

Installation Instructions

Air Top Pro 25

Air Heater



English

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1 General information

1.1 Purpose of the document

These installation instructions are part of the Air Top Pro 25 and contain all the information required to ensure correct and safe installation.



NOTE

The actual availability of functions depends on each installed heater.



NOTE

Carefully read through and follow the heater Installation Instructions and the safety information contained therein.

1.2 Using this document



The requirements of this document must be observed when installing the heater. The workshop manual must be followed when carrying out work to the heater.

To access further documents use one of the following options:

The Webasto Dealer Portal

(<https://dealers.webasto.com>)

Operating instructions are available in several languages at: <http://techwebasto.com>.

1.3 Warranty and liability

Webasto shall not assume liability for defects or damages that are the result of disregarding the installation and operating instructions. This liability exclusion particularly applies to:

- Installation or maintenance 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 service instructions.



DANGER

Failure to follow the installation instructions and the notes contained therein will lead to all liability being refused by Webasto. The same applies if repairs are carried out incorrectly or with the use of parts other than genuine spare parts. This will result in the invalidation of the type approval for the heater and therefore of its homologation / EC type licence.



WARNING

Repair and maintenance work on the heater requires specialist knowledge and special tools. Incorrect adjustment or maintenance can lead to damage to the heater, or to accidents resulting in serious damage.

The installation personnel must have the following qualifications:

- Successful completion of Webasto training.
- Corresponding qualification for working on technical systems.

1.4 Use of symbols and highlighting



DANGER

This signal word denotes a hazard with a high degree of risk which, if not avoided, may lead to death or serious injury.



WARNING

This signal word denotes a hazard with a moderate degree of risk which, if not avoided, may lead to minor or moderate injury.



CAUTION

This signal word denotes a hazard with a low degree of risk which, if not avoided, will lead to minor or moderate injury.



NOTE

This signal word denotes a Special Technical Feature or (if not observed) potential damage to the product.



Refers to separate documents which are enclosed or can be requested from Webasto.

✓	Requirements for the following necessary action
▶	Necessary action

2 Safety

2.1 Intended use



NOTE

The heater must not be used for safety-related purposes. It serves to provide comfort.

The heater works independently of the vehicle engine and is integrated in the electrical system of the vehicle.

The heater is approved for the following applications:

- Car, light truck (LCV)
- Trucks, buses in EU vehicle classes **M**, **N** and **O**
- Caravans, motor homes, boats, pleasure craft
- Earth-moving machinery
- Construction machines
- Industrial trucks
- Vehicles that can be used in commercial, light-industrial and industrial environments.
- Agriculture and forestry machines
- The heater is approved for cars (Class M1).
- Installation in Class O, N2 and N3 motor vehicles and vehicles for transporting hazardous substances is not permissible.
- If it is installed in special-purpose vehicles, the applicable regulations must be observed. Alternative applications are only possible with the prior approval of Webasto.
- Thermo Top Evo RV Classic with continuous heating is recommended for use in caravan & camping vehicles.
- The heater works together with the vehicle's heating system:
 - to heat the passenger compartment
 - to defrost vehicle windows
 - to preheat water-cooled
- engines (if technically possible).
- The heater can be installed as a parking heater or auxiliary heater.

2.2 General safety information

2.2.1 Safety information on operation



DANGER

Risk of injury from the defective unit

Do not operate a defective Air Top Pro 25 and put it out of service by removing the fuse:

- prolonged heavy smoke development.
- unusual burner noise.
- smell of fuel.
- permanent fault switch-offs with error messages (flash code).
- damaged heater.
- ▶ Contact a Webasto service workshop.



DANGER

Risk of explosion from explosive and flammable hazardous goods

For hazardous material vehicles, restriction of the heater operation is required to prevent severe burns.

- ▶ Do not operate the heater at hazardous material loading points.
- ▶ Do not operate the heater when loading and unloading hazardous materials.



DANGER

Danger of fire

Flammable materials or liquids in the hot air flow.

- ▶ Keep the hot air flow clear.



DANGER

Burn injuries

Risk of burn injuries due to insufficient distance between hot air outlet and persons

- ▶ Persons must be protected from the direct hot air flow from the heater and from contact with surfaces that will become hot.
- ▶ Heat-sensitive parts must be protected from the direct hot air flow.



WARNING

Danger of explosion and suffocation

Do not operate the heater:

- ▶ at filling stations and tank facilities.
- ▶ at locations where highly flammable gases or dust can form, or at locations where highly flammable liquids or solid materials are stored (e.g. near fuel, coal and wood dust, grain storage areas, dry grass and leaves, cardboard boxes, paper, etc.).
- ▶ in closed rooms such as garages that do not have an exhaust extraction unit, especially not with programmed heating start (time preselect or remote start).



WARNING

The heater may only be used under the specified conditions. In the event of deviations, the heater must be treated immediately as a defective heater and be taken out of operation by removing the fuse. The following are impermissible, for example:

- ▶ Operation at impermissible temperatures.
- ▶ Submerging the heater in water or other liquid media.



NOTE

Incorrect handling

- ▶ Protect the heater against mechanical stress (e.g. dropping, impacts or knocks).
- ▶ Do not stand on the heater.
- ▶ Do not place any objects on top of the heater.
- ▶ Avoid shutting down the heater incorrectly during the after-running period. After switching off via the control element, the fan of the heater continues to run.
- ▶ Always switch off the heater via the control element.
- ▶ Do not disconnect from the power supply until the after-running period has elapsed.
- ▶ Do not use heaters that have been dropped.



NOTE

Do not operate the unit without an inserted dummy plug for an unused wiring harness pass through.

2.2.2 Safety information on installation



DANGER

Live parts are dangerous

- ▶ Prior to installation, disconnect the vehicle from the power supply.
- ▶ Always comply with all legal requirements.
- ▶ Observe data on the type label.



DANGER

Danger of suffocation

Outcome: Poisoning and asphyxiation

- ▶ Exhaust gas must be routed outside.
- ▶ Make sure that the exhaust gasses and exhaust lines are not routed through the interior.

2.2.3 Avoiding damage to property



NOTE

After switching off via the control element, the fan of the heater continues to run (shortened to 40 s for ADR). Switching off incorrectly, without after-run, can cause damage to the Air Top Pro 25.

- ▶ Always switch off the heater via the control element.
- ▶ The use of programmable control elements in ADR vehicles is not permitted.

2.3 Regulations and legal requirements

The type approvals in accordance with the regulations ECE-R 122 (heating) and ECE-R 10 (EMC) for the Air Top Pro 25 heater apply in the area where the European regulation 2018/858 is valid.



Read and comply with the warnings and information in the installation instructions and operating instructions.

3 Installing Heater

3.1 Installation location requirements:



DANGER

General

The heater must not be installed:

- ▶ In the direct radiated heat range of exhaust systems.
- ▶ Below the maximum permitted fording level of the vehicle.



DANGER

Risk of poisoning and suffocation from escaping exhaust gases

Ensure that:

- ▶ the housing only rests on the heater base after installation.
- ▶ the base seal is installed correctly.
- ▶ exhaust gases are only routed to the outside.
- ▶ Exhaust pipes must not be routed through the vehicle interior.



DANGER

Danger of overheating

Outcome: Risk of fire. Protect vehicle components in the vicinity of the heater, hot air outlet and exhaust line from overheating by implementing the following measures:

- ▶ Maintain minimum safety distances.
- ▶ Ensure adequate ventilation.
- ▶ Use fire-resistant materials or heat shields.
- ▶ Always comply with legal requirements.

The installation location must satisfy the following requirements:

- ✓ There is sufficient space for the unit (see Dimensions and space requirements).
- ✓ The installation location is protected from mechanical damage.
- ✓ The installation location is protected from splash water and water spray wherever possible.
- ✓ The installation location is above the maximum permissible fording level of the vehicle.
- ✓ The combustion air inlet and exhaust gas outlet are separate (see Combustion air system and Exhaust system).
- ✓ The connections for the combustion air system and the exhaust system are completely on the outside.
- ✓ Persons cannot come in contact with hot surfaces. Install contact guard if necessary.
- ✓ Heat-sensitive parts are protected from high temperatures. Install heat shield if necessary.
- ✓ If the heater is installed within the reach of the driver, a contact guard must be installed.

3.2 Installation example

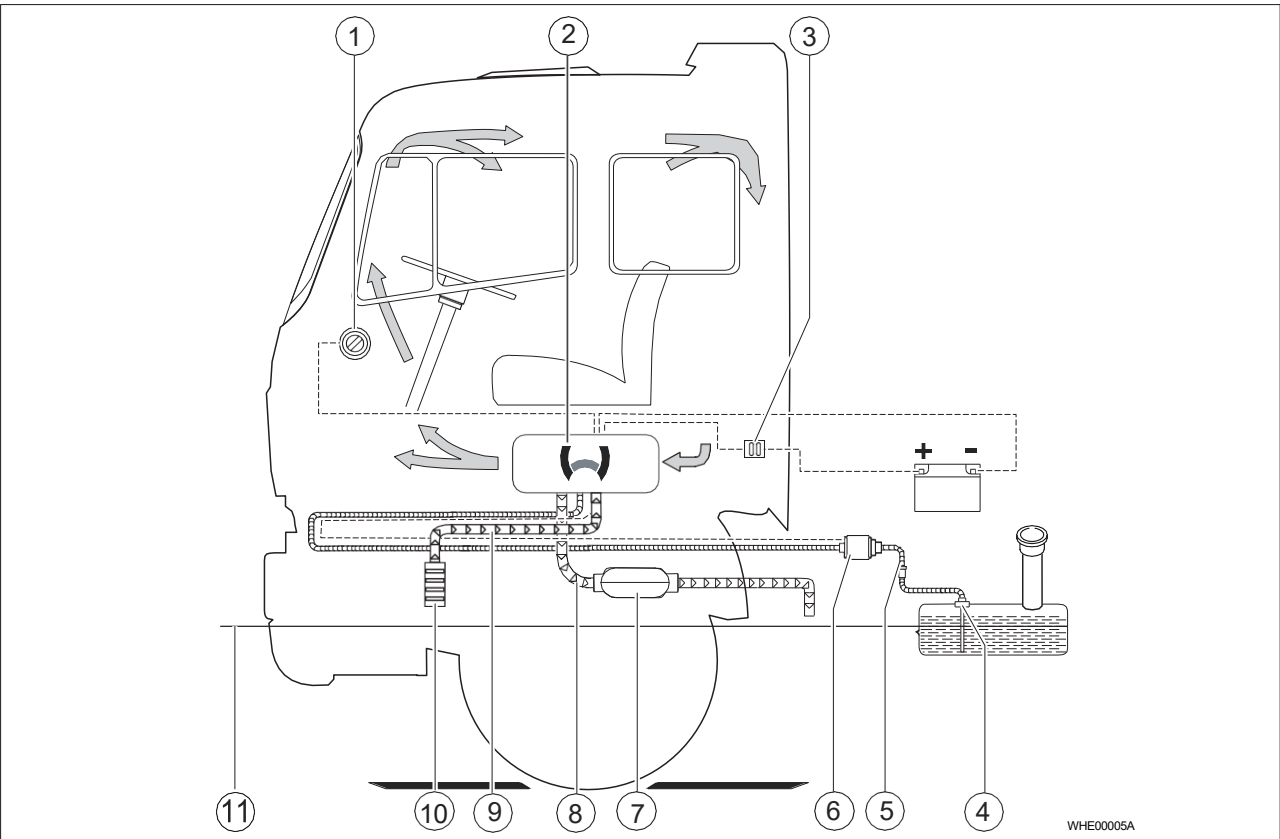


Fig. 1 Installation overview

1	Control Panel	7	Exhaust silencer (accessory)
2	Heater	8	Exhaust line
3	Fuse	9	Combustion air intake pipe
4	Fuel standpipe	10	Combustion air intake silencer (accessory)
5	Fuel filter (accessory)	11	Maximum permissible fording depth
6	Fuel pump		

