

Operating- and Installation instructions

Quebec | Montreal R1234yf

Air Conditioning



English

Table of Contents

1	About this document	3
1.1	Purpose of this document.....	3
1.2	Using this document.....	3
1.3	Use of symbols and highlighting	3
1.4	Warranty and liability.....	3
1.5	Used abbreviations	3
2	Operation	3
3	Safety	3
3.1	Intended use	3
3.2	Disclaimer.....	3
3.3	Qualifications of installation personnel.....	3
3.4	Safety information	3
3.5	Safety information on operation	4
4	Scope of delivery	4
5	Install the (H)VAC unit	4
5.1	Installation overview.....	4
5.2	Pre-installation steps, requirements and notes	4
5.3	Refrigerant hose connections.....	4
5.4	Installation.....	5
5.5	Electrical connections	5
6	Charging the A/C system	5
6.1	Fill in the system charge sticker.....	6
7	Initial operation	6
8	Maintenance	6
9	Technical data	7

1 About this document

1.1 Purpose of this document

The operating – and installation instructions are an integral part of the product and contain all the information required to ensure correct and safe operation and installation.

1.2 Using this document

- ▶ Before installing and operating the installation, read these instructions.

1.3 Use of symbols and highlighting

Sym- bol	Explanation
▶	Action to be taken
✓	Requirements for the following necessary action
	Note on a special technical feature
	Separate information is available
	Possibility on property damage
	Possibility on a severe or mortal injury

1.4 Warranty and liability

Webasto shall not assume liability for defects or damage that are the result of the installation and operating instructions being disregarded.

This liability exclusion particularly applies for:

- Installation by untrained personnel
- Improper use
- Repairs not carried out by a Webasto service workshop
- Use of non-genuine parts
- Conversion of the unit without permission from Webasto
- Mechanical damage to the equipment
- Failure to comply with inspection and maintenance instructions

1.5 Used abbreviations

Abbr.	Description
HVAC	Heating Ventilation Air Conditioning
VAC	Ventilation Air Conditioning
SoD	Scope of Delivery
NA	Not Applicable

Table 1: Used abbreviations

2 Operation

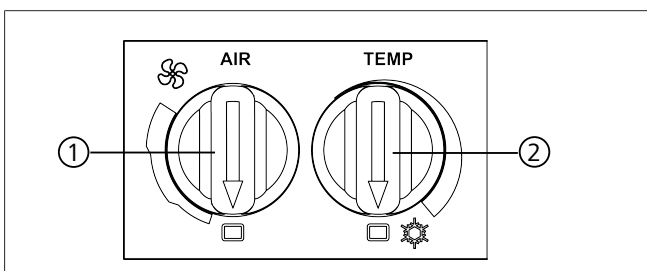


Fig. 1 Control knobs

You operate the Quebec | Montreal with help of 2 rotary knobs:

①	Controls the fan speed
②	Switches the unit On/Off Controls the temperature

3 Safety



DANGER

Danger of fire

R1234yf is a mildly flammable refrigerant. Handling must be carried out:

- by qualified personnel
- in suitable work areas
- with specific tools

Refer to SAE J 2845.

3.1 Intended use

The Quebec is a HVAC, the Montreal is a VAC only.

Both units are approved for air conditioning the passenger compartments of:

- mini / midi-busses
- recreation vehicles
- ambulances
- other on-road special vehicles (e.g. fire trucks, public safety, animals and good transportation)

3.2 Disclaimer

The Webasto Quebec | Montreal units fulfill the requirements of SAE J 2842 and must be used in (H)VAC systems only in combination with components specifically designed and certified for R1234yf.

It is in the responsibility of the (H)VAC application developer to assure that all applicable risks have been assessed and minimized according the applicable regulation. See SAE J 639 or ISO 13043 and embodied standards.

The installer of the installation should be aware of the documentation for application and he must be trained to be able to follow the prescriptions.

3.3 Qualifications of installation personnel

The installation personnel must have the following qualifications:

- Successful completion of Webasto training
- Corresponding qualification for working on technical systems
- Certified to work on air conditioning systems

3.4 Safety information

Safety information on installation



DANGER

Danger posed by live parts

- ▶ Prior to installation, disconnect the vehicle from the voltage supply.
- ▶ Make sure the electrical system is earthed correctly.
- ▶ Always comply with legal requirements.
- ▶ Observe data on type label.



ATTENTION

Danger of lacerations on sharp edges

- ▶ Fit protectors on sharp edges.

