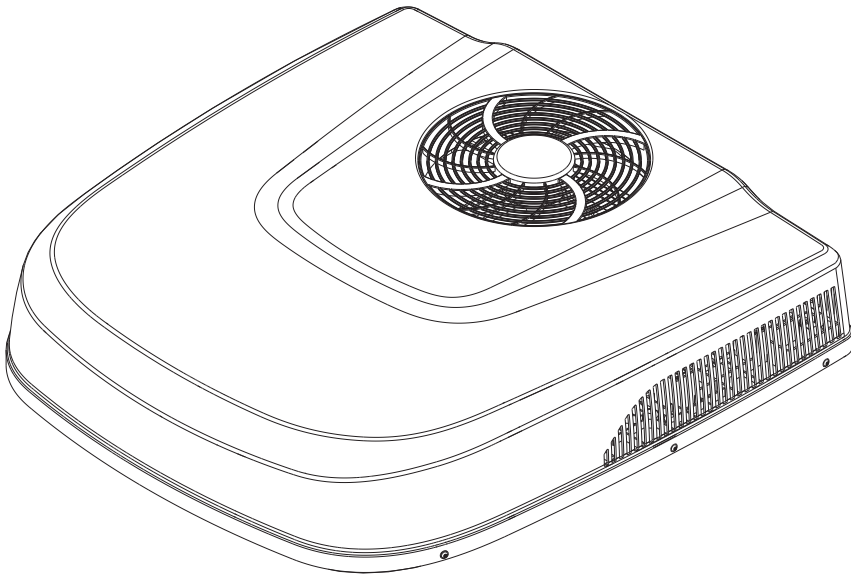




AC AND VENTILATION

COOLAIR



VTX2600

EN

Truck Parking Cooler

Service Manual.....2

English

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1 Related documents



Find the detailed Operating Manual online at qr.dometic.com/bh1hd5.



2 Explanation of symbols

A signal word will identify safety messages and property damage messages, and also will indicate the degree or level of hazard seriousness.



WARNING!

> Indicates a hazardous situation that, if not avoided, could result in death or serious injury.



CAUTION!

> Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.



NOTICE!

> Indicates a situation that, if not avoided, could result in property damage.



NOTE Supplementary information for operating the product.

3 Safety instructions



WARNING! Explosion and fire hazard

- > Keep ignition sources away from the device and the refrigerant.
- > Ensure that the installation, repair, removal, and disposal areas are equipped with a "No Smoking" sign.
- > Follow the local regulations for transporting the device and the flammable refrigerant.
- > Ensure that the roof air conditioner inlets and outlets are not blocked.
- > Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacture.
- > The device shall be stored in a room without continuously operating ignition sources such as open flames, operating gas devices, or operating electric heaters.
- > Do not pierce or burn the device.



WARNING! Electrocution hazard

- > Do not use damaged or defective cables.

 **WARNING! Risk of injury**

- > Repair of the device may only be carried out by qualified personnel who are familiar with the risks involved and the relevant regulations. Inadequate repairs may cause serious hazards. For repair services contact the service center in your country (see <http://dometic.com/dealer>)

 **CAUTION! Fire hazard**

- > Do not use the device near flammable fluids or in closed rooms.

 **CAUTION! Electrocutation hazard**

- > Do not reach into air outlets or insert any foreign objects into the device.

 **CAUTION! Risk of injury**

- > Always wear protective goggles and gloves.
- > Ensure that no persons can come into contact with the device during maintenance and repair work who do not belong to the target group (see *Target groups* on page 3).
- > Ensure that a dry powder or CO₂ fire extinguisher is nearby before performing any maintenance or repairs.

 **NOTICE! Damage hazard**

- > The refrigerant must not be released into the air.
- > Do not connect power to the device during repair.
- > Do not install inductive or capacitive continuous loads in the circuit of the roof air conditioner that do not comply with the voltage and current specified for them.
- > When replacing cables and electrical parts ensure that the cables are not affected by wear, corrosion, excessive pressure, vibration, sharp edges, or other environmental conditions.
- > Do not touch the capillaries on the evaporator to prevent a thermal short circuit.

4 Explanations of symbols on the device

	Warning! Low burning velocity material.
---	---

5 Target groups

 The mechanical and electrical installation and setup of the device must be performed by a qualified technician who has demonstrated skill and knowledge related to the construction and operation of automotive and household equipment and installations, and who is familiar with the applicable regulations of the country in which the equipment is to be installed and/or used, and has received safety training to identify and avoid the hazards involved.

6 Intended use

The truck parking cooler (also referred to as the product or device) is used to supply the interior of the driver's cab with cool and dehumidified air. The system is designed for stationary use or can be used while driving. The truck parking cooler is not suitable for use in agricultural or construction vehicles. The truck parking cooler is suitable for ambient temperatures of – 2°C ... 52°C.

This product is only suitable for the intended purpose and application in accordance with these instructions.

This manual provides information that is necessary for proper installation and/or operation of the product. Poor installation and/or improper operation or maintenance will result in unsatisfactory performance and a possible failure.

The manufacturer accepts no liability for any injury or damage to the product resulting from:

- Incorrect installation, assembly or connection, including excess voltage
- Incorrect maintenance or use of spare parts other than original spare parts provided by the manufacturer
- Alterations to the product without express permission from the manufacturer
- Use for purposes other than those described in this manual

Dometic reserves the right to change product appearance and product specifications.

7 Technical description

The truck parking cooler can be used for conditioning inside the vehicle. The air in the interior is guided into the system through the intake grille, cooled, dried, and conveyed back into the interior through the blower nozzles.

The system is controlled using the control panel or the remote control.

 **NOTE**

The truck parking cooler can lower the temperature within the vehicle to a certain level. The temperature depends on the type of vehicle, the ambient temperature, and the cooling capacity of your truck parking cooler. For the cooling capacity of your parking cooler see *Technical data* on page 18.

The system is fitted with a battery monitor. If the system is operated when the vehicle ignition is switched off, the system switches off automatically as soon as the supply voltage falls below a set level.



NOTE The set voltage level can be changed. For this contact the specialized company that installed the system.

8 Deinstalling the truck parking cooler



NOTE The deinstallation process in this chapter is provided as an example. The deinstallation process may vary depending on the installation type and vehicle model.

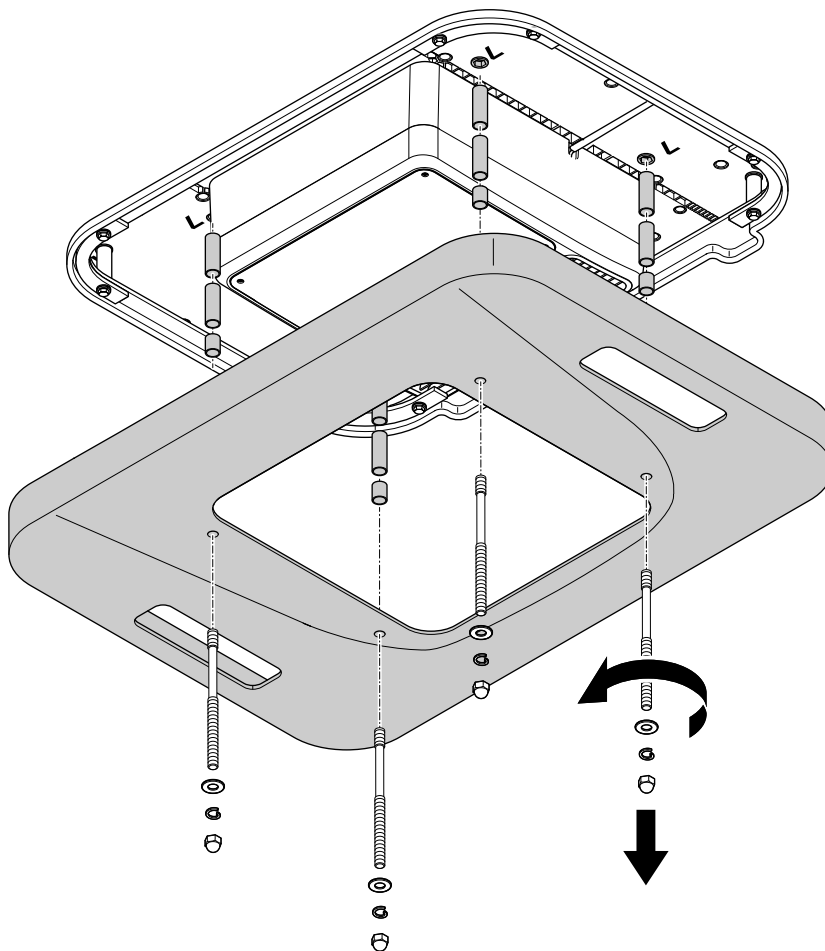
1. Disconnect the device from the vehicle battery.
2. Ensure that the air inlets and outlets of the device are not blocked.
3. Dismantle the cover frame.



