ENGINE-OFF SLEEPER COMFORT

24V Truck Air Conditioner

SKU: WTAC-24V-10C-5H





OUTDOOR CONDENSER + UNDER-BUNK INDOOR UNIT

10,000
BTU/h COOLING
3,000W rated capacity

5,500
BTU/h ELECTRIC HEAT
1,600W rated capacity

24V
DIRECT DC POWER
Variable-speed compressor

Sleep cool. Warm the cab.

Built around the bunk
Concealed indoor unit with two duct outlets.

Comfort with the engine off
Battery-powered cooling and electric heating.

BTU/h figures are rounded product classes. Model-specific technical notes appear on page 16.

Source-based review; marked technical items require manufacturer confirmation.

01 / PRODUCT OVERVIEW

Compact fit. Everyday comfort.

A split DC system for sleeper trucks, machinery and other compatible applications.

The WTAC-24V-10C-5H combines variable-speed cooling with electric cab heating. It operates from a suitable 24V DC supply while parked or driving. Confirm mounting, power supply and ventilation for the specific vehicle.



Outdoor unit behind the cab. Indoor unit beneath the bunk.

Two duct flanges route conditioned air through the cab. The compressor and brushless cooling fan adjust speed to demand.

Product features

SOURCE MANUAL / PAGES 5-6

Variable-speed cooling

Adjusts compressor and fan speed to cooling demand.

Quiet low-load operation

Lower running speeds support quieter rest periods.

Battery-powered comfort

A suitable DC source supports engine-off operation.

Truck applications

Source material describes vibration and shock resistance.

Simple controls

Control panel, remote, five fan speeds and automatic fan.

Timed operation

The source lists scheduled on/off operation.

Inside this guide

03 Technical specifications
04-06 Dimensions, safety & mounting
07-10 Refrigeration & electrical installation
11-12 Commissioning & operation
13-15 Troubleshooting & maintenance
16 Technical notes & source review

WT: product series / 3000: cooling W / F: split bunk unit / UB: USA indoor model / D: electric heating.

Source-based review; marked technical items require manufacturer confirmation.

02 / TECHNICAL SPECIFICATIONS

Know the operating limits.

Source values retained. Asterisks identify unresolved definitions or inconsistent figures.

PARAMETER	WTAC-24V-10C	WTAC-24V-10C-5H
Rated voltage	24V DC	24V DC
Listed voltage range	21.5-32V DC	21.5-32V DC
Climate type / listed range*	T1 / 21-43°C	T1 / 21-43°C
Rated cooling capacity	3,000W	3,000W
Cooling capacity range	1,200-3,000W	1,200-3,000W
Rated heating capacity	Not equipped	1,600W
Rated cooling input power*	900W	900W
Rated cooling current	38A	38A
Rated heating input power	Not equipped	1,600W
Rated heating current*	Not equipped	66.6A
Listed operating current*	10-45A	10-45A
Airflow	450 m^3/h	450 m^3/h
Listed EER*	2.85 W/W	2.85 W/W
Indoor fan current	2-8A	2-8A
Listed maximum pressure* (suction/discharge)	0.8-3.5 MPa	0.8-3.5 MPa
Temperature setpoint	16-32°C	16-32°C
Refrigerant	R-134a	R-134a
Listed refrigerant charge*	610g	610g
Indoor unit weight	10kg	11kg
Outdoor unit weight	31.5kg	31.5kg
Outdoor dimensions*	682 x 465 x 192mm	682 x 465 x 192mm
Indoor dimensions*	534 x 315 x 222mm	534 x 315 x 222mm

Read the figures with their definitions

900W x 2.85 does not equal 3,000W; test boundary and fan input need confirmation. Heating exceeds the listed 10-45A range. Dimension boundaries, pressure limits and charge conditions also need confirmation. See pages 04, 10 and 16.

Source-based review; marked technical items require manufacturer confirmation.

03 / DIMENSIONS & FITMENT

Plan the complete envelope.

Original engineering drawings are reproduced for reference. Dimensions are in millimeters.