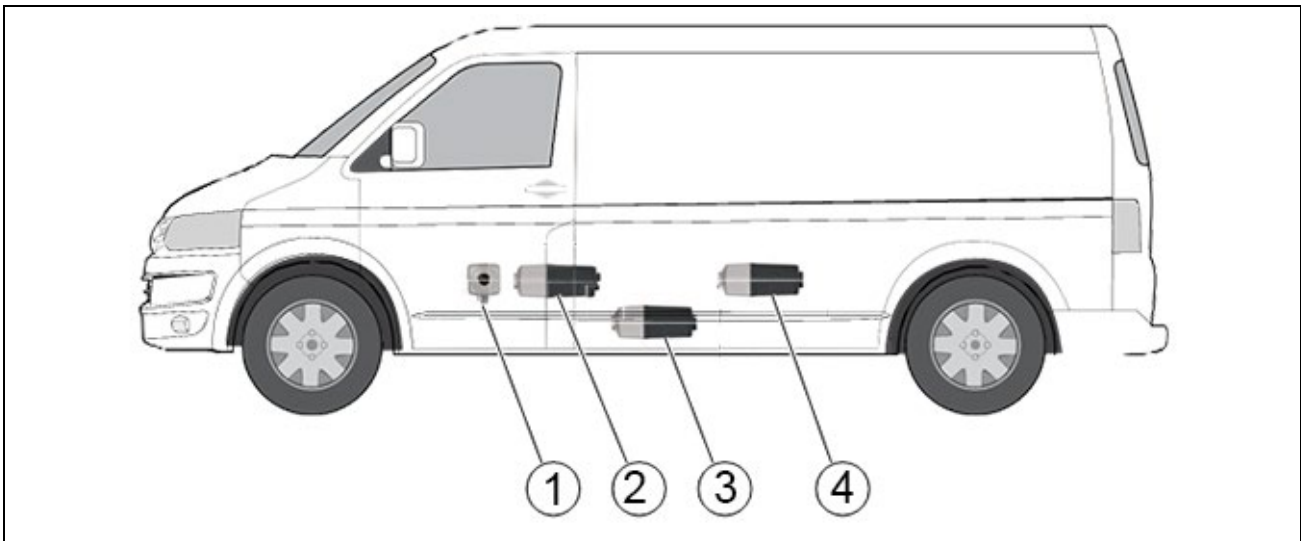


Fig. 2 Installation example

1	Heater beneath the seat	2	Heater between the front seats
3	Heater beneath the corridor	4	Heater in the cargo space

Fig. 2 Installation example

3.3 Dimensions and space requirements

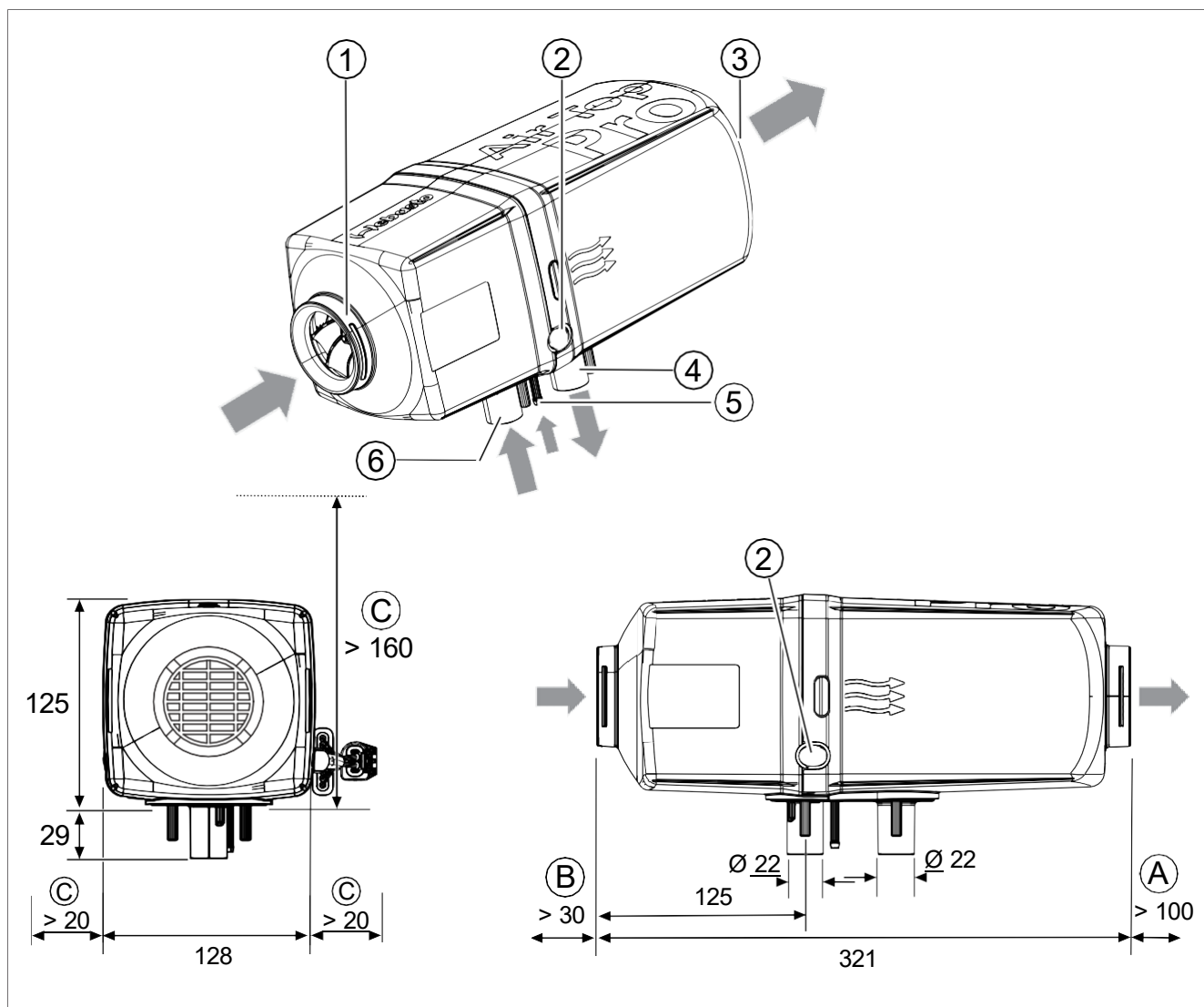


Fig. 3 ATP25 dimensions and space requirements

1	Cold air inlet	2	Cable outlet (optionally on right or left)
3	Hot air outlet	4	Exhaust gas outlet
5	Fuel inlet	6	Combustion air inlet
A	Recommended space requirements for hot air outlet (without air duct)	B	Recommended space requirements for cold air inlet
C	Recommended space requirements for installing the heater		

3.4 Permissible installation position

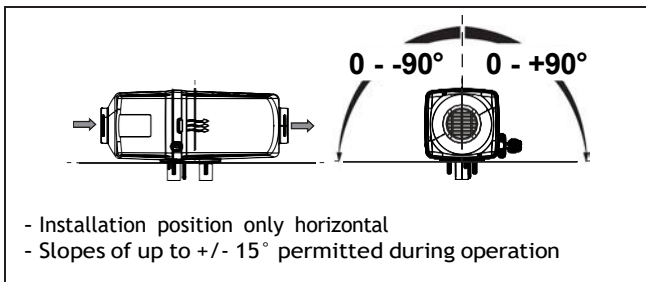


Fig. 4 Permissible installation position for petrol and diesel

- ✓ Ensure the correct installation position. See Fig. 4.
- ✓ Drill holes with the aid of the drilling template. See Fig. 27.

3.5 Base seal

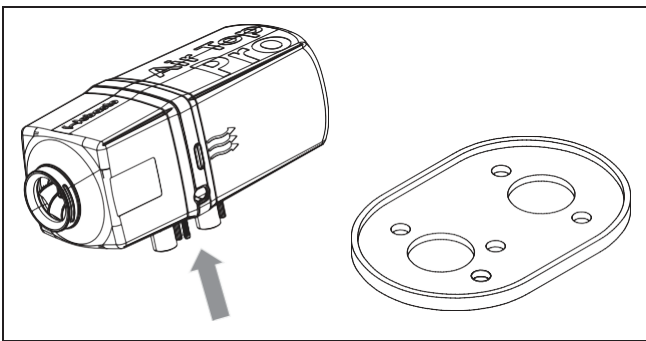


Fig. 5 Base seal for heater

- Fit base seal between heater and support surface.

NOTE

Unevenness >1 mm: Flatten out support surface.

- Secure heater at base with ¼ in (M6) nuts 53 in-lbs (6 Nm).
- Make sure that the heater rests only on the base.

3.6 Type label

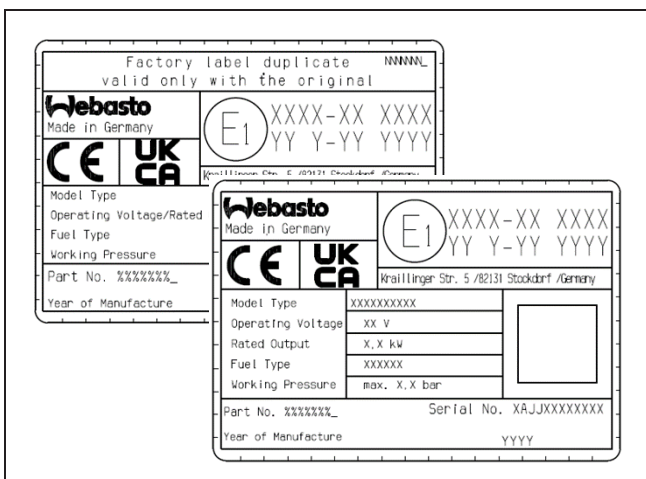


Fig. 6 Product label

If the type plate is not visible after the heater has been installed:

- Affix the duplicate type plate in a clearly visible, protected location on the vehicle.