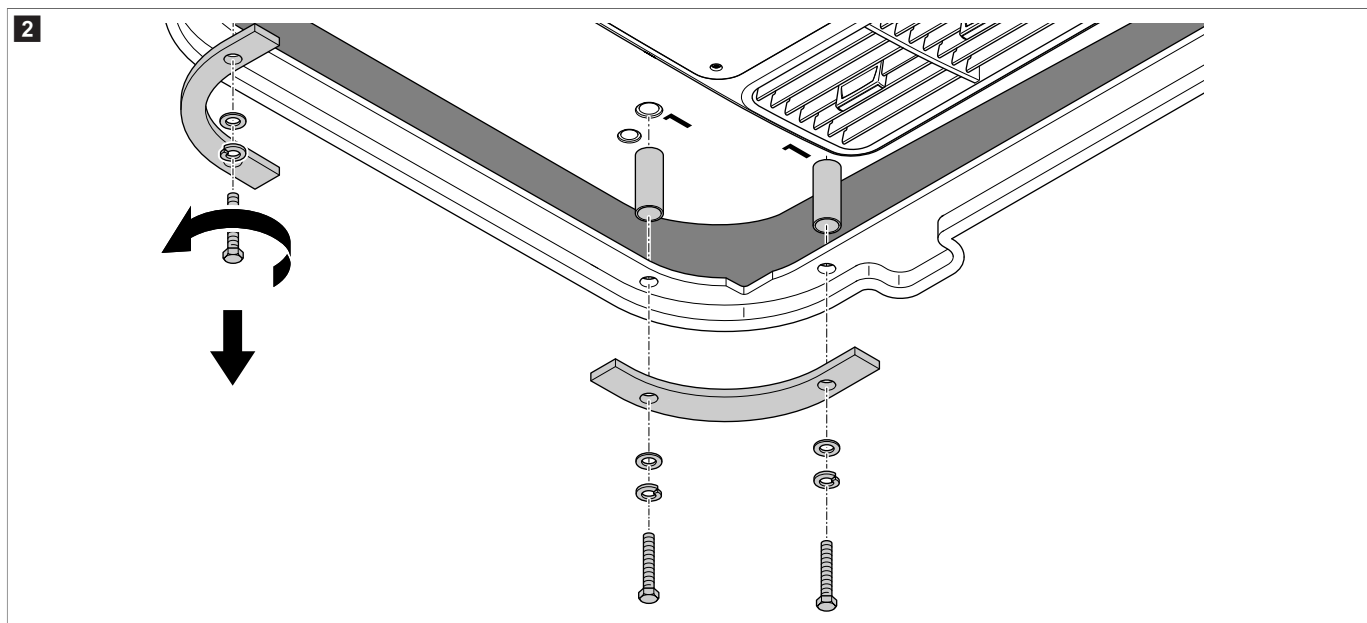
CAUTION! Risk of injury and damage hazard

> Hold the cover frame with the help of another person so that it does not fall down.

1



4. Remove the spacers from the corners.



5. Disconnect the power supply and communication cables from the device.
 6. Remove the device from the roof opening and place it on a padded surface.



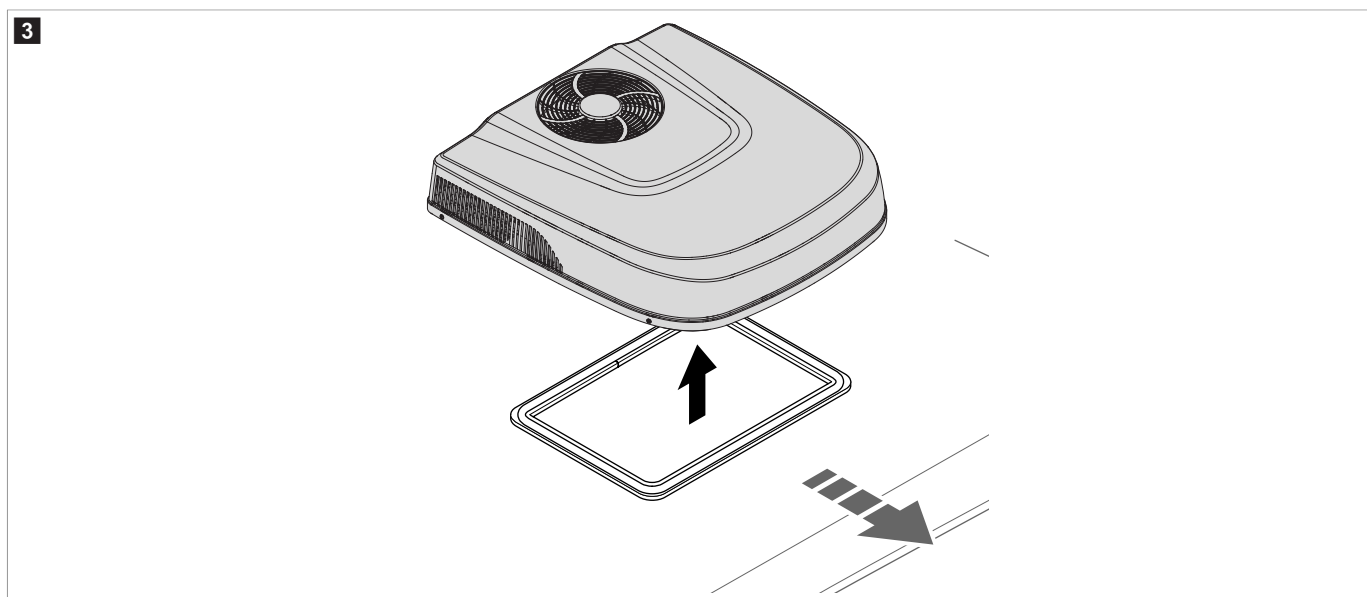
CAUTION! Risk of injury and damage hazard

- > Ensure that the roof structure can safely support both the weight of the person removing the rooftop unit and the full weight of the unit itself (see Technical data on page 18). If the roof cannot support this load, use a crane to remove the unit.



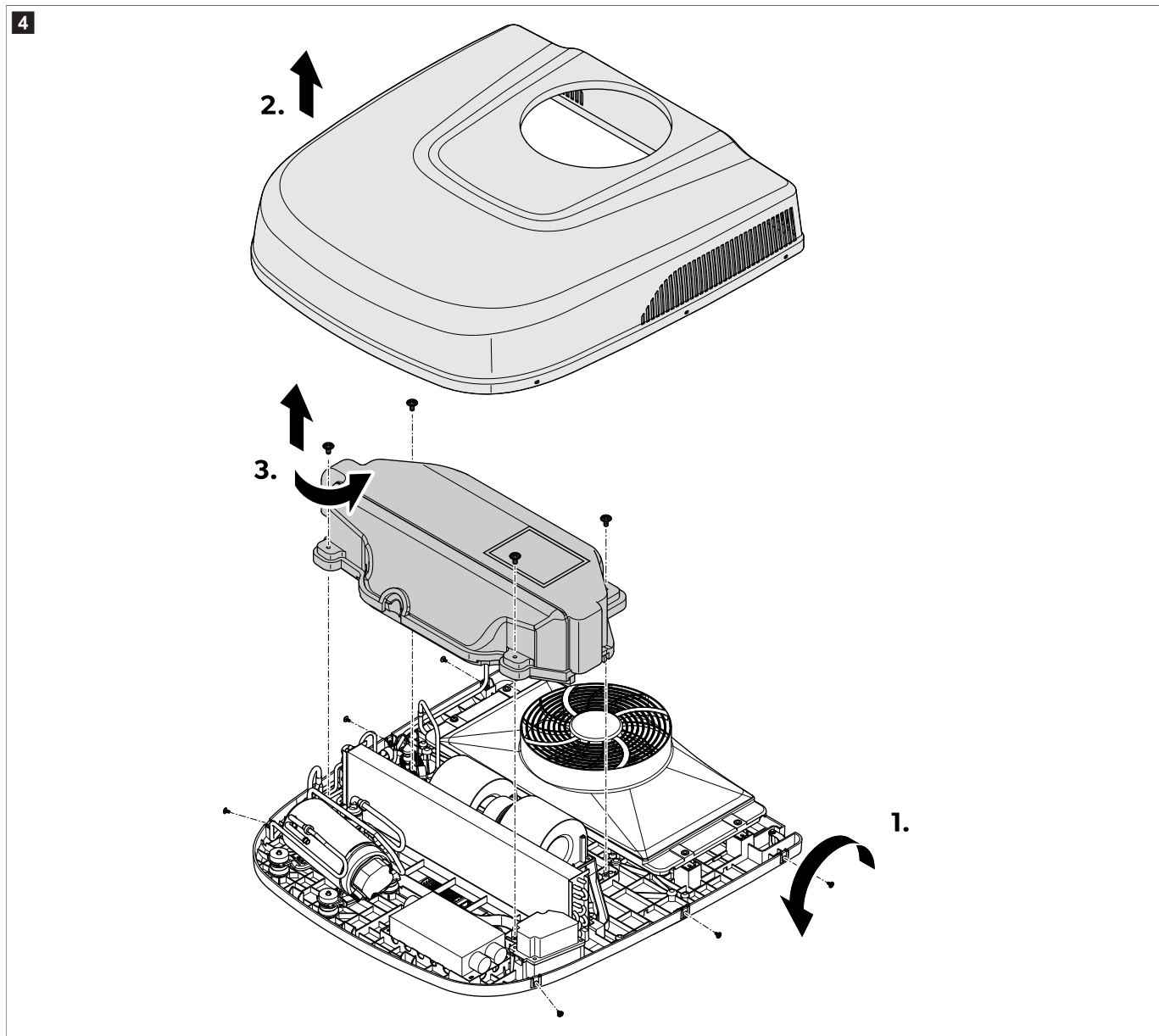
NOTICE! Damage hazard

- > Do not drag or slide the device along any surfaces. Doing so may damage the foam gasket on the bottom of the device, which can lead to water leaks.
- > Place the device on a padded surface to avoid damaging the gasket.

