



Textbook VNA truck and order picker

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Textbook

VNA truck and order picker



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Working Conditions Act

1.1

Introduction

All employees are affected by working conditions, regardless of what work they do. Working conditions is an umbrella term for all matters related to health, safety and wellbeing at work. All measures taken to promote safety, health and wellbeing are based first and foremost on the Working Conditions Act.

1.2

Structure of Working Conditions legislation

The Working Conditions Act is a framework and does not stipulate any specific rules. Rather, it contains a general description of duties and obligations relating to safety, health and wellbeing at work. The Working Conditions decree sets out the rules about the most common workplace risks in greater detail.

The Working Conditions Regulations contain even more detailed regulations on subjects such as the reporting of accidents, occupational diseases and occupational health and safety services.

The core principle behind the Working Conditions act is that employees and employers share responsibility for working conditions.

1.3

Occupational health and safety data sheets (AI sheets)

These so-called 'authoritative publications' are intended to flesh out the Act, but they do not belong to the Act proper, unless they are referred to explicitly in the Act.

Examples include:

- AI - 1 Occupational health and safety and absenteeism policy;
- AI - 11 Shielding and protecting machines;
- AI - 14 Business premises - layout, transport and storage;
- AI - 17 Hoisting and lifting equipment and safe hoisting.



1.4

Occupational Health and Safety service

Companies are no longer obliged to register with an Occupational Health & Safety (OHS) service, although it is still mandatory to seek expert support and advice, where necessary. This role can be played by an internal or external competent OHS expert.

This amendment to the Working Conditions Act is intended to give branches and companies more freedom of choice in the area of working conditions and absenteeism prevention. In order to guarantee the availability of absenteeism counselling and to give employees the opportunity to visit an OHS consultation hour, suitable arrangements must be made or a contract must be concluded with a registered occupational health physician.



Nederlandse Arbeidsinspectie
Ministerie van Sociale Zaken en
Werkgelegenheid

1.5

Dutch Labour Inspectorate

The Dutch Labour Inspectorate falls under the purview of the Minister of Social Affairs and Employment and it informs, monitors, inspects and, if necessary, obliges employers and employees to improve their arrangements for health and safety. If an employee or employer violates the regulations, the Dutch Labour Inspectorate is authorised to impose a fine. In addition, the Dutch Labour Inspectorate stimulates consultation and coordination between employees and employers. The Dutch Labour Inspectorate investigates the causes of accidents and advises the Minister on additional laws and/or policy regulations.

Dutch Labour Inspectors have the authority to impose an administrative fine if they establish that the Working Conditions Act has been violated. The Ministry of Social Affairs and Employment publishes an annual list of all violations and the associated fines, as part of what its immediate-response policy (Dutch: Lik-op-stuk-beleid), which has been in place since 1 November 1999.

1.6

Rights and obligations

Employers must take measures to optimise their employees' safety, health and wellbeing and align this policy with all other policies in effect within the company.

1.6.1

For employers

Despite the fact that the Working Conditions Act is a list of general requirements, several clear obligations for employers arise from it:

- Employers must establish good working methods (through work instructions) and provide Personal Protective Equipment (PPE);
- Employers must ensure the workplace features escape routes and first-aid equipment;
- Employers must provide workers with adequate information on and training for the work they have to do;
- Priority must be given to new employees and the employees who are most at risk;
- Employers and employees must have regular meetings;
- Employers must, as far as possible, avoid giving employees monotonous, machine-based work (e.g. assembly line work);
- Employees must give employees the opportunity to maintain or improve their skills.
- Employers must adapt the situation at work (e.g. workplace layout or working methods) to their employees as much as possible;
- Employers must give employees as much freedom as possible in deciding how to do their work;
- Employers must take into account the personal characteristics of employees, such as age, education, experience and their physical and mental condition.
In short: they have to make sure the right person is in the right position;
- Employers are obliged to describe their OHS policy and all risks present in their company in an RI&E. In addition, employers are obliged to describe all situations that do not meet the requirements set in the Act in an Action Plan;
- Depending on the nature of their company, employers must be assisted by one or more qualified Emergency Response Officers (EROs);
- Employers must have an absenteeism policy.

1.6.2

For employees

The Working Conditions Act also imposes various obligations on employees. Employees also have various general obligations, such as:

- Employees must carry out the work in such a way that they do not endanger themselves or others;
- Employees must be familiar with procedures and instructions and act accordingly;
- Employees must use machines, equipment and the safety devices attached to them correctly;
- Employees are obliged to use personal protective equipment (such as a safety helmet, gloves, shoes and goggles) and to maintain it properly;
- Employees must participate in organised instruction and information sessions provided by the employer;
- Employees must report dangerous situations to the person in charge.

1.7

CE - marking

On 1 July 1995, the European Union introduced a law to ensure that machines can be used safely. This law, the so-called Machinery Directive, lists a range of criteria that new products must meet. If a new product meets the requirements set out in this Machinery Directive, the manufacturer can affix CE marking to its product and issue a corresponding EC declaration of conformity. CE stands for Conformité Européenne. It is up to manufacturers to establish that the technical solutions they have developed meets the minimum requirements set out in the Machinery Directive. Products that pose serious risks, such as terminal trucks, require an official inspection report issued by an accredited inspection company.



1.8

Risk Inventory & Evaluation (RI&E)

The rules specified in the Occupational Health & Safety Act are intended to ensure that employees can work safely and healthily in a pleasant atmosphere. All companies must draw up an Occupational Health & Safety (OHS) policy, indicating their arrangements for occupational health and safety and specifying whether they are willing to make funds available for this purpose. Working safely is often difficult in practice.

There is always a chance that something will go wrong, and that is what we call risk. The definition of risk is as follows:

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Risk is the degree of probability that a certain undesirable effect will occur.

In summary: Risk = Opportunity x Effect.

The law requires employers to carry out a risk analysis, the so-called RI&E, with the assistance of one or more expert employees. If an employer does not have any or enough of these employees, external experts must be hired for this purpose. This written analysis focuses on two main points:



- The degree of probability (the chance) that an accident will or could occur.
- The consequences of the accident, should it occur, in the short and/or long term.

During the risk analysis, the expert investigators identify the risks in the workplace and assess them on the following points:

- *Nature of the work;*
Office workers run different risks than transport workers.
- *Training;*
Employees without the right training are at greater risk than those with the right training.
- *Workplace;*
Employees must not be able to stumble or slip easily.
- *Well-being;*
Employees must be able to enjoy their work.

You have to know the risks before you can do something about them and reduce or even eliminate the risk of an accident. When an unacceptable risk is identified, employers must take measures, such as the following:

- Stop the work and provide instructions: in some cases, employees may be unaware that they are doing something wrong.
- Modifying the unsafe workplace;
- Training employees;
Providing proper instructions reduces the likelihood that an accident will happen.

Thereby reducing risk. Reducing risk is in the employer's and the employee's best interest, which is why the RI&E and the associated Action Plan must be known to the employees concerned.

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NOTE

The Action Plan indicates what will be done to address any remaining problems and when this will happen.

Every year, a written evaluation must show whether the current workplace situation still corresponds to the RI&E and Action Plan. Because the RI&E is the source document for the OHS policy, it must be assessed by certified experts. Employees are permitted to do so themselves

provided they have certified experts or an internal OHS service at their disposal. In other situations, they must call in external certified experts.

As of 1 April 2012, employees with a maximum of 25 employees need not have their RI&E document inspected, provided that they use a recognised RI&E instrument.

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NOTE

Remember that there is a lot you can do to prevent accidents yourself. A good approach starts with assessing the risks that go along with your work.

Truck types & lifting equipment technology

2.1

Introduction

In this chapter, we will discuss the technical aspects of various VNA trucks and order pickers. This information will help you assess what certain types of VNA trucks and order pickers can and cannot do in practice. Attention is also paid to how cargo can affect stability, as instability often leads to serious accidents.

2.2

Types of order pickers



Order picker (low-lift)

This piece of equipment can be used to drive past racks to pick orders at lower levels. Order pickers are not suitable for placing pallets in or removing them from racks.



Order picker (high-lift)

A distinctive feature of high-lift order pickers is that they feature a cabin for the operator that moves up and down. This makes it possible to manually pick orders from racks at higher levels. Like its low-level cousin, high-level order pickers are also unsuitable for placing pallets in or removing pallets from racking.



VNA truck (man-down)

The defining feature of man-down VNA trucks is that the operator is not raised along with the forks. These trucks are used in warehouses with narrow aisles and high racks. Turret trucks can reach heights up to about 12.8 metres. To remove or insert a pallet from the racking, the fork carriage can be rotated 180°, both to the left and to the right. The fork should never be rotated when in the racking.





VNA truck (man-up)

The defining feature of man-up VNA trucks is that the operator is raised along with the forks. These trucks are used in warehouses with narrow aisles and high racks. Turret trucks can reach heights up to about 18 metres. To remove or insert a pallet from the racking, the fork carriage can be rotated 180°, both to the left and to the right. The fork should never be rotated when in the racking.

2.2.1

Instrument panel

VNA trucks or order pickers are equipped with an instrument panel that provides information about the technical condition of the vehicle, with instruments such as an hour meter and capacity gauge. The instrument panel also provides other information, such as direction of travel, speed, height and a rail guidance indicator. We will discuss this in more detail later in this textbook.



2.2.2

Solid tyres

VNA trucks and order pickers are equipped with solid tyres, which are easy to use on the flat floors you will usually find in warehouses. These tyres have a high load-bearing capacity and great longevity, and they are sometimes used on larger, heavier forklifts.

- load capacity; (stability)
- driving comfort; (indoor)
- rolling resistance; (floor)
- grip; (indoor)
- suspension; (floor)

All VNA trucks and order pickers are equipped with solid tyres, but the properties of these solid tyres may differ. Solid tyres can have the following properties:

- Soft
- Hard
- Anti-static

Solid tyres

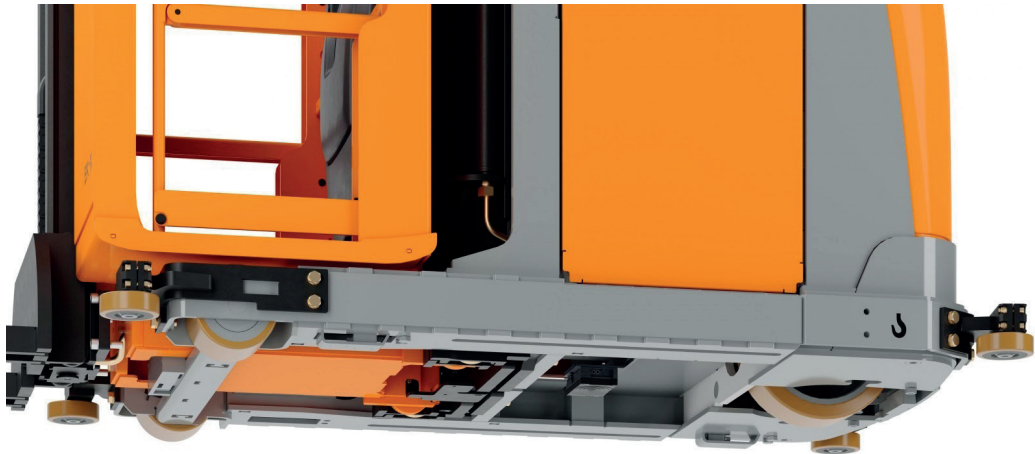
VNA trucks and order pickers are equipped with solid tyres, which are easy to use on the flat floors you will usually find in warehouses. These tyres have a high load-bearing capacity and great longevity, and they are sometimes used on larger, heavier forklifts.

Advantages:

- Stable;
- No maintenance.
- Low overall height;
- No punctures

Disadvantages:

- No suspension
- High pressure on the floor



2.2.3

Protective roof

To protect the driver from falling objects, VNA trucks and order pickers have a roof. On high-lift VNA trucks and order pickers, they are even mandatory. In many cases, the roof also features mirrors and lights. When working with a VNA truck or order picker, using the cabin lighting may make work more comfortable. Seeing as aisles are often narrow and can therefore be dark, it is best to use this additional lighting. Most, but not all, VNA trucks and order pickers are also equipped with mirrors. Make sure to adjust these mirrors properly, considering your own preferences and the work at hand. With these mirrors, you can keep a closer eye on your surroundings.



