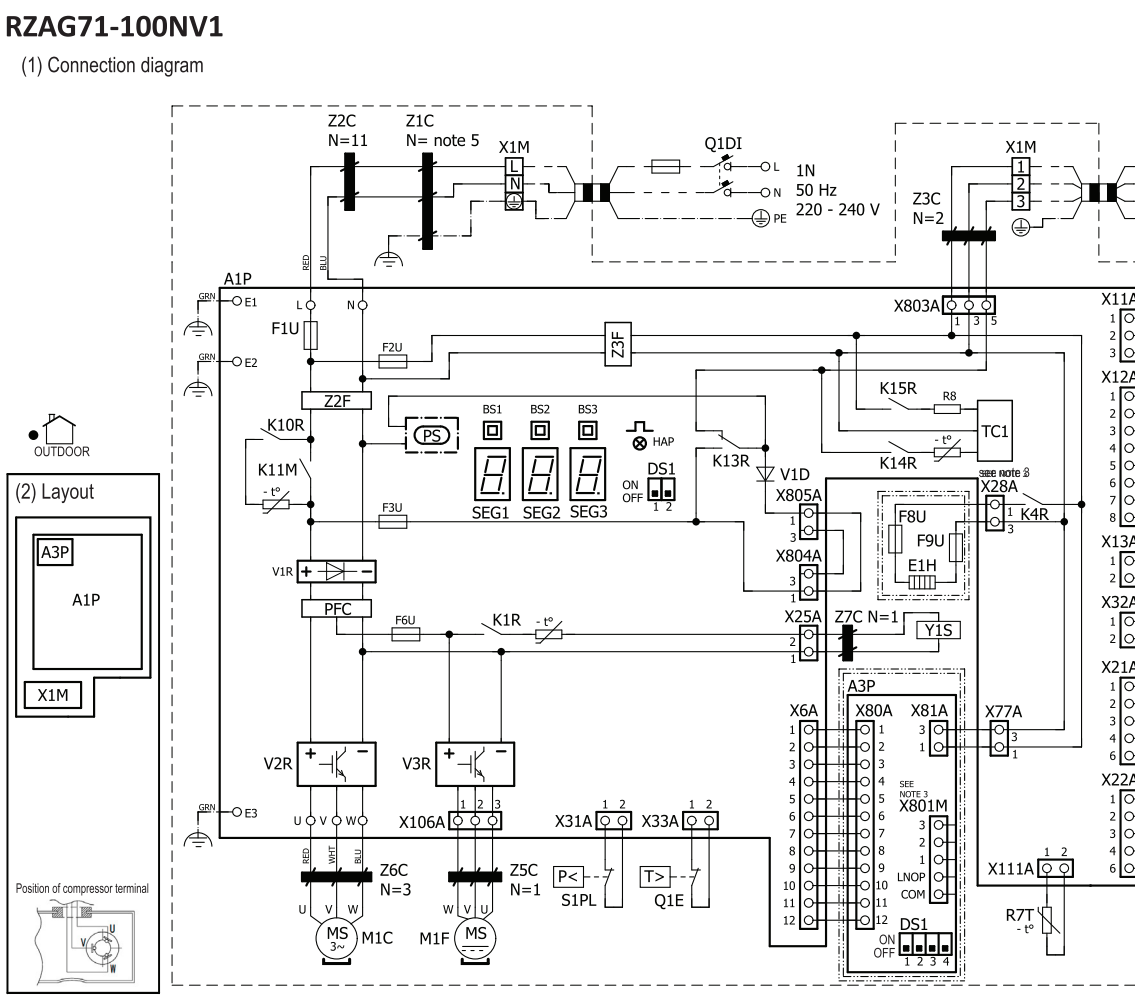
Legend

INDOOR UNIT		CONNECTOR FOR O	
A1P	Printed circuit board	X24A	Connector (wireless remote
A2P	Printed circuit board	X35A	Connector (power supply fo
C105	Capacitor (M1F)	X33A	Connector (adapter for wiri
DS1	DIP switch on PCB		
HAP	Flashing lamp (service monitor: green)		
K2R	Magnetic relay	**INFRARED REMOTE CONTROL**	
M1F	Motor (indoor fan)	A3P	Printed circuit board
M1~4S	Motor (swing blade)	A4P	Printed circuit board
R1T	Thermistor (air)	BS1	Push button (on/off)
R2T - R3T	Thermistor (coil)	H1P	Pilot lamp (On: red)
V1R	Diode bridge	H2P	Pilot lamp (Filter sign: red)
X1M	Terminal block	H3P	Pilot lamp (Timer: green)
X2M	Terminal block	H4P	Pilot lamp (Defrost-orange)
Z1F	Noise filter	SS1	Selector switch (main/sub)
Z1C	Ferrite core (noise filter)	SS2	Selector switch (wireless ac
PS	Power supply circuit		

5.3.2. Outdoor unit

5.3.2.1. Single phase

Figure 5-10: Wiring diagram - outdoor unit RZAG71+100N2+N7V1B

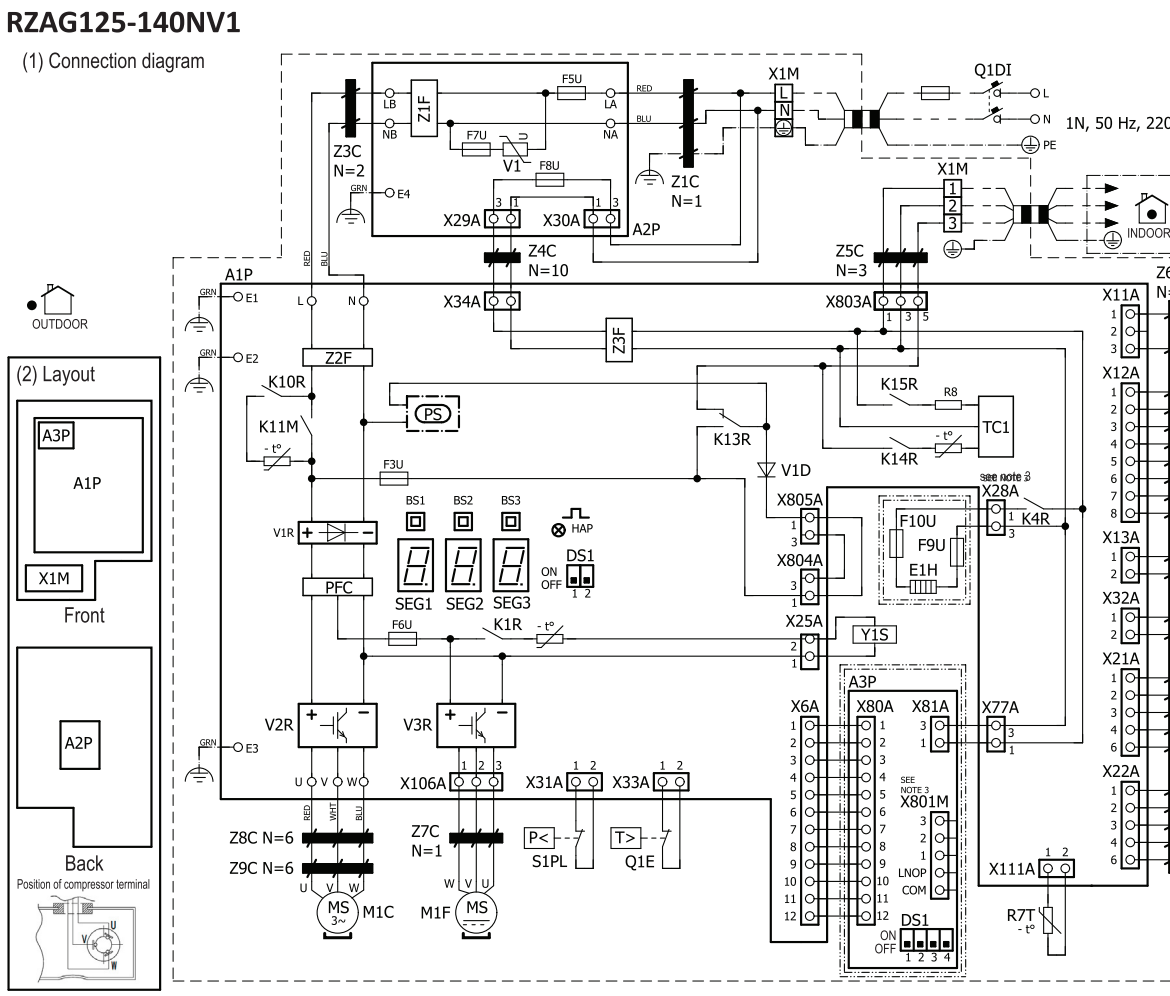


Notes

1. Refer to the wiring diagram sticker (on the back of the front plate) for how to use the BSI~BS3 and DS1 switches.
2. When operating, do not short-circuit protection device(s) S1PH, S1PL and Q1E.
3. Refer to the combination table and the option manual for how to connect the wiring to X28A and X801M.
4. Colours: BLK: Black, RED: Red, BLU: Blue, WHT: White, GRN: Green.
5. Windings: L-N: 2 - Earth: 1

Legend			
A1P	Printed circuit board (main)	R6T	Thermistor (liquid)
A3P	*Printed circuit board (demand)	R7T	Thermistor (fin)
BS1~BS3 (A1P)	Push-button switch	R8 (A1P)	Resistor
DS1 (A1P)	Dipswitch	S1PH	High pressure switch
E1~E3 A1P)	Connector	S1PL	Low pressure switch
		SEG1~SEG3 (A1P)	7-segment display
E1H	* Bottom plate heater	TC1 (A1P)	Signal transceiver circu
F1U (A1P)	Fuse T 31,5 A 250 V	U, V, W (A1P)	Connector
F2U (A1P)	Fuse T 6,3 A 250 V	V1D (A1P)	Diode
F3U (A1P)	Fuse T 6,3 A 250 V	V*R (A1P)	Diode module
F6U (A1P)	Fuse T 5 A 250 V	X*A (A1P)	Connector
F8U, F9U	*Fuse F 1 A 250 V	X1M	Terminal strip
HAP (A1P)	Light-emitting diode (service monitor is green)	Y1E, Y3E	Electronic expansion v
K1R (A1P)	Magnetic relay (Y1S)	Y1S	Solenoid valve (4-way
K4R (A1P)	Magnetic relay (E1H)	Z*C	Noise filter (Ferrite cor

