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YOUR DEALER

547943 EN (10/10/2013)

# ME 425
# ME 430

## OPERATOR'S MANUAL
*(ORIGINAL INSTRUCTIONS)*

THIS OPERATOR'S MANUAL MUST BE KEPT IN THE LIFT TRUCK AND MUST BE READ AND UNDERSTOOD BY OPERATORS.

# 1 - OPERATING AND SAFETY INSTRUCTIONS

# 2 - DESCRIPTION

# 3 - MAINTENANCE

# 4 - ADAPTABLE ATTACHMENTS IN OPTION ON THE RANGE

| | |
|---|---|
| 01/03/2006 | 1st DATE OF ISSUE |
| 03/04/2006 | UPDATED |
| 01/02/2010 | UPDATED (1-3; 1-4; 1-10; 1-14; 2-3 - 2-5; 2-7; 2-9; 2-11; 2-13; 2-25; 3-3 - 3-9; 3-11 - 3-13; 3-23; 4-6; 4-7) |
| 10/10/2013 | UPDATED ISO3691 (2-24) |



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# 1 - OPERATING AND SAFETY INSTRUCTIONS

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# INSTRUCTIONS TO THE COMPANY MANAGER

## THE SITE

- Proper management of lift truck's area of travel will reduce the risk of accidents:
  . ground not unnecessarily uneven or obstructed,
  . no excessive slopes,
  . pedestrian traffic controlled, etc.

## THE OPERATOR

- Only qualified, authorized personnel can use the lift truck. This authorization is given in writing by the appropriate person in the establishment with respect to the use of lift trucks and must be carried permanently by the operator.

***On the basis of experience, there are a number of possible situations in which operating the lift truck is contra-indicated. Such foreseeable abnormal uses, the main ones being listed below, are strictly forbidden.***

***- The foreseeable abnormal behaviour resulting from ordinary neglect, but does not result from any wish to put the machinery to any improper use.***

***- The reflex reactions of a person in the event of a malfunction, incident, fault, etc. during operation of the lift truck.***

***- Behaviour resulting from application of the "principle of least action" when performing a task.***

***- For certain machines, the foreseeable behaviour of such persons as: apprentices, teenagers, handicapped persons, trainees tempted to drive a lift truck, operator tempted to operate a truck to win a bet, in competition or for their own personal experience.***

***The person in charge of the equipment must take these criteria into account when assessing whether or not a person will make a suitable driver.***

## THE LIFT TRUCK

### A - THE LIFT TRUCK'S SUITABILITY FOR THE JOB

- MANITOU has ensured that this lift truck is suitable for use under the standard operating conditions defined in this operator's manual, with a **STATIC** test coefficient of **1.33** and a **DYNAMIC** test coefficient of **1**, as specified in harmonised norm **EN 1726-1** for mast trucks.
- Before commissioning, the company manager must make sure that the lift truck is appropriate for the work to be done, and perform certain tests (in accordance with current legislation).

### B - ADAPTATION OF THE LIFT TRUCK TO STANDARD ENVIRONMENTAL CONDITIONS

- In addition to series equipment mounted on your lift truck, many options are available, such as: road lighting, stop lights, flashing light, reverse lights, reverse buzzer alarm, front light, rear light, etc.
- The operator must take into account the operating conditions to define the lift truck's signalling and lighting equipment. Contact your dealer.
- Take into account climatic and atmospheric conditions of the site of utilisation.
  . Protection against frost (see: 3 - MAINTENANCE: LUBRICANTS).
  . Adaptation of lubricants (ask your dealer for information).
  . Do not work in a cooled warehouse (the autonomy of the battery would be then 30 minutes).

***For operation under average climatic conditions, i.e.: between -15 °C and + 35 °C and a content water lower than 90%, correct levels of lubricants in all the circuits are checked in production. For operation under more severe climatic conditions, before starting up, it is necessary to drain all the circuits, then ensure correct levels of lubricants using lubricants properly suited to the relevant ambient temperatures.***

- A lift truck operating in an area without fire extinguishing equipment must be equipped with an individual extinguisher. There are solutions, consult your dealer.

***Your lift truck is designed for outdoor use under normal atmospheric conditions and indoor use in suitably aerated and ventilated premises. It is prohibited to use the lift truck in areas where there is a risk of fire or which are potentially explosive (e.g. Refineries, fuel or gas depots, stores of inflammable products...). For use in these areas, specific equipment is available (ask your dealer for information).***

- Our trucks comply with Directive 2004/108/EC concerning electromagnetic compatibility (EMC), and with the corresponding harmonized norm EN 12895. Their proper operation is no longer guaranteed if they are used within areas in which the electromagnetic fields exceed the limit specified by that norm (10 V/m).
- Directive 2002/44/EC requires company managers to not expose their employees to excessive vibration doses. There is no recognized code of measurement for comparing the machines of different manufacturers. The actual doses received can therefore be measured only under actual operating conditions at the user's premises.
- The following are some tips for minimizing these vibration doses:
  - Select the most suitable lift truck and attachment for the intended use.
  - Adapt the seat adjustment to the operator's weight (according to lift truck model) and maintain it in good condition, as well as the cab suspension. Inflate the tires in accordance with recommendations.
  - Ensure that the operators adapt their operating speed to suit the conditions on site.
  - As far as possible, arrange the site in such a way as to provide a flat running surface and remove obstacles and harmful potholes.



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**C - MODIFICATION OF THE LIFT TRUCK**

- For your safety and that of others, you must not change the structure and settings of the various components used in your lift truck (hydraulic pressure, calibrating limiters, addition of extra equipment, addition of counterweight, unapproved attachments, alarm systems, etc.) yourself. In this event, the manufacturer cannot be held responsible.

## *THE INSTRUCTIONS*

- The operator's manual must always be in good condition and kept in the place provided on the lift truck and in the language used by the operator.
- The operator's manual and any plates or stickers which are no longer legible or are damaged, must be replaced immediately.

## *THE MAINTENANCE*

- Maintenance or repairs other than those detailed in part: 3 - MAINTENANCE must be carried out by qualified personnel (consult your dealer) and under the necessary safety conditions to maintain the health of the operator and any third party.

***Your lift truck must be inspected periodically to ensure that it remains in compliance. The frequency of this inspection is defined by current legislation in the country in which the lift truck is used.***

# INSTRUCTIONS FOR THE OPERATOR

## PREAMBULE

**WHENEVER YOU SEE THIS SYMBOL IT MEANS:**

**WARNING ! BE CAREFUL ! YOUR SAFETY OR THE SAFETY OF THE LIFT TRUCK IS AT RISK.**

***The risk of accident while using, servicing or repairing your lift truck can be restricted if you follow the safety instructions and safety measures detailed in these instruction.***

- Only the operations and manœuvres described in these operator's manual must be performed. The manufacturer cannot predict all possible risky situations. Consequently, the safety instructions given in the operator's manual and on the lift truck itself are not exhaustive.
- At any time, as an operator, you must envisage, within reason, the possible risk to yourself, to others or to the lift truck itself when you use it.

***Failure to respect the safety and operating instructions, or the instructions for repairing or servicing your lift truck may lead to serious, even fatal accident.***

## GENERAL INSTRUCTIONS

**A - OPERATOR'S MANUAL**

- Read the operator's manual carefully.
- The operator's manual must always be in good condition and in the place provided for it on the lift truck.
- You must report any plates and stickers which are no longer legible or which are damaged.

**B - AUTHORIZATION FOR USE IN FRANCE**
**(or see current legislation in other countries)**

- Only qualified, authorized personnel may use the lift truck. This authorization is given in writing by the appropriate person in the company, in charge of using the lift truck, and must be permanently carried by the operator.
- The operator is not competent to authorise the driving of the lift truck by another person.

**C - MAINTENANCE**

- The operator must immediately advise his superior if his lift truck is not in good working order or does not comply with the safety notice.
- The operator is prohibited from carrying out any repairs or adjustments himself, unless he has been trained for this purpose. He must keep the lift truck properly cleaned if this is among his responsibilities.
- The operator must carry out daily maintenance (see: 3 - MAINTENANCE: A - DAILY OR EVERY 10 HOURS SERVICE).
- The operator must ensure tyres are adapted to the nature of the ground (see area of the contact surface of the tyres in the chapter: 2 - DESCRIPTION: CHARACTERISTICS). There are optional solutions, consult your dealer.

***Do not use the lift truck if the tyres are damaged or excessively worn, because this could put your own safety or that of others at risk, or cause damage to the lift truck itself.***

**D - MODIFICATION OF THE LIFT TRUCK**

- For your safety and that of others, you must not change the structure and settings of the various components used in your lift truck (hydraulic pressure, calibrating limiters, I.C. engine speed, addition of extra equipment, addition of counterweight, unapproved attachments, alarm systems, etc.) yourself. In this event, the manufacturer cannot be held responsible.

**E - LIFTING PEOPLE**

- The use of working equipment and load lifting attachments to lift people is:
  - either forbidden
  - or authorized exceptionally and under certain conditions (see current regulations in the country in which the lift truck is used).

**A - BEFORE STARTING THE LIFT TRUCK**

- Carry out daily maintenance (see: 3 - MAINTENANCE: A - DAILY OR EVERY 10 HOURS SERVICE).
- Make sure the lights, indicators and windscreen wipers are working properly.
- Make sure the rear view mirrors are in good condition, clean and properly adjusted.
- Make sure the horn works.

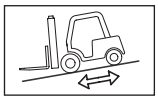
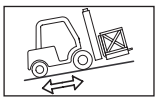
**B - DRIVER'S OPERATING INSTRUCTIONS**

- Whatever his experience, the operator is advised to familiarize himself with the position and operation of all the controls and instruments before operating the lift truck.
- Wear clothes suited for driving the lift truck, avoid loose clothes.
- Make sure you have the appropriate protective equipment for the job to be done.
- Prolonged exposure to high noise levels may cause hearing problems. It is recommended to wear ear muffs to protect against excessive noise.
- Always face the lift truck when getting into and leaving the driving seat and use the handle(s) provided for this purpose. Do not jump out of the seat to get down.
- Always pay attention when using the lift truck. Do not listen to the radio or music using headphones or earphones.
- Never operate the lift truck when hands or feet are wet or soiled with greasy substances.
- For increased comfort, adjust the seat to your requirements and adopt the correct position in the driver's cab.

***Under no circumstances must the seat be adjusted while the lift truck is moving.***

- The operator must always be in his normal position in the driver's cab. It is prohibited to have arms or legs, or generally any part of the body, protruding from the driver's cab of the lift truck.
- The safety belt must be worn and adjusted to the operator's size.
- The control units must never in any event be used for any other than their intended purposes (e.g. climbing onto or down from the lift truck, portmanteau, etc.).
- If the control components are fitted with a forced operation (lever lock) device, it is forbidden to leave the cab without first putting these controls in neutral.
- It is prohibited to carry passengers either on the lift truck or in the cab.

**C - ENVIRONMENT**

- Comply with site safety regulations.
- If you have to use the lift truck in a dark area or at night, make sure it is equipped with working lights.
- During handling operations, make sure that no one is in the way of the lift truck and its load.
- Do not allow anybody to come near the working area of the lift truck or pass beneath an elevated load.
- When using the lift truck on a transverse slope, before lifting the mast, follow the instructions given in the paragraph: INSTRUCTIONS FOR HANDLING A LOAD: C - TRANSVERSE ATTITUDE OF THE LIFT TRUCK.
- Traveling on a longitudinal slope:
    - Drive and brake gently.
    - Moving without load: Forks or attachment facing downhill. 
    - Moving with load: Forks or attachment facing uphill. 
- Take into account the lift truck's dimensions and its load before trying to negotiate a narrow or low passageway.
- Never move onto a loading platform without having first checked:
    - That it is suitably positioned and made fast.
    - That the unit to which it is connected (wagon, lorry, etc.) will not shift.
    - That this platform is prescribed for the total weight of the lift truck to be loaded.
    - That this platform is prescribed for the size of the lift truck.
- Never move onto a foot bridge, floor or freight lift, without being certain that they are prescribed for the weight and size of the lift truck to be loaded and without having checked that they are in sound working order.
- Be careful in the area of loading bays, trenches, scaffolding, soft ground and manholes.
- Make sure the ground is stable and firm under the wheels before lifting the load.
- Make sure that the scaffolding, loading platform, pilings or ground is capable of bearing the load.
- Never stack loads on uneven ground, they may tip over.
- The load or the attachment must not be left just above a structure for long periods at a time because of the descending mast. In such a case, a constant watch must be kept and the height of the forks or the attachment readjusted if necessary.
- When working near aerial lines, ensure that the safety distance is sufficient between the working area of the lift truck and the aerial line.

***You must consult your local electrical agency. You could be electrocuted or seriously injured if you operate or park the lift truck too close to power cables.***

***In the event of high winds, do not carry out handling work that jeopardizes the stability of the lift truck and its load, particularly if the load catches the wind badly.***

**D - VISIBILITY**

- The safety of people within the lift truck's working area, as well as that of the lift truck itself and the operator are depend on good operator visibility of the lift truck's immediate vicinity in all situations and at all times.
- This lift truck has been designed to allow good operator visibility (direct or indirect by means of rear-view mirrors) of the immediate vicinity of the lift truck while traveling with no load and with the mast in the transport position.
- Special precautions must be taken if the size of the load restricts visibility towards the front:
    - moving in reverse,
    - site layout,
    - assisted by a person directing the maneuver (while standing outside the truck's area of travel), making sure to keep this person clearly in view at all times,
    - in any case, avoid reversing over long distances.
- If visibility of your road is inadequate, ask someone to assist by directing the maneuver (while standing outside the truck's area of travel), making sure to keep this person clearly in view at all times.
- Keep all components affecting visibility in a clean, properly adjusted state and in good working order (e.g. windscreens, windows, windscreen wipers, windscreen washers, driving and work lights, rear-view mirrors).

## E - STARTING THE LIFT TRUCK

SAFETY INSTRUCTIONS

***The lift truck must only be started up or maneuvered when the operator is sitting in the driver's cab, with his seat belt adjusted and fastened.***

- If necessary, to tow the lift truck in an emergency, the transmission must be placed in the neutral position (see: 3 - MAINTENANCE: F - OCCASIONAL MAINTENANCE).

INSTRUCTIONS

- Check the closing and locking of the hood(s).
- Make sure that the reversing lever is in neutral.
- Turn the ignition key to activate the electrical system.
- Make sure the signal lights on the instrument control panel are working properly (see: 2 - DESCRIPTION: INSTRUMENTS AND CONTROLS).
- Check all control instruments at regular intervals during use, so as to quickly detect any faults and to be able to correct them without any delay.
- If an instrument does not show the correct display, switch off the ignition and immediately carry out the necessary operations.

## F - DRIVING THE LIFT TRUCK

SAFETY INSTRUCTIONS

***Operators' attention is drawn to the risks involved in using the lift truck, in particular:***
***- Risk of losing control.***
***- Risk of losing lateral and frontal stability of the lift truck.***
***The operator must remain in control of the lift truck.***
***In the event of the lift truck overturning, do not try to leave the cabin during the incident. YOUR BEST PROTECTION IS TO STAY FASTENED IN THE CABIN.***

- Observe the company's traffic regulations or, by default, the public highway code.
- Do not carry out operations which exceed the capacities of your lift truck or attachments.
- Always drive the lift truck with the forks or attachment to the transport position, i.e. at 300 mm from the ground and the carriage sloping backwards.
- Only carry loads which are balanced and properly anchored to avoid any risk of a load falling off.
- Ensure that palettes, cases, etc, are in good order and suitable for the load to be lifted.
- Familiarise yourself with the lift truck on the terrain where it will be used.
- Ensure that the service brakes are working properly.
- The loaded lift truck must not travel at speeds in excess of 12 km/h.
- Drive smoothly at an appropriate speed for the operating conditions (land configuration, load on the lift truck).
- Do not use the hydraulic mast controls when the lift truck is moving.
- Do not maneuver the lift truck with the mast in the raised position unless under exceptional circumstances and then with extreme caution, at very low speed and using gentle braking. Ensure that visibility is adequate.
- Take bends slowly.
- In all circumstances make sure you are in control of your speed.
- On damp, slippery or uneven terrain, drive slowly.
- Brake gently, never abruptly.
- Only use the lift truck's reversing gear from a stationary position and never do so abruptly.
- Do not drive with your foot on the brake pedal.
- Always remember that hydrostatic type steering is extremely sensitive to movement of the steering wheel, so turn it gently and not jerkily.
- Do not leave the ignition on too long when not needed.
- Do not leave the cab when the lift truck has a raised load.
- Look where you are going and always make sure you have good visibility along the route.
- Use the rear-view mirrors frequently.
- Drive round obstacles.
- Never drive on the edge of a ditch or steep slope.
- It is dangerous to use two lift trucks simultaneously to handle heavy or voluminous loads, since this operation requires particular precautions to be taken. It must only be used exceptionally and after risk analysis.
- The ignition switch has an emergency stop mechanism in case of an operating anomaly occurring in the case of lift trucks not fitted with a punch-operated cut-out.

INSTRUCTIONS

- Always drive the lift truck with the forks or attachment to the transport position, i.e. at 300 mm from the ground and the carriage sloping backwards.
- Release the parking brake.
- Shift the reversing lever to the selected direction of travel and accelerate gradually until the lift truck moves off.

