



Installation guide

Nordkapp™ Air



ECE 122R - 0056

 READ THE OPERATING INSTRUCTIONS CAREFULLY BEFORE INSTALLING AND USING THE DEVICE!

 WARNING! FAILURE TO FOLLOW THE INSTRUCTIONS MAY RESULT IN THE DANGER OF FIRE!



- When using the heater, you must follow the instructions and installation instructions in this manual.
- The diesel air heater normally works in degrees $-40\text{ }^{\circ}\text{C}$ / $+40\text{ }^{\circ}\text{C}$.
- Do not install the exhaust pipe near flammable places or vaporizing chemicals. The passage of the exhaust pipe must be made in a fire-safe way with materials suitable for it. The exhaust pipe is hot!
- The diesel heater must not be used to dry people or animals!
- The intake air of the heater should come from clean air. The intake air pipe must be kept open and not covered. In addition, if you install a filter in the heater, the filter should be cleaned at regular intervals.
- The outlet air of the heater is hot, so the outlet pipe must be placed in a protected place to avoid personal and property damage. The heater must not be used in flammable places or with vaporizing materials. Suitable places of use are not: fuel storage, wooden shed, service station, garden shed, etc.
- Only parts approved by the manufacturer should be used in the heater.
- The heater is not intended for continuous use.

- Do not use the heater with biofuels. Use only diesel fuel according to the EN590 standard, taking into account the ambient temperature


- When installing the heater on a marine vessel, ensure that it is protected from water traveling overboard. Consider the ship's maximum heel. Tilting must not cause water to flow into the exhaust duct, and water flowing over the keel or sides must not come into contact with the heater.
- When installing in the hold of the vehicle, the heater should be placed so that it is high enough and in a place that prevents the cargo from hitting the heater. In addition, it must be ensured that the cargo does not block the heater without inlet or outlet openings.
- The installation of the heater must comply with safety requirements and take into account the type of vehicle or vessel. Take into account all aspects related to the peripherals, such as the maximum permitted length of the exhaust gas duct and the air intake opening for the air needed for combustion, the location of the passage in the vessel, the placement and length of the electrical cables, the distance from the fuel tank, the placement of the warm air air ducts and the fresh air intake opening. When installing the heater, it is important to follow all precautions to minimize the risk of personal injury and equipment damage.

- Always turn off the heater when refueling the vehicle or platform.
- Do not cover the heater with clothes, cloths or other similar objects. Likewise, do not place any objects in front of the heater's air intake hose or the heated air inlet and outlet.
- During installation, ensure that the exhaust pipe does not come into contact with the air intake, fuel pipe or other flammable objects.
- A fire extinguisher must be obtained for the vehicle where the heater is installed.
- Disconnect the heater from its battery when performing repair work on the heater.
- Do not connect or disconnect the heater connectors while the heater is powered on.
- The heater must be disconnected from the battery if electric welding is performed in the vehicle or the heater is repaired.
- Electrical cables, air intake and fuel hose must be protected from contact with sharp edges of vehicle structures

START

-  During the first start-up, the exhaust pipe may emit black smoke for a while.
-  In the initial phase of using the heater, during the first hours, an unpleasant smell may occur. To remove this smell, it is recommended to use the heater for several hours at maximum power. It is important to ensure that there is sufficient ventilation in the place where the heater is installed to dissipate odors effectively.

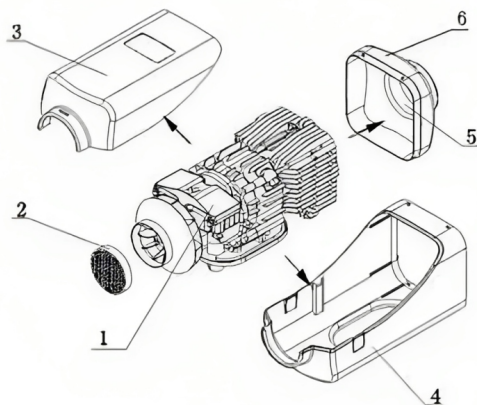
BLANKING

-  When the heater is turned off, it automatically starts the cleaning function. It is important that the heater's power connection is maintained throughout the cleaning process. Do not under any circumstances disconnect the heater from the power source during this operation. The heater turns itself off when the cleaning function is finished.