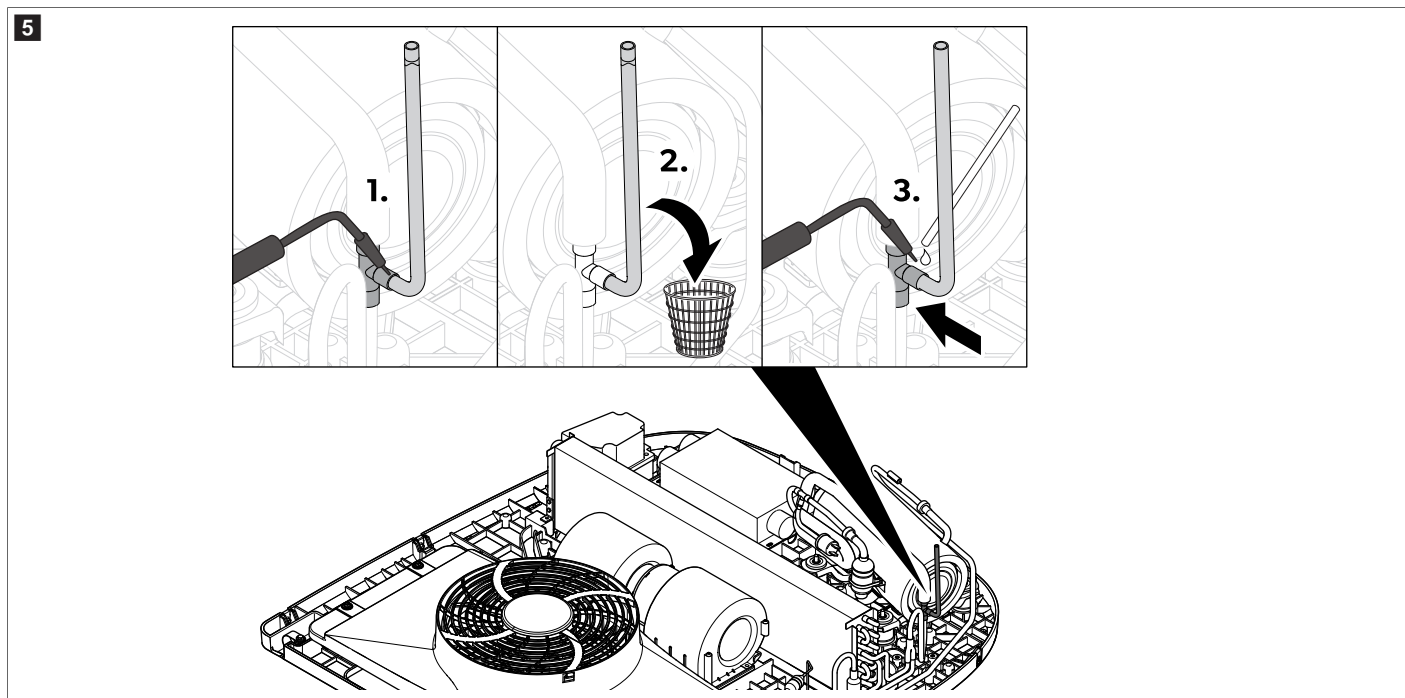


7. Unscrew the cover of the device using a pneumatic screwdriver.

8. Dismantle the cover of the rooftop unit and remove the expanded polypropylene (EPP) housing.



9 Replacing the process pipe



1. Desolder the old process pipe (Fig. 5 on page 7, 1.).
2. Remove the old process pipe using needle-nose pliers (Fig. 5 on page 7, 2.).
3. Fit a new process pipe to the rooftop unit.
The process pipe must have the following properties:
 - Material: Copper
 - Diameter: $\varnothing$ 6 mm
 - Length: $\geq$ 130 mm
4. Attach the new process pipe using protection gas brazing (Fig. 5 on page 7, 3.).



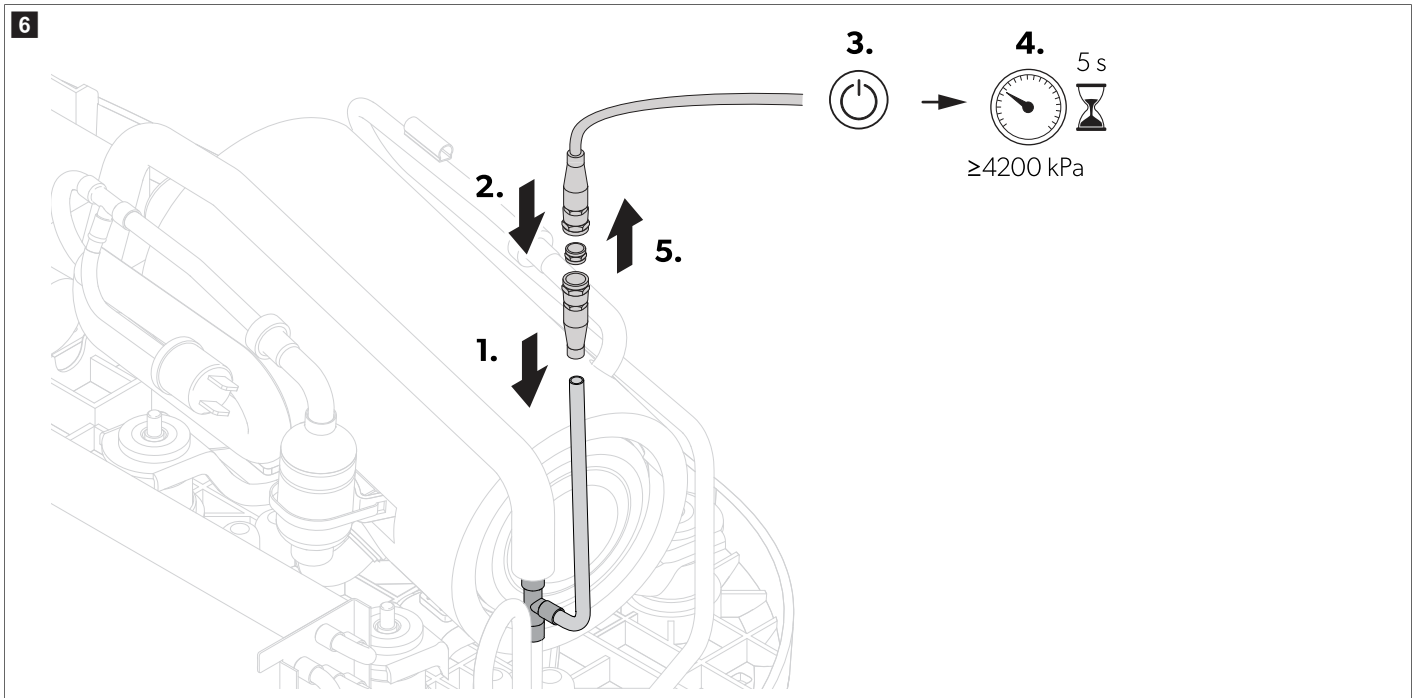
NOTE When brazing with an inert gas, use a low-pressure nitrogen flow to prevent the pipes from oxidizing.