3.5 Safety information on operation



ATTENTION

Incorrect handling causes damage to property

- ▶ Protect the unit against mechanical stress (e.g. dropping, impacts or knocks).
- ▶ Do not place heavy objects on top of the unit.
- ▶ Do not step on the unit.



ATTENTION

Cables damaged on sharp edges can cause short-circuits

- ▶ Fit protectors on sharp edges.

4 Scope of delivery

The Scope of Delivery (SoD) consists of:

- a Quebec or Montreal unit
- these Installation Instructions

5 Install the (H)VAC unit

5.1 Installation overview

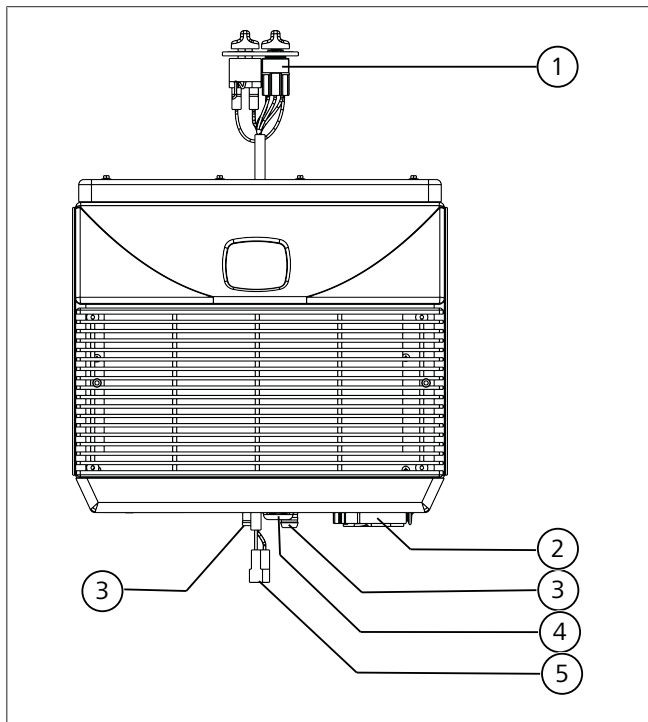


Fig. 2 Overview

- ① Control knobs/switches
- ② Expansion valve with 2 hose connection (1/2" and 5/16")
- ③ HVAC only: heater connection
- ④ Condense water drain
- ⑤ Plug electrical connection

5.2 Pre-installation steps, requirements and notes



NOTE

Use only hoses and fittings compliant to SAE J 2064 for applications with R1234yf.

- ✓ Strictly respect the specifications of the manufacturer of the hoses and fittings for their installation.

- ✓ Avoid passing hoses through areas where they can be damaged externally by friction with moving parts, sharp edges, etc.
If necessary and applicable, use vehicle original protections for the purpose.
- ✓ Avoid the passage of hoses in areas close to hot surfaces of the engine (e.g. exhaust pipe, catalyst, engine block, etc.). In critical areas the hoses must be shielded with adequate external thermal protective pipes assuring that their extremities are as far as possible from ignition sources.
- ✓ Fix the hoses by means of specific supports.
Do not attach the hoses to existing original elements, such as hydraulic or fuel lines, electrical installations, etc.
- ✓ Lubricate O-Rings, using the same oil as the refrigerant compressor, before you apply the fittings on the hoses.

5.3 Refrigerant hose connections

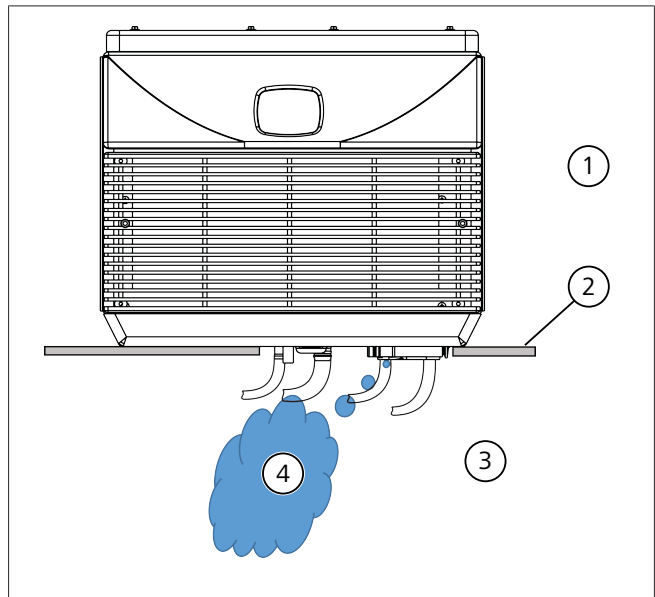


Fig. 3 Refrigerant bleeding

- ① Vehicle interior
- ② Vehicle floor
- ③ Vehicle exterior
- ④ Bleeding in case of refrigerant leakage