2.2.4

Mast

The mast of a VNA truck or order picker consists of two or more mast sections. These masts are articulated, which means they will extend gradually to reach higher levels, as a hydraulic cylinder pushes the various sections of the mast up. Depending on the desired lift height, masts come in the following types:

- duplex mast with 1 fixed section and 1 extendable section
- triplex mast with 1 fixed section and 2 extendable sections

The advantage of a triplex mast is a higher max. lift height at a low overall height. However, visibility to the front is often limited by the middle lifting cylinder and stability decreases as the mast is extended. To improve the operator's forward visibility, the middle lift cylinder can be replaced by two cylinders placed side by side, allowing for better forward visibility. We call this a "see-through mast"



CAUTION

The stability of material-handling equipment decreases as the mast is extended.

2.2.5

Fork carriage and lifting chain

As standard, VNA trucks and order pickers are equipped with a fork carriage with two forks. This fork carriage is moved up and down the mast by a mechanism consisting of rollers, the lifting chain and the lifting cylinder. This is slightly different for VNA trucks, which are always fitted with a rotating fork carriage to enable the operator to remove cargo from racking on both sides of the truck.



2.3

Brakes

2.3.1

Service brake

All VNA trucks and order pickers are equipped with an electronic service brake, which is activated when the operator releases the accelerator pedal or direction switch.

2.3.2

Parking brake

All material-handling equipment must be equipped with a parking brake that is operated mechanically or electronically.

2.4

Steering system

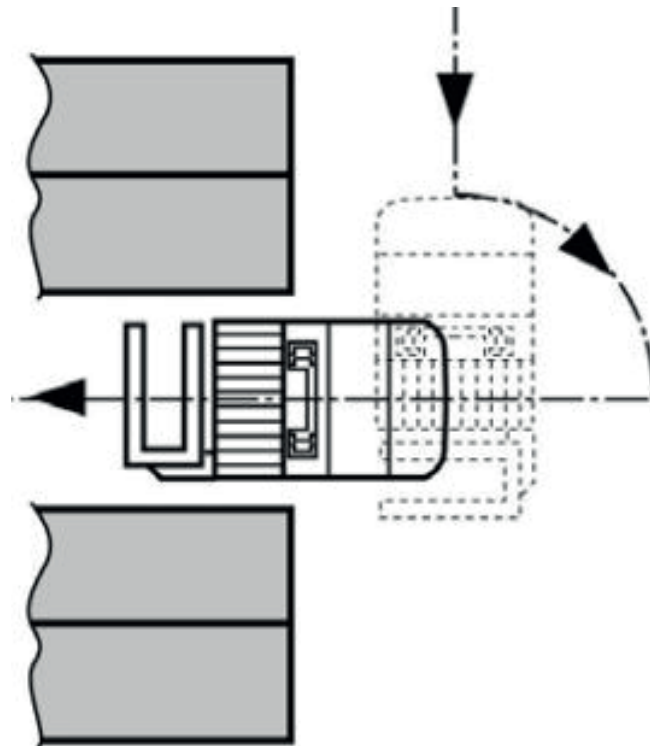
VNA trucks and order pickers are controlled with a steering wheel. All modern VNA trucks and order pickers are equipped with an electronic steering system.

In order to prevent damage to the steering system and reduce wear & tear on the tyres, it is important to move the steering wheel as little as possible when the vehicle is stationary. The display in the cabin will tell you (either visually or audibly) whether the steering wheel is enabled. If this is not the case, stop the vehicle. We will discuss this in more detail later in this textbook.

2.4.1

Manoeuvring

When putting VNA trucks or order pickers on rails, it is important that you have sufficient space to manoeuvre in front of or behind the racking (the aisle). See image below. When putting VNA trucks or order pickers on rails, you will have a fairly large turning circle. Pay close attention to your surroundings when performing this manoeuvre.



2.5

The lifting mechanism

The main feature of a VNA truck or order picker is the lifting system. This hydraulic mechanism is used for the following functions:

- Lifting the mast;
- Rotating the fork carriage (on VNA trucks only)
- Power steering;
- Lifting the fork carriage

2.5.1

Pressure relief valve or overflow valve

When picking up too heavy a load or upon reaching maximum extension, overpressure occurs in the lifting mechanism, which means the pressure in the pipelines and cylinders is too high. The hydraulic system usually features a pressure relief valve for protection. In case of overpressure, this valve will allow oil to flow back to the tank, while ensuring the pressure in the cylinders remains the same.

2.5.2

Lowering safety valve (limiter)

If the pressure in the lifting mechanism is lost due to a broken pipe or hose, the lowering safety valve causes the forks (with or without load) to descend slowly and gradually. Without this limiter, the load would fall down at a high speed.

2.5.3

Emergency lowering system

Because man-up VNA trucks and order pickers raise the operator as well, these vehicles are equipped with an additional safety feature; the emergency lowering system. This system is located on the steering wheel side of the vehicle and can be operated with a special key or electrically. With this system, the operator can be lowered in a controlled manner if the machine malfunctions when extended, provided the forks are not in the rack.

2.5.4

Emergency escape procedure - hydraulic system

If the truck's controls fail, the vehicle can be deactivated by following the so-called emergency escape procedure. This procedure will differ per truck make and model. Always consult the user manual of your vehicle for the correct procedure. Below is an example of an emergency escape procedure for an order picker. The emergency escape procedure for VNA trucks is different and will be discussed later on.

Example of an emergency escape procedure:

- Turn the two screws on the cover counterclockwise and remove them.
- Holding the cover by the vents, lift the cover and set it aside.
- The safety lowering valve is located in the control compartment and can only be used after removing the cover.
- Turn the wing screw (1) on the valve block counterclockwise.
- The emergency lowering procedure will now begin.
- Unscrew ONLY screw (1) on the valve block. Never adjust any other screws or valves!

2.5.5

VNA Truck Escape Procedure - Abseiling

If the truck's controls fail, the vehicle can be deactivated by following the so-called emergency escape procedure. We covered this emergency escape procedure in the previous section. When working with a VNA truck, there is a chance that the fork carriage may still be extended when the controls fail. In this case, you will not be able to resort to the escape procedure described above, as the emergency lowering function will not work. That is why man-up VNA trucks have a secondary escape procedure: abseiling.

Emergency Abseiling System

i

Note:

VNA trucks only need a secondary escape procedure if the operator cabin can be raised more than 3000 mm above the floor.

i

Note:

There are two versions. As standard, every truck comes with a full-body harness for people up to 2m tall. Larger versions of the full-body harness should be ordered separately from the truck supplier.



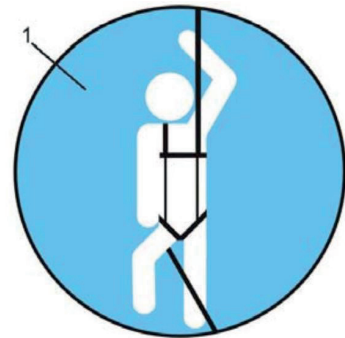
CAUTION

Make sure that the appropriate harness is present at all times.

The storage place for the emergency abseiling system is always marked with sticker (1)

How to use the emergency abseiling system

The emergency abseiling system can be found in the operator cabin and must be ready to use. The full-body harness, abseiling device and rope are packaged in a sealed bag. The top of the system is fitted with a carabiner. This carabiner must be hooked into the designated eyelet in the operator cab. The bag itself must always be sealed with a plastic or lead seal. The original system should never be used for drills, as this may expose the system to wear & tear or damage. What's more, the system will no longer be sealed, which means it should no longer be used.



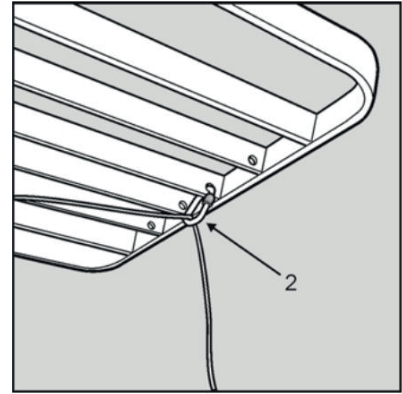
Instructions

You will find the instructions for using the system in the sealed bag. Follow the user manual carefully and ensure the user manual accompanies the vehicle at all times.



Rope deflection point

To bring the person escaping the vehicle in a favourable position, it is usually possible to fasten the rope to the overhead guard with a second carabiner, which is usually attached to the chest section of the full-body harness. To descend safely, remove this carabiner from the harness and fasten it to the designated bracket on the overhead guard (2).



Period of use

The maximum permitted lifespan of the abseiling system is 8 years, as this guarantees optimum storage conditions. After the final seal has been used and the inspection period has expired, the entire abseiling system must be replaced.

Two-person cabin

VNA trucks or order pickers with a two-person cabin must also feature two abseiling systems. Again, it is important to only use descent points approved by the manufacturer.

Different Operators

When different operators use the same VNA trucks or order pickers, e.g. when working in shifts, it may be wise to make multiple preset abseiling systems available. This is especially important if the operators in question differ considerably in terms of height or weight.

Hazard Risks!

- Before using a VNA truck, the operator must receive instructions on how to use the abseiling from a qualified person.
- You must always read and follow the user manual included in the bag used for the abseiling system.
- Before each use, the operator must check whether the abseiling system is in perfect working order.
- Before each use, check that the safety harness is in the starting position. To do this, the free rope length between the anchor point and the overhead guard and the chest opening of the full body harness must be set correctly. It is important that there is a small, slack length of rope between the anchor point and the chest of the harness.
- By making more holes in the front of the overhead guard, an extra deflection point can be created for the rope, which may make abseiling easier. The extra carabiner should then be attached to this deflection point and the rope should be guided through it. Make sure the carabiner is always closed.
- Abseiling escape drills are permitted only under expert supervision.
- The vehicle's user manual recommends performing an abseiling escape drill at least once a year. In Germany, this is even mandatory.
- Absolutely no modifications should be made to the abseil system (Emergency Lowering System).
- Only abseiling systems that meet appropriate standards may be used.
- The Emergency Lowering System may only be used for its intended purpose and in the way it was intended to be used, i.e for rescuing a person from the cabin of a high-lift truck.
- After an abseiling escape drill, a competent person must check the system and package, seal and store it appropriately.
- After the maximum permitted lifespan of the abseiling system has expired, it must be disposed of and replaced with a new abseiling system.

2.6

Key concepts

When it comes to VNA trucks and order pickers, there are five different heights to know:

- Lowered fork height
- Clearance height
- Lift height
- Free lift height
- Reach height

2.6.1

Lowered fork height

The lowered fork height is the distance from the floor to the highest point of the VNA truck or order picker, measured from the floor to the highest point of the vehicle with the mast fully retracted.

2.6.2

Clearance height

The clearance height is the distance from the floor to the highest point of the material handling equipment with the heels of the forks 10 - 15 cm above the floor (driving position).



2.6.3

Lift height

The lift height is the maximum height the forks can reach when the mast is fully extended, measured from the floor to the top of the forks. The lift height is also listed on the Load Diagram of the VNA truck or order picker.

2.6.4

Free lift height

The free lift height is the distance from the top of the fork to the floor, without extending the mast or changing the height of the VNA truck or order picker. Different vehicles have different free lift heights. In spaces with low ceilings greater free lift heights are particularly convenient.

2.6.5

Reach height

As opposed to lift height, reach height depends on various factors:

- the height of the pallet
- it must be possible to lift the pallet slightly;

2.6.6

Lifting capacity

The lifting capacity or load capacity of a machine is the maximum weight that it can safely lift. In practice, a machine's lifting capacity can be reduced greatly by increasing the distance from the centre of gravity. You can find a machine's lifting capacity on its rating plate.

2.6.7

Stability

Stability, or rather instability, causes a large number of accidents resulting in bodily injury or, even worse, death every year. There are a number of factors that can cause a piece of material-handling equipment to tip over:

- A heavy load;
- A heavy load at height;
- The load centre is too great;
- The load's centre of gravity is not aligned with the centreline of the truck;
- Overly quick cornering.

The first five factors have an adverse effect on the stability of trucks, with or without load, due to the so-called lever effect. These factors will be discussed and explained later. The final two factors are related to adverse forces caused by driving material handling equipment at a certain speed.

Before picking up a load with a truck, you must be certain that the load is within the vehicle's lifting capacity. You can find a vehicle's lifting capacity on its rating plate. When assessing whether you can move a certain load, it is important that you take into account its weight, as well as its dimensions and the vehicle's lift height.



2.6.8

AFC System (Active Floor Compensation)

For the sake of stability, it is important that warehouses are equipped with high-quality floors. Uneven or overly worn-out floors are irregular, which exposes trucks to vibrations. For maximum efficiency, it is important that the floor is entirely level.