10 Performing a high pressure test



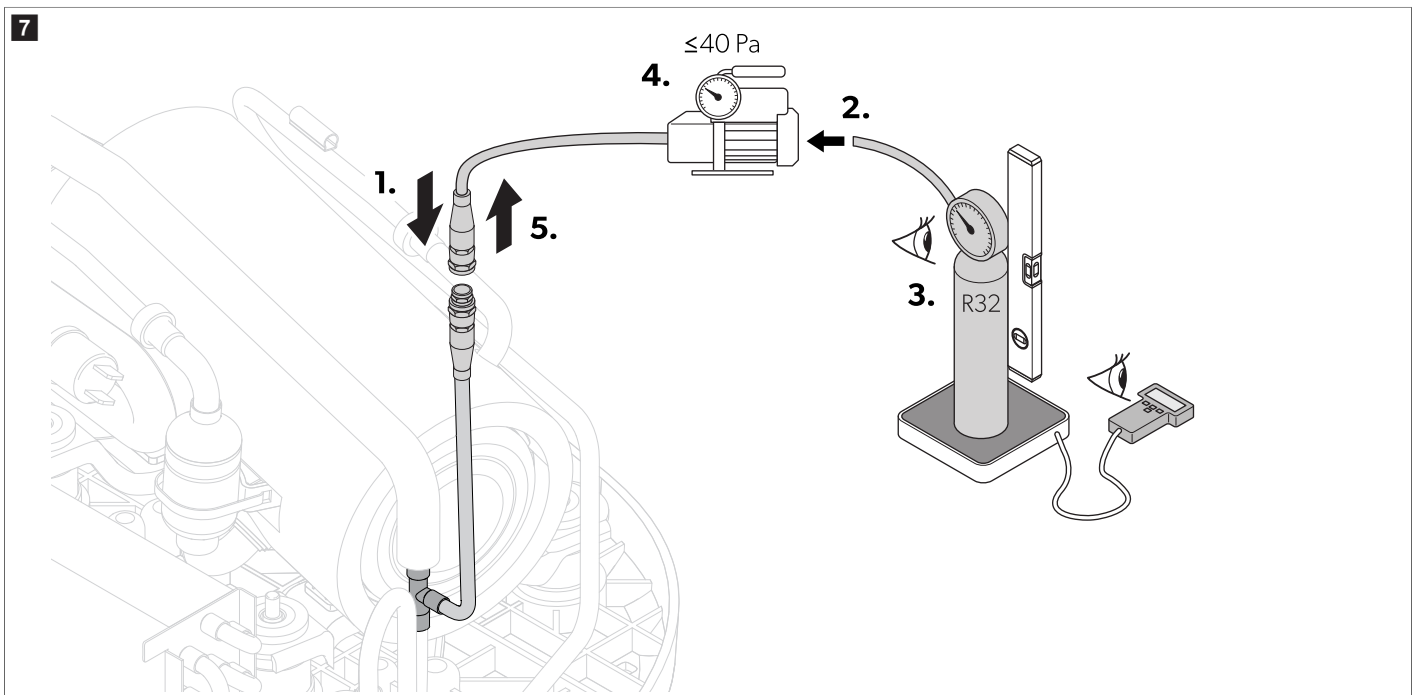
WARNING! Explosion hazard

- > Only use oxygen free nitrogen (OFN).



1. Connect the quick connector to the process pipe (Fig. 6 on page 8, 1.).
The quick connector must have the following properties:
 - Thread size: G1/4"
 - Suitable for pipes with a diameter of: 4.8 mm, 5 mm, 6 mm, 6.3 mm, and 8 mm
 - Suitable for pipes with a length of ≥ 25 mm
2. Connect the process pipe with a quick connector to the hose of the nitrogen pressure test kit (Fig. 6 on page 8, 2.).
3. Start the test procedure (Fig. 6 on page 8, 3.).
4. Inject high pressure air of 4200 kPa for a duration of 5 s (Fig. 6 on page 8, 4.).
✓ If the pressure drops within the 5 s, a leakage is present in the refrigerant circuit (Performing a leak test on page 10).
5. Disconnect the nitrogen pressure kit (Fig. 6 on page 8, 5.).

11 Draining the refrigerant



1. Connect a vacuum pump to the quick connector to flush the refrigerant circuit with oxygen free nitrogen (OFN) ( Fig. 7 on page 8, 1.).
2. Connect the recovery cylinder to the vacuum pump ( Fig. 7 on page 8, 2.).
3. Place the appropriate recovery cylinder on a calibrated scale.
Keep the recovery cylinder upright ( Fig. 7 on page 8, 3.).
4. Start the vacuum pump ( Fig. 7 on page 8, 4.).
Follow the vacuum pump manufacturer's instructions.


NOTICE! Damage hazard

- > Do not exceed the allowed pressure of the recovery cylinder.


NOTE

The recovery cylinder content must not exceed 80 % of its volume.

If a pressure of more than 40 Pa is created, a leakage is present in the refrigerant circuit.

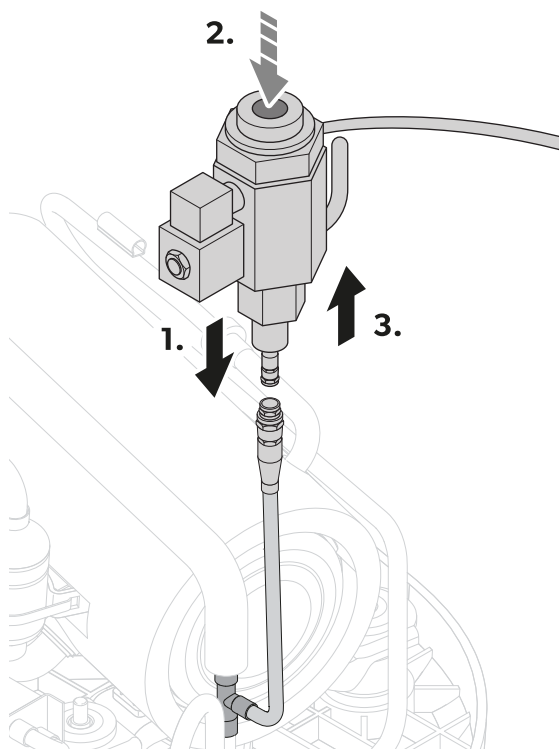
- ✓ A pressure of ≤ 40 Pa is created. The recovery cylinder is filled with the refrigerant.

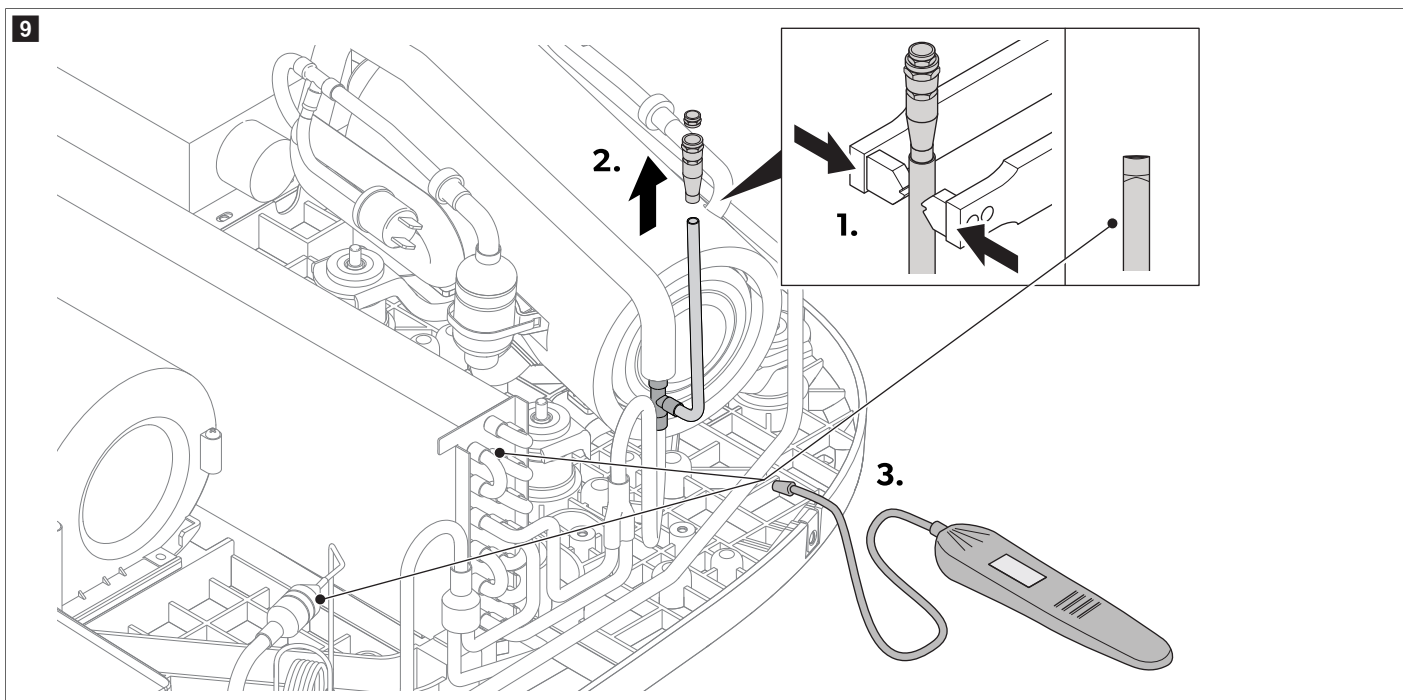
5. If creating a vacuum is not possible, use an adapter to remove the refrigerant.
Follow the adapter manufacturer's instructions.
6. Disconnect the vacuum pump ( Fig. 7 on page 8, 5.).
7. Disconnect the recovery cylinder.
8. Perform a leak test (Performing a leak test on page 10).