4 Cold and hot air system

4.1 Information on cold and hot air system



NOTE

The heater continuously monitors the temperature of the emitted exhaust air to ensure it is at a target value. If the stated maximum application length or number of points (corresponds to a drop in pressure of 0.6 in w.c. (150 Pa) at maximum heat output at sea level and at 68°F (20°C) ambient temperature across the entire hot air application) stated in the installation instructions then the heater automatically lowers the heat out-put to ensure the target temperature of the emitted hot air is followed.

- Do not connect the cold and hot air system of the heater to the externally controlled air routing systems (e.g. vehicle air conditioning system).

4.1.1 Recirculated air mode and fresh air mode

The cold air can be drawn in from the outside (fresh air mode) or inside (recirculated air mode).

4.1.2 Temperature control

There are two options for temperature control. One of the two options is specified automatically.

Options:

1. The heater regulates the heating capacity depending on the temperature of the cold air intake and the temperature set on the control element.
2. The heater regulates the heating capacity depending on the temperature of an external room temperature sensor and the setpoint temperature set on the control element. See External room temperature sensor (optional).

4.1.3 Installation location requirements (cold air)

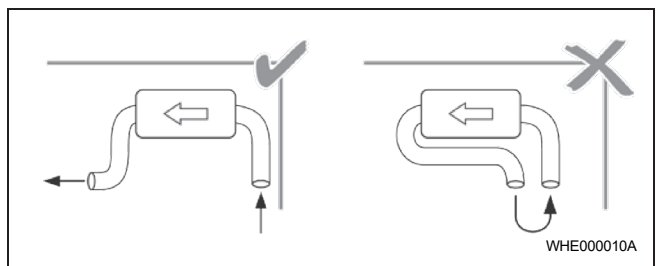


Fig. 7 Avoid air crossover between cold air inlet and hot air outlet

The installation location for the cold air inlet must satisfy following requirements:

- ✓ No intake of hot air from the vehicle's own heating system.
- ✓ No intake of the heater's hot air.
- ✓ No intake of exhaust gases.
- ✓ The intake is protected from splashing water and spray.
- ✓ The intake is located above the maximum permissible fording depth of the vehicle.

4.1.4 Installation location requirements



DANGER

Burn injuries

Risk of burn injuries due to insufficient distance between hot air outlet and persons

- ▶ Persons must be protected from the direct hot air flow from the heater and from contact with surfaces that will become hot.
- ▶ Heat-sensitive parts must be protected from the direct hot air flow.

4.2 Cold and hot air ducts

4.2.1 Requirements for the cold and hot air ducts

Requirements for the cold and hot air ducts	Value
Thermal endurance - °F (°C)	> 266 (130)
Recommended inside diameter of main hot air duct - in (mm)	2.4 (60)

- ▶ Install cold and hot air ducts with minimal resistance to flow.

4.2.2 Installing cold and hot-air ducts



WARNING

Risk of injury by rotating fan wheel

Lacerations. If no cold air duct is used: Install mesh guard over intake.

- ▶ Make sure that the installation location satisfies the requirements.
- ▶ Make sure that the hot air duct satisfies the requirements.
- ▶ Make sure the cold air inlet, hot air outlet as well as the cold and hot air ducting are installed in the correct position.
- ▶ Drill holes.
- ▶ Secure cold and hot air ducts at all connections.
- ▶ During indoor installation, people must be protected against coming into contact with the hot air duct. A contact guard should be installed if required.

4.2.3 Installation without cold air duct (cold air)

- ▶ Install the mesh guard on the cold air inlet side.

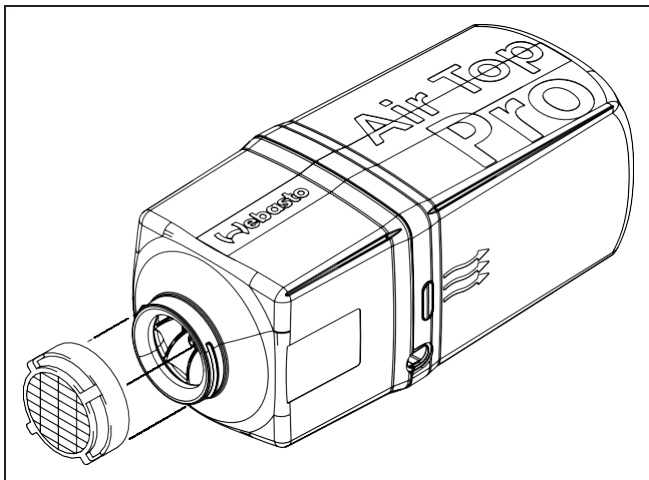


Fig. 8 Cold air inlet with mesh guard

4.2.4 Installing heater in casing

- Provide a cross-section area of at least 7.8 in² (50 cm²) for the cold air inlet.
- Seal off the hot air outlet such that no hot air can enter the casing.

4.3 External room temperature sensor (optional)

4.3.1 Installation location requirements for the external room temperature sensor

The installation location must satisfy the following requirements:

- ✓ The intake is located above the maximum permissible fording depth of the vehicle.
- ✓ The installation location is outside the hot air flow.
- ✓ The installation location is out of range of other heat sources (e.g. the vehicle's heating system).
- ✓ The installation location is out of direct sunlight (e.g. not on the dashboard).
- ✓ The air can circulate freely (e.g. not obstructed by curtains).



NOTE

The control pause speed is set to 0 when an external room temperature sensor is connected.

5 Fuel supply

The fuel can be taken off at the following points:

- Fuel supply or return pipe on vehicle engine
- Vehicle fuel tank
- Separate fuel tank

The fuel line consists of an intake and pressure side:

- Intake side: Connection of fuel tank to fuel pump
- Pressure side: Connection of fuel pump to heater



DANGER

Fuel leak if fuel line is damaged or components are faulty.

Outcome: Risk of fire.

- ▶ If the fuel line is cut through or incorrectly fitted or if components fail, there is a risk of leaking fuel.



WARNING

Do not route the fuel lines through the vehicle interior.



NOTE

Preferably, install the heater and fuel pump at the same height as the fuel tank. Failing that, pay attention to the figures and the tables.

5.1 Permissible pressure at the fuel take-off point

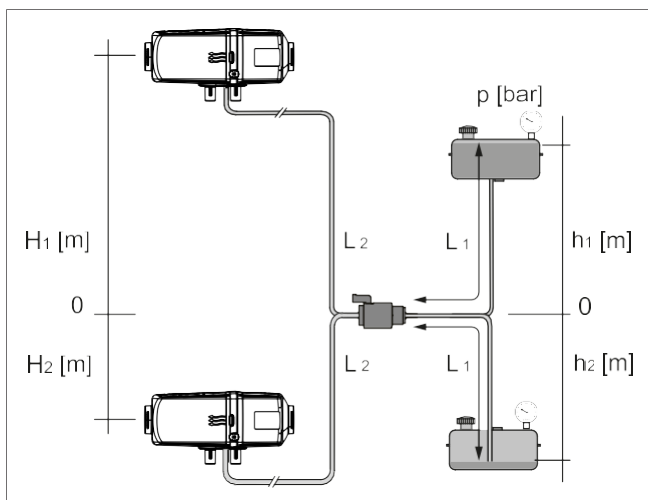


Fig. 9 Permissible pressure at the fuel take-off point

Parameters		Values	
		Petrol	Diesel
-	Inner diameter of fuel line [mm]	2	
L ₁	Suction line length	max. 16.4ft (5 m)	
L ₂	Pressure line length	max. 33 ft (10 m)	
L ₁ + L ₂	Total length of suction line + pressure line	max. 39.4 ft (12 m)	
h ₁	Distance from fuel level in tank to fuel pump (tank above fuel pump)	max. 9.8 ft (3 m)	
h ₂	Distance from fuel level in tank to fuel pump (tank below fuel pump)	max. 3.3 ft (1 m)	max. 4.3 ft (1.3 m)
H ₁	Height difference between heater and fuel pump (heater above fuel pump)	max. 9.8 ft (3 m)	
H ₂	Height difference heater - fuel pump (heater below fuel pump) [m]	max. 0*	max. 3.3 ft (1 m)

* Petrol heater: Only an upward-sloping installation of the pressure line is permissible.

Table 1: Requirements for fuel lines

Distance [m] h ₁ *	maximum permissible fuel pressure at the take-off point, p [bar]	
	Petrol	Diesel
h ₁ = 0	-0.1 ≤ p ≤ +0.3	-0.1 ≤ p ≤ +0.5
0 < h ₁ ≤ 1	-0.1 ≤ p ≤ +0.2	-0.1 ≤ p ≤ +0.4
1 < h ₁ ≤ 2	-0.1 ≤ p ≤ +0.1	-0.1 ≤ p ≤ +0.3
h ₂ = 0	-0.1 ≤ p ≤ +0.3	-0.1 ≤ p ≤ +0.5
-0.5 < h ₂ ≤ 0	-0.06 ≤ p ≤ +0.3	
-1.0 < h ₂ ≤ -0.5	-0.02 ≤ p ≤ +0.3	

Distance [m] h ₁ *	maximum permissible fuel pressure at the take-off point, p [bar]	
	Petrol	Diesel
-1.3 < h ₂ ≤ -1.0	-	-

Table 2: Maximum permissible fuel pressure

* Distance between tank fill level and fuel pump (tank above fuel pump)

5.2 Removing fuel from vehicle's fuel supply and return line

5.2.1 Installing fuel extractor

- ✓ The pressure at the fuel take-off point is in the permissible range (see and tables).
- ✓ Install only original Webasto fuel extractors.
- ✓ When taking off fuel at the return line:
 - Make sure that the installation location satisfies the requirements.
 - Make sure that the return pipe is not closed off by a non-return valve.
 - Make sure that the return pipe extends to the base of the fuel tank.
- ✓ When taking off fuel from the swirl pot:
 - Make sure that the swirl pot is not completely emptied.

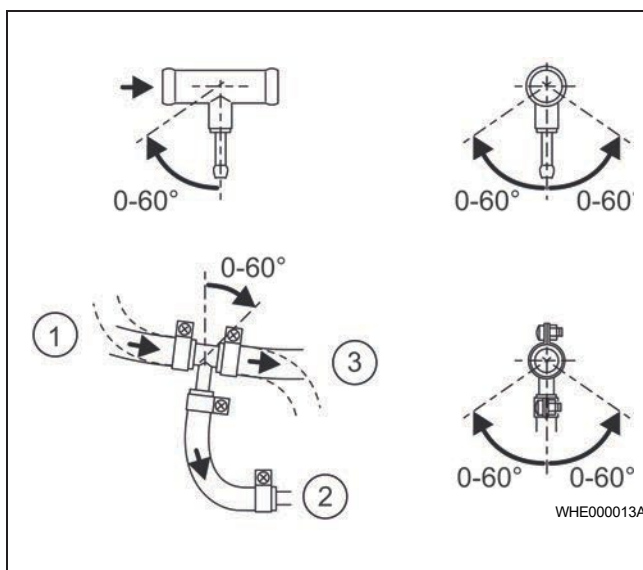


Fig. 10 Installation of fuel extractor

①	from fuel tank	③	to motor
②	to fuel pump		

5.3 Taking off fuel from the vehicle tank



DANGER

Risk of fire by fuel escaping from leaking fuel tank

Skin burns.

