MANITOU

HANDLING YOUR WORLD

52841782EN-USMG (A-01/2024)
(GLOBAL)

OPERATOR'S MANUAL
(ORIGINAL MANUAL)

ME 316 LIFT 80V S1
ME 320 LIFT 80V S1

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EXPLANATION OF SYMBOLS

⚠ DANGER

Indicates an imminent hazardous situation which, if not avoided will result in death or serious injury.

⚠ WARNING

Indicates a potentially hazardous situation which, if not avoided, may result in death or serious injury.

⚠ CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in minor injury or damage to property. It is also used to warn users of unsafe practices.

NOTICE

Indicates a practice not related to a physical injury which, if not avoided, may damage the machine.

Indicates a message to draw attention to important information regarding environmental protection.

Indicates special tools for performing a task.

Indicates the value of tightening torque to be applied.

Indicates the weight of an item.
e.g. it helps to anticipate an action linked to a person's health or the choice of lifting equipment.

1. SECURITY

1.1. FOREWORD

1.1.1 ABOUT THIS OPERATOR'S MANUAL

This instruction manual is an integral part of this machine and must always be kept in the net (or storage box) located in the driving position.

MANITOU reserves the right to modify its models and equipment without notice, contact MANITOU for updated information.

This instruction manual provides operators with all information relating to safety precautions, operating instructions and maintenance procedures to ensure the safe use and reliability of this machine.

Read carefully and understand this instruction manual carefully before using this machine.

This instruction manual was developed from the list of equipment and technical characteristics given during its design.

The level of equipment depends on the options chosen and the country of sale.

Depending on the options and the marketing date, certain equipment/functions described in this instruction manual may not be present on the machine.

Characteristics, descriptions and illustrations are given without obligation.

1.1.2 INTENDED USE OF THE MACHINE

MANITOU has ensured that this machine is suitable for use under the standard operating conditions defined in this instruction manual.

1.1.3 SERVICE BULLETIN

Machine and personnel safety is crucial to MANITOU, service bulletins are written to communicate important safety information to dealers, owners and machine users.

This machine must comply with all associated service bulletins, contact MANITOU or your dealer for information on the bulletins that apply to your machine.

These service bulletins are sent to the owners of the machine, therefore it is very important to register your machine and ensure that the information is accurate and up to date.

When transferring ownership of the machine, update the information to ensure service bulletins are sent to the new owner.

1.1.4 CONTACTING THE MANUFACTURER

It is necessary to contact MANITOU in the following cases:

- Reporting an accident.
- Updated current owner information.
- Questions regarding compliance with standards and regulations.
- Questions regarding machine use or safety.
- Questions regarding any special applications or product modifications.

1.2. INSTRUCTIONS TO THE ESTABLISHMENT MANAGER

1.2.1 SITE

Good management of the machine development site reduces the risk of accidents:

- Ground not unnecessarily uneven or cluttered.
- No excessive slopes.
- Pedestrian traffic controlled, etc.

1.2.2 OPERATOR

⚠ WARNING

Based on experience, certain contraindications to the use of the machine may arise.
These foreseeable abnormal uses, the main ones of which are cited below, are formally prohibited:

- Predictable abnormal behavior which results from ordinary negligence, but which does not result from the intention to misuse the equipment.
- The reflex behavior of a person in the event of a malfunction, incident, failure, etc., while using the machine.
- The behavior resulting from the application of the "law of least effort" during the accomplishment of a task.
- For certain machines, the predictable behavior of certain people such as: apprentices, adolescents, disabled people, trainees tempted to drive a machine, operators tempted by use for betting, competition, for personal experience.

- The equipment manager must take these criteria into account to assess the operator's ability to drive.

Only qualified and authorized personnel may use the machine. This authorization is given in writing by the competent manager in the establishment where the machine is used and must be carried at all times by the operator.

1.2.3 SUITABILITY OF THE MACHINE FOR THE JOB

This machine is a forklift designed to handle (move, store or transport) a load.

MANITOU has ensured the suitability for use of this machine under the normal conditions of use provided for in this instruction manual, with a static test coefficient of 1.33 and a dynamic test coefficient of 1, as provided for in the harmonized standard ISO 3691-1 for mast trucks.

Before commissioning, the establishment manager is required to check that the machine is suitable for the work to be carried out and to carry out certain tests (according to current legislation).

1.2.4 MACHINE ADAPTATION TO STANDARD ENVIRONMENTAL CONDITIONS

⚠ WARNING

Your machine is designed for use outdoors in normal atmospheric conditions and indoors in perfectly ventilated and ventilated rooms (-20°C to +40°C).
Use of the machine is prohibited in fire-risk or potentially explosive spaces (e. g.: refineries, fuel or gas depots, storage of flammable products, etc.).
For use in these spaces, specific equipment exists, consult your dealer.

⚠ WARNING

After commissioning, any machine equipped with devices likely to emit non-ionizing radiation (example: radio transmitter, radio frequency identification reader, data collection system, etc.) may injure people, particularly those with active or inactive implant medical devices.

NOTICE

Lubricants are topped up at the factory for average climatic uses, i.e.: -15°C to +35°C.
For more severe uses, it is necessary, before starting up, to drain and refill using lubricants adapted to ambient temperatures.
The same goes for the coolant.

In addition to the standard equipment fitted to your machine, numerous options are offered to you such as: road lighting, brake lights, rotating beacon, reversing lights, reverse warning buzzer, front work light, rear work light, etc.

The operator must take into account the conditions of use to define the signaling and lighting of his machine. Consult your dealer.

Take into account the climatic and atmospheric conditions of the site of use.

- Protection against frost (refer to the maintenance section).

Refer to the MAINTENANCE chapter.

- Adaptation of lubricants (consult your dealer).

Prevent the risk of fire linked to use in a dusty and flammable atmosphere (e. g. straw, flour, sawdust, organic waste, etc.).

Equip a machine operating in an area without means of extinguishing with an individual fire extinguisher. Solutions exist, consult your dealer.

Our machines comply with Directive 2004/108/EU regarding electromagnetic compatibility (EMC), and the corresponding harmonized standard EN 12895. Their proper functioning is no longer guaranteed if they operate in areas where electromagnetic fields are higher than the threshold set by this standard (10 V/m).

Directive 2002/44/EC requires heads of establishments not to expose their employees to excessive doses of vibration. There is no recognized measurement code that would allow machines from different manufacturers to be compared. The actual doses received can therefore only be measured in real conditions, at the user's home.

The seat is an essential means of reducing vibrations transmitted to the operator. If replacing the seat, consult your dealer.

Here are some tips to minimize these doses of vibration:

- Choose the machine and its accessory best suited to the intended use.

- Adapt the seat adjustment to the operator's weight (depending on machine model) and keep it in good condition, as well as the cabin suspensions.
- Inflate the tires according to the recommendations.
- Ensure that operators adapt their speed of execution to the condition of the ground.
- Where possible, arrange land to improve flatness and remove harmful obstacles and potholes.

1.2.5 MODIFICATION OF THE MACHINE

For your safety and that of others, it is prohibited to modify the structure and settings of the various components of your machine by yourself (hydraulic pressure, setting of limiters, engine speed, addition of additional equipment, addition of counterweights, non-approved accessories, warning systems, etc.). In this eventuality the liability of the manufacturer would be released.

1.2.6 FRENCH ROAD TRAFFIC RULES

A single certificate of conformity is issued. This certificate should be kept carefully.

The road circulation of non-approved machines is subject to the provisions of the highway code concerning special machines, defined in article R311-1 of the highway code, in category B of the equipment decree of November 20 1969 which determines the terms and conditions applicable to special machines. The machine must be equipped with an operating plate.

1.2.7 OPERATOR'S MANUAL

The instruction manual must always be in good condition and in the location provided for this purpose in the machine and in the language used by the operator.

It is essential to replace the instruction manual, as well as all plates and stickers which are illegible or damaged.

1.2.8 MAINTENANCE

Refer to the MAINTENANCE chapter.

NOTICE

A periodic check of your machine is mandatory to ensure that it remains in compliance.
The inspection frequency is defined by the legislation in force in the country in which the machine is used.

Maintenance or repairs other than those detailed in the MAINTENANCE section must be carried out by qualified personnel (see your dealer) and under the safety conditions essential to preserve the health of the operator or that of others.

Example for France "The head of the establishment using a machine must establish and keep up to date a maintenance log for each device (decree of March 2, 2004) and undergo a periodic general inspection every 6 months (decree of March 1, 2004)".

1.2.9 DEALERS AND CENTERS AUTHORIZED FOR MAINTENANCE

Only technicians, dealer experts and MANITOU CENTERS are authorized to service the machine. These contacts are regularly trained and qualified by MANITOU.

Only spare parts approved and sold by MANITOU are recommended to ensure the reliability of the machine following servicing and maintenance.

These recommendations are based on MANITOU's knowledge of its products, accessories, parts, training, designs, and diagnostics. They also come from feedback from customers who did not use the parts or fluids recommended for maintenance or had the maintenance carried out by a third party unfamiliar with MANITOU technology and diagnostic systems.

1.3. INSTRUCTIONS FOLLOWING AN ACCIDENT OR MACHINE DETERIORATION

1.3.1 GENERAL INSTRUCTIONS

Any deterioration or damage following an accident (impact, overturning, collision, falling load or object).

In the event of an accident, carry out an inspection of the machine by authorized personnel to bring it into conformity.

1.3.2 RISK ASSOCIATED WITH HIGH VOLTAGE CIRCUITS

In the event of abnormal or accidental damage to a component or a high voltage electrical cable:

- do not use the machine.
- do not touch the machine.
- walk away from the machine.
- call a dealer or authorized personnel to secure the perimeter and intervene on damaged high voltage electrical circuits.

1.3.3 IN CASE OF FIRE

If smoke or abnormal odors are released while using or recharging the Lithium-ion battery, follow the following instructions:

- immediately stop the current operation.
- turn off and unplug the charger.
- cut off the electrical contact of the machine (key switch and circuit breaker).
- report the incident.
- move the battery to a clear, open area.

Only trained personnel are authorized to intervene in the event of a fire.

Contact the emergency services immediately in the event of a fire.

Follow the following instructions:

- do not use the machine.
- do not touch the machine.
- walk away from the machine.
- inform emergency services of the presence of high-voltage lithium-ion batteries.

1.4. INSTRUCTIONS FOR THE OPERATOR

1.4.1 SITE

Good management of the machine development site reduces the risk of accidents:

- Ground not unnecessarily uneven or cluttered.
- No excessive slopes.
- Pedestrian traffic controlled, etc.

1.4.2 FOREWORD

⚠ WARNING

The risk of accidents when using, maintaining or repairing this machine can be reduced if you follow the safety instructions and preventive measures detailed in this manual.
Failure to follow the safety and operating instructions, repair instructions or maintenance instructions for your machine may result in serious or even fatal accidents.
To reduce or avoid any danger with a MANITOU approved accessory, follow the instructions in the accessories section.

Only the operations and maneuvers described in this instruction manual must be carried out. The manufacturer is not able to foresee all possible risk situations. Therefore, the safety instructions given in the instruction manual and on the machine are not exhaustive.

As an operator, you must at all times be aware of the possible risks to yourself, to others or to the machine.

1.4.3 OPERATOR'S MANUAL

Read the instructions carefully.

The instruction manual must always be in good condition and in the location provided for this purpose in the machine.

It is imperative to report all plates and stickers that are illegible or damaged.

1.4.4 AUTHORIZATION FOR USE IN FRANCE

Only qualified and authorized personnel may use the machine. This authorization is given in writing by the competent manager in the establishment where the machine is used and must be carried at all times by the operator.

The operator is not authorized to authorize the driving of the machine by another person.

Refer to the legislation in force for other countries.

1.4.5 MAINTENANCE

⚠ WARNING

Do not use the machine if the tires are incorrectly inflated, damaged or excessively worn, as this could endanger your safety or that of others, or cause damage to the machine.
The fitting of foam-inflated tires is prohibited and is not guaranteed by the manufacturer, unless prior authorization is obtained.

The operator who notices that the machine is not in good working order or does not comply with the safety instructions must immediately inform his manager.

The operator is prohibited from carrying out any repair or adjustment himself, unless he has been trained for this purpose. He must keep the machine in perfect clean condition himself if he is responsible for this care.

The operator must perform daily and weekly maintenance.

Refer to the MAINTENANCE chapter.

For operator safety, maintenance should be performed with the ignition key removed.

It is up to the operator to determine and adapt the frequency and type of cleaning necessary to prevent the risk of fire resulting from the accumulation of flammable material(s).

Particular attention must be paid by the operator to all areas of the machine likely to accumulate these risky materials.

1.4.6 MODIFICATION OF THE MACHINE

For your safety and that of others, it is prohibited to modify the structure and settings of the various components of your machine by yourself (hydraulic pressure, setting of limiters, engine speed, addition of additional equipment, addition of counterweights, non-approved accessories, warning systems, etc.).

In this eventuality, the manufacturer's liability would be released.

1.4.7 LIFTING PEOPLE

The lifting and transport of people is prohibited.

1.4.8 BEFORE USING THE MACHINE

Perform daily maintenance.

Refer to the MAINTENANCE chapter.

Ensure the cleanliness of the driving position, particularly the floor and the floor mat.

Check that no moving object disturbs the operation of the machine.

Check the proper functioning and cleanliness of the lights, indicators and windshield wipers.

Check the condition, cleanliness and adjustment of the mirrors.

Check the effectiveness of the buzzer.

1.4.9 OPERATOR AREA LAYOUT

⚠ DANGER

Under no circumstances should you make seat adjustments while the machine is moving.

Regardless of experience, the operator should become familiar with the location and use of all monitoring and control instruments before putting the machine into operation.

Wear clothing suitable for operating the machine, avoid loose clothing.

Equip yourself with protective equipment corresponding to the work envisaged.

Prolonged exposure to high noise levels can cause hearing damage. To protect yourself from annoying noise, wearing hearing protection is recommended.

Always face the access to the driving position when getting in and out and use the handle(s) provided for this purpose. Do not jump from the machine to get off.

Always remain attentive when using the machine, do not listen to the radio or music with headphones or earphones.

Never drive with wet hands or shoes soiled with grease.

For greater comfort, adjust the seat to your liking and adopt a good position in the driving position.

The operator must always be in his normal position at the driving position: It is forbidden to let his arms and legs and, in general, any part of the body, extend beyond the machine's driving position.

The use of a seat belt is mandatory; it must be adjusted to the operator's size.

The controls must under no circumstances be used for purposes other than their own (e.g.: getting on or off the machine, coat rack, etc.).

If the controls are equipped with a forced operation device (lever lock), it is prohibited to leave the driving position without returning these controls to neutral.

It is prohibited to transport passengers either on the machine or in the driving position.

1.4.10 ENVIRONMENT

⚠ WARNING

You should check with your local electrical agency.
You can be electrocuted or seriously injured if you work or park the machine too close to electrical cables.
In the event of strong wind, do not carry out any handling that endangers the stability of the machine and the load, especially if the load has significant wind resistance.

Comply with site-specific safety rules.

If you must use the machine in a dark area or when working at night, ensure that it is equipped with work lighting.

During handling operations, ensure that nothing and no one obstructs the movement of the machine and the load.

Do not allow anyone to approach the machine's operating area or to pass under the load.

When used on a transverse slope, before raising the mast, follow the instructions in the paragraph: INSTRUCTIONS FOR HANDLING A LOAD.

Driving on a longitudinal slope:

- Drive and brake gently.
- Traveling empty: the forks or the accessory downstream. 
- Movement under load: the forks or the accessory upstream. 

Consider the dimensions of the machine and its load before entering a narrow or low passage.

Never enter a loading bridge without having checked:

- That it is properly set up and moored.
- That the body with which it is connected (wagon, truck, etc.), cannot move.
- That this bridge is designed for the total weight of the machine possibly loaded.
- That this bridge is designed for the size of the machine.

Never enter a walkway, a floor or a goods lift without being sure that they are designed for the weight and size of the machine possibly loaded and without having checked that they are in place. good condition.

Pay attention to loading docks, trenches, scaffolding, soft ground, manholes.

Ensure the stability and firmness of the ground under the wheels before lifting the load.

Ensure that the scaffolding, loading platform, pile or floor are capable of supporting the load.

Never stack loads on uneven ground, they risk tipping over.

The load or accessory must not be left at height for a long time just above a structure due to the descent of the mast. In such a case, permanent monitoring must be provided to readjust the height of the forks or the accessory if necessary.

When working near overhead power lines, ensure that there is a sufficient safety distance between the working area of the machine and the power line.

Prevent the risk of fire linked to use in a dusty and flammable atmosphere (e. g. straw, flour, sawdust, organic waste, etc.).

1.4.11 VISIBILITY

The safety of people in the machine's operating area, as well as that of the machine and its operator, is linked to the operator's visibility of the immediate environment of the machine, in all circumstances and at all times.

This machine has been designed to allow good visibility (direct or indirect using mirrors) of the operator on the immediate environment of the machine during rolling operations, machine empty, mast in transport position.

If the volume of the load limits forward visibility, special precautions must be taken:

- traveling in reverse,
- site layout,
- help by a person (placed outside the machine's operating area) directing the maneuver, ensuring that you always have good visibility of this person.
- in all cases, avoid excessively long journeys in reverse.

In all cases where visibility on the route proves insufficient, seek help from a person (placed outside the machine's operating area) directing the maneuver, ensuring that you always have good visibility on this person.

Maintain in working order, adjustment and cleanliness all elements relating to improving visibility: windshields and windows, windshield wipers and washers, road and work lighting, rear-view mirrors.

1.4.12 TRAVELING THE MACHINE

⚠ DANGER

Risk of loss of control and risk of loss of lateral and frontal stability of the machine.

The operator must remain in control of the machine.
If the machine overturns, do not attempt to leave the cabin during the incident.
Stay strapped in the cabin.

Respect the company's traffic rules or, failing that, the highway code.

Do not perform operations that exceed the capabilities of the machine or accessory.

Always move the machine with the forks or accessory in the transport position, i.e. 300 mm from the ground and the apron tilted backwards.

Only transport balanced and properly secured loads to avoid any risk of the load falling.

Ensure that pallets and crates are in good condition and appropriate for the load to be lifted.

Become familiar with the machine in the field where it will have to operate.

Ensure the effectiveness of the service brakes.

Drive smoothly and choose a speed appropriate to the conditions of use (terrain configuration, machine load).

Reduce the travel speed of the cart when transporting a load.

Do not use the hydraulic mast controls when the machine is moving.

Only operate the machine with the mast in the raised position in exceptional circumstances with extreme caution, very low speed and gentle braking. Ensure sufficient visibility.

Initiate turns at reduced speed.

Stay in control of your speed in all circumstances.

On wet, slippery or uneven terrain, drive slowly.

Brake gradually and without brutality.

Operate the machine's start selector only when stationary and without brutality.

Do not drive with your foot on the service brake pedal.

Always remember that hydrostatic steering is very sensitive to steering wheel movements, so you should turn gradually and not jerkily.

Do not leave the machine driving position with a lifted load.

Look in the direction of travel and always maintain good visibility on the route.

Use the mirrors frequently.

Avoid obstacles.

Never drive on the edge of a ditch or a significant slope.

The simultaneous use of two machines to handle heavy or bulky loads is a dangerous maneuver, requiring special precautions. It should only be carried out exceptionally and after analyzing the risks.

The key switch constitutes an emergency stop device in the event of an operating anomaly, for machines not equipped with a push stop.

Always move the machine with the forks or accessory in the transport position, i.e. 300 mm from the ground and the apron tilted backwards.

For machines with gearbox, engage the chosen speed.

Refer to the FAMILIARIZATION chapter.

Release the parking brake.

Place the drive selector in the desired direction and accelerate moderately to allow the machine to move.

1.4.13 SHUTTING DOWN THE MACHINE

Safety instructions

Never leave the ignition key on the machine in the absence of the operator.

When the machine is stopped, or when the operator must leave his driving position (even momentarily), place the forks or the accessory on the ground, apply the parking brake and put the drive selector in neutral.

Ensure that the machine is not in a location where it could obstruct traffic and less than one meter from the rails of a railway track.

In the event of prolonged parking on a site, protect the machine against bad weather, particularly in the event of frost (check the antifreeze protection level of the cooling circuit), close and lock all access to the machine (doors, windows, hoods). …).

Instructions

Park the machine on flat ground or on a slope of less than 15%.

Place the forward/reverse selector in neutral.

Apply the parking brake.

For machines with gearbox, place the gear lever in neutral.

Place the forks or accessory flat on the ground.

If using an accessory with a grapple or clamp, or a hydraulically opening bucket, completely close the accessory.

Remove the ignition key.

At the end of the day, activate the battery switch. If the shutdown lasts more than a week, refer to the battery specifications.

Lock all access to the machine (doors, windows, hoods, etc.).

1.4.14 TRAVELING THE MACHINE ON THE PUBLIC HIGHWAY

⚠ WARNING

Never drive in neutral (neutral gear selector or neutral gear lever or hold the transmission cut-off button) in order to maintain engine braking on the machine.
Failure to comply with this instruction on a slope results in overspeed which can make the machine uncontrollable (steering, braking) and which can cause significant mechanical damage.

The circulation of non-approved machines is subject to the provisions of the highway code concerning special machines, defined in article R311-1 of the highway code in category B of the equipment decree of November 20, 1969 which determines the terms and conditions applicable to special equipment. The machine must be equipped with an operating plate.

Safety instructions

The operator traveling on public roads must comply with the requirements of current road legislation.

The machine must comply with the provisions of current road legislation. If necessary, optional solutions exist, consult your dealer.

Instructions

Make sure the rotating beacon is in place, turn it on and check its operation.

Check the proper functioning and cleanliness of the lights, indicators and windshield wipers.

Turn off the work lights if the machine is equipped with them.

Place the accessory approximately 300 mm from the ground.

Operating the machine with a front attachment

You must observe the regulations in force in your country regarding the possibility of driving on public roads with an accessory on the front of your machine. If the road legislation of your country authorizes driving with a front accessory, you should at least:

- Protect and signal all sharp and/or dangerous edges of the accessory.
- The accessory must be unloaded.
- Check that the accessory does not obscure the lighting surface of the front headlights.
- Ensure that the legislation in force in your country does not provide for other obligations.

Driving the machine with a trailer

For machine equipped with a towing system

When using a trailer, observe the regulations in force in your country (maximum driving speed, braking, maximum trailer weight, etc.).

Do not forget to connect the electrical equipment of the trailer to that of the machine.

Trailer braking must comply with current legislation.

If towing a trailer with assisted braking, the towing machine must be equipped with a trailer braking device. In this case, do not forget to connect the braking equipment of the trailer to that of the machine.

The vertical force on the towing hook must not exceed the maximum authorized by the manufacturer (consult the manufacturer's plate of your machine).

The Authorized Gross Vehicle Weight must not exceed the maximum authorized by the manufacturer (consult the manufacturer's plate of your machine).

1.5. MACHINE MAINTENANCE INSTRUCTIONS

1.5.1 GENERAL INSTRUCTION

Wear suitable clothing for machine maintenance, avoid jewelry and loose clothing. Tie up and protect your hair if necessary.

Before any intervention on the machine:

- Apply the parking brake.
- Remove the ignition key.

Carry out necessary repairs, even minor ones, immediately.

Repair any leak, even minor, immediately.

Ensure that the disposal of consumable materials and used parts is carried out safely and in an environmentally friendly manner.