12 Refilling the refrigerant


NOTICE! Damage hazard

- > Only fill the roof air conditioner with the refrigerant specified on the rating label (Technical data on page 18).
- > Ensure that no debris enters the refrigerant circuit when filling refrigerant.
- > Do not overfill the refrigeration circuit. The filling quantity must correspond to the refrigerant quantity stated in the technical data (Technical data on page 18).

8




1. Connect a refrigerant filling machine suitable for flammable refrigerant to the quick connector (Fig. 8 on page 9, 1.).
Follow the refrigerant filling machine manufacturer's instructions.
2. Make the appropriate settings on the refrigerant filling machine.
Follow the refrigerant filling machine manufacturer's instructions.
3. Fill refrigerant into the refrigerant circuit (Fig. 8 on page 9, 2.).
4. Disconnect the refrigerant filling machine (Fig. 8 on page 9, 3.).
5. Weld the process pipe using welding spot pliers (Fig. 9 on page 10, 1.).
Follow the welding spot pliers manufacturer's instructions.
6. Disconnect the quick connector from the process pipe (Fig. 9 on page 10, 2.).
7. Test the welding points for refrigerant leakages (Fig. 9 on page 10, 3.), see Performing a leak test on page 10.

13 Performing a leak test

The leak test can be performed either with a refrigerant leak detector or using gas and liquids.

The refrigerant has been drained from the device.

13.1 Using a refrigerant leak detector

Observe the following when using a refrigerant leak detector:

- The use of silicone sealants may reduce the effectiveness of leak detectors. Intrinsically safe components do not need to be isolated before working.
- Ensure that the sensitivity of the refrigerant leak detector has been calibrated.
- Ensure that the refrigerant leak detector has been calibrated in a refrigerant free area.
- Ensure that the refrigerant leak detector is set to a percentage of the low flammable limit of the refrigerant.
- Ensure that the refrigerant leak detector is set to the refrigerant present in the roof air conditioner.
- Ensure that the corresponding gas percentage is set to a maximum of 25 %.

1. Switch the refrigerant leak detector on.
Follow the refrigerant leak detector manufacturer's instructions.
2. Move the refrigerant leak detector 1 – 3 mm away from the weldings.
3. Move the probe around the welding (Fig. 9 on page 10, 3.).
4. If a refrigerant leak has been detected, drain the refrigerant (Draining the refrigerant on page 8).
5. Solder any leaks.
6. Restart the filling process (Refilling the refrigerant on page 9).

13.2 Using gas and liquids for leak detection



WARNING! Explosion hazard

> Only use oxygen free nitrogen (OFN).



NOTICE! Damage hazard

> Do not use cleaning agents containing chlorine for leak detection.



NOTE This option can only be performed if the device does not contain refrigerant.

1. Fill the refrigerant circuit with 9.81 – 19.61 bar of pressurized nitrogen.
2. Lubricate the welding points with soap water.



NOTE The bubbles can be very small and difficult to see with the eye.

- ✓ Bubbles form in the soap water at the leak points.
3. Release the nitrogen from the refrigerant circuit.
 4. If any refrigerant leaks have been detected, seal the leaks using protection gas brazing.

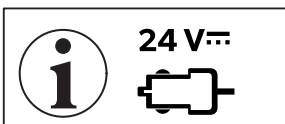
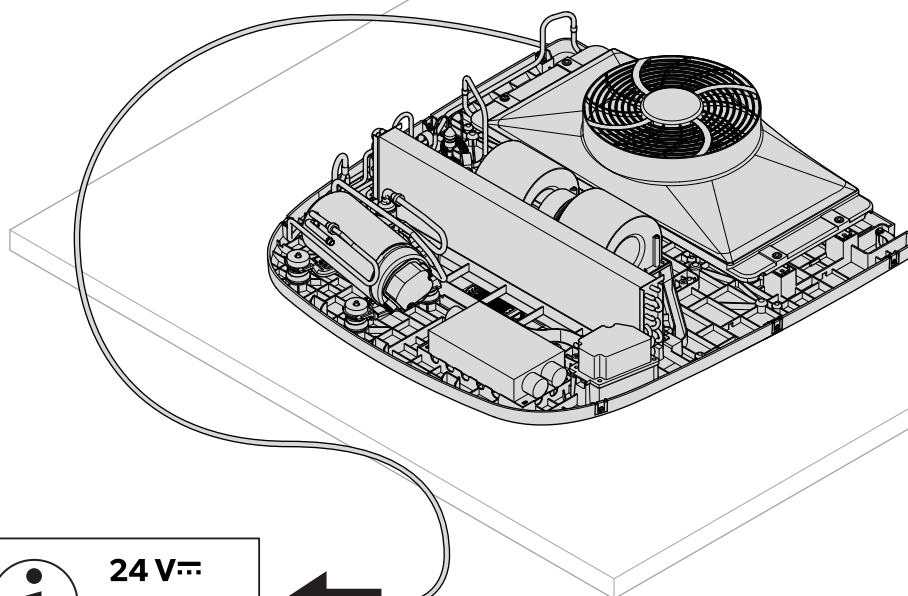


NOTE When brazing with an inert gas, use a low-pressure nitrogen flow to prevent the pipes from oxidizing.

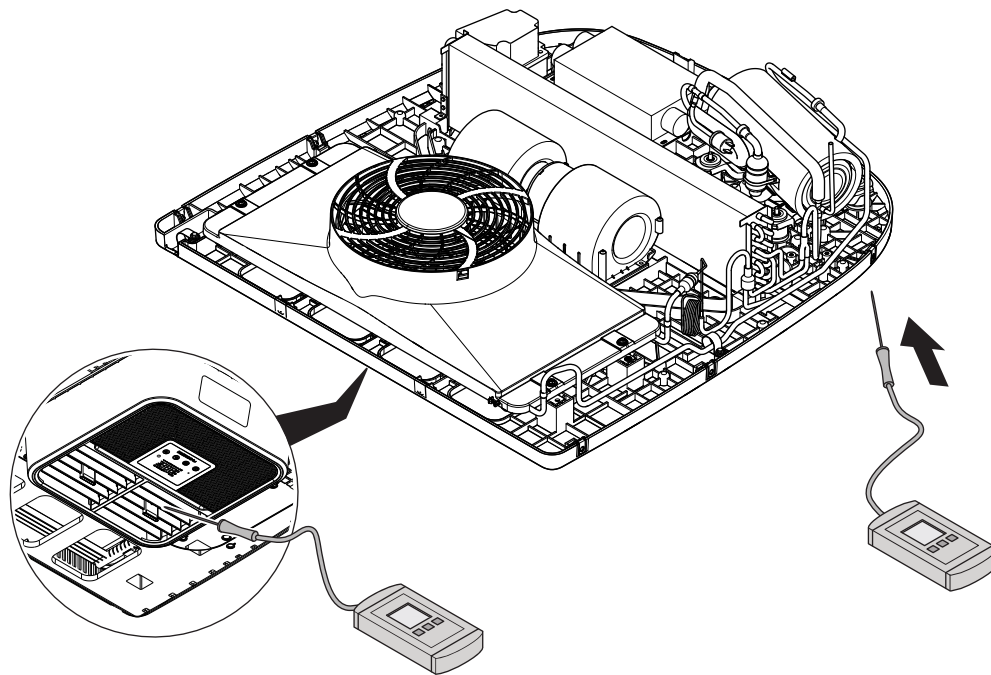
5. Restart the filling process (Refilling the refrigerant on page 9).