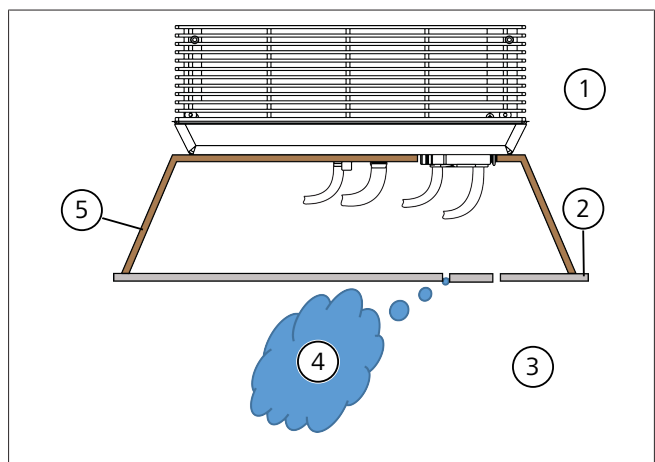


Fig. 4 Refrigerant bleeding

- ① Vehicle interior
- ④ Bleeding in case of refrigerant leakage

- ② Vehicle floor
- ⑤ Enclosure in case of off-floor installation

- ③ Vehicle exterior

- ✓ Avoid making connections to the refrigerant circuit inside the passenger compartment of the vehicle. In case the connections are inside the vehicle, the joint must be segregated from the interior using seals and/or sealant and open to vent outside the vehicle any eventual refrigerant leak.
- ✓ The venting opening must be kept away from hot surfaces and / or ignition sources.
- ✓ Avoid locating refrigerant connections e.g. hoses to fittings, fittings to components (valves, filters, pressure switches, safety valves, etc.) and charge ports in areas close to hot surfaces (e.g. exhaust pipe, catalyst, engine block, etc...) or elements likely to generate sparks or electric arcs.
- ✓ Avoid the installation of refrigerant solenoid valves inside the vehicle.
- ▶ In case not already installed: always install over-pressure safety valves venting in area far from hot surfaces, power electric lines and any other ignition source.

5.4 Installation

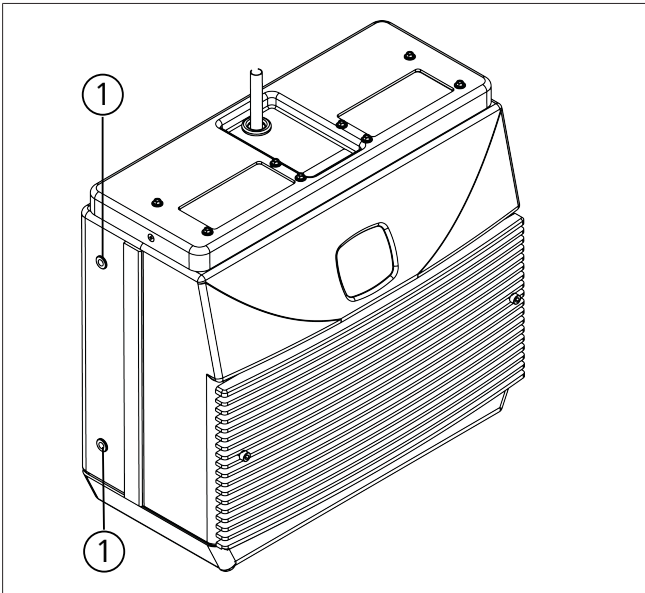


Fig. 5 Mechanical installation

The unit comes prepared with 2 M6 rivet-nuts (1) on each side.

- ▶ Select a suitable location for the unit.
- ▶ Design brackets that firmly locate and hold the unit to the vehicle interior. The brackets should ensure stiffness and avoid vibrations and potential cracks.
- ▶ Mount the brackets on the unit with M6 bolts. Nominal torque: 5 Nm.
- ✓ Make sure you can work safely on the vehicle's refrigeration system.
- ▶ Connect the expansion valve to the vehicle's refrigeration circuit.
- ✓ For a HVAC unit: Make sure you can work safely on the vehicle's cooling system.
- ▶ For a HVAC unit: Connect the heater to the vehicle's cooling circuit.