Uneven floors can be rebuilt, but this is very expensive. To avoid having to rebuild floors, Still Intern Transport has developed a new system.

This new system is known as the AFC system, which identifies unevenness and compensates for it in real time, ensuring that the truck frame and mast stay horizontal and vertical, respectively, at all times. This system prevents vibrations and protects the cargo, warehouse and operator. Finally, it also increases handling capacity.

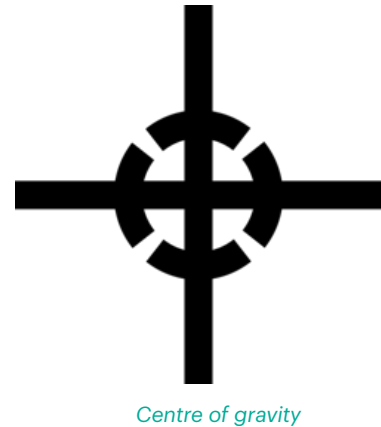


2.6.9

Centre of gravity

An object's centre of gravity is the point around which the object's mass is distributed. From this point, the object is in perfect equilibrium. If we add weight to one side, the centre of gravity will move towards the heavier side and move up a bit.

Like all other objects, VNA trucks and order pickers also have their own centre of gravity. If an order picker is not carrying a load on its forks, for instance, its centre of gravity is between the front axle and rear axle. When an order picker is carrying cargo, its centre of gravity moves forward, towards the tipping point, or the front axle. If the weight of the load is equal to the order picker's lifting capacity, but its centre of gravity is too far from the forklift, it will cause the order picker to tilt forward (see-saw effect).



2.6.10

Load centre

The load centre is the distance from the heel of the fork to the load's centre of gravity. The load centre, maximum load weight and lift heights are calculated by the manufacturer and incorporated in a load chart.

For example:

If an order picker has a lifting capacity of 1700 kg and a load centre of 50 cm, can it transport a 1700 kg load with a depth of 100 cm?

If the load's centre of gravity is at 50 cm, this is fine. If the load's centre of gravity is equal to the order picker's load centre, the maximum load weight is equal to the specified lifting capacity.

First, though, we have to know what a centre of gravity is.



For example:

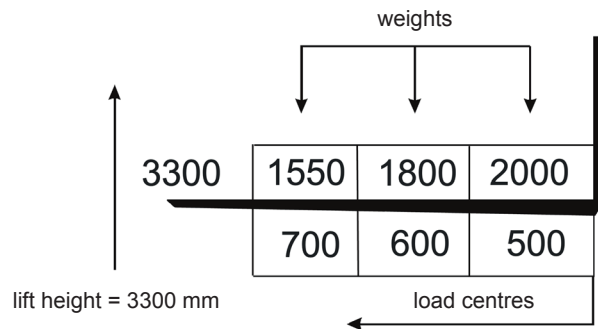
Take a 100 x 100 cm pallet. Its centre of gravity is located at 50 cm, because $100 / 2 = 50$ cm. The depth of a pallet determines the load centre. This theory only applies if the pallet is loaded uniformly. In practice, matters can be very different.

A 120 cm x 100 cm pallet can have a load centre of 50 cm or 60 cm, depending on which side of the pallet faces the forklift.

Given the load centre of a particular pallet, it is easy to find its depth. After all, the theory states that the centre of gravity is always in the middle. With a load distance of 50 cm, the pallet depth must be: $50 \text{ cm} \times 2 = 100 \text{ cm}$

2.7**Load chart**

Because it is very difficult for operators to estimate how a load will affect the stability of their VNA truck or order picker in practice, manufacturers have to draw up load charts. These load charts must be affixed to the vehicle so that they are visible to the operator. The load chart specifies load centres, as well as the corresponding weights and lift heights.



The above load chart must be read as follows:

Load centre:	Lifting capacity (weight):	Lift height:
500 mm	2000 kg	3300 mm
600 mm	1800 kg	3300 mm
700 mm	1550 kg	3300 mm

This load chart must be read as follows:

Load centre:

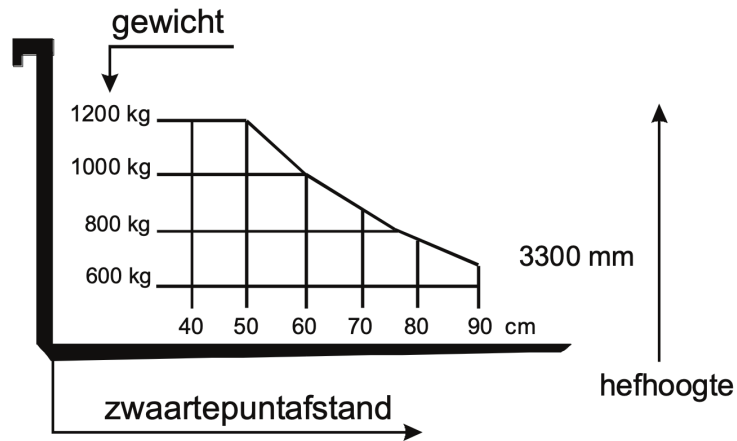
40 mm
60 mm
90 mm

Lifting capacity (weight):

1200 kg
1000 kg
700 kg

Lift height:

3300 mm
3300 mm
3300 mm



For VNA trucks and order pickers with a lift height exceeding 3.30 m, the load chart will sometimes specify the max. lift heights for certain loads.

This load chart must be read as follows:

Load centre:

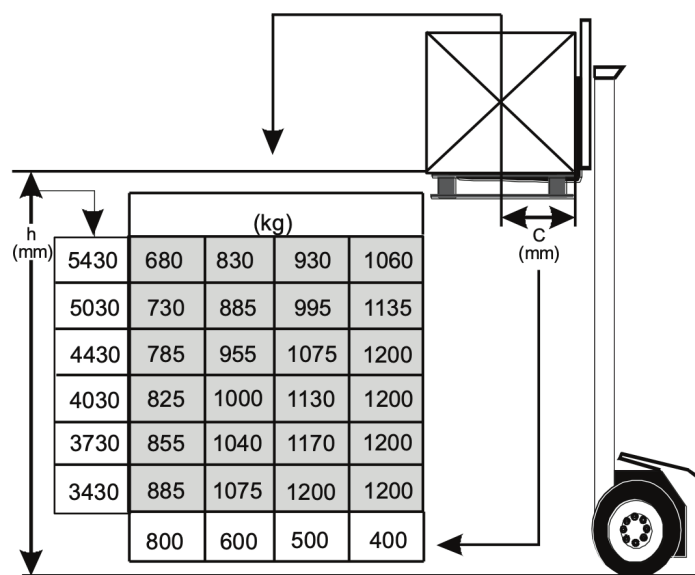
400 mm
500 mm
600 mm
800 mm

Lifting capacity (weight):

1200 kg
1200 kg
1000 kg
680 kg

Lift height:

4430 mm
3430 mm
4030 mm
5430 mm



This load chart must be read as follows:

Load centre:

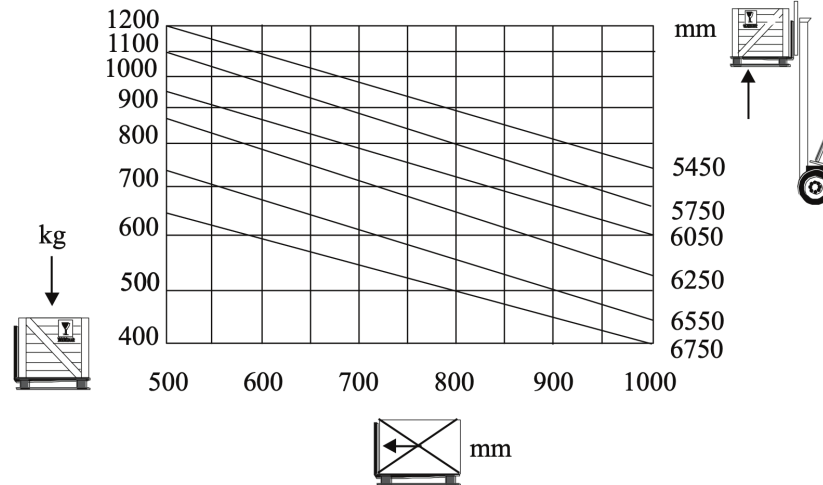
500 mm
600 mm
800 mm
1000 mm

Lifting capacity (weight):

1200 kg
870 kg
500 kg
520 kg

Lift height:

5450 mm
6050 mm
6750 mm
6250 mm



i

Note:

These examples show that the following information is of great importance when lifting loads:

- the load centre;
- the lift height;
- the weight of the load.

2.8

Truck weight

Due to its compact design, the weight of material-handling equipment is often underestimated. To find out the correct weight, refer to the rating plate. Manufacturers are obliged to state the weight of the vehicle on the rating plate. For electrically powered vehicles, remember to add the weight of the battery to the vehicle's empty weight.

General concepts and order picker technology

3.1

Electric motor

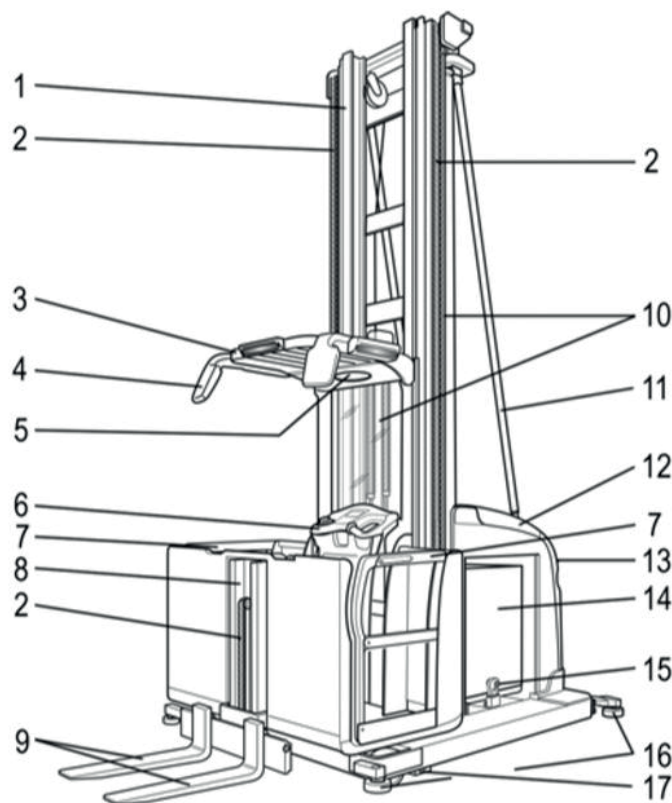
Order pickers are powered by an electric motor. The machine's electric motor powers several underlying systems such as the steering and hydraulic system. The electric motor of the VNA truck or order picker is powered by electricity from the traction or lithium ion battery.

3.2

Glossary

An order picker consists of multiple parts, as highlighted below.