OUTDOOR UNIT

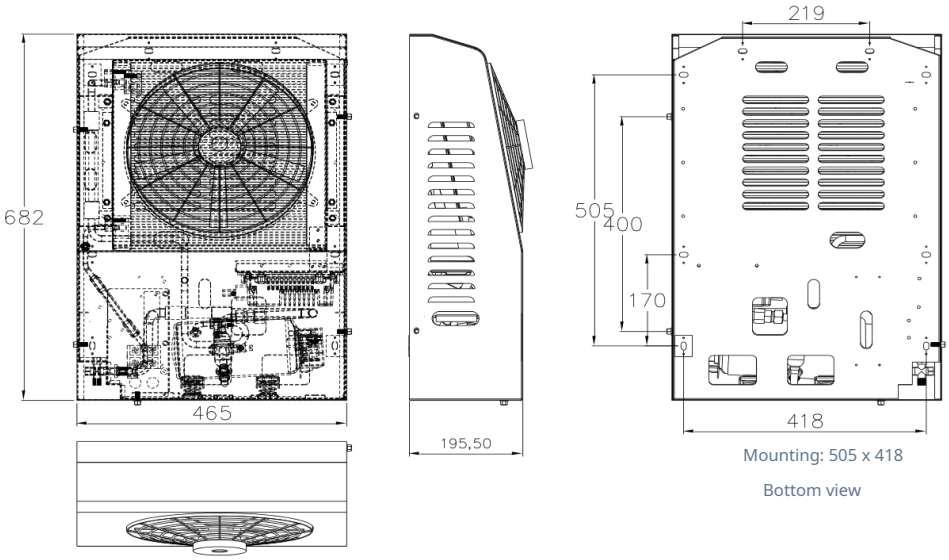
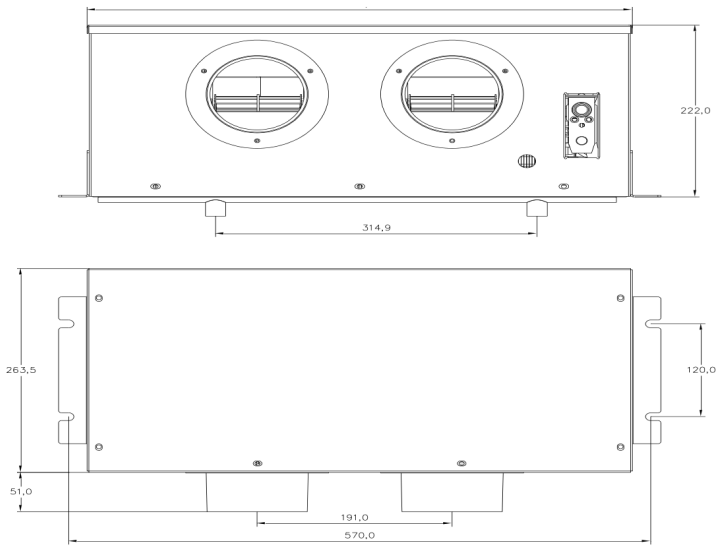


Table: 682 x 465 x 192mm. Drawing: depth 195.50mm; mounting hole pattern 505 x 418mm.

INDOOR UNIT



Confirm body, outlet and mounting-ear dimensions

Drawing depth: 263.5mm body + 51mm outlet = 314.5mm, close to the table's 315mm. The 10.37in depth is body-only. Drawing width including mounting ears: 570mm. Drain spacing: text 314mm; drawing 314.9mm. Verify on the supplied unit before drilling.

Source-based review; marked technical items require manufacturer confirmation.

04 / SAFETY & PREPARATION

Read before installation.

Use the installation instructions and the correct supplied accessories for the vehicle.

Thank you for choosing WeVolt. Read this guide before use and keep it with the vehicle. Products may change as they are updated; confirm that the supplied unit, nameplate and approved drawings match this edition.

WARNING

Unsafe action can cause death or serious injury. Do not install where flammable gases are present, reverse DC polarity, or connect cables while energized.

CAUTION

Unsafe action can cause injury or equipment damage. Protect cab structures, secure all units and lines, and maintain unobstructed ventilation and drainage. Read each safety instruction before proceeding.

Choose the mounting location

01 **Driving safety**

Do not obstruct visibility, operation or safety-critical structures.

02 **Structural support**

The source calls for a mounting location capable of supporting at least 150kg. This is a support requirement, not the unit's weight.