14 Testing the air ventilation system

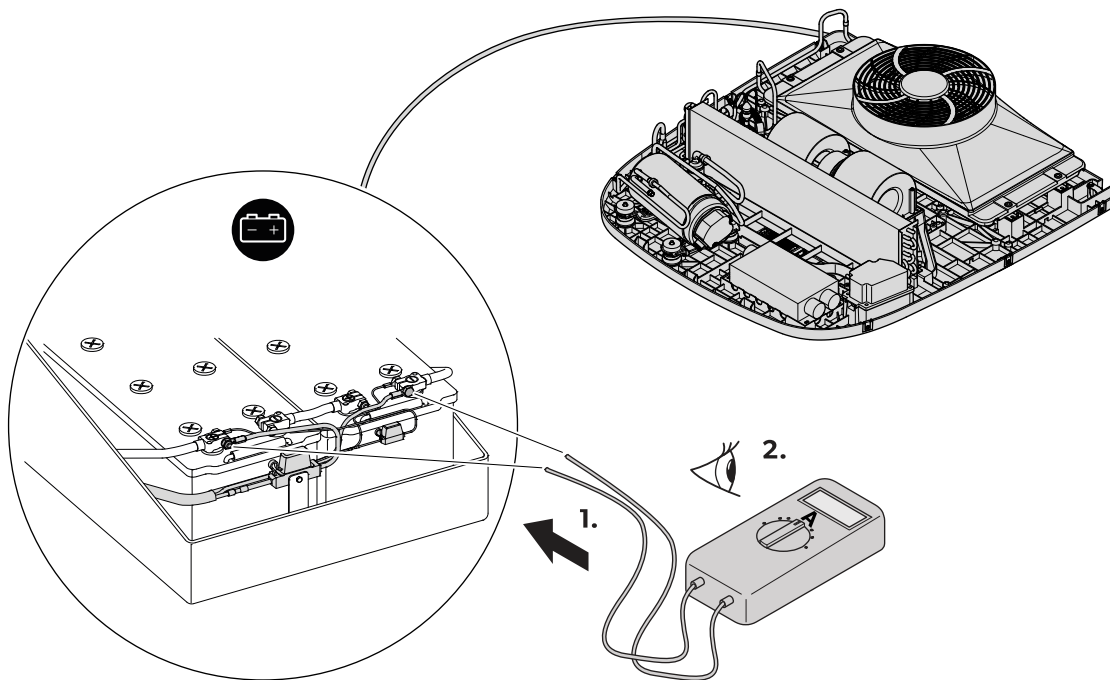
10



11



12



1. Connect the device to a 24 V $\overline{\text{=}}$ power supply ( Fig. 10 on page 11).
2. Connect the roof air conditioner to a multimeter and an electrical safety tester.
Follow the multimeter manufacturer's and the electrical safety tester manufacturer's instructions.
3. If deviating electrical values have been detected, check the corresponding components.
4. Disconnect the electrical safety tester.
5. If necessary, replace the defective components.
6. Switch the device on (Related documents on page 2).
7. Measure the air temperature next to the air outlet and the air inlet of the roof air conditioner with a thermometer to ensure that there is a temperature difference ( Fig. 11 on page 12).



NOTE Do not use a laser thermometer.

- ✓ The air ventilation system is working when the air from the air outlet is colder than the surrounding air.

8. Switch the device off (Related documents on page 2).
9. Connect the multimeter to the battery ( Fig. 12 on page 12, 1.).
10. Ensure that the current range is correct ( Fig. 12 on page 12, 2.)
11. Disconnect the multimeter.

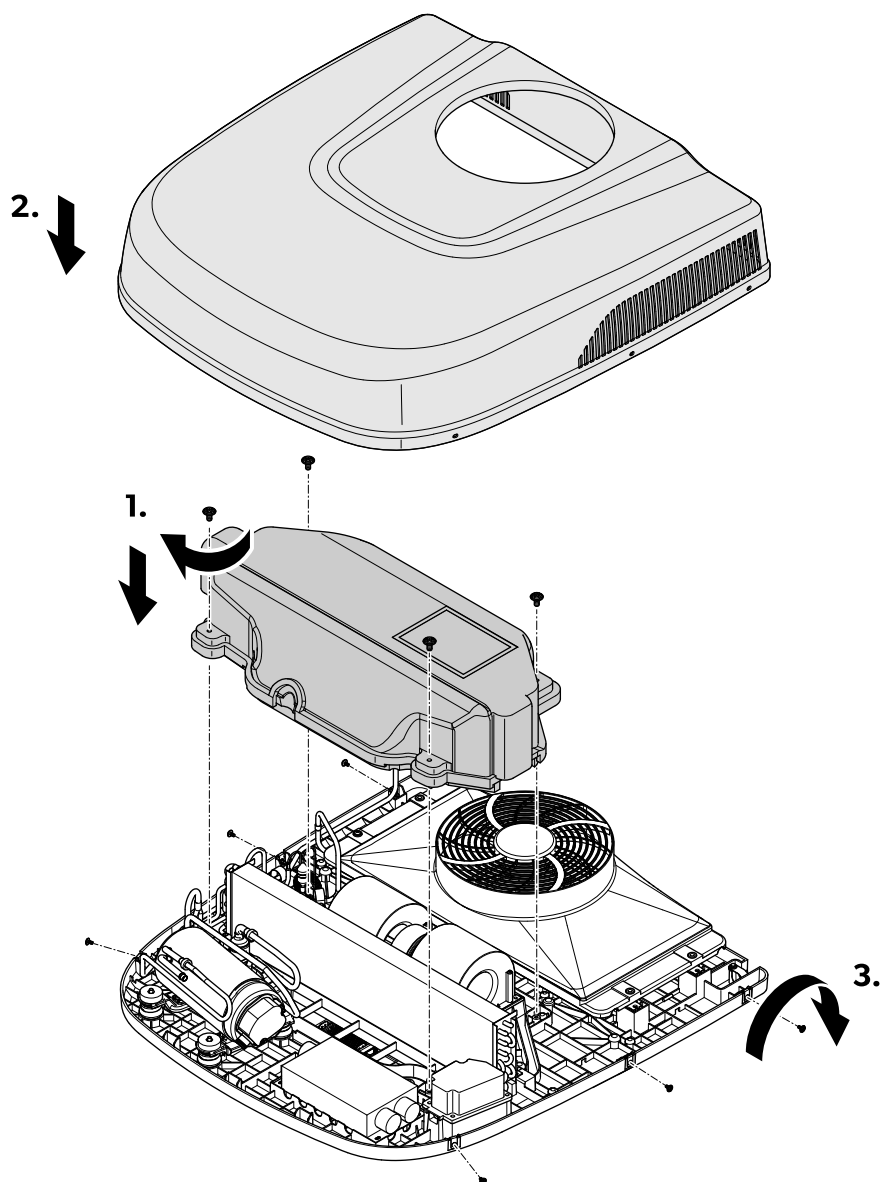
15 Reinstalling the truck parking cooler

 **NOTE** The reinstallation process in this chapter is provided as an example. The reinstallation process may vary depending on the installation type and vehicle model.

1. If applicable, disconnect the device from the power supply.
2. Install the expanded polypropylene (EPP) housing and the cover of the rooftop unit.

 **NOTE** Fix the cover of the rooftop unit with a torque of 6 N·m.

13



3. Fit the rooftop unit into the roof opening. Observe the direction of travel.



CAUTION! Risk of injury and damage hazard

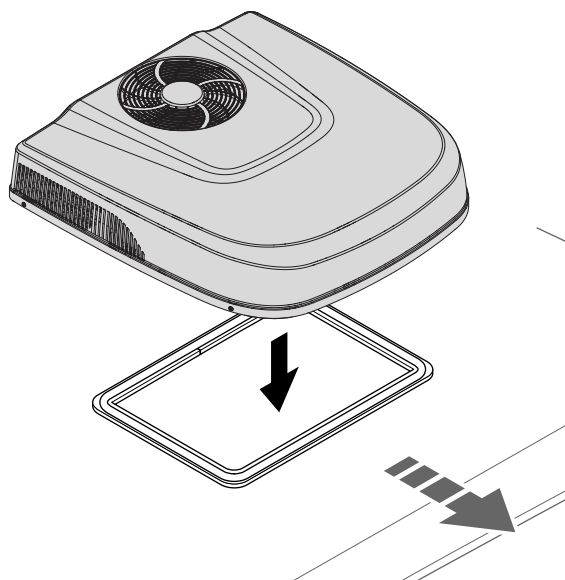
- > Use proper lifting technique and control when lifting the rooftop unit.
- > Two people are required to lift the rooftop component to the roof.