5.5 Electrical connections

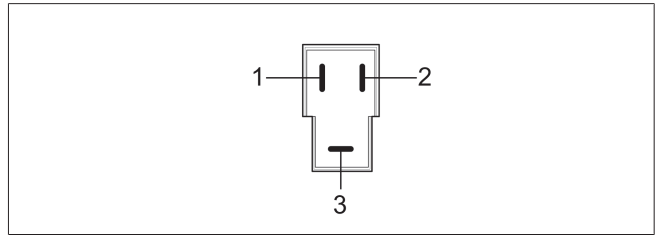


Fig. 6 Electrical connections

- 1 + (red)
- 3 Compressor (yellow/green)

- 2 Gnd / - (black)

- ▶ Make the electrical connections according Fig. 6. See chapter 9, "Technical data" on page 7 for power and fuse requirements.
- Avoid fitting relays, fuses and switches close to refrigerant connections.
- ▶ Install the control knobs/switches in a convenient location.

6 Charging the A/C system



DANGER

Danger of fire

Carry out refrigerant charging operations in ventilated areas, away from open flames, hot surfaces, and any other ignition sources.

Consider these measures and all those aimed at reducing the risk of ignition of the refrigerant in case of a leakage.

Refer to SAE J 2845.



NOTE

Only use recovery, recycling, and recharging equipment for flammable refrigerants compliant with SAE J 2843.

- ▶ Perform a high-pressure leak test with nitrogen. Accurately solve any eventual leak to assure circuit tightness.
- ▶ Perform an evacuation test.

If present, activate the solenoid valves during the leak-test, vacuum, and charge procedure to ensure the correct pressurisation of the entire system.



Fig. 7 Add the correct quantity of lubricant

- Keep the compressor always lubricated according to the instructions on the compressor.
- Check the refrigerant type.
- ▶ Charge the system with refrigerant R1234yf.
- ▶ Check the system for leakage.

6.1 Fill in the system charge sticker

<p>BG Съдържа флуорсъдържащи парникови газове.</p> <p>CZ Obsahuje fluorované skleníkové plyny.</p> <p>DA Indeholder fluorholdige drivhusgasser.</p> <p>DE Enthält fluorierte Treibhausgase.</p> <p>EL Περιέχει φθοριούχα αέρια του θερμοκηπίου.</p> <p>EN Contains fluorinated greenhouse gases.</p> <p>ES Contiene gases fluorados de efecto invernadero.</p> <p>ET Sisaldab fluoriitud kasvuhoonegaase.</p> <p>FI Sisältää fluorattuja kasvihuonekaasuja.</p> <p>FR Contient des gaz à effet de serre fluorés.</p> <p>HR Sadržava fluorirane stakleničke plinove.</p> <p>HU Fluortartalmú üvegházhatású gázokat tartalmaz.</p>	<p>IT Contiene gas fluorurati a effetto serra.</p> <p>LT Sudėtyje yra fluorintų šiltnamio efekta sukėlančių dujų.</p> <p>LV Satur fluorētās siltumnīcefekta gāzes.</p> <p>MT Fih gassajiet fluorurati b'effett ta' serra.</p> <p>NL Bevat gefluoreerde broeikasgassen.</p> <p>PL Zawiera fluorowane gazy cieplarniane.</p> <p>PT Contém gases fluorados com efeito de estufa.</p> <p>RO Conține gaze fluorurate cu efect de seră.</p> <p>SK Obsahuje fluorované skleníkové plyny.</p> <p>SL Vsebuje fluorirane toplogredne pline.</p> <p>SV Innehåller fluorerade växthusgaser.</p>	<p>PN 6244396A</p>
<p>HFO – R1234yf <input type="text"/> kg = CO2 <input type="text"/> t [GWP=4] Webasto</p>		

Fig. 8 System charge sticker R1234yf

- ▶ Write the correct amount of refrigerant used to charge the system and the tons of CO₂ equivalent on the system charge sticker.
- ▶ Place the sticker adjacent to the service point for charging.
- ▶ File the risk analysis, the installation, commissioning, and test report for future reference.

7 Initial operation

- ▶ General performance check.
- ▶ High and low pressure.
- ▶ Correct operation.