03 **Airflow and access**

Allow the full unit envelope, ventilation, adjustable airflow and service access.

04 **Lines and vibration**

Minimize connecting-pipe length. Avoid locations prone to excessive noise or vibration.

05 **Indoor layout**

Fit the indoor unit under the bunk without restricting intake, outlets or the route to the occupants.

Before mounting

Unpack the system and check the actual contents against its packing list. Use the supplied mounting and connection accessories. Route modifications through qualified technical review.

Source-based review; marked technical items require manufacturer confirmation.

05 / MECHANICAL INSTALLATION

Secure the unit. Keep air moving.

Rear-of-cab outdoor mounting and concealed under-bunk indoor mounting.

505 x 418	M8 x 80	15 ± 1
MOUNTING PATTERN	**OUTDOOR BOLTS**	**TIGHTENING TORQUE**
mm / verify actual unit	mm / hex flange bolts	N·m / outdoor mounting

Outdoor unit

SOURCE / PAGE 8

01 Confirm the cab structure

Select a rear cab panel suited to the unit, ventilation, service access and the approved mounting method.

02 Measure and drill

The source specifies an 8mm hole diameter and a 418 x 505mm mounting pattern. Verify orientation and the hole pattern on the supplied unit before drilling.

03 Fasten and inspect

Use M8 x 80mm hex flange bolts. Tighten the outdoor mounting bolts to 15 ± 1 N·m, then verify that the assembly is stable and unobstructed.

Indoor unit

SOURCE / PAGES 9-10

01 Position under the sleeping bunk

The source recommends placement beneath the bunk, opposite the head-rest area. Check the complete envelope and the airflow route before fastening.

02 Measure the drainage holes

The text gives 314mm spacing; the drawing gives 314.9mm. Use the confirmed unit drawing and check the actual drain outlets before cutting.

03 Fit and secure

Mechanically secure the indoor unit, attach the adapter fitting and keep the drainage hose unobstructed. Make sure outlet louvers can direct air to the occupants.

Do not substitute, omit or modify supplied accessories without qualified technical review.

Source-based review; marked technical items require manufacturer confirmation.

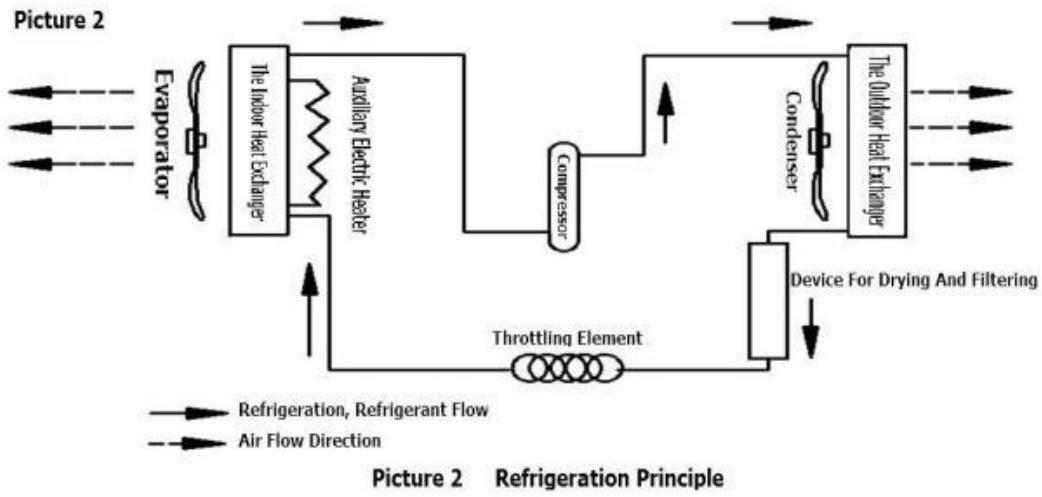
06 / HOW COOLING WORKS

Move heat out of the cab.

The refrigeration cycle also removes moisture from the cabin air.

The compressor draws low-pressure refrigerant vapor from the evaporator and raises its pressure and temperature. The condenser releases heat to outside air and turns the vapor into liquid. The receiver-drier removes moisture and impurities; the expansion valve reduces pressure before the refrigerant returns to the evaporator.