NOTICE! Damage hazard

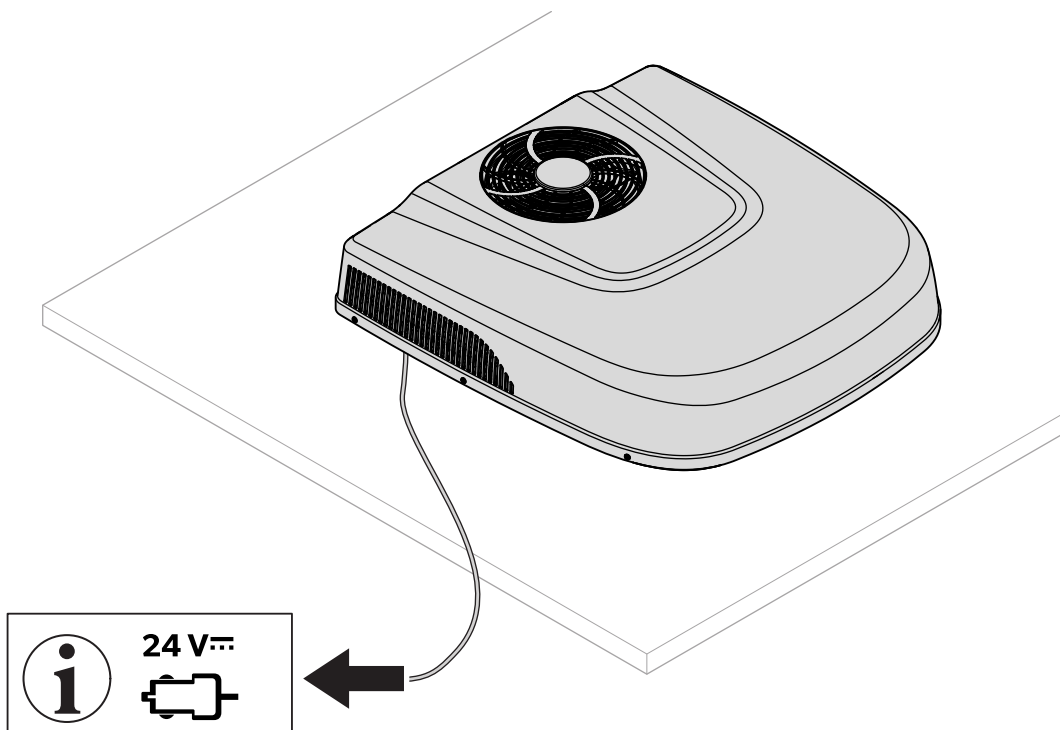
- > Before re-installation, inspect the seal for signs of damage. If the seal is damaged, replace it with a new seal.
- > Do not drag or slide the rooftop unit along any surfaces. Doing so may damage the foam gasket on the bottom of the rooftop unit, which can lead to water leaks.

14

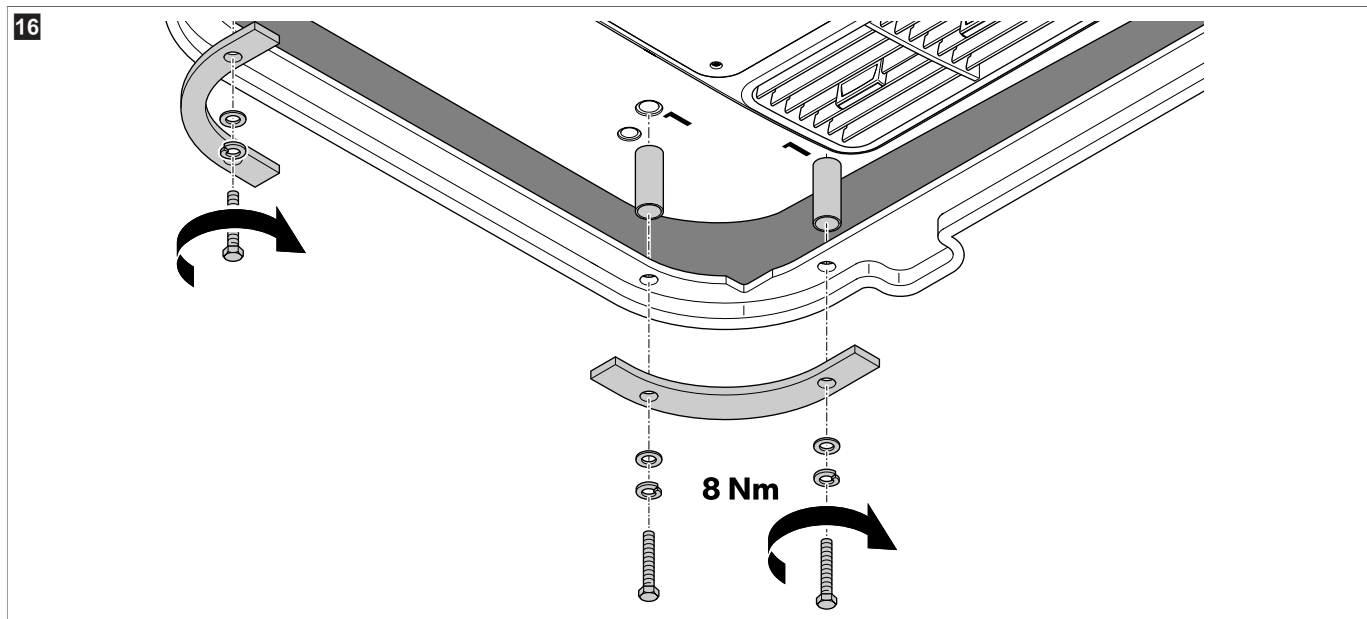


4. Connect the device to the power supply.

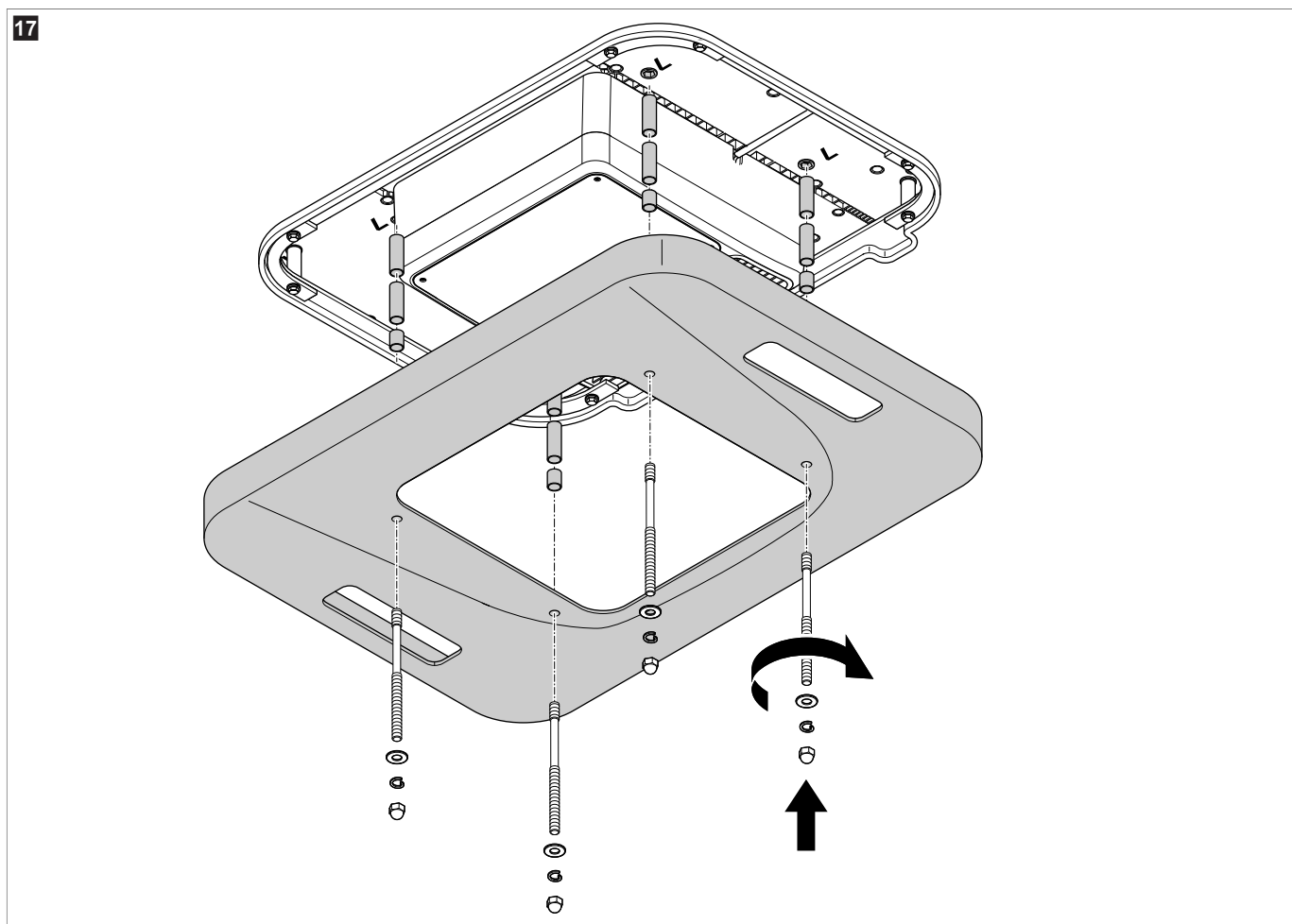
15



5. Mount the spacers to the corners.



6. Mount the cover frame.



16 Connecting a defective roof air conditioner

If the roof air conditioner must be connected to the power supply despite defective components, take the following safety precautions beforehand.

- > Ensure that the defect does not damage other components.
- > Discharge the capacitors without producing sparks.
- > Ensure that the grounding is continuously present.

17 Troubleshooting



NOTE When you start the vehicle or switch on several devices at once, the display text **L0** may briefly appear.