- ▶ Do not drill into a plastic fuel tank.
- ▶ When retrofitting the fuel take-off system on a plastic tank: Install suitable tank extracting device only on the vehicle's fuel delivery unit.

5.3.1 Installing tank extracting device on vehicle fuel delivery unit

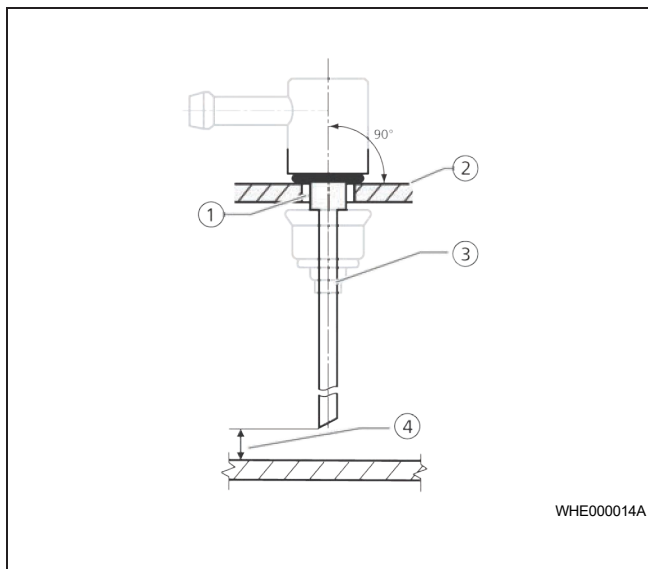


Fig. 11 Installation of tank extracting device on fuel delivery unit

①	Webasto tank extracting device	③	Standpipe of Webasto fuel extractor
②	Section of fuel delivery unit with hole	④	Minimum distance of 10 mm between the standpipe and the base of the fuel tank

- ✓ Make sure that the standpipe of the Webasto tank extracting device cannot impair operation of the vehicle's fuel delivery unit with fuel gauge in any operating mode.
- ✓ Make sure that the mounting surface for the Webasto tank extracting device is clean, level and free of burrs.
- ▶ In the installed position, maintain a minimum distance of 10 mm between the standpipe and the base of the fuel tank. Maintain a minimum distance of 0.8 in (20 mm) above the base of the fuel delivery unit.
- ▶ Observe the safety measures specified by the vehicle manufacturer.
- ▶ Observe the tightening torque requirements specified by the vehicle manufacturer.

5.4 Taking off fuel from a separate fuel tank

- ✓ Do not install the fuel filler neck in the vehicle interior.
- ✓ Only use a fuel tank that can be closed off with a filler cap.
- ▶ Clearly mark the type of fuel to be used on the fuel filler neck.

NOTE

The separate fuel tank must be approved for the fuels to be used, e.g. petrol, ethanol.

5.5 Fuel line



WARNING

Make sure there are no leaks!

5.5.1 Fuel line requirements



NOTE

Use only plastic fuel lines made from light and temperature-resistant PA12/ETFE, PA12/EFEP, PA9T/PA12 in accordance with DIN 73378 or suitable steel lines.

- ✓ Use Webasto-approved fuel lines and genuine Webasto connectors.

5.5.2 Connecting fuel lines

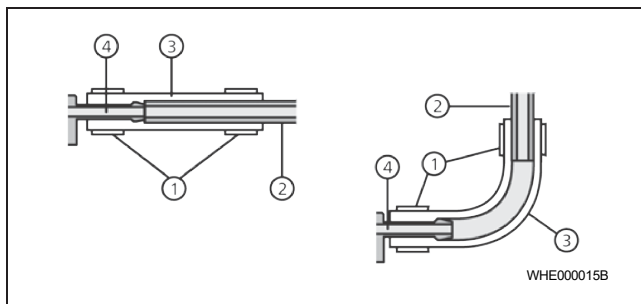


Fig. 12 Connection of fuel lines

①	Hose clip	③	Hose
②	Fuel line	④	VDA connector

- ▶ Make sure that the connections are tight.

5.5.3 Installing fuel line



NOTE

Malfunctions during combustion caused by gas bubbles and high fuel temperatures.

Gas bubbles caused by the heat from the engine and high fuel temperatures can cause malfunctions during operation.

- ▶ Install the fuel lines in cool areas.

- ▶ Keep line lengths as short as possible.
- ▶ Avoid sagging of the fuel line.
- ▶ Fasten fuel lines.
- ▶ Protect the fuel lines from damage:
 - Install stone impact guard.
 - Fit protectors on sharp edges.
- ▶ Protect fuel lines from high temperatures (e.g. from exhaust pipe):
 - Install heat shield if necessary.
 - Do not install fuel lines in areas where heat builds up.
- ▶ Make sure the fuel lines are not damaged.

5.6 Fuel pump



NOTE

Damage to the fuel pump.

- ▶ Lines should be filled under the control of the Webasto System Diagnostics only.
- ▶ Do not operate the fuel pump using the vehicle voltage.



NOTE

Operating the heater with any other than the DP 42.4 fuel pump will invalidate the warranty and type approval.

- ▶ The heater must only be operated using the fuel pump DP42.4.

5.6.1 Installation location requirements:

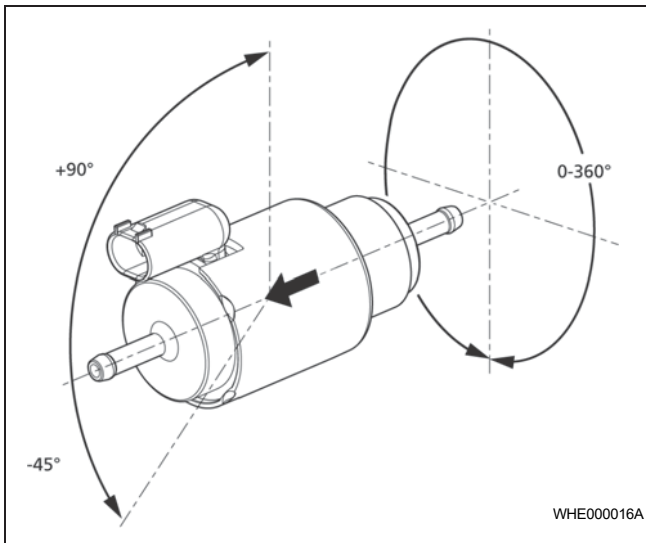


Fig. 13 Permissible installation position of fuel pump during operation

The installation location must satisfy the following requirements:

- ✓ The installation location is close to the fuel tank in order to keep the intake fuel line as short as possible.
- ✓ The installation location is protected from stone impact.
- ✓ The installation location is protected from high temperatures.

5.6.2 Installing fuel pump

- ▶ Ensure the correct installation position.
- ▶ Pay attention to the direction of flow of the fuel. The end with the connector is always the outlet end.
- ▶ Secure the fuel pump to the vehicle using a vibration-damping mount (e.g. rubberized Webasto clip).
- ▶ Connect the fuel pump and the wiring harness.

5.7 Fuel filter

NOTE

- ▶ If use of poor-quality fuel is likely, a Webasto fuel filter must be installed.
- ▶ Enter fuel filter in the vehicle's service booklet.

5.7.1 Installing fuel filter

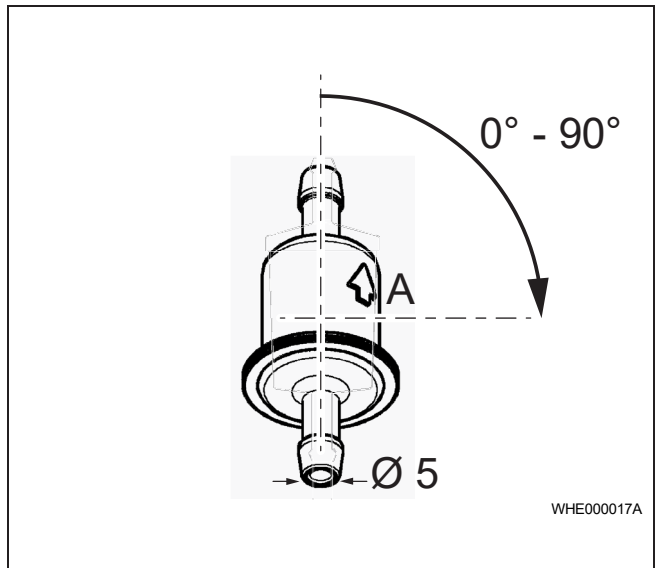


Fig. 14 Permissible installation position of fuel filter

- ▶ Ensure the correct installation position. Pay attention to the direction of flow of the fuel (arrow) in Fig. 14.

5.8 Fuel supply sticker

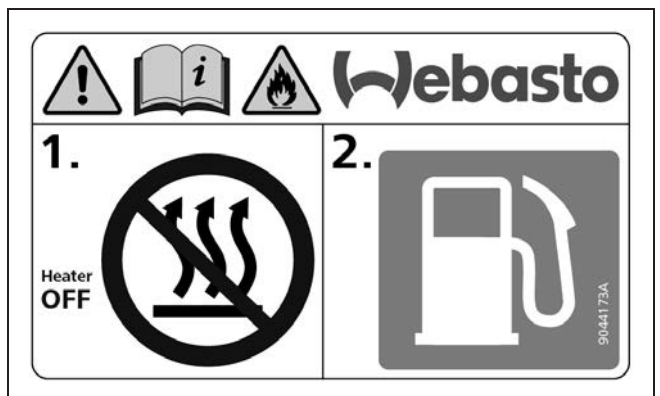


Fig. 15 Fuel supply sticker

- ▶ Affix the sticker "Switch Off Heater Before Refueling" (included in scope of delivery) in area of fuel filler neck.

6 Combustion air system



WARNING

It is important to avoid pressure differences (positive or negative) between the exhaust gas outlet and the combustion air inlet.

6.1 Combustion air intake line



DANGER

Use only combustion air intake lines approved by the manufacturer. Damage caused by confusing the exhaust line with the combustion air intake line.



DANGER

Combustion air must not be drawn from an interior space occupied by people.



DANGER

Ensure sufficient distance from the exhaust system to avoid drawing in exhaust gases!



NOTE

During installation, make sure that the nearby fuel pump cables is not damaged.