**G - STOPPING THE LIFT TRUCK**

SAFETY INSTRUCTIONS

- Never leave the ignition key in the lift truck during the operator's absence.
- When the lift truck is stationary, or if the operator has to leave his cab (even for a moment), place the forks or attachment on the ground, apply the parking brake and put the reversing lever in neutral.
- Make sure that the lift truck is not stopped in any position that will interfere with the traffic flow and at less than one meter from the track of a railway.
- In the event of prolonged parking on a site, protect the lift truck from bad weather, disconnect and fully recharge the battery, close and lock all means of access to the lift truck (doors, windows, cowls, etc.). If parked for a period of several months in an area at around 20°C allow for charging the battery at least once every month.

INSTRUCTIONS

- Park the lift truck on flat ground or on an incline lower than 15 %.
- Place the reversing lever in neutral.
- Apply the parking brake.
- Lower the forks or attachment to rest on the ground.
- When using an attachment with a grab or jaws, or a bucket with hydraulic opening, close the attachment fully.
- Switch off the ignition with the ignition key.
- Remove the ignition key.
- Disconnect the battery plug.
- Recharge the battery if necessary.
- Lock all the accesses to the lift truck (doors, windows, cowls…).

**H - DRIVING THE LIFT TRUCK ON THE PUBLIC HIGHWAY**

SAFETY INSTRUCTIONS

- Operators driving on the public highway must comply with current highway code legislation.
- The lift truck must comply with current road legislation. If necessary, there are optional solutions. Contact your dealer.

INSTRUCTIONS

- Make sure the revolving light is in place, switch it on and verify its operation.
- Make sure the lights, indicators and windscreen wipers are working properly.
- Switch off the working headlights if the lift truck is fitted with them.
- Place the attachment 300 mm from the ground.

DRIVING THE LIFT TRUCK WITH A FRONT-MOUNTED ATTACHMENT

- You must comply with current regulations in your country, covering the possibility of driving on the public highway with a front-mounted attachment on your lift truck.
- If road legislation in your country authorizes circulation with a front-mounted attachment, you must at least:
    - Protect and report any sharp and/or dangerous edges on the attachment (see: 4 - ADAPTABLE ATTACHMENTS IN OPTION ON THE RANGE: ATTACHMENT SHIELDS).
    - The attachment must not be loaded.
    - Make sure that the attachment does not mask the lighting range of the forward lights.
    - Make sure that current legislation in your country does not require other obligations.

OPERATING THE LIFT TRUCK WITH A TRAILER

- For using a trailer, observe the regulations in force in your country (maximum travel speed, braking, maximum weight of trailer, etc.).
- Do not forget to connect the trailer’s electrical equipment to that of the lift truck.
- The trailer's braking system must comply with current legislation.
- If pulling a trailer with assisted braking, the tractor lift truck must be equipped with a trailer braking mechanism. In this case, do not forget to connect the trailer braking equipment to the lift truck.
- The vertical force on the towing hook must not exceed the maximum authorised by the manufacturer (consult the manufacturer’s plate on your lift truck).
- The authorised gross vehicle weight must not exceed the maximum weight authorised by the manufacturer (consult the manufacturer’s plate on your lift truck).

**IF NECESSARY, CONSULT YOUR DEALER.**

**A - CHOICE OF ATTACHMENTS**

- Only attachments approved by MANITOU can be used on its lift trucks.
- Make sure the attachment is appropriate for the work to be done (see: 4 - ADAPTABLE ATTACHMENTS IN OPTION ON THE RANGE).
- Make sure the attachment is correctly installed and locked onto the lift truck carriage.
- Make sure that your lift truck attachments work properly.
- Comply with the load chart limits for the lift truck for the attachment used.
- Do not exceed the rated capacity of the attachment.
- Never lift a load in a sling without the attachment provided for the purpose. There are optional solutions; contact your dealer.

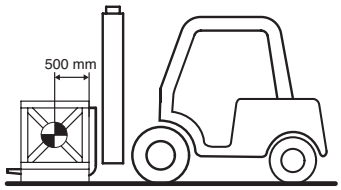
**B - MASS OF LOAD AND CENTRE OF GRAVITY**

- Before taking up a load, you must know its mass and its centre of gravity.
- The load chart for your lift truck is valid for a load in which the longitudinal position of the centre of gravity is 500 or 600 mm from the base of the forks (according to the model of lift truck) (fig. B1). For a higher centre of gravity, contact your dealer.
- For irregular loads, determine the transverse centre of gravity before any movement (fig. B2) and set it in the longitudinal axis of the lift truck.

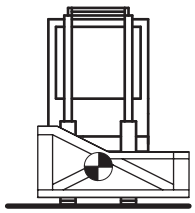
***It is forbidden to move a load heavier than the effective capacity defined on the lift truck load chart.***

***For loads with a moving centre of gravity (e.g. liquids), take account of the variations in the centre of gravity in order to determine the load to be handled and be vigilant and take extra care to limit these variations as far as possible.***

**B1**




**B2**



**C - TRANSVERSE ATTITUDE OF THE LIFT TRUCK**

The transverse attitude is the transverse slope of the chassis with respect to the horizontal.
Raising the load reduces the lift truck's lateral stability. The transverse attitude must horizontal with the mast in the down position.

**D - TAKING UP A LOAD ON THE GROUND**

- Approach the lift truck perpendicular to the load, with the the forks in a horizontal position (fig. D1).
- Adjust the fork spread and centering in connection with the load (fig. D2) (optional solutions exist, consult your dealer).
- Never lift a load with a single fork.

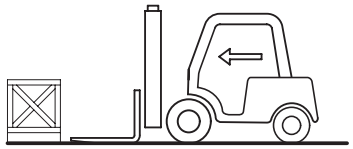
***Beware of the risks of trapping or squashing limbs when manually adjusting the forks.***

- Move the lift truck forward slowly (1) and bring the forks to stop in front of the load (fig. D3), if necessary, slightly lift the mast (2) while taking up the load.
- Bring the load into the transport position.
- Tilt the load far enough backwards to ensure stability (loss of load on braking or going downhill).

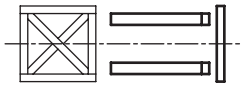
FOR A NON-PALLETIZED LOAD

- Tilt the carriage (1) forwards and move the lift truck slowly forwards (2), to insert the fork under the load (fig. D4) (block the load if necessary).
- Continue to move the lift truck forwards (2) tilting the carriage (3) (fig. D4) backwards to position the load on the forks and check the load's longitudinal and lateral stability.

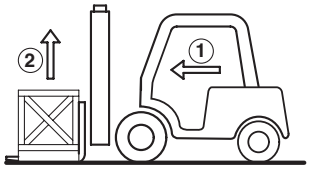
D1



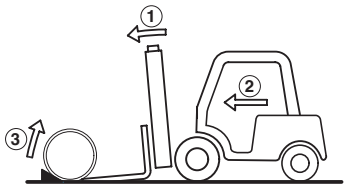
D2



D3




D4



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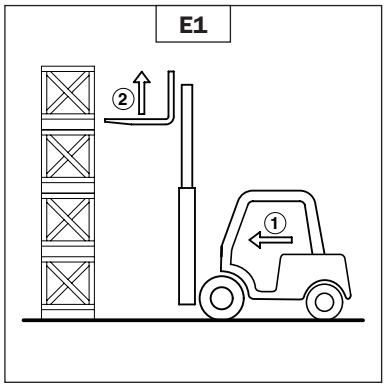
## E - TAKING UP AND LAYING A HIGH LOAD ON TYRES

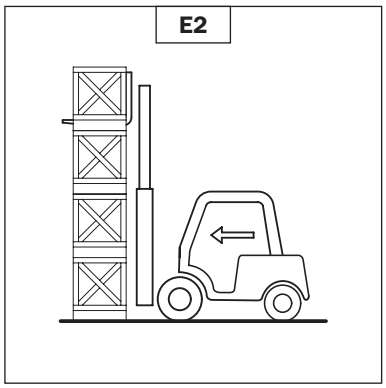
***You must not raise the mast if you have not checked the transverse attitude of the lift truck (see: INSTRUCTIONS FOR HANDLING A LOAD: C - TRANSVERSE ATTITUDE OF THE LIFT TRUCK).***

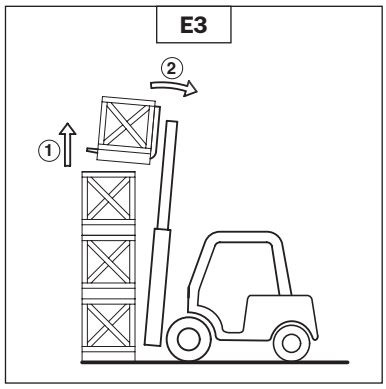
REMINDER: Make sure that the following operations can be performed with good visibility (see: OPERATIONS INSTRUCTIONS UNLADEN AND LADEN: D - VISIBILITY).

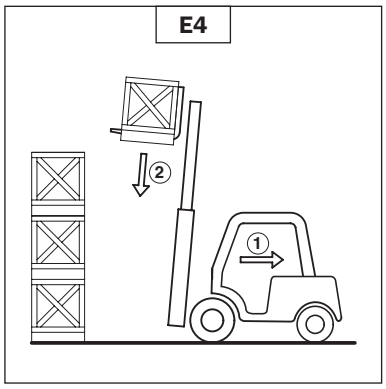
TAKING UP A HIGH LOAD ON TYRES

- Ensure that the forks will easily pass under the load.
- Keeping the mast vertical (1), advance the lift truck and raise the forks to level with the load (2) (fig. E1).
- Manoeuvre carefully and gently to bring the forks to the stop in front of the load (fig. E2). Set the handbrake and place the reversing lever to neutral.
- Slightly lift the load (1) and incline the carriage (2) backwards to stabilize the load (fig. E3).
- Tilt the load sufficiently backwards to ensure its stability.
- Reverse the lift truck (1) very carefully and gently to free the load. Lower the mast (2) to bring the load into transport position (fig. E4).



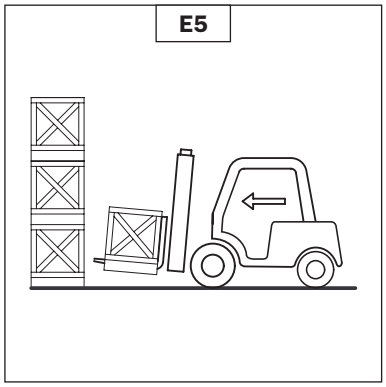



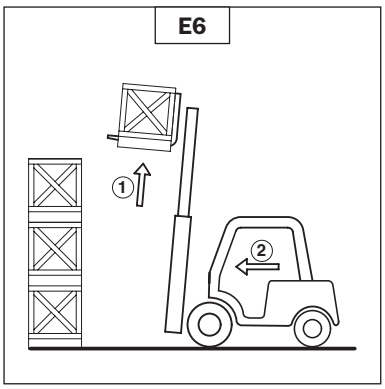



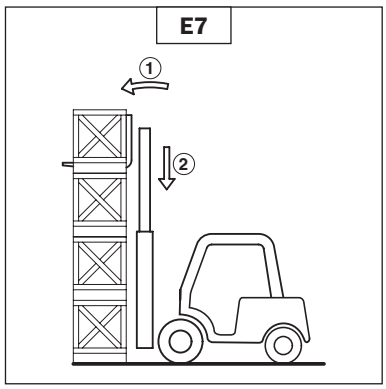



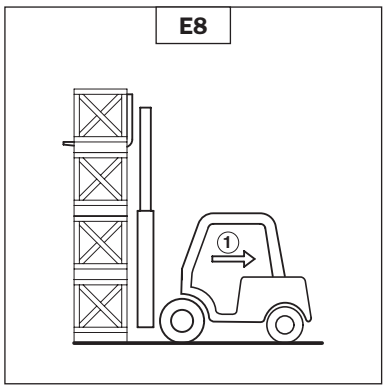

LAYING A HIGH LOAD ON TYRES

- Approach the load in the transport position in front of the pile (fig. E5).
- Raise the mast (1) until the load is higher than the pile and move the lift truck forward (2) (fig. E6) very carefully and gently, until the load is over the pile. Put the handbrake on and set the reversing lever to neutral.
- Place the load in a horizontal position by tilting the mast forwards (1) and lay it down on the pile (2) while checking the correct positioning of the load (fig. E7).
- Reverse the lift truck (1) very slowly and carefully to release the forks (fig. E8). Then set them into transport position.



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# MAINTENANCE INSTRUCTIONS OF THE LIFT TRUCK

## GENERAL INSTRUCTIONS

- Wear clothes suitable for the maintenance of the lift truck, avoid wearing jewellery and loose clothes. Tie and protect your hair, if necessary.
- Switch off the ignition with the ignition switch and remove the ignition key before any intervention on the lift truck.
- Read the operator's manual carefully.
- Carry out all repairs immediately, even if the repairs concerned are minor.
- Repair all leaks immediately, even if the leak concerned is minor.
- Make sure that the disposal of process materials and of spare parts is carried out in total safety and in a ecological way.
- Be careful of the risk of burning and splashing of battery acid.

## MAINTENANCE

- Perform the periodic service (see: 3 - MAINTENANCE) to keep your lift truck in good working conditions. Failure to perform the periodic service may cancel the contractual guarantee.

MAINTENANCE LOGBOOK

- The maintenance operations carried out in accordance with the recommendations given in part: 3 - MAINTENANCE and the other inspection, servicing or repair operations or modifications performed on the lift truck or its attachments shall be recorded in a maintenance logbook. The entry for each operation shall include details of the date of the works, the names of the individuals or companies having performed them, the type of operation and its frequency, if applicable. The part numbers of any lift truck items replaced shall also be indicated.

## LUBRICANT LEVELS

- Use the recommended lubricants (never use contaminated lubricants).

## HYDRAULIC

- Any work on the load handling hydraulic circuit is forbidden except for the operations described in part: 3 - MAINTENANCE.
- Do not attempt to loosen unions, hoses or any hydraulic component with the circuit under pressure.

***BALANCING VALVE: For inspection, see: 3 - MAINTENANCE: D - EVERY 500 HOURS SERVICE. It is dangerous to change the setting and remove the balancing valves or safety valves which may be fitted to your lift truck cylinders. These operations must only be performed by approved personnel (consult your dealer).***

***The HYDRAULIC ACCUMULATORS that may be fitted on your lift truck are pressurized units. Removing these accumulators and their pipework is a dangerous operation and must only be performed by approved personnel (consult your dealer).***

## ELECTRICITY

- Use only electrically insulated tools.
- Do not smoke or approach the lift truck with a flame while charging the battery (because of hydrogen emissions).
- Top up the electrolyte level only with distilled or demineralized water.

***Never add acid to the battery.***

- Do not drop metallic items on the battery.
- Disconnect the battery before working on the electrical circuit.
- Keep the battery horizontal at all times.
- When changing the battery, use only batteries that are suitable for the weight, size and capacity of the lift truck (see: 2 - DESCRIPTION: SPECIFICATIONS).

***Handling and servicing a battery can be dangerous, take the following precautions:***
***- Wear protective goggles, gloves, an apron and acid-resistant clothing.***
***- Remove rings, 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.***
***- Wash your hands each time you work on the battery, as acid is corrosive.***
***- In the event of electrolyte being spilled onto the skin or splashed in the eyes, rinse thoroughly with cold water for 15 minutes and call a doctor.***

***The polarity of the battery must not be reversed under any circumstances.***

## WELDING

***It is forbidden to carry out electric welding on the lift truck as this risks damaging the electrical components, in particular the speed controller (consult your dealer).***

## WASHING THE LIFT TRUCK

***Disconnect the battery plug and protect it before carrying out any washing operation.***
***Do not wet the electrical components and do not clean using steam or a pressurized water jet.***

- The battery must remain clean and dry at all times to avoid self-discharge and leakage currents (see 3 - MAINTENANCE: A - DAILY OR EVERY 10 HOURS SERVICE).
- Clean the lift truck or at least the area concerned before any intervention.
- During washing, avoid the articulations and electrical components and connections.
- If necessary, protect against penetration of water, steam or cleaning agents, components susceptible of being damaged, particularly electrical components and connections.
- Clean the lift truck of any trace of oil or grease.
- Do not cover the battery with a plastic sheet, as this would cause a build-up of static electricity and could cause an explosion.

**FOR ANY INTERVENTION OTHER THAN REGULAR MAINTENANCE, CONSULT YOUR DEALER.**

# IF THE LIFT TRUCK IS NOT TO BE USED FOR A LONG TIME

## INTRODUCTION

The following recommendations are intended to prevent the lift truck from being damaged when it is withdrawn from service for an extended period.

***Procedures to follow if the lift truck is not to be used for a long time and for starting it up again afterwards must be performed by your dealership.***

## PREPARING THE LIFT TRUCK

- Clean the lift truck thoroughly.
- Check and repair any oil leaks.
- Replace or repair any worn or damaged parts.
- Wash the painted surfaces of the lift truck in clear and cold water and wipe them.
- Touch up the paintwork if necessary.
- Shut down the lift truck (see: OPERATING INSTRUCTIONS UNLADEN AND LADEN).
- Make sure the mast cylinder rods are all in retracted position.
- Release the pressure in the hydraulic circuits.

## PROTECTING THE LIFT TRUCK

- Disconnect the battery and store in a safe place away from the cold after having fully recharged it (see: 3 - MAINTENANCE: A - DAILY OR EVERY 10 HOURS SERVICE).
- Set the lift truck on axle stands so that the tyres are not in contact with the ground and release the parking brake.
- Protect cylinder rods which will not be retracted, from corrosion.
- Wrap the tyres.

NOTE: If the lift truck is to be stored outdoors, cover it with a waterproof tarpaulin.