ORIGINAL REFRIGERATION SCHEMATIC



Picture 2 Refrigeration Principle

In the evaporator, refrigerant absorbs heat from air passing over the coil, evaporates, and returns to the compressor. Moisture condenses on the cold coil and drains outside the vehicle.

Cab cooling

The cycle continuously transfers cabin heat outdoors.

Electric heating (-D)

The auxiliary electric heater warms the supply air; the refrigerant cycle provides cooling.

Diagram labels: compressor, condenser, receiver-drier, expansion valve and evaporator.

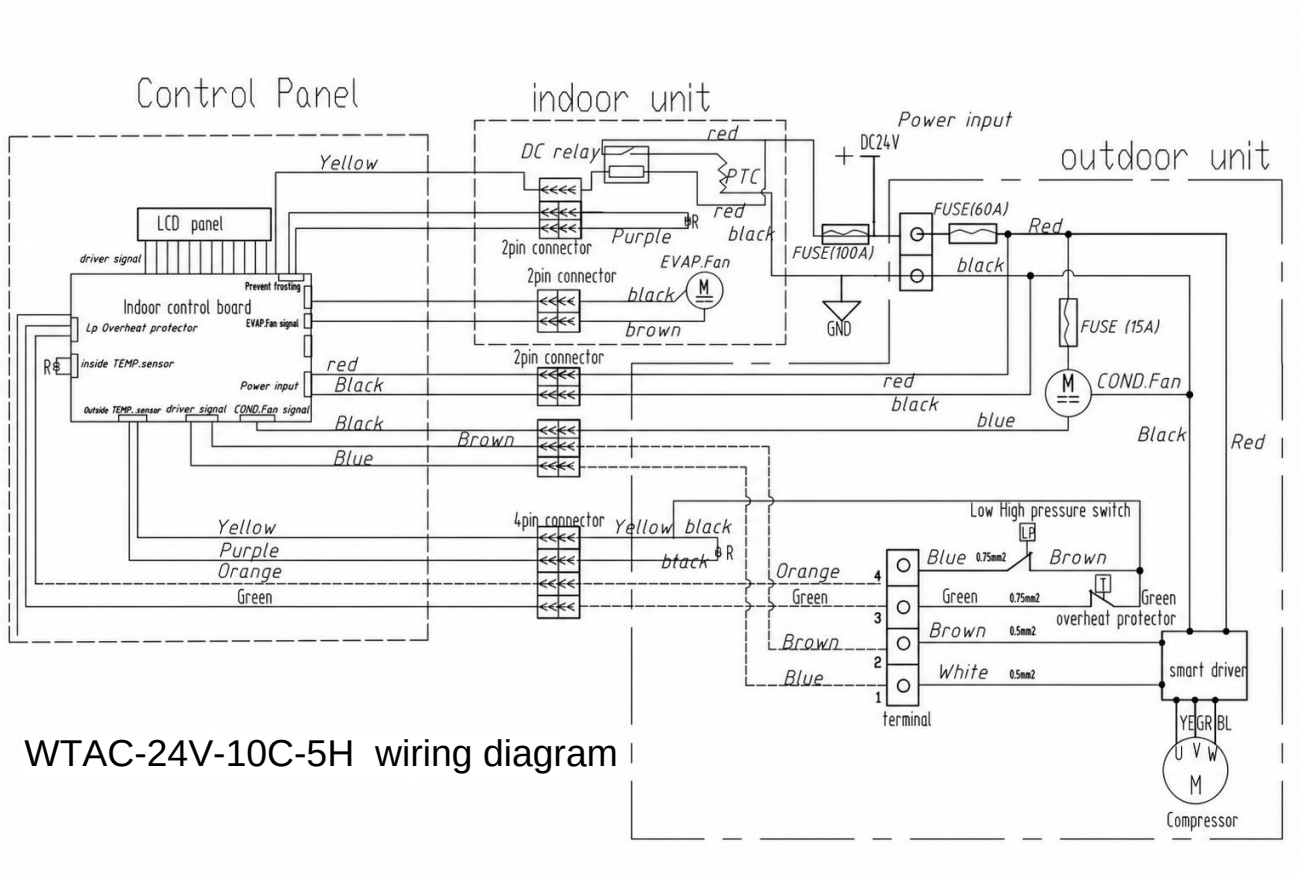
Source-based review; marked technical items require manufacturer confirmation.