8 Maintenance

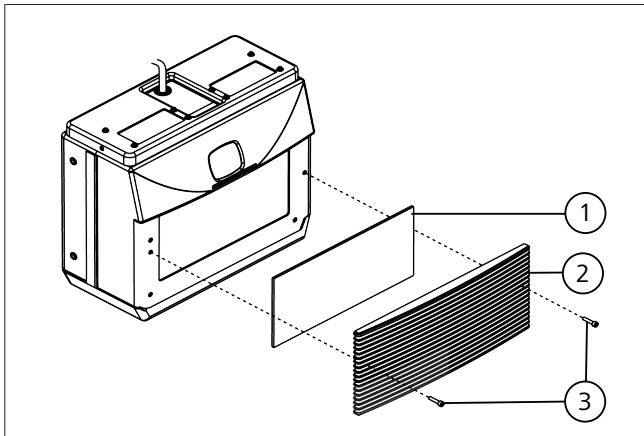


Fig. 9 Filter

Clean or replace the filter of the Quebec | Montreal (H)VAC at regular intervals:

- ▶ Remove the screws (3).
- ▶ Remove the cover (2).
- ▶ Remove the filter (1).
- ▶ Replace the filter or clean it with a mild detergent.

9 Technical data

	Quebec	Montreal
Operating voltage [V]	12 - 24	12 - 24
Max. power consumption at 12V [A]	9,5	9,5
Cooling capacity [kW]	5	5
Heating capacity [kW]	6,7	NA
Air flow [m3/h]	450	450
Expansion valve	Block valve	Block valve
PS [bar] (2014/68/UE)	27	27
Refrigerant	R1234yf	R1234yf
Weight [kg]	6,5	5,5
Dimensions (LxWxH) [mm]	370x185x330	370x185x330

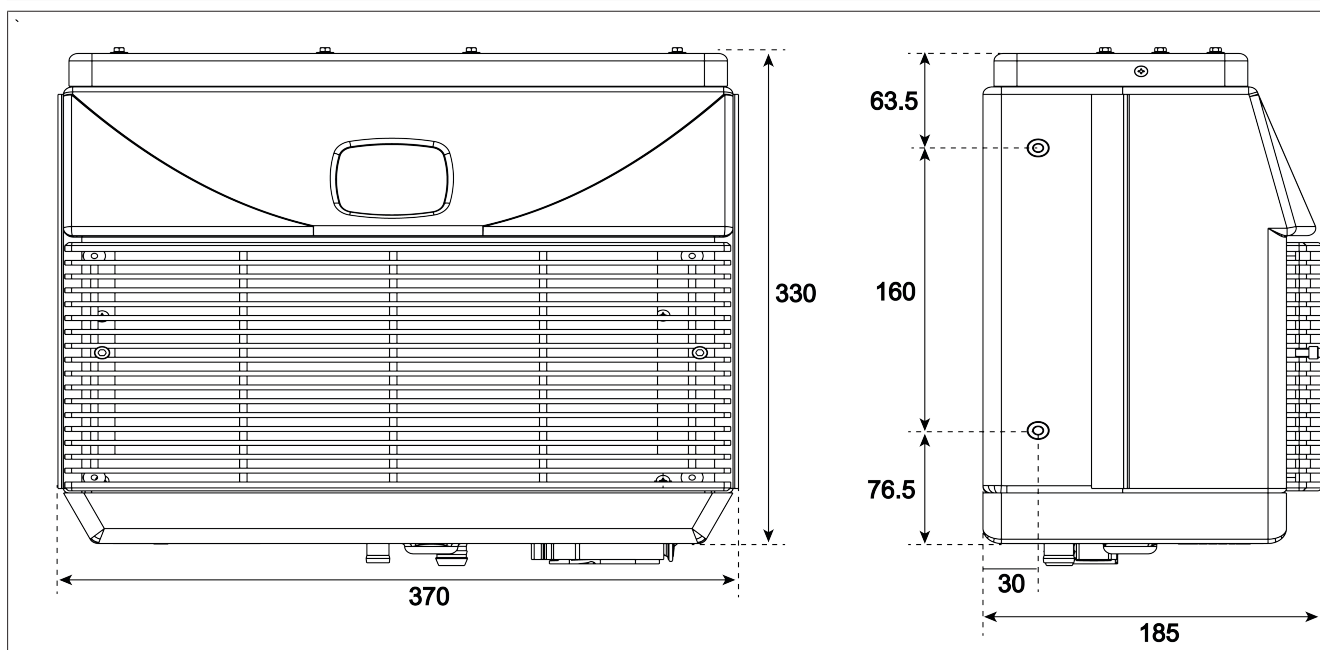


Fig. 10 Dimensions

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