## BRINGING THE LIFT TRUCK BACK INTO SERVICE

- Refit and reconnect the battery.
- Remove the protection from the cylinder rods.
- Carry out daily maintenance (see: 3 - MAINTENANCE: A - DAILY OR EVERY 10 HOURS SERVICE).
- Put on the parking brake and remove the axle stands.
- Lubricate the lift truck completely (see: 3 - MAINTENANCE: SERVICING SCHEDULE).
- Start up the lift truck, following the safety instructions and regulations (see: OPERATING INSTRUCTIONS UNLADEN AND LADEN).
- Run all the mast's hydraulic movements, concentrating on the ends of travel for each cylinder.

# 2 - DESCRIPTION

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# 1) DÉCLARATION «CE» DE CONFORMITÉ (originale)

## « EC» DECLARATION OF CONFORMITY (original)

2) La société, *The company* : **MANITOU BF**

3) Adresse, *Address* : **430, rue de l'Aubinière - BP 10249 - 44158 - ANCENIS CEDEX - FRANCE**

4) Dossier technique, *Technical file* : **MANITOU BF - 430, rue de l'Aubinière**
**BP 10249 - 44158 - ANCENIS CEDEX - FRANCE**

5) Constructeur de la machine décrite ci-après, *Manufacturer of the machine described below* :

**ME 420 / ME 430**

6) Déclare que cette machine, *Declares that this machine* :

7) Est conforme aux directives suivantes et à leurs transpositions en droit national, *Complies with the following directives and their transpositions into national law* :

**2006/42/CE**

8) Pour les machines annexe IV , *For annex IV machines* :

9) Numéro d'attestation, *Certificate number* :

10) Organisme notifié, *Notified body* :

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

16) Normes ou dispositions techniques utilisées, *Standards or technical provisions used* :

17) Fait à, *Done at* : **Ancenis** 18) Date, *Date* : **29/12/2009**

19) Nom du signataire, *Name of signatory* : **Christian CALECA**

20) Fonction, *Function* : **Directeur Général Adjoint**

21) Signature, *Signature* :

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**bg :** 1) удостоверение за « CE » съответствие (оригинална), 2) Фирмата, 3) Адрес, 4) Техническо досие, 5) Фабрикант на описаната по-долу машина, 6) Обявява, че тази машина, 7) Отговаря на следните директиви и на тяхното съответствие национално право, 8) За машините към допълнение IV, 9)Номер на удостоверението, 10) Наименувана фирма, 15) хармонизирани стандарти използвани, 16) стандарти или технически правила, използвани, 17) Изработено в, 18) Дата, 19) Име на разписалия се, 20) Функция, 21) Функция.

**cs :** 1) ES prohlášení o shodě (původní), 2) Název společnosti, 3) Adresa, 4) Technická dokumentace, 5) Výrobce níže uvedeného stroje, 6) Prohlašuje, že tento stroj, 7) Je v souladu s následujícími směrnicemi a směrnicemi transponovanými do vnitrostátního práva, 8) Pro stroje v příloze IV, 9) Číslo certifikátu, 10) Notifikační orgán, 15) harmonizované normy použity, 16) Norem a technických pravidel používaných, 17) Místo vydání, 18) Datum vydání, 19) Jméno podepsaného, 20) Funkce, 21) Podpis.

**da :** 1) EF Overensstemmelseserklæring (original), 2) Firmaet, 3) Adresse, 4) tekniske dossier, 5) Konstruktør af nedenfor beskrevne maskine, 6) Erklærer, at denne maskine, 7) Overholder nedennævnte direktiver og disses gennemførelse til national ret, 8) For maskiner under bilag IV, 9) Certifikat nummer, 10) Bemyndigede organ, 15) harmoniserede standarder, der anvendes, 16) standarder eller tekniske regler, 17) Udfærdiget i, 18) Dato, 19) Underskrivers navn, 20) Funktion, 21) Underskrift.

**de :** 1) EG-Konformitätserklärung (original), 2) Die Firma, 3) Adresse, 4) Technischen Unterlagen, 5) Hersteller der nachfolgend beschriebenen Maschine, 6) Erklärt, dass diese Maschine, 7) den folgenden Richtlinien und deren Umsetzung in die nationale Gesetzgebung entspricht, 8) Für die Maschinen laut Anhang IV, 9) Bescheinigungsnummer, 10) Benannte Stelle, 15) angewandten harmonisierten Normen, 16) angewandten sonstigen technischen Normen und Spezifikationen, 17) Ausgestellt in, 18) Datum, 19) Name des Unterzeichners, 20) Funktion, 21) Unterschrift.

**el :** 1) Δήλωση συμμόρφωσης CE (πρωτότυπο), 2) Η εταιρεία, 3) Διεύθυνση, 4) τεχνικό φάκελο, 5) Κατασκευάστρια του εξής περιγραφόμενου μηχανήματος, 6) Δηλώνει ότι αυτό το μηχάνημα, 7) Είναι σύμφωνο με τις εξής οδηγίες και τις προσαρμογές τους στο εθνικό δίκαιο, 8) Για τα μηχανήματα παραρτήματος IV, 9) Αριθμός δήλωσης, 10) Κοινοποιημένος φορέας, 15) εναρμονισμένα πρότυπα που χρησιμοποιούνται, 16) Πρότυπα ή τεχνικούς κανόνες που χρησιμοποιούνται, 16) Είναι σύμφωνο με τα εξής πρότυπα και τεχνικές διατάξεις, 17) Εν, 18) Ημερομηνία, 19) Όνομα του υπογράφοντος, 20) Θέση, 21) Υπογραφή.

**es :** 1)Declaración DE de conformidad (original), 2) La sociedad, 3) Dirección, 4) expediente técnico, 5) Constructor de la máquina descrita a continuación, 6) Declara que esta máquina, 7) Está conforme a las siguientes directivas y a sus transposiciones en derecho nacional, 8) Para las máquinas anexo IV, 9) Número de certificación, 10) Organismo notificado, 15) normas armonizadas utilizadas, 16) Otras normas o especificaciones técnicas utilizadas, 17) Hecho en, 18) Fecha, 19) Nombre del signatario, 20) Función, 21) Firma.

**et :** 1) EÜ vastavusdeklaratsioon (algupärane), 2) Äriühing, 3) Aadress, 4) Tehniline dokumentatsioon, 5) Seadme tootja, 6) Kinnitab, et see toode, 7) On vastavuses järgmiste direktiivide ja nende riigisisesesse õigusesse ülevõtmiseks vastuvõetud õigusaktidega, 8) IV lisas loetletud seadmete puhul, 9) Tunnistuse number, 10) Sertifitseerimisasutus, 15) kasutatud ühtlustatud standarditele, 16) Muud standardites või spetsifikatsioonides kasutatakse, 17) Väljaandmise koht, 18) Väljaandmise aeg, 19) Allkirjastaja nimi, 20) Amet, 21) Allkiri.

**fi :** 1) EY-vaatimustenmukaisuusvakuutus (alkuperäiset), 2) Yritys, 3) Osoite, 4) teknisen eritelmän, 5) Jäljessä kuvatun koneen valmistaja, 6) Vakuuttaa, että tämä kone, 7) Täyttää seuraavien direktiivien sekä niitä vastaavien kansallisten säännösten vaatimukset, 8) Liitteen IV koneiden osalta, 9) Todistuksen numero, 10) Ilmoitettu laitos, 15) yhdenmukaistettuja standardeja käytetään, 16) muita standardeja tai eritelmät, 17) Paikka, 18) Aika, 19) Allekirjoittajan nimi, 20) Toimi, 21) Allekirjoitus.

**ga :** 1) « EC »dearbhú comhréireachta (bunaidh), 2) An comhlacht, 3) Seoladh, 4) comhad teicniúil, 5) Déantóir an innill a thuairiscítear thíos, 6) Dearbhaíonn sé go bhfuil an t-inneall, 7) Go gcloíonn sé le na treoracha seo a leanas agus a trasuímh isteach i ndlí náisiúnta, 8) Le haghaidh innill an aguisín IV, 9) Uimhir teastais, 10) Comhlacht a chuireadh i bhfios, 15) caighdeáin comhchuibhithe a úsáidtear, 16) caighdeáin eile nó sonraíochtaí teicniúla a úsáidtear, 17) Déanta ag, 18) Dáta, 19) Ainm an tsínitheora, 20) Feidhm, 21) Síniú.

**hu :** 1) CE megfelelőségi nyilatkozat (eredeti), 2) A vállalat, 3) Cím, 4) műszaki dokumentáció, 5) Az alábbi gép gyártója, 6) Kijelenti, hogy a gép, 7) Megfelel az alábbi irányelveknek valamint azok honosított előírásainak, 8) A IV. melléklet gépeihez, 9) Bizonylati szám, 10) Értesített szervezet, 15) felhasznált harmonizált szabványok, 16) egyéb felhasznált műszaki szabványok és előírások hivatkozásai, 17) Kelt (hely), 18) Dátum, 19) Aláíró neve, 20) Funkció, 21) Aláírás.

**is :** 1) (Samræmisvottorð ESB (upprunalega), 2) Fyrirtækið, 3) Aðsetur, 4) Tæknilegar skrá, 5) Smiður tækisins sem lýst er hér á eftir, 6) Staðfestir að tækið, 7) Samræmist eftirfarandi stöðlum og staðfærslu þeirra með hliðsjón af þjóðarrétti, 8) Fyrir tækin í aukakafla IV, 9) Staðfestingarnúmer, 10) Tilkynnt til, 15) samhæfða staðla sem notaðir, 16) önnur staðlar eða forskriftir notað, 17) Staður, 18) Dagsetning, 19) Nafn undirritaðs, 20) Staða, 21) Undirskrift.

**it :** 1) Dichiarazione CE di conformità (originale), 2) La società, 3) Indirizzo, 4) fascicolo tecnico, 5) Costruttore della macchina descritta di seguito, 6) Dichiara che questa macchina, 7) È conforme alle direttive seguenti e alle relative trasposizioni nel diritto nazionale, 8) Per le macchine Allegato IV, 9) Numero di Attestazione, 10) Organismo notificato, 15) norme armonizzate applicate, 16) altre norme e specifiche tecniche applicate, 17) Stabilita a, 18) Data, 19) Nome del firmatario, 20) Funzione, 21) Firma.

**lt :** 1) CE atitikties deklaracija (originalas), 2) Bendrovė, 3) Adresas, 4) Techninė byla, 5) Žemiau nurodytas įrenginio gamintojas, 6) Pareiškia, kad šis įrenginys, 7) Atitinka toliau nurodytas direktyvas ir į nacionalinius teisės aktus perkeltas jų nuostatas, 8) IV priedas dėl mašinų, 9) Sertifikato Nr, 10) Paskelbtoji įstaiga, 15) suderintus standartus naudojamus, 16) Kiti standartai ir techninės specifikacijas, 17) Pasirašyta, 18) Data, 19) Pasirašiusio asmens vardas ir pavardė, 20) Pareigos, 21) Parašas.

**lv :** 1) EK atbilstības deklarācija (oriģinals), 2) Uzņēmums, 3) Adrese, 4) tehniskās lietas, 5) Tālāk aprakstītās iekārtas ražotājs, 6) Apliecina, ka šī iekārta, 7) Ir atbilstoša tālāk norādītajām direktīvām un to transponējošai nacionālajā likumdošanā, 8) Iekārtām IV pielikumā, 9) Apliecības numurs, 10) Reģistrēta organizācija, 15) lietotajiem saskaņotajiem standartiem, 16) lietotajiem tehniskajiem standartiem un specifikācijām, 17) Sastādīts, 18) Datums, 19) Paraksttāja vārds, 20) Amats, 21) Paraksts.

**mt :** 1) Dikjarazzjoni ta' Konformità KE (originali), 2) Il-kumpanija, 3) Indirizz, 4) fajl tekniku, 5) Manifattrici tal-magna deskritta hawn isfel, 6) Tiddikjara li din il-magna, 7) Hija konformi hija konformi mad-Direttivi segwenti u l-ligijiet li jimplimentawhom fil-ligi nazzjonali, 8) Ghall-magni fl-Anness IV, 9) Numru taċ-ċertifikat, 10) Entità nnotifikata, 15) l-istandards armonizzati użati, 16) standards tekniċi u specifikazzjonijiet oħra użati, 17) Magħmul f', 18) Data, 19) Isem il-firmatarju, 20) Kariga, 21) Firma.

**nl :** 1) EG-verklaring van overeenstemming (oorspronkelijke), 2) Het bedrijf, 3) Adres, 4) technisch dossier, 5) Constructeur van de hierna genoemde machine, 6) Verklaart dat deze machine, 7) In overeenstemming is met de volgende richtlijnen en hun omzettingen in het nationale recht, 8) Voor machines van bijlage IV, 9) Goedkeuringsnummer, 10) Aangezegde instelling, 15) gehanteerde geharmoniseerde normen, 16) andere gehanteerde technische normen en specificaties, 17) Opgemaakt te, 18) Datum, 19) Naam van ondergetekende, 20) Functie, 21) Handtekening.

**no :** 1) CE-samsvarserklæring (original), 2) Selskapet, 3) Adresse, 4) tekniske arkiv, 5) Fabrikant av følgende maskin, 6) Erklærer at denne maskinen, 7) Oppfyller kravene i følgende direktiver, med nasjonale gjennomføringsbestemmelser, 8) For maskinene i tillegg IV, 9) Attestnummer, 10) Notifisert organ, 15) harmoniserte standarder som brukes, 16) Andre standarder og spesifikasjoner brukt, 17) Utstedt i, 18) Dato, 19) Underskriverens navn, 20) Stilling, 21) Underskrift.

**pl :** 1) Deklaracja zgodności CE (oryginalne), 2) Spółka, 3) Adres, 4) dokumentacji technicznej, 5) Wykonawca maszyny opisanej poniżej, 6) Oświadcza, że ta maszyna, 7) Jest zgodna z następującymi dyrektywami i odpowiadającymi przepisami prawa krajowego, 8) Dla maszyn załącznik IV, 9) Numer certyfikatu, 10) Jednostka certyfikująca, 15) zastosowanych norm zharmonizowanych, 16) innych zastosowanych norm technicznych i specyfikacji, 17) Sporządzono w, 18) Data, 19) Nazwisko podpisującego, 20) Stanowisko, 21) Podpis.

**pt :** 1) Declaração de conformidade CE (original), 2) A empresa, 3) Morada, 4) processo técnico, 5) Fabricante da máquina descrita abaixo, 6) Declara que esta máquina, 7) Está em conformidade às directivas seguintes e às suas transposições para o direito nacional, 8) Para as máquinas no anexo IV, 9) Número de certificado, 10) Entidade notificada, 15) normas harmonizadas utilizadas, 16) outras normas e especificações técnicas utilizadas, 17) Elaborado em, 18) Data, 19) Nome do signatário, 20) Cargo, 21) Assinatura.

**ro :** 1) Declaraţie de conformitate CE (originală), 2) Societatea, 3) Adresa, 4) cărtii tehnice, 5) Constructor al maşinii descrise mai jos, 6) Declară că prezenta maşină, 7) Este conformă cu directivele următoare şi cu transpunerea lor în dreptul naţional, 8) Pentru maşinile din anexa IV, 9) Număr de atestare, 10) Organism notificat, 15) standardele armonizate utilizate, 16) alte standarde si specificatii tehnice utilizate, 17) Întocmit la, 18) Data, 19) Numele persoanei care semnează, 20) Funcţia, 21) Semnătura.

**sk :** 1) ES vyhlásenie o zhode (pôvodný), 2) Názov spoločnosti, 3) Adresa, 4) technickej dokumentácie, 5) Výrobca nižšie opísaného stroja, 6) Vyhlasuje, že tento stroj, 7) Je v súlade s nasledujúcimi smernicami a smernicami transponovanými do vnútroštátneho práva, 8) Pre stroje v prílohe IV, 9) Číslo certifikátu, 10) Notifikačný orgán, 15) použité harmonizované normy, 16) použité iné technické normy a predpisy, 17) Miesto vydania, 18) Dátum vydania, 19) Meno podpisujúceho, 20) Funkcia, 21) Podpis.

**sl :** 1) ES Izjava o ustreznosti (izvirna), 2) Družba. 3) Naslov. 4) tehnične dokumentacije, 5) Proizvajalac tukaj opisanega stroja, 6) Izjavlja, da je ta stroj, 7) Ustreza naslednjim direktivam in njihovi transpoziciji v državno pravo, 8) Za stroje priloga IV, 9) Številka potrdila, 10) Obvestilo organu, 15) uporabljene harmonizirane standarde, 16) druge uporabljene tehnične standarde in zahteve, 17) V, 18) Datum, 19) Ime podpisnika, 20) Funkcija, 21) Podpis.

**sv :** 1) CE-försäkran om överensstämmelse (original), 2) Företaget, 3) Adress, 4) tekniska dokumentationen, 5) Konstruktör av nedan beskrivna maskin, 6) Försäkrar att denna maskin, 7) Överensstämmer med nedanstående direktiv och införlivandet av dem i nationell rätt, 8) För maskinerna i bilaga IV, 9) Nummer för godkännande, 10) Organism som underrättats, 15) Harmoniserade standarder som använts, 16) andra tekniska standarder och specifikationer som använts, 17) Upprättat i, 18) Datum, 19) Namn på den som undertecknat, 20) Befattning, 21) Namnteckning.



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# IDENTIFICATION OF THE LIFT TRUCK

As our policy is to promote a constant improvement of our products, our range of telescopic lift trucks may undergo certain modifications, without obligation for us to advise our customers.