Control panel warnings

Display indication	Problem	Possible cause	Suggested remedy
L0	The battery monitor has detected low voltage.	Connection voltage is too low. The battery capacity is not sufficient to operate the system.	- Charge your vehicle battery. - If the fault occurs again, contact an authorized dealer.
L0 °C	The system has detected that the ambient temperature is too low for operation.	The ambient temperature is below 5°C	Wait until the ambient temperature has risen above 5°C before switching the system on.
HI	The system has detected a brief or constant over-voltage.	A brief over-voltage may occur when large electrical devices are switched off. Constant over-voltage is the result of an incorrect connection voltage.	- Brief over-voltage: No action required. - If the display message "HI" remains visible for a longer period: have the vehicle electronics checked. Make sure the connection voltage is less than 30 V.
---	The system has detected an excessive inclination. The compressor is switched off. 10 min later, the entire system will be switched off.	The compressor in the driver's cab is tilted too far.	Once the compressor has been returned to its normal position, the system can be switched on again.

Control panel fault messages

Display indication	Problem	Possible cause	Suggested remedy
F01	Compressor phase loss fault.	Any one of the three compressor phases (U, V, or W) has an open circuit or wiring disconnection	Switch off the system. Switch it on again after 30 min. If the fault occurs again, contact an authorized dealer.
F02	Compressor over-current fault.	Compressor phase current is too high	Switch off the system. Switch it on again after 30 min. If the fault occurs again, contact an authorized dealer.
F03	Compressor drive fault.	Driver or module protection appears 6 times within 30 min.	Switch off the system. Switch it on again after 30 min. If the fault occurs again, contact an authorized dealer.
F04	The condenser fan does not work.	No response from the fan.	If the fault occurs again, contact an authorized dealer.
F08	The evaporator fan does not work.	No response from the fan.	If the fault occurs again, contact an authorized dealer.
F11	Indoor temperature sensor open or short circuit	An error in the temperature sensor electrical supply (open or short circuit) was detected.	Switch off the system. Switch it on again after 30 min. If the fault occurs again, contact an authorized dealer.
F13	Outdoor temperature sensor open or short circuit	An error in the temperature sensor electrical supply (open or short circuit) was detected.	Switch off the system. Switch it on again after 30 min. If the fault occurs again, contact an authorized dealer.

Display indication	Problem	Possible cause	Suggested remedy
F15	Discharge temperature sensor open or short circuit.	An error in the temperature sensor electrical supply (open or short circuit) was detected.	Switch off the system. Switch it on again after 30 min. If the fault occurs again, contact an authorized dealer.
F17	Discharge temperature protection.	Discharge temperature exceeds the specified limit, compressor overheat protection activated.	Switch off the system. Switch it on again after 30 min. If the fault occurs again, contact an authorized dealer.
F20	Input over-current protection	The system's current power requirement is too high.	Switch off the system. Switch it on again after 30 min. If the fault occurs again, contact an authorized dealer.
F22	Communication fault between the display board and the main control board	A display board communication error (fault in the connecting cable between the display and control board) was detected.	If the fault occurs again, contact an authorized dealer.
F23	Heatsink over-temperature protection	Main board drive module temperature exceeds the specified limit	Switch off the system. Switch it on again after 30 min. If the fault occurs again, contact an authorized dealer.
F26	Evaporator freeze protection	Evaporator temperature below 0°C	Switch off the system. Switch it on again after 30 min. If the fault occurs again, contact an authorized dealer.
F40	System low-pressure protection	Check whether there is any refrigerant leakage or if the refrigerant piping is disconnected	If the fault occurs again, contact an authorized dealer.
F41	Evaporator temperature sensor fault	An error in the temperature sensor electrical supply (open or short circuit) was detected.	Switch off the system. Switch it on again after 30 min. If the fault occurs again, contact an authorized dealer.
F42	Main board heatsink temperature sensor fault	An error in the temperature sensor electrical supply (open or short circuit) was detected.	Switch off the system. Switch it on again after 30 min. If the fault occurs again, contact an authorized dealer.

18 Disposal



Place the packaging material in the appropriate recycling waste bins, wherever possible. Consult a local recycling center or specialist dealer for details about how to dispose of the product in accordance with the applicable disposal regulations.



Protect the environment! Do not dispose of any batteries with general household waste. Return defective or used batteries to your retailer or dispose of them at collection points.

Disposal refrigerant: Provide the refrigerant in the correct recovery cylinder back to the refrigerant supplier with a waste transfer bill. Do not mix refrigerants in the refrigeration systems and the cylinders.

If compressors or compressor oils are to be disposed of, ensure that the compressors have been evacuated to an acceptable level to ensure that no flammable refrigerant remains in the lubricant. To speed up the evacuation process, the compressor housing must only be heated electrically. When draining oil from a system, ensure that it does not ignite or come into contact with the ground.

19 Technical data

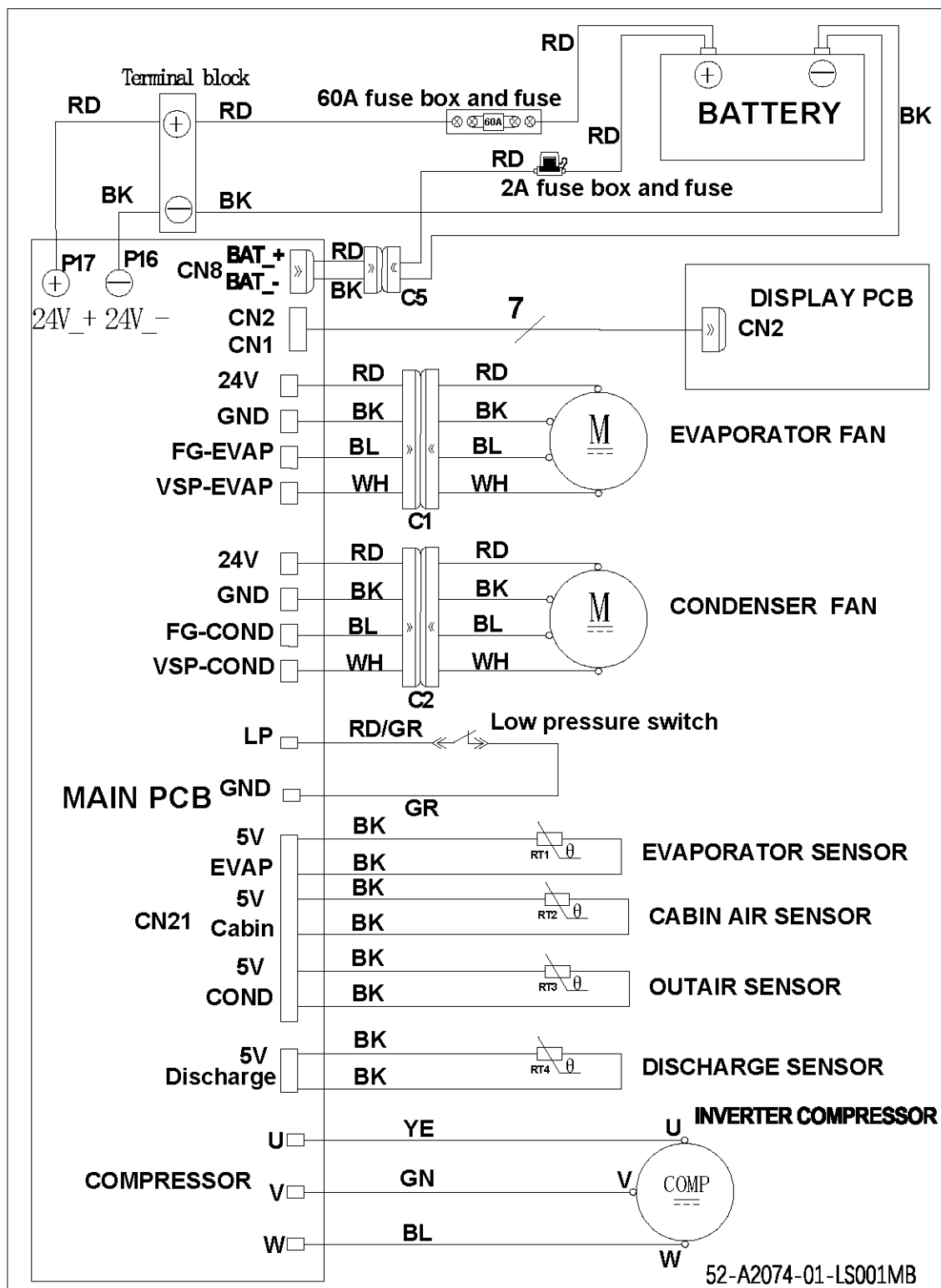
This product contains fluorinated greenhouse gases.

The cooling unit is hermetically sealed.

System specifications	
Cooling capacity	2600 W
Voltage	24 V==
Current consumption	5 A ... 40 A
Operating temperature range	–2°C ... 52°C
Refrigerant	R32
Refrigerant quantity	290 g
Global warming potential (GWP)	675
Internal noise emission	54 dB(A) ... 61 dB(A)
Dimensions (width × length × height)	847 mm × 876 mm × 313.5 mm
Net weight (Rooftop unit including ADB and cable)	29.7 kg

19.1 Wiring diagram

18



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