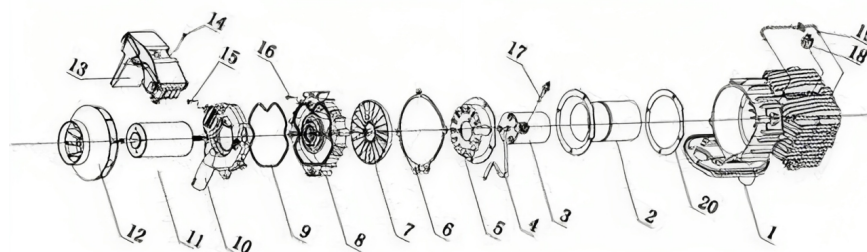
After the heater is turned off, wait 5-10 seconds before turning it back on.

NORDKAPP™ AIR HEATER INSTALLATION

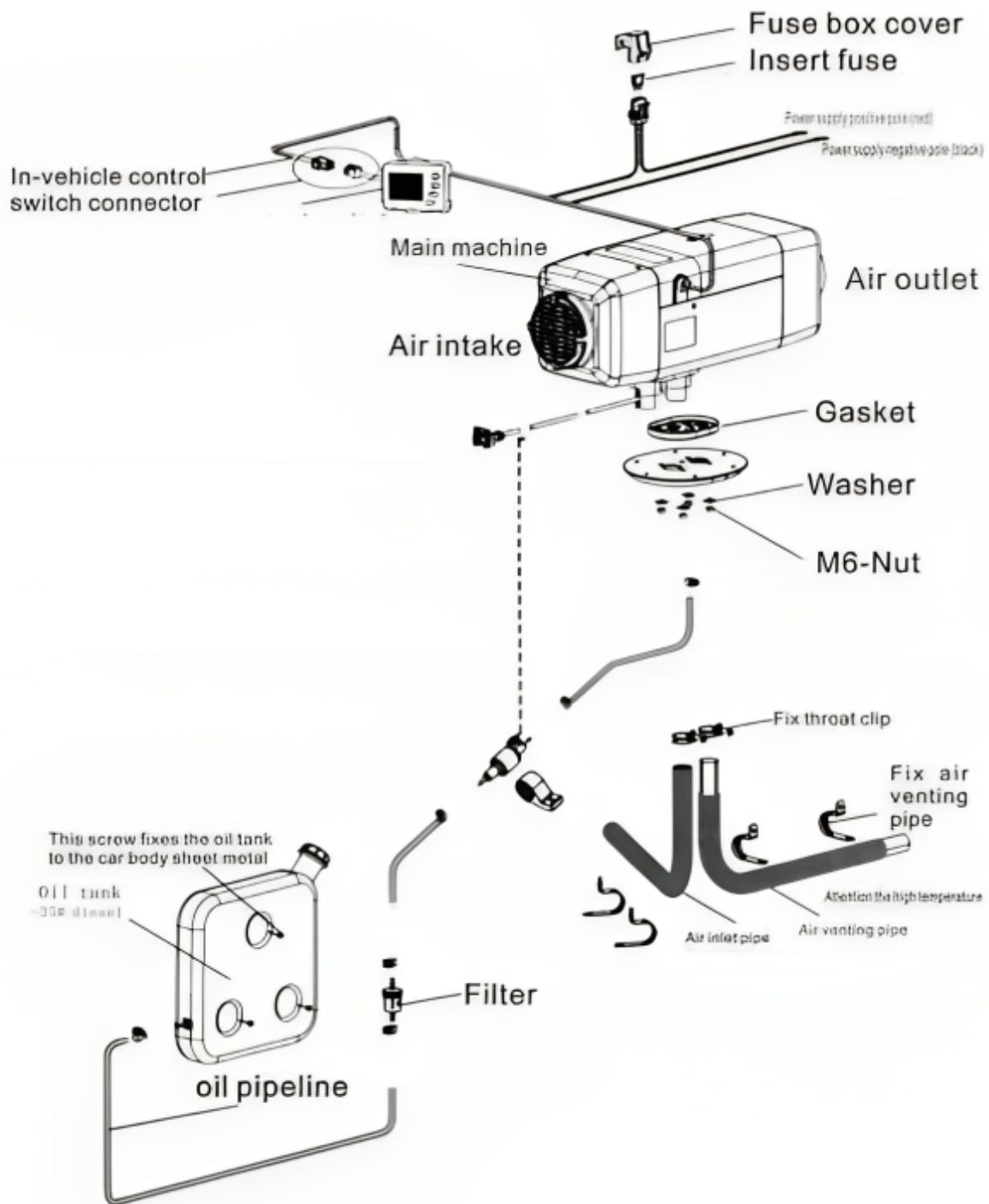
STRUCTURE



- 1. Engine
- 2. Ilmanotto
- 3. Upper protective cover
- 4. Lower protective cover
- 5. Air outlet
- 6. Rear guard cover



- 1. Exhaust pipe
- 2. Combustion chamber tube
- 3. Combustion chamber
- 4. Fuel line
- 5. Air inlet controller
- 6. Gasket
- 7. Fan blades
- 8. Fan body
- 9. Gasket
- 10. Fire pit air intake pipe
- 11. Fan motor
- 12. Hot air fan
- 13. Operation panel
- 14. Adjustment screw
- 15. Adjustment screw
- 16. Adjustment screw
- 17. Lighter
- 18. Thermal sensor
- 19. Sensor bracket



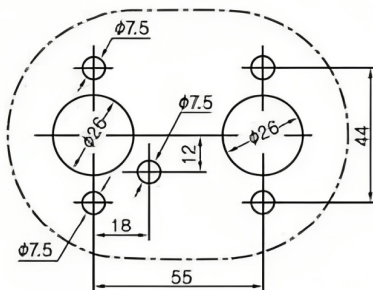
HEATER ATTACHMENT