Requirements of the combustion air intake line	Value
Max. length of combustion air intake without silencer - ft (m)	16.4 (5) **
Min. length with exhaust or / and combustion air intake silencer - ft (m)	8.2 (2.5) **
Recommended min. length with integrated combustion air intake silencer - ft (m)	1.6 (0.5)
Min. length with external combustion air in-take silencer - ft (m)	*
Inside diameter - in (m)	0.9 (22)
Smallest bend radius - in (m)	2 (50)
Max. sum of all bends	270°

Table 3: Limit values of combustion air intake line

*: The external combustion air intake silencer can be connected directly to the heater. The combustion air intake line serves as a connection piece.

** : Maximum total length of combustion air intake line and exhaust line combined.

- ▶ Route combustion air intake pipes with an upward gradient to the heater.
- ▶ If combustion air intake lines cannot be routed with a continuous upward slope:
 - Drill a condensate drain hole (Ø 4 mm) at the lowest point of the siphon.
 - Ensure that no exhaust gases are drawn in.

6.2 Notes on combustion air system

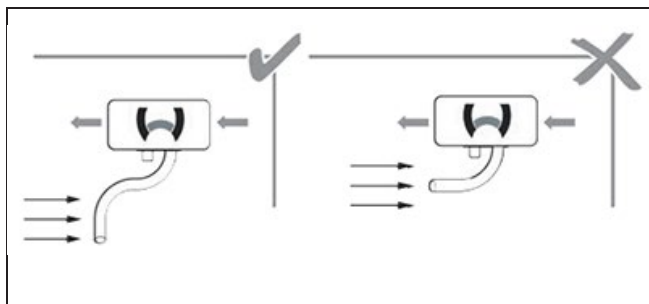


Fig. 16 Routing the combustion air system

- ✓ There is no pressure difference (positive or negative pressure) between the exhaust gas outlet and the combustion air inlet.
- ✓ Combustion air is not drawn from enclosed spaces where people may be present.
- ✓ The combustion air intake opening meets the following requirements:
 - It must be positioned in a cool place above the maximum permissible fording level of the vehicle, in a location protected from spray.
 - It is not possible for it to become clogged with dirt.
 - It is not possible for it to draw in exhaust gases.
 - The combustion air intake opening does not face in the direction of travel.
 - Through holes are made so as to be splash-proof.
- ▶ Fit a spray guard on the intake opening depending on the model.

6.3 External combustion air intake silencer (recommended)

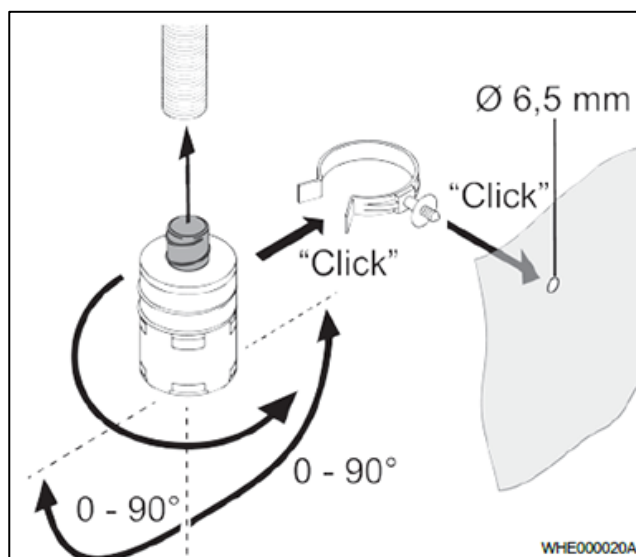


Fig. 17 Permitted installation position of external combustion air intake silencers

Installation of an external combustion air intake silencer is recommended.

Comply with installation position in Fig. 17.

7 Exhaust system

7.1 Notes on exhaust system



DANGER

Danger of suffocation

Outcome: Poisoning and asphyxiation

- ▶ Exhaust gas must be routed outside.
- ▶ Make sure that the exhaust gasses and exhaust lines are not routed through the interior.



DANGER

Fire risk due to hot exhaust gasses

Outcome: Injuries or damage to property caused by fire

- ▶ Do not direct the exhaust gas outlet towards highly flammable or heat-sensitive parts.

7.2 Exhaust pipe

- ✓ Avoid syphons (risk of condensation accumulation).

Requirements of the exhaust line	Value
Inside diameter	0.9 in (22 mm)
Material	Non-corroding
Minimum length	1.6 ft (0.5 m)
Maximum length	16.4 ft (5 m) *
Maximum length with exhaust or / and combustion air intake silencer	8.2 ft (2.5 m) *
Smallest bend radius	2 in (50 mm)
Max. sum of all bends	270°

*: Maximum total length of combustion air intake line and exhaust pipes combined.

- ▶ Do not secure the exhaust line to heat-sensitive parts.

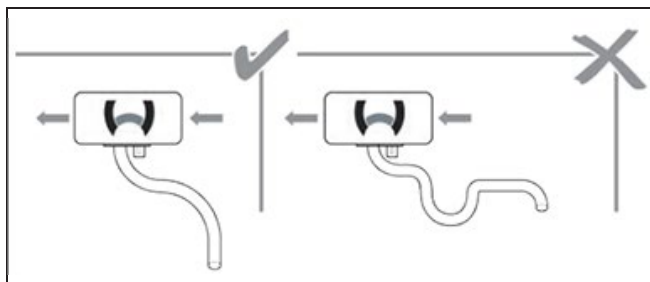


Fig. 18 Routing the exhaust line

- ▶ Install exhaust lines continually falling from heater (condensation can drain off).
- ▶ If exhaust pipes cannot be routed with a continuous downward slope:
 - Drill a condensate drain hole $\varnothing 5/64 - 5/32$ in ($\varnothing 2-4$ mm) at the lowest point of the siphon.
 - Ensure that the condensate drain hole does not point towards water- or heat-sensitive parts.
- ▶ Insulate exhaust line (use appropriate insulation) to prevent condensation.
- ▶ Maintain maximum length of exhaust line.

7.3 Exhaust silencer (recommended)

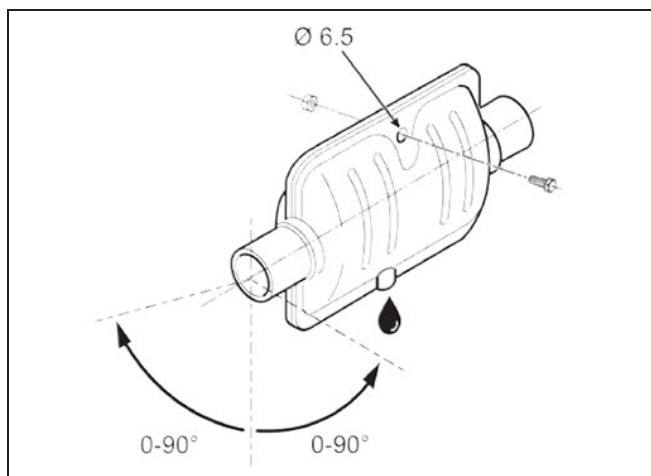


Fig. 19 Permissible installation position of exhaust silencer

- ✓ The installation location of the exhaust silencer (optional) is as close as possible to the heater.
- ✓ The exhaust silencer is not secured to heat-sensitive parts.
- ▶ Ensure the correct installation position of the exhaust silencer (horizontal, $\pm 90^\circ$). See Fig. 19.
- ▶ Maintain adequate distance from heat-sensitive parts. A heat shield can be fitted.
- ▶ Install exhaust silencer such that condensation can drain off through the condensation drain hole in the exhaust silencer.

7.4 Exhaust gas outlet

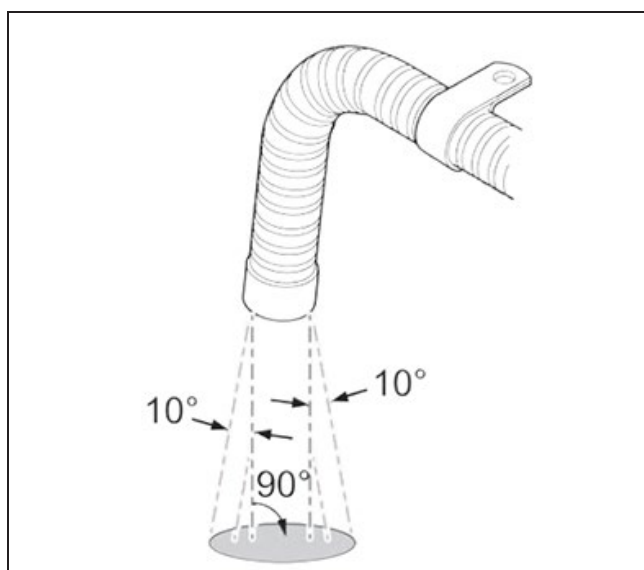


Fig. 20 Routing the exhaust gas outlet

- ✓ The exhaust gasses can flow out unhindered.
- ✓ The exhaust gas outlet must not be blocked.
- ✓ Exhaust gasses must not emerge in the direction of travel.
- ✓ The exhaust gas outlet is not too close to the ground (min. 8 in (20 cm) from ground).
- ▶ The exhaust pipe must continue for at least 3/8 in (10 mm) after passing through the underbody cover.
- ▶ Secure the exhaust line maximum 6 in (150 mm) from the exhaust gas outlet so that the exhaust gasses emerge at an angle of $90^\circ \pm 10^\circ$ to the ground.



NOTE

When positioning the exhaust gas outlet, be particularly careful in applications where readily flammable materials such as dry grass, straw, foliage or similar could be around the exhaust outlet during heating mode.

8 Electrical connection



DANGER

Danger of fire and/or overheating caused by live parts.

- ▶ The vehicle power supply must be disconnected when the heater is being installed or worked on.



DANGER

Danger of fire and/or overheating caused by live parts

- ▶ The electrical cable or wiring harness must be sufficiently dimensioned and insulated.
- ▶ All electrical circuits must be protected by fuses or automatic circuit breakers.
- ▶ The electrical cable or wiring harness must be firmly secured and routed such that the cable or wiring harness is adequately protected against mechanical and thermal stress.



Observe additional requirements from the operating and installation instructions for the Air Top Pro 25 and the control element.

Select appropriate wiring diagram (dependent on application and Webasto control element).

8.1 Information on the electrical connection

- Insulate ends of lines that are not required.

8.2 Connecting heater



NOTE

After it is switched off the heater continues running. The power supply must not be disconnected before approx. 240 seconds have elapsed.

An electrical battery disconnecter or relay can be connected in accordance with the wiring diagram.