Be careful of the risk of burns and projections:

- Hydraulic circuit
- Cabin heating vents
- Etc.

1.5.2 MAINTENANCE LOGBOOK

NOTICE

Carry out periodic maintenance to keep your machine in good working order (see: Maintenance).

Failure to comply with periodic maintenance may terminate the contractual warranty conditions.

Maintenance operations carried out in accordance with the recommendations (see: Maintenance) and other inspection, upkeep, repair or modification operations carried out on the machine must be recorded in a maintenance logbook.

For each operation, the date of the work, the names of the people or companies having carried out it, the nature of the operation and, where applicable, its frequency are indicated.

In the case of replacement of machine elements, the references of these elements are indicated.

1.5.3 LUBRICANT LEVEL

Use the recommended lubricants (under no circumstances use used lubricants).

1.5.4 HYDRAULICS

⚠ WARNING

Balancing valve: changing the settings and dismantling the balancing valves or safety valves that may be fitted to your machine's cylinders is dangerous. These operations must only be carried out by authorized personnel (consult your dealer).
Hydraulic accumulator (depending on model): dismantling the hydraulic accumulators and their pipes that may be fitted to your machine is dangerous. These operations must only be carried out by authorized personnel (consult your dealer).
Do not attempt to loosen fittings, hoses or hydraulic components with the system under pressure.

Any intervention on the hydraulic circuit is prohibited, with the exception of the operations described in the "Maintenance" section.

1.5.5 ELECTRICITY

Do not place metal parts on the battery.

Disconnect the battery before working on the electrical circuit.

1.5.6 WELDING ON THE MACHINE

Disconnect the battery before welding on the machine.

To carry out electric welding on the machine, place the negative cable clamp of the welding station directly on the part to be welded to prevent the very intense current from passing through the alternator.

Never carry out welding or work that generates heat on an assembled tire; the heat causes an increase in pressure, which could cause the tire to explode.

If the machine is equipped with an electronic control unit, unplug it before carrying out welding, as this may cause irreparable damage to the electronic components.

1.5.7 WASHING THE MACHINE

Clean the machine or at least the area concerned before any intervention.

Remember to close and lock all access to the machine (doors, windows, covers, etc.).

When washing, avoid joints, components and electrical connections.

If necessary, protect against the ingress of water, steam or cleaning products the components likely to be damaged, in particular the battery, electrical components and connections.

Clean the machine of any traces of oil or grease.

Never clean the machine with a pressure washer in the following areas:

- High voltage battery environment.
- Under the hood.

1.5.8 MACHINE TRANSPORTATION

⚠ WARNING

Transporting the machine involves real risks for the operator and those involved.

Refer to the corresponding chapter to tow, sling or transport the machine.

1.6. DISPOSING OF THE MACHINE

1.6.1 RECYCLING OF MATERIALS

Before disposing of the machine, consult your dealer.

Metals

They are 100% recoverable and recyclable.

Plastic materials

- Plastic parts are identified by marking, in accordance with current regulations.

- To facilitate the recycling process, the range of materials used has been limited.
- The majority of plastic materials are made up of so-called thermoplastic plastics that are easily recyclable by melting, granulating or grinding.

Rubbers

Tires and seals can be ground for use in cement manufacturing or to obtain reusable pellets.

Glasses

They can be dismantled and collected to be processed by glassmakers.

1.6.2 ENVIRONMENTAL PROTECTION

By entrusting the maintenance of your machine to the MANITOU network, the risk of pollution is limited and the contribution to environmental protection is respected.

MANITOU aims to manufacture machines offering the best performance and limiting polluting emissions.

Used or damaged parts

- Do not abandon the pieces in the middle of nature.
- MANITOU and its network have subscribed to an approach to protect the environment through recycling.

Used oils

- The MANITOU network ensures collection and processing.
- By entrusting him with the emptying, the risk of pollution is limited.

Used batteries and batteries

- Do not throw away batteries and remote control batteries, they contain metals that are harmful to the environment.
- Return to the MANITOU network or any other approved collection point.

1.7. DECALS

1.7.1 DECALS LOCATION — ME 316→320 LIFT 80V S1

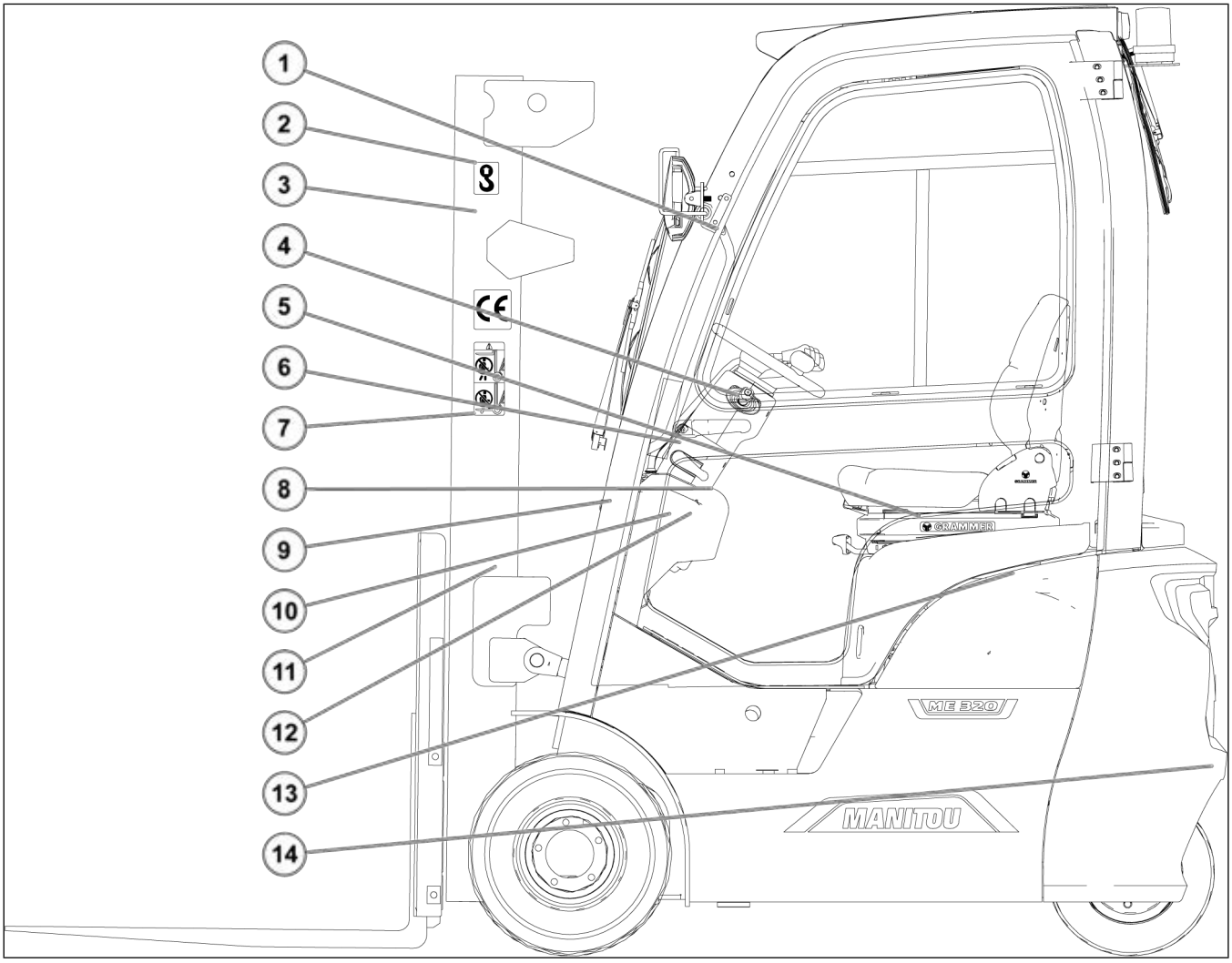


Figure 1: Decals location

Table 1. List of decals

Marker	Reference	Description	Option
1	52531617	Driver safety instruction	
2	24653	Lifting point	
3	52845901	Slinging instruction	
4		Ignition switch	
5	Consult your dealer	Load chart	According to model *
6	52845837	Emergency stop	
7	828044	Fork safety instruction	
8	52548660	Parking brake	
9	Consult your dealer	Manufacturer’s plate	
10	52759172	Warning risk of misuse	For UK only
11	828054	Trapping safety instruction	

Marker	Reference	Description	Option
11	52521861	Mast safety instruction	
12			
13	52521860	Hydraulic fluid	
14	52845861	Tie-down point	

*The load chart referred to in the notice is a standard or blank chart. Each machine associated with an attachment has a specific chart. To obtain this, consult your dealer.

1.7.2. DECALS DESCRIPTION

1.7.2.1 Decal - 52531617 - Turnover instructions

Figure 2: Decal - Turnover instructions

Indicates the procedure to follow in the event of the machine overturning.

1.7.2.2 Decal - 24653 - Lifting point

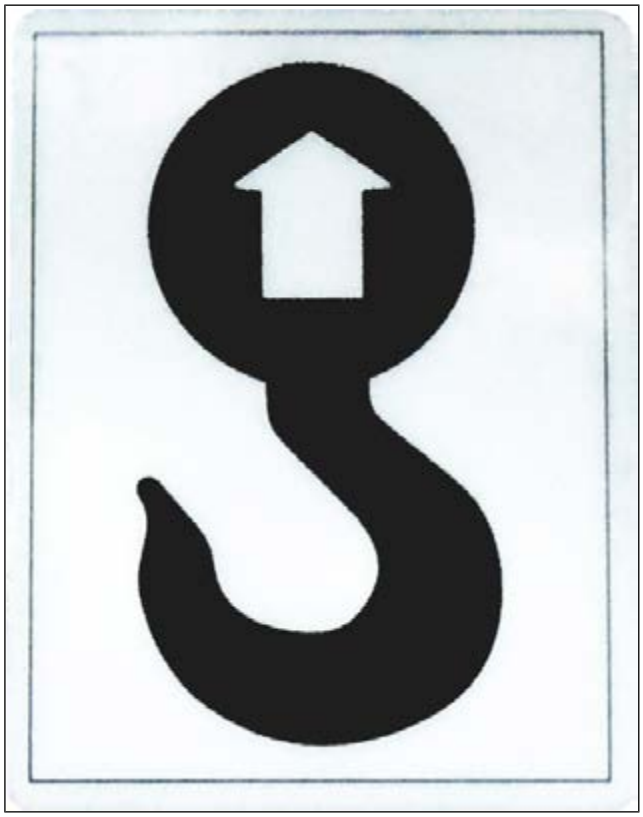


Figure 3: Decal - Lifting point

Indicates the location of the machine's lifting point.

1.7.2.3 Decal - 52845901 - Slinging instruction

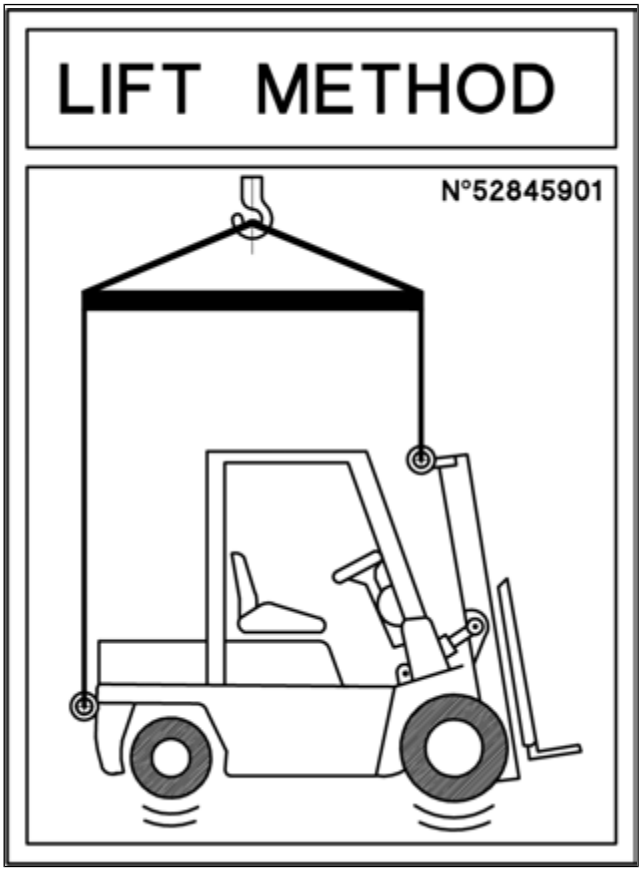


Figure 4: Decal - Slinging instruction

Indicates how to sling the machine.

1.7.2.4 Decal - 52845837 - Emergency stop

Figure 5: Decal - Emergency stop

Indicates the location of the emergency stop button.

1.7.2.5 Decal - 828044 - Safety instruction

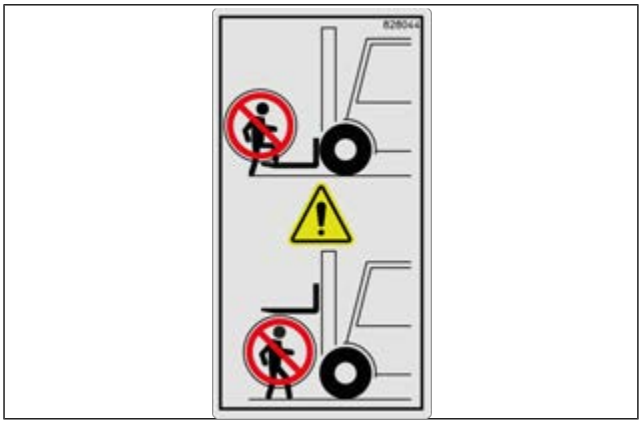


Figure 6: Decal - Safety instruction

Indicates to stay away from any moving components.

1.7.2.6 Decal - 52548660 - Parking brake

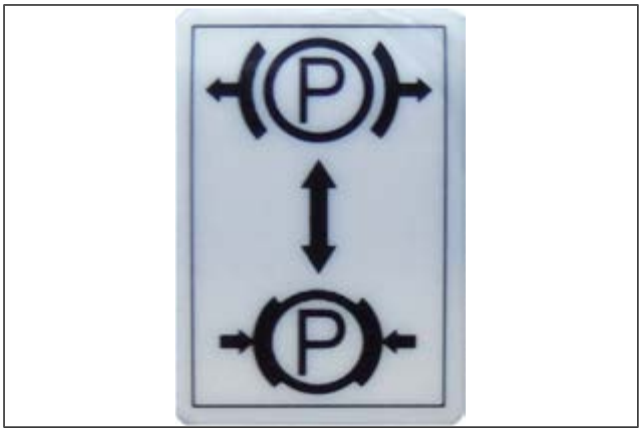


Figure 7: Decal - Parking brake

Indicates the direction of operation of the parking brake:

- Forward to loosen.
- Backward to tighten.

1.7.2.7 Decal - 52759172 - Warning improper use hazard

Only for the United Kingdom

Figure 8: Decal - Warning improper use hazard

1.7.2.8 Decal - 828054 - Trapping safety instruction

Figure 9: Decal - Trapping safety instruction

Indicates a risk of crushing and to keep away from any moving components.

1.7.2.9 Decal - 52521861 - Mast safety instruction

Figure 10: Decal - Trapping safety instruction

Indicates that the mast should not be climbed.

1.7.2.10 Decal - 52521860 - Hydraulic fluid

Figure 11: Decal - Hydraulic fluid

Indicates that the tank on which the sticker is present is intended to contain hydraulic oil.

1.7.2.11 Decal - 52845861 - Tie-down point

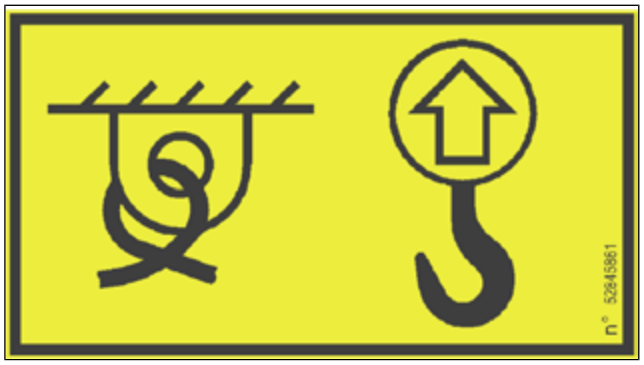


Figure 12: Decal - Tie-down point

Indicates the emplacement of the tie-down point.

2. TECHNICAL SPECIFICATIONS

2.1. DECLARATION OF CONFORMITY

2.1.1 “EC” DECLARATION OF CONFORMITY — ME 316→320 LIFT 80V S1 (FOR EUROPEAN UNION ONLY)

This document is a specimen of the “EC” declaration of conformity mirroring the content of the original declaration provided with the machine.

This specimen and the original document may contain data fields which does not apply to the machine. These fields are left blank if not relevant.

See the original certificates for all relevant values for your machine.

1) DÉCLARATION «CE» DE CONFORMITÉ (originale)

«EC» DECLARATION OF CONFORMITY (original)

2) Constructeur, *Manufacturer :* **MANITOU BF**
3) Adresse, *Address :* **430, RUE DE L'AUBINIÈRE - B.P 10249**
44158 - ANCENIS - CEDEX - FRANCE
4) Titulaire du dossier technique, *Holder of the technical file :* **MANITOU BF**
3) Adresse, *Address :* **430, RUE DE L'AUBINIÈRE - B.P 10249**
44158 - ANCENIS - CEDEX - FRANCE
5) Le constructeur déclare que la machine décrite ci-après, *The manufacturer declares that the machine described below :*

Industrial Counterbalanced Forklift

ME 316 LIFT 80V S1
ME 320 LIFT 80V S1

6) Est conforme aux directives suivantes et à leurs transpositions en droit national (si applicables), *Complies with the following directives and their transpositions into national law (if applicable) :*

2006/42/CE

7) Pour les machines annexe IV, *For annex IV machines :* Non applicable
8) Numéro d'attestation, *Certificate number :* Non applicable
9) Organisme notifié, *Notified body :* Non applicable

10) Procédure appliquée, *Applied procedure :*
9) Organisme notifié, *Notified body :*

11) Niveau de puissance acoustique, *Sound power level :*
12) Mesuré, *Measured :* dB (A)
13) Garanti, *Guaranteed :* dB (A)

2014/30/UE

14) Normes harmonisées utilisées, *Harmonised standards used :*

15) Normes ou dispositions techniques utilisées, *Standards or technical provisions used :*
EN 12895:2015+A1:2019, EN ISO 3691-1:2015+A1:2020, EN 16307-1:2020

16) Fait à, *Done at :* 17) Date, *Date :*
18) Nom du signataire, *Name of signatory :*
19) Fonction, *Function :*
20) Société, *Company :*
21) Signature, *Signature :*

Figure 13: "EC" declaration of conformity — ME 316→320 LIFT 80V S1 (specimen) page 1/2

Figure 14: "EC" declaration of conformity — ME 316→320 LIFT 80V S1 (specimen) page 2/2

2.1.2 "UKCA" DECLARATION OF CONFORMITY — ME 316→320 LIFT 80V S1 (FOR UNITED KINGDOM ONLY)

This document is a specimen of the "UKCA" declaration of conformity mirroring the content of the original declaration provided with the machine.

This specimen and the original document may contain data fields which does not apply to the machine. These fields are left blank if not relevant.

See the original certificates for all relevant values for your machine.

UKCA DECLARATION OF CONFORMITY

Manufacturer: **MANITOU BF**
Address: **430, RUE DE L'AUBINIÈRE - BP 10249**
44158 ANCENIS CEDEX - FRANCE
Authorized representative: **MANITOU UK**
Ebblake Industrial Estate - Dorset BH 31 6BB
Verwood - United Kingdom

The manufacturer declares that the below described machinery:

Industrial Counterbalanced Forklift

ME 316 LIFT 80V S1
ME 320 LIFT 80V S1

Complies with the following legislation:

The supply of Machinery (Safety) Regulations 2008, as amended

The machine is designed for the lifting of persons:

Applied procedure: Non applicable
Certificate number: Non applicable
Dated:
Approved body: Non applicable

Applied procedure:
Approved body:

Sound power level:
Measured: dB (A)
Guaranteed: dB (A)

Electromagnetic Compatibility Regulations 2016, as amended

The following designated standards have been addressed:

The following standards or technical guidance have been addressed:
EN ISO 3691 + EN 16307 EN 12895:2015+A1:2019, EN ISO 3691-1:2015+A1:2020, EN 16307-1:2020

At: Date:
Name of signatory:
Position:
Company:
Signature:

Figure 15: "UKCA" declaration of conformity — ME 316→320 LIFT 80V S1 (specimen)

2.2. MACHINE

2.2.1 TECHNICAL DATASHEET - ME 316 LIFT 80V S1

The specifications given are not binding on the manufacturer and can be modified without prior notification.