The heater is suitable for installation inside or outside the vehicle. When installing outside, careful protection against splashing water should be taken into account for the intake air and the heater in general.

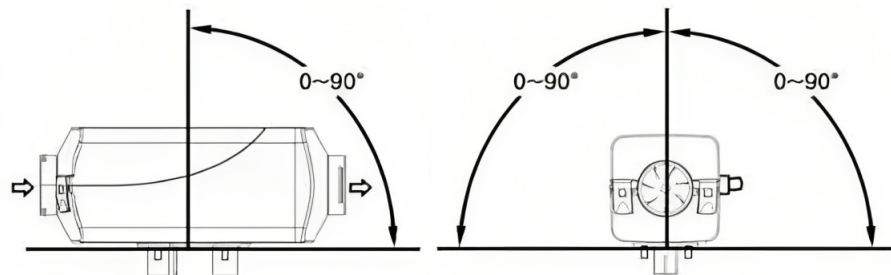


The heater comes with a seal to be installed between the heater and the mounting surface. The seal must be replaced with a new one if the heater is removed and reinstalled. The mounting surface must be flat (with a possible throw margin of 1mm).

After drilling the mounting holes, tighten the four pieces of M6 screws.



The mounting surface must be sufficiently flat, check the position of the heater in the attached picture. Also check after installation that the fan blades can rotate without obstacles.



FUEL LINE INSTALLATION

The fuel for the heater can be fed from the vehicle's tank or from a separate container.