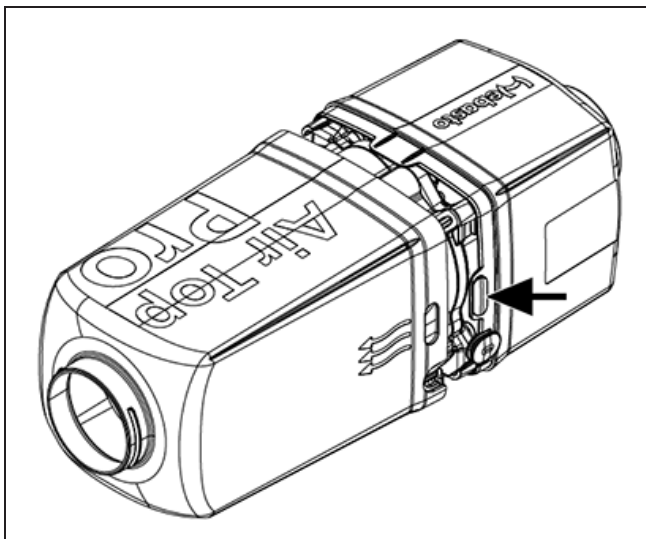


Fig. 21 Opening in the heater to change the wiring harness outlet

- Connect the vehicle wiring harness to the heater wiring harness.
- Connect the supply voltage to the vehicle electrical system.
- Install fuse holder in vehicle interior.

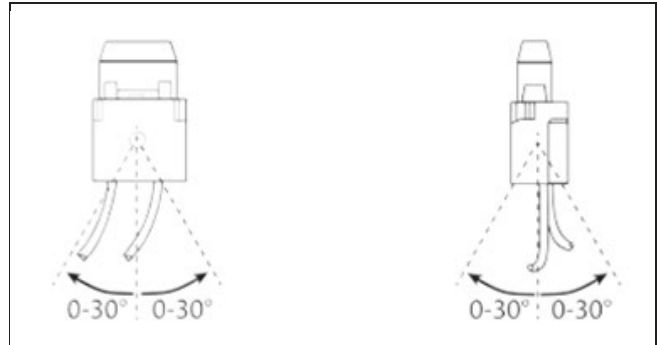


Fig. 22 Fuse installation positions

- Install a fuse (according to DIN 72581-3, F= 20) with fuse holder as a safety measure for the heater.
- Connect heater corresponding to the wiring diagram.
- Connect fuel pump cable to the heater's fuel pump.

8.3 Changing the wiring harness outlet

- Press both locking tabs and pull the fan cover off the heating unit.
- Pull the wiring harness on the grommet out of the wiring harness pass through.
- Also pull out the dummy plug on the opposite side.
- Position the heater wiring harness on the desired side. (When routing, make sure that no cables are damaged or freely moving parts are blocked).
- Insert the dummy plug on the opposite side.
- Put the fan cover back on and push over both locking tabs until it locks into place.

8.4 Connecting control element

- Carry out assembly according to the control element installation instructions.
- Connect plug to control element according to the labelling on the heater wiring harness.

8.5 Cable cross-sections and colors

 Wires or components shown with dashed lines are optional and not included in the scope of delivery or in the wiring harness.

Line length ft (m)	< 24.6 (7.5)	24.6 – 49 (7.5 – 15)
Cable cross-sections (Wiring diagram based on < 7.5 m)	20 (0.5)	18 (1.0)
AWG (mm²)	18 (1.0)	16 (1.5)
	16 (1.5)	12 (2.5)
	12 (2.5)	12 (4.0)
	12 (4.0)	10 (6.0)

Colour	Abbreviation	Colour	Abbreviation
blue	bl	orange	or
brown	br	red	rt
yellow	ge	black	sw
green	gn	violet	vi
grey	gr	white	ws

8.6 Legend to wiring diagram

Pos.	Designation	Comment
②	External room temperature sensor	optional
⑤	Grey / violet cable	- required for ADR, BTS or FB - If not used, tie back the wires.
⑥	Fuel pump connection	Alternative 1
⑦	Fuel pump connection	Alternative 2
A1	Heater	Air Top Pro 25
A2	Control unit	
B1	Temperature sensor	Internal
B2	Overheat sensor	Overheating protector
B3	Temperature sensor	External (optional)
E	Glow plug	-
F1	Fuse: 24 V = 20 A; 12 V = 20 A	Blade fuse DIN 72581-3
F2	Fuse 1A	Blade fuse DIN 72581-3
F3	Fuse 1A	Not included in the wiring harness
F4	Fuse 1A	Not included in the wiring harness
H1	Green/red LED (in pos. S1)	Power-on indicator, error code display

Pos.	Designation	Comment
H6	LED (green, blue, white, red)	Operating indicator, standby indicator, power-on indicator, error indicator
H7	Symbol in display	-
M	Motor	Combustion and heating air blower
P2	Multicontrol	
S1	Rotary switch control element (Rotary Control)	ON/OFF and target temperature
S5	Switch	Power take-off / conveyor
S6	Single or double-pole switch	Isolator switch
S7	Battery isolator switch	Electronically controlled isolator switch (max. 500 mA)
S8	Switch	Activation of Forced Boost function (Ambulance)
V1 / V2	Diode	Min. 500 mA (not included in the wiring harness)
X1-X6	Plug connection	At pos. A2
X7	2-pin plug connection	Heater power supply connector
X8	8-pin plug connection	Heater signal connection plug
X9	2-pin plug connection	Vehicle wiring harness power supply connection
X10	8-pin plug connection	Vehicle wiring harness signal connection
X11	1-pin connector (x2)	To item B3 (optional)
X12	1-pin connector (x2)	At item B3 (optional)
X13/ X16	2-pin plug connection	At item Y1
X14	4-pin connector	W-Bus, SmartControl / MultiControl or Rotary Control connection
X15	4-pin connector	At item P1, P2 or S1
X17	2-pin plug connection	Metering pump wiring harness connection
X18	4-pin connector	Diagnosis connection
X19	4-pin connector	Diagnosis loop, if the diagnosis system is not connected.
Y1	Fuel pump	
Y2	Solenoid valve / pump	Power take-off / conveyor

8.7 Pin assignments plug connection X9

No.	Description
1	Power supply - (terminal 31)
2	Power supply + (terminal 30)

8.8 Pin assignments plug connection X10

No.	Description
1	CAN Low
2	CAN High
3	External temperature sensor -
4	D+ / Forced Boost
5	WBUS / LIN
6	External temperature sensor + / LIN 12V
7	Auxiliary drive / battery isolator switch
8	Metering pump / free (depending on version)