Specifications:

Table 2. Specifications

	Description	Unit	Value
1.1	Manufacturer		MANITOU
1.2	Type of model		ME 316 LIFT 80V S1
1.3	Drive : battery, diesel, gasoline, LPG, mains		Battery
1.4	Driving position : manual, walking alongside, standing, seated		Seated
1.5	Nominal load / Load on forks (basic capacity)	Q (t)	1.6
1.6	Load center of gravity	c (mm)	500
1.8	Distance from the load-bearing surface to centre of front axle	x (mm)	359.5
1.9	Wheelbase	y (mm)	1277

Weights:

Table 3. Weights

	Description	Unit	Value
2.1	Weight of truck in working order	kg	2940
2.2.1	Front axle load on loaded truck	kg	3950
2.2.2	Rear axle load on loaded truck	kg	590
2.3.1	Front axle load on unloaded truck	kg	1340
2.3.2	Rear axle load on unloaded truck	kg	1600

Tires:

Table 4. Tires

	Description	Unit	Value
3.1	Tire equipment : bandage (V), superelastic (SE), pneumatic (L), Solid		Solid
3.2	Size of front wheels	" / mm	18x7–8
3.3	Size of rear wheels	" / mm	15x4.5–8
3.5.1	Number of front wheels (x = drive wheels)		2x
3.5.2	Number of rear wheels (x = drive wheels)		2
3.6	Front wheel gauge (middle of wheels)	b10 (mm)	914
3.7	Rear wheel gauge (middle of wheels)	b11 (mm)	178

Dimensions:

Table 5. Dimensions

	Description	Unit	Value
4.1.1	Tilt of mast forward	α(°)	7
4.1.2	Tilt of mast backward	β (°)	6
4.2	Height mast lowered	h1 (mm)	1978
4.3	Normal free lift	h2 (mm)	135
4.4	Height of lift	h3 (mm)	3000
4.5	Height mast extended	h4 (mm)	3945
4.7	Height of driver protection (cab)	h6 (mm)	2147

	Description	Unit	Value
4.8.1	Height of seat	h7 (mm)	1120
4.8.2	Distance from front axle center line to seat index point (SIP)	l9 (mm)	854
4.12	Height of towing bar	h10 (mm)	525
4.19	Overall length	l1 (mm)	2776
4.20	Length to face of forks	l2 (mm)	1856
4.21	Total width (overall)	b1 (mm)	1086
4.22.1	Fork cross-section (s=thickness ; e=width)	s/e (mm)	35/100
4.22.2	Fork arms length	l (mm)	920
4.23	Fork carriage to ISO 2328 class A/B		ISO 2328 2A
4.24	Fork carriage width	b3 (mm)	1000
4.25	Maximum internal spacing between forks	b5 (mm)	770
4.31	Ground clearance of mast	m1 (mm)	100
4.32	Ground clearance at centre of wheelbase	m2 (mm)	110
4.33	Width of aisle for pallet 1000x1200 crossways	Ast (mm)	3156
4.34	Width of aisle for pallet 800x1200 lengthways	Ast (mm)	3280
4.35	Turning radius (position down/up)	Wa (mm)	1470

Performances:

Table 6. Performances

	Description	Unit	Value
5.1.1	Travelling speed laden	km/h	16
5.1.2	Travelling speed unladen	km/h	16
5.1.3	Travelling speed, laden, backwards	km/h	12.8
5.1.4	Travelling speed, unladen, backwards	km/h	12.8
5.2.1	Lifting speed laden	m/s	0.45
5.2.2	Lifting speed unladen	m/s	0.6
5.3.1	Lowering speed laden	m/s	0.46
5.3.2	Lowering speed unladen	m/s	0.44
5.5.1	Rated drawbar pull laden	N	3300
5.5.2	Rated drawbar pull unladen	N	3900
5.6.1	Maximum hitch pulling force fully loaded	N	11500
5.6.2	Maximum hitch pulling force fully unloaded	N	9500
5.7.1	Gradeability laden	%	16
5.7.2	Gradeability unladen	%	18
5.8.1	Maximum slope capacity fully laden	%	20
5.8.2	Maximum slope capacity fully unladen	%	20
5.9.1	Acceleration time laden	s	4.7
5.9.2	Acceleration time unladen	s	4.3
5.10	Service brake		Hydraulics
5.11	Parking brake		Mechanical

Motors:

Table 7. Motors

	Description	Unit	Value
6.1	Drive motor power rating	kW	2x5
6.2	Lift power motor	kW	11
6.3	Battery dimension according to DIN 43 531/35/36 A, B, C, no		No
6.4	Battery voltage/capacity	V/Ah	76.8 / 230
6.5	Battery weight	kg	≥185
6.6	Energy consumption according to VDI cycle	kWh	4.6
6.7	Transported density / hour	t/h	128
6.8	Transported density / energy consumption	t/kWh	24

Miscellaneous:

Table 8. Miscellaneous

	Description	Unit	Value
10.1	Hydraulic pressure for attachments	Bar	≤185
10.2	Oil flow rate for attachments	L/min	30
10.3	Hydraulic oil capacity	L	33
10.7	Sound level at driver's ear according to DIN 12053 (overhead guard / cab)	dB (A)	≤70

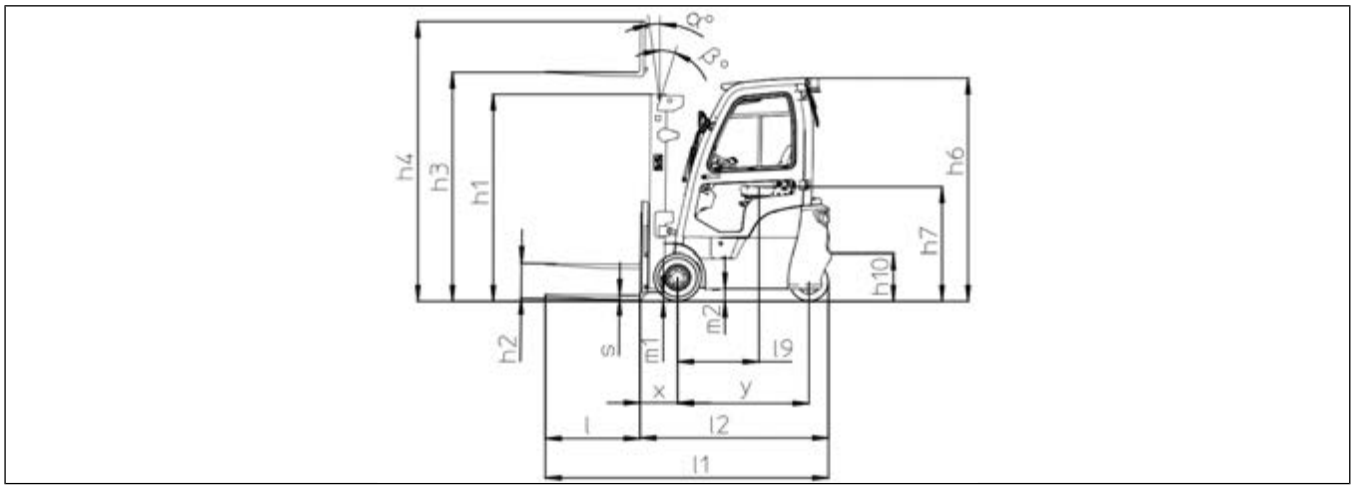


Figure 16: Dimensions diagram - side view

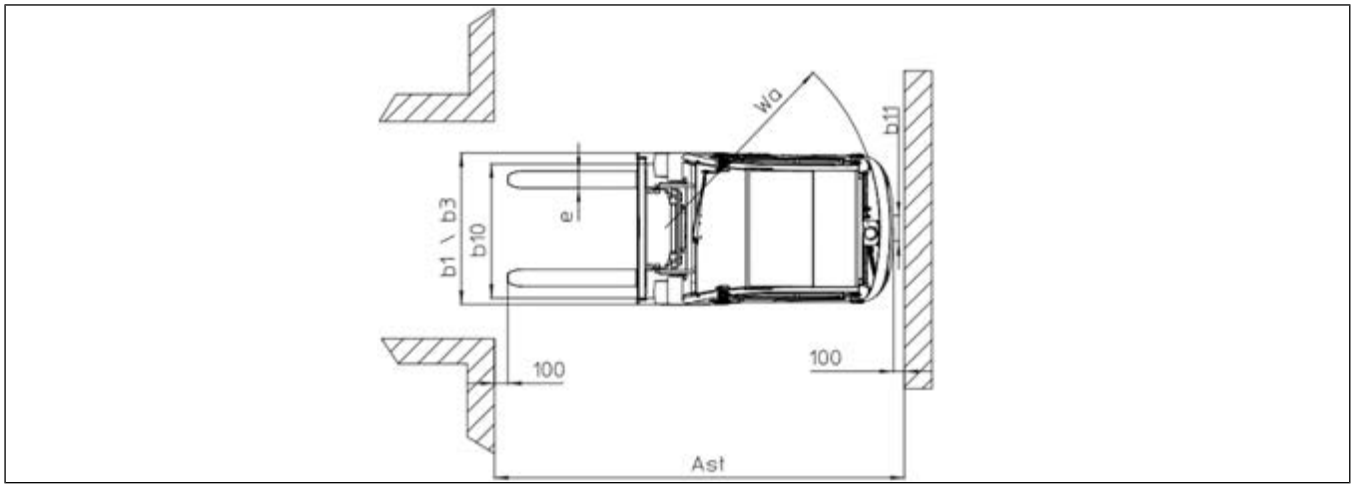


Figure 17: Dimensions diagram - top view

2.2.2 TECHNICAL DATASHEET - ME 320 LIFT 80V S1

The specifications given are not binding on the manufacturer and can be modified without prior notification.

Specifications:

Table 9. Specifications

	Description	Unit	Value
1.1	Manufacturer		MANITOU
1.2	Type of model		ME 320 LIFT 80V S1
1.3	Drive : battery, diesel, gasoline, LPG, mains		Battery
1.4	Driving position : manual, walking alongside, standing, seated		Seated
1.5	Nominal load / Load on forks (basic capacity)	Q (t)	2.0
1.6	Load center of gravity	c (mm)	500
1.8	Distance from the load-bearing surface to centre of front axle	x (mm)	364.5
1.9	Wheelbase	y (mm)	1407

Weights:

Table 10. Weights

	Description	Unit	Value
2.1	Weight of truck in working order	kg	3200
2.2.1	Front axle load on loaded truck	kg	4580
2.2.2	Rear axle load on loaded truck	kg	620
2.3.1	Front axle load on unloaded truck	kg	1365
2.3.2	Rear axle load on unloaded truck	kg	1835

Tires:

Table 11. Tires

	Description	Unit	Value
3.1	Tire equipment : bandage (V), superelastic (SE), pneumatic (L), Solid		Solid
3.2	Size of front wheels	" / mm	200/50–10
3.3	Size of rear wheels	" / mm	15x4.5–8
3.5.1	Number of front wheels (x = drive wheels)		2x
3.5.2	Number of rear wheels (x = drive wheels)		2
3.6	Front wheel gauge (middle of wheels)	b10 (mm)	932
3.7	Rear wheel gauge (middle of wheels)	b11 (mm)	178

Dimensions:

Table 12. Dimensions

	Description	Unit	Value
4.1.1	Tilt of mast forward	α(°)	7
4.1.2	Tilt of mast backward	β (°)	6
4.2	Height mast lowered	h1 (mm)	1978
4.3	Normal free lift	h2 (mm)	140
4.4	Height of lift	h3 (mm)	3000
4.5	Height mast extended	h4 (mm)	3945
4.7	Height of driver protection (cab)	h6 (mm)	2158
4.8.1	Height of seat	h7 (mm)	1120
4.8.2	Distance from front axle center line to seat index point (SIP)	l9 (mm)	907.5
4.12	Height of towing bar	h10 (mm)	525
4.19	Overall length	l1 (mm)	2907
4.20	Length to face of forks	l2 (mm)	1987
4.21	Total width (overall)	b1 (mm)	1153
4.22.1	Fork cross-section (s=thickness ; e=width)	e/s (mm)	40/100
4.22.2	Fork arms length	l (mm)	920
4.23	Fork carriage to ISO 2328 class A/B		ISO 2328 2A
4.24	Fork carriage width	b3 (mm)	1000
4.25	Maximum internal spacing between forks	b5 (mm)	770
4.31	Ground clearance of mast	m1 (mm)	100
4.32	Ground clearance at centre of wheelbase	m2 (mm)	110
4.33	Width of aisle for pallet 1000x1200 crossways	Ast (mm)	3316

	Description	Unit	Value
4.34	Width of aisle for pallet 800x1200 lengthways	Ast (mm)	3440
4.35	Turning radius (position down/up)	Wa (mm)	1625

Performances:

Table 13. Performances

	Description	Unit	Value
5.1.1	Travelling speed laden	km/h	15
5.1.2	Travelling speed unladen	km/h	15
5.1.3	Travelling speed, laden, backwards	km/h	12
5.1.4	Travelling speed, unladen, backwards	km/h	12
5.2.1	Lifting speed laden	m/s	0.4
5.2.2	Lifting speed unladen	m/s	0.55
5.3.1	Lowering speed laden	m/s	0.47
5.3.2	Lowering speed unladen	m/s	0.42
5.5.1	Rated drawbar pull laden	N	3050
5.5.2	Rated drawbar pull unladen	N	3700
5.6.1	Maximum hitch pulling force fully loaded	N	11200
5.6.2	Maximum hitch pulling force fully unloaded	N	11000
5.7.1	Gradeability laden	%	13
5.7.2	Gradeability unladen	%	15
5.8.1	Maximum slope capacity fully laden	%	15
5.8.2	Maximum slope capacity fully unladen	%	18
5.9.1	Acceleration time laden	s	4.9
5.9.2	Acceleration time unladen	s	4.5
5.10	Service brake		Hydraulics
5.11	Parking brake		Mechanical

Motors:

Table 14. Motors

	Description	Unit	Value
6.1	Drive motor power rating	kW	2x5
6.2	Lift power motor	kW	11
6.3	Battery dimension according to DIN 43 531/35/36 A, B, C, no		No
6.4	Battery voltage/capacity	V/Ah	76.8 / 304
6.5	Battery weight	kg	≥300
6.6	Energy consumption according to VDI cycle	kWh	5.8
6.7	Transported density / hour	t/h	—
6.8	Transported density / energy consumption	t/kWh	—

Miscellaneous:

Table 15. Miscellaneous

	Description	Unit	Value
10.1	Hydraulic pressure for attachments	Bar	≤210
10.2	Oil flow rate for attachments	L/min	30

	Description	Unit	Value
10.3	Hydraulic oil capacity	L	43
10.7	Sound level at driver's ear according to DIN 12053 (overhead guard / cab)	dB (A)	≤70

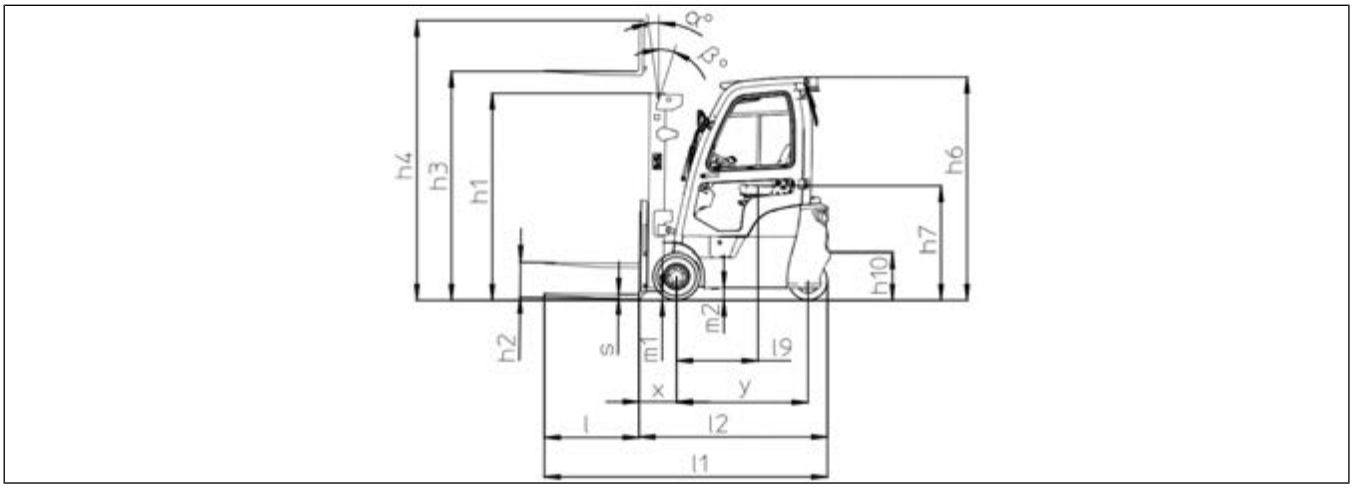


Figure 18: Dimensions diagram - side view

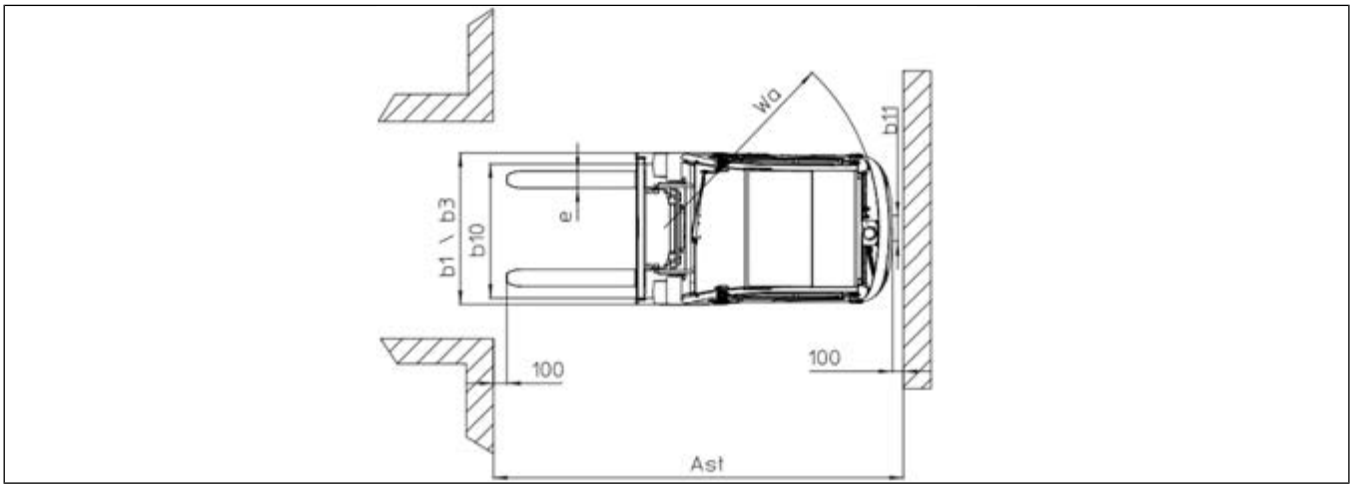


Figure 19: Dimensions diagram - top view

2.2.3 MAST TECHNICAL DATASHEET - ME 316-320 LIFT 80V S1

Mast specifications ME 316-320 LIFT 80V S1

Table 16. Mast specifications ME 316-320 LIFT 80V S1

	Mast fork height (mm)	Free lift H2 with back rest (mm)	Free lift H2 without back rest (mm)	Height - mast loweredH1 (mm)	Height - mast extended with backrest H4 (mm)	Height mast extended without backrest H4 (mm)	Tilt range - AV - FWD (°)	Tilt range - AR - RWD (°)
2 Stage wide-view	3000	140		1988	3945	3560	7	6
	3300	140		2138	4245	3860	7	6
	4000	140		2588	4945	4560	7	6
	4500	140		2838	5445	5060	7	6
3 Stage full-free-lift	4000	943	1292	1888	4955	4552	3.5	5
	4500	1093	1392	2038	5455	5052	3.5	5

	Mast fork height (mm)	Free lift H2 with back rest (mm)	Free lift H2 without back rest (mm)	Height - mast loweredH1 (mm)	Height - mast extended with backrest H4 (mm)	Height mast extended without backrest H4 (mm)	Tilt range - AV - FWD (°)	Tilt range - AR - RWD (°)
	4800	1193	1492	2138	5755	5352	3.5	5
	5000	1268	1592	2213	5955	5552	3.5	5
	5500	1443	1792	2388	6455	6052	3.5	5
	6000	1643	1992	2588	6955	6552	3.5	5
	6500	1843	2192	2788	7455	7052	3.5	5

Capacity with forks ME 316-320 LIFT 80V S1

Table 17. Capacity with forks ME 316-320 LIFT 80V S1

	Mast fork height (mm)	Height at max capacity (mm)		Load capacity at 500 mm (kg)	
		1.6t	2t	1.6t	2t
2 Stage wide-view	3000	-	-	1600	2000
	3300	-	-	1600	2000
	4000	-	-	1600	1950
	4500	-	-	1500	1900
3 Stage full-free-lift	4000	-	-	1600	2000
	4500	-	-	1500	1800
	4800	-	-	1450	1700
	5000	-	-	1400	1600
	5500	-	-	1250	1500
	6000	-	-	1100	1300
	6500	-	-	900	1100

Capacity with integrated sideshift attachment ME 316-320 LIFT 80V S1

Table 18. Capacity with integrated sideshift attachment ME 316-320 LIFT 80V S1

	Mast fork height (mm)	Height at max capacity (mm)		Load capacity at 500 mm (kg)	
		1.6t	2t	1.6t	2t
2 Stage wide-view	3000	-	-	1550	1950
	3300	-	-	1550	1950
	4000	-	-	1550	1950
	4500	-	-	1450	1850
3 Stage full-free-lift	4000	-	-	1550	1950
	4500	-	-	1450	1750
	4800	-	-	1400	1650
	5000	-	-	1350	1550
	5500	-	-	1200	1450
	6000	-	-	1050	1250
	6500	-	-	850	1050

2.2.4 LOAD CHART

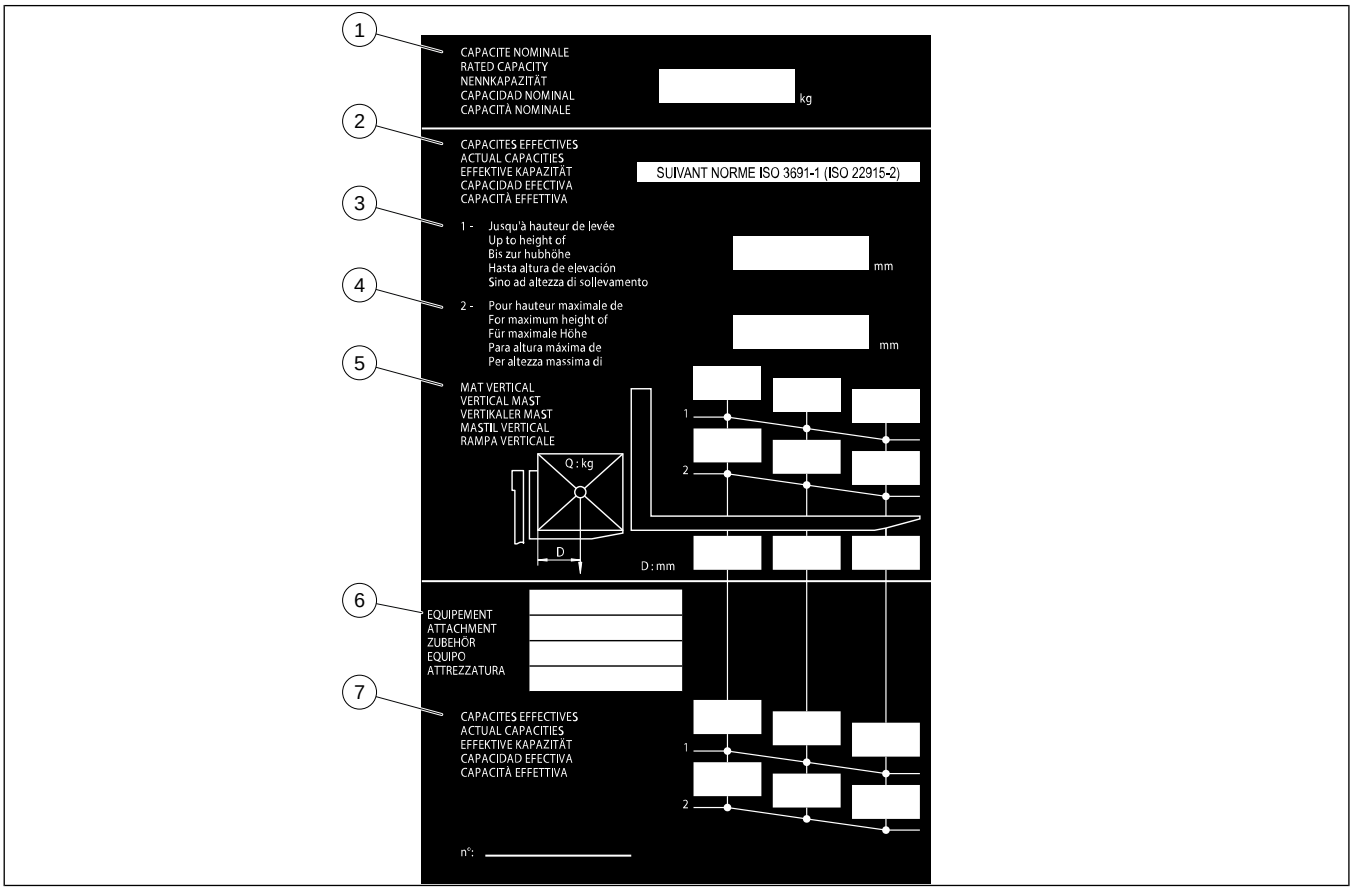


Figure 20: Load chart informations

Marker	Description
1	Rated capacity
2	Actual capacities According to standard ISO 3691-1 (ISO 22915-2)
3	Up to lift height
4	For maximum height of
5	Vertical mast
6	Equipment
7	Actual capacities

2.2.5 LITHIUM-ION BATTERY SPECIFICATIONS ME 316–320 LIFT 80V S1

The weight and size of the battery can significantly impact the machine's stability and charging capacity. When installing or replacing the battery, be sure to observe the specified specifications.