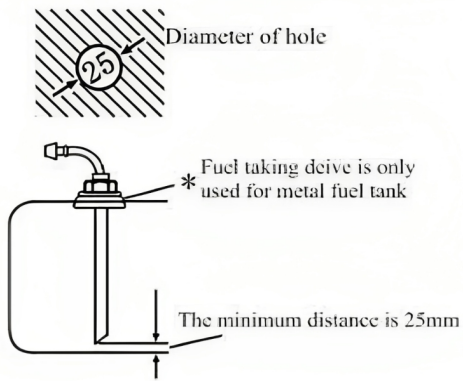
A separate tank cannot be installed in the passenger compartment

- The fuel hose should be as short as possible. The recommended maximum length of the hose is 5 meters.
- The distance between the fuel tank and the fuel pump must not exceed 1 meter.
- The distance between the fuel pump and the heater must not exceed 4 meters.

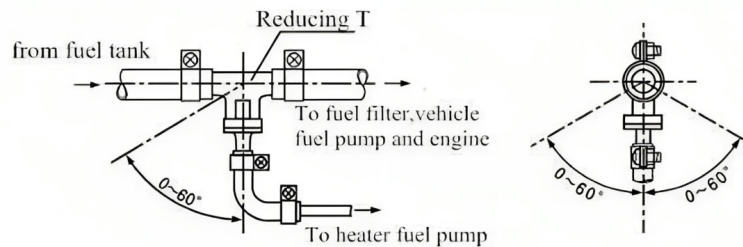
FUEL TANK INSTALLATION

Pay attention to the following details when installing the fuel tank:

- The fuel suction pipe should be about 30–40 mm from the bottom of the tank. This ensures that impurities are not absorbed from the bottom of the tank into the fuel tank.
- Install the intake pipe tightly in the fuel tank.



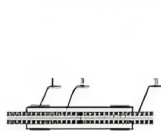
When using the vehicle's fuel tank: Connect the T-piece to the fuel line, note the installation angle. After installation, the vehicle should be started to bleed the fuel line.



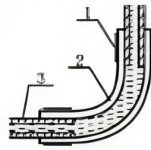
FUEL HOSE INSTALLATION

Use a suitable fuel hose for the fuel hose installation. The fuel hose must have a low flow resistance and be made of material resistant to temperature fluctuations.

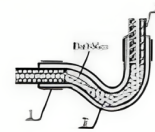
See the pictures below for the installation of the fuel pipe and hose.



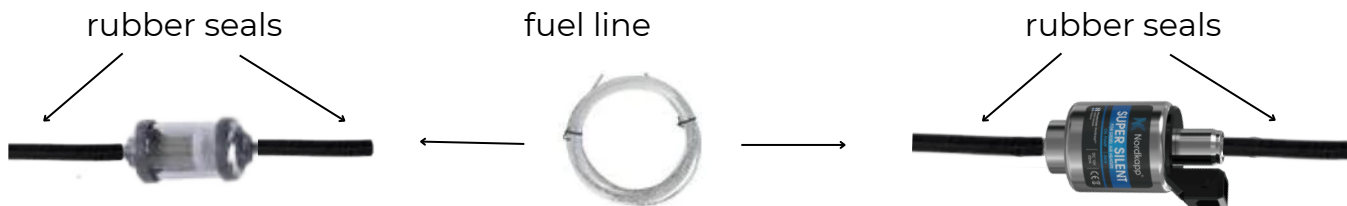
*Correctly installed
fuel line*



*Incorrectly installed fuel line with air
pockets*



- Attach the fuel lines to the fuel pump and fuel filter using the supplied black rubber seals and clamps.
- Cut the gaskets into five parts and place the gaskets on both ends of the fuel pump and fuel filter, and on the end of the suction hose attached to the fuel tank.
- Thread the fasteners around the gasket at both ends. Tighten the clamp on the ends of the fuel pump, fuel filter and intake pipe.
- Insert the fuel line into one end of the gasket as far as it will go and tighten the second clamp to hold the line in place