When you order parts, or when you require any technical information, always specify:

NOTE: For the owner's convenience, it is recommended that a note of these numbers is made in the spaces provided, at the time of the delivery of the lift truck.

## PLATE MANUFACTURER OF THE LIFT TRUCK (FIG. A)

- Model _____
- Series _____
- Serial Nr _____
- Chassis Nr _____
- Year of manufacture _____

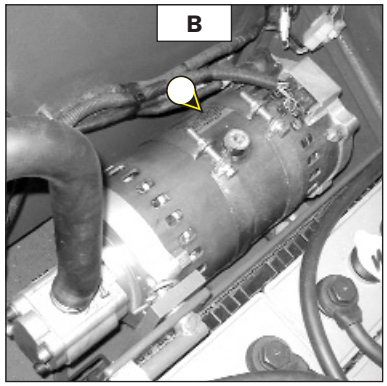
For any further technical information regarding your lift truck refer to chapter: 2 - DESCRIPTION: CHARACTERISTICS.

A


## HYDRAULIC PUMP ELECTRIC MOTOR (FIG. B)

- Type _____
- Model _____
- Part number _____
- Power _____
- Serial Nr _____

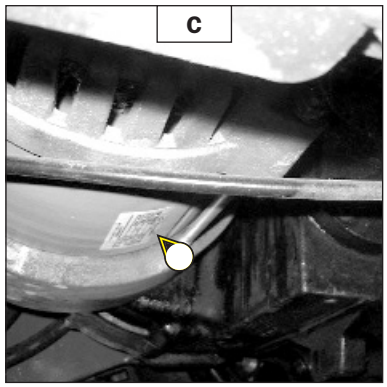
B



## TRANSMISSION ELECTRIC MOTOR (FIG. C)

- Type _____
- Model _____
- Part number _____
- Serial Nr _____
- Power _____

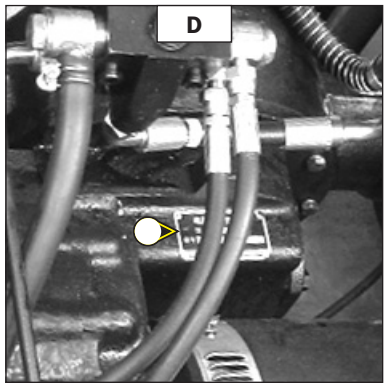
C



## TRANSMISSION (FIG. D)

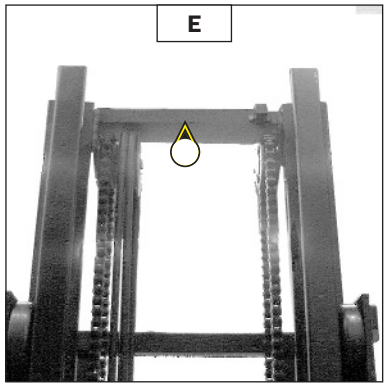
- Model _____
- Serial Nr _____
- Year of manufacture _____

D



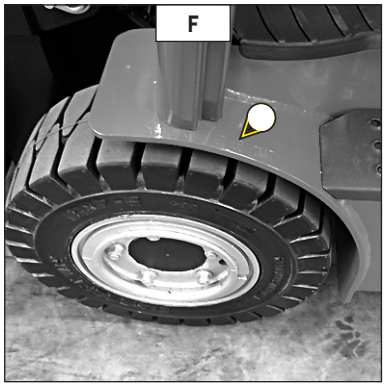
## *MAST (FIG. E)*

- Mast identification No. _____




## *CHASSIS (FIG. F)*

- Chassis Nr _____



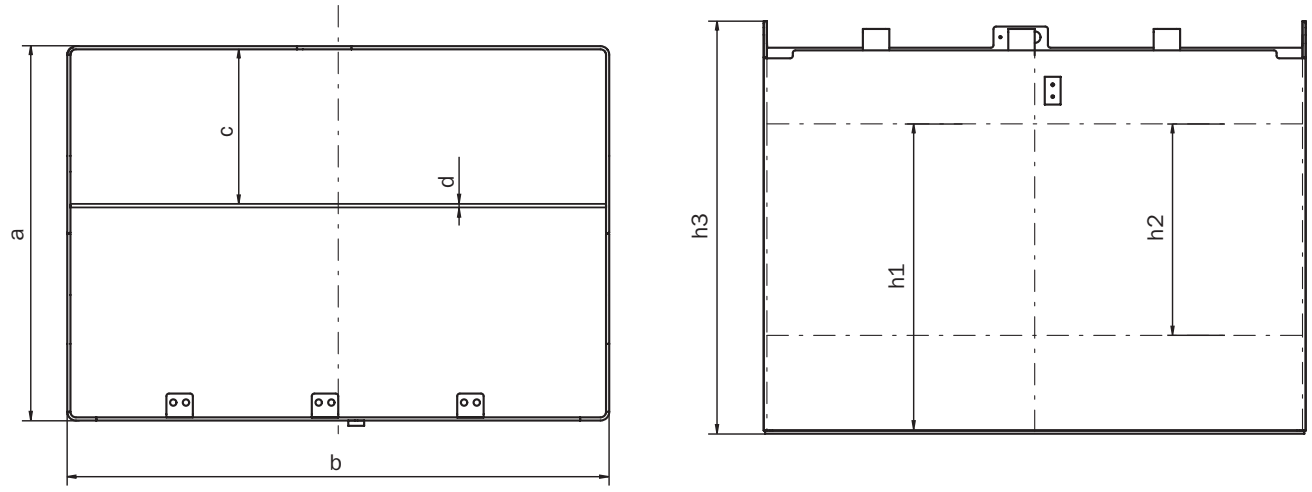

## *PLATE MANUFACTURER OF THE ATTACHMENT (FIG. G)*

- Model _____
- Serial Nr _____
- Year of manufacture _____

# CHARACTERISTICS

## BATTERY

| | COMPARTMENT DIMENSIONS (MM) | | | | | | | BATTERY TYPE | | BATTERY CAPACITY | WEIGHT OF BATTERY + COMPARTMENT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | a | b | c | d | h1 | h2 | h3 | | | | |
| ME 425 | 570 | 1028 | 280 | 4 | 580 | 400 | 780 | EXIDE FULMEN | STANDARD | 48V-320A-700Ah | 1154 kg |
| | | | | | | | | | HIGH CAPACITY | 48V-320A-775Ah | 1174 kg |
| | | | | | | | | HOPPECKE | STANDARD | 48V-320A-700Ah | 1155 kg |
| | | | | | | | | | HIGH CAPACITY | 48V-320A-775Ah | 1155 kg |
| | | | | | | | | MIDAC | STANDARD | 48V-320A-700Ah | 1160 kg |
| | | | | | | | | | HIGH CAPACITY | 48V-320A-775Ah | 1207 kg |
| | | | | | | | | HAWKER | STANDARD | 48V-320A-700Ah | 1162 kg |
| | | | | | | | | | HIGH CAPACITY | 48V-320A-775Ah | 1187 kg |
| ME 430 | 710 | 1028 | 296 | 4 | 580 | 400 | 780 | EXIDE FULMEN | STANDARD | 80V-320A-500Ah | 1284 kg |
| | | | | | | | | | HIGH CAPACITY | 80V-320A-560Ah | 1528 kg |
| | | | | | | | | HOPPECKE | STANDARD | 80V-320A-560Ah | 1483 kg |
| | | | | | | | | | HIGH CAPACITY | 80V-320A-620Ah | 1483 kg |
| | | | | | | | | MIDAC | STANDARD | 80V-320A-560Ah | 1580 kg |
| | | | | | | | | | HIGH CAPACITY | 80V-320A-620Ah | 1607 kg |
| | | | | | | | | HAWKER | STANDARD | 80V-320A-560Ah | 1480 kg |
| | | | | | | | | | HIGH CAPACITY | 80V-320A-620Ah | 1572 kg |



## *TRANSMISSION ELECTRIC MOTOR*

| | |
|---|---|
| - Type | **DANAHER** |
| - Number | 1 |
| - Control | By electronic speed controller |
| - Rated power | |
| **ME 425** | 10,5 kW |
| **ME 430** | 10,6 kW |
| - Rated current | 181 A |
| - Rated voltage | V |
| - Rated speed | rpm |

## *TRANSMISSION*

| | |
|---|---|
| - Type | **HDCS20** |

## *TRANSMISSION (CONTROL)*

| | |
|---|---|
| - Type | **DANAHER** |
| - Reversing gear | Electronic |
| . Number of forward speeds | 1 |
| . Number of reverse speeds | 1 |
| - Speed limiter (slow/fast) | Electric |

## *BRAKE*

| | |
|---|---|
| - Service brake | Foot pedal. Hydraulic brake, applied on the front wheels. |
| . Type | Drum. |
| - Parking brake | Mechanical hand lever applied on the front wheels. |
| . Type | Drum. |

## *HYDRAULIC PUMP ELECTRIC MOTOR*

| | |
|---|---|
| - Type | **DANAHER** |
| - Rated power | |
| **ME 425** | 11 kw |
| **ME 430** | 12,8 kw |
| - Rated current | A |
| - Rated voltage | 48 V |
| - Rated speed | 1774 rpm |
| - Max. speed | rpm |

## FRONT TYRES

| DIMENSIONS | PRESSURE | TYRE LOAD | | PRESSURE ON THE CONTACT SURFACE HARD GROUND | PRESSURE ON THE CONTACT SURFACE LIGHT GROUND | AREA OF THE CONTACT SURFACE HARD GROUND | AREA OF THE CONTACT SURFACE LIGHT GROUND |
|---|---|---|---|---|---|---|---|
| **23 X 9 - 10 EUROSOFT W.P.** | **SOLID** | FRONT UNLADEN<br>FRONT LADEN | KG<br>KG | KG/CM2<br>KG/CM2 | | CM2<br>CM2 | |

## REAR TYRES

| DIMENSIONS | PRESSURE | TYRE LOAD | | PRESSURE ON THE CONTACT SURFACE HARD GROUND | PRESSURE ON THE CONTACT SURFACE LIGHT GROUND | AREA OF THE CONTACT SURFACE HARD GROUND | AREA OF THE CONTACT SURFACE LIGHT GROUND |
|---|---|---|---|---|---|---|---|
| **18 X 7 - 8 EUROSOFT W.P.** | **SOLID** | FRONT UNLADEN<br>FRONT LADEN | KG<br>KG | KG/CM2<br>KG/CM2 | | CM2<br>CM2 | |

## HYDRAULIC CIRCUIT

| | |
|---|---|
| - Type of pump | Gear pump |
| . Capacity | cm3 |
| . Flow rate at full speed | L/mn |
| - Pressure | |
| . Lifting, tilting, attachment circuit | Bar |
| . Steering circuit | Bar |
| - Filtration | |
| . Return | µm |
| . Suction | µm |



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| | |
|---|---|
| - Level of sound pressure in the driver's cab LpA<br>**(accordng to standard prEN 12053: 1995)** | 71 dB |
| - Level of sound power in the LwA environment<br>**(according to directive 2000/14 CE guaranteed)** | 87 dB |
| - Speed of movement of lift truck in standard configuration on horizontal ground<br>**(except particular conditions)** | |
| . Forward unladen | 14 km/h |
| . Reverse unladen | 14 km/h |
| - Standard lift height | 3300 mm |
| - Rated capacity with standard mast | 2500 kg |
| - Load center | 500 mm |
| - Weight of forks (each) | 44,5 kg |
| - Lifting motions with standard mast | |
| . Unladen lifting | 0,24 m/s |
| . Rated load lifting | 0,24 m/s |
| . Unladen lowering | 0,36 m/s |
| . Rated load lowering | 0,44 m/s |
| - Lift truck weight with standard mast | |
| . Unladen | 4285 kg |
| . Rated load | 6785 kg |
| - Axle weight with standard mast (transport position) | |
| . Front unladen | kg |
| rated load | kg |
| . Rear unladen | kg |
| rated load | kg |
| - Tensible strain at coupling hook | |
| . Unladen | 1150 daN |
| . Rated load | 1110 daN |

## FRONT TYRES

| DIMENSIONS | PRESSURE | TYRE LOAD | | PRESSURE ON THE CONTACT SURFACE HARD GROUND | PRESSURE ON THE CONTACT SURFACE LIGHT GROUND | AREA OF THE CONTACT SURFACE HARD GROUND | AREA OF THE CONTACT SURFACE LIGHT GROUND |
|---|---|---|---|---|---|---|---|
| **23 X 9 - 10 EUROSOFT W.P.** | **SOLID** | FRONT UNLADEN<br>FRONT LADEN | KG<br>KG | KG/CM2<br>KG/CM2 | | CM2<br>CM2 | |

## REAR TYRES

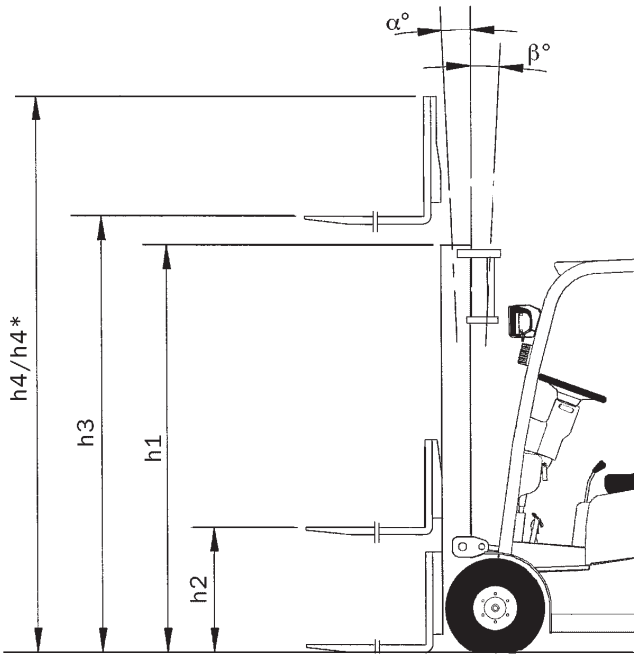
| DIMENSIONS | PRESSURE | TYRE LOAD | | PRESSURE ON THE CONTACT SURFACE HARD GROUND | PRESSURE ON THE CONTACT SURFACE LIGHT GROUND | AREA OF THE CONTACT SURFACE HARD GROUND | AREA OF THE CONTACT SURFACE LIGHT GROUND |
|---|---|---|---|---|---|---|---|
| **18 X 7 - 8 EUROSOFT W.P.** | **SOLID** | AFRONT UNLADEN<br>FRONT LADEN | KG<br>KG | KG/CM2<br>KG/CM2 | | CM2<br>CM2 | |

## HYDRAULIC CIRCUIT

| | |
|---|---|
| - Type of pump | Gear pump |
| . Capacity | cm3 |
| . Flow rate at full speed | L/mn |
| - Pressure | |
| . Lifting, tilting, attachment circuit | Bar |
| . Steering circuit | Bar |
| - Filtration | |
| . Return | µm |
| . Suction | µm |

| | |
|---|---|
| - Level of sound pressure in the driver's cab LpA<br>**(accordng to standard prEN 12053: 1995)** | 70 dB |
| - Level of sound power in the LwA environment<br>**(according to directive 2000/14 CE guaranteed)** | 86 dB |
| - Speed of movement of lift truck in standard configuration on horizontal ground<br>**(except particular conditions)** | |
| . Forward unladen | 14 km/h |
| . Reverse unladen | 14 km/h |
| - Standard lift height | 3300 mm |
| - Rated capacity with standard mast | 3000 kg |
| - Load center | 500 mm |
| - Weight of forks (each) | 71 kg |
| - Lifting motions with standard mast | |
| . Unladen lifting | 0,25 m/s |
| . Rated load lifting | 0,4 m/s |
| . Unladen lowering | m/s |
| . Rated load lowering | m/s |
| - Lift truck weight with standard mast | |
| . Unladen | 5400 kg |
| . Rated load | 8400 kg |
| - Axle weight with standard mast (transport position) | |
| . Front unladen | kg |
| rated load | kg |
| . Rear unladen | kg |
| rated load | kg |
| - Tensible strain at coupling hook | |
| . Unladen | daN |
| . Rated load | daN |

| DOUBLE MAST WITH ALL-ROUND VISION | | | | | | |
|---|---|---|---|---|---|---|
| MAST | h3 | α | β | h2 | h1 | h4 |
| 2m50 | 2500 | 5° | 10° | 140 | 1786 | 3556 |
| 2m70 | 2700 | 5° | 10° | 140 | 1886 | 3756 |
| 3m00 | 3000 | 5° | 10° | 140 | 2006 | 4056 |
| 3m30 | 3300 | 5° | 10° | 140 | 2186 | 4356 |
| 3m50 | 3500 | 5° | 10° | 140 | 2286 | 4556 |
| 3m60 | 3600 | 5° | 10° | 140 | 2336 | 4656 |
| 4m00 | 4000 | 5° | 6/10° | 140 | 2586 | 5056 |
| 4m30 | 4300 | 5° | 6° | 140 | 2751 | 5356 |
| 4m50 | 4500 | 5° | 6° | 140 | 2861 | 5556 |




| DOUBLE MAST WITH TOTAL FREE-ACTING LIFT | | | | | | | |
|---|---|---|---|---|---|---|---|
| MAST | h3 | α | β | h2 | h1 | h4 | h4* |
| 2m50 | 2500 | 5° | 10° | | | 3556 | 3185 |
| 2m70 | 2700 | 5° | 10° | | | 3756 | 3385 |
| 3m00 | 3000 | 5° | 10° | | 1966 | 4056 | 3685 |
| 3m30 | 3300 | 5° | 10° | | | 4356 | 3985 |
| 3m60 | 3600 | 5° | 10° | | | | |
| 4m00 | 4000 | 5° | 6/10° | | | | |

| TRIPLE MAST WITH TOTAL FREE-ACTING LIFT | | | | | | | |
|---|---|---|---|---|---|---|---|
| MAST | h3 | α | β | h2 | h1 | h4 | h4* |
| 4m30 | 4300 | 5° | 6° | 1267 | 1976 | 5356 | 5019 |
| 4m50 | 4500 | 5° | 6° | 1387 | 2096 | 5556 | 5219 |
| 4m80 | 4800 | 5° | 6° | 1487 | 2196 | 5856 | 5519 |
| 5m00 | 5000 | 5/3° | 6° | 1552 | 2261 | 6056 | 5719 |
| 5m50 | 5500 | 3° | 6° | 1717 | 2426 | 6556 | 6219 |
| 6m00 | 6000 | 3° | 6° | 1932 | 2641 | 7056 | 6719 |

h3 : Lift height in mm
α : Forward tilting
β : Backward tilting
h2 : Free-acting lift in mm
h1 : Overall height with folded mast in mm
h4 : Overall height with spreaded out mast in mm with load back rest
h4* : Overall height with spreaded out mast in mm with without load back rest