Table 19. Lithium-ion battery specifications ME 316–320 LIFT 80V S1

Item			Dimensions (mm)			Minimum authorized weight (kg)	Rated capacity (Ah)	Rated voltage (V)
		Battery model	Length (L)	Width (W)	Height (H)			

ME 316 LIFT 80V S1	Stand-ard	DQ-EB0080230A0–C178	830	550	481	185	230	76.8
ME 316 LIFT 80V S1	Option	DQ-EB2080304A0–C182	830	550	481	220	304	76.8
ME 320 LIFT 80V S1	Stand-ard	DQ-EB2080304A0–C183	830	680	481	300	304	76.8
ME 320 LIFT 80V S1	Option	DQ-EB0080460A0–C276	830	680	481	310	460	76.8

Permissible temperature range :

- Use : -28°C to 55°C (If the ambient temperature is below -25°C, do not operate the machine until the battery temperature has reached -10°C).
- Storage : -28°C to 55°C.
- Charge : 0°C to 55°C (A low ambient temperature increases the time required to recharge the battery. This time is automatically adjusted by the management system to ensure optimum performance).

Charging the lithium-ion battery :

It is recommended to use an "SLC series lithium intelligent charger" to charge the lithium battery.

Electrical accreditation may be required for some maintenance option :

- *Compliance with the local, government and national regulations in force must be ensured.*
- *After each job, make sure that the electrical component protection systems are put back (covers, caps, grommets, etc.).*
- *Do not leave the charger connected during an electrical storm.*
- *Do not connect or disconnect the power supply during charging.*

- Charging must be carried out in a dry, well-ventilated area, free from flammable or explosive materials.
- Always use the specific lithium-ion charger.
- The battery should be fully charged once a week.
- Make sure there are no fault codes before switching off the ignition and putting the battery on charge.
- Optimum battery use is achieved when the charge is between 50% and 100%.
- If the battery charge is below 30%, avoid using the machine and charge it as soon as possible
- If the battery charge is below 20%, recharge the battery.
- If an incident occurs during charging, the charger stops the charging process and incident information is displayed on the charger.

Cleaning the lithium-ion battery :

Avoid water, steam or cleaning agents getting into the battery and its electrical connections, especially when washing the machine.

Long-term lithium-ion battery storage and recommissioning :

Long term storage :

- Store the battery in a dry, well-ventilated place, out of direct sunlight and away from source of excessive heat.
- Check that the battery charge is not less than 50% of rated capacity, and charge it if necessary.
- Discharge and charge the battery once a month. For storage, the recommended charge level is 50% to 80%.
- Fully charge the battery every 3 months.

Recommissioning :

- If the battery has been stored for more than three months, please confirm that there are no fault codes before recommissioning it. If a fault code is present, contact the dealer.

In case of fire :

Only trained personnel are authorized to respond to fire

In the events of smoke or abnormal odors being given off during battery use or charging :

- Stop the current operation immediately.
- Switch off and unplug the charger.
- Switch off the power to the machine (key switch and circuit breaker).
- Report the incident.

- Move the battery to a clear, open area.

In case of fire :

- Do not use the battery.
- Do not touch the battery.
- Move away from the battery.
- Contact the emergency services immediately and notify them of the presence of high-voltage lithium-ion batteries.

2.2.6 TIRES – ME 316-320 LIFT 80V S1

Table 20. Front tires

		Pressure (bar)	Load per tire (kg)			
			ME 316 LIFT 80V S1		ME 320 LIFT 80V S1	
			Unladen	Laden	Unladen	Laden
ADVANCE	18 X 7 - 8	Solid	700	2050		
	200/50 - 10	Solid			750	2400
CONTINENTAL	18 X 7 - 8 (Non marking)	Solid	700	2050		
	200/50 - 10 (Non marking)	Solid			750	2400

Table 21. Rear tires

		Pressure (bar)	Load per tire (kg)			
			ME 316 LIFT 80V S1		ME 320 LIFT 80V S1	
			Unladen	Laden	Unladen	Laden
ADVANCE	15 X $4^{1/2}$ - 8	Solid	850	300	950	350
CONTINENTAL	15 X $4^{1/2}$ - 8 (Non marking)	Solid	850	300	950	350

2.2.7 GROUND CONTACT PRESSURE — ME 316-320 LIFT 80V S1

Table 22. ADVANCE tires

	Pressure (bar)	Load (Kg)	Ground contact pressure (Kg/cm^2)		Ground contact area (cm^2)	
			Hard ground	Soft ground	Hard ground	Soft ground
18 X 7 - 8	-	700				
		1800				
		2050				
		2200				
200/50 - 10	-	750				
		2400				
15 X $4^{1/2}$ - 8	-	300				
		350				
		750				
		850				
		900				
		950				

Table 23. CONTINENTAL tires

	Pressure (bar)	Load (Kg)	Ground contact pressure (Kg/cm²)		Ground contact area (cm²)	
			Hard ground	Soft ground	Hard ground	Soft ground
18 X 7 - 8 (Non marking)	-	700				
		1800				
		2050				
		2200				
200/50 - 10 (Non marking)	-	750				
		2400				
15 X 4 1/2 - 8 (Non marking)	-	300				
		350				
		750				
		850				
		900				
		950				

2.3. CONSUMABLES

2.3.1 LUBRICANTS - ME 316→320 LIFT 80V S1

Recommended lubricants and oils

NOTICE

Use the recommended lubricants :

- For topping up, oils may not be miscible.
- For oil changes, MANITOU oils are perfectly appropriate.

Diagnostic analysis of oils

If a service or maintenance contract has been set up with the dealer, a diagnostic analysis of engine, transmission and axle oils may be requested depending on the rate of use.

Machine oils and lubricants

Table 24. Transmission

Description	Capacity	Recommendation	Temperature range
Transmission	4,8 Liters	MANITOU Oil LS 85W90 API GL5	-20 °C / +50 °C

Table 25. Mast

Description	Recommendation	Temperature range
Mast lifting chains	MANITOU Lubricant Chain special (aerosol)	-20 °C / +55 °C
Greasing of the mast	MANITOU Lubricant BLACK multi-purpose	-25 °C / +55 °C

Table 26. Hydraulics

Description	Capacity	Recommendation	Temperature range
Hydraulic oil tank	31 Liters	MANITOU Oil Hydraulic ISO VG 32	-25 °C / +20 °C

Table 27. Brakes

Description	Capacity	Recommendation	Temperature range
Brake system	1 Liter	Brake fluid DOT4	

2.3.2 FILTER ELEMENTS & BELTS - ME 316→320 LIFT 80V S1

Table 28. Periodicity of filters and belts

Description	❶ 500H	❷ 1000H	❸ 2000H
Air filter cartridge		•	
Suction strainer of hydraulic oil tank		•	

3. FAMILIARIZATION

3.1. MACHINE IDENTIFICATION

3.1.1 MACHINE MANUFACTURER PLATE

“Designation” Designation	
“Series” Series	
“Power” Power	
“Year of manufacture” Year of manufacture	
“Model year” Model year	
“Max vertical force (on trailer hook)” Max vertical force (on trailer hook)	
“Serial number / Product identification number” Serial number / Product identification number	
“Authorized grass vehicle weight” Authorized grass vehicle weight	
“Unladen mass” Unladen weight	
“Rated capacity” Rated capacity	
“Drag strain” Pulling force	

3.1.2 ATTACHMENT MANUFACTURER PLATE

"Modele" Model	
"N° série" Serial number	
"Année fabrication" Year of manufacture	
"Masse à vide" Unladen weight	
"Centre de gravité Centre of gravity	
"Capacité Nominale" Rated capacity	
"Pression service" Working pressure	

3.2. MACHINE DESCRIPTION

3.2.1 MAIN CHARACTERISTICS - ME 316 LIFT 80V S1

The technical designation of this machine is: ME 316 LIFT 80V S1.

Its main characteristics are:

- 2 wheel drive.
- Maximum lifting height: 3 meters (10 feet).

This machine is equipped with specific controls allowing you to use the following functions:

- Drive and steer, brake.
- Raise/lower the mast.
- Handle a load.

This machine is equipped with specific safety devices that may restrict its operation depending on the circumstances, including:

- A driver presence sensor on the seat.
- A fastened seat belt sensor.

3.2.2 MAIN CHARACTERISTICS - ME 320 LIFT 80V S1

The technical designation of this machine is: ME 320 LIFT 80V S1.

Its main characteristics are:

- 2 wheel drive.
- Maximum lifting height: 3 meters (10 feet).

This machine is equipped with specific controls allowing you to use the following functions:

- Drive and steer, brake.
- Raise/lower the mast.
- Handle a load.

This machine is equipped with specific safety devices that may restrict its operation depending on the circumstances, including:

- A driver presence sensor on the seat.
- A fastened seat belt sensor.

3.3. MACHINE COMPONENTS

3.3.1 MACHINE COMPONENTS LOCATION - ME 316-320 LIFT 80V S1

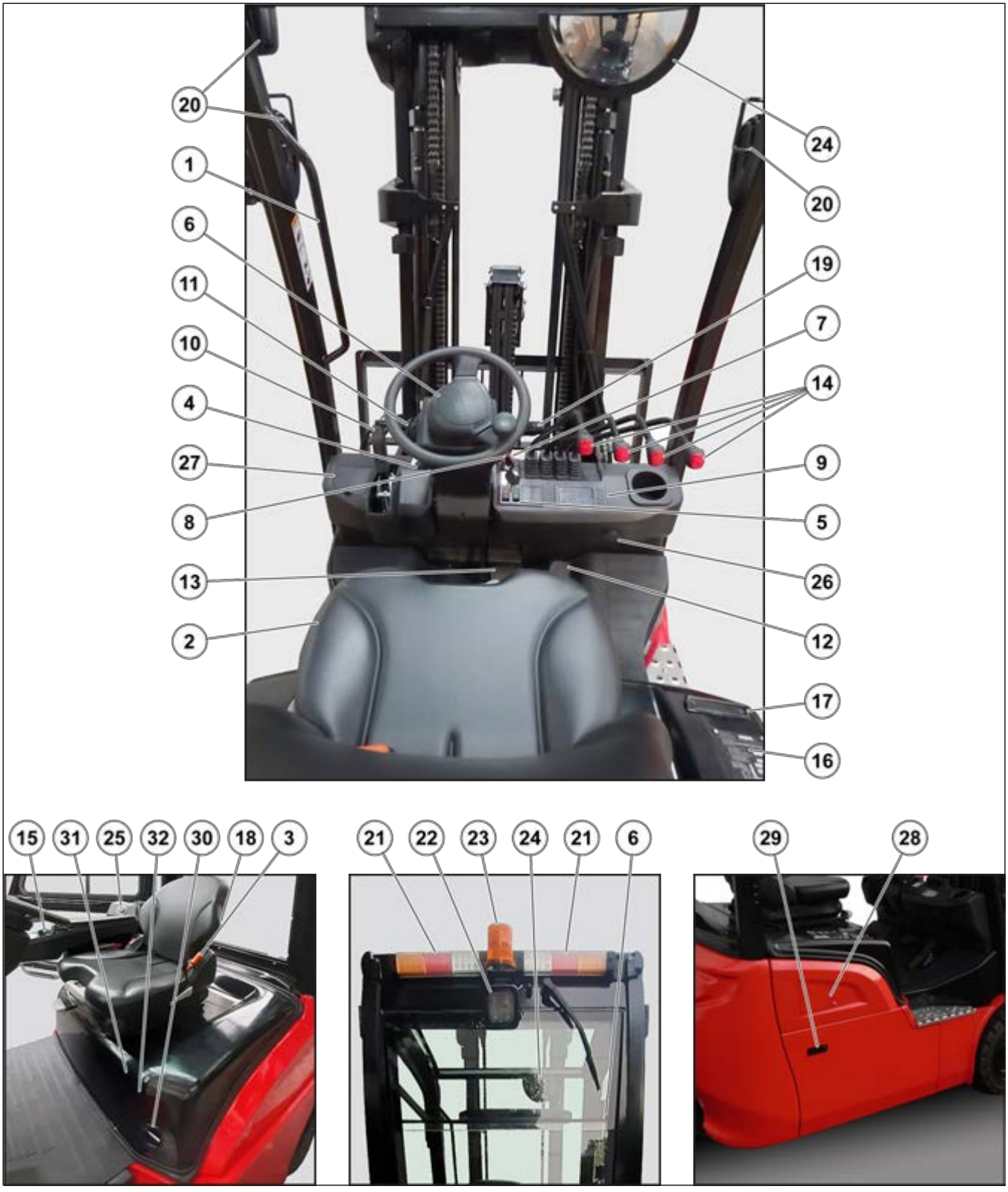


Figure 21: Machine components location

Table 29. List of components — ME 316-320 LIFT 80V S1

Marker	Description	Option
1	Driver’s cab access	
2	Driver’s seat	
3	Seat belt	
4	Steering wheel tilting knob	
5	Switches	
6	Horns	
7	Emergency stop button	
8	Ignition switch	
9	Dashboard	
10	Parking brake	
11	Forward/reverse selector	
12	Accelerator pedal	
13	Service brake pedal	
14	Hydraulic controls	
15	Hydraulic controls mini-levers	●
16	Load charts	
17	Document clips	
18	Document holders	
19	Light and turn signal	
20	Front light and front work lights	
21	Rear lights	
22	Rear work lights	
23	Flashing lights	
24	Internal rear-view mirror	
25	Heating	●
26	USB charger socket	●
27	Brake fluid tank	
28	High-voltage battery charging	
29	High-voltage battery tray	
30	Electrical components cover opening	
31	Fuses and relays	
32	Power fuses	

3.3.2 DRIVER'S CAB ACCESS

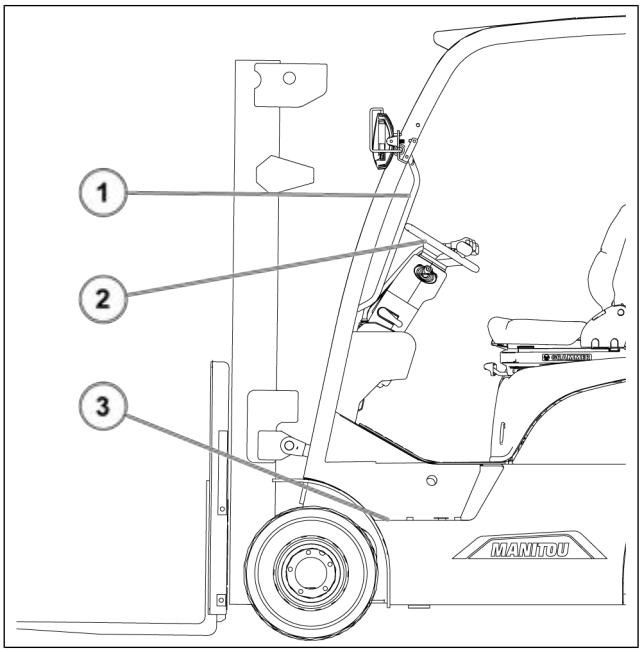


Figure 22: Driver's cab access

Getting into and out of the driver's cab.

Use the three support points provided:

1. Left handle.
2. Steering wheel.
3. Step.

3.3.3 DRIVER'S SEAT

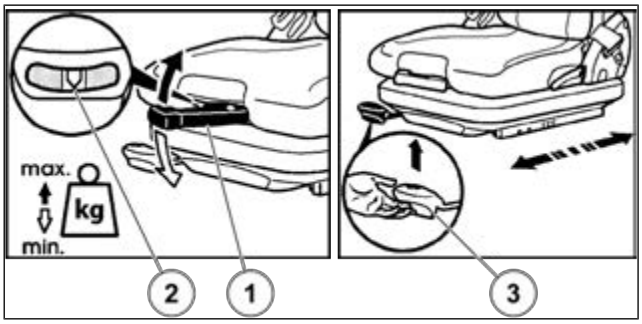


Figure 23: Driver's seat

Designed for maximum comfort, this seat can be adjusted as follows.

Weight adjustment:

Adjust the weight when the driver is sitting on the seat.

- Pull the weight adjustment lever (1) fully out.
- Move the weight adjustment lever (1) upwards to increase the weight or downwards to reduce it.
- There are ten possible positions between the minimum and maximum weights. Before each run, return the lever to the central position. The maximum or minimum position is indicated by a freely traveling lever.
- The driver's weight is correctly adjusted when the arrow is in the centre of indicator (2).
- After completing the weight adjustment, fully lower the lever (1).

To avoid health problems, it is recommended that the weight adjustment should be checked and adjusted before starting the machine.

Longitudinal adjustment:

⚠ WARNING

Only operate the lever by its recessed section and do not grasp from below, at the risk of crushing the hand.

Adjust the locking lever (3) until you reach the position required. Once locked, you can no longer move the seat into another position.

Maintenance:

⚠ WARNING

A moving backrest increased the risk of an accident.

Dirt may adversely affect the correct functioning of the seat. For this reason, make sure your seat is always clean.

The cushions do not need to be removed from the seat frame for cleaning.

First check the resistance of the fabric on a small concealed area before using any fabric and plastic cleaner.

Seat belt:

⚠ WARNING

Under no circumstances must the machine be used if the seat belt is defective (fixing, locking, cuts, tears, etc.). Immediately repair or replace the seat belt.

- Sit correctly on the seat.
- Check that the seat belt is not twisted.
- Place the seat belt at hip level.
- Attach the seat belt and check that it locks.

- Adjust the seat belt to your body shape without compressing your pelvis and without excessive slack.

3.3.4 SWITCHES

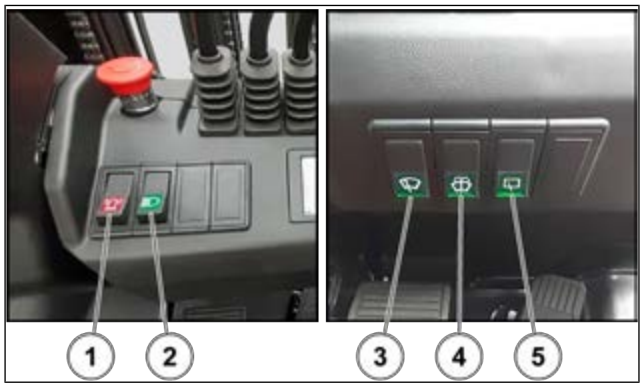


Figure 24: Steering wheel tilting knob

The location of the switches may vary depending on the options or the version of the display.

1. Flashing light.
2. Rear work light.
3. Front windshield wiper option.
4. Front windshield washer option.
5. Rear windshield wiper option.

3.3.5 HORN

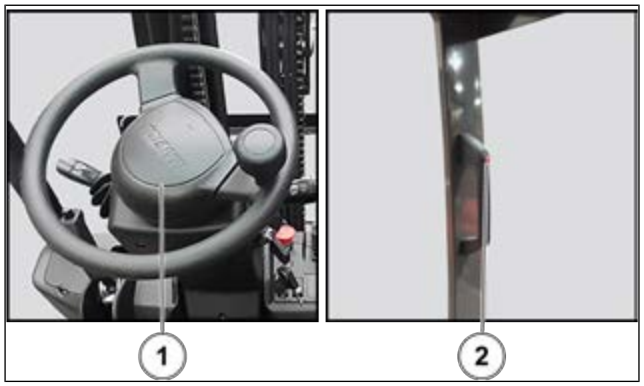


Figure 25: Horn

- Press the center of the steering wheel (1) to operate the horn.
- Press the red button (2) to operate the horn.

3.3.6 EMERGENCY STOP BUTTON

Figure 26: Emergency stop button

⚠ WARNING

Be ready for hydraulic movement suddenly stopping when you press this button.

In case of danger, switches off the electrical power supply circuit. Pull the button to disable it before restarting the machine.

3.3.7 IGNITION SWITCH

Figure 27: Ignition switch

This switch (1) has 2 positions:

- 0 : Ignition off.
- I : Ignition on.

3.3.8 PARKING BRAKE

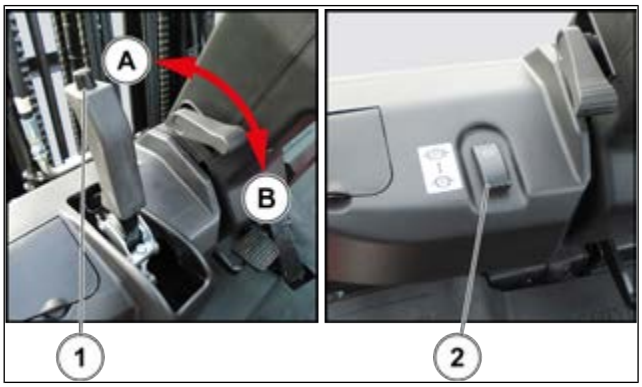


Figure 28: Parking brake

If the parking brake is released when there is no driver, an audible alarm sounds intermittently. If the parking brake is released while the operator is not wearing a seat belt, an audible alarm sounds.

Standard:

- To release the parking brake, press the button (1) and push the lever forward (A).
- To apply the parking brake, depress the service brake pedal and pull the lever backward (B).

Option:

To apply or release the parking brake, press the bottom of the switch (2).

3.3.9 FORWARD/REVERSE SELECTOR

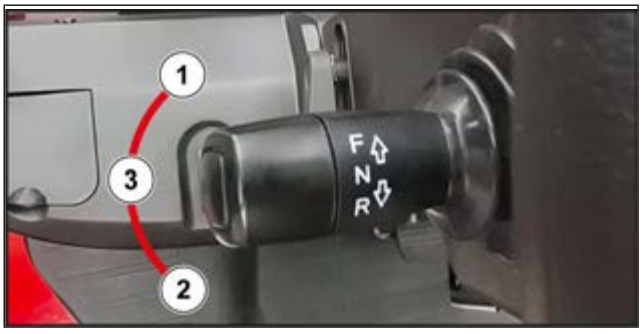


Figure 29: Forward/reverse selector

Changing the direction of travel should take place at low speeds without acceleration.

- Forward (1) : Push the lever forward.
- Reverse (2) : Pull the lever backward.
- Neutral (3) : To start the machine, the lever must be in neutral.

Reversing lights and a backup alarm indicate that the machine is traveling in reverse.

Safety for moving the machine:

The operator must observe the following sequence to move the truck forwards or backwards:

1. Sit down correctly in the driver's seat and fasten the seat belt.
2. Switch on the ignition.
3. Release the parking brake.
4. Engage forward or reverse gear.

To stop the machine, the operator must observe the following sequence:

1. Set the forward/reverse selector to neutral.
2. Engage the parking brake.
3. Switch off the ignition.
4. Unbuckle your seat belt and get out of the machine.

If these sequences are not followed, you must then return the reversing gear to the neutral position and repeat the sequence.

3.3.10 DOCUMENT CLIP AND LOAD CHART

Figure 30: Document clip and load chart

The document clip (1) and the load chart (2) are located near the seat.

3.3.11 DOCUMENT HOLDER

Figure 31: Document holder

Make sure that the operator's manual is in the right place, i.e. in the waterproof document holder.