Figure 5-11: Wiring diagram - outdoor unit RZAG125+140N2+N7V1B



Notes

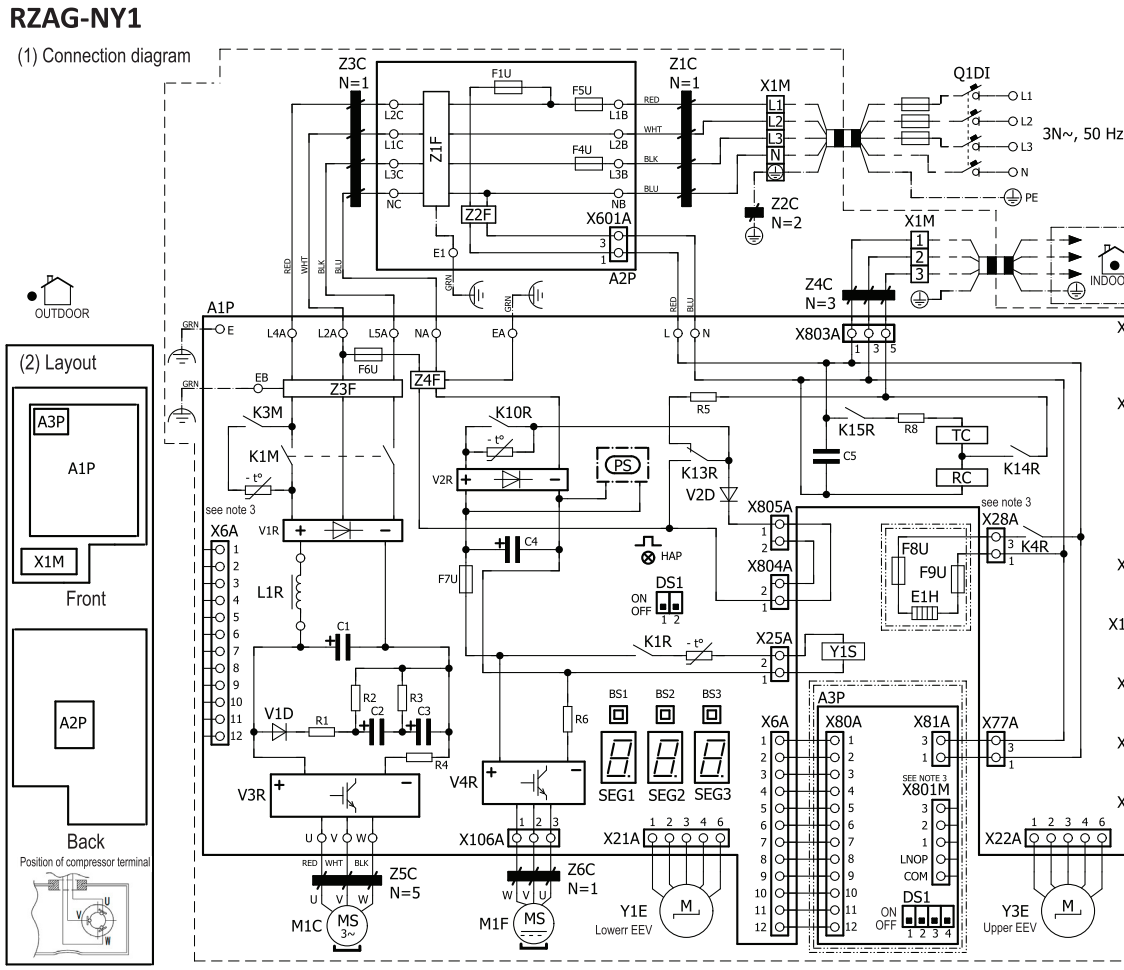
1. Refer to the wiring diagram sticker (on the back of the front plate) for how to use the BSI~BS3 and DS1 switches.
2. When operating, do not short-circuit protection device(s) S1PH, S1PL and Q1E.
3. Refer to the combination table and the option manual for how to connect the wiring to X28A and X801M.
4. Colours: BLK: Black, RED: Red, BLU: Blue, WHT: White, GRN: Green.

Legend

A1P	Printed circuit board (main)	R7T	Thermistor (fin)
A2P	Printed circuit board (noise filter)	R8 (A1P)	Resistor
A3P	*Printed circuit board (demand)	S1PH	High pressure switch
BS1~BS3 (A1P)	Push-button switch	S1PL	Low pressure switch
DS1 (A1P, A3P)	Dipswitch	SEG1~SEG3 (A1P)	7-segment display
E1~E3 (A1P~A2P)	Connector	TC1 (A1P)	Signal transceiver circuit
E1H	*Bottom plate heater	U, V, W (A1P)	Connector
F3U (A1P)	Fuse T 6,3 A 250 V	V1 (A2P)	Varistor
F5U (A2P)	Fuse T 56 A 250 V	V1D (A1P)	Diode
F6U (A1P)	Fuse T 5A 250 V	V*R (A1P)	Diode module
F7U (A2P)	Fuse T 6,3 A 250 V	X*A (A1P~A2P)	Connector
F8U (A2P)	Fuse T 6,3 A 250 V	X1M	Terminal strip
F9U~F10U	Fuse F 1 A 250 V	Y1E, Y3E	Electronic expansion valve
HAP (A1P)	Light-emitting diode (service monitor is green)	Y1	Solenoid valve (4-way valv
K1R (A1P)	Magnetic relay (Y1S)	Z*C	Noise filter (Ferrite core)
K4R (A1P)	Magnetic relay (E1H)	Z*F (A1P~A2P)	Noise filter
K13R~K15R, K10R (A1P)	Magnetic relay		* Optional

5.3.2.2. Three phase

Figure 5-12: Wiring diagram - outdoor unit RZAG71~140N2+N7Y1B



Notes

1. Refer to the wiring diagram sticker (on the back of the front plate) for how to use the BSI~BS3 and DS1 switches.
2. When operating, do not short-circuit protection device(s) S1PH, S1PL and Q1E.
3. Refer to the combination table and the option manual for how to connect the wiring to X28A and X801M.
4. Colours: BLK: Black, RED: Red, BLU: Blue, WHT: White, GRN: Green.

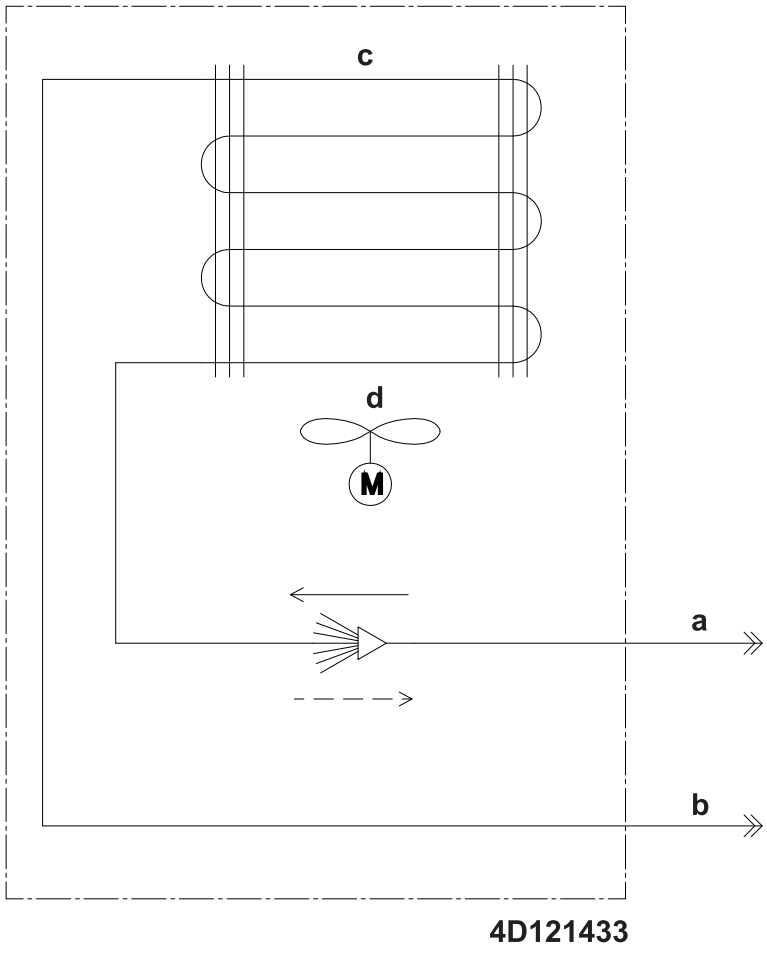
Legend

A1P	Printed circuit board (main)	R7T	Thermistor (fin)
A2P	Printed circuit board (noise filter)	RC (A1P)	Signal receiver circuit
A3P	*Printed circuit board (demand)	S1PH	High pressure switch
BS1~BS3 (A1P)	Push-button switch	S1PL	Low pressure switch
C1~C5 (A1P)	Capacitor	SEG1~SEG3 (A1P)	7-segment display
DS1 (A1P, A3P)	Dipswitch	TC1 (A1P)	Signal transmission cir
E1H	* Bottom plate heater	V1D, V2D (A1P)	Diode
F1U (A2P)	Fuse T 6,3 A 250 V	V1R, V2R (A1P)	Diode module
F4U, F5U (A2P)	Fuse T 30 A 500 V	V3R, V4R (A1P)	IGBT power module
F6U (A1P)	Fuse T 6,3 A 250 V	X1M	Terminal strip
F7U (A1P)	Fuse T 5 A 250 V	Y1E, Y3E	Electronic expansion v
F8~9U	* Fuse F 1 A 250 V	Y1	Solenoid valve (4-way
HAP (A1P)	Light-emitting diode (service monitor is green)	Z1C~Z6C	Noise filter (Ferrite cor
K1M, K3M (A1P)	Magnetic contactor	Z1F~Z4F (A1P~A2P)	Noise filter
K1R (A1P)	Magnetic relay (Y1S)	L*A, L*B, NA, NB, E*, U, V, W, X*A (A1P, A2P)	ConnectorS

5.4. Piping diagram

5.4.1. Indoor unit

Figure 5-13: Piping diagram - indoor unit FCAG and FCAHG



a. Liquid pipe connection port
b. Gas pipe connection port
c. Heat exchanger
Cooling
Heating