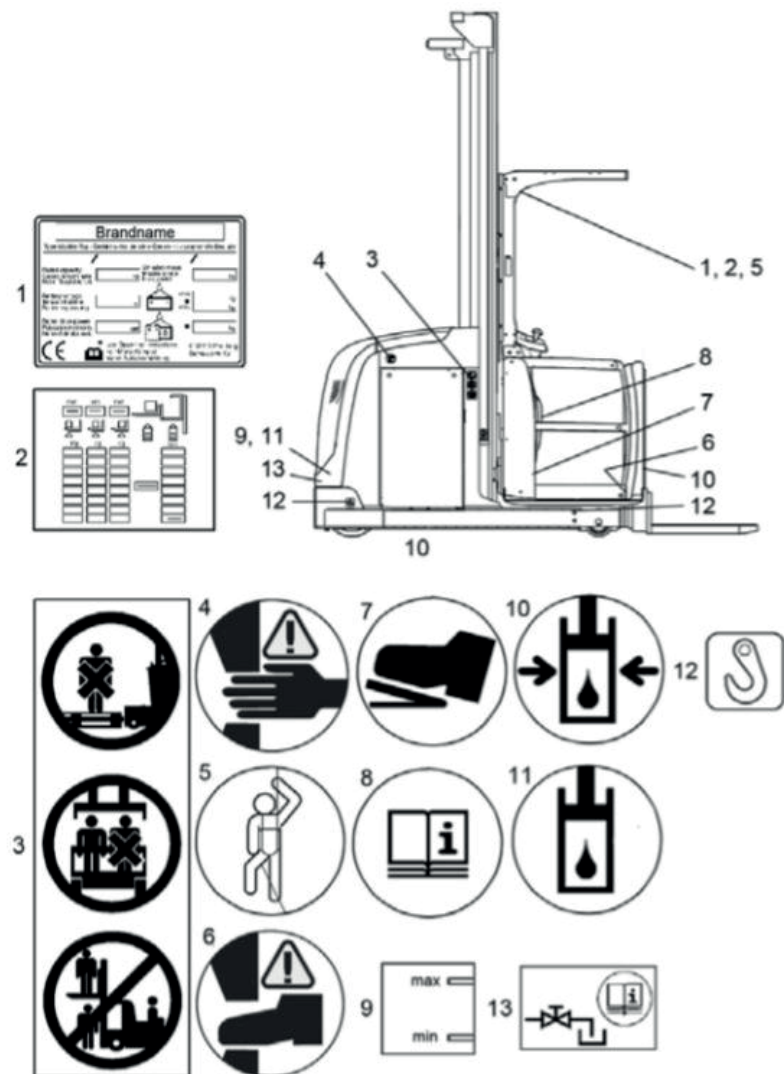
- | | |
|---------------------|-------------------------------|
| 1. Mast | 8. Auxiliary lifting system |
| 2. Lift chain | 9. Forks |
| 3. Overhead guard | 10. Lifting cylinder |
| 4. Mirrors | 11. Mast reinforcement |
| 5. Abseiling system | 12. Battery cover |
| 6. Control panel | 13. Control compartment cover |
| 7. Cabin door | 14. Battery |
| | 15. Battery lock |
| | 16. Guide wheels |
| | 17. Load wheel |



3.3

Safety and instruction stickers

There are multiple safety stickers and instruction labels on order pickers, which provide information to the operator or bystanders or indicate a potential hazard. The drawing below shows the locations of these labels. After that, we will explain what they mean.



The rating plate:

The rating plate contains useful information about the machine such as the make, type, serial number, year built, weight, min. and max. weight and battery. This information can be very useful when reporting a fault to the service department.

The load chart:

The load chart indicates how much weight the machine can lift at a certain load centre distance. This information can be very useful when transporting cargo on a pallet during order picking. Never exceed the maximum weight, as the machine may tip over. For a detailed explanation, head to section 2.7.

3. Passengers may never ride along on an order picker.

- Never transport passengers on the forks.
- The operator compartment may only be used by 1 person at a time.
- Bystanders must never be on or under cargo.

4. entrapment hazard:

This sticker warns people of an entrapment hazard. There are several points on order pickers at which entrapment hazards can occur. Make sure to always keep your hands and arms clear of these areas.

5. Abseiling system:

This sticker indicates the location of the abseiling system. After opening the flap or cover, you will find the abseiling system in a sealed bag, which you can use in the event of an emergency. See section 2.5.5.

6. entrapment hazard feet:

This sticker warns people of an entrapment hazard specifically for their feet. There are several points on order pickers at which entrapment hazards can occur. Make sure to always keep your feet and legs clear of these areas.

7. Footswitch:

This sticker indicates the location of the footswitch. To operate an order picker, you must first depress the footswitch to activate it. This switch ensures that the machine cannot be operated when no one is in the cab.

8. User manual compartment:

You can use this storage compartment to store important documents, such as the machine's user manual. It is useful to have the user manual at hand in the event of a malfunction.

9. Hydraulics min-max:

This sticker locates the hydraulic oil sight glass, which will tell you whether there is enough hydraulic oil in the machine. You can only read it properly when all of the machine's cylinders are fully retracted.

10. Oil pressure:

This sticker is located on the cabin cylinder and indicates that it is under high oil pressure.

11. Oil tank:

This sticker indicates the location of the hydraulic oil tank.

12. Lifting point:

This label indicates the point at which the machine can be lifted by a crane. Usually, you will only need to identify this point when transporting the machine outside the warehouse.

13. Emergency lowering valve:

Remove the cover to find the emergency lowering valve. You can use this valve in the event of a malfunction. To find out how, head to section 2.5.4.



3.4

Description of the control panel

3.4.1

Introduction

The operator can move to a different height by raising the operator cabin, setting the front auxiliary lift to the appropriate rack level to pick orders. When transporting cargo, there must always be sufficient clearance between the cargo and the floor.

3.4.2

Additional Information

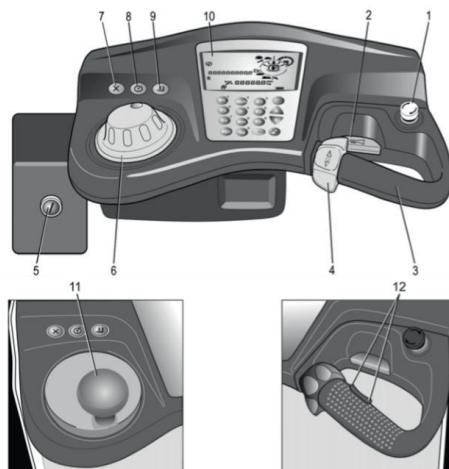
In very narrow aisles, order pickers are guided mechanically or inductively. If the aisles are wide enough, the order picker can drive with the mast down. All movements are continuous (driving, raising/lowering the cabin lift, raising/lowering the auxiliary lift). Operator errors can largely be prevented by properly operating the safety switches. At heights where the operator cabin floor can be moved up to 1.2 m (free or guided), the cabin can remain open while the truck is being operated. At heights exceeding 1.2 m, the gate must be closed. When this is the case, a symbol will light up on the display to notify the operator, and the cab will not go up any further.

3.4.3

The control panel

The image below shows the control panel of an order picker. All functions are explained in the table below.

1. Emergency stop button
2. Horn
3. Hand sensor for two-handed operation
4. Control handle - move forward/back
5. Ignition
6. Special function preset button
7. Special function preset button
8. Override button
9. Preset button for auxiliary lift
10. Machine status display
11. Steering wheel and sensor surface for two-handed operation
12. Rocker switch for rapid raising/lowering



3.5

Description of the display

3.5.1

Introduction

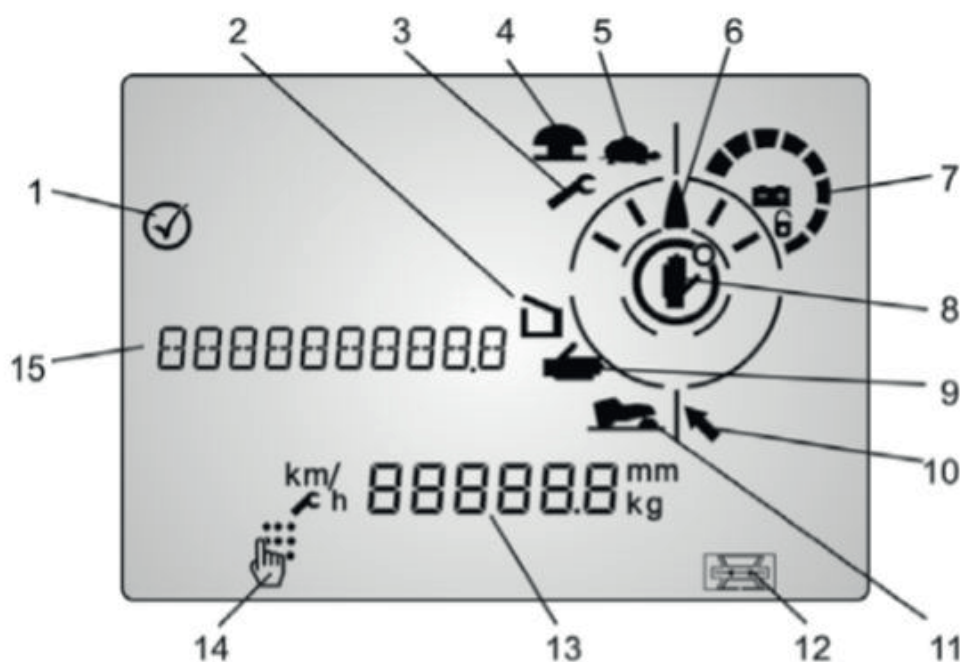
When you make an operating error or the machine malfunctions, you may see information (Info) or error messages on the display. To resolve these errors, operate the order picker correctly or drive it to the neutral section of the warehouse, which is not equipped with a sensor system. In this neutral section, switch the order picker off and on again. If the same message appears, contact your supervisor or the technical services department. Make sure to tell your supervisor or the technical services department what you can see on the display.

3.5.2

Display

The image below shows an example of a display. In the table below, the highlighted parts are explained.

1. Confirmation button required
2. Barriers open
3. Maintenance interval missed
4. Emergency stop enabled
5. Slow mode active
6. Steering angle
7. Battery indicator
8. Two-handed operation required (steering wheel)
9. Two-handed operation required (handle)
10. Automatic induction guide rail recognition
11. Foot switch operation required
12. Inductive guidance status
13. Hour, speed, lift height and capacity indicators
14. Enter PIN code on keyboard
15. Error message and information indicator

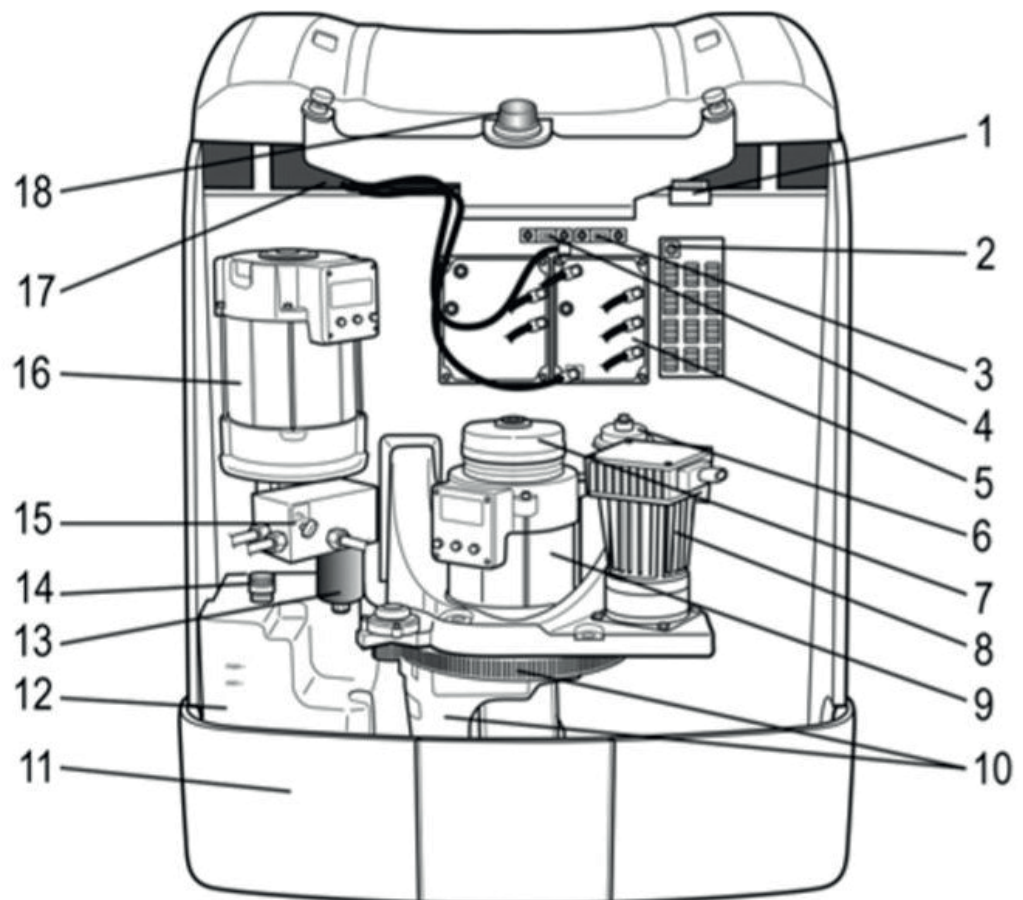


3.6

Control compartment

The control compartment is located under the large hood at the rear and houses the various components used to control the machine. We will explain them in greater detail in the figure below.

1. Steering system fuse
2. Programming Interface
3. Main fuse for the steering system
4. Main fuse for drive and pump
5. Main control unit
6. Horn
7. Electromagnetic brake
8. Steering motor
9. Drive motor
10. Steering and gearbox
11. Collision protection
12. Hydraulic oil tank
13. Hydraulic oil filter
14. Hydraulic oil filler hole
15. Emergency lowering valve
16. Pump motor
17. Battery cables
18. Turn signal.