3.3.12 FRONT LIGHTS AND FRONT WORK LIGHTS

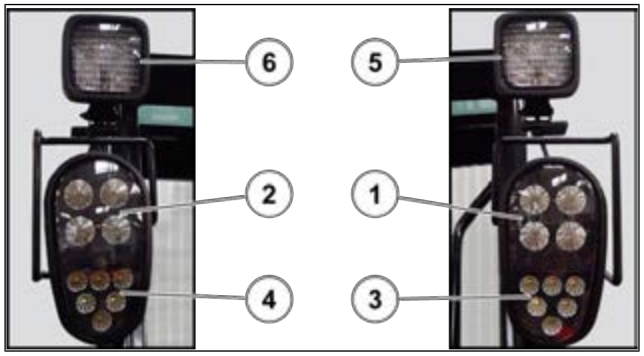


Figure 32: Front lights and front work lights

1. Left main beam headlight.
2. Right main beam headlight.
3. Left sidelight and left turn signal.
4. Right sidelight and right turn signal.
5. Left work light.
6. Right work light.

3.3.13 REAR LIGHTS

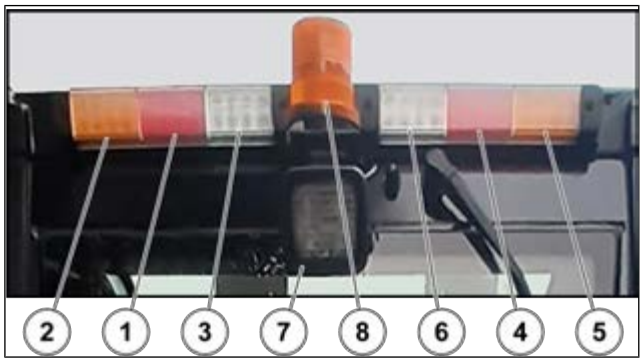


Figure 33: Rear lights

1. Left sidelight and left brake light.
2. Left turn signal.
3. Left reversing light.
4. Right sidelight and right brake light.
5. Right turn signal.
6. Right reversing light.
7. Rear work light.
8. Flashing light.

3.4. MACHINE CONTROLS

3.4.1 LOCATION OF CONTROLS

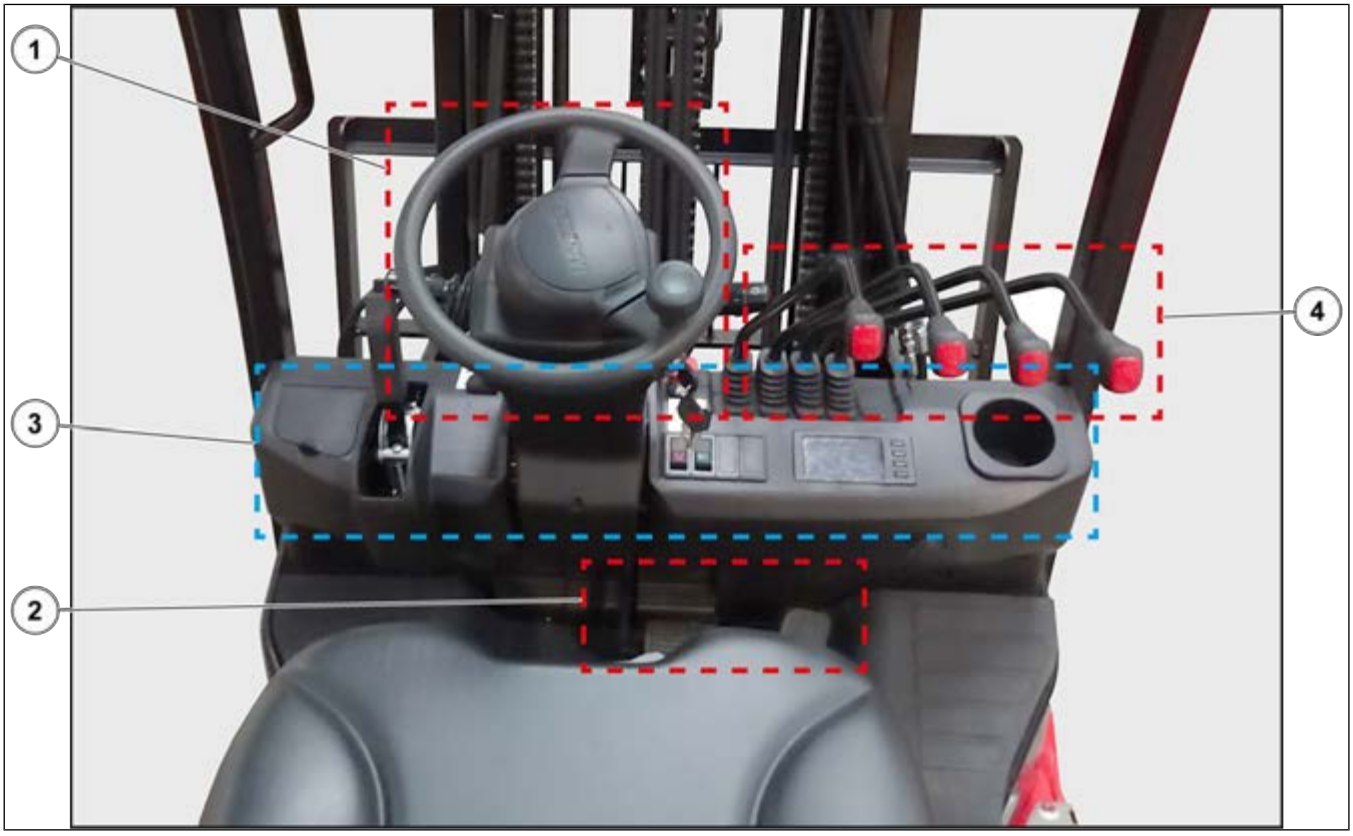


Figure 34: Location of controls

Table 30. Location of controls

Item	Designation	Option
1	Steering wheel controls	
2	Foot controls	
3	Dashboard controls	
4	Hydraulic controls	

3.4.2 STEERING WHEEL CONTROLS

Figure 35: Steering wheel controls

Table 31. Steering wheel controls

Item	Designation	Description	Option
1	Forward/reverse selector	Forward: push the lever forward. Reverse: push the lever backward. Neutral: place the lever at the middle position.	
2	Light switch		
2	Turn signal		
3	Steering wheel adjustment handle	Pull the handle to unlock the position. Adjust the steering wheel to the desired position. Push the handle back to lock the position.	

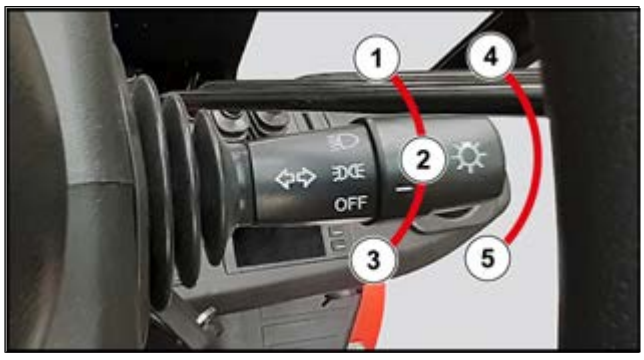


Figure 36: Light and turn signal switch (2)

1. The front work lights and the rear sidelights are on.
2. The front and rear sidelights are on.
3. The lights are off.
4. The left turn signals flash.
5. The right turn signals flash.

The switch control the visual signals :

3.4.3 DASHBOARD CONTROLS

Figure 37: Dashboard controls

Table 32. Dashboard controls

Item	Designation	Description	Option
1	Ignition switch	This switch has 2 positions: • O : Ignition off. • I : Ignition on.	
2	Emergency stop button	Press the button to stop the machine. Turn the button to turn it off before restarting the machine.	
3	Parking brake	Standard: • To apply the parking brake, depress the service brake pedal and pull the lever backward. • To release the parking brake, press the button on the parking brake and push the lever forward. Option: To apply or release the parking brake, press the bottom of the switch.	●
4	Flashing light	Press the top of the switch to turn on the flashing light. The red indicator light comes on.	●
4	Rear work light	Press the top of the switch to turn on the rear work light. The red indicator light comes on.	●
5	Dashboard		●

3.4.4 FOOT CONTROLS

The accelerator pedal located on the right allows you to control the engine speed. The brake pedal located on the left allows you to brake progressively depending on the force applied to the pedal.

3.4.5. HYDRAULIC CONTROLS

3.4.5.1 Hydraulic controls

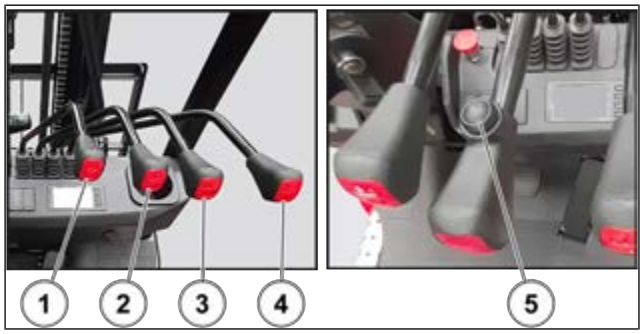


Figure 38: Hydraulic controls

⚠ WARNING

Do not try to modify the hydraulic pressure of the system. If it malfunctions, contact your dealer. Any alteration will render the warranty null and void. Use the hydraulic controls gently without jerking to avoid incidents caused by shaking the machine.

The hydraulic controls can only be used if the driver is present and sat correctly in the seat.

Lifting of the load (1):

- Lever backward to lift.
- Lever forward to lower.

Mast tilting (2):

- Lever backward to tilt backward.
- Lever forward to tilt forward.

Button (5) is used to put the mast in the vertical position.

Carriage side-shift (3):

- Lever backward to shift to the right.
- Lever forward to shift to the left.

Optional attachment (4):

- Lever backward or forward.

3.4.5.2 Hydraulic controls mini-levers (Option)

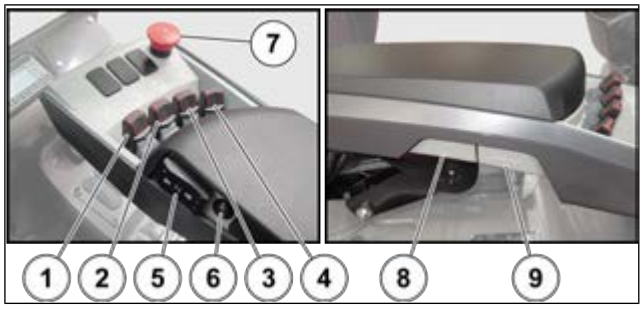


Figure 39: Hydraulic controls mini-levers (Option)

⚠ WARNING

Do not try to modify the hydraulic pressure of the system. If it malfunctions, contact your dealer. Any alteration will render the warranty null and void. Use the hydraulic controls gently without jerking to avoid incidents caused by shaking the machine.

The hydraulic controls can only be used if the driver is present and sat correctly in the seat.

Lifting of the load (1):

- Mini-lever backward to lift.
- Mini-lever forward to lower.

Mast tilting (2):

- Mini-lever backward to tilt backward.
- Mini-lever forward to tilt forward.

Carriage side-shift (3):

- Mini-lever backward to shift to the right.
- Mini-lever forward to shift to the left.

Optional attachment (4):

- Mini-lever backward or forward.

Forward/neutral/reverse selector (5):

Changing the direction of travel should take place at low speeds without acceleration.

- Forward : Push the lever forward.
- Reverse : Pull the lever backward.
- Neutral : To start the lift truck, the lever must be in the neutral position.

Reversing lights and a backup alarm indicate that the machine is travelling in reverse.

Safety for moving the machine:

The operator must observe the following sequence to move the truck forwards or backwards :

1. Sit down correctly in the driver's seat and fasten the seat belt.
2. Switch on the ignition.
3. Release the parking brake.
4. Engage forward or reverse gear.

To stop the machine, the operator must observe the following sequence:

1. Set the forward/reverse selector to neutral.
2. Engage the parking brake.
3. Switch off the ignition.
4. Unbuckle your seat belt and get out of the machine.

If these sequences are not followed, you must then return the reversing gear to the neutral position and repeat the sequence.

Horn (6):

Press the button to operate the horn.

Emergency stop button (7):

⚠ WARNING

Be ready for hydraulic movements suddenly stopping when you press this button.

Armrest adjustment:

The armrest is adjustable in height and length.

- Press the button (8) to adjust the height.
- Press the button (9) to adjust the length.

3.5. MACHINE INTERFACE

3.5.1 DASHBOARD

There are two models of dashboards. The first version of the dashboard were mounted in the first forklifts leaving the factory. The second version of the dashboard are mounted in the new forklifts.

First version of the dashboard

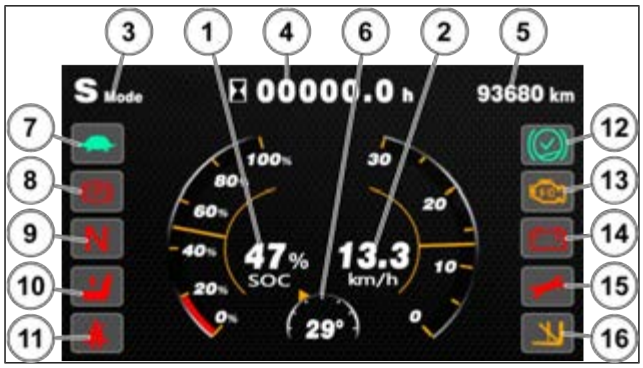


Figure 40: Dashboard V1

Battery charge status indicator (1):

Displays remaining battery capacity as a percentage.

- We recommend charging the battery when it drops to 20% of its capacity to preserve its service life.
- If battery capacity drops to 10%, the machine's functions will be limited : very low moving speed and cut-off of hydraulic circuits.

Moving speed indicator (2):

The moving speed is displayed when the machine is running.

Work mode indicator (3):

There are 3 modes. Only the selected mode appears.

- S - Super mode : maximum performance, high fuel consumption.
- P - Power mode : best compromise between performance and fuel consumption.
- E - Economy mode : limited maximum speed.

Total time indicator (4):

Displays the cumulative working hours, up to 99999. Hours are counted from power-up.

Total distance indicator (5):

Displays the total distance covered, up to 99999.

Wheel angle indicator (6):

Displays the orientation of the steering wheels.

Tortoise (slow) mode indicator (7):

Displays when work mode E is selected.

Parking brake indicator (8):

The indicator lamp comes on when the parking brake is activated.

Neutral/forward/reverse indicator (9):

The indicator displays an N when the machine is in neutral, a D when it is in forward gear and an R when it is the reverse.

Operator presence indicator (10):

When the operator leaves the seat for more than 2 seconds, this indicator is visible, the machine stop and an audible alarm sounds. If the operator unbuckles the seat belt and leaves the seat, the machines stops and an audible alarm sounds.

Seat belt indicator (11):

The indicator lamp comes on when the seat belt is not fastened, and if the parking brake is released, an audible alarm sounds.

Ramp brake indicator (12):

The LED is green when the ramp brake is active. After 6 seconds, the indicator turns red and the ramp brake is automatically deactivated. The indicator goes out when the operator presses the accelerator or brake pedal.

Not used (13)

Low battery indicator (14):

The indicator comes on when the battery level is at or below 20%.

Electrical fault indicator (15):

The indicator lights up when an electrical fault is detected.

Restricted lifting speed indicator (16):

The indicator lights up and the lifting speed slow down when the battery level is at or below 10%.

Second version of the dashboard

Figure 41: Dashboard V2

Ramp brake indicator (1):

The LED is green when the ramp brake is active. After 6 seconds, the indicator turns red and the ramp brake is automatically deactivated. The indicator goes out when the operator presses the accelerator or brake pedal.

Parking brake indicator (2):

The indicator lamp comes on when the parking brake is activated.

Operator presence indicator (3):

When the operator leaves the seat for more than 2 seconds, this indicator is visible, the machine stop and an audible alarm sounds. If the operator unbuckles the seat belt and leaves the seat, the machines stops and an audible alarm sounds.

Seat belt indicator (4):

The indicator lamp comes on when the seat belt is not fastened, and if the parking brake is released, an audible alarm sounds.

Time display (5):

Show time.

Total distance indicator (6):

Displays the total distance covered.

Battery charge status indicator (7):

Displays remaining battery capacity as a percentage.

- We recommend charging the battery when it drops to 20% of its capacity to preserve its service life.
- If battery capacity drops to 10%, the machine's functions will be limited : very low moving speed and cut-off of hydraulic circuits.

Movement speed indicator (8):

The moving speed is displayed when the machine is running.

Total time indicator (9):

Displays the cumulative working hours. Hours are counted from power-up.

Wheel angle indicator and neutral/forward/reverse indicator (10):

Displays the orientation of the steering wheels and the indicator displays an N when the machine is in neutral, a F when it is in forward gear and an R when it is the reverse..

Work mode indicator (11):

There are 3 modes. Only the selected mode appears.

- S - Super mode : maximum performance, high fuel consumption.
- P - Power mode : best compromise between performance and fuel consumption.
- E - Economy mode : limited maximum speed.

Button work mode changer (12):

Switch between S/P/E modes.

Button "Default code"(13):

Enter default code logs.

Button "Monitoring parameter reading" (14):

Enter monitoring parameter reading

Button "Settings" (15):

Enter settings

3.5.2 DASHBOARD MENU

Figure 42: Dashboard button

Button functions depend on the menu displayed. From the main menu, the functions are as follows :

1. Displays information.
2. Toggle between the three operating modes. The mode indicator icon will change accordingly.
3. Display monitoring information.
4. Access the configuration menu.

Fault information menu:

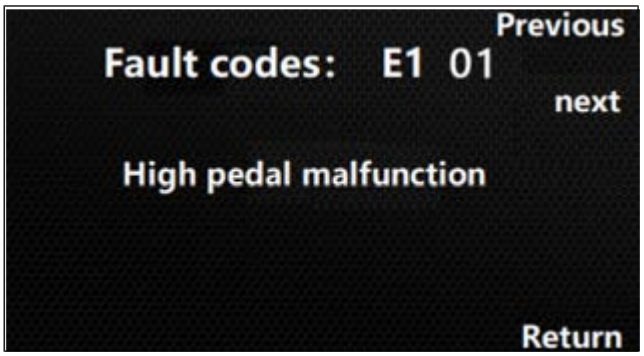


Figure 43: Fault information menu

- Press the button (1) to scroll up and the button (2) to scroll down through the fault codes.
- Press the button (4) to return to the main menu.

If there is no fault code, the display will automatically return to the main menu.

Monitoring information menu:

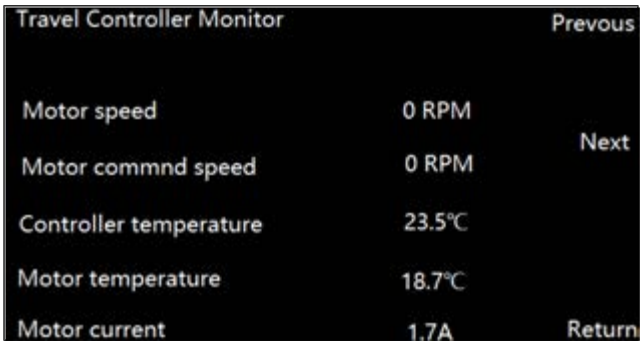


Figure 44: Monitoring information menu

- Press the button (1) or the button (2) to scroll through information on the traction controller, oil pomp controller and lithium-ion battery monitoring.
- Press the button (4) to return to the main menu.

Configuration menu:

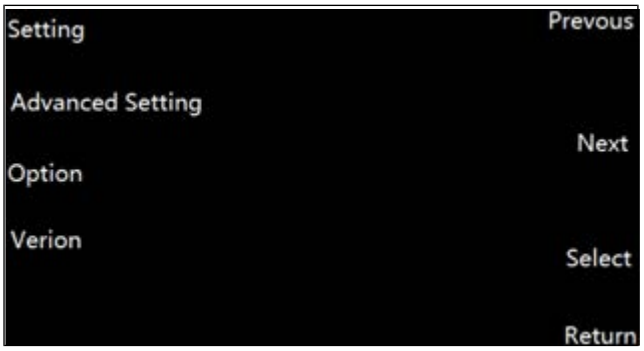


Figure 45: Configuration menu

- Press the button (1) or the button (2) to toggle between sub-menu options.
- Press the button (3) to access the selected sub-menu.
- Press the button (4) to return to the main menu.

Option menu:

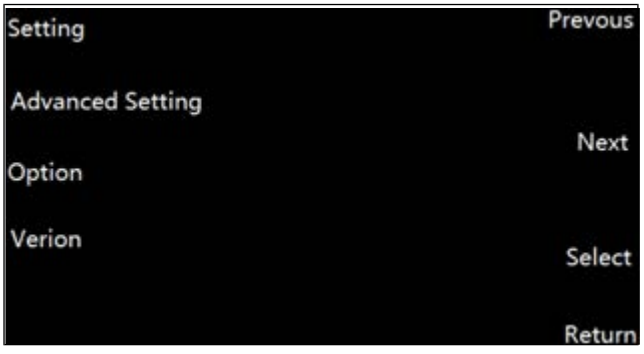


Figure 46: Option menu

- Press the button (1) or the button (2) to toggle between the different sub-page options.
- Press the button (3) to access the selected sub-page.
- Press the button (4) to return to the main menu.

Language selection menu:

Figure 47: Language selection menu

- Press the button (1) or the button (2) to choose between Chinese and English.
- Press the button (3) to select your language and return to the previous menu.
- Press the button (4) to cancel and return to the previous menu.

Measurement unit selection menu:

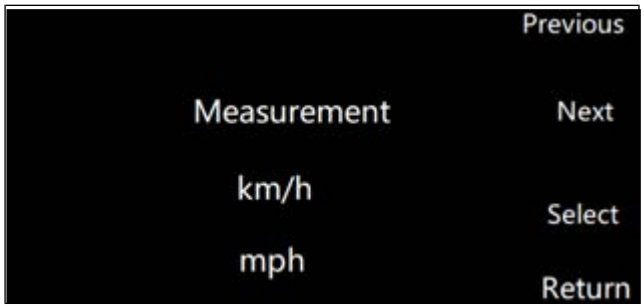


Figure 48: Measurement unit selection menu

- Press the button (1) or the button (2) to choose between metric and imperial.
- Press the button (3) to select the chosen unit and return to the previous menu.
- Press the button (4) to cancel and return to the previous menu.

Home screen selection menu:

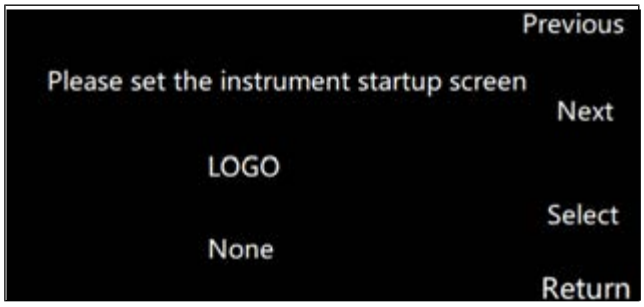


Figure 49: Home screen selection menu

- Press the button (1) or the button (2) to select the home screen.
- Press the button (3) to select the chosen screen and return to the previous menu.
- Press the button (4) to cancel and return to the previous menu.

4. MACHINE OPERATION

4.1. SAFETY PRECAUTIONS: OPERATING THE MACHINE

⚠ DANGER

Risk of incorrect use

The operator is responsible for reading and understanding this instruction manual.