Figure 5-14: Piping diagram - indoor unit FAA

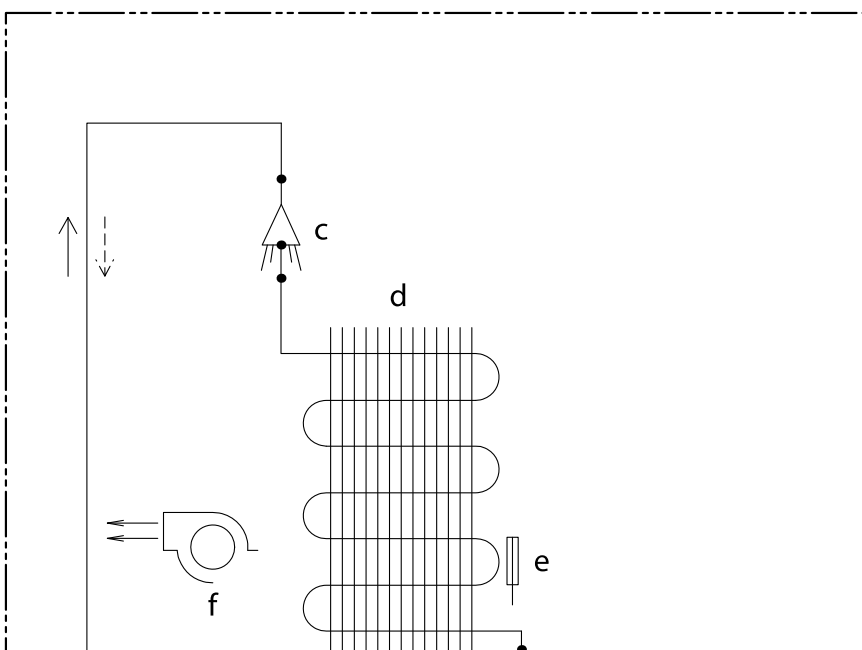
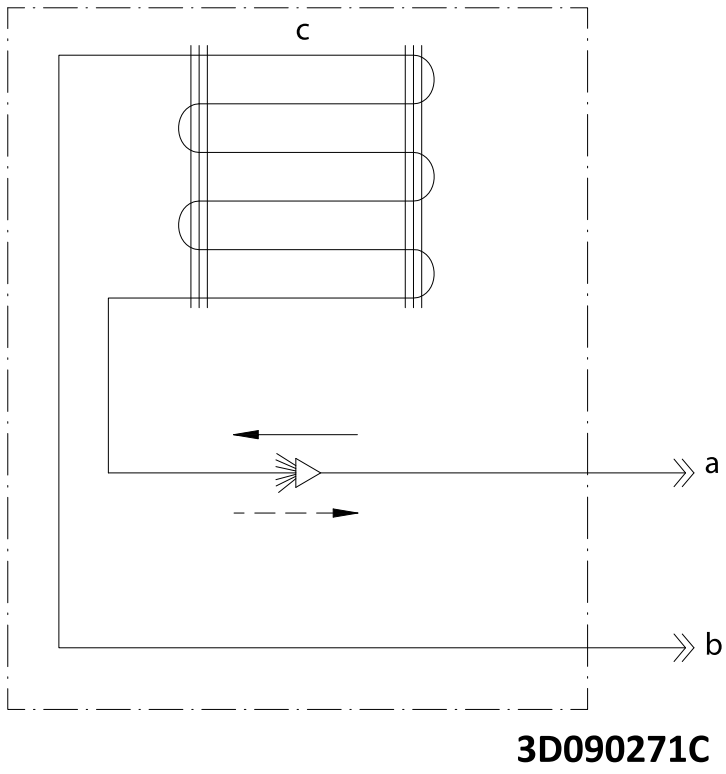
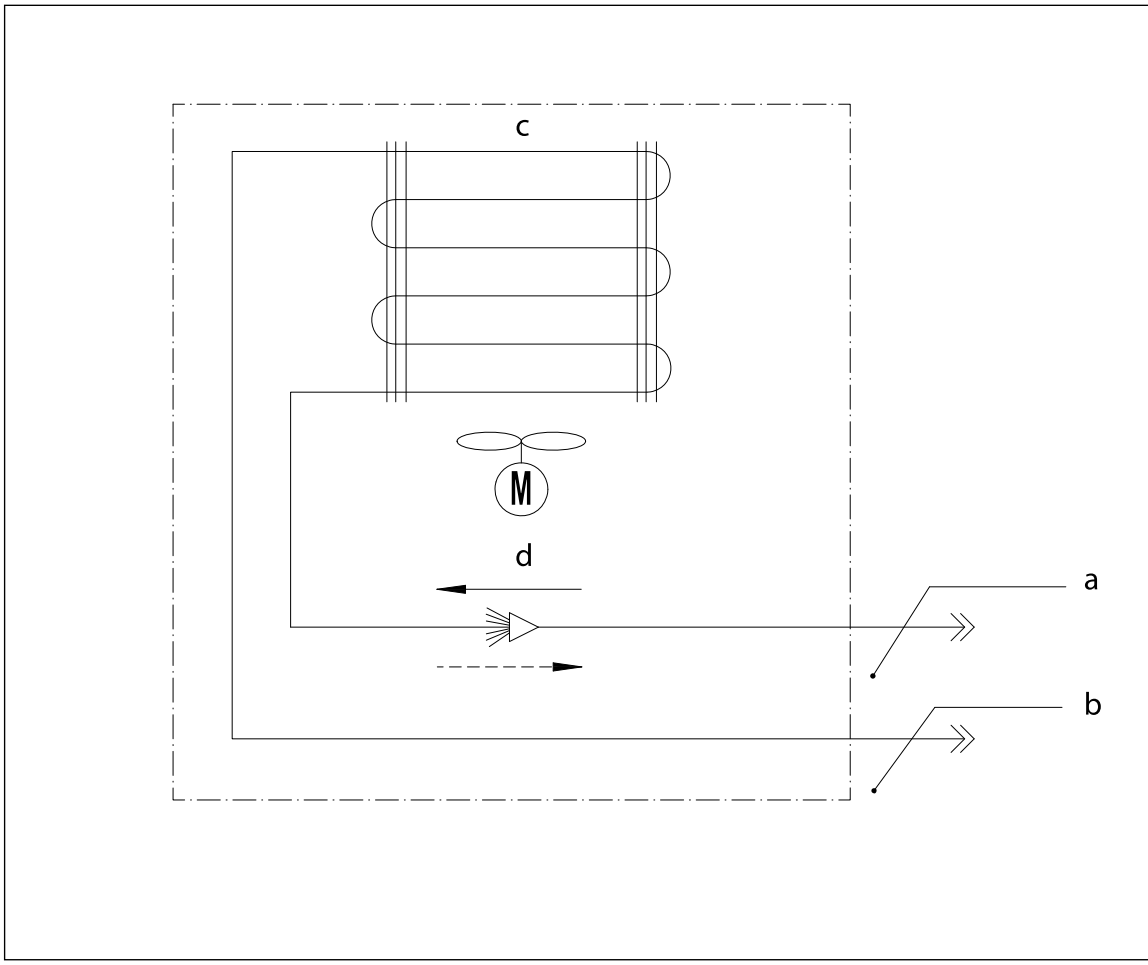


Figure 5-15: Piping diagram - indoor unit FBA



a. Liquid pipe connection port **b.** Gas pipe connection port **c.** Heat exchanger → Cooling

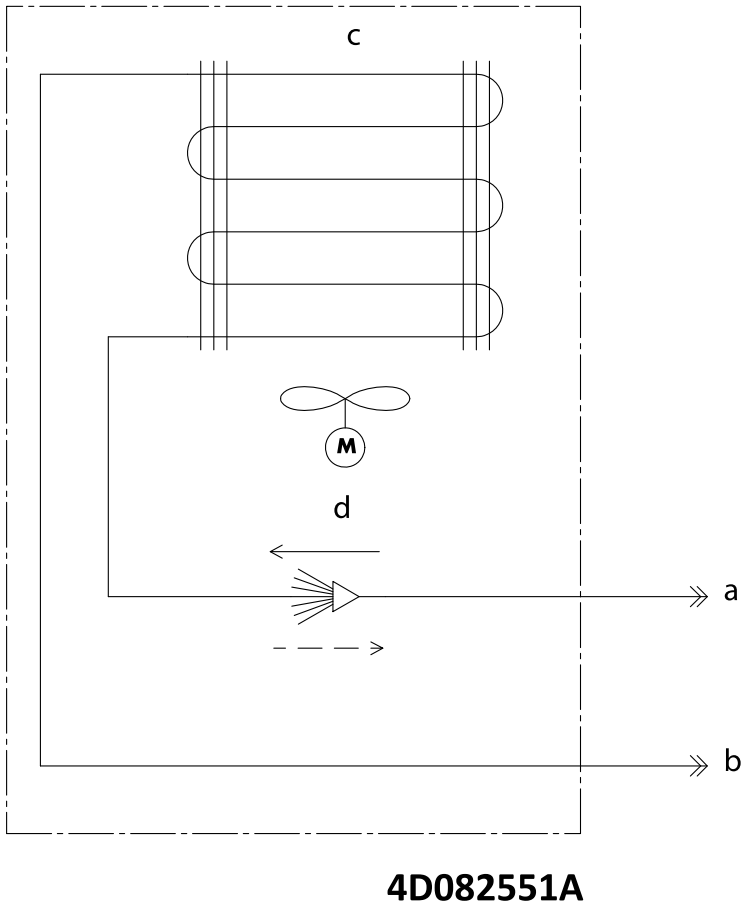
Figure 5-16: Piping diagram - indoor unit FDA



a. Liquid pipe connection port **b.** Gas pipe connection port **c.** Heat exchanger

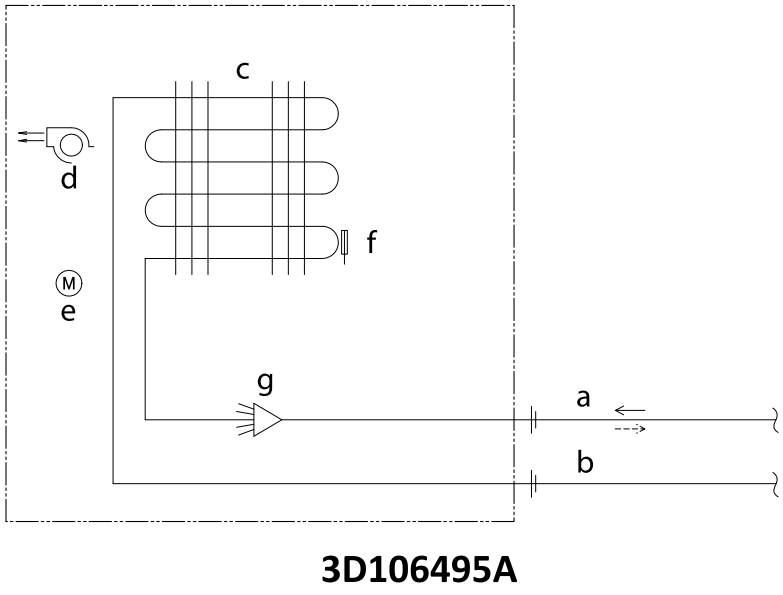
→ Cooling - - - → Heating

Figure 5-17: Piping diagram - indoor unit FFA



a. Liquid pipe connection port
b. Gas pipe connection port
c. Heat exchanger
Cooling
Heating