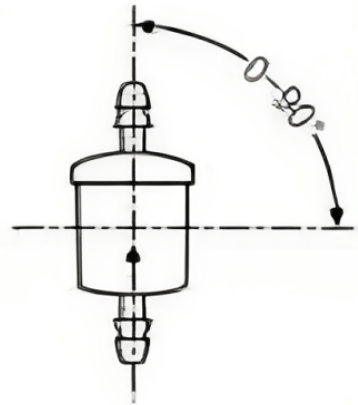
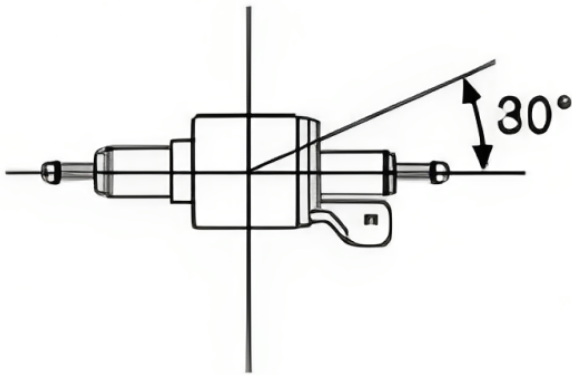


FUEL PUMP INSTALLATION

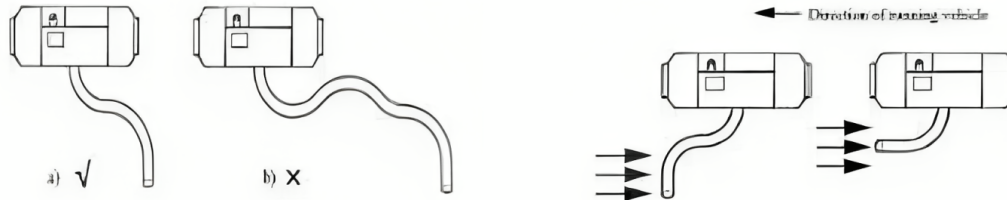
Install the fuel pump at an angle of 15°-35°. Use the bracket that comes with the installation, which dampens the vibration of the pump.

Install the fuel filter on the suction side of the pump, and check the flow directions.

Install the fuel pump only where it will not be exposed to heat.

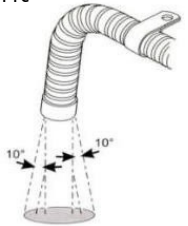


AIR INTAKE PIPE AND EXHAUST PIPE INSTALLATION



- During installation, make sure that the intake air pipe and the exhaust pipe point outwards from the heater.
- The minimum radius should be around 50mm when bending the pipe.
- If necessary, approximately 4 mm holes can be drilled in the pipe to drain the condensation water.
- Under no circumstances should water be allowed into the intake air pipe!
- The intake pipe is aluminum and the exhaust pipe is stainless steel.
- If necessary, the exhaust pipe can be protected with heat shield.
- The outlet of the exhaust pipe must face the direction of travel, the recommendation is 90 degrees to a straight road surface.

 Exhaust gases must not enter the vehicle!



Make sure there is enough space around the heater for good ventilation.

- The distance between the heater's air intake and the nearest walls or partitions must be at least 50 mm.
- The distance between the heater outlet and the nearest walls or partitions must be at least 150 mm.
- When installing the heater, carefully check that foreign objects cannot block the air intake or exhaust openings.

INSTALLATION OF AIR DUCTS

The air needed for the operation of the heating system must be taken from a clean space protected from rain, splashes, dirt, water and exhaust gases. Air intake must always take place from somewhere other than the engine compartment. Heating air can be taken either from outside (fresh air) or from indoors (recycled air).