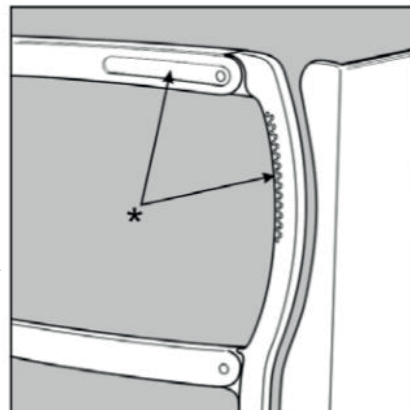
The emergency stop:

In the event of an emergency, the truck can be brought to a standstill by pressing the emergency stop switch. The order picker will slow down and come to a standstill.

The barrier gates:

If the barrier gates touch any point other than those indicated (*) when opening, there is a risk that your hands may be trapped.

Touch only the handle to open or close the barrier. If the cab floor lift height is no higher than 1.2 m (free or guided), the cab gates can remain open when the VNA truck is operated. When operating the VNA truck at lift heights exceeding 1.2m, the barriers must be closed.

**The horn:**

The horn is an audible warning that the driver can use at blind spots or in case of danger to signal that the truck is approaching. The horn is part of the safety system and should always be functioning properly.

Two-handed operation:

In the aisle, all functions must be operated with both hands to ensure that operators cannot stick their arms from the truck while driving.

Overhead guard:

Risk of injury. The overhead guard on the vehicle described here will not protect the operator against particularly small objects, rolls of paper or packaged wood. When transporting these types of objects, the vehicle will have to be fitted with a different overhead guard.

**Traction battery**

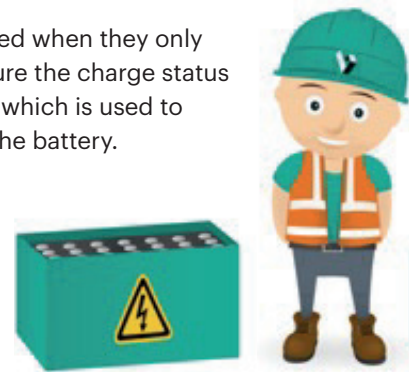
Traction batteries convert chemical energy into electrical energy and consist of 2-volt power cells. The number of cells in the battery determine its capacity. These cells are filled with lead and sulphuric acid, a highly corrosive liquid.

3.8.1

Charging the traction battery

Charging traction batteries is important, because when they are not used until empty, their technical service life is shortened significantly. In addition, their capacity will decrease, as they become

“lazy”. Traction batteries should preferably be recharged when they only have 10% charge left. The most accurate way to measure the charge status of a traction battery is with the aid of an acid weigher, which is used to measure the specific gravity (s.g.) of the liquid inside the battery.



3.8.2

Charging area

Traction batteries should be charged in rooms or areas without any naked flames and other potential sources of sparks, e.g. welding and grinding, are also strictly forbidden.

When a traction battery is recharged, the liquid inside it is set in motion, producing hydrogen gas. Hydrogen is highly explosive and one spark is all it takes to cause an explosion. Hydrogen levels of 4% and higher present an explosion hazard. Therefore, the charging area must be well ventilated and meet all requirements set by the government.



At least the following materials must be present in the charging area:

- bottle of eyewash or eye bath;
- fire extinguisher;
- extraction unit;
- PPE;
- absorption granules;
- soda.

When working on the traction battery, use the appropriate personal protective equipment:

- acid-resistant glasses or face mask;
- acid-resistant gloves;
- acid-resistant apron.



CAUTION

Always wear long-sleeved clothing when working with a traction battery and neutralise any spills with soda.

3.8.3

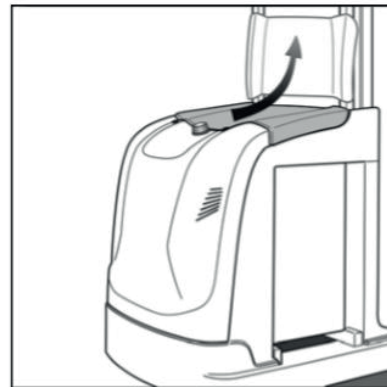
Weighing acid

As the battery charges and discharges, the specific gravity (grams per cm³) of the liquid within it will increase or decrease. The particle density of the liquid increases when the battery is charged, so the liquid becomes "heavier"). You can measure the specific gravity of the liquid with an acid weigher. There is a scale on the stem of the float, on which you can find the specific gravity. Measuring the specific gravity of the liquid inside a traction battery lets you determine its remaining charge. In other words: it indicates whether the battery needs to be charged or not.

3.9.1

Replacing the battery

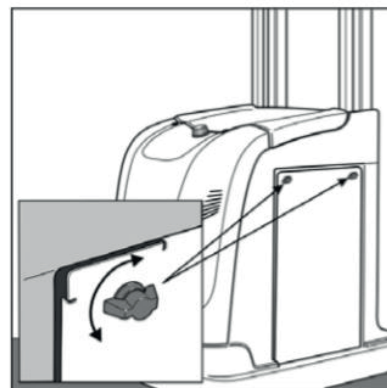
Open the cover of the battery compartment. To open the cover, lift it up sideways, towards the mast. The cover is equipped with a special hinge system. For maintenance work, the cover can be completely removed.



3.9.2

Battery with compartment door

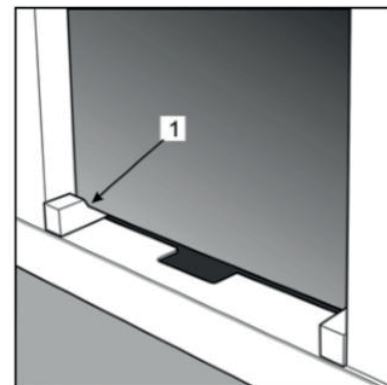
Lateral battery compartment doors can be installed as an extra option. To open the doors, turn both latches 90°. After inserting the battery compartment doors, close both latches again
*Option



3.9.3

Battery with compartment door

As standard, there is a special recess for the battery in the chassis (1). You can replace this battery with a forklift. To do so, lift the battery from the machine sideways with a forklift with sufficient carrying capacity and appropriate lifting accessories.



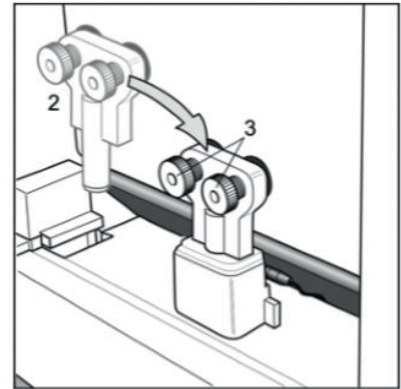
3.9.4

Battery replacement frame

Alternatively, you can place the battery on rollers and install or remove it from the side of the machine with a battery replacement frame. Thanks to a series of panels fastened with screws, the battery will not be able to roll off to the side.

- After removing the panels (2)
- After installing the panel and tightening the screws (3)

Make sure the screws are tightened on both sides.

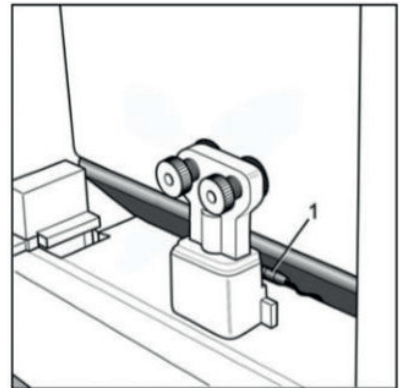


CAUTION

Before each shift, check that the battery lock is in perfect condition and functioning correctly.

Battery replacement frame

The battery lock is selectively monitored (1). If this monitoring function detects an error, the truck's travel speed is limited to 2.5 km/u and an error message will appear on the display.



Battery lock - narrow chassis

In trucks with an arrow chassis, the battery is secured by a lock located above the battery. To properly lock the battery, push both levers down.



Risk of accidents due to tipping over

Underweight batteries significantly reduce the stability of the order picker. As a result, there is a risk of the order picker tipping over. The voltage and weight of the battery must meet the requirements stated on the order picker rating plate, so make sure to compare the rating plates of the vehicle and the battery.

General concepts and VNA truck technology

4.1

Electric motor

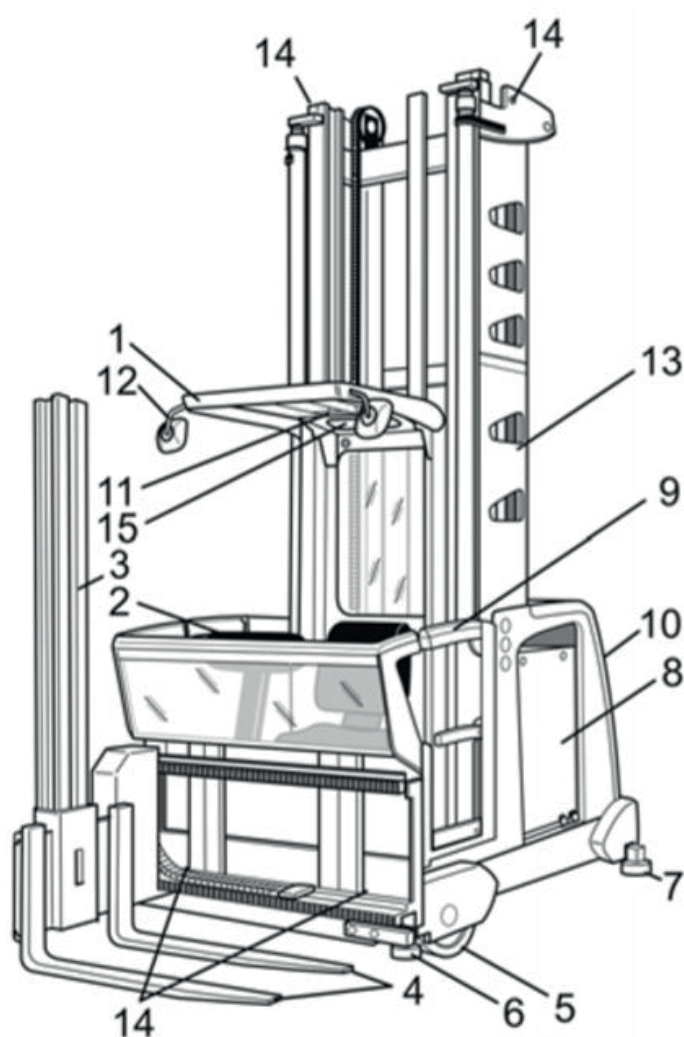
VNA trucks are powered by an electric motor. The machine's electric motor powers several underlying systems such as the steering and hydraulic system. The electric motor of the VNA truck or order picker is powered by electricity from the traction or lithium ion battery.

4.2

Glossary

A VNA truck consists of multiple parts, as highlighted below.