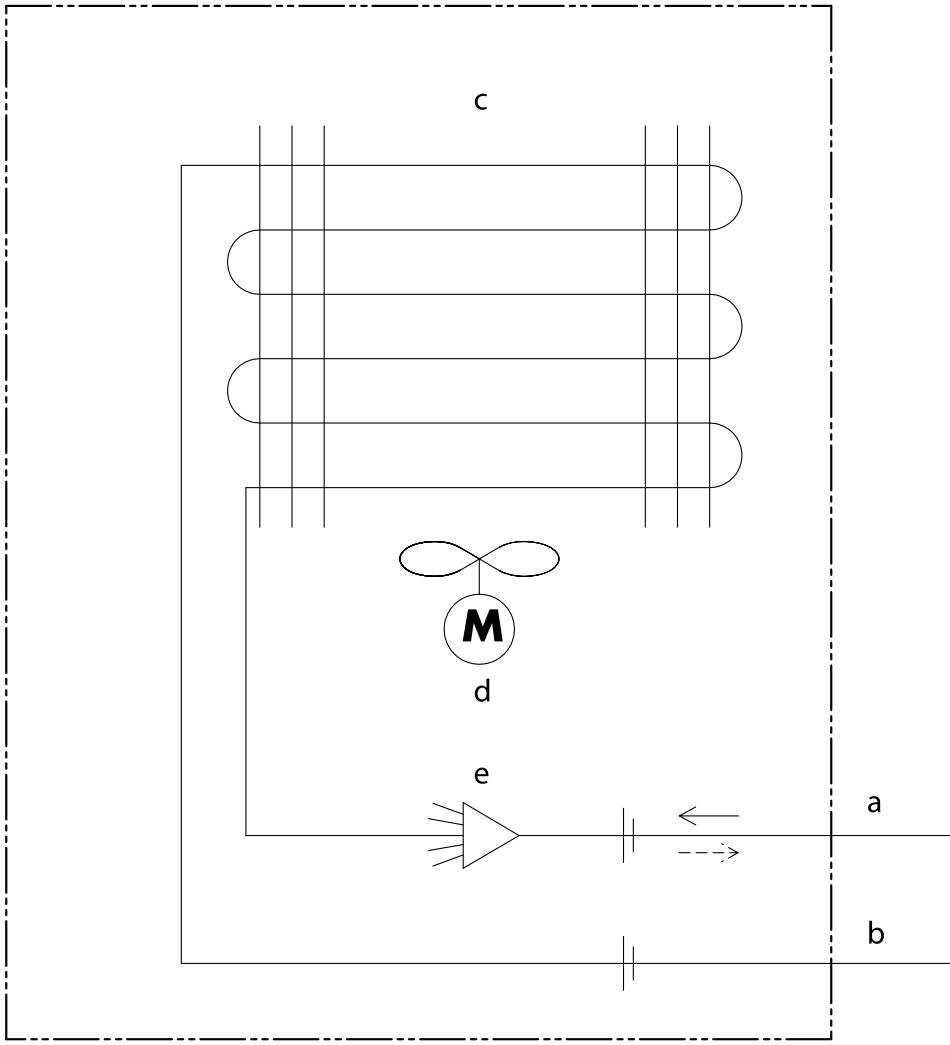
Figure 5-18: Piping diagram - indoor unit FHA



a. Field piping
b. Field piping
c. Heat exchanger
e. Fan motor
f. Thermistor (heat exchanger)
g. Distributor
Cooling
Heating

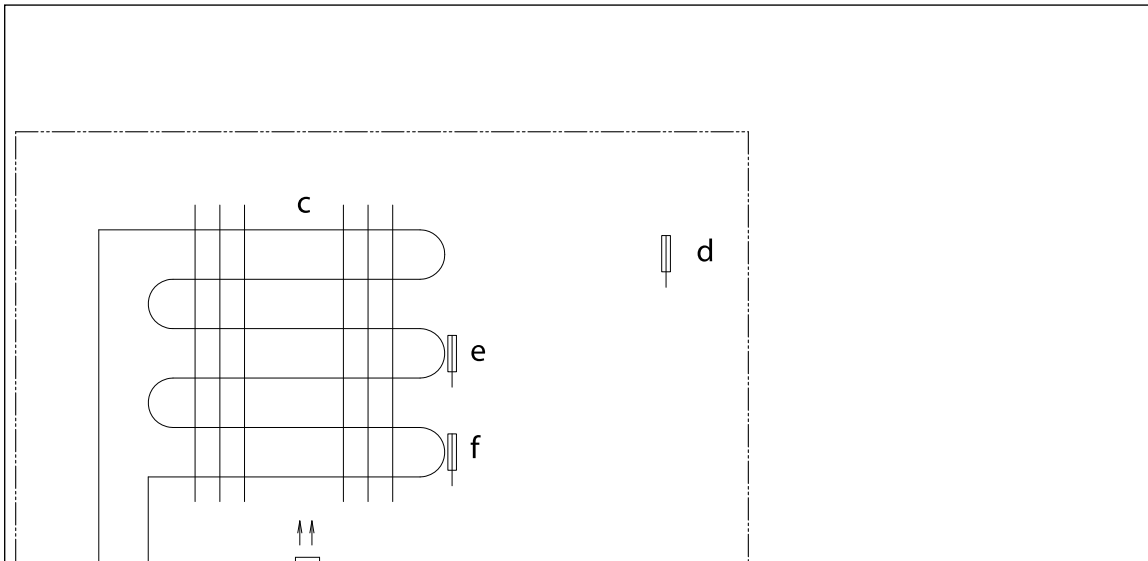
Figure 5-19: Piping diagram - indoor unit FNA

Figure 5-20: Piping diagram - indoor unit FUA



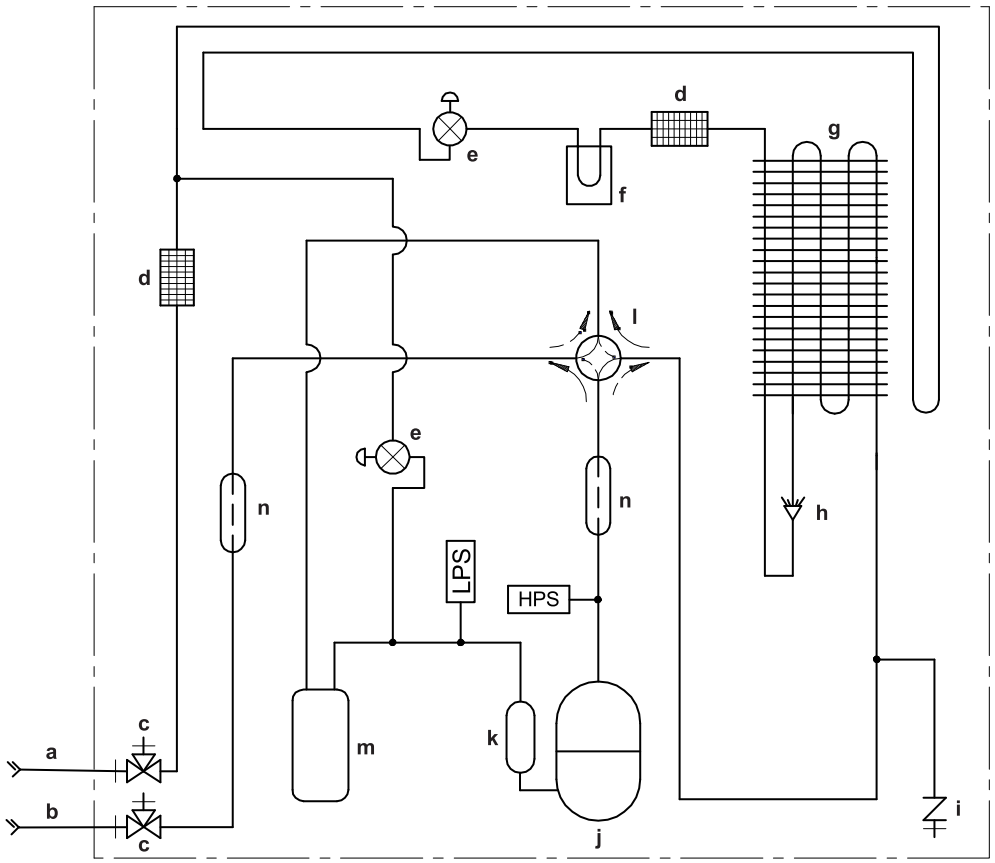
a. Field piping — Cooling
b. Field piping — Heating
c. Heat exchanger
d. Fan

Figure 5-21: Piping diagram - indoor unit FVA



5.4.2. Outdoor unit

Figure 5-22: Piping diagram - outdoor unit



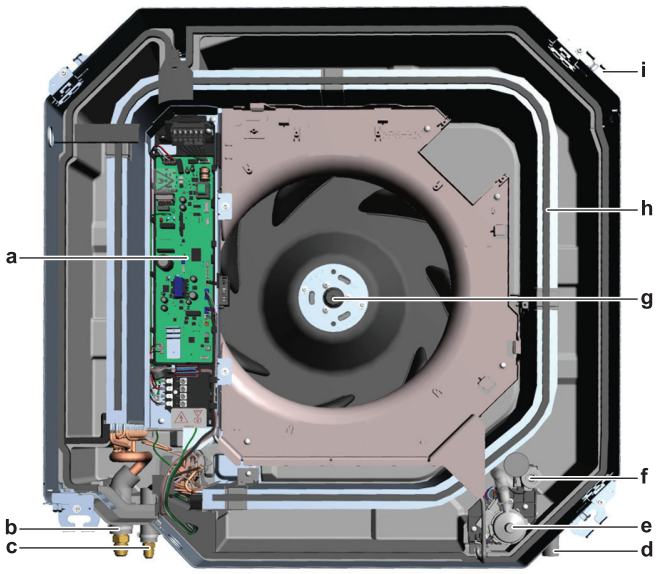
a.	Field piping (liquid: 09.5 flare connection)	j.	Compressor
b.	Field piping (gas: 015.9 flare connection)	k.	Compressor accumulator
c.	Stop valve	l.	4-way valve
d.	Filter (2x)	m.	Accumulator
e.	Electronic expansion valve (2x)	n.	Muffler (2x)
f.	PCB Cooling	HPS	Low pressure switch
g.	Heat exchanger	LPS	Low pressure switch
h.	Distributor	→	Heating
i.	Service port 5/16” flare	- - →	Cooling

5.5. Component overview of unit

5.5.1. Indoor unit

5.5.1.1. Indoor unit FCAG and FCAHG

Figure 5-23: Components overview - indoor unit FCAG and FCAHG



a. Switch box	d. Drain pipe connection (VP25)	g. Fan motor
b. Gas pipe connection	e. Drain pump	h. Heat exch
c. Liquid pipe connection	f. Float switch	i. Hanger bra

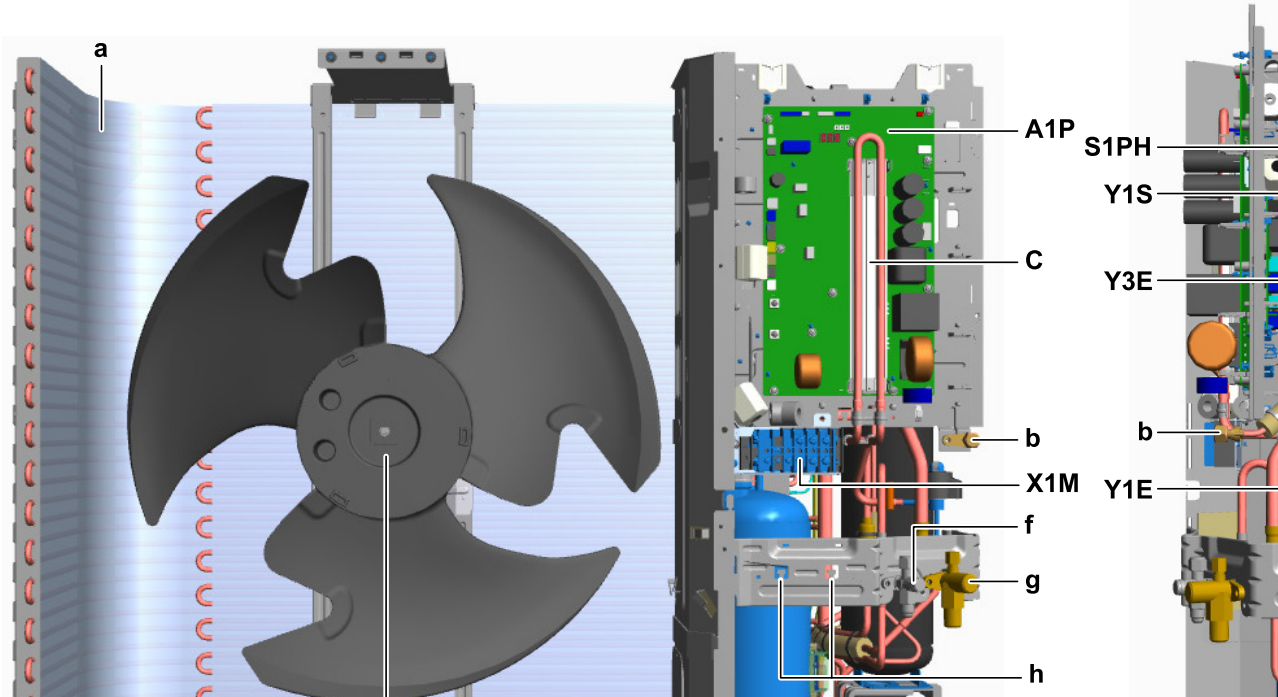
5.5.1.2. Other indoor units

INFORMATION

For the component overviews of the other indoor units, refer to the service manual of the indoor units.