8.9 Wiring diagrams

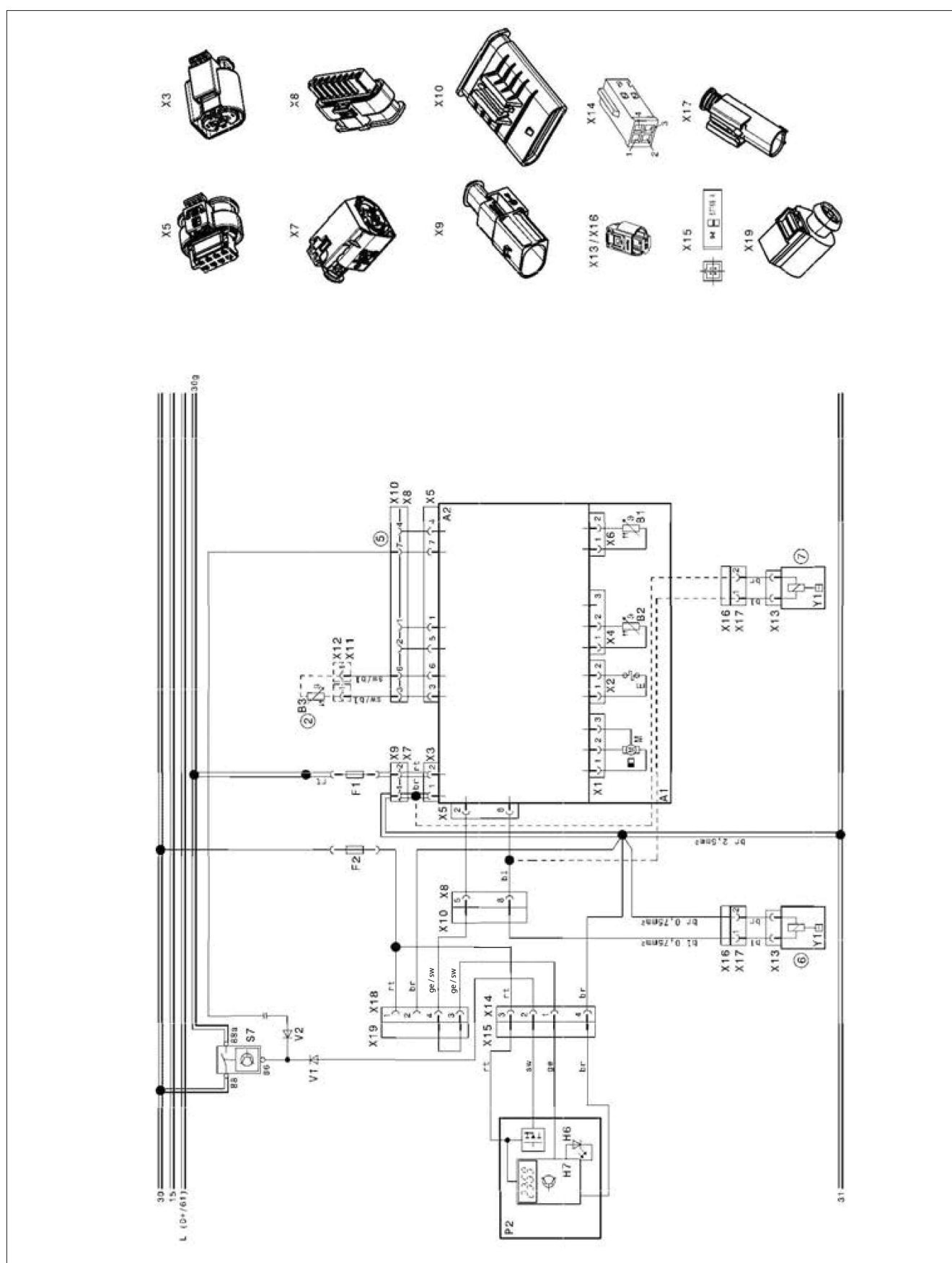


Fig. 23 MultiControl

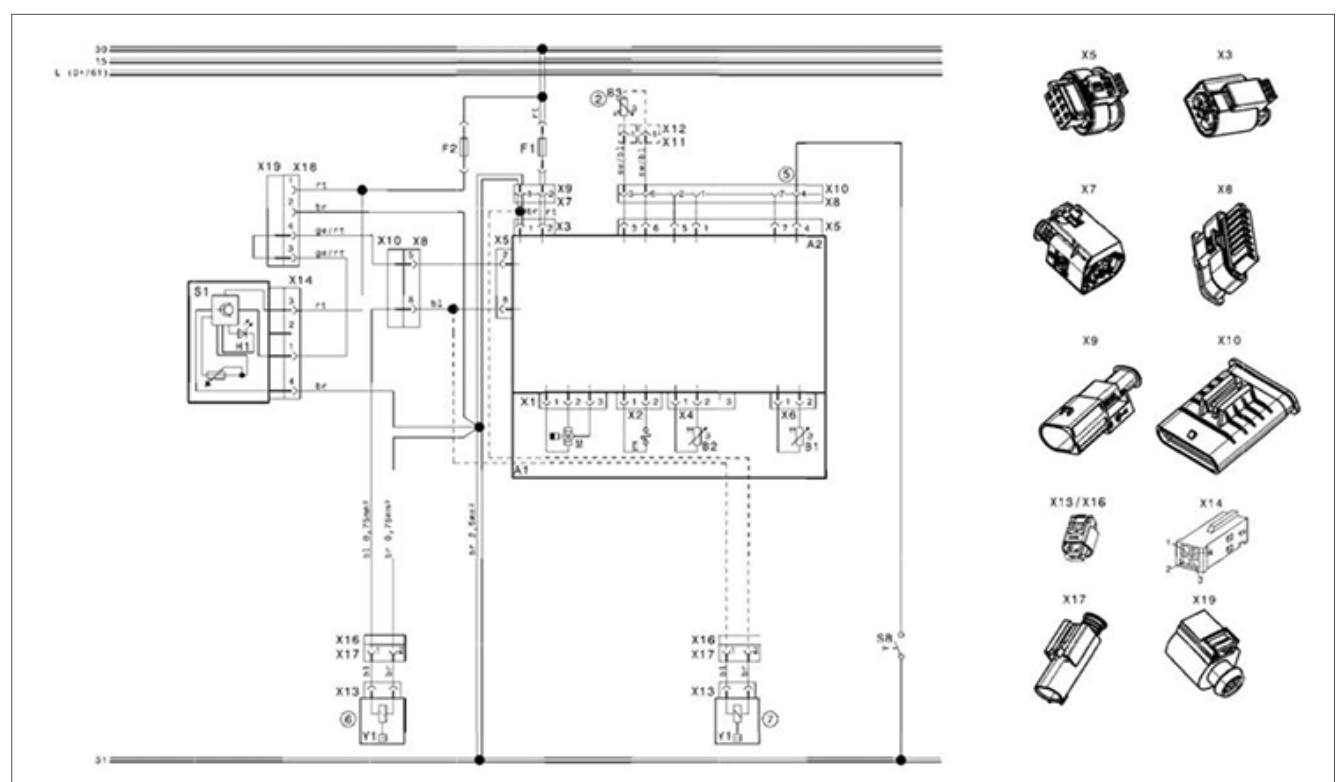


Fig. 24 Wiring diagram for rotary switch

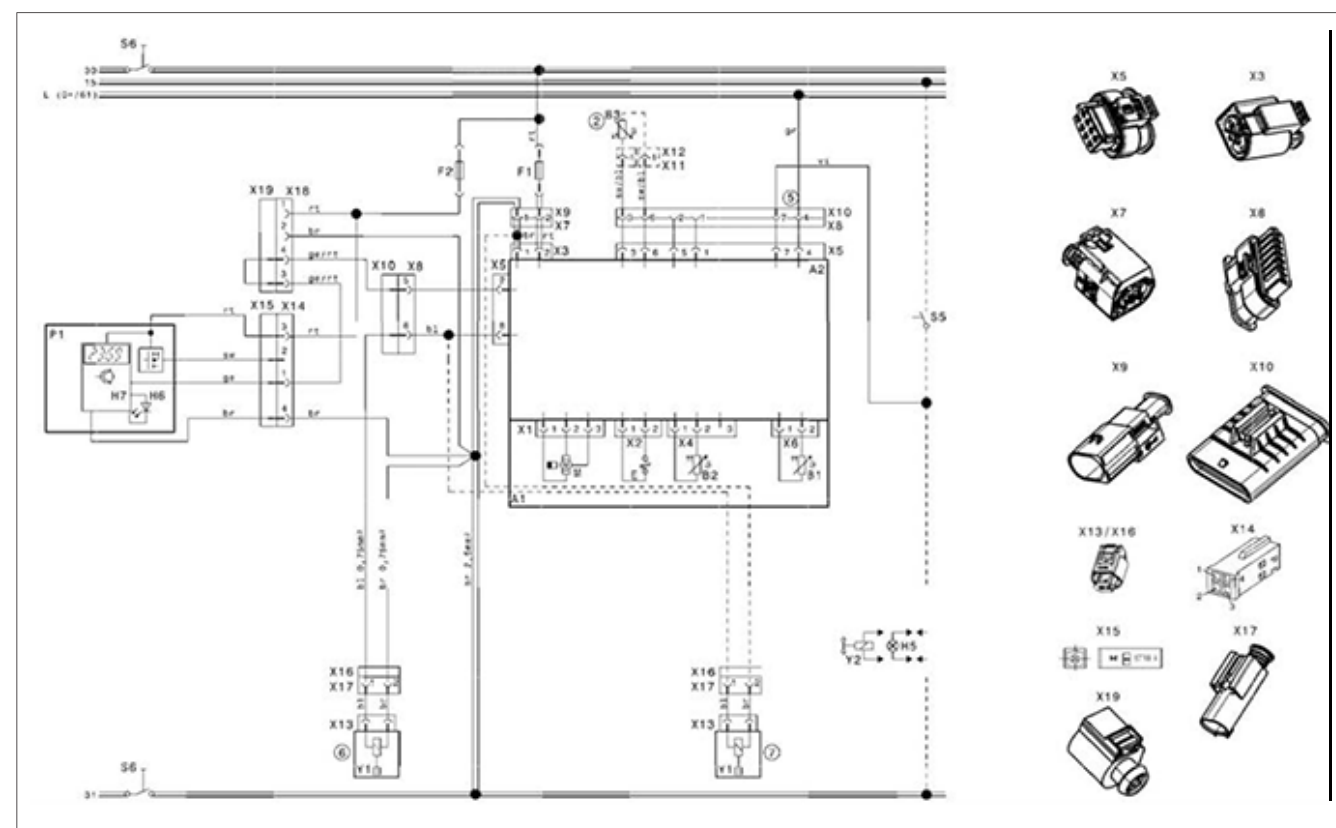


Fig. 25 SmartControl wiring diagram

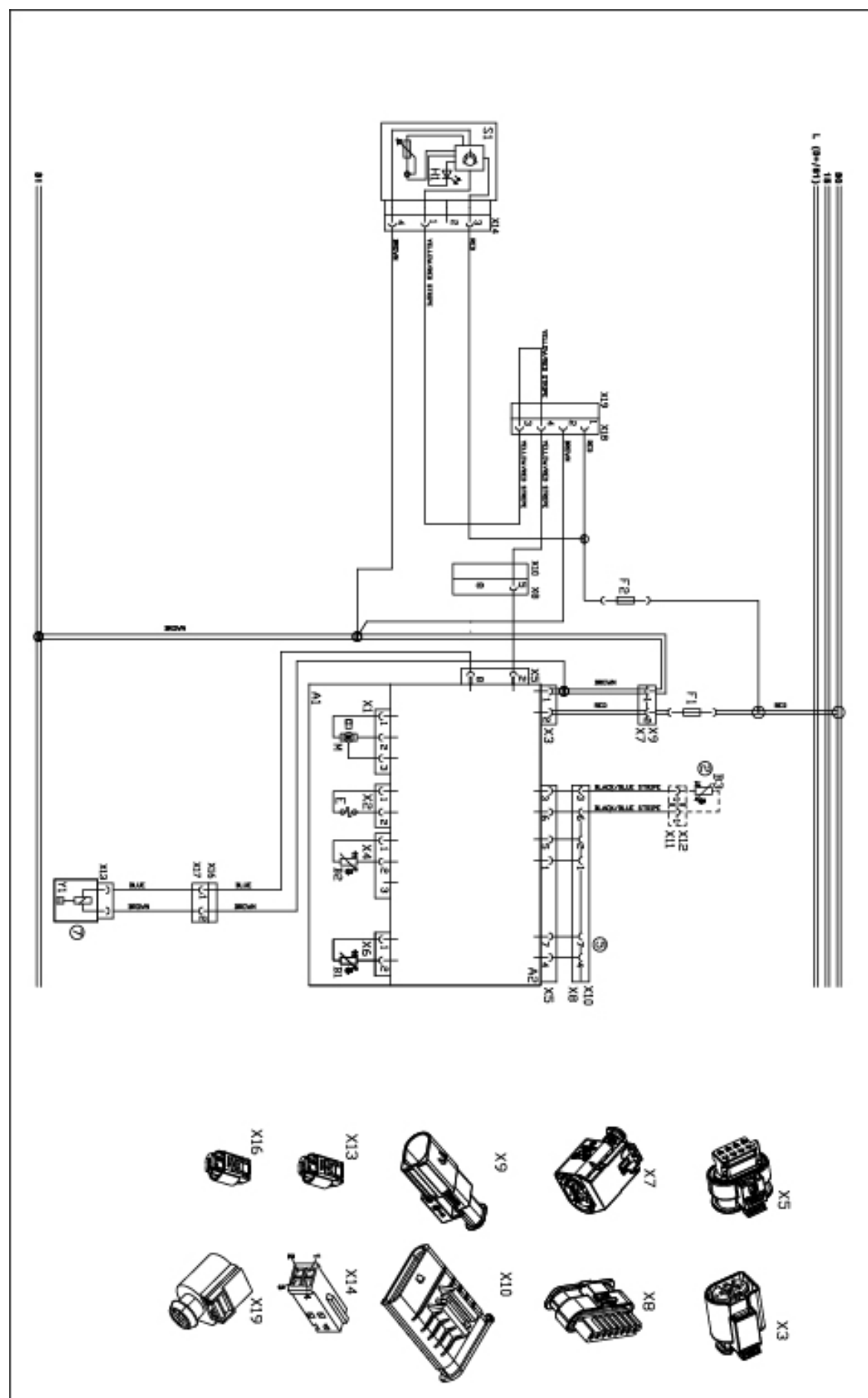


Fig. 26 Air Top Pro 25 with rheostat wiring diagram

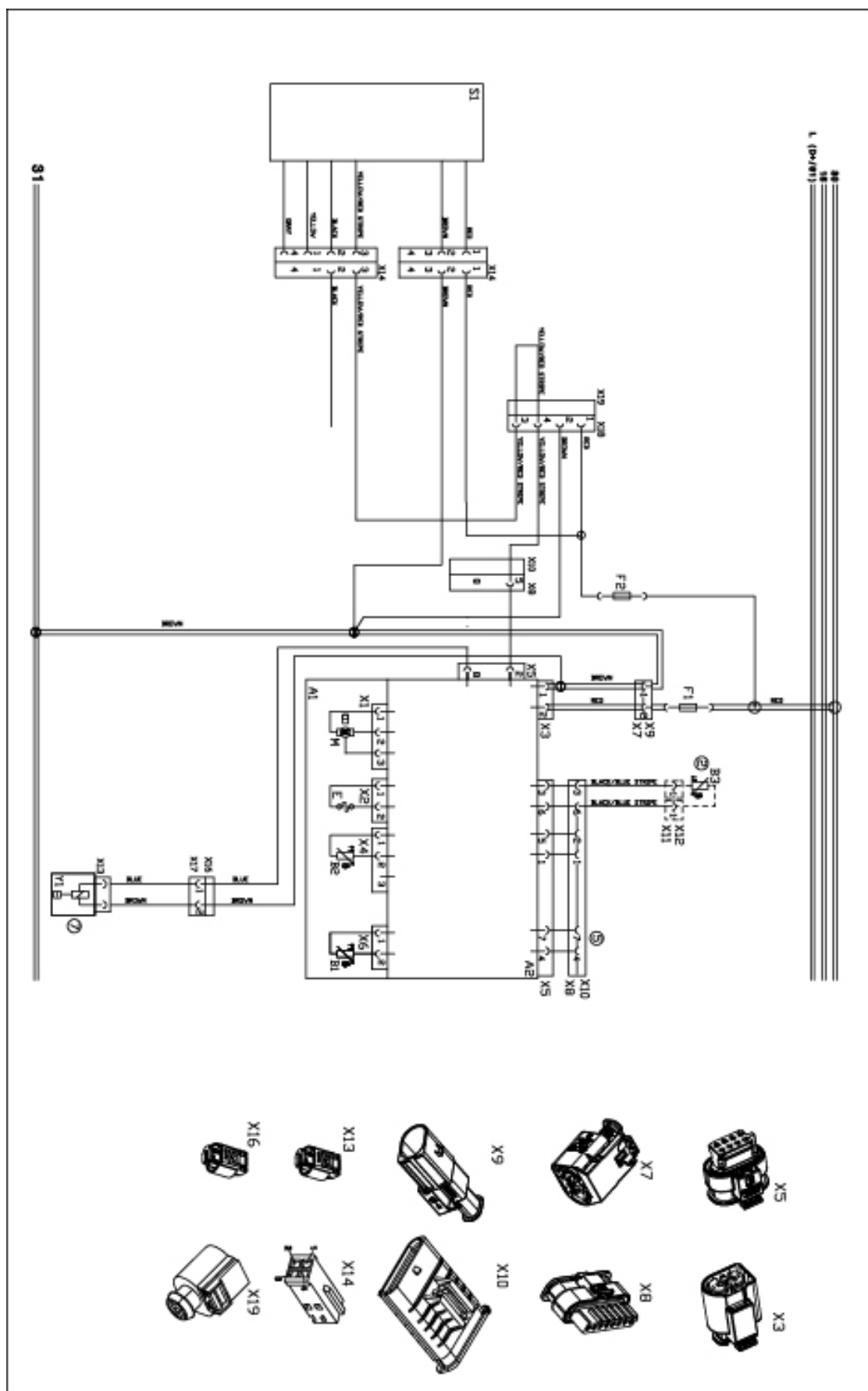


Fig. 27 Air Top Pro 25 with SmarTemp 4.0 wiring diagram

9 Initial start-up

- ✓ Heater is fully installed.
- ▶ Bleed the fuel supply system using the Webasto diagnostics.
- ▶ Switch on the heater via the control element (see control element operating instructions).

9.1 Product registration

- ▶ Register the product on the internet at:
<http://dealers.webasto.com>
- ▶ Hand over the registration document to the next owner or user of the unit.

9.2 Checking operation with Webasto diagnosis

Correct operation of the heater can be checked with the Webasto Thermo Test PC Diagnosis.

- ▶ Check heater in stable operation for approx. 15 minutes with the diagnosis monitoring function.
- ▶ Check the CO₂ value and adjust if necessary, according to the workshop manual.

10 Drilling template for heater Air Top Pro 25

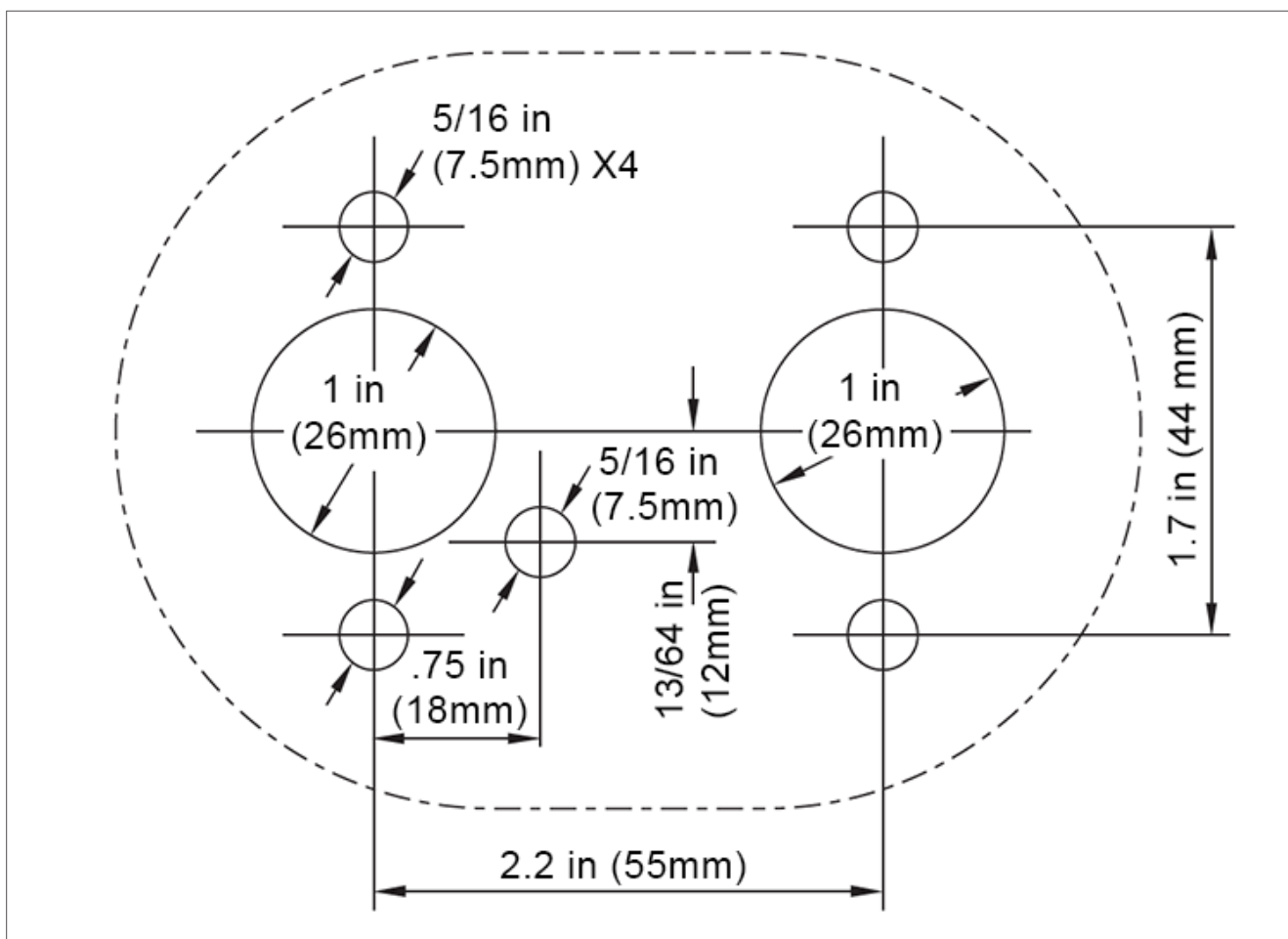


Fig. 27 Drilling template ATP 25 - NOT TO SCALE

11 Technical data

**NOTE**

The performance values (in brackets) apply for the extended heating capacity (boost function) that is activated temporarily during each start.

**NOTE**

The technical data apply under the following conditions: ambient temperature: 68°F (20°C), geodetic height: 0 m above sea level, rated voltage. The standard tolerances of ±10 % for heaters shall apply if no limits are specified.

Heater	Air Top Pro 25	
	Gasoline	Diesel
Type approval: EMC	E1 R10 - 06 9946	
Type approval: Heating	E1 R122 - 00 0662	
Design	Air heater with evaporator burner	