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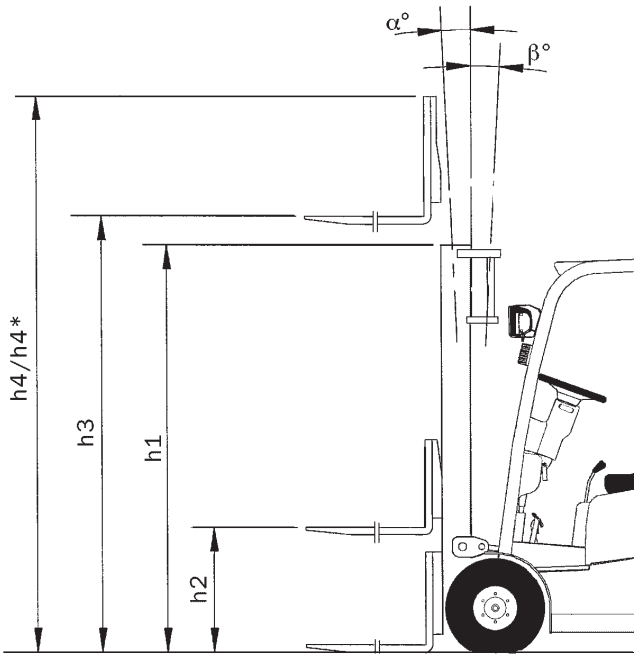
| DOUBLE MAST WITH ALL-ROUND VISION | | | | | | |
|---|---|---|---|---|---|---|
| MAST | h3 | α | β | h2 | h1 | h4 |
| 2m50 | 2500 | 5° | 10° | 145 | 1786 | 3652 |
| 2m70 | 2700 | 5° | 10° | 145 | 1886 | 3852 |
| 3m00 | 3000 | 5° | 10° | 145 | 2036 | 4152 |
| 3m30 | 3300 | 5° | 10° | 145 | 2186 | 4452 |
| 3m50 | 3500 | 5° | 10° | 145 | 2286 | 4652 |
| 3m60 | 3600 | 5° | 10° | 145 | 2336 | 4752 |
| 4m00 | 4000 | 5° | 6/10° | 145 | 2586 | 5152 |
| 4m30 | 4300 | 5° | 6° | 145 | 2751 | 5452 |
| 4m50 | 4500 | 5° | 6° | 145 | 2861 | 5652 |
| 4m80 | 4800 | 5° | 6° | 145 | 3026 | 5952 |
| 5m00 | 5000 | 5/3° | 6° | 145 | 3136 | 6152 |




| DOUBLE MAST WITH TOTAL FREE-ACTING LIFT | | | | | | | |
|---|---|---|---|---|---|---|---|
| MAST | h3 | α | β | h2 | h1 | h4 | h4* |
| 2m50 | 2500 | 5° | 10° | 1089 | 1826 | 3652 | 3247 |
| 2m70 | 2700 | 5° | 10° | 1189 | 1926 | 3852 | 3447 |
| 3m00 | 3000 | 5° | 10° | 1299 | 2036 | 4152 | 3747 |
| 3m30 | 3300 | 5° | 10° | 1449 | 2186 | 4452 | 4047 |

| TRIPLE MAST WITH TOTAL FREE-ACTING LIFT | | | | | | | |
|---|---|---|---|---|---|---|---|
| MAST | h3 | α | β | h2 | h1 | h4 | h4* |
| 4m30 | 4300 | 5° | 6° | 1268 | 2041 | 5452 | 5083 |
| 4m50 | 4500 | 5° | 6° | 1348 | 2121 | 5652 | 5283 |
| 4m80 | 4800 | 5° | 6° | 1448 | 2221 | 5952 | 5583 |
| 5m00 | 5000 | 5/3° | 6° | 1514 | 2287 | 6152 | 5783 |
| 5m50 | 5500 | 3° | 6° | 1878 | 2451 | 6652 | 6283 |
| 6m00 | 6000 | 3° | 6° | 1844 | 2617 | 7152 | 6783 |

h3 : Lift height in mm
α : Forward tilting
β : Backward tilting
h2 : Free-acting lift in mm
h1 : Overall height with folded mast in mm
h4 : Overall height with spreaded out mast in mm with load back rest
h4* : Overall height with spreaded out mast in mm with without load back rest



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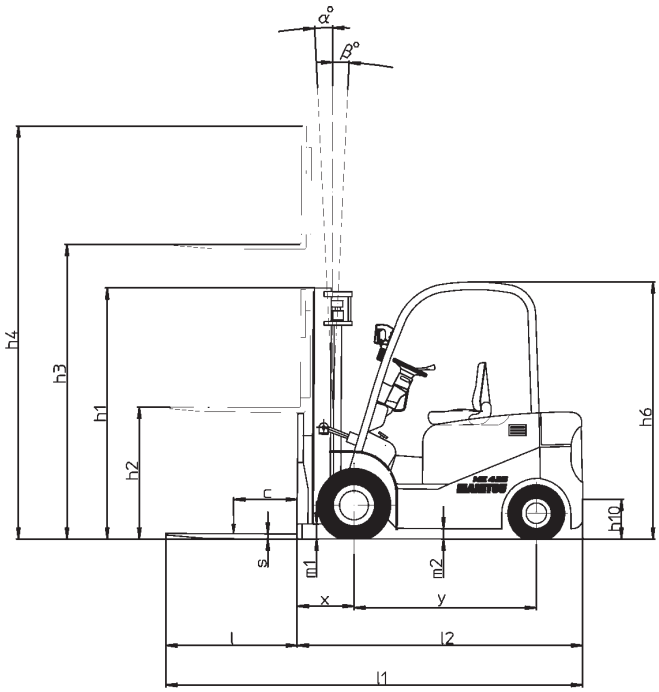
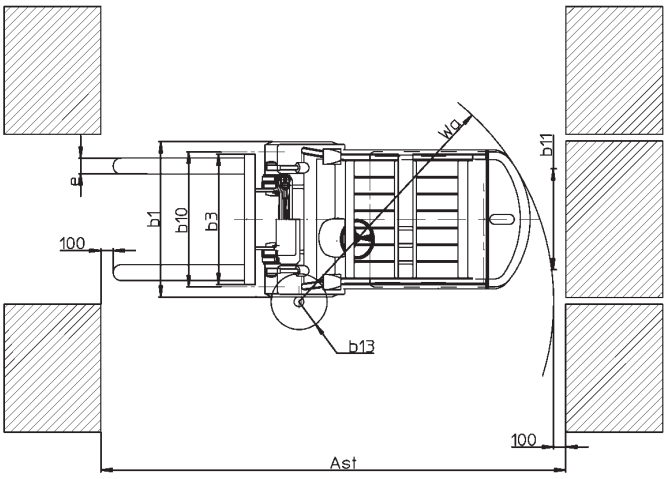
**(WITH STANDARD MAST)**

| | |
|---|---|
| **Ast** | 4010 mm |
| **b1** | 1265 mm |
| **b3** | 1060 mm |
| **b10** | 1058 mm |
| **b11** | 960 mm |
| **c** | 500 mm |
| **e** | 130 mm |
| **h1** | 2186 mm |
| **h2** | 140 mm |
| **h3** | 3300 mm |
| **h4** | 4356 mm |
| **h6** | 2165 mm |
| **h10** | 250 mm |
| **l** | 1070 mm |
| **l1** | 3395 mm |
| **l2** | 2325 mm |
| **m1** | 98 mm |
| **m2** | 120 mm |
| **Q** | 2500 kg |
| **s** | 40 mm |
| **Wa** | 2090 mm |
| **x** | 455 mm |
| **y** | 1485 mm |
| $\alpha$ | 5 ° |
| $\beta$ | 10 ° |




RATED CAPACITY

ACTUAL CAPACITIES
**(according to standard EN 1726-1)**

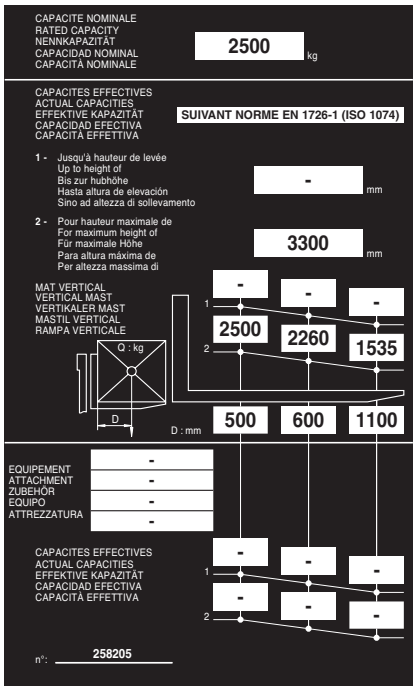
**1 - Up to height of**

**2 - For maximum height of**

VERTICAL MAST

ATTACHMENT

ACTUAL CAPACITIES



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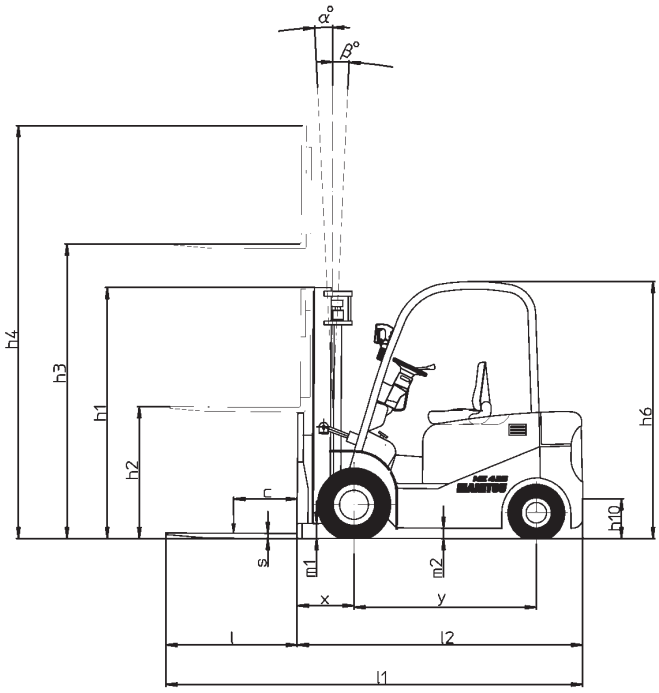
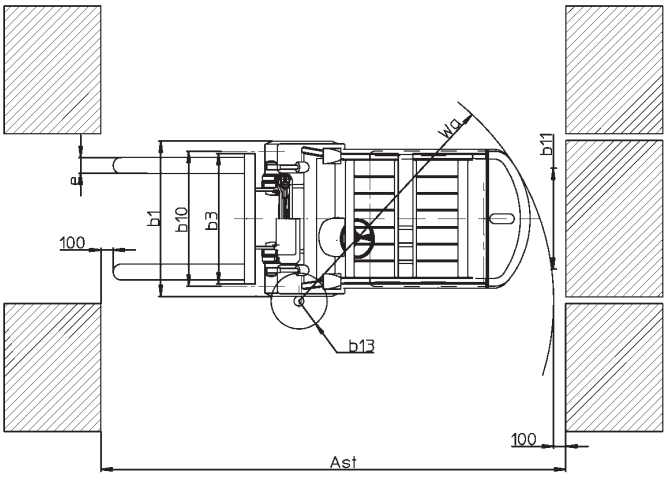
**(WITH STANDARD MAST)**

| | |
|---|---|
| **Ast** | 4170 mm |
| **b1** | 1260 mm |
| **b3** | 1060 mm |
| **b10** | 1058 mm |
| **b11** | 960 mm |
| **c** | 500 mm |
| **e** | 130 mm |
| **h1** | 2186 mm |
| **h2** | 145 mm |
| **h3** | 3300 mm |
| **h4** | 4452 mm |
| **h6** | 2165 mm |
| **h10** | 255 mm |
| **l** | 1070 mm |
| **l1** | 3560 mm |
| **l2** | 2490 mm |
| **m1** | 102 mm |
| **m2** | 125 mm |
| **Q** | 3000 kg |
| **s** | 45 mm |
| **Wa** | 2230 mm |
| **x** | 475 mm |
| **y** | 1625 mm |
| $\alpha$ | 5 ° |
| $\beta$ | 10 ° |




RATED CAPACITY

ACTUAL CAPACITIES
**(according to standard EN 1726-1)**

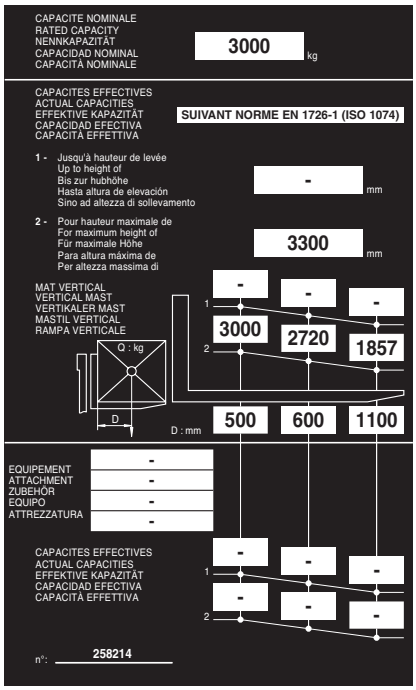
**1 - Up to height of**

**2 - For maximum height of**

VERTICAL MAST

ATTACHMENT

ACTUAL CAPACITIES



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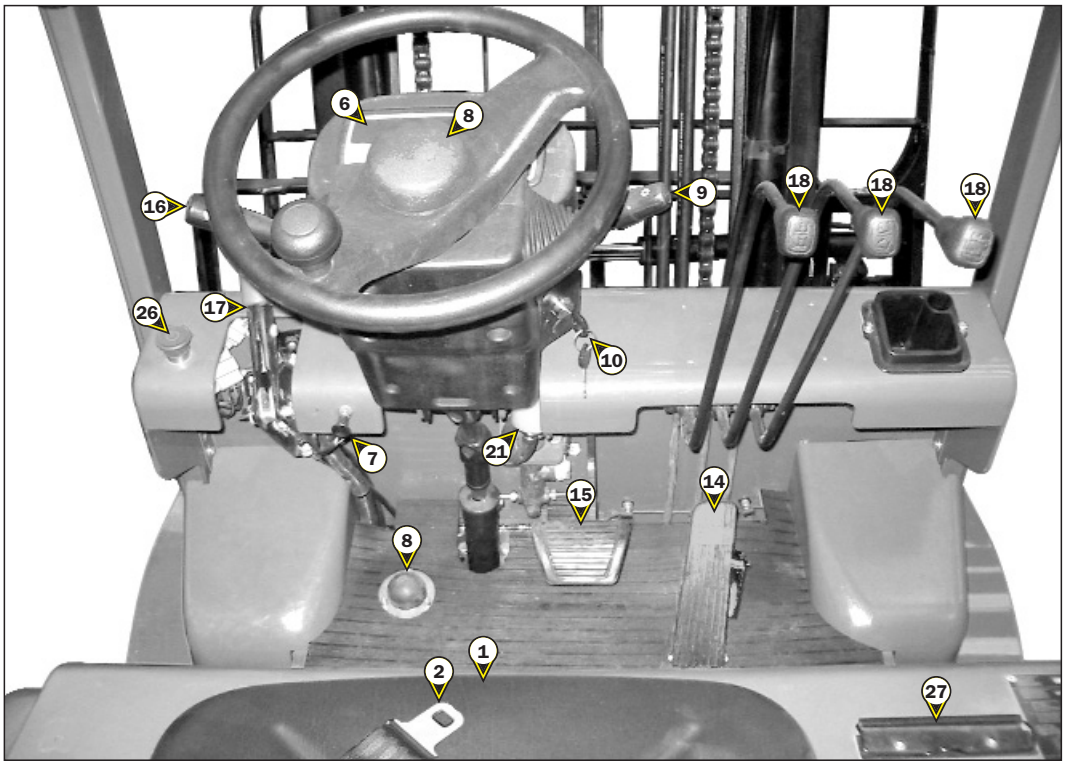