5.5.2. Outdoor unit

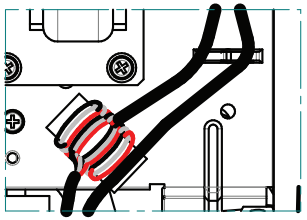
Figure 5-24: Components overview - outdoor unit 71



COMPRESSOR WIREHARNESS ROUTING

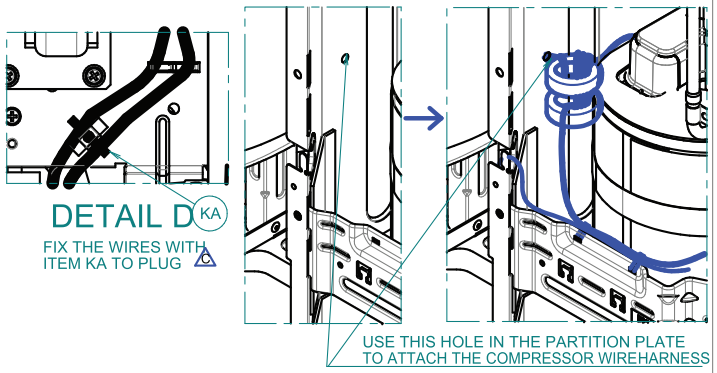
POSITION FOR ATTACHING THE FERRITE CORE

ONLY FOR PART 1 & 2



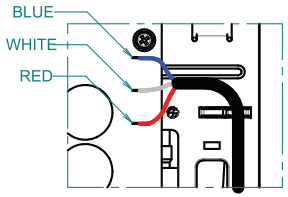
DETAIL D

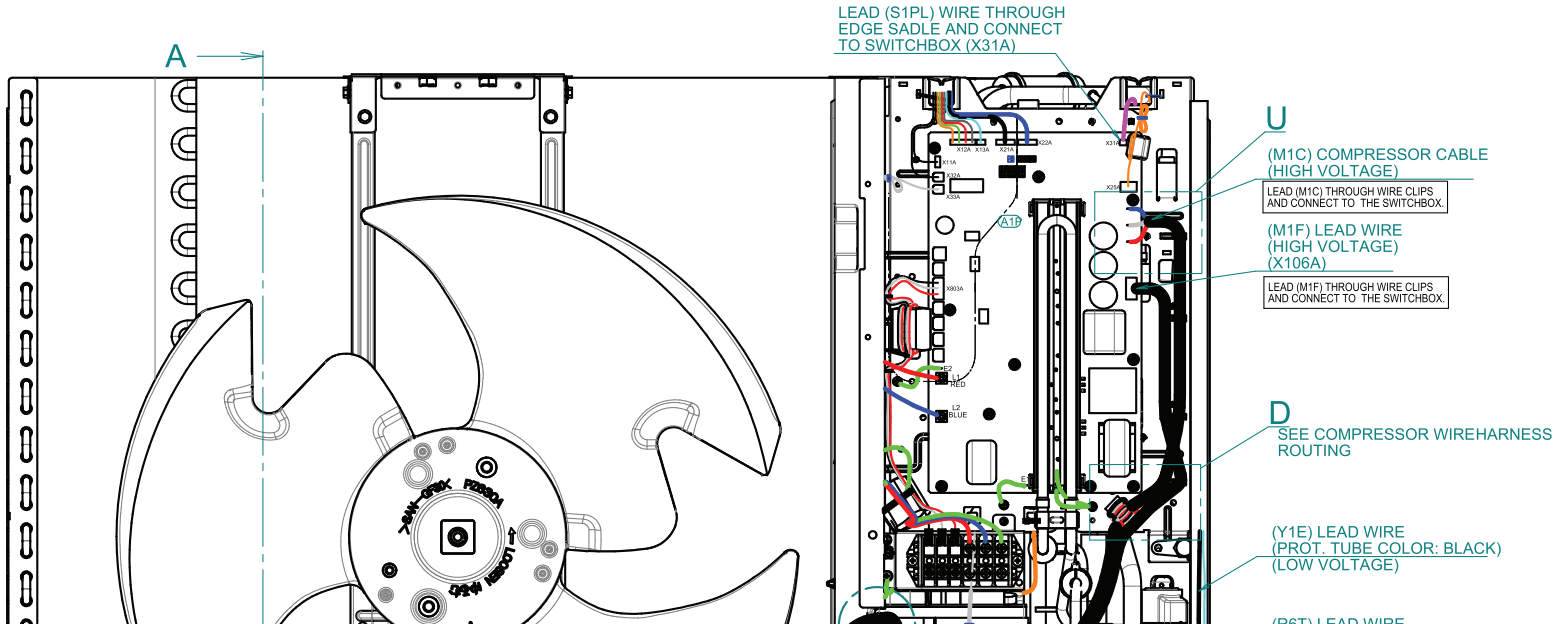
ONLY FOR PART 3



SWITCHBOX CONNECTIONS

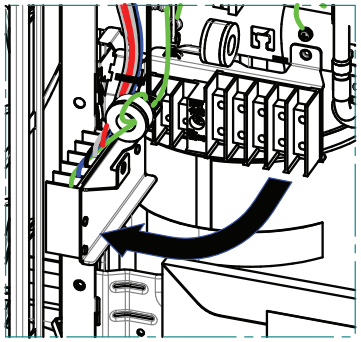
ALL PARTS

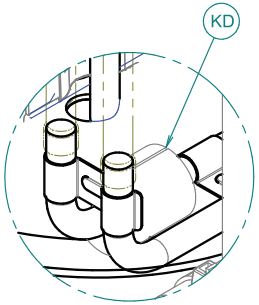




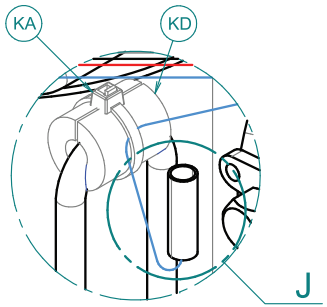
NOTES:

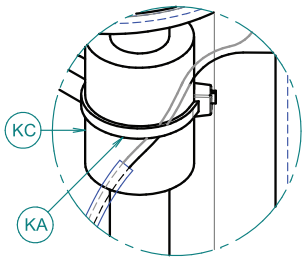
1. THE WIRES ARE NOT ALLOWED TO TOUCH HOT PIPES.
2. FOR DISTINGUISHING THE THERMISTORS, REFER TO THE TABLE.
3. FOR BETTER ACCESS, OPEN THE TERMINAL ASSY, AS SHOWN IN THE FIGURE BELOW.
4. WHEN ADDING TIE-WRAP DURING UPWIRING, ONLY TIGHTEN IT WHEN THE WIRE IS POSITIONED SO THAT IT DOES NOT TOUCH ANY COPPER PIPES.