07 / ELECTRICAL SCHEMATIC

Keep the circuit reference clear.

The supplied D-model diagram includes PTC electric heating and the outdoor-unit power branch.

ORIGINAL WTAC-24V-10C-5H CIRCUIT DIAGRAM



Source-listed circuit protection

The drawing shows a 100A input fuse, a 60A outdoor-unit branch fuse, a 15A condenser-fan fuse and a relay-controlled PTC heater branch. Match the confirmed unit revision and conductor sizes before installation.

Control and power

Follow the unit connectors, labels and wire colors.

Service reference

Power and protection details follow on page 10.

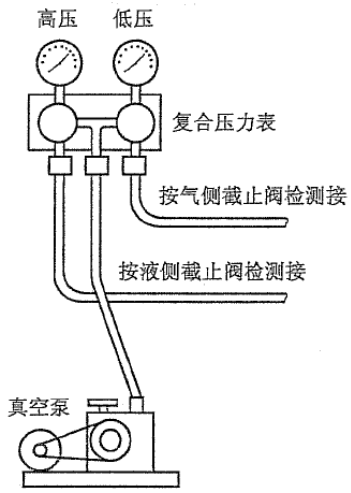
Source-based review; marked technical items require manufacturer confirmation.

08 / REFRIGERANT INSTALLATION

Dry, clean and leak-free lines.

Refrigerant work must be performed by trained professional personnel.

Keep moisture and dust out of pipe connections. Connect and secure the refrigerant lines, power cables and control lines correctly. Protect every penetration from cab vibration and abrasion; insulate and wrap the lines to control condensation. Avoid installation in rain unless the work is adequately protected.



Vacuum pump setup
Original schematic

Diagram key: gauge manifold, service connection and vacuum pump.

01 **Check and connect**

Inspect all pipe connections. Attach the gauge manifold, service hoses and vacuum pump using the approved service setup.

02 **Prepare the valves**

The source sequence keeps outdoor service valves closed during evacuation, for a compatible factory-charged arrangement.

03 **Evacuate and verify**

Source target: below 30Pa absolute (about 225 microns), for at least 15 minutes. Use a suitable absolute-pressure vacuum gauge.

04 **Isolate and hold**

The source gives a minimum 2-minute observation. Confirm the required hold time and acceptance criteria; repair leaks and repeat evacuation if necessary.

05 **Release charge and finish**

For the approved factory-charged configuration, fully open service valves as directed, disconnect service hoses and refit service-port caps.

Service and charging precautions

The source lists R-134a / 610g. Confirm nameplate charge, line length and whether the system is factory charged. Do not add refrigerant to an already correctly charged system. Avoid overcharging; prevent high-side pressure from feeding back into the refrigerant container. Use only the specified refrigeration oil grade.

The original “0.1MPa gauge reading” is not a valid verification of 30Pa absolute. See the review notes.

09 / POWER CONNECTIONS

Correct voltage. Secure polarity.

Heating draws more current than cooling; confirm the heater circuit before selecting protection.

ISOLATE POWER FIRST

Do not connect the power cable while energized. Red is positive (+); black is negative (-). Reverse polarity, loose contacts and arcing can damage the unit.

01 **Connect the power cable**

Make the connection secure before switching on the system supply. Check polarity and mechanical security at every connection.

02 **Join the unit connectors**

Plug the waterproof connectors for the indoor and outdoor units fully into their mating connectors.

03 **Check an extended cable**

The source requires cross-sectional area greater than 10mm² and extension length no more than 5m. Confirm conductor size, voltage drop, fuse and return path for actual cooling and heating loads.

Source-listed protection thresholds

SOURCE / PAGE 16

PROTECTION	TRIP / SHUTDOWN	RESET
Undervoltage	21.5V	25V
Overvoltage	32V	28V
Overcurrent*	55 ± 3A	Not specified

Heating protection scope needs confirmation

The D model lists 1,600W / 66.6A heating. Its diagram shows separate PTC and outdoor-unit branches, so the 55 ± 3A trip may apply only to the compressor drive. Confirm its scope, the total input with fans, conductor sizes and protection; do not change the trip setting based on this document.