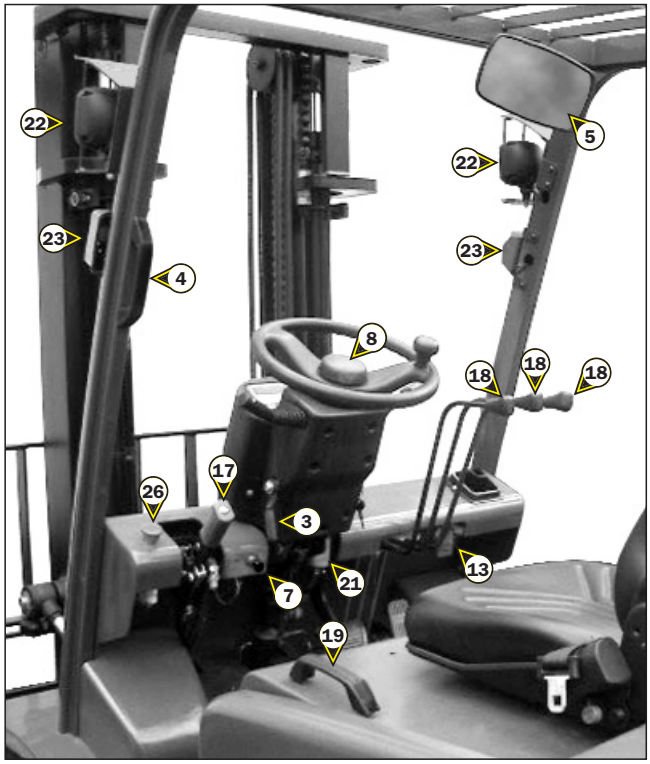


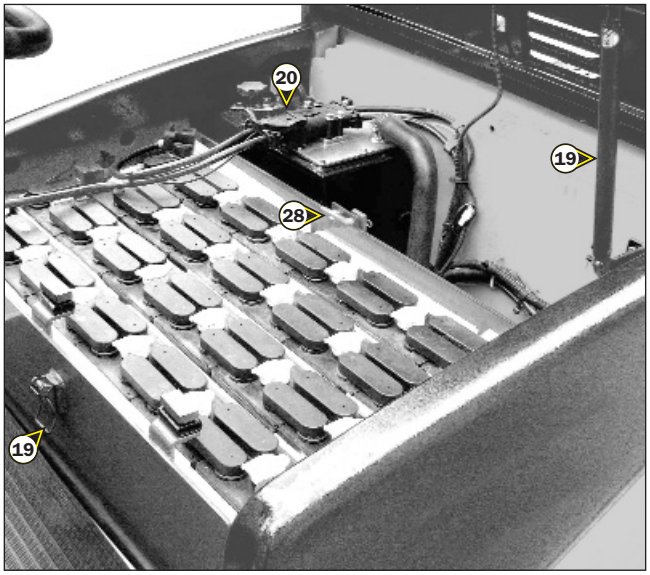


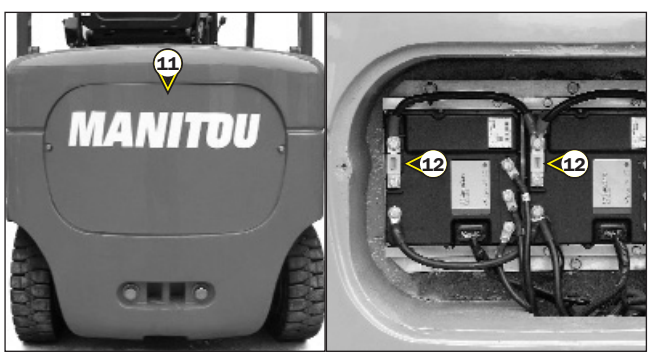


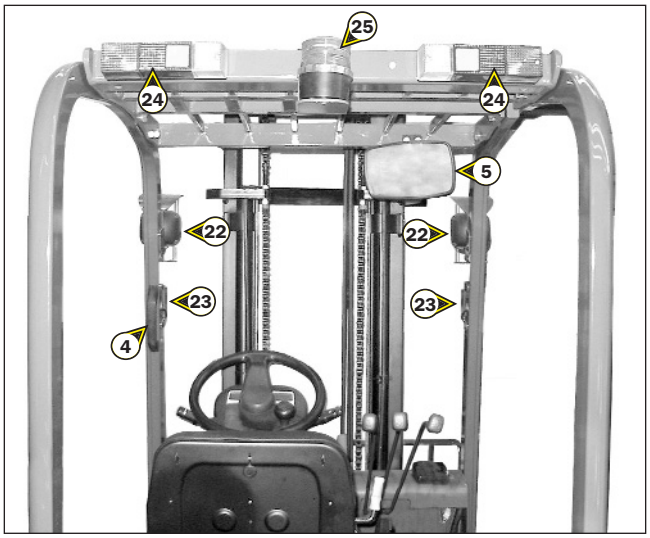




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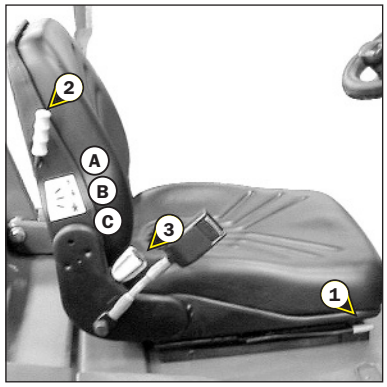
**1 - DRIVER'S SEAT**
**2 - SAFETY BELT**
**3 - STEERING WHEEL TILTING KNOB**
**4 - DRIVING SEAT ACCESS HANDLE**
**5 - REAR-VIEW MIRROR**
**6 - CONTROL AND SIGNAL LIGHTS PANEL**
**7 - FLASHING LIGHT SWITCH**
**8 - HORN SWITCH**
**9 - LIGHT AND INDICATOR SWITCH**
**10 - IGNITION SWITCH**
**11 - POWER FUSE ACCESS PANEL**
**12 - POWER FUSES**
**13 - FUSES**
**14 - ACCELERATOR PEDAL**
**15 - SERVICE BRAKE PEDAL**
**16 - REVERSING LEVER**
**17 - PARKING BRAKE LEVER**
**18 - HYDRAULIC CONTROLS**
**19 - LIFT BATTERY COVER**
**20 - BATTERY PLUG**
**21 - BRAKING OIL TANK**
**22 - FRONT WORKING HEAD LIGHTS**
**23 - FRONT SIDE LIGHTS AND INDICATORS**
**24 - REAR LIGHTS**
**25 - FLASHING LIGHT**
**26 - EMERGENCY STOP BUTTON**
**27 - DOCUMENT CLIP**
**28 - BATTERY TRAY LOCKING PIN**

NOTE: All the terms such as: RIGHT, LEFT, FRONT, REAR are meant for an observer seated on driver's seat and looking in front of him.

## 1 - DRIVER'S SEAT




DESIGNED FOR MAXIMUM COMFORT, THIS SEAT CAN BE ADJUSTED AS FOLLOWS.

**LONGITUDINAL ADJUSTMENT**
- Pull locking lever 1 towards the right.
- Slide the seat to the desired position.
- Release the locking lever and ensure it returns to the lock position.

**SEAT SUSPENSION ADJUSTMENT**
- Position lever 2 according to the driver's weight.
  Position A: Light-weight driver.
  Position B: Middle-weight driver.
  Position C: Heavy-weight driver.

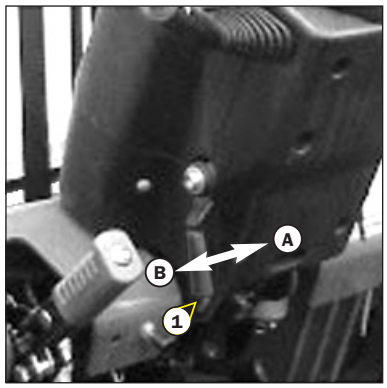
**ANGLE ADJUSTMENT OF THE BACK-REST**
- Turn lever 3 to tilt the back-rest into a position between 5° and -20°.

## 2 - SAFETY BELT


- Sit correctly on the seat.
- Press release button 1and pull out the required length of belt.
- Attach the seat belt and check that it locks.
- Adjust the belt to your size by pressing once more on button 1.
- Check that seat belt is not twisted.
- Always hold the belt when using release button 1.

***In no event should the lift truck be used if the seat belt is defective (fixing, locking, cuts, tears, etc.). Repair or replace the seat belt immediately.***

## 3 - STEERING WHEEL TILTING HANDLE

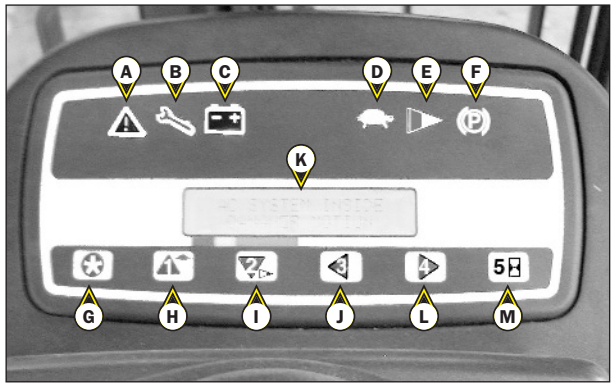



This handle enables the angle of the steering wheel to be adjusted.
- Turn handle 1 towards A to loosen and adjust steering wheel.
- Turn handle 1 towards B to lock steering wheel in the position required.

## 4 - DRIVING SEAT ACCESS HANDLE

## 5 - REAR-VIEW MIRROR

## 6 - CONTROL AND SIGNAL LIGHTS PANEL




When the lift truck's ignition is switched on, the panel's red indicator lamps A - B - C - D - E - F should light simultaneously while diagnostic checks are performed to show that they are operating correctly, and the control screen should display the main menu.

### SIGNAL LIGHTS

**A - RED DIAGNOSTIC LAMP**
This lamp comes on when the lift truck's ignition is switched on and goes out as soon as the diagnostic check is completed.

**B - RED ERROR CODE INDICATOR LAMP**
This lamp comes on when the lift truck's ignition is switched on and should go out as soon as the diagnostic check is completed. If this lamp remains lit or lights while the lift truck is in operation, an error code will be displayed on the control screen K (see repair manual).

**C - RED LOW BATTERY INDICATOR LAMP**
This lamp comes on when the lift truck's ignition is switched on and should go out as soon as the diagnostic check is completed. This lamp flashes and the buzzer is sounded when the battery runs low (>20 %). In this event, load handling is no longer possible and only the travel function can be used so that the lift truck can be driven immediately to the battery recharging area.

**D - RED SPEED LIMITER LAMP**
This lamp comes on when slow speed mode is selected using button H.

**E - RED TRAVEL POWER LIMITER LAMP**
This lamp comes on when the low driving power mode is selected using button I.

**F - RED PARKING BRAKE LAMP**
This lamp comes on when the parking brake is applied.

### CONTROL INSTRUMENTS

**G - VALIDATION BUTTON**
This button only serves to adjust the lift truck's parameter settings and is not to be used by the operator. Adjustments can only be made by authorized personnel (consult your dealer).

**H - SPEED LIMITER PUSHBUTTON**
Press this button to select fast or slow speed mode. Lamp D will light when slow speed mode is selected.

**I - TRAVEL POWER LIMITER BUTTON**
Press the button to select high or low power mode. Lamp E lights when the low power mode is selected.

**J - RETURN BUTTON**
This button only serves to adjust the lift truck's parameter settings and is not to be used by the operator. Adjustments can only be made by authorized personnel (consult your dealer).


**K - CONTROL SCREEN**
When the lift truck's ignition is switched on and diagnostic check is completed the screen displays the main menu: The speedometer and the battery charge indicator.

**L - REAR WHEEL STEERING BUTTON**
Press this button once to display the steering direction and angle of the rear wheel on the control screen K. Press a second time on the same button to return the main menu.


A single LED lit in the central position indicates that the wheel is straight.
The LEDs light towards the right-hand side when turning to the right and towards the left-hand side when turning to the left.



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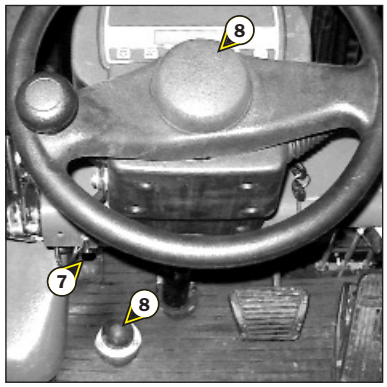
**M - HOUR METER BUTTON**

Press this button once to display the total operating and travel time.
Press the button again to display only the travel time.
Press a third time on the same button to return to the main menu K.


Total operating and travel time.


Travel time only.

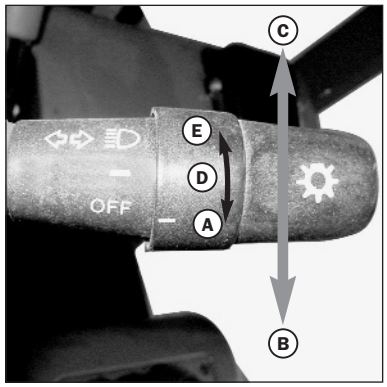
## 7 - FLASHING LIGHT SWITCH




- Pull out the button to switch on the flashing light, and push in to switch off.

## 8 - HORN SWITCH

## 9 - LIGHT AND INDICATOR SWITCH




The switch controls the visual alarms.

A - The lights are off.
B - The right hand direction indicators flash.
C - The left hand direction indicators flash.
D - The sidelights and the rear lights are on.
E - The front working headlights and rear lights are on.

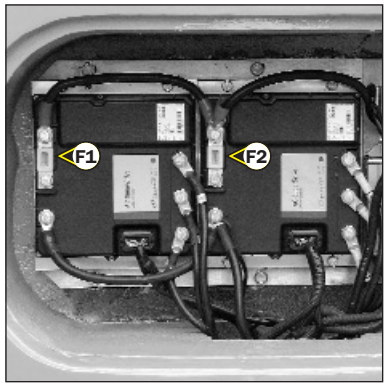
## 10 - IGNITION SWITCH


- This switch has 2 positions:

O - Switching off ignition.
I - Ignition on.

## 11 - Power fuse access panel


## 12 - Power fuses

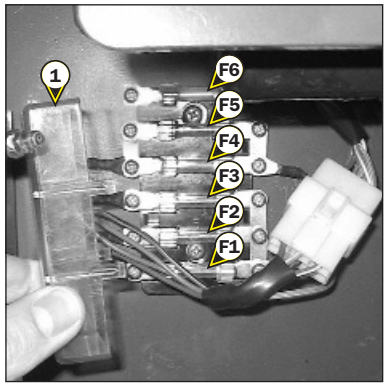



- Remove the power fuse access panel 11 to reach the fuses.
  F1 - Hydraulic control motor (300 A).
  F2 - Transmission motor (300 A).

NOTE: Replace a used fuse with a new fuse of the same quality and capacity. Never reuse a repaired fuse.

***In case of technical faults, consult your dealer.***

## 13 - Fuses



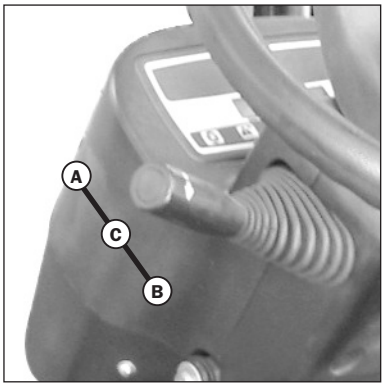

- Remove the casing 1 to access the fuses.
  F1 - Control circuit (10 A).
  F2 - Main circuit (10 A).
  F3 - Control instruments (10 A).
  F4 - Lighting (10 A).
  F5 - Lighting (10 A).
  F6 - Replacement (10 A).

NOTE: Replace a used fuse with a new fuse of the same quality and capacity. Never reuse a repaired fuse.

## 14 - Accelerator pedal

## 15 - Service brake pedal

## 16 - REVERSING LEVER




When operating this control, the lift truck should be travelling at slow speed and not accelerating.

FORWARD: Push the lever forwards (position A).
REVERSE: Pull the lever backwards (position B).
NEUTRAL: To start the lift truck, the lever must be in neutral (position C).

NOTE: Reverse lights and a sound alarm on reverse motion indicate that the lift truck is running in reverse motion.

**SAFETY FOR MOVING THE LIFT TRUCK**

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

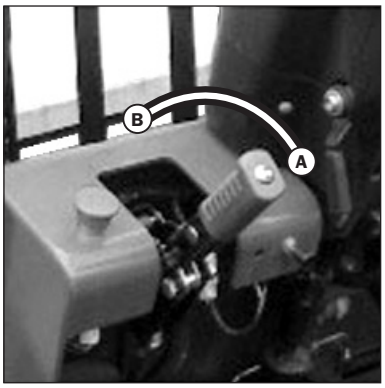
1 - sit down correctly in the driver's seat,
2 - switch on the ignition,
3 - release the parking brake,
4 - engage forward or reverse movement.

To stop the lift truck, he must observe the following sequence:

1 - set the reversing gear in neutral,
2 - engage the parking brake,
3 - switch off the ignition,
4 - get out of the lift truck.

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

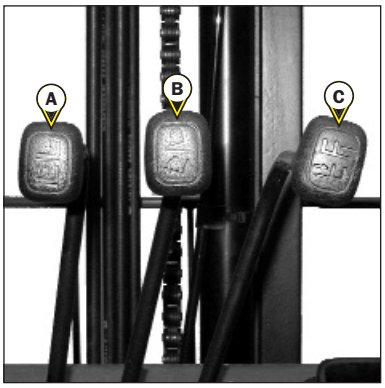
## 17 - PARKING BRAKE LEVER




- To apply the parking brake, press on the service brake pedal and pull the lever backwards (position A).
- To loosen the parking brake, release and push the lever forwards (position B).