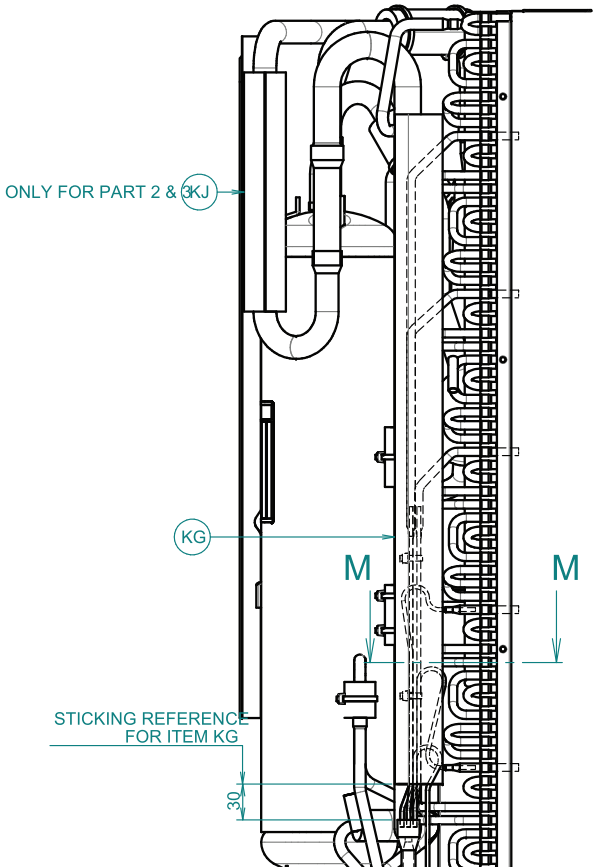


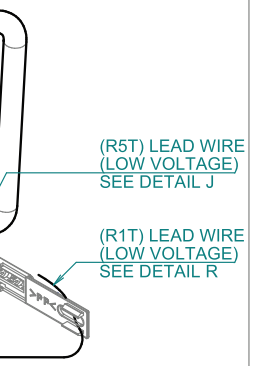
DETAIL T

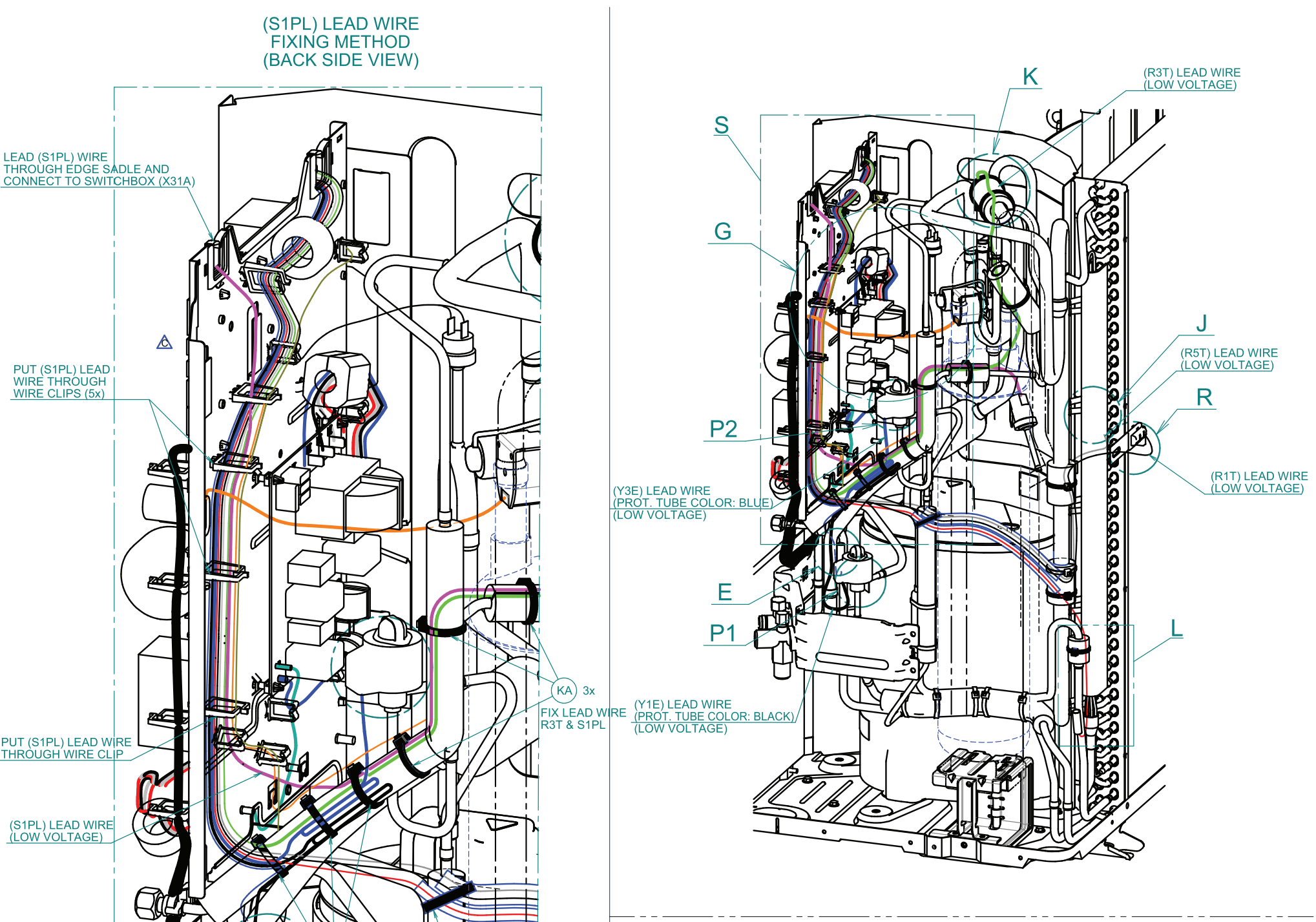




BACKSIDE VIEW

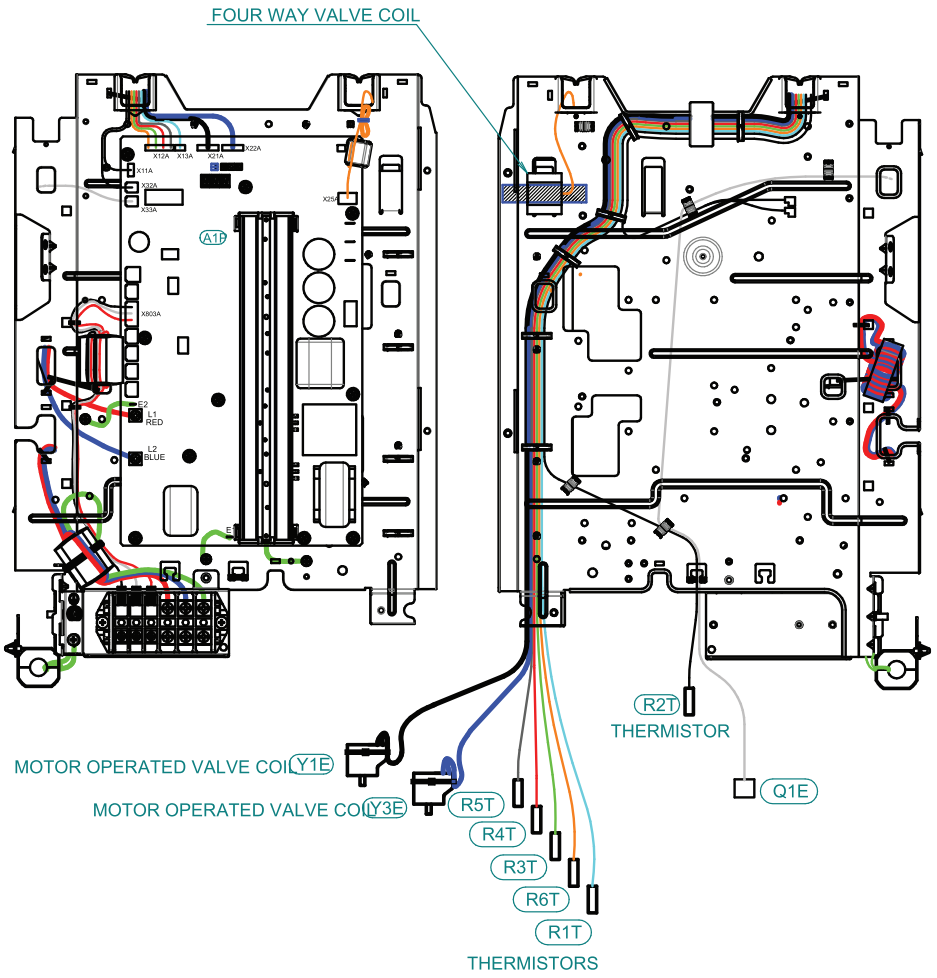




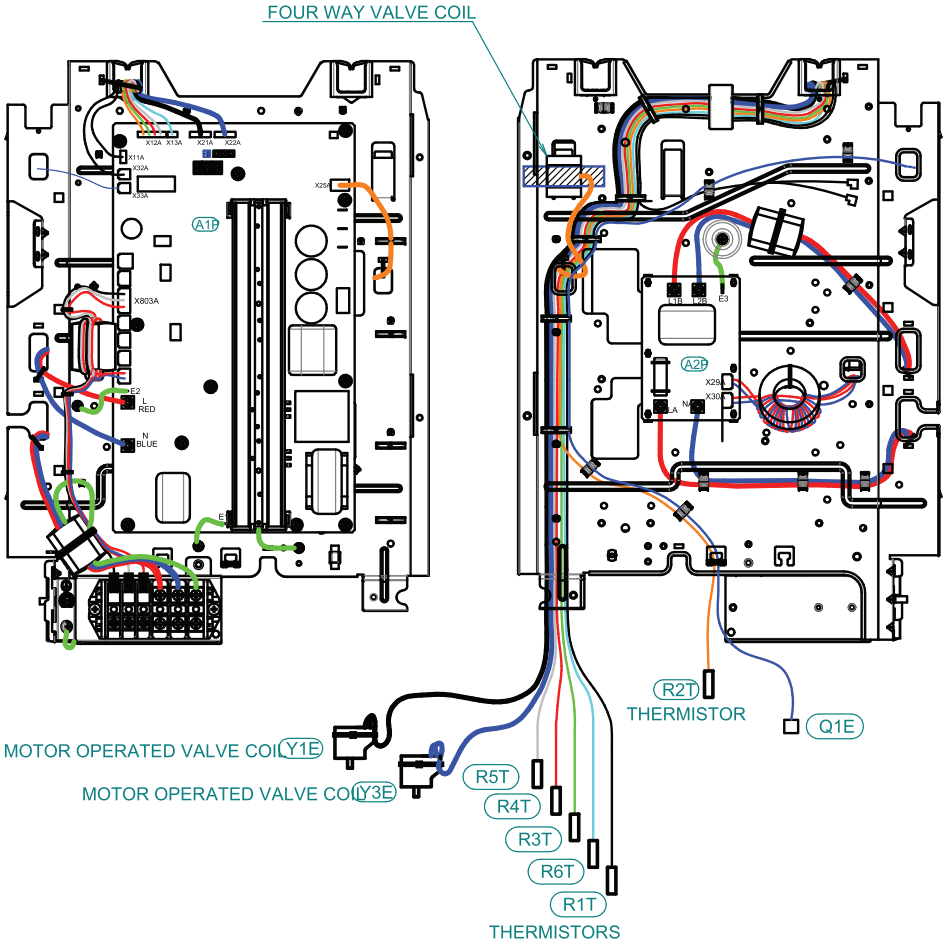

(S1PL) LEAD WIRE FIXING METHOD (BACK SIDE VIEW)
LEAD (S1PL) WIRE THROUGH EDGE SADLE AND CONNECT TO SWITCHBOX (X31A)
PUT (S1PL) LEAD WIRE THROUGH WIRE CLIPS (5x)
PUT (S1PL) LEAD WIRE THROUGH WIRE CLIP
(S1PL) LEAD WIRE (LOW VOLTAGE)
KA 3x
FIX LEAD WIRE R3T & S1PL
K
(R3T) LEAD WIRE (LOW VOLTAGE)
S
G
J
(R5T) LEAD WIRE (LOW VOLTAGE)
R
P2
(R1T) LEAD WIRE (LOW VOLTAGE)
(Y3E) LEAD WIRE (PROT. TUBE COLOR: BLUE) (LOW VOLTAGE)
E
P1
L
(Y1E) LEAD WIRE (PROT. TUBE COLOR: BLACK) (LOW VOLTAGE)