Source-based review; marked technical items require manufacturer confirmation.

10 / COMMISSIONING & CONTROLS

Check operation before use.

Commission after refrigerant service, mechanical mounting and electrical connections are complete.

01 **Verify the evaporator fan**

Switch the fan on. Check rotation and verify all five fan speed settings.

02 **Verify compressor and condenser fan**

Select cooling. Confirm compressor operation and correct condenser fan rotation, then assess cooling performance.

03 **Check temperature control and service points**

Adjust the setpoint and verify the cooling indicator responds. A technician checks pressures against approved service limits, removes the manifold and refits service-port caps.

Control hardware

INDOOR CONTROL PANEL



HANDHELD REMOTE



- Power on/off
- Mode selection
- Temperature up/down
- Fan speed up/down

Stop if operation is abnormal

If you detect unusual noise, vibration or odor, stop the unit and investigate. Restart only after the cause is resolved.

Source-based review; marked technical items require manufacturer confirmation.

11 / DAILY OPERATION

Set the comfort you need.

Cooling, electric heating and fan operation depend on the supplied D-model controls.

01 **Switch the air conditioner on**

The operation indicator and display illuminate. The source says the display shows cabin temperature and the evaporator fan starts.

02 **Choose mode and fan speed**

The D-version instructions list Cooling, Heating and Fan modes. Five fan speeds plus automatic fan speed are listed. The source also describes an Auto mode elsewhere; confirm actual control firmware.

03 **Set the temperature and switch off**

Adjust the temperature to the desired cabin setpoint within the listed 16-32°C range. Press Power to switch the air conditioner off.

Aim the remote at the indoor control panel. The source describes one beep when a remote signal is received and a continuous buzzer during protective shutdown. A 3-second Power press is stated in one passage; the hold behavior and fault-reset action must follow the supplied control revision.

Reduce the heat entering the cab

Park in shade

Use curtains or window covers to reduce direct sunlight.

Keep the cab closed

Minimize door and window opening and unnecessary heat sources.

Use more airflow when needed

The source recommends maximum fan speed in very hot or humid conditions.

Manage condensation

Condensation can form during rapid cooling. Keep the cab closed and drains clear.

Runtime is an estimate, not a fixed rating

On an 8.04kWh battery, 900W constant cooling input gives 8.93h before losses and reserve. A 15h cooling estimate needs average input of about 536W before losses. Heating at 1,600W gives at most 5.03h on the same nominal energy, before fans, reserve and other loads.

Source-based review; marked technical items require manufacturer confirmation.

12 / TROUBLESHOOTING

Start with the symptom.

Stop abnormal operation and disconnect the main supply before service.

01 Compressor will not start, or cycles frequently.

POSSIBLE CAUSES

- Large supply-voltage fluctuations trigger protection.
- Shared or undersized wiring creates excessive voltage drop.
- Supply voltage is too high or too low.
- Severe refrigerant leakage is present.

CHECKS / SERVICE ACTION

- Check voltage at the unit against its specified range.
- Use a suitable dedicated power path and cable size.
- Have a professional repair any leak and recharge to the confirmed specification.

02 Cooling performance is poor.

POSSIBLE CAUSES

- The evaporator filter or condenser is dirty or blocked.
- Doors and windows are opened frequently.
- Cab heat load exceeds the system's available cooling.
- Condenser heat rejection is inadequate.

CHECKS / SERVICE ACTION

- Clean the filter and condenser; restore clear airflow.
- Reduce outside-air entry and solar/heat load.
- Have the installer review capacity and condenser operation.

03 The air conditioner will not turn on.

POSSIBLE CAUSES

- A fuse is blown.
- Supply voltage is outside the required range.
- A circuit connection is poor.

CHECKS / SERVICE ACTION

- Replace a fuse only with the confirmed same specification.
- Restore the correct supply voltage.
- Isolate power, inspect and reconnect the circuit securely.

Use an authorized professional

Repairs must be performed by a manufacturer-authorized service provider. Record the symptom, error code and supply voltage for support.

Source-based review; marked technical items require manufacturer confirmation.