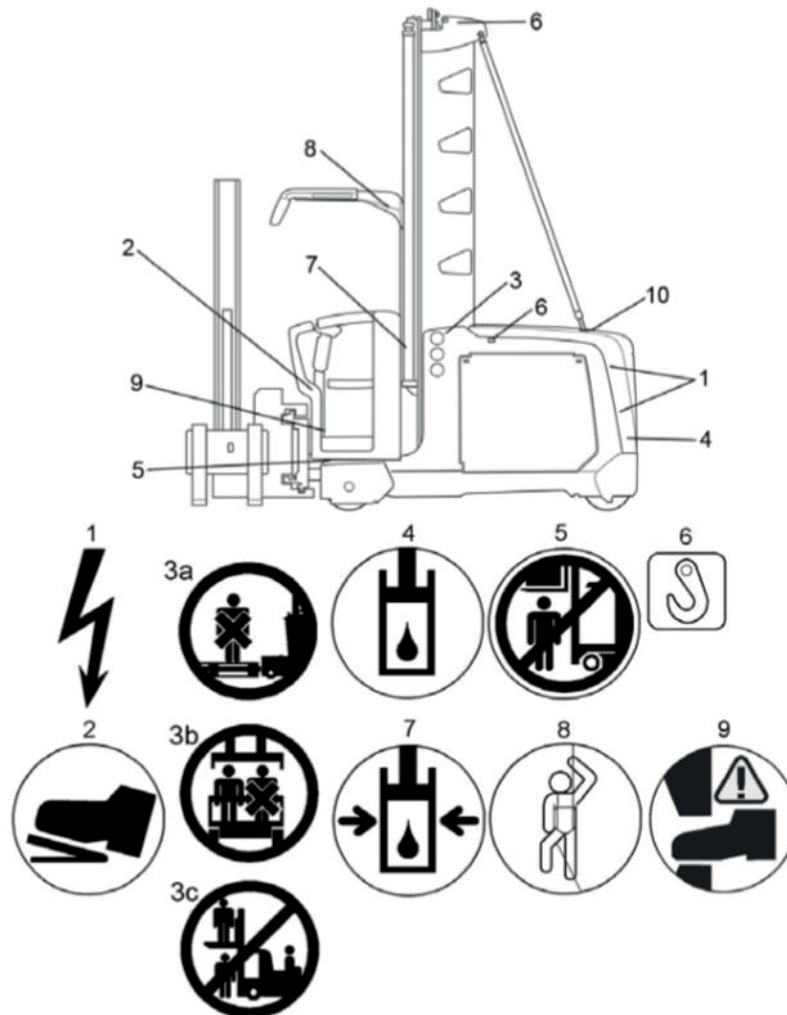
1. Overhead guard
2. Control panel
3. Auxiliary lifting system
4. Forks
5. Load wheels
6. Front guide roller
7. Rear guide roller
8. Battery compartment
9. Barrier, gate or door
10. Control compartment
11. Work lights
12. Mirrors
13. Mast
14. Lifting points
15. Abseiling system



4.3

Safety and instruction stickers

There are multiple safety stickers and instruction labels on VNA trucks, which provide information to the operator or bystanders or indicate a potential hazard. The drawing below shows the locations of these labels. After that, we will explain what they mean.



1. High voltage.

There are various current-carrying components below the compartment cover, including high-voltage currents. Before removing this cover, make sure to de-energise the machine.

2. Footswitch:

This sticker indicates the location of the footswitch. To operate an combi truck, you must first depress the footswitch to activate it. This switch ensures that the machine cannot be operated when no one is in the cab.

3. Passengers may never ride along on an order picker.

- Never transport passengers on the forks.
- The operator compartment may only be used by 1 person at a time.
- Bystanders must never be on or under cargo.

4. Oil tank:

This sticker indicates the location of the hydraulic oil tank.

5. Entrapment hazard:

This sticker is located on the cabin cylinder and indicates that it is under high oil pressure.

6. Lifting point:

This label indicates the point at which the machine can be lifted by a crane. Usually, you will only need to identify this point when transporting the machine outside the warehouse.

7. Oil pressure:

This sticker is located on the cabin cylinder and indicates that it is under high oil pressure.

8. Abseiling system:

This sticker indicates the location of the abseiling system. After opening the flap or cover, you will find the abseiling system in a sealed bag, which you can use in the event of an emergency. See section 2.5.5

9. Entrapment Hazard Feet:

This sticker warns people of an entrapment hazard specifically for their feet. There are several points on order pickers at which entrapment hazards can occur. Make sure to always keep your feet and legs clear of these areas.

8. User manual compartment:

You can use this storage compartment to store important documents, such as the machine's user manual. It is useful to have the user manual at hand in the event of a malfunction.

9. Hydraulics min-max:

This sticker locates the hydraulic oil sight glass, which will tell you whether there is enough hydraulic oil in the machine. You can only read it properly when all of the machine's cylinders are fully retracted.

4.4

Description of the control panel

4.4.1

Introduction

The operator can move to a different height by raising the operator cabin, setting the front auxiliary lift to the appropriate rack level to pick orders. When transporting cargo, there must always be sufficient clearance between the cargo and the floor.

4.4.2

Additional Information

The VNA truck is designed for use in narrow aisles and can be used to store, retrieve and pick pallets from racks. The maximum permissible weight is shown on the rating plate and the load chart and must not be exceeded. Use for other purposes is prohibited.



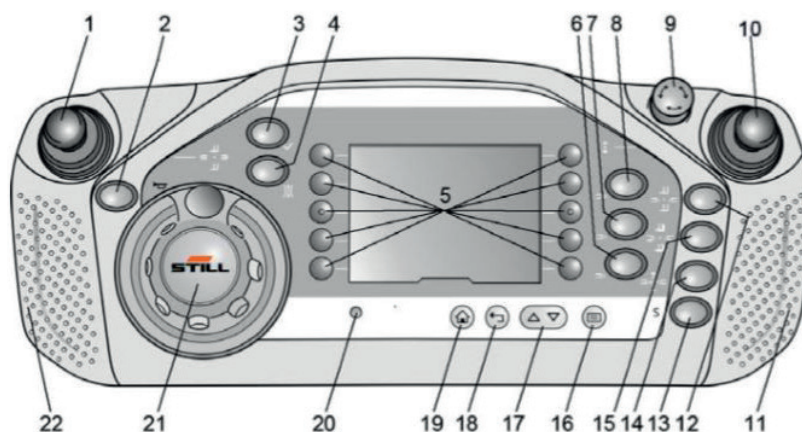
The operator can lift themselves and the load carrier (e.g. a pivoting push fork) to the appropriate height by raising the operator cabin. The auxiliary lift can be used to reach the highest rack level to allow the operator to pick orders. When transporting loads, the auxiliary lift must always be fully retracted. Outside the aisles, VNA trucks can move around freely, provided the load has been lowered. The load may only be raised (from the floor) to prevent parts of the load from touching the floor. In the rack aisles, VNA trucks are driven mechanically or inductively. The controls of these trucks are based on the CANBUS protocol. All controls (driving, raise-lower cab, raise-lower auxiliary lift, pivot fork, extend/retract fork) are continuous. Operator errors can largely be prevented by the proper use of safety switches.

4.4.3

The control panel

The figure below shows the control panel of a VNA truck. All functions are explained in the table below.

1. Control handle- hydraulics
2. Horn
3. Release button
4. Manual/Auto switch for inductive operation
5. Selector buttons for favourites
6. Selector switch for additional hydraulic functions
7. Selector switch for additional hydraulic functions
8. Selector switch for additional hydraulic functions
9. Emergency stop button
10. Control handle- drive mechanism
11. Sensor surface for two-handed operation
12. Selector button for auxiliary raising, raising/lowering or pivoting.
13. Reserved for special functions
14. Selector key for automatic functions
15. Selection button for cabin lift and additional raising or lowering
16. Menu selector
17. Menu option selector
18. Cancel selection or go back
19. Back to main page
20. Light sensor for automatic display backlight
21. Steering knob or steering wheel
22. Sensor for two-handed operation, driving in aisle



4.5

Description of the display

4.5.1

Introduction

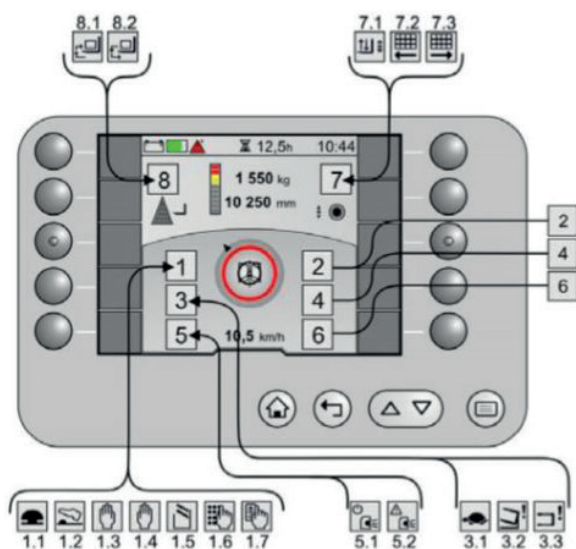
When you make an operating error or the machine malfunctions, you may see information (Info) or error messages on the display. To resolve these errors, operate the VNA truck correctly or drive it to the neutral section of the warehouse, which is not equipped with a sensor system. In this neutral section, switch the VNA truck off and on again. If the same message appears, contact your supervisor or the technical services department. Make sure to tell your supervisor or the technical services department what you can see on the display.

4.5.2

Display

The image below shows an example of a display. In the table below, the highlighted parts are explained.

- 1.1 Emergency stop button pressed
- 1.2 Footswitch required
- 1.3 Two-handed operation, left required
- 1.4 Two-handed operation, left required
- 1.5 Barrier gate open
- 1.6 Pin code required
- 1.7 RFID input expected
- 2.0 Not set by default
- 3.1 Creep speed active
- 3.2 Pivot push fork not in end position
- 3.3 Telescopic forks not in end position
- 4.0 Not set by default
- 5.1 PSA enabled
- 5.2 PSA has detected errors
- 6.0 Not set by default
- 7.1 Navigation, combined operation
- 7.2 Navigation, destination left
- 7.3 Navigation, destination right
- 8.1 Forks fully retracted, with load
- 8.2 Forks fully extended, with load

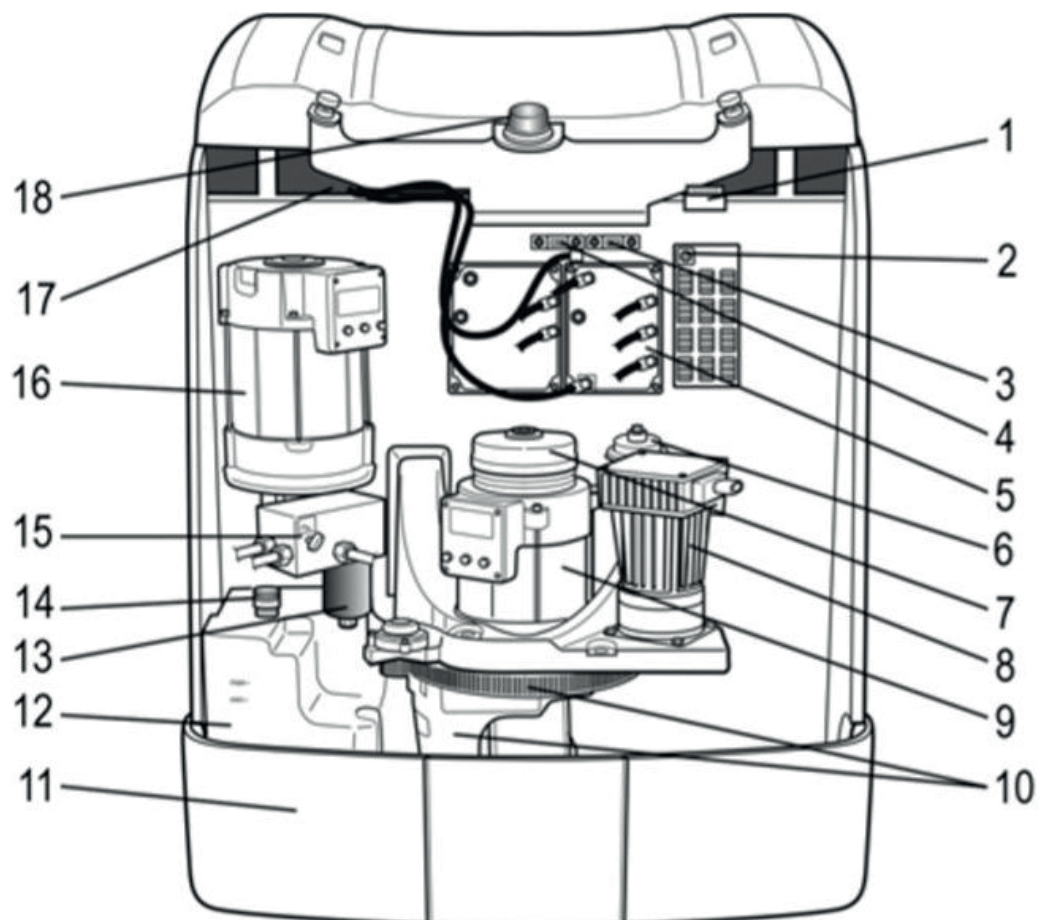


4.6

Control compartment

The control compartment is located under the large hood at the rear and houses the various components used to control the machine. We will explain them in greater detail in the figure below.

1. Steering system fuse
2. Programming Interface
3. Main fuse for the steering system
4. Main fuse for drive and pump
5. Main control unit
6. Horn
7. Electromagnetic brake
8. Steering motor
9. Drive motor
10. Steering and gearbox
11. Collision protection
12. Hydraulic oil tank
13. Hydraulic oil filter
14. Hydraulic oil filler hole
15. Emergency lowering valve
16. Pump motor
17. Battery cables
18. Turn signal.