NOTE: If the parking brake is released when there is no driver, an intermittent audible signal is emitted.

## 18 - HYDRAULIC CONTROLS




***Do not attempt to alter the hydraulic system pressure by interfering with the pressure regulating valve. In the event of suspected malfunction, contact your dealer. ANY ALTERATION MAY RENDER THE WARRANTY NULL AND VOID.***

***Use the hydraulic controls carefully without jerking, to avoid accidents caused by shaking the lift truck.***

**LIFTING OF THE LOAD**

- The lever A backwards when lifting.
- The lever A forwards when lowering.

**TILT OF THE MAST**

- The lever B backward for backward tilting.
- The lever B forwards for forward tilting.

**CARRIAGE SIDE-SHIFT**

- Lever C backwards to move to the right.
- Lever C backwards to move to the left.

**Only for ISO3691 (Hydraulic movement cut-off)**

Using the hydraulic controls is only possible if the driver is present and correctly sat on his seat.



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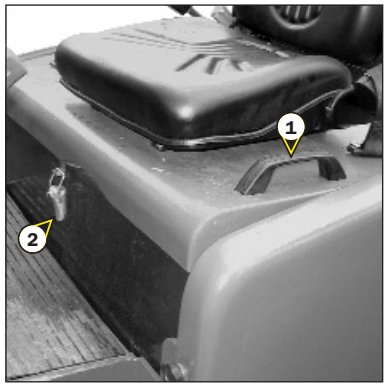
## 19 - LIFTING BATTERY COVER




***For your safety, set down the forks or the attachment on the ground to avoid any incident due to inadvertent operation of the controls, and press the emergency stop button.***

***Beware of the risks of pinching or crushing during this operation. Always lift or hold the battery cover with the handle 1. Check that nothing and nobody interferes with the lowering of the battery cover.***

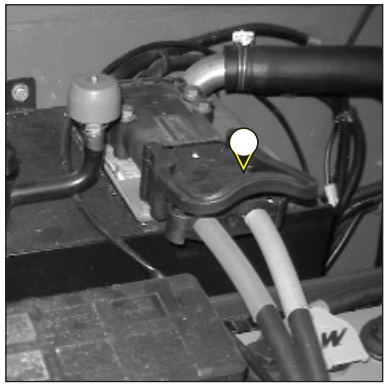
**LIFTING THE BATTERY COVER**

- If necessary tilt the steering wheel forward and the seat backward to lift the battery cover.
- Release bolt 2, place the other hand on the lever 1 and gently lift the battery cover.
- Check that the stay 3 is blocked.


**LOWERING THE BATTERY COVER**

- Place one hand on the lever 1 and hold the battery cover.
- Release the stay 3 and gently lower the battery cover back down.
- Lock the battery cover with bolt 2.

## 20 - BATTERY PLUG

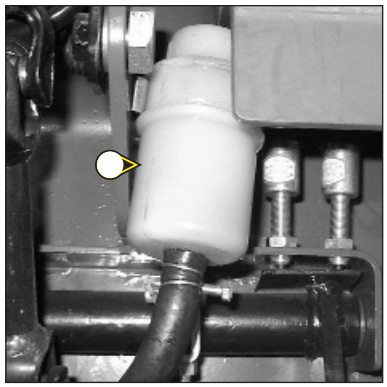


Disconnects or connects the electrical circuit power supply.

- Lift up the battery cover (see: 2 - DESCRIPTION: INSTRUMENTS AND CONTROLS).

***The lift truck's ignition must be switched off before connecting or disconnecting battery plug 1. Disconnect the battery in the event of a fault or when working on the lift truck.***

## 21 - BRAKING OIL TANK



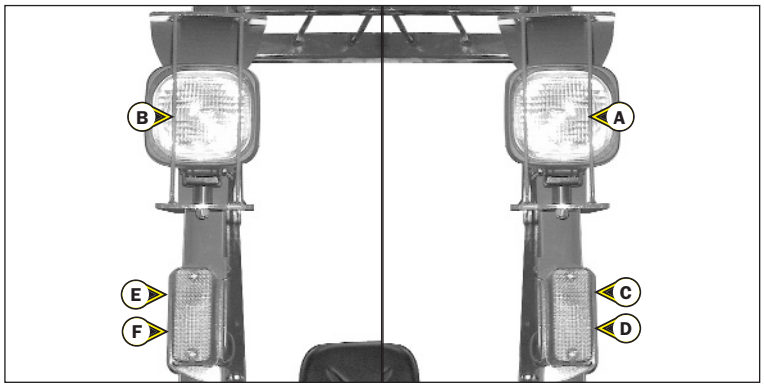
See: 3 - MAINTENANCE: B - EVERY 50 HOURS SERVICE.

## 22 - FRONT WORKING HEADLIGHTS

A - Left front working headlight.
B - Front right working headlight.

## 23 - FRONT SIDE LIGHTS AND INDICATORS

C - Left front sidelight.
D - Left front indicator.
E - Right front sidelight.
F - Right front indicator.



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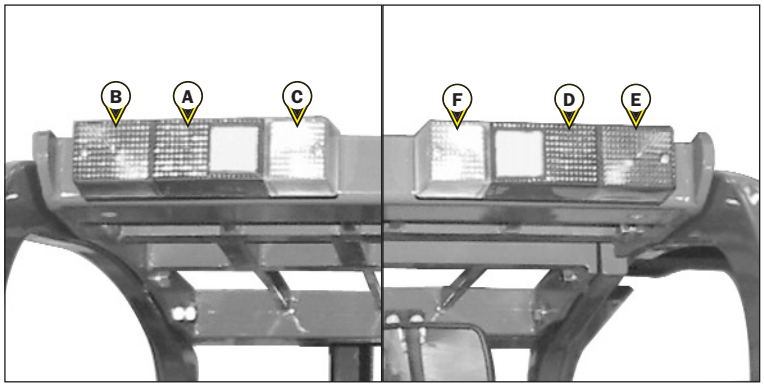
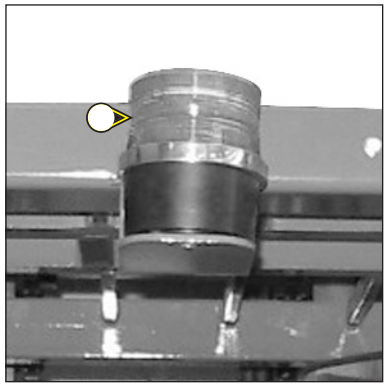
## 24 - REAR LIGHTS

A - Left rear light.
Left rear stoplight.
B - Left rear indicator.
C - Left rear reverse light.
D - Right rear light.
Right rear stoplight.
E - Right rear indicator.
F - Left rear reverse light.



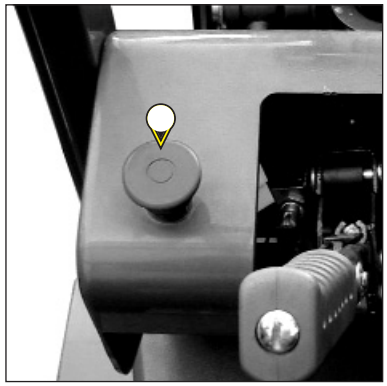

## 25 - FLASHING LIGHT



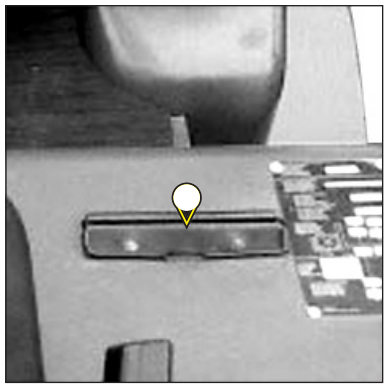
## 26 - EMERGENCY STOP BUTTON

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

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

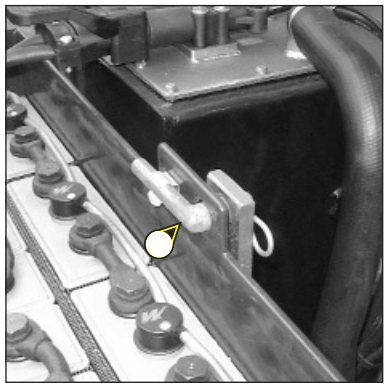


## 27 - DOCUMENT CLIP



## 28 - BATTERY TRAY LOCKING PIN

See: 3 - MAINTENANCE: F - OCCASIONAL MAINTENANCE.



# TOWING PIN AND HOOK

Located at the rear of the lift truck, this device is used to attach a trailer. Its capacity is limited for each lift truck by the authorised gross vehicle weight, tractive effort and maximum vertical force on the coupling point. This information is given on the manufacturer's plate fixed to each lift truck (see: 2 - DESCRIPTION: IDENTIFICATION OF THE LIFT TRUCK).

- To use a trailer, see current regulations in your country (maximum running speed, braking, maximum weight of trailer, etc.).
- Verify the trailer's condition before using it (tyre condition and pressures, electrical connection, hydraulic hose, braking system...).

***Do not tow a trailer or accessory which is not in perfect working order. Using a trailer in poor condition may effect the lift truck's steering and braking, and hence safety.***

***If a third party helps in coupling or uncoupling the trailer, this person must be permanently visible to the driver and wait until the lift truck has stopped and the handbrake is on before performing the operation.***

## A - TOWING PIN

**COUPLING AND UNCOUPLING THE TRAILER**

- To couple the trailer, position the lift truck as close as possible to the trailer ring.
- Put the handbrake.
- Place or remove the trailer ring.

***Be careful not to get your fingers caught or crushed during this operation.***
***When uncoupling, make sure that the trailer is supported independently.***

# 3 - MAINTENANCE

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# MANITOU ORIGINAL SPARE PARTS AND EQUIPMENT

**OUR LIFT TRUCKS MUST BE SERVICED USING ORIGINAL MANITOU PARTS.**

## IF YOU USE PARTS WHICH ARE NOT ORIGINAL MANITOU PARTS,

*YOU RISK*

- Legally - to be held responsible in the event of an accident.

- Technically - to generate operating failure or shorten the life of the lift truck.

**THE USE OF COUNTERFEIT PARTS OR COMPONENTS NOT APPROVED BY THE MANUFACTURER, MEANS YOU LOSE THE BENEFIT OF THE CONTRACTUAL GUARANTEE.**

## BY USING ORIGINAL MANITOU PARTS FOR MAINTENANCE OPERATIONS,

*YOU BENEFIT EXPERTISE*

**THROUGH ITS NETWORK, MANITOU PROVIDES THE USER WITH**

- Know-how and competence.

- The guarantee of high-quality work.

- Original replacement components.

- Help with preventive maintenance.

- Efficient help with diagnosis.

- Improvements due to experience feedback.

- Operator training.

- Only the MANITOU network has detailed knowledge of the design of the lift truck and therefore the best technical ability to provide maintenance.

**ORIGINAL REPLACEMENT PARTS ARE DISTRIBUTED EXCLUSIVELY BY MANITOU AND ITS DEALER NETWORK.**
The dealer network list is available on MANITOU web site www.manitou.com

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# START-UP CHECKLIST

*0 = OK  1 = Missing  2 = Incorrect*

| 100 | ENGINE | |
|---|---|---|
| 01 | Air filter | |
| 02 | Fuel tank | |
| 03 | Fuel lines - Filter | |
| 04 | Injection or carburetion system | |
| 05 | Radiator and cooling system | |
| 06 | Belts | |
| 07 | Hoses | |
| **101** | **TRANSMISSION** | |
| 01 | Direction reversal system | |
| 02 | Gear shift | |
| 03 | Cut-off pedal | |
| 04 | Clutch | |
| **102** | **AXLES/TRANSFER GEAR BOX** | |
| 01 | operation and seal | |
| 02 | Stop settings | |
| **103** | **HYDRAULIC/HYDROSTATIC CIRCUIT** | |
| 01 | Tank | |
| 02 | Pumps and couplings | |
| 03 | Tightening of connections | |
| 04 | Lift cylinder(s) | |
| 05 | Tilt cylinder(s) | |
| 06 | Attachment cylinder(s) | |
| 07 | Telescope cylinder(s) | |
| 08 | Compensation cylinder(s) | |
| 09 | Steering cylinder(s) | |
| 10 | Control Valve | |
| 11 | Balancing valve | |
| **104** | **BRAKE SYSTEM** | |
| 01 | Service brake and parking brake operation | |
| 02 | Brake fluid level | |
| **105** | **LUBRICATION AND GREASING** | |
| **106** | **JIB/MANISCOPIC/MANIACCESS ASSEMBLY** | |
| 01 | Beam and telescope(s) | |
| 02 | Skid | |
| 03 | Hinges | |
| 04 | Carriage | |
| 05 | Forks | |
| **107** | **MAST ASSEMBLY** | |
| 01 | Fixed and mobile uprights | |
| 02 | Carriage | |
| 03 | Chains | |
| 04 | Rollers | |
| 05 | Forks | |

| 108 | ATTACHMENTS | |
|---|---|---|
| 01 | Fitting on machine | |
| 02 | Hydraulic couplings | |
| **109** | **CABIN/PROTECTOR/ELECTRIC CIRCUIT** | |
| 01 | Seat | |
| 02 | Dashboard and radio | |
| 03 | Sound and visual alarm/safety system | |
| 04 | Heating/Air conditioning | |
| 05 | Windscreen wiper/windscreen washer | |
| 06 | Road horn | |
| 07 | Reversing horn | |
| 08 | Road lights | |
| 09 | Additional lights | |
| 10 | Rotating beacon light | |
| 11 | Battery | |
| **110** | **WHEEL** | |
| 01 | Rims | |
| 02 | Tyre/Pressure | |
| **111** | **SCREWS** | |
| **112** | **FRAME AND BODYWORK** | |
| **113** | **PAINTING** | |
| **114** | **GENERAL OPERATION** | |
| **115** | **OPERATOR'S MANUAL** | |
| **116** | **CUSTOMER INSTRUCTIONS** | |



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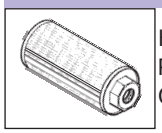
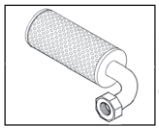
# FILTER ELEMENTS

## HYDRAULI



HYDRAULIC RETURN OIL FILTER
Part number: 824074
Change: 1000 H



SUCTION STRAINER FOR HYDRAULIC OIL TANK
Part number: 824571
Clean: 1000 H

BREATHER FOR THE HYDRAULIC OIL TANK
Part number: 826882 (Qty:2)
Change: 1000 H

# LUBRICANTS

***USE 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 organized with the dealer, a diagnostic analysis of engine, transmission and axle oils may be requested depending on the rate of use.

| **TRANSMISSION** | | | | |
|---|---|---|---|---|
| ORGANS TO BE LUBRICATED | CAPACITY | RECOMMENDATION | PACKAGING | PART NUMBER |
| TRANSMISSION | 4 Liter | MANITOU Oil<br>Automatic transmission | 1 L.<br>20 L.<br>55 L.<br>209 L. | 62148<br>546332<br>546217<br>546195 |

| **MAST** | | | |
|---|---|---|---|
| ORGANS TO BE LUBRICATED | RECOMMENDATION | PACKAGING | PART NUMBER |
| MAST LIFTING CHAINS | MANITOU Lubricant<br>Chain special (aerosol) | 400 Ml. | 554271 |
| GREASING OF THE MAST | MANITOU Grease<br>Multipurpose NLGI 2 | 400 g.<br>1 Kg.<br>50 Kg. | 545996<br>161590<br>499235 |

| **HYDRAULIC** | | | | |
|---|---|---|---|---|
| ORGANS TO BE LUBRICATED | CAPACITY | RECOMMENDATION | PACKAGING | PART NUMBER |
| HYDRAULIC OIL TANK<br>**ME 425**<br>**ME 430** | <br>25 Liters<br>30 Liters | MANITOU Oil<br>Hydraulic ISO 46 | 5 L.<br>20 L.<br>55 L.<br>209 L. | 545500<br>582297<br>546108<br>546109 |

| **BRAKE** | | | | |
|---|---|---|---|---|
| ORGANS TO BE LUBRICATED | CAPACITY | RECOMMENDATION | PACKAGING | PART NUMBER |
| BRAKE CIRCUIT | 1,5 Liters | MANITOU fluid<br>DOT 4 brake fluid | 0,5 L.<br>1 L.<br>5 L.<br>30 L. | 473013<br>473014<br>486363<br>486364 |

| **REAR AXLE** | | | |
|---|---|---|---|
| ORGANS TO BE LUBRICATED | RECOMMENDATION | PACKAGING | PART NUMBER |
| SWIVEL PINS<br>STEERING CONNECTING ROD | MANITOU Grease<br>Multipurpose HD NLGI 2 | 400 g.<br>1 Kg.<br>5 Kg.<br>20 Kg.<br>50 Kg. | 161589<br>554973<br>554974<br>499233<br>489670 |