13 / FAULT CODE REFERENCE

Read the code. Check the cause.

Source descriptions are retained; controller revision and ambiguous labels require confirmation.

CODE	SOURCE FAULT DESCRIPTION
1	No errors
2	Common software error flags
24	Temperature-control valve open circuit
25	Low-pressure protection open circuit
27	Indoor temperature sensor error
28	Abnormal compressor shutdown
29	Overvoltage
30	Undervoltage
31	Evaporator fan temperature low: -1°C*
32	Drive overcurrent
33	Internal temperature sensor open circuit
34	Internal temperature sensor short circuit
35	External temperature sensor open circuit
36	External temperature sensor short circuit
37	Drive undervoltage
38	Drive overvoltage
39	Drive overheating
40	Compressor failed to start
41	Compressor operating abnormally
42	Serial communication driver error 0*

Record the code before requesting service

Codes 31 and 42 retain unclear wording from the source; code 24 names a temperature-control valve without a matching service definition. Obtain the controller-specific code sheet before using these labels for diagnosis. Do not repeatedly reset an unresolved fault.

Source-based review; marked technical items require manufacturer confirmation.

14 / MAINTENANCE & SUPPORT

Clear airflow. Secure mountings.

Routine care supports cooling performance and equipment life.

Air filter

AT LEAST EVERY TWO WEEKS WHILE IN USE

01 **Remove and wash**

Remove the filter from the bottom of the panel. Wash it with soap and warm water.

02 **Dry and refit**

Air-dry the filter fully and reinstall it before operation.

03 **Keep the filter installed**

Do not run the unit without the return-grille filter. An unprotected evaporator coil can become dirty or damaged and shorten service life.

Panel and connection checks

✓ **Clean the panel gently**

Use a soft cloth dampened with neutral detergent. Do not use polishing compounds or scouring powder.

Inspect mountings and power connections

Carry out regular inspections of mounting-bolt security and power-cable connections. Keep the filter, condenser airflow and drainage path clear.

If the unit operates abnormally

Stop the air conditioner and disconnect its main supply. Contact the retailer or WeVolt support. Repairs should be performed by an authorized professional; improper repairs can cause electric shock or fire.

When the original vehicle battery is the power source, the source manual requires the A/C to be switched off during engine starting. A 12V truck requires a suitable 24V house-power arrangement; never connect this 24V A/C directly to a 12V supply.

Source-based review; marked technical items require manufacturer confirmation.

15 / TECHNICAL NOTES

Clear figures. Clear definitions.

Technical review completed 13 October 2026. Product validation remains with the manufacturer.

Conversions and calculated checks

SOURCE VALUE	CHECKED CONVERSION / CALCULATION
3,000W cooling	10,236 BTU/h approximately; 10,000 BTU/h is a rounded class.
1,600W heating	5,459 BTU/h approximately; 5,500 BTU/h is a rounded class.
450 m^3/h airflow	264.9 CFM approximately.
24V x 38A	912W; close to 900W, with input boundary still to be defined.
3,000W / 900W	3.33 W/W arithmetic ratio; not a replacement tested EER.
1,600W / 24V	66.67A; consistent with the listed 66.6A heating current.

Items that need manufacturer confirmation

Performance: EER test conditions and total input; cooling current range versus heating input; the circuit covered by the 55 ± 3A trip.

Fitment: body versus overall dimensions; 192mm versus 195.5mm outdoor depth; 314mm versus 314.9mm drain spacing.

Service: charge versus line length/factory fill, separate pressure limits, and supplied-unit wiring and control revision.

Environment: the manual gives 43°C maximum; the current WeVolt blog gives 52°C. This guide retains the manual value pending written confirmation. The listed 21-43°C climate conditions do not establish a winter heating range.

Source documents and review boundary

Sources: supplied WTAC-24V-10C-5H manual (pages 1-17), Apex 24V eAPU System Guide (design) and cooling + heating PNG (product photo). The Chinese verification report lists source locations and references. No independent product test reports were provided.

R-134a is retained as the listed refrigerant. The original claim that it causes no environmental harm has been removed. Condensation around vents can occur; the source excludes liability for condensation damage. Specifications may change with product updates; follow the confirmed supplied-unit documentation.