The emergency stop:

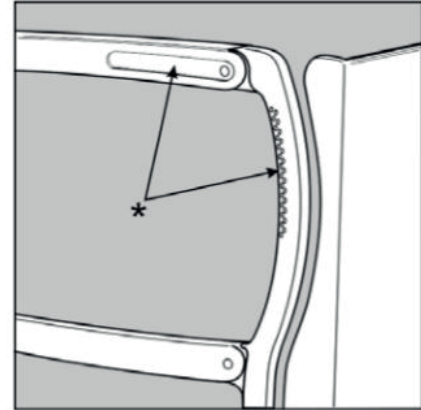
In the event of an emergency, the VNA truck can be brought to a standstill by pressing the emergency stop switch. The order picker will slow down and come to a standstill.

The barrier gates:

If the barrier gates touch any point other than those indicated (*) when opening, there is a risk that your hands may be trapped.

The horn:

The horn is an audible warning that the driver can use at blind spots or in case of danger to signal that the truck is approaching. The horn is part of the safety system and should always be functioning properly.

**Two-handed operation:**

In the aisle, all functions must be operated with both hands

**Overhead guard:**

Risk of injury. The overhead guard on the vehicle described here will not protect the operator against particularly small objects, rolls of paper or packaged wood. When transporting these types of objects, the vehicle will have to be fitted with a different overhead guard.

5.1

Introduction

VNA trucks and order pickers are important types of material-handling equipment. Despite the risks associated with the incorrect use of material-handling equipment, working with these vehicles is no more dangerous than working with any other machine or piece of equipment. The only condition is that operators are aware of all the safety rules and apply them. Before you start using material-handling equipment, make sure you are familiar with the manual and operating instructions and never use equipment for anything other than its intended purpose.

Accidents can happen anywhere and are either the result of human error or technical failure. If we were to set the total number of failures and errors at 100%, technical failures would be at fault for 5% of accidents, with the other 95% being caused by human error.

The most common accidents are entrapment, knocks and collisions. These accidents often result in injuries. Hands, feet, arms and legs are the most commonly affected parts of the body. Many accidents are the result of high workloads, unclear traffic rules and failure to comply with the rules. (see www.cgvm.nl)

Common occupational diseases such as back, neck and joint problems can also be prevented by taking various ergonomic and behavioural measures, such as:

- Correct sitting posture (seat position and steering wheel setup);
- Not jumping from equipment (use the steps and brackets);
- Correct driving behaviour (no unnecessary reversing);
- Using the right workwear.



i

Note:

Working safely means consciously taking acceptable risks.

5.2

Company regulations

Employees must be familiar with company regulations, and these rules also apply to all persons present on the company premises and in the building.

It is important to know:

- Where to find fire extinguishers and how to use them if necessary;
- Where to find the first-aid kit;
- Where the escape routes are;
- Who should be alerted in emergency situations;
- Whether hazardous substances are present;
- What the company's traffic rules are.

i

Note:

In the event of an accident, you must first ensure your own safety before taking any action.

5.3

User requirements

Workers operating VNA trucks and order pickers must have specific expertise. Operators must:

- Be mentally and physically able to operate the vehicle;
- Have the necessary technical skills;
- Be able to recognise hazards.
- Not be afraid of heights

5.3.1

Safety requirements

In order to work **independently** with material-handling equipment (including order pickers), operators must be 18 years of age.

Persons aged 16 and 17 may only drive under **expert supervision**.

Which Personal Protective Equipment (PPE) is prescribed depends on the work situation and company regulations. In any case, **operators of material-handling equipment, employees and third parties are obliged to wear safety shoes in all areas where material-handling equipment is used**. It is the employer's responsibility to make sure that this rule is observed.

5.3.2

Work zone

- No one should be in the work zone (danger zone) of the VNA truck or order picker. If a person does enter the danger zone, immediately bring the truck to a standstill and guide the person out of the zone.
- In areas with marked routes, trucks may only drive within these marked routes for safety reasons.
- No person may ever be under a raised load or the operator cabin when raised.
- The condition of the floor surface affects the truck's braking distance. The operator must take this into account when driving and braking.
- If the environment or situation demands it, the operator should use appropriate personal protective equipment, such as: safety shoes, a safety helmet, protective gloves or safety glasses.



5.3.3

Medical devices/implants



WARNING: DANGER!

Medical devices may be exposed to electromagnetic radiation! Only use devices that are adequately shielded against electromagnetic radiation.

Medical devices, such as pacemakers or hearing aids, can be damaged while driving. People with active or inactive medically implanted devices should ensure that they are not exposed to dangerous electromagnetic radiation. Have your physician or medical device manufacturer confirm that your medical devices are adequately protected from electromagnetic interference. It is the employer's duty to provide employees with detailed information about these hazards.

5.4

Handling labels

When moving and securing loads, consider the labels below.

Centre of gravity designation



This side up



Fragile



Protect from moisture



Do not stack



Do not allow to defrost



Keep away from heat



5.4.1

Labels

Packaging containing hazardous substances is labelled. These labels provide information on the potential hazards of the substance in question. They have a warning function and are of great importance to everyone involved in the transport of such goods. Emergency service providers can also refer to this information in the event of an accident.

Operators of material-handling equipment who work with hazardous substances must also observe various rules.

- Smoking is prohibited when working with hazardous substances;
- Eating and drinking is prohibited in areas with hazardous substances;
- They must have any wounds treated immediately.

i

Note:

When transporting hazardous substances, drive backwards to prevent the load from sliding off the forks if you have to brake suddenly.

5.4.2

Labelling of hazardous substances (old and new)

All around the world, we have agreed to start classifying and labelling chemicals the same way. This agreement is also known as the Globally Harmonized System, or GHS for short.

With the introduction of the GHS, the familiar orange hazard symbols and corresponding risk phrases (R-phrases) and safety phrases (S-phrases) disappeared. They have been replaced by new pictograms, new hazard phrases (H-phrases) and precautionary measures (P-phrases).

The GHS has been in force in Europe since 2009, though an initial transition period applied until 2015. Chemical products with and old label could be sold until June 2017.

The 'old' labelling rules came from the Dutch Environmentally Hazardous Substances Act. This law has since been abolished. The enforcement of the GHS is now regulated by the Environmental Management Act.

The next page shows a simplified overview of the old and new pictograms. For a more detailed overview, including a breakdown of the hazard classes and categories used, as well as a list of H-phrases, please refer to the WMS-to-EUGHS overview.

Oude pictogram	Nieuw pictogram
 Ontplofbaar	 Explosief
 Oxiderend	 Oxiderend
 (zeer)licht ontvlambaar	 Ontvlambaar
 Schadelijk	 Irriterend, sensibiliserend, schadelijk
 Bijtend	 Corrosief
 Gifig	 Gifig
 Milieugevaarlijk	 Gevaarlijk voor het aquatisch milieu
	 Gassen onder druk
	 Lange termijn gezondheidsgevaarlijk

5.5

Damage to pallets

Damage to pallets has both a direct and negative impact on production, internal transport and storage.

Damaged pallets:

- Hamper the rapid flow of goods;
- Endanger people's safety (e.g. when a stack topples over);
- Can damage the product;
- Have to be replaced, which can be expensive;
- Increase costs due to the time lost repackaging loads.



WARNING:

Do not use damaged pallets. It is best to throw them away.

TOP 10

MEEST GEMAAKTE FOUTEN DIE LEIDEN TOT PALLETSCHADE



1

MAST NEIGT TE VER NAAR VOREN OF ACHTEREN

Zorg dat tijdens het opnemen, het plaatsen, het inrijden of het uitrijden van een pallet de vorken horizontaal staan.



2

TE LANGE VORKEN

Bij kleinere pallets kunnen de vorken aan de achterkant uitsteken en de pallets of de lading die erachter staat beschadigen.



3

LADING TE VER OP DE PUNTEN

Grotere kans op kantelende lading waardoor de veiligheid in het geding komt en de pallet en de lading beschadigd kunnen worden.



4

PALLETS LATEN SLINGEREN

Rondslingerende pallets leveren vaak aanrijdingen op wat weer tot schade of gevaarlijke situaties kan leiden. Daarnaast beperken ze de werkruimte.



5

VORKEN TE DICHT BIJ ELKAAR BIJ BREDE LADING

Om een lading redelijk stabiel te vervoeren is de hartsafstand tussen de vorken, ten opzichte van de breedte van de pallet, ongeveer 60%.



6

WEGDRAAIEN VOORDAT DE VORKEN GEHEEL UIT DE PALLET ZIJN

Zorg ervoor dat de vorken geheel uit de pallet zijn voordat je wegdraait.



7

ONNODIG SCHUIVEN MET PALLETS

Onnodig schuiven van pallets levert vaak schade aan pallets op. Probeer met de punt van de vorken de pallet recht te zetten.



8

PALLETS TE LAAG VERVOEREN

Hierdoor bestaat de kans dat hierbij de klossen er vanaf gereden worden door aanrijdingen bij drempels of bij het op en af rijden van een hellingbaan.



9

MET PALLETS GOOIEN

Door onnodig gooien en smijten van pallets kunnen deze beschadigd worden.



10

ONVOLDOENDE RUIMTE IN STELLING

Let er op dat er altijd voldoende ruimte is bij het plaatsen van de pallet in bijvoorbeeld een stelling.

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5.6

Daily checklist

Before we start using a VNA truck or order picker, we must check whether it is in working order. Any faults or defects must be reported, and if there are any defects that compromise safety, we must not use the vehicle at all. What to check:

5.6.1

Test the brake system

- Check brake function after releasing the footswitch
- Check the area around the footswitch for foreign objects
- Check brake function after pressing the emergency stop switch
- Check that the reverse brake is working properly. The braking and subsequent acceleration process must be smooth and easy
- Check whether the automatic "emergency brake at the end of the aisle" is working properly
- Check whether other human-operated brake functions are working properly

5.6.2

Test the steering system

- Check that the controls can move freely
- Check that the maximum steering angle of approx. 90° can be reached to the right and left

5.6.3

Check all controls

- Check that the handle and knob are in good condition
- Check that the control handle and knob automatically return to the neutral position
- Check that all controls are working perfectly
- Check that all controls are working properly

5.6.4

Operator access control

- Check whether the key can be removed from the ignition when set to 0
- Check that the truck cannot be operated without the key
- For electronic access control (Check function)

5.6.5

Check the auxiliary lift system

- Visually inspect the forks for cracks
- Visually inspect forks for deformation
- Check that the fork lock is working properly
- Check that the locking bolts are easy to move and self-braking
- Visually inspect the fork carriage for deformation
- Visually inspect load chains for damage

5.6.6

Check the overhead guard

- Visually inspect the overhead guard for deformation
- Check the condition of the roof and remove any dirt

5.6.7

Check the wheels

- Check the wheels for foreign objects
- Check the condition of the drive wheel and load wheels



5.6.8

Check the cabin doors, barriers and emergency stop switch

- Check that the driving or hydraulic functions cannot be activated when the emergency stop switch has been activated
- Check that the driving or hydraulic functions cannot be activated when the barrier or cabin door is open
- Operator cabin with glass doors and front wall glazing or all-around glazing
- Check if there is any damage to or cracks in the glass
- Check all parts of the glazing for dirt. Clean if necessary

5.6.9

Other checks

- Check that all lights are working properly.
- Check that all covers, valves and lids are closed
- Check that all special equipment and special functions are working properly

5.6.10

The battery

- Is the plug in good condition;
- Are the cables damaged;
- Has the battery been secured;
- Is there enough liquid in the battery?
- There should be no oxidation on the battery.



5.6.11

Inspection

- Order pickers and VNA trucks must be inspected periodically. a competent person or institution. This can be done by an independent inspection body, the manufacturer's maintenance service or the company's own technical service, provided that the person or institution concerned is qualified. Written proof of the inspections must be available at the workplace. Inspected equipment must bear an inspection sticker with an inspection date.

5.6.12

Seat

- Is the seat secure;
- Is the upholstery torn;
- Is the seat switch or dead man's switch working;
- Can the seat be put in the proper position;



5.6.13

Horn

- Check that the horn is working.

5.6.14

Check the wheels

- Check hoses and pipes for leaks;
- Check that the side-shift is functioning properly.

5.6.15

Checking for oil leaks

- Move the vehicle forward until the entire space where it had previously stood is visible.
- Look back and check whether there is any oil on the floor.

5.7

Inductive guidance

5.7.1

Introduction

Inductive guidance is a technique that is commonly used in combination with VNA trucks and consists of a wire embedded in the floor that guides trucks through the warehouse along fixed routes. Inductive guidance allows the trucks to drive straight in a narrow aisle warehouse, making it possible to achieve extremely narrow aisles and high storage density.