EL COMPO BOX ASSY

⚠ SWITCHBOX FOR RZAG(71/100)N7V

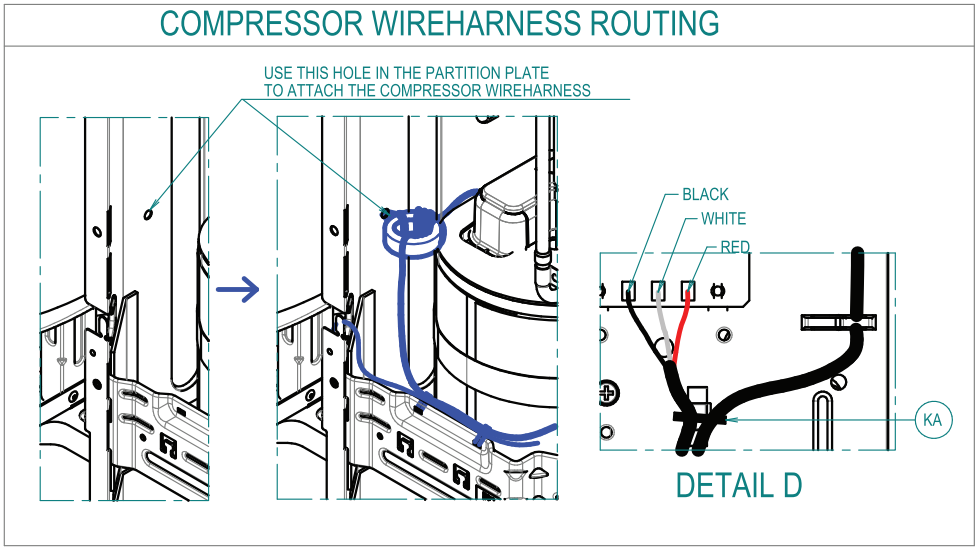


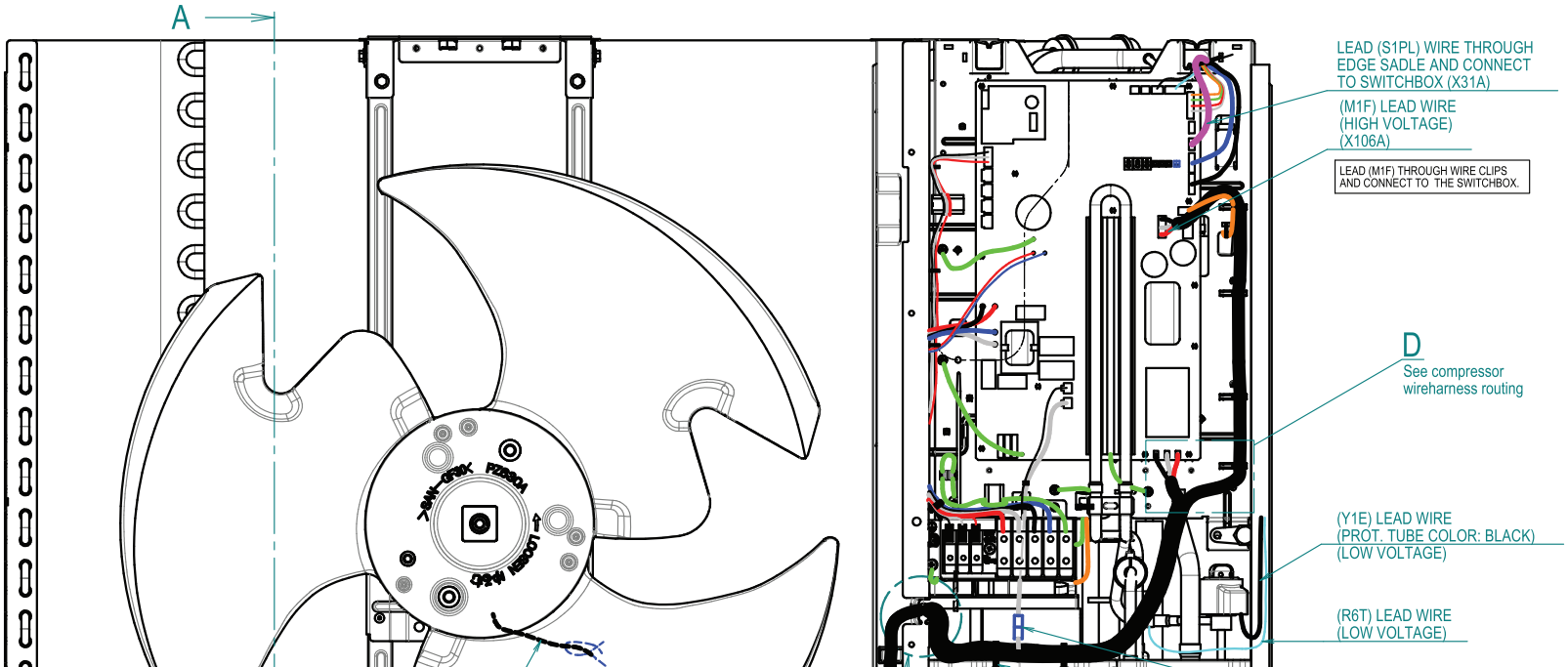
⚠ SWITCHBOX FOR RZAG(125/140)N7V



FIELD WIRING CONNECTION FOR ALL SWITCHBOXES

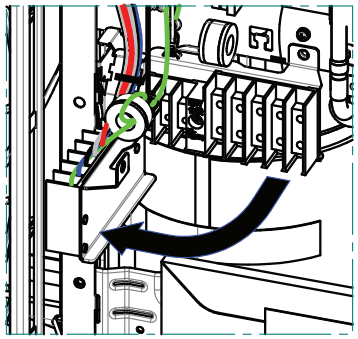
-	NAME	Ø THERMISTOR	MARKING COLOR	EQUIPMENT CONNECTOR	PCB CONNECTOR		VOLTAGE
R1T	THERMISTOR (AIR)	Ø 5	None	White	X11A	White	LOW
R2T	THERMISTOR (DISCHARGE)	Ø 8	Yellow				LOW

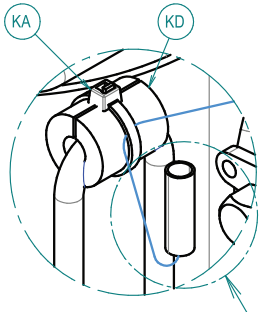

COMPRESSOR WIREHARNESS ROUTING
USE THIS HOLE IN THE PARTITION PLATE
TO ATTACH THE COMPRESSOR WIREHARNESS
BLACK
WHITE
RED
KA
DETAIL D

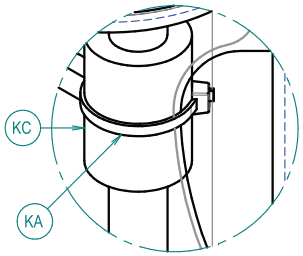

A
LEAD (S1PL) WIRE THROUGH EDGE SADLE AND CONNECT TO SWITCHBOX (X31A)
(M1F) LEAD WIRE (HIGH VOLTAGE) (X106A)
LEAD (M1F) THROUGH WIRE CLIPS AND CONNECT TO THE SWITCHBOX.
D
See compressor wireharness routing
(Y1E) LEAD WIRE (PROT. TUBE COLOR: BLACK) (LOW VOLTAGE)
(R6T) LEAD WIRE (LOW VOLTAGE)

NOTES:

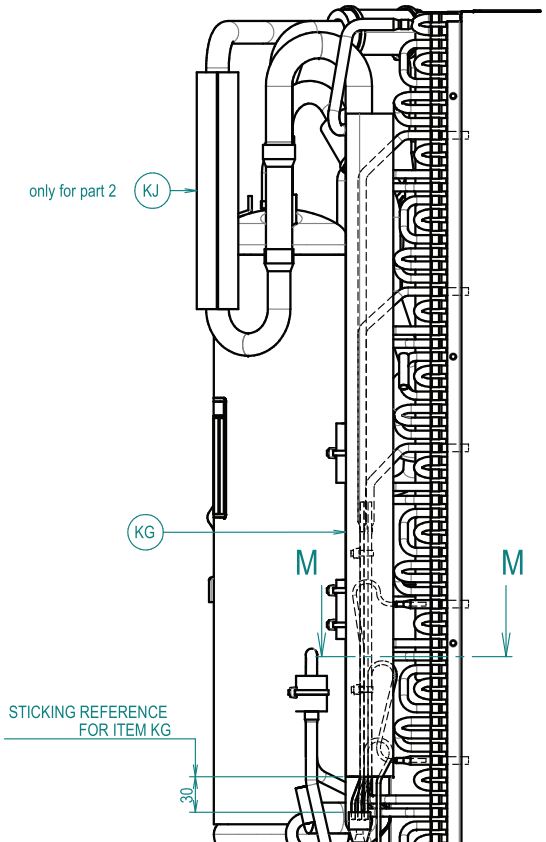
1. THE WIRES ARE NOT ALLOWED TO TOUCH HOT PIPES.
2. FOR DISTINGUISHING THE THERMISTORS, REFER TO THE TABLE.
3. FOR BETTER ACCESS, OPEN THE TERMINAL ASSY, AS SHOWN IN THE FIGURE BELOW.
4. WHEN ADDING TIE-WRAP DURING UPWIRING, ONLY TIGHTEN IT WHEN THE WIRE IS POSITIONED SO THAT IT DOES NOT TOUCH ANY COPPER PIPES.