4.2. OPERATOR INSTALLATION

4.2.1 ADJUST THE SEAT

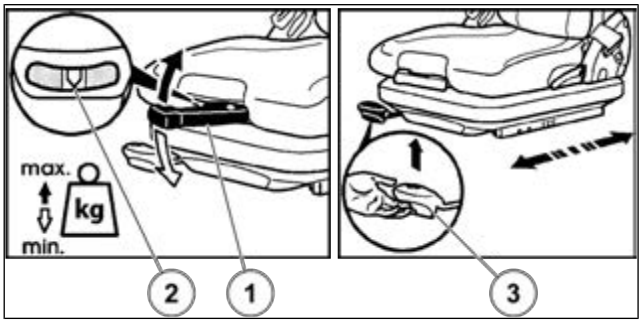


Figure 50: Driver's seat

To avoid health problems, it is recommended that the weight adjustment should be checked and adjusted before starting the machine.

Weight adjustment:

Adjust the weight when the driver is sitting on the seat.

- Pull the weight adjustment lever (1) fully out.
- Move the weight adjustment lever (1) upwards to increase the weight or downwards to reduce it.
- There are ten possible positions between the minimum and maximum weights. Before each run, return the lever to the central position. The maximum or minimum position is indicated by a freely traveling lever.
- The driver's weight is correctly adjusted when the arrow is in the centre of indicator (2).
- After completing the weight adjustment, fully lower the lever (1).

Longitudinal adjustment:

⚠ WARNING

Only operate the lever by its recessed section and do not grasp from below, at the risk of crushing the hand.

Adjust the locking lever until you reach the position required. Once locked, you can no longer move the seat into another position.

Maintenance:

⚠ WARNING

A moving backrest increased the risk of an accident.

Dirt may adversely affect the correct functioning of the seat. For this reason, make sure your seat is always clean.

The cushions do not need to be removed from the seat frame for cleaning.

First check the resistance of the fabric on a small concealed area before using any fabric and plastic cleaner.

4.2.2 ADJUST THE SEAT BELT

⚠ WARNING

Under no circumstances must the machine be used if the seat belt is defective (fixing, locking, cuts, tears, etc.). Immediately repair or replace the seat belt.

1. Sit correctly on the seat.
2. Check that the seat belt is not twisted.
3. Place the seat belt at hip level.
4. Attach the seat belt and check that it locks.
5. Adjust the seat belt to your body shape without compressing your pelvis and without excessive slack.

4.3. BEFORE OPERATING THE MACHINE

4.3.1 SAFETY PRECAUTIONS: BEFORE OPERATING THE MACHINE

⚠ DANGER

Risk of incorrect use

Exterior inspection, routine maintenance, workplace inspection and operational testing must be carried out in the order described in this instruction manual by the operator before each shift and before any use of the machine in the workplace.

4.3.2. WALK-AROUND INSPECTION

4.3.2.1 Safety precautions: walk-around inspection

⚠ DANGER

Risk linked to a damaged machine

Do not use the machine if damage is discovered.

The external inspection is intended to ensure that the machine does not present any apparent damage.

The operator is responsible for carrying out the exterior inspection.

The operator is authorized to take the machine out of service if damage is discovered.

If damage is discovered, the machine must be repaired by a Manitou-accredited quality service technician.

The exterior inspection must be carried out again after repair.

During the exterior inspection:

- The machine must be turned off.
- The mast must be completely lowered.

4.3.2.2 Performing a walk-around inspection

- Perform a visual and tactile inspection of the machine:
  a. Check that the instruction leaflet is clean and complete.
  b. Check the stickers and make sure they are all present, clean and legible.
  c. Check for leaks: hydraulic oil, coolant and lubricants.
  d. Check the machine structure for dents or damage.
  e. Check the welds for cracks.
  f. Check components for cracks and excessive corrosion.
  g. Check the good condition of the hydraulic components: cylinders, hydraulic hoses, fittings, etc.
  h. Check the good condition of the mechanical components: axles, wheels, tires, axles, mast, etc.
  i. Check the good condition of the electrical components: battery, cables, fuses, rotating lights, switches, etc.
  j. Check that no components are missing or loose: axles, fixings, nuts, bolts, etc.
  k. Check for unauthorized parts or modifications.
  l. Check the attachment and locking of the accessory.
  m. Check the mounting and adjustment of the mirrors.
  n. Check the general cleanliness of the machine.

4.3.3. PRE-OPERATION CHECKS

4.3.3.1 Safety precautions: routine maintenance

The exterior inspection should have been completed before performing routine maintenance.

Routine maintenance is intended to ensure that the machine is operational.

The operator is responsible for performing routine maintenance.

During maintenance operations, except when specific instructions are given:

- The machine must be turned off.
- The machine must be on a level surface.
- The mast must be lowered.

4.3.3.2 Checking the environment of the machine

⚠ DANGER

Fire hazard

Accumulations of flammable materials, fuel or lubricant leaks must be the subject of particular attention.

1. Perform a general inspection of the machine:
   - Leak, liquid stain on the floor.
   - Additional object on the machine, in the overhead guard or cab.
   - Fixing and adjusting lights and mirrors.
   - Fixing and locking the accessory.
   - Condition of tires to detect cuts, protrusions, wear, etc.
   - Condition of the glazing and particularly the roof window to detect scratches, chips, cracks, etc.
2. Ensure the cleanliness of the machine according to the conditions of use and environment:
   - Lights, mirrors, windows, bodywork.
   - Cockpit.
   - Engine housing and interior of the chassis to prevent possible leaks and the accumulation of materials (e. g. straw, flour, sawdust, organic waste, etc.).

4.3.3.3 Open the battery cover

⚠ CAUTION

Your lift truck's high voltage circuit can cause serious injury or death. Any work on the high voltage circuit must be done by trained, authorized personnel (Contact your dealer). Handling and servicing a battery can be dangerous. Take the following precautions : Removes the ring, watches, bracelets and any clothing incorporating metal. Keep the battery horizontal. Never smoke or work near a naked flame. Work in a well-ventilated area.

1. Engage the handle (1).

Figure 51: Battery tray side door

2. Open the cover.

4.3.3.4 Checking the seat

1. Make sure that no material is present in the seat mechanisms.
2. Perform seat maintenance, if necessary.

   Refer to "Maintenance: Maintenance Instruction: Occasional Maintenance: Cleaning the Seat".
3. Make sure the seat is securely locked after adjustment and maintenance.

   Refer to "Machine operation: Operator installation: Adjust the seat".

4.3.4. WORKPLACE INSPECTION

4.3.4.1 Safey precautions: workplace inspection

⚠ DANGER

Workplace risk

Do not use the machine if the workplace is unsafe.

The exterior inspection and routine maintenance must have been completed before carrying out the workplace inspection.

Workplace inspection is intended to collect a wide range of information about the workplace.

The operator is responsible for carrying out the inspection of the workplace.

The operator is responsible for detecting and remembering all potential hazards in order to avoid them while operating the machine.

4.3.4.2 Inspecting the workplace

1. Check and remember weather conditions like wind speed or an impending storm.
2. Check and remember electrical components, building structures, fences and any potentially dangerous ground obstructions.
3. Check and remember for holes, slopes, bumps, debris and any potentially hazardous ground conditions.
4. Check and remember for slopes, slippery or uneven surfaces and any potentially hazardous surface conditions.
5. Check and remember the movement of people on the ground, the movement of other machinery or vehicles, and any potentially hazardous traffic conditions.
6. Check and remember bridges, walkways, ramps and any potentially dangerous structures that would not withstand the mass of the machine.
7. Check and remember all other potentially dangerous locations.

4.3.5. FUNCTION TESTS

4.3.5.1 Safety precautions: function tests

⚠ DANGER

Risk linked to a defective machine

Do not use the machine if any malfunctions are discovered.

Exterior inspection, routine maintenance and workplace inspection must have been completed before performing operational tests.

The external inspection must be continued during the functional tests.

Functional tests are intended to ensure that the machine does not malfunction.

The operator is responsible for carrying out operational tests.

Operational tests should be performed on a level surface, free of obstructions or debris.

The functional tests must be carried out in the order described in this instruction manual.

The operator is authorized to take the machine out of service if malfunctions are discovered.

If malfunctions are discovered, the machine must be repaired by a qualified service technician accredited by Manitou.

Exterior inspection, maintenance, functional tests must be carried out again after repair.

4.3.5.2 Testing the power up

The key switch is in the off position.

The mast is completely lowered.

1. Make sure the **Emergency stop** button is in the on position.
2. Turn the key switch to the on position.

   Result:

   - The display screen should light up.
   - All indicator lights on the display screen should light up briefly.
3. Turn the key switch to the off position.

4.3.5.3 Testing the horn

The machine is powered on.

The mast is completely lowered.

1. Briefly press the left switch end.

   Result:

   - The horn must sound.

4.3.5.4 Testing the rotating beacon

The machine is powered on.

The mast is completely lowered.

1. Press the beacon switch. Refer to “Familiarization: Machine Controls: Dashboard Controls”.

   Result:

   - The flashing light should come on.
   - The light on the switch should come on.

4.3.5.5 Testing the emergency stop

The machine is off.

The mast is completely lowered.

1. Sit in the driving position.
2. Start the machine.

   Result:

   - The display screen should light up.
3. Push the **Emergency stop** button.

   Result:

   - The emergency stop button must be pressed to the off position.
   - The display screen should turn off.

4. Turn the **Emergency stop** button clockwise and release it.

   Result:

   - The emergency stop button must be in the on position.
   - The display screen should light up.

5. Raise the mast and press the **Emergency stop** button at the same time.

   Result:

   - The emergency stop button must be pressed to the off position.
   - The display screen should turn off.
   - The mast must stop.

6. Tournez le bouton **Arrêt d'urgence** dans le sens horaire et relâchez-le.

   Résultat :

   - Le bouton d'arrêt d'urgence doit être en position marche.
   - L'écran d'affichage doit s'allumer.

7. Baissez complètement le mât.
8. Mettez la machine hors tension.

4.3.5.6 Testing the hydraulic movements cut-off

The machine is powered on.

Do not drive or steer the machine during this test.

1. Sit in the driving position.
2. Start the machine.
3. Try using the machine's hydraulic controls one after the other. Refer to "Familiarization: Machine Controls: Hydraulic Controls".

   Result:

   - All hydraulic movements must operate correctly and smoothly.

4. Press the top of the switch to activate hydraulic movement cutoff.

   Result:

   - The red indicator light on the switch should be on.

5. Try using the machine's hydraulic controls.

   Result:

   - No hydraulic movement should operate.

4.3.5.7 Testing the machine functions

The mast is completely lowered.

Do not drive or steer the machine during this test.

1. Sit in the driving position.
2. Start the machine.
3. Try activating all the machine functions one after the other. Refer to "Familiarization: Machine Controls".

   Result:

   - All functions must be able to be activated.
   - All movements must work correctly and smoothly.

4.3.5.8 Testing the traveling/steering/braking functions

The mast is completely lowered.

The front and rear wheels are aligned.

1. Sit on the drivers seat.
2. Start the machine.
3. Raise the mast slightly.
4. Place the machine in the forward position. Refer to "Familiarization: Machine Controls".
5. Drive the machine forward, test the steering and brake.

   Result:

   - Driving and steering must function properly and smoothly.
   - The braking should work properly.

6. Place the machine in reverse. Refer to "Familiarization: Machine Controls".
7. Drive the machine backward, test the steering and brake.

   Result:

   - Driving and steering must function properly and smoothly.
   - The braking should work properly.

4.4. OPERATING THE MACHINE

4.4.1 OPERATING THE BATTERY MASTER SWITCH

1. **Stop the machine**

a. Wait 30 seconds after turning off the machine.

b. Turn the battery master switch to the off position.

2. **Start the machine**

a. Turn the battery master switch to the on position.

b. Start the machine.

4.4.2 STARTING THE MACHINE

1. Make sure the button **Emergency stop** and the **Battery master switch** are in the on position.
2. Turn the key switch to position I to turn on the machine.
3. Wait for the machine to finish preheating.
4. Turn the switch until the machine starts and release the key.

4.4.3 POWERING DOWN THE MACHINE

- Turn the ignition switch to the off position.

4.4.4 OPERATING THE HEATER

⚠ WARNING

Using the heating reduces the efficiency of the machine's battery.

1. Start the machine.
2. Press button (1) to adjust the air flow between 2 options.

Figure 52: Heater (Option)

3. Press button (2) to operate the fans.
4. Adjust the vents (3) to direct the air flow.

4.4.5. TRAVELLING THE MACHINE

4.4.5.1 Driving, steering and braking the machine

Authorization to move the machine is controlled by the presence of the operator and compliance with the following sequence:

1. Sit in the driving position.
2. Buckle the seat belt.
3. Start the machine.
4. Release the parking brake.
5. Engage forward or reverse.
6. Press the accelerator to adjust the machine's travel speed.
7. Gradually press the brake to stop the machine.
8. Place the power selector in neutral.
9. Apply the parking brake.
10. Turn off the machine.
11. Remove the seat belt.
12. Get off the machine.

If you leave your driving position with forward or reverse gear engaged:

- *The alarm emits 1 beep: sit on the seat and continue traveling.*
- *The alarm emits 2 beeps: sit in the seat, return the drive selector to neutral, release the parking brake and resume driving.*

4.4.6 SECURING THE MACHINE WITH THE ENGINE STOPPED

This function allows the mast to be lowered when the engine is stopped.

- **Version 1:**

a. Sit in the driving position.

b. Turn on the machine.

c. Hold the top of the switch and lower the mast to place the forks on the ground.

- **Version 2:**

a. Sit in the driving position.

b. Turn on the machine.

c. Press the top of the switch until the top light on the switch lights orange.

d. Hold the top of the switch and lower the mast to place the forks on the ground.

4.4.7. HANDLING A LOAD

4.4.7.1 Choice of attachment

Only attachments approved by MANITOU can be used on its machines.

Ensure that the attachment is appropriate for the work to be carried out. (Refer to the Attachments chapter).

Make sure the attachment is correctly installed and locked on the machine apron.

Ensure that the machine attachments are functioning properly.

Comply with the limits of the machine load chart with the accessory used. Refer to “Technical specification: Machine: Load chart”.

Do not exceed the rated capacity of the machine.

Never lift a slinged load without an accessory provided for this purpose. Optional solutions exist, consult your dealer.

4.4.7.2 Load mass and center of gravity

⚠ DANGER

Risk of tipping

It is prohibited to handle a load greater than the effective capacity defined on the machine chart.
Take into account variations in the center of gravity for loads with a moving center of gravity (e. g. liquid) to determine the load to be handled and take extra care and vigilance to limit these variations as much as possible.

Before picking up a load, you need to know its mass and center of gravity.

The load chart relating to your machine is valid for a load whose longitudinal position of the center of gravity is 500 or 600 mm from the heel of the forks. Refer to “Technical specifications: Machine: Load chart”. For a higher center of gravity, consult your dealer.

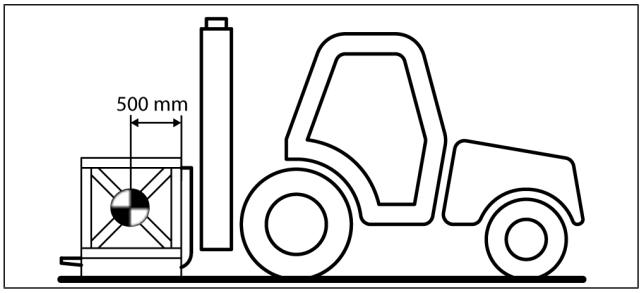


Figure 53: Load mass and center of gravity

For irregular loads, determine the center of gravity in the transverse direction before any handling and position it in the longitudinal axis of the machine.

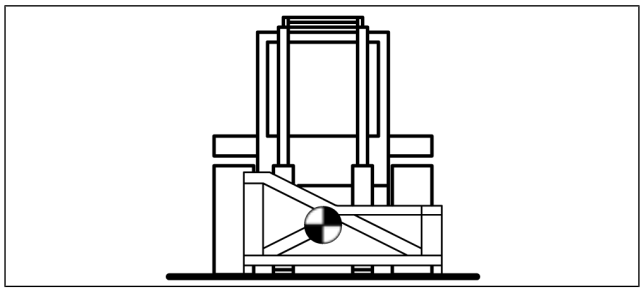


Figure 54: Load mass and center of gravity

4.4.7.3 Transverse attitude of the machine

The transverse attitude is the lateral inclination of the chassis in relation to the ground.

Lifting the mast reduces the lateral stability of the machine.

The transverse attitude of the machine must be ensured with the mast in the low position:

- Place the machine so that the level bubble is inside the two lines.

4.4.7.4 Picking up a load on the ground

⚠ DANGER

Risk of crushing

Manually adjust the forks with extreme care.

⚠ DANGER

Risk of tipping

Never lift a load with just one fork.

- In case of a palletized load:
  a. Position the forks horizontally.

b. Approach the machine perpendicular to the load.

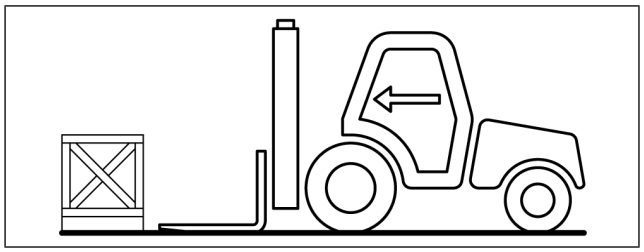


Figure 55: Taking a load from the ground - 1

c. Adjust the spacing and centering of the forks in relation to the load to ensure its stability.

Optional solutions exist, consult your dealer.

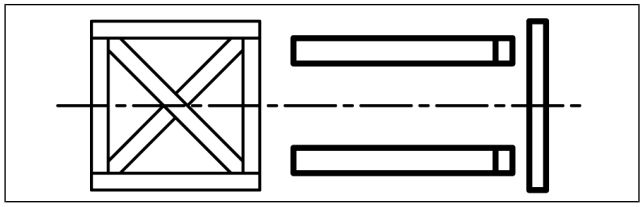


Figure 56: Taking a load from the ground - 2

d. Slowly advance the machine (1) and bring the forks to the stop in front of the load. If necessary, raise the mast (2) slightly while picking up the load.

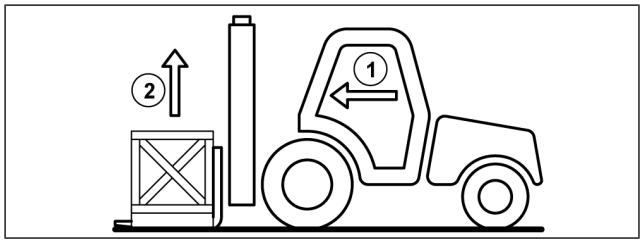


Figure 57: Taking a load from the ground - 3

e. Bring the load to transport position.

f. Tilt the load backwards enough to ensure its stability (loss of load when braking or going downhill).

- In case of a non-palletized load:

a. Tilt the apron (1) forward.

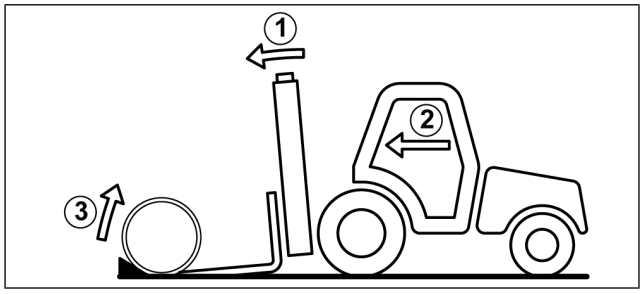


Figure 58: Taking a load from the ground - 4

b. Slowly advance the machine (2) to bring the forks under the load.

c. Hold the load if necessary.

d. Continue to move the machine forward by tilting the apron backwards (3) to place the load on the forks.

e. Ensure the longitudinal and lateral stability of the load.

4.4.7.5 Picking up and laying down a high load on tires

⚠ DANGER

Risk of tipping

Ensure the stability of the machine before raising the mast. Refer to “Operating the machine: Handling a load: Transverse attitude of the machine.”

- Take a high load on tires:

a. Check that the forks will pass easily under the load.

b. Approach the machine with the vertical mast (1).

c. Raise the forks to the load level (2).

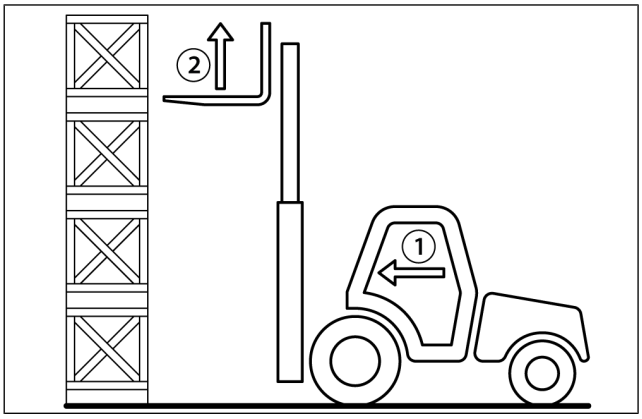


Figure 59: Picking up a load on tires - 1

d. Bring the forks to the stop in front of the load, maneuvering slowly and carefully.

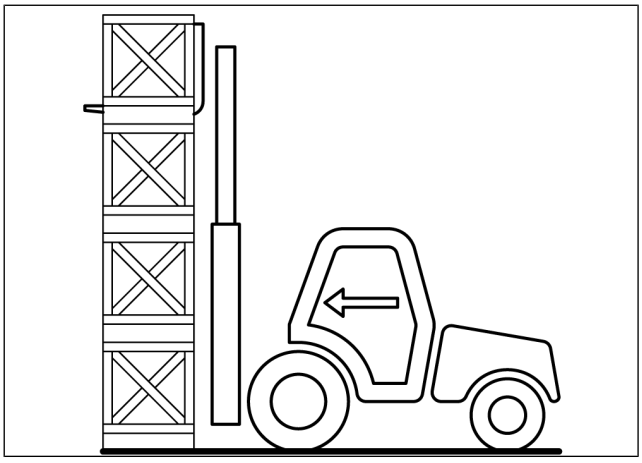


Figure 60: Picking up a load on tires - 2

e. Apply the parking brake.

f. Place the power selector in neutral.

g. Raise the load slightly (1) and tilt the apron (2) slightly backwards to stabilize the load.

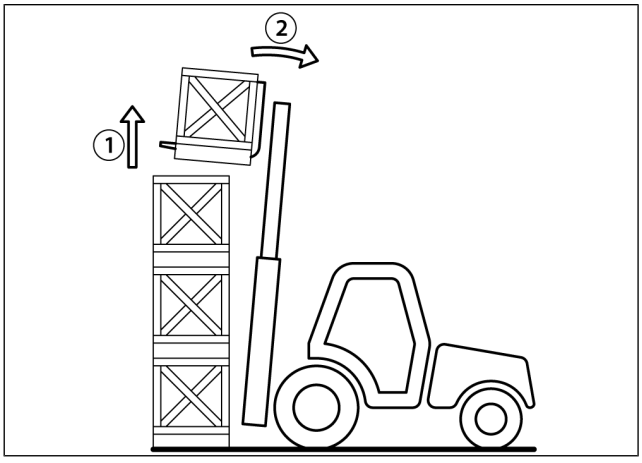


Figure 61: Picking up a load on tires - 3

h. Tilt the load backwards enough to ensure stability.

i. Back up the machine (1), maneuvering very gently and carefully to release the load.

j. Lower the mast (2) to bring the load into transport position.