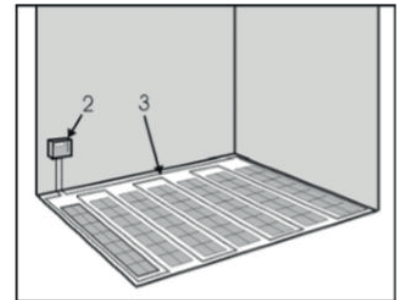
5.7.2

Configuring inductive guidance

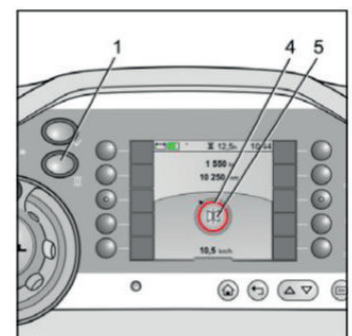
- If you have a truck with inductive guidance, press the switch button (1) before entering and leaving the aisle. All other operating procedures correspond to the standard version.



- A frequency generator (2) feeds a wire embedded in the ground with alternating current (3). This alternating current is transmitted by antennas built into the truck, which is then received as a signal and used to control the truck. After evaluating the signals, a computer directs the truck along the wire groove. Comprehensive safety circuits and a diagnostic program simplify system maintenance. The controls for inductive guidance are integrated in the control panel. The display shows the current operating status of the system. After switching on the control system, it will run a self-diagnosis. Switch (1) on the control panel is used to switch from manual to automatic controls.



- The tracking process
 1. Drive the truck in the direction of the wire groove (inductive track). Stop in front of it.
 2. The angle to the wire groove should not exceed 60 °
 3. Turn the steering wheel until it is aligned with the aisle. Select automatic control by pressing the "Manual / Automatic" button (1).
 4. Automatic" button (1). The colour of the steering wheel symbol (4) will change from red to orange.
 5. Continue in the direction of the wire groove. The driving speed will automatically be reduced.
 6. Once the control system has recognised the induction rail after passing the first antenna, it will switch to automatic mode and emit an acoustic signal.
 7. The colour of the steering wheel symbol (4) will change from orange to yellow.
 8. Keep driving. The truck will be automatically directed to the centre of the wire groove.
 9. When both antennas have recognised the induction rail, the wire search is complete and the racking aisle symbol (5) will appear.
 10. You can now drive down the aisle at the permitted speed.



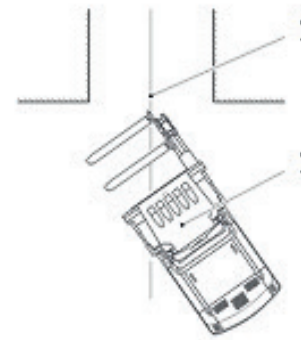
5.7.3

Tracking in and out:

- Preferably, vehicles should be tracked in in the load direction, because this takes the least time and space;
- Push deadman's switch (footswitch);
- At low speed, drive the truck towards the guide wire at an angle;
- Before tracking in, align the truck with the guide wire at an angle between 10 and 50 degrees;
- While tracking in, the truck may not be parallel to the guide wire;
- When you are near the guide wire, switch off inductive guidance with the button. The in-track signal will now sound;
- Slowly drive the truck towards the wire groove;
- When you reach the guide wire, the truck will be guided automatically;
- The in-tracking process takes place automatically at low speed. Manual controls will be disabled and automatic controls will take over;
- Check the display to see if the steering angle indicator is active;
- You will hear an acoustic signal;
- Inductive automatic steering will take over control of the truck and turn it to the guide wire;
- When the truck is positioned exactly on the guided wire, the in-tracking process will be terminated;
- The display will indicate that the in-tracking process was successful;
- No acoustic signal will sound.

Leaving a narrow aisle:

- Drive the truck completely out of the narrow aisle;
- Bring the truck to a standstill;
- Switch off the inductive guidance button.



WARNING:

Protruding object hazard settings:

Operators of material-handling equipment in narrow aisles run an injury risk from objects protruding from the racking (e.g. pallets, parts of cargo). In addition, a collision between the truck and the protruding objects can cause material damage to the truck and to the rack.

- Before entering a narrow aisle, check the racks for any protruding objects, making sure to check the entire length and height.
- In the narrow aisle, carefully drive towards the appropriate rack bay. Lift the load and remove any residual materials. (Correct picking).



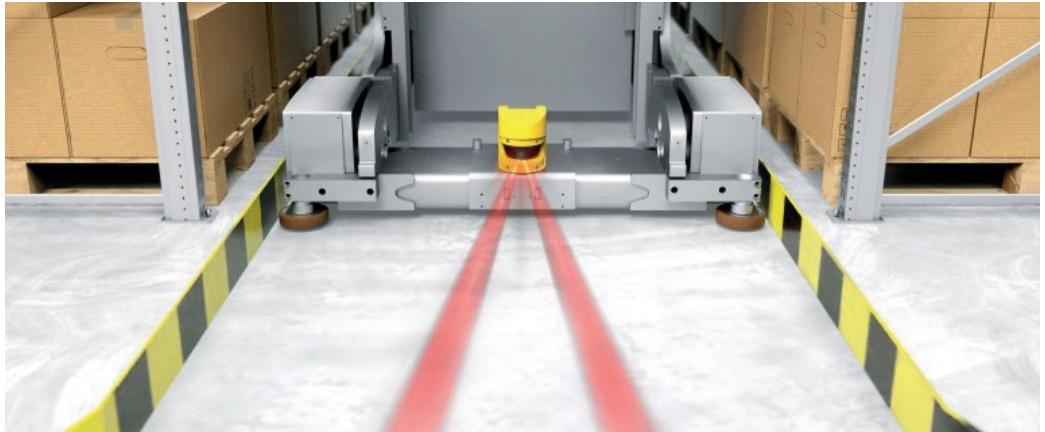
5.8

Person protection system (PPS)

Mobile person protection systems are used to protect persons who do not intend to enter the vehicle's brake zone. A safety laser scanner will scan the brake zone in each direction of travel and activate the vehicle's brakes

as soon as it detects an object or person in this zone (protective field). These person protection systems are generally active only when inductive guidance is switched on.

Optionally, it can also be expanded to include platform monitoring.



5.9

General safety rules

5.9.1

Load stability

Pay attention to the stability of loose loads. If possible, stack according to recommended stacking patterns. If possible, secure the load with metal or plastic straps or wrapping film. For goods that cannot be stacked, use box pallets.

5.9.2

Watch out for bystanders

Watch out for bystanders when pickup up or setting down a load. Do not allow anyone to stand or pass near or under the load. If necessary, it is up to the operator to warn bystanders to keep their distance.

5.9.3

Keep your hands and feet away from the mast

Never try to stop the load with your hands and feet. Even the smallest mistakes can lead to serious injuries.

5.9.4

Watch out for height

Pay attention to high stacks and any loose objects on top of the load. To protect the operator from falling objects, material-handling equipment has an overhead guard.

Move loads as close to the ground as possible

5.9.5

Keep the load low, approximately 10-15 cm above the ground. Never lift the load higher than necessary to make sure the load clears the ground or work floor when driving.

Make sure the load rests against the fork carriage

5.9.6

Never raise or lower loads while driving. Make sure that the entire length of the forks is under the load and that the load rests against the fork carriage.

5.9.7

LOOK BEFORE YOU DRIVE!!!!

Before you drive off, always take a good look around you. Make sure there is enough space to manoeuvre. Check that the direction handle is set to the direction in which you want to travel. Always look in the direction of travel, even when reversing.



5.9.8

Smooth driving

Avoid sudden acceleration and deceleration. Sudden braking can lead to dangerous situations. The load may slip off the forks, for instance, The truck can also tip forward.

5.9.9

Managing your speed

Adjust your speed to the circumstances. Keep right as much as possible while driving. Watch out for other traffic, especially pedestrians.

5.9.10

Use the vehicle for its intended purpose

Your safety depends on your own attitude at work. When things go wrong, the vehicle is not to blame. YOU or the passenger are at fault. Do not pull any stunts or pranks.

5.9.11

Watch out for skidding

Make sure the truck does not skid. Floors covered in water or oil pose a skid risk. You can avoid skidding by adjusting your speed, braking gently and evenly and steering carefully, especially when cornering.

5.9.12

Focus on the work

When driving, operators must focus, assess possible hazards properly and have a good understanding of the workplace and the work that is done there. It is therefore up to us to use vehicles safely in order to prevent damage and accidents. Always look in the direction of travel, despite the many distractions you may encounter along the way.



5.9.13

Approaching junctions

When approaching a junction, you must adjust your speed. Always watch out for other traffic. Sound your horn in time.

5.9.14

Horn

You should use the horn in various special situations, not just when approaching a junction. Make sure to use the horn selectively.



5.9.15

Loose objects

Never drive over loose objects lying on the floor. Move them out of the way rather than driving over them. Avoid driving over potholes as much as possible.

5.9.16

Pay attention to clearance

Make sure that you do not collide with highly placed objects, such as lamps, wiring, pipes and sprinkler systems. Pay particular attention to the different clearance heights in warehouses.

5.9.17

Manoeuvring

Make sure you have enough space. In narrow aisles, stick to the middle as much as possible. Be mindful of racking and other materials along your way.

When cornering, remember that the rear of the vehicle swings in the opposite direction of the turn. If, for example, you are driving forward in a truck and take a left turn, the rear of the vehicle will swing to the right. Remember that the load will need more space to corner than the truck itself.

5.9.18

Body parts

Keep your arms or legs inside the confines of your vehicle. You only have one set of arms and legs, Take care of them!

5.9.19

Never lift persons

It is **strictly forbidden** to use material-handling equipment to lift people. To lift people, use an aerial work platform.



5.9.21

Parking material-handling equipment

Vehicles must be parked as follows:

- Park in such a way that you can dismount in a normal fashion;
- Straighten the wheels;
- Forks on the floor;
- Engage the parking break;
- Neutralize the controls;
- Turn off the ignition switch;
- Take the key or chip card.

Do not block:

- doors or other passageways
- fire extinguishers or first-aid kits;
- walking and transport routes.



5.9.22

User manual

It goes beyond the scope of this textbook to cover every single type of material-handling equipment in detail.

For more detailed information, please refer to the user manual of the vehicle in question. A user manual must be present for each vehicle in the workplace.

Final tip

Safety starts with you. Don't just think of your own safety, but the safety of others too!



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HEADQUARTERS

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ALL BRANCHES

- | | | |
|--|--|--|
| 1 BLOM Opleidingen Alkmaar
Walruskoog 8
1822 BC Alkmaar | 8 BLOM Opleidingen Emmen
Charles Darwinstraat 15
7825 AB Emmen | 15 BLOM Opleidingen Son (bij Eindhoven)
Ekkersrijt 4509
5692 DN Eindhoven |
| 2 BLOM Opleidingen Amsterdam
Tijnmuiden 24
1046 AL Amsterdam | 9 BLOM Opleidingen Etten - Leur
Ambachtlaan 19
4871 ED Etten-Leur | 16 BLOM Opleidingen Tilburg
Polluxstraat 3
5047 RA Tilburg |
| 3 BLOM Opleidingen Assen
Australieweg 16
9407 TE Assen | 10 BLOM Opleidingen Geleen
Industrieweg 7c
6163 AH Geleen | 17 BLOM Opleidingen Venlo
Willem Barentszweg 4c
5928 LM Venlo |
| 4 BLOM Opleidingen Barneveld
De Landweer 7
3771 LN Barneveld | 11 BLOM Opleidingen Heerenveen
Energieaan 4
8447 ST Heerenveen | 18 BLOM Opleidingen Wijchen
Bijsterhuizen 2010
6604 LJ Wijchen |
| 5 BLOM Opleidingen Deventer
Solvingenstraat 49
7421 ZR Deventer | 12 BLOM Opleidingen Hengelo
Adam Smithstraat 41
7559 SW Hengelo | 19 BLOM Opleidingen Zwolle
Popovstraat 11
8013 RK Zwolle |
| 6 BLOM Opleidingen Doetinchem
Havenstraat 120a
7005 AR Doetinchem | 13 BLOM Opleidingen Houten
Bergveste 6-8
3992 DE Houten | 20 BLOM Opleidingen Zoetermeer
Signaalrood 60
2718 SG Zoetermeer |
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