- **Use of fresh air: In this method, air is taken from outside, heated, and led indoors. This improves ventilation in heated rooms and reduces their humidity. It is important to note the location of the air vents in the cabs and make sure that there are enough of them.**
- **Use of indoor air: In this option, indoor air is used for heating. This method enables fast heating, because the already warm air is reused. However, this option does not reduce the air humidity, and it does not change the air in the heated spaces.**

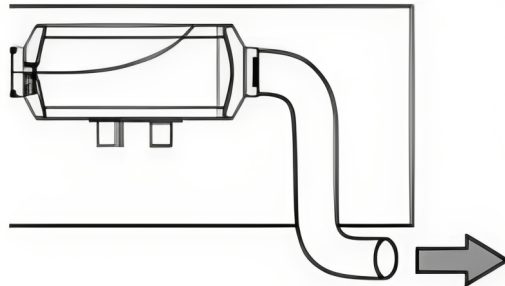
The material surrounding the hot air pipe must withstand heat up to 130 °C.



The heater is not suitable for installation in the air ducts of the vehicle!



The hot air outlet must not be covered. Hot air must not be recirculated to the heater.



Nordkapp™ air jacket kit

If necessary, you can install an air distribution kit on the heater, which you can use to distribute the heat to several different rooms.

You can find out about the air distribution packages on Nordkapp's website [here](#).
Or from dealer shops, like [here](#).



Note that each add-on reduces the overall air flow rate. When choosing the installation method of the air ducts, make sure that it does not cause a significant decrease in the flow of hot air or overheating of the heater, taking into account the distribution of air in the different ducts.

Note:

The air duct system should be as simple as possible. Complex systems can lead to heat loss.

To prevent overheating, make sure the first meter of the air pipe is as straight as possible. A 90-degree bend may not be used for the first meter.

When using two-channel air ducts, ensure that at least one duct terminates in an open air outlet.

POWER

The Nordkapp heater can be used with a battery or with a Nordkapp™ power source that can be connected to the mains.

- The heater works with a 12V and 24V battery.

Battery

- Attach a 15 amp fuse to the positive wire going to the battery.
- Attach the red wire to the plus pole of the battery and the black to the minus pole.

Power supply for 220-230V mains current

You can find out about the 230V power source on Nordkapp's website [here](#).
or from retailer stores such as [here](#).



Before using the mains transformer, check its wires and connections carefully. If you notice damage to the wires, use of the transformer is strictly prohibited.



Do not handle the transformer in freezing conditions! A wire stiffened by frost can be damaged when handling it.


MAINTENANCE


 **Attention! Failure to follow these instructions will void the warranty.**

To ensure proper functioning of the heater, check it regularly, at least once a year. Before starting the inspection, turn off the heater and let it and all its parts cool down completely:


- Check the electrical plugs for corrosion when the battery is disconnected
- Check the tightness of the fuel lines
- Check the exhaust system for sealing and possible corrosion
- Make sure the air intake pipes and air ducts are clean
- Check the air ducts for possible damage

 **Turn on the heater at full power once a month for 20 minutes, even during warm seasons when it is not in use. This is necessary to remove any sticky deposits on the moving parts of the fuel pump. Failure to do so may result in premature failure of the heater.**

 If a separate fuel tank is used, change the fuel in the system at least once a year. Check the fuel tank before starting the heating season. If fuel has been stored in the tank for a long time, for example since the previous heating season, empty the tank. Flush the tank with gasoline or kerosene and fill it with new diesel fuel. This removes any deposits that may have formed during long-term storage. Failure to do so may result in a clogged or damaged fuel pump and increased soot in the combustion chamber.

 If the vehicle will be parked or stored for a long time, disconnect the heater from the power source (battery) to prevent battery discharge.

 **WARNING! FAILURE TO FOLLOW THE INSTRUCTIONS MAY RESULT IN THE DANGER OF FIRE!**

 Remember to turn off the heater when adding fuel!

If you detect a leak in the fuel system, it should be serviced immediately.

If necessary, contact a professional who will assist with maintenance procedures.

When the heater is in operation, use the power switch to turn it off, it is not necessary to turn off the power.

 The heater is not intended for continuous use.

Manufacturer

 **Nordkapp**[®]

Arctic Spot Oy Ltd.
Palokuja 10
04250 Kerava
Finland



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