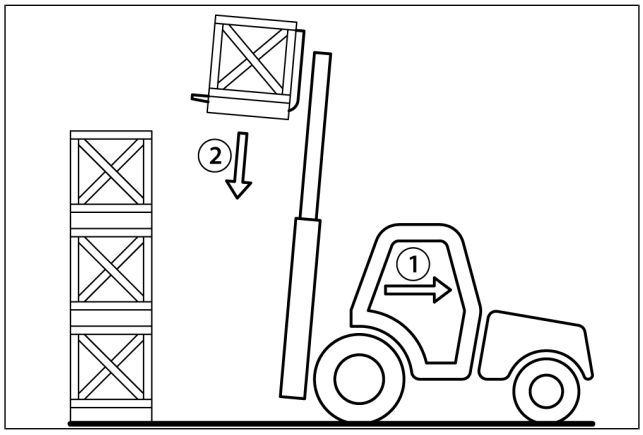


Figure 62: Picking up a load on tires - 4

- Place a high load on tires:

  a. Bring the load in transport position in front of the pile.

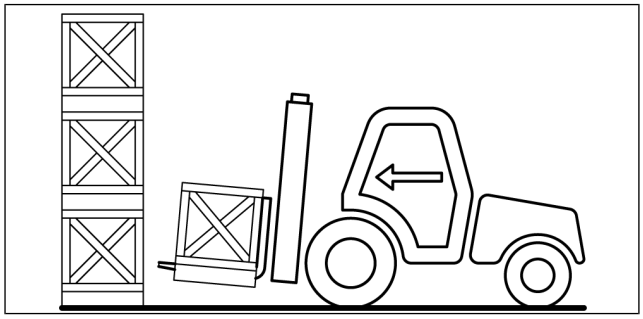


Figure 63: Placing a load on tires - 1

b. Raise the mast (1) until the load is higher than the pile.

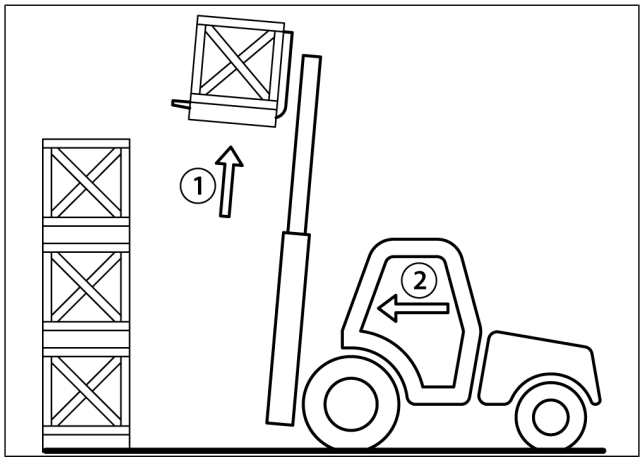


Figure 64: Placing a load on tires - 2

c. Move the machine (2) forward, maneuvering very gently and carefully until the load is on top of the pile.

d. Apply the parking brake.

e. Place the power selector in neutral.

f. Place the load horizontally by tilting the mast forward (1).

g. Place the load on the battery (2), ensuring its correct positioning.

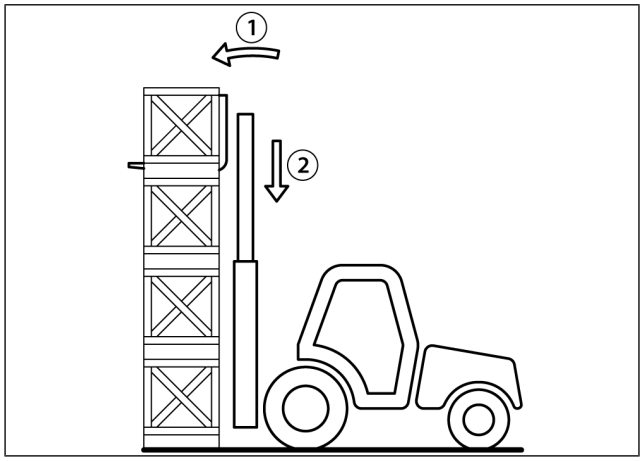


Figure 65: Placing a load on tires - 3

h. Back up the machine (1), maneuvering very gently and carefully to clear the forks.

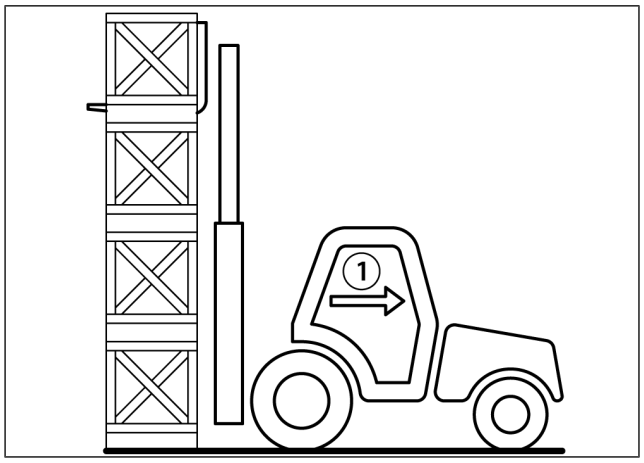


Figure 66: Placing a load on tires - 4

i. Bring the forks to the transport position.

4.5. EMERGENCY STOP

4.5.1 USE THE EMERGENCY STOP

- Push the button **Emergency stop** to stop all machine functions in the event of an anomaly or dangerous situation.

*Machine functions may stop abruptly when you press the button **Emergency stop**. If possible, stop the machine before using the emergency stop.*

4.6. PARKING AND STORAGE OF THE MACHINE

4.6.1 PARKING THE MACHINE

This procedure applies to parking of less than 3 months.

Beyond 3 months, refer to “Machine operation: Parking and storage of the machine: Store the machine for a long time”.

1. Park the machine in a protected area on a level surface.
2. Lower the mast completely.
3. Turn off the machine.
4. Remove the key.
5. Turn the battery switch to the off position.
6. Block the wheels.

4.6.2. STORE THE MACHINE FOR A LONG TIME

4.6.2.1 Introduction

Long-term shutdown and restart procedures must be carried out by your dealer.

This long-term shutdown period must not exceed 12 months.

The recommendations below are intended to prevent damage to the machine when it is out of service for a period of more than 3 months.

When the 12 months of long-term shutdown are reached, the return to service procedure must be carried out, then the long-term shutdown procedure must be carried out again.

4.6.2.2 Preparing the machine

1. Clean the machine completely.
2. Check and repair any fuel, oil, water or air leaks.
3. Replace or repair any worn or damaged parts.
4. Wash the painted surfaces of the machine in clean, cold water and dry them.
5. Make any necessary paint touch-ups.
6. Proceed to stop the machine.
7. Check that the mast cylinder rods are all in the retracted position.
8. Relieve the pressure in the hydraulic circuits.

4.6.2.3 Protecting the machine

1. Place the machine on jack stands so that the tires are not in contact with the ground.
2. Release the parking brake.
3. Protect cylinder rods that are not retracted from corrosion.
4. Wrap the tires.
5. Cover the machine with a waterproof tarpaulin if it must be stored outside.

4.6.2.4 Bringing the machine back into service

1. Remove the waterproof tape from all holes.
2. Reassemble and reconnect the battery.
3. Remove the protections on the cylinder rods.
4. Perform pre-operation checks.

   Refer to "Operating the Machine: Before Operating the Machine: Pre-operation checks".
5. Apply the parking brake.
6. Completely lubricate the machine.
7. Start the machine following the instructions and safety instructions.
8. Carry out the hydraulic movements of the mast, paying particular attention to the end positions of each cylinder.

4.7. MACHINE TRANSPORT AND LIFTING

4.7.1 TOWING THE MACHINE

NOTICE

The lift truck must be towed very slowly (less than 5 km/h) and for as short a distance as possible (less than 100 m).

If the lift truck is on a slope, with parking brake applied, chock it so that it does not descend the slope.

1. Set the forward/reverse lever to neutral.
2. Release the hand brake.
3. Since there will be no power steering or hydraulic brake assistance, operate the steering and pedal slowly and forcefully, avoiding sudden or jerky movements.
4. Switch off the ignition to avoid damaging the electrical boards.

4.7.2. MACHINE TRANSPORT

4.7.2.1 Safety precautions: machine transportation

⚠ DANGER

Risk of falling and collision

Check the correct application of the safety instructions linked to the transport vehicle before loading the machine and ensure that the driver of the transport vehicle is informed of the dimensional characteristics and the total mass of the machine.
Ensure that the transport vehicle has suitable dimensions and sufficient load capacity to transport the machine.
Ensure the correct admissible ground contact pressure of the transport vehicle in relation to the machine.
Make sure the straps are strong enough to support the weight of the machine.

Transport vehicle drivers are responsible for ensuring that the machine is properly secured and that the transport vehicle complies with applicable Ministry of Transportation regulations, applicable local regulations and their company policy.

4.7.2.2 Loading the machine on a transportation vehicle

1. Chock the wheels of the transport vehicle.
2. Attach the loading ramps to the transport vehicle so that you obtain the lowest possible angle for mounting the machine.
3. Start the machine.
4. Mount the machine parallel to the transport vehicle.
5. Stop the machine.

4.7.2.3 Tying down the machine on a transportation vehicle

1. Attach chocks to the front and rear of each machine tire on the transport vehicle.

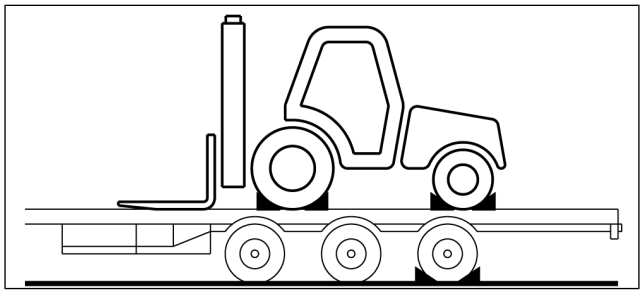


Figure 67: Securing the machine - 1

2. Attach shims to the inside of each machine tire.

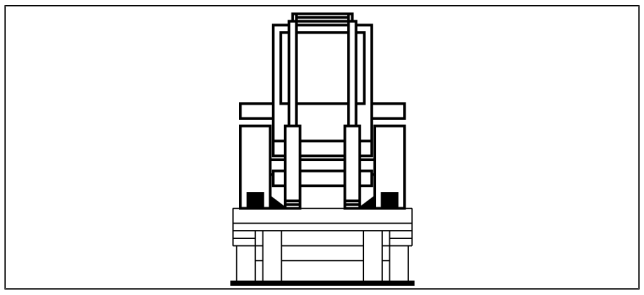


Figure 68: Securing the machine - 2

3. Attach the straps to the machine's tie-down points. Refer to “Safety: Decals”.

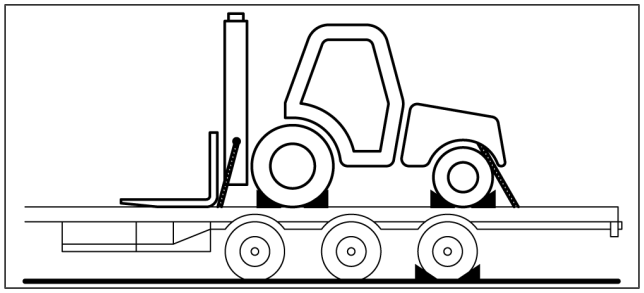


Figure 69: Securing the machine - 3

4.7.2.4 Unloading the machine from a transportation vehicle

1. Chock the wheels of the transport vehicle.
2. Attach the loading ramps to the transport vehicle so that you obtain the lowest possible angle for lowering the machine.
3. Remove the straps from the machine.
4. Remove the wheel chocks from the machine.
5. Start the machine.
6. Lower the machine parallel to the transport vehicle.
7. Stop the machine.

4.7.3. LIFTING THE MACHINE

4.7.3.1 Lifting the machine by means of a crane

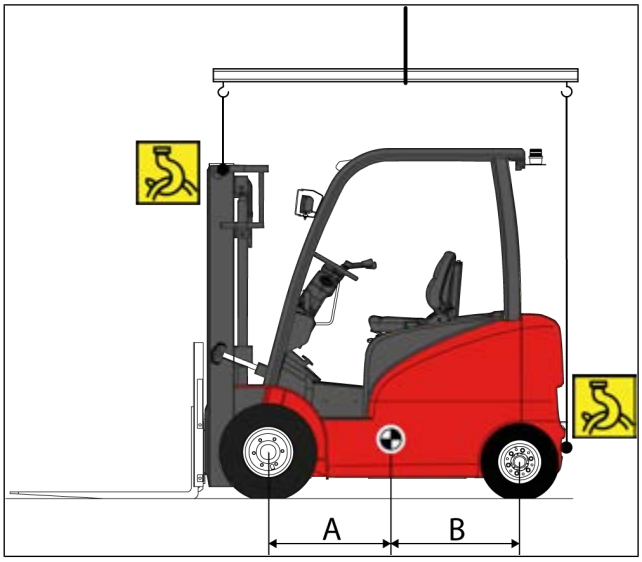


Figure 70: Lifting the machine

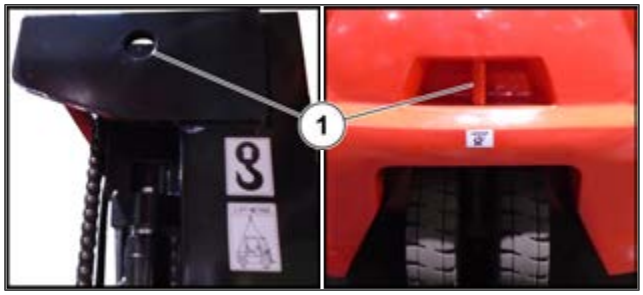


Figure 71: Hanging point

Table 33. Lifting the machine - ME 316 LIFT 80V S1

Item	Designation	Unit	Value
A	Distance between the center of gravity and the axis of the front wheels	mm	582
B	Distance between the center of gravity and the axis of the rear wheels	mm	695

Table 34. Lifting the machine - ME 320 LIFT 80V S1

Item	Designation	Unit	Value
A	Distance between the center of gravity and the axis of the front wheels	mm	600
B	Distance between the center of gravity and the axis of the rear wheels	mm	807

4.7.3.2 Lifting the machine by means of a crane

⚠ DANGER

Risk of falling and collision

Only qualified riggers should be able to rig the machine for lifting in accordance with applicable regulations.
Only certified crane operators should be able to lift the machine in accordance with current regulations.
The surface of the start and/or finish area must be firm, level and uneven.
If the departure and/or arrival zone is a transport vehicle:

- The transport vehicle must be parked on a firm, level surface.
- The wheels of the transport vehicle must be chocked.

Ensure that the lifting slings are strong enough to support the mass of the machine.
Ensure that the lifting capacity of the crane is sufficient to support the mass of the machine.

1. Demarcate a large safety zone around the machine.
2. Attach the lifting slings to the lifting points of the machine. Refer to “Safety: Decals”.
3. Attach the lifting slings to the crane's lifting hooks.
4. Slowly raise the crane lifting hooks until the slings are slightly taut.

If necessary, adjust the lifting slings to prevent damage and keep the machine level.

5. Keep all people away from the safety zone.
6. Slowly raise the machine and move it to the finish area.
7. Slowly lower the machine until all 4 wheels are in contact with the receiving surface.
8. Lower the crane lifting hook until the lifting slings are no longer tight.
9. Detach the lifting slings.

5. MAINTENANCE

5.1. GENERAL INFORMATION

5.1.1 MAINTENANCE WORK

The operator is a person trained and authorized to use the machine.

Qualified service technicians and qualified maintenance personnel approved by Manitou are trained technicians who have the necessary accreditation to work on the machine. Electrical accreditation may be required for some operations : compliance with the local, government and national regulations in force must be ensured.

The personnel indicated below are authorized to perform the following procedures :

- Daily maintenance : the operator, qualified maintenance personnel and service technicians approved by Manitou.
- Weekly maintenance : qualified maintenance personnel approved by Manitou.
- Mandatory and periodic maintenance : qualified service technicians approved by Manitou.
- Occasional maintenance : qualified maintenance personnel and service technicians approved by Manitou.

5.1.2 SAFETY PRECAUTIONS: MAINTENANCE

⚠ DANGER

Maintenance risk

Read and understand the instruction manual and applicable stickers before performing maintenance operations.
Read, make sure you understand and follow all the safety instructions in this instruction manual.
Observe the following instructions when maintenance operations are carried out, unless specific instructions are given:

- The machine must be parked on a level surface.
- The wheels must be chocked.
- The mast must be completely lowered.
- The machine must be turned off.

⚠ WARNING

Risk of burns

Avoid contact with hot components which could cause severe burns.

NOTICE

Risk of damage to the machine

Always tighten screws and nuts in a cross or star pattern.

5.1.3 ORIGINAL MANITOU SPARE PARTS

⚠ DANGER

Risk from unapproved spare parts

Machine maintenance must always be carried out using original Manitou spare parts.

By allowing the use of non-genuine replacement parts, counterfeit parts or unapproved components, you risk:

- To be held legally responsible in the event of an accident.
- Cause damage or malfunction or shorten the life of the machine.
- To lose the benefits of the contractual guarantee.

By using original Manitou spare parts for maintenance operations, you benefit from:

- Know-how and skills,
- the guarantee of high quality work,
- original spare parts,
- help with preventive maintenance,
- effective diagnostic assistance,
- improvements due to feedback,
- operator training.

Only the Manitou network has in-depth knowledge of the machine and the best technical capacity to ensure its maintenance.

Original spare parts are distributed exclusively by Manitou and its network of resellers. The list of resellers is available on the Manitou website at the following address: www.manitou.com

5.2. MACHINE MAINTENANCE

5.2.1 DAILY AND WEEKLY MAINTENANCE

The operator is authorized to carry out this maintenance

These maintenance operations enables the operator to maintain the machine in a clean and safe condition.

5.2.2 MANDATORY FIRST 500 HOURS OR 6 MONTHS OF SERVICE

This service must be carried out after the first 500 hours of service or within the 6 months following putting the machine into service (whichever occurs first).

5.2.3 PERIODIC MAINTENANCE

The periodic maintenance must be carried out by a professional approved by the Manitou network.

Maintenance Schedule

This schedule enables the operator to keep up with the periodic maintenance of the machine by notifying the total number of hours of operation and the date of the service performed by the professional approved by the MANITOU network.

5.2.4 OCCASIONAL MAINTENANCE AND OPERATION

These maintenance tasks and operations are to be performed as required for the safety and upkeep of the machine.

5.3. MAINTENANCE SCHEDULE

⚠ WARNING

Maintenance risk

Maintenance must be carried out by service technicians authorized by Manitou.

Maintenance schedule - Lithium battery

Table 35. Maintenance schedule - Lithium battery

A: Adjust, C: Check, D: Recharge battery, F: First time, G: Grease, R: Replace.	***Customer***				***Dealer***		
	Every 8 hours	***Every 40 hours***	***Every 250 hours***	***Every 500 hours***	***Every 1000 hours***	***Every 2000 hours***	***Every 4000 hours***
	Daily	***Week-ly***	***Every 1,5 month***	***Every 3 mont-hs***	***Every years***	***Every 2 years***	***Every 2 years***
Adjust the lithium battery installation and fastening	A						
Clean the lithium battery	C						
Clean the lithium battery charging socket			C				
Check if the lithium battery charging socket are damaged or corroded	C						
Check if there is water in the contacts of the lithium battery charging socket	C						
Check if the dust cover of the lithium battery charging socket is in good condition			C				
Check if the lithium battery casing is damaged	C						

A: Adjust, C: Check, D: Recharge battery, F: First time, G: Grease, R: Replace.	Customer				Dealer		
	Every 8 hours	Every 40 hours	Every 250 hours	Every 500 hours	Every 1000 hours	Every 2000 hours	Every 4000 hours
	Daily	Weekly	Every 1,5 month	Every 3 months	Every years	Every 2 years	Every 2 years
Check the battery	C			D			
Keep away from flames	C						

Maintenance schedule - Controller

Table 36. Maintenance schedule - Controller

A: Adjust, C: Check, D: Recharge battery, F: First time, G: Grease, R: Replace.	Customer				Dealer		
	Every 8 hours	Every 40 hours	Every 250 hours	Every 500 hours	Every 1000 hours	Every 2000 hours	Every 4000 hours
	Daily	Weekly	Every 1,5 month	Every 3 months	Every years	Every 2 years	Every 2 years
Check condition of contacts				C	C/A		
Check mechanical movement of contactors				C	C/A		
Check pedal microswitchs are functioning properly				C	C/A		
Check condition of connections between motor, battery and power unit				C	C/A		
Check controller faults to determine whether system is functioning properly							C

Maintenance schedule - Motor

Table 37. Maintenance schedule - Motor

A: Adjust, C: Check, D: Recharge battery, F: First time, G: Grease, R: Replace.	Customer				Dealer		
	Every 8 hours	Every 40 hours	Every 250 hours	Every 500 hours	Every 1000 hours	Every 2000 hours	Every 4000 hours
	Daily	Weekly	Every 1,5 month	Every 3 months	Every years	Every 2 years	Every 2 years
Clear foreign bodies on motor housing			C		C		
Check that the motors wiring is correct and secure			C		C		

Maintenance schedule - Transmission system

Table 38. Maintenance schedule - Transmission system

A: Adjust, C: Check, D: Recharge battery, F: First time, G: Grease, R: Replace.	Customer				Dealer		
	Every 8 hours	Every 40 hours	Every 250 hours	Every 500 hours	Every 1000 hours	Every 2000 hours	Every 4000 hours
	Daily	Weekly	Every 1,5 month	Every 3 months	Every years	Every 2 years	Every 2 years
Check for any noises	C						
Check for any leakage	C						
Oil change					R		
Check the brake operating condition	C				A		
Check the gear operating condition				C			
Check the tightness of the bolts in the joints of the forklift frame			A				
Check the tightening torque of the hub bolts	A						

Maintenance schedule - Wheels

Table 39. Maintenance schedule - Wheels

A: Adjust, C: Check, D: Recharge battery, F: First time, G: Grease, R: Replace.	Customer				Dealer		
	Every 8 hours	Every 40 hours	Every 250 hours	Every 500 hours	Every 1000 hours	Every 2000 hours	Every 4000 hours
	Daily	Weekly	Every 1,5 month	Every 3 months	Every years	Every 2 years	Every 2 years
Check the wear and any cracks or damage	C						
Check for nails, stones or other foreign objects in the tread			C				
Check for damaged rims	C						

Maintenance schedule - Steering system

Table 40. Maintenance schedule - Steering system

A: Adjust, C: Check, D: Recharge battery, F: First time, G: Grease, R: Replace.	Customer				Dealer		
	Every 8 hours	Every 40 hours	Every 250 hours	Every 500 hours	Every 1000 hours	Every 2000 hours	Every 4000 hours
	Daily	Weekly	Every 1,5 month	Every 3 months	Every years	Every 2 years	Every 2 years
Check for steering wheel play	C						
Check for steering wheel axial looseness	C						
Check for steering wheel radial looseness	C						
Check for steering wheel operation	C						
Check for steering gear loose mounting bolts			C		A		
Check for the sealing condition of each interface connector of the steering gear	C				A		