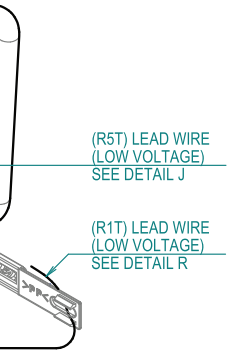


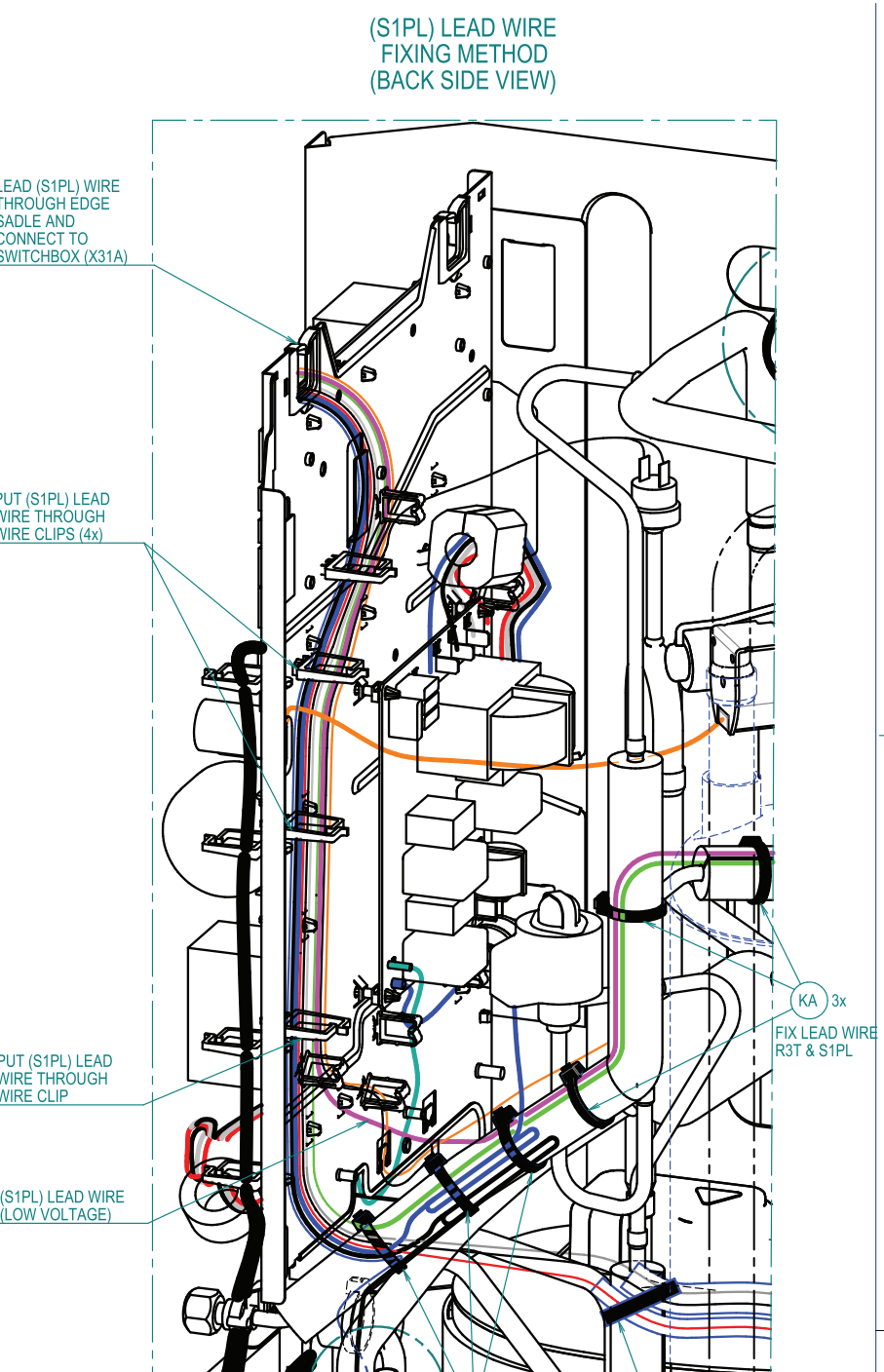


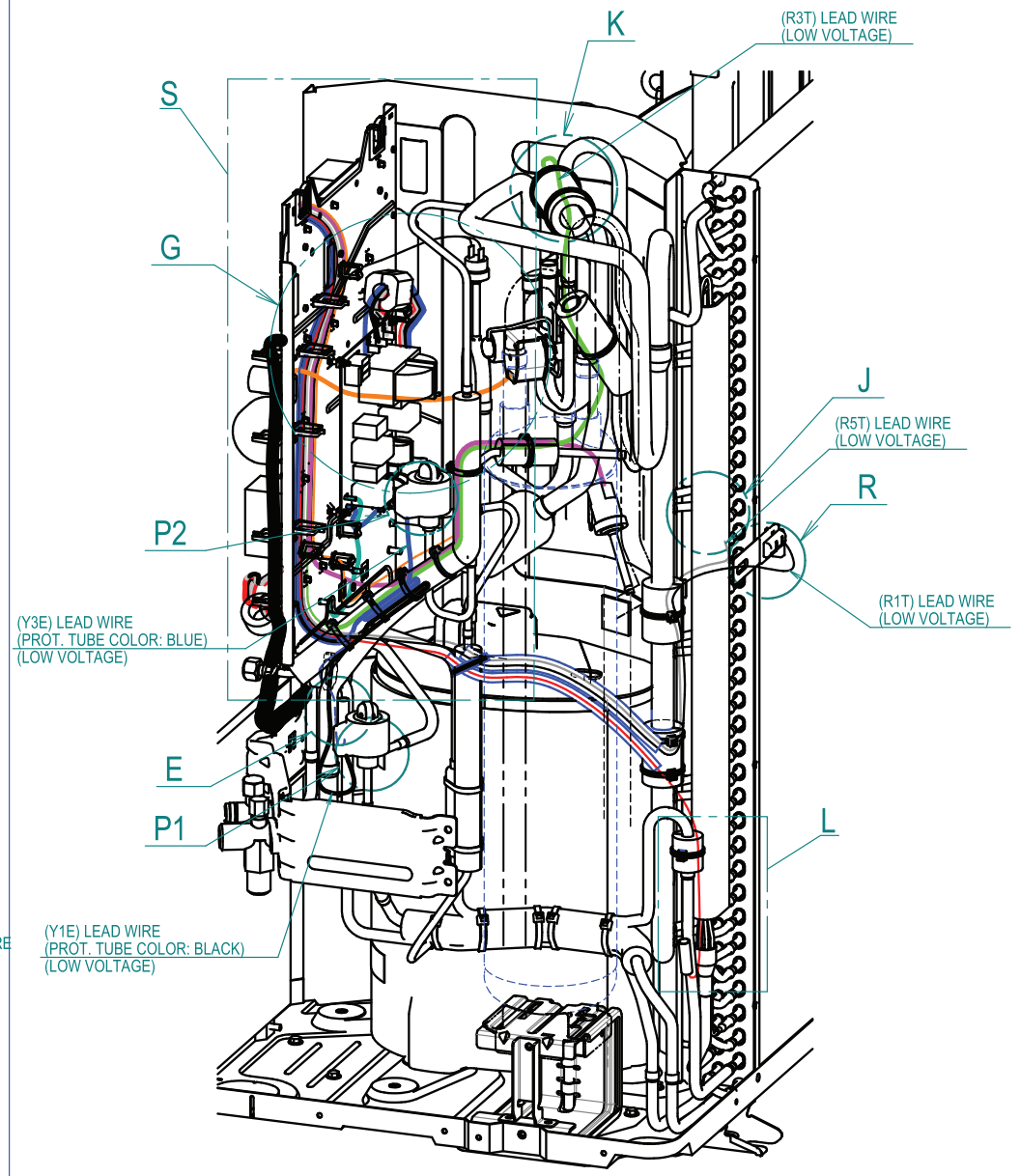


BACKSIDE VIEW

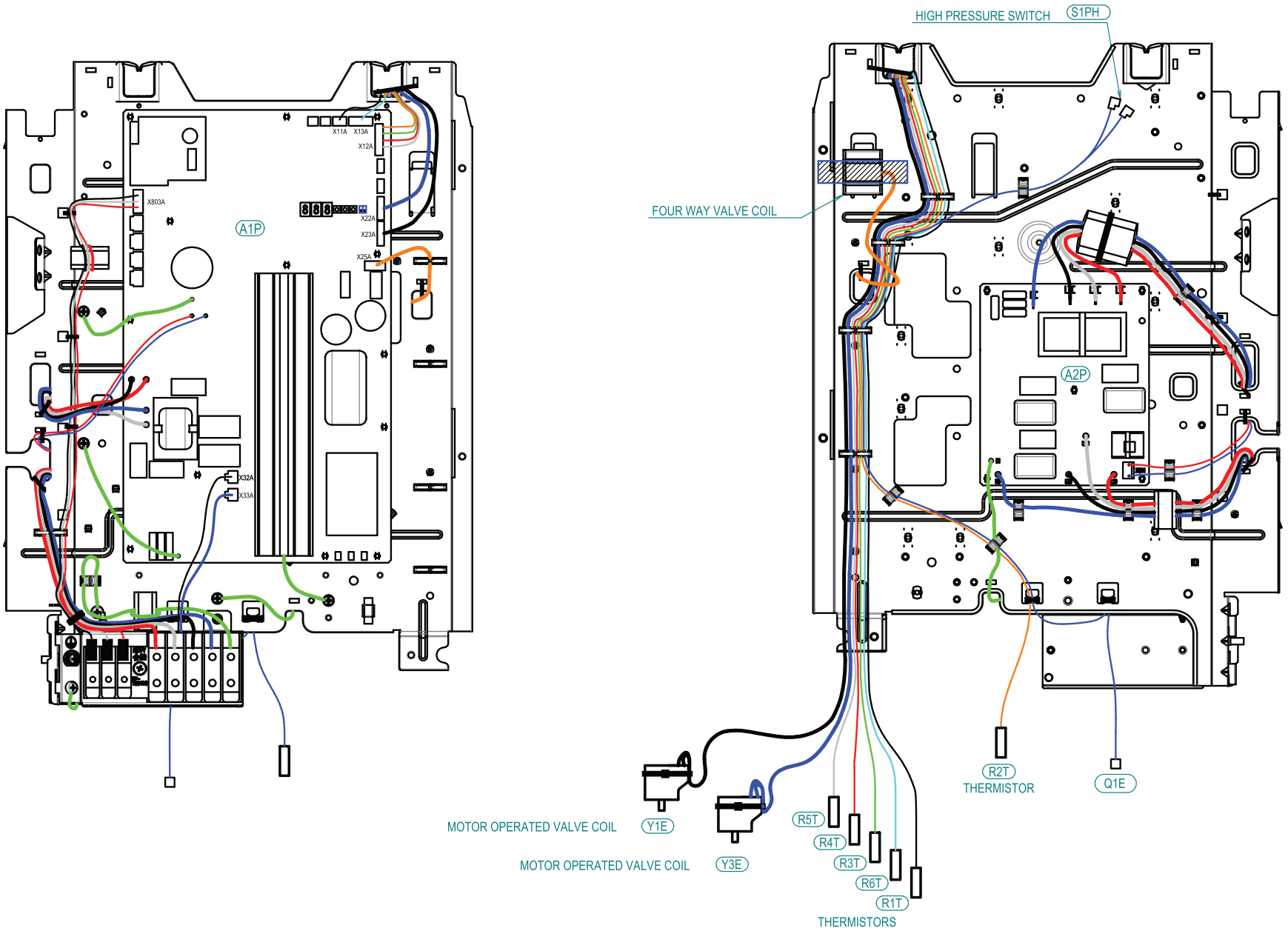





(S1PL) LEAD WIRE
FIXING METHOD
(BACK SIDE VIEW)
LEAD (S1PL) WIRE
THROUGH EDGE
SADLE AND
CONNECT TO
SWITCHBOX (X31A)
PUT (S1PL) LEAD
WIRE THROUGH
WIRE CLIPS (4x)
PUT (S1PL) LEAD
WIRE THROUGH
WIRE CLIP
(S1PL) LEAD WIRE
(LOW VOLTAGE)
KA 3x
FIX LEAD WIRE
R3T & S1PL


K
(R3T) LEAD WIRE
(LOW VOLTAGE)
S
G
J
(R5T) LEAD WIRE
(LOW VOLTAGE)
R
P2
(R1T) LEAD WIRE
(LOW VOLTAGE)
(Y3E) LEAD WIRE
(PROT. TUBE COLOR: BLUE)
(LOW VOLTAGE)
E
P1
L
(Y1E) LEAD WIRE
(PROT. TUBE COLOR: BLACK)
(LOW VOLTAGE)

EL COMPO BOX ASSY



FIELD WIRING CONNECTION

5.7. Product specific information

5.7.1. Error codes

5.7.1.1. “E9-00” - Electronic expansion valve abnormality

Trigger conditions

- A = 4 K
- B = 10 K

5.7.1.2. “F3-00” - Discharge pipe temperature abnormality

Compressor	A (°C)	B (°C)
2Y260BP (RZAG71+100N)	120	95
2Y350BP (RZAG125+140N)	120	95

5.7.2. Component checklist

5.7.2.1. How to activate inverter test

Not available yet.

5.7.2.2. Component checklist

Component Outdoor unit	Component name	Connector	PCB	Specific
M1C	Motor (compressor)	u, v, w	A1P	
M1F	Motor (upper fan)	X106A	A1P	
M2F	Motor (lower fan)	X107A	A1P	
S1PH	High pressure switch	X32A	A1P	
S1PL	Low pressure switch	X31A	A1P	
Y1E	Electronic expansion valve	X21A	A1P	
Y3E	Electronic expansion valve	X22A	A1P	
Y1S	Solenoid valve (4-way valve)	X25A	A1P	
R1T	Thermistor (air)	X11A	A1P	Type 1
R2T	Thermistor (discharge)	X12A	A1P	Type 3
R3T	Thermistor (suction)	X12A	A1P	Type 1
R4T	Thermistor (heat exchanger inlet)	X12A	A1P	Type 1
R5T	Thermistor (heat exchanger middle)	X12A	A1P	Type 1
R6T	Thermistor (liquid)	X13A	A1P	Type 1
R7T	Thermistor (Fin)	X111A	A1P	Fin thermistor

5.8. 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.

DAIKIN

FIELD INFORMATION REPORT

Key person info	
Name:	Company name:
Your contact details Phone number:	E-mail address:
Site address:	
Your reference:	Date of visit:

Claim info	
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 info
Application (house, apartment, office, …):
New project or refurbishment:
Heat emitters (radiators / under floor heating / fan coils / …):
Hydraulic layout (simple schematic):

Unit / Installation info	
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, ext. 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).