Boost duration [h]	6	
Fuel	Gasoline DIN EN 228, Ethanol fuel E85 DIN EN 15293 - E100 DIN EN 15376	Diesel DIN EN 590, HVO DIN EN 15940
Fuel consumption - control range g/h (L/h) [boost]	0.03 - 0.07 [0.09] (0,11 - 0,28) [0,35]	0.02 - 0.06 [0.08] (0,09 - 0,24) [0.30]
Rated voltage [V]	12	12 / 24
Operating voltage range [V]	10,5 - 16	10,5 - 16 / 20,5 - 31
Rated power consumption - control range - W (Boost) 12V / 24V	3,3 - 12.0 [20,1]	12V - 3,3 - 12 (20,1) 24V - 8,0 - 12.2 (21,2)
Heat flow over control range BTU [kW] (Boost)	2,700 - 6,800 (8,500) [0,8 - 2,0] (2,5)	2,400 - 6.800 (8,500) [0,7 - 2,0] (2,5)
Altitude capability, maximum operating altitude above sea level ft [m]	18,000 [5,500]	
Permissible ambient temperatures:		
Heater operation - °F [°C]	-40 - 104 [-40 - +40]	
Heater storage - °F [°C]	-40 - 185 [-40 - +85]	
Fuel pump operation (gasoline / diesel) °F [°C]	-40 - 68 [-40 - +20 / 30]	
Fuel pump storage (gasoline / diesel) °F [°C]	-40 - 185 [-40 - +85]	
Control unit operation °F [°C]	-40 - 167 [-40 - + 75]	
Control unit storage °F [°C]	-40 - 185 [-40 - +85]	
Permissible combustion air intake temperature °F [°C]	-40 - 68 [-40 - +20]	
Adjustment range for interior temperature F° [°C]	41 - 95 [+5 - +35]	
Maximum pressure loss of the warm air system [hPa]	1,5	
Warm air volume flow at fan speed against 0.5 hPa [m3/h] / [rpm]: Full load 2.0 kW	max. 86 / 4750	
Warm air volume flow at fan speed against 0.7 hPa [m3/h] / [rpm]: Boost 2.5 kW	max. 100 / 5450	
CO ₂ in the exhaust gas (permissible functional range) 1 kW / 2 kW [%]	5,0 - 8,0 9,0 - 12,5	
Length / height / width - in [mm]	12. 6 ± 0.1 / 4.9 ± 0.1 / 5 ± 0.1 [321 ± 2 / 125 ± 1 / 128 ± 1]	
Heater weight - lbs [kg]	6.4 [2,9]	
IP protection class: Heater	IP5K4K	
IP protection class: Fuel pump	IPX6 / IPX7 / IP6K9K	

NOTES



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