A: Adjust, C: Check, D: Recharge battery, F: First time, G: Grease, R: Replace.	Customer				Dealer		
	Every 8 hours	Every 40 hours	Every 250 hours	Every 500 hours	Every 1000 hours	Every 2000 hours	Every 4000 hours
	Daily	Weekly	Every 1,5 month	Every 3 months	Every years	Every 2 years	Every 2 years
Check the rear axle bolts for looseness			C		A		
Check for any deformation, cracks or damage of the real axle			C				
Check the operation of the steering cylinder	C						
Check the steering cylinder for any leakage				C	A		
Check the engagement condition of the gear and rack				C	A		

Maintenance schedule - Braking system

Table 41. Maintenance schedule - Braking system

A: Adjust, C: Check, D: Recharge battery, F: First time, G: Grease, R: Replace.	Customer				Dealer		
	Every 8 hours	Every 40 hours	Every 250 hours	Every 500 hours	Every 1000 hours	Every 2000 hours	Every 4000 hours
	Daily	Weekly	Every 1,5 month	Every 3 months	Every years	Every 2 years	Every 2 years
Check the free play of the brake pedal	C				A		
Check the brake pedal stroke	C				A		
Check the brake pedal operation	C						
Check for air in brake lines	C				C		
Check braking is safe and reliable, stroke is sufficient	C						
Check the operating performance of the parking brake	C						
Check that the wiring is correct and secure			C				
Check the loose of the connections brake pipe			C		A		
Check the gear box connector wear				C	A		
Check the brake pipeline for damage, leakage or rupture			C				
Check the connection, clamping parts, looseness of the pipelines			C		A		
Check for leakage of the brake master cylinder	C						
Check the oil level, change it if necessary	C				RF	R	
Check the operation of the brake master cylinder				C	C		
Check the brake master cylinder and non-return valve for any wear or damage and replace it if necessary				C	RF	R	

Maintenance schedule - Hydraulic system

Table 42. Maintenance schedule - Hydraulic system

A: Adjust, C: Check, D: Recharge battery, F: First time, G: Grease, R: Replace.	***Customer***				***Dealer***		
	Every 8 hours	***Every 40 hours***	***Every 250 hours***	***Every 500 hours***	***Every 1000 hours***	***Every 2000 hours***	***Every 4000 hours***
	Daily	***Week-ly***	***Every 1,5 month***	***Every 3 mont-hs***	***Every years***	***Every 2 years***	***Every 2 years***
Check oil level, change it if necessary	C				RF	R	
Clean oil filter, replace it if necessary					RF	R	
Clear foreign bodies in the hydraulic oil tank					C		
Check the loose connections of the control valve rod	C				A		
Check the operation of the control valve rod	C						
Check for leakage of the multi-way valve	C						
Check the operation of safety valve and self-locking tilt valve			C				
Measure the safety valve pressure					C		
Check for leaks, looseness, rupture, deformation, damage of the pipe connectors			C				
Replace pipes					R		
Check pump for leaks and noise	C						
Check wear of pump drive gear			C				

Maintenance schedule - Lifting system

Table 43. Maintenance schedule - Lifting system

A: Adjust, C: Check, D: Recharge battery, F: First time, G: Grease, R: Replace.	***Customer***				***Dealer***		
	Every 8 hours	***Every 40 hours***	***Every 250 hours***	***Every 500 hours***	***Every 1000 hours***	***Every 2000 hours***	***Every 4000 hours***
	Daily	***Week-ly***	***Every 1,5 month***	***Every 3 mont-hs***	***Every years***	***Every 2 years***	***Every 2 years***
Check chain tension (deformation, damage and corrosion)	C						
Lubricate chain			G				
Check riveting pins and looseness of the sprocket chain			C		A		
Check sprocket deformation and damage			C		A		
Check looseness of sprocket bearings			C		A		
Check if the state of the attachments is normal			C				
Check piston rod and piston rod threading (loose connections, deformation and damage)	C				A		
Check lift and tilt cylinders operation	C						
Check lift and tilt cylinders leakage	C						
Check wear and damage of pins and cylinder steel-backed bearings			C		A/R		
Check forks damage, deformation and wear			C				

A: Adjust, C: Check, D: Recharge battery, F: First time, G: Grease, R: Replace.	Customer				Dealer		
	Every 8 hours	Every 40 hours	Every 250 hours	Every 500 hours	Every 1000 hours	Every 2000 hours	Every 4000 hours
	Daily	Weekly	Every 1,5 month	Every 3 months	Every years	Every 2 years	Every 2 years
Check forks stoppers damage and wear				C			
Check for cracking and wear of welded part of fork heel coupling			C				
Check the tilting cylinder bracket and the mast if it is poorly welded, cracked or damaged			C				
Check if the inner and outer mast is poorly welded, cracked or damaged			C				
Check if the fork carriage is poorly welded, cracked or damaged			C				
Check the loose of the roller bearings			C				
Check the wear and damage of the mast support bearing bushes					C		
Check the looseness of the mast support cover bolts			C		C		
Check the looseness of the lift cylinder piston rod head bolts and plate bolts			C		C		
Check for any cracking and damage of roller shafts and welding parts			C				

Maintenance schedule - Others

Table 44. Maintenance schedule - Others

A: Adjust, C: Check, D: Recharge battery, F: First time, G: Grease, R: Replace.	Customer				Dealer		
	Every 8 hours	Every 40 hours	Every 250 hours	Every 500 hours	Every 1000 hours	Every 2000 hours	Every 4000 hours
	Daily	Weekly	Every 1,5 month	Every 3 months	Every years	Every 2 years	Every 2 years
Check if the installation of the overhead guard and load bracket is firm	C						
Check for deformation, cracks and damage of the overhead guard and load bracket	C						
Check the work and installation of the steering light	C						
Check the work and installation of the horn	C						
Check the work and installation of the light and bulbs	C						
Check the work and installation of the reversing buzzer	C						
Check the meter work condition	C						
Check for harness damage and looseness		C			A		
Check the circuit connection looseness			C		A		

5.4. MAINTENANCE INSTRUCTIONS

5.4.1 ELECTRICAL COMPONENTS COVER OPENING

Figure 72: Electrical components cover opening

⚠ WARNING

For your safety, set down the forks or the attachment on the ground to avoid any incident due to inadvertent operation of the hydraulic controls, and press the emergency stop button. Be careful not to get your fingers caught or crushed during this operation. Always lift or hold the cover with the handle (1). Check that nothing and nobody interferes with the lowering of the battery cover.

On the cab version, open the side doors and the rear sliding window before lifting up the cover.

Lifting up the cover:

If necessary, tilt the steering wheel forward to lift up the cover.

- Pull the handle (1) and gently lift the cover until the safety catch (2) on the gas strut locks in place.
- Check that the cover is locked.

Lowering the cover:

- Release the safety catch (2) and hold the cover as you gently lower it.
- Check that the engine cover is properly closed.

5.4.2. 8 HOURS OF SERVICE OR DAILY MAINTENANCE

5.4.2.1 Check lift truck environment

⚠ CAUTION

Follow the operator instructions.

⚠ WARNING

Particular attention should be paid to accumulations of flammable materials and fuel or lubricant leaks. These significantly increase the risk of fire outbreaks.

1. Carry out a general inspection of the lift truck:
   a. Fluid leaks or stains on the ground.
   b. Additional objects on the lift truck and in the driver protection or the cab.
   c. Mounting and adjustment of lights and rear view mirrors.
   d. Mounting and locking of the attachment.
   e. Condition of the tyres, to detect cuts, blisters, wear, etc.
2. According to the conditions of use and the environment, ensure that the lift truck is clean.
   a. Cleanliness of lights, rear view mirrors, windows and the driver's cab.
   b. Cleanliness of the engine housing and inside the frame to prevent leaks and build-up of materials (e. g. straw, flour, sawdust, organic waste, etc.).

5.4.2.2 Check the battery

⚠ CAUTION

Do not discharge a battery beyond 80% of its capacity and recharge in one operation in a well ventilated space. The charger must be suitable for lithium-ion batteries and adjusted accordingly. Refer to the charger instruction manual for details of this operation.The machine’s ignition must be switched off before connecting or disconnecting the battery plug.

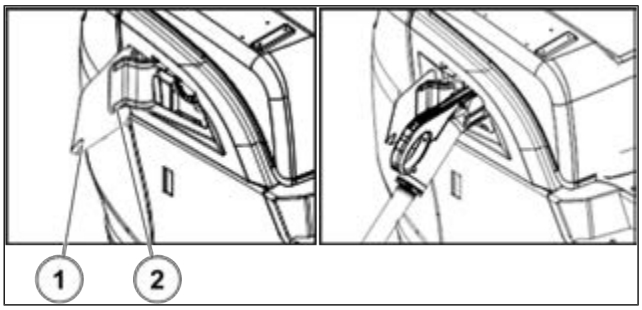


Figure 73: Battery plug

- Open covers (1 and 2).
- Check the socket for foreign bodies and corrosion.
- Plug the charger into the socket. Communication is automatically established between the charger and the battery to check for faults. After 15 seconds, charging begins, and the charger displays charging current and voltage information.
- When the battery is fully charged, the charger automatically stops charging and the voltage and current displayed are 0. Then press the pause button, unlock the charger device and remove it.
- If you need to stop charging before it is fully charged, press the pause button on the charger, wait for the charging current to display 0 A, unlock the charger device and remove it.
- Return the charger device to its position on the charger and switch off the power supply.
- Close covers (1 and 2).

Charge management :

Intermediate charging is possible.

It is strongly recommended to recharge the battery (e. g. during lunchtime or any downtime), as the battery performs best when the charge level is between 30% and 100%.

5.4.2.3 Cleaning the battery

⚠ CAUTION

Your lift truck's high voltage circuit can cause serious injury or death. Any work on the high voltage circuit must be done by trained, authorized personnel (Contact your dealer). Handling and servicing a battery can be dangerous. Take the following precautions : Removes the ring, watches, bracelets and any clothing incorporating metal. Keep the battery horizontal. Never smoke or work near a naked flame. Work in a well-ventilated area.

Figure 74: Battery tray side door

The battery must be kept clean and dry at all times to avoid malfunctions, self-discharge and leakage currents. To open the battery tray side door, engage the handle (1).

Washing :

- Do not clean the battery with water.
- Wipe the battery with a clean cloth.

5.4.2.4 Check for the sealing condition of each interface connector of the steering gear

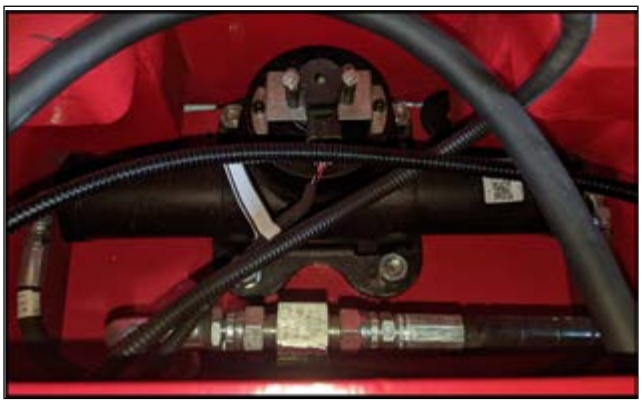


Figure 75: Interface connector of the steering gear

Check the sealing status of each joint to see if there is any oil leakage.

5.4.2.5 Check for leakage of the brake master cylinder

Figure 76: Interface connector of the master cylinder

Check the brake master cylinder to see if there is any oil leakage (1).

5.4.3. 40 HOURS OF SERVICE OR WEEKLY MAINTENANCE

5.4.3.1 Check tires and wheels

- Check the condition of the tires, to detect cuts, blisters, wear, etc.
- Check the wheel nut torque. Non-compliance with this instruction can lead to deterioration and breakage of the wheel lugs and distortion of the wheels.

Tightening torque of wheel nuts :

- Front wheels 157 to 176 N.m.
- Rear wheels 157 to 176 N.m.

An OPTIONAL wheel tool kit is available.

5.4.3.2 Adjust tension and alignment of mast lifting chains

⚠ WARNING

These checks are important for the good working operation of the mast. In case of technical faults, consult your dealer.

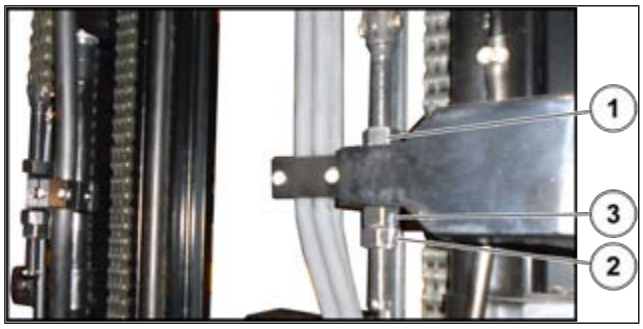


Figure 77: Battery tray side door

1. Visually check the state of the mast and the forks.
2. Check the alignment of the mast lifting chains between the carriage chain fasteners and the chain rollers.
3. Manually verify the chain tension and, if necessary, adjust as indicated below while ensuring that the carriage is perpendicular to the mast.
4. Loosen nut (1).
5. Loosen the chain tensioner lock nut (2).
6. Adjust the tension by tightening or loosening the nut (3) while checking the alignment of the lifting chains.
7. Then tighten the lock nut (2) and nut (3).
8. Retighten the nut (1).

5.4.3.3 Grease the mast

⚠ WARNING

In the event of prolonged use in an extremely dusty or oxidizing atmosphere, reduce this interval to 10 hours of service or every day.

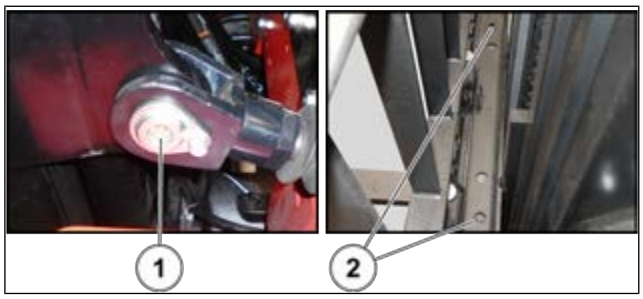


Figure 78: Grease the mast

To be carried out weekly, if the lift truck has been operated for less than 50 hours during the week.

Clean, then lubricate the following points with grease :

1. Lubricators of the tilting cylinder head pins (2 lubricators).
2. Lubricators of the side-shift carriage (2 lubricators).

5.4.3.4 Check hydraulic oil level

⚠ WARNING

Use a very clean funnel and clean the top of the oil can before filling. Consult your dealer in case of abnormal operation of the hydraulic controls.

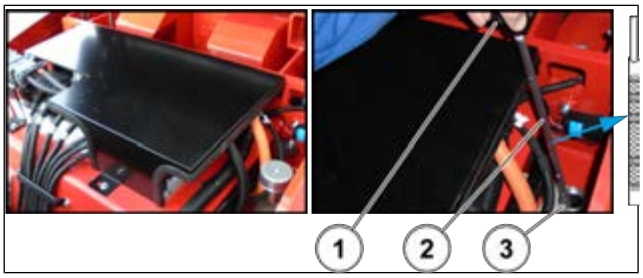


Figure 79: Hydraulic oil level

Place the lift truck on level ground with the mast tilted backward and lowered as far as possible.

1. Open the electrical components cover.
2. Unscrew the dipstick plug (1).
3. Wipe the dipstick (2).
4. Reinsert the dipstick and remove it again.
5. Refer to the dipstick (2) and this value :
   - Mast lifting height ≤ 3000 : Filling level = 30(*)
   - Mast lifting height > 3000 ≤ 4000 : Filling level = 40(*)
   - Mast lifting height > 4000 ≤ 5000 : Filling level = 50(*)
   - Mast lifting height > 5000 ≤ 6000 : Filling level = 60(*)
   - Mast lifting height > 6000 ≤ 7000 : Filling level = 65(*)

   (*) For lift trucks fitted with a hydraulic attachment, add oil depending on the hydraulic attachment.

   Always maintain the oil level at a maximum as cooling depends on the oil flowing through the tank.
6. If necessary, add oil via the filler port (3).
7. Screw the dipstick plug (1) back in.
8. Visually check that there is no leakage in the tank or pipes.
9. Check the correct operation of the hydraulic controls.

5.4.3.5 Check brake oil level

⚠ WARNING

If the brake fluid level is abnormal, consult your dealer.

Figure 80: Brake oil level

Place the lift truck on level ground:

1. Visually check the level.
2. The oil must be up to the MAX level on the tank (1).
3. If necessary, add oil through the filter port (1).
4. Visually check that there is no leakage in the tank pipes.

5.4.4. 250 HOURS OF SERVICE OR EVERY 1,5 MONTH

5.4.4.1 Check that the motors wiring is correct and secure

⚠ DANGER

Do not touch any wire if the ignition is on. The customer can only do a visual inspection of the wiring.As the dealer, you need to use professional tools to check the firmness of the main power cable.

Traction motor

Figure 81: Traction motor

- Check if the connection (1) is well plugged and not damaged.
- Check if the connection (2) is on the U plug and not damaged.
- Check if the connection (3) is on the V plug and not damaged.
- Check if the connection (4) is on the W plug and not damaged.

Hydraulic motor

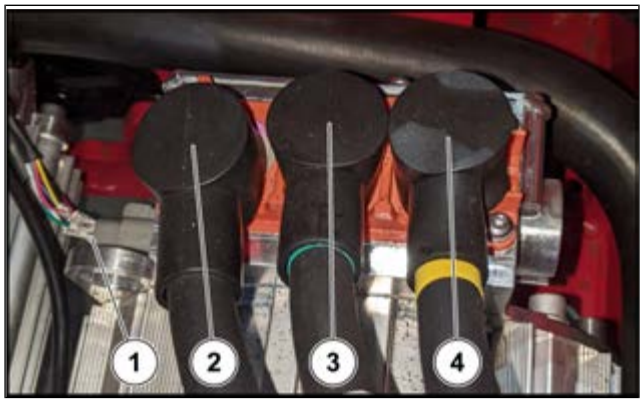


Figure 82: Hydraulic motor

- Check if the connection (1) is well plugged and not damaged.
- Check if the connection (2) is on the W plug and not damaged.
- Check if the connection (3) is on the V plug and not damaged.
- Check if the connection (4) is on the U plug and not damaged.

5.4.4.2 Check the brake pipeline for damage, leakage or rupture

Figure 83: Brake pipeline

Check the brake pipeline for damage, leakage or rupture with a visual inspection.

5.4.5. OCCASIONAL MAINTENANCE

5.4.5.1 Clean driver's cab

⚠ WARNING

Do not use a high pressure cleaner or water jet. Take precautions with electrical and electronic components.

The frequency of cleaning is given as an example.

Clean the inside of the overhead guard using a small brush, vacuum cleaner and a cloth.

5.4.5.2 Check fuses and relays

⚠ WARNING

Replace a faulty fuse with another of equivalent rating. Never use a repaired fuse. In case of technical faults, consult your dealer.

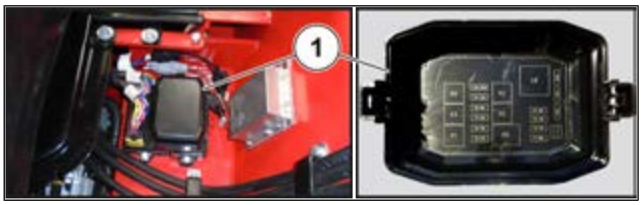


Figure 84: Fuses and relays

1. Open the electrical components cover.
2. Remove the carpet and the floor.
3. Remove cover (1) in order to gain access to the fuses and relays.
   - F1 - Control circuit (20 A).
   - F2 - Main circuit (10 A).
   - F3 - Traction controller (10 A).
   - F4 - Display, traction and pump controller (20 A).
   - F5 - 24V reserved (STD) (10 A) - 24V reserved, OBD, Easy manager (mini levers) (10 A).
   - F6 - 24V reserved, OBD, Easy manager (STD) (10 A) - Mini levers (mini levers) (10 A).
   - F7 - Lighting (10 A).
   - F8 - Horn (10 A).
   - F9 - Seat belt alarm (10 A).
   - F10 - Reverse buzzer (30 A).
   - K1 - Lighting.
   - K2 - Horn.
   - K3 - Seat belt alarm.
   - K4 - Option.
   - K5 - Option.
   - K6 - Option.
   - HF - Turn signal flasher.

5.4.5.3 Check power fuses

⚠ WARNING

Any work on the high voltage circuit must be done by trained, authorized personnel (contact your dealer). Your machine's high voltage circuit can cause serious injury or death.

Figure 85: Check power fuses

FP1 - Pump controller (300 A).

FP2 - Slave traction controller (300 A).

6. ATTACHMENTS

6.1. USAGE AND INSTALLATION OF ATTACHMENT AND SAFETY RULES

Manitou will choose attachment that is in accordance with International standard ISO2328 (Forklift pothook fork and install size of carriage), such as clamp, rotator, paper roll clamp, carrying ram, side-shifter etc.

6.2. TECHNICAL CHARACTERISTICS OF ATTACHMENTS

6.2.1 TECHNICAL SPECIFICATIONS OF ATTACHMENTS

- *: Double Mast With All-Round Vision (DVT)
- **: Double Mast With Total Free-Acting Lift (DLL)
- ***: Triple Mast With Free-Acting Lift (TLL)

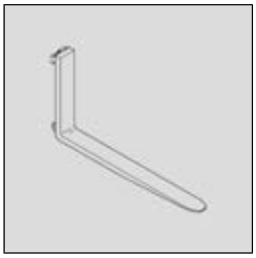
Fork positioner for ME 316-320 LIFT 80V S1

Table 45. Fork positioner for ME 316-320 LIFT 80V S1

	*	**	***	
Part Number	52844572	52844695	52844696	
Rated capacity	-	-	-	
Side-shift	-	-	-	
Width	-	-	-	
Weight	-	-	-	

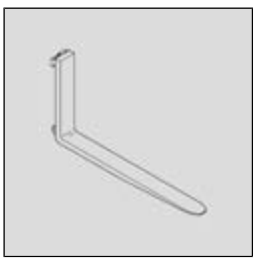
Standardized fork for ME 316 LIFT 80V S1

Table 46. Standardized fork for ME 316 LIFT 80V S1

	*	**	***	
Part Number	52833806	52828775	52828776	
Section	122 x 40 x 800 mm	122 x 40 x 920 mm	122 x 40 x 1070 mm	
Weight	-	-	-	
Part Number	52828777	52828778	52836564	
Section	122 x 40 x 1150 mm	122 x 40 x 1220 mm	122 x 40 x 1520 mm	
Weight	-	-	-	

Standardized fork for ME 320 LIFT 80V S1

Table 47. Standardized fork for ME 320 LIFT 80V S1

	*	**	***	
Part Number	52833807	52828779	52833809	
Section	122 x 40 x 800 mm	122 x 40 x 920 mm	122 x 40 x 1070 mm	
Weight	-	-	-	
Part Number	52828781	52828782	52833810	
Section	122 x 40 x 1150 mm	122 x 40 x 1220 mm	122 x 40 x 1520 mm	
Weight	-	-	-	

Load back rest for ME 316-320 LIFT 80V S1

Table 48. Load back rest for ME 316-320 LIFT 80V S1

Part Number	*896259*	
Width	1080 mm	
Weight	-	

6.3. FORK GUARD

6.3.1 FORK GUARD

Table 49. Fork guard

	Unit		
Reference	-	227801	

For Support and Service, Contact Your Dealer

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