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# SERVICING SCHEDULE

***(1): MANDATORY 500 HOUR OR 6 MONTH SERVICE***

***This service must be carried out after approximately the first 500 hours of operation or within the 6 months following the start-up of the machine (whichever occurs first).***

| | |
|---|---|
| **A = AJUST** | **N = CLEAN** |
| **C = CHECK** | **P = BLEED** |
| **D = RECHARGE** | **R = CHANGE** |
| **G = GREASE** | **V = DRAIN** |

| | (1) | DAILY OR EVERY 10 HOURS SERVICE | EVERY 50 HOURS SERVICE | EVERY 250 HOURS SERVICE | EVERY 500 HOURS SERVICE OR 6 MONTHS | EVERY 1000 HOURS SERVICE OR 1 YEAR | EVERY 2000 HOURS SERVICE OR 2 YEARS | EVERY 4000 HOURS SERVICE | PAGE |
|---|---|---|---|---|---|---|---|---|---|
| **ELECTRICITY** | | | | | | | | | |
| Battery | *D* | D | « | « | « | « | « | « | 3-10 |
| Battery electrolyte level | *C* | C | « | « | « | « | « | « | 3-10 |
| Cleaning the battery | *C* | C | « | « | « | « | « | « | 3-11 |
| Electrolyte level of all battery cells | *C* | | C | « | « | « | « | « | 3-15 |
| Battery electrolyte density. | *C* | | C | « | « | C* | « | « | 3-16 |
| Condition of control panels | *C* | | | C | « | C* | « | « | 3-18 |
| Battery insulation resistance | *C* | | | | C | « | C* | « | 3-20 |
| Condition of wiring harness and cables | | | | | | C* | « | « | |
| Warning indicators | | | | | | | C* | « | |
| Lights and signals | | | | | | | C* | « | |
| Steering potentiometer | | | | | | | C* | « | |
| Remove the battery tray | | | | | | | | | 3-24 |
| **TRANSMISSION** | | | | | | | | | |
| Transmission oil level | *C* | | | C | « | « | « | « | 3-18 |
| Transmission oil | *V* | | | | | V | « | « | 3-22 |
| **TYRES** | | | | | | | | | |
| Wheel nuts torque | *C* | C | « | « | « | « | « | « | 3-12 |
| Condition of wheels and tyres | | | | | | C* | « | « | |
| **MAST** | | | | | | | | | |
| Tension and alignment of the mast lifting chains | *C/A* | | C/A | « | « | « | « | « | 3-14 |
| Mast | *G* | | G | « | « | « | « | « | 3-14 |
| Mast lifting chains | *N/C/G* | | | | N/C/G | « | C* | « | 3-20 |
| Condition of mast unit | | | | | | | C* | « | |
| Chain rollers | | | | | | | C* | « | |
| Mast guide rollers | | | | | | | C* | « | |
| Mast bearing rollers | | | | | | | C* | « | |
| Thickness of the mast wearing plates | | | | | | | C* | « | |
| **HYDRAULIC** | | | | | | | | | |
| Hydraulic oil level | *C* | | C | « | « | « | « | « | 3-15 |
| Hydraulic oil | | | | | | V | « | « | 3-23 |
| Breather for the hydraulic oil tank | | | | | | R | « | « | 3-23 |
| Suction strainer for hydraulic oil tank | | | | | | N | « | « | 3-23 |
| Hydraulic return filter | | | | | | R | « | « | 3-23 |
| Condition of cylinders (leakage, shafts) | | | | | | C* | « | « | |
| Speeds of hydraulic movements | | | | | | C* | « | « | |
| Condition of hoses and flexibles pipes | | | | | | C* | « | « | |
| Hydraulic oil tank | | | | | | | N* | « | |
| Hydraulic circuit pressures | | | | | | | C* | « | |
| Hydraulic circuit outputs | | | | | | | C* | « | |
| **BRAKE** | | | | | | | | | |
| Brake oil level | *C* | | C | « | « | « | « | « | 3-15 |
| Parking brake | *C/A* | | | C/A | « | « | « | « | 3-18 |
| Brake | *C** | | | | C* | « | « | « | |
| Brake oil | | | | | | V* | « | « | |
| Brake system | | | | | | P* | « | « | |
| **STEERING** | | | | | | | | | |
| Steering connecting rod | *G* | | G | « | « | « | « | « | 3-16 |
| Steering | | | | | | | C* | « | |



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| | |
|---|---|
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|---|---|---|---|---|---|---|---|---|
| **OVERHEAD GUARD** | | | | | | | | |
| Seat belt | | | | | C | ◀◀ | ◀◀ | 3-23 |
| Condition of the rear view mirrors | | | | | C* | ◀◀ | ◀◀ | |
| Structure | | | | | C* | ◀◀ | ◀◀ | |
| **REAR AXLE** | | | | | | | | |
| Swivel pins | *G* | G | ◀◀ | ◀◀ | ◀◀ | ◀◀ | G/C* | 3-16 |
| Rear axle | | | | | | | C* | |
| **CHASSIS** | | | | | | | | |
| Structure | | | | | C* | ◀◀ | ◀◀ | |
| Bearings and articulation rings | | | | | | C* | ◀◀ | |
| **ATTACHMENTS** | | | | | | | | |
| Forks wear | *C** | | | C* | ◀◀ | ◀◀ | ◀◀ | |
| Attachment carriage | | | | | C* | ◀◀ | ◀◀ | |
| Condition of attachments | | | | | C* | ◀◀ | ◀◀ | |
| **LIFT TRUCK** | | | | | | | | |
| Tow the lift truck | | | | | | | | 3-24 |
| Sling the lift truck | | | | | | | | 3-24 |
| Transport the lift truck on a platform | | | | | | | | 3-25 |

(*): Consult your dealer.



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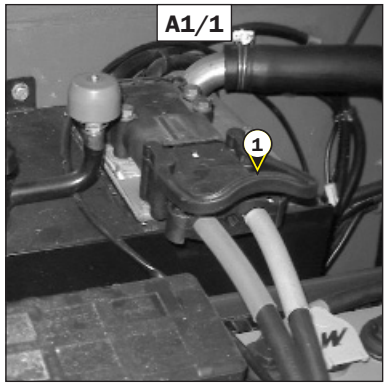
# A - DAILY OR EVERY 10 HOURS SERVICE

## A1 - BATTERY

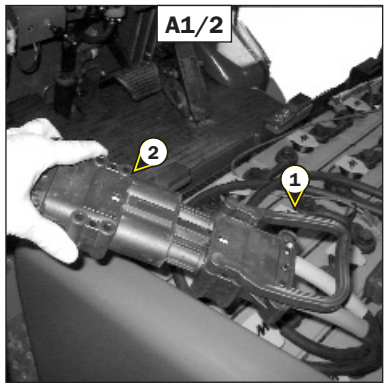
***RECHARGE***




If the residual battery capacity after a working cycle is greater than 60 %, it does not need recharging.
- Lift up the battery cover (see: 2 - DESCRIPTION: INSTRUMENTS AND CONTROLS).

***Do not discharge a battery beyond 80 % of its capacity and recharge in one operation in a well ventilated space.***

**NORMAL CHARGE**
- Disconnect the battery plug 1 (fig. A1/1).
- Connect the battery plug 1 to the charger socket 2 (fig. A1/2).
- Set the charger to normal and equalization charge mode and switch on.
- The charger will automatically switch off when charging is complete.
- Disconnect the battery plug 1 from the charger socket 2 (fig. A1/2).
- Reconnect the battery plug 1.
- Close the battery cowl.




NOTE: The battery is charged with the caps closed and the battery cover open.

**ADDITIONAL CHARGE**

When the normal charge is not sufficient to last for an entire working day, and to avoid discharging the battery beyond 80 % of its capacity, a further charge can be added during a meal or rest break.
- Set the charger to normal charge mode only and switch on.
- Switch off the charger once charging is completed.

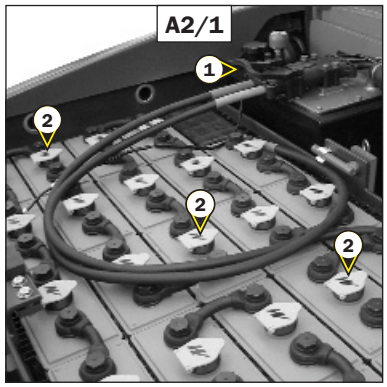
**EQUALIZATION CHARGE**

Even if the battery has not needed charging for more than one week, the charge must still be equalized once every week.
- Set the charger to charge equalization mode only and switch on.
- The charger will switch off automatically once equalization is completed.

***The charger must be adjusted to suit the battery. Refer to the charger instruction manual for details of this operation.***

## A2 - BATTERY ELECTROLYTE LEVEL

***CHECK***




***Filling must be carried out after the charging phase.***

**WITHOUT CENTRAL FILLING**

Check the electrolyte level of two or three cells (choose different cells each day).

- Lift up the battery cover (see: 2 - DESCRIPTION: INSTRUMENTS AND CONTROLS).
- Disconnect the battery plug 1 (fig. A2/1).
- Open the caps 2 (fig. A2/1) of the selected cells of the battery.
- The electrolyte level must be 15-20 mm above the top of the plates in the battery.
- If necessary, top up with clean distilled or demineralized water that has been stored in a glass container (in case of spillage of water onto the battery see: 3 - MAINTENANCE: A3 - CLEANING THE BATTERY).
- Close the caps 2 (fig. A2/1).
- Check the terminal connections and lightly smear them with petroleum jelly to prevent the formation of verdigris.
- Reconnect the battery plug 1 (fig. A2/1).
- Close the battery cowl.



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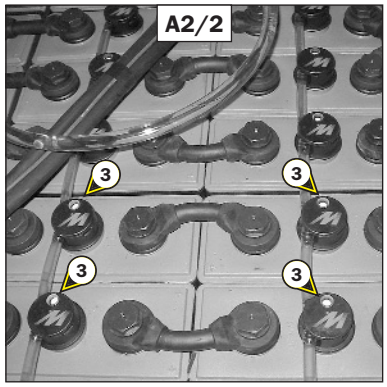
**WITH CENTRAL FILLING**

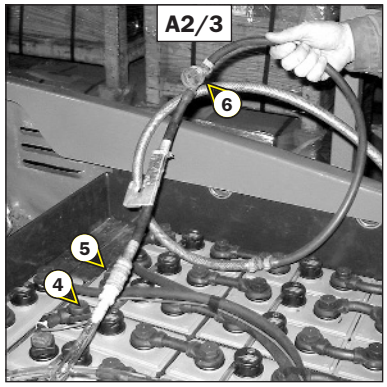
- Lift up the battery cover (see: 2 - DESCRIPTION: INSTRUMENTS AND CONTROLS).
- Disconnect the battery plug 1 (fig. A2/1).
- The level indicators 3 (fig. A2/1) must be in the high position.
- If necessary, top up with clean distilled or demineralized water.
- Connect pipe 4 (fig. A2/3) to the pipe of the insufflation pump 5 (fig. A2/3).

NOTE: The pump must be situated at a higher level than the battery.

- When the correct level is reached, the vanes 6 (fig. A2/3) automatically stop turning.
- Disconnect pipe 4 (fig. A2/3).
- Check the terminal connections and lightly smear them with petroleum jelly to prevent the formation of verdigris.
- Reconnect the battery plug 1 (fig. A2/1).
- Close the battery cowl.




***Handling and servicing a battery can be dangerous, take the following precautions:***
***- Wear protective goggles, gloves, an apron and acid-resistant clothing.***
***- Remove rings, 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.***
***- Wash your hands each time you work on the battery, as acid is corrosive.***
***- In the event of electrolyte being spilled onto the skin or splashed in the eyes, rinse thoroughly with cold water for 15 minutes and call a doctor.***

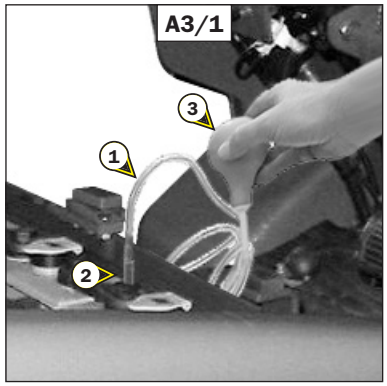



## *A3 - CLEANING THE BATTERY*

***CHECK***

The battery must be kept clean and dry at all times to avoid self-discharge and leakage currents.

- Lift up the battery cover (see: 2 - DESCRIPTION: INSTRUMENTS AND CONTROLS).

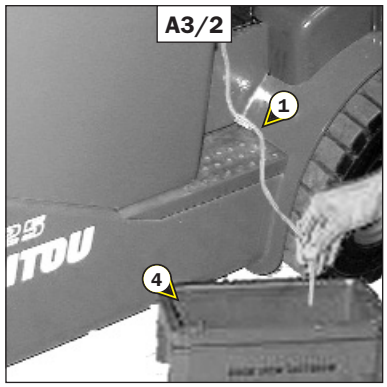



***Disconnect the battery plug and protect before washing the battery.***

**WASHING**

- Check that the caps are firmly closed.
- Clean the water with soft, non-pressurized water.
- Allow to dry in the open air and wipe the top of the battery with a clean cloth.

NOTE: Part of the washing water will have entered the battery tray and must therefore be drained.




**DRAINING THE BATTERY TRAY**

- Connect pipe 1 (fig. A3) to pipe 2 (fig. A3).
- Fill the bulb 3 (fig. A3) and connect it to the other end of pipe 1 (fig. A3).
- Place a container 4 (fig. A3) near to the battery. This container must be placed below the bottom of the tray.
- Once pipe 1 (fig. A3) is filled, remove the bulb 3 (fig. A3) and place the end of pipe 1 (fig. A3) over the container 4 (fig. A3).

***Handling and servicing a battery can be dangerous, take the following precautions:***
***- Wear protective goggles, gloves, an apron and acid-resistant clothing.***
***- Remove rings, 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.***
***- Wash your hands each time you work on the battery, as acid is corrosive.***
***- In the event of electrolyte being spilled onto the skin or splashed in the eyes, rinse thoroughly with cold water for 15 minutes and call a doctor.***

## *A4 - WHEEL NUTS TORQUE*

***CHECK***

- Check the condition of the tyres, to detect cuts, protuberances, wear, etc.
- Check the torque load of the wheel nuts. Non compliance with this instruction can cause damage and rupture to the wheel bolts and distortion to the wheels.

Wheel nuts tightening torque

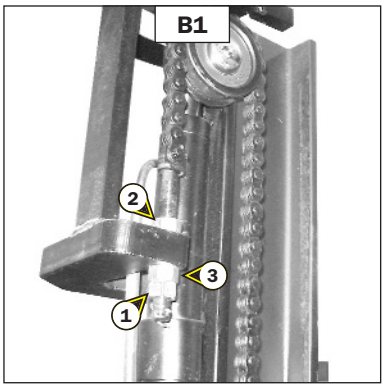
- Front wheels: 441 to 558 N.m
- Rear wheels: 157 to 176 N.m

# B - EVERY 50 HOURS SERVICE

*Carry out the operations described previously as well as the following operations.*

## B1 - TENSION AND ALIGNMENT OF THE MAST LIFTING CHAINS

***CHECK - ADJUST***



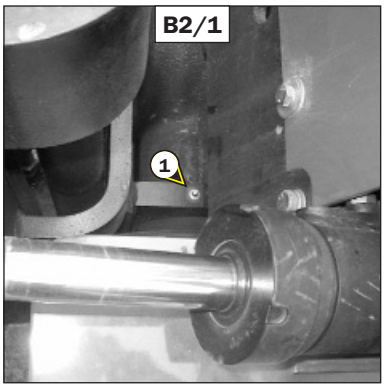

Place the lift truck on level ground with the mast in a vertical position and the forks lifted at approximately 200 mm.

- Check the alignment of the mast lifting chains between the carriage's chain fasteners and the chain rollers.
- Manually verify the chain tension, if necessary adjust as following while ensuring that the carriage is perpendicular to the mast.
- Untighten the nut 1 (fig. B1).
- Untighten the lock nut 2 (fig. B1) of the chain tension adjuster.
- Adjust the tension by tightening or untightening the nut 3 (fig. B1) while checking the alignment of the lifting chains.
- Then block the lock nut 2 (fig. B1) and the nut 3 (fig. B1).
- Retighten the nut 1 (fig. B1).

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

## B2 - MAST

***GREASE***

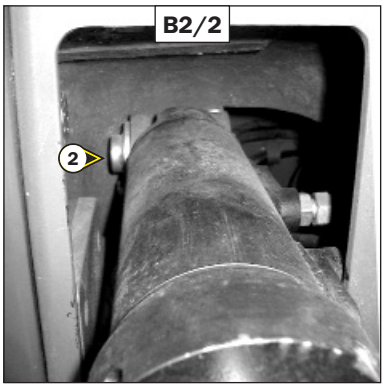


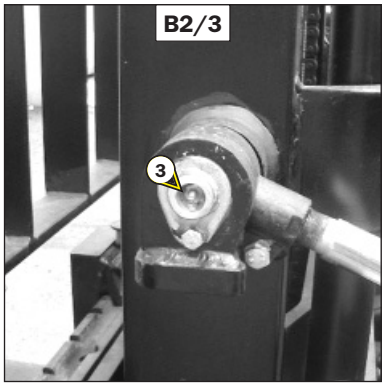

To be carried out weekly, if the lift truck has been operated for less than 50 hours during the week.

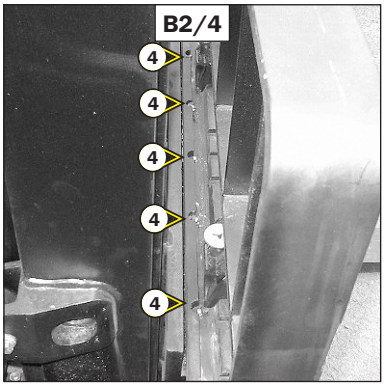
***In the event of prolonged use in an extremely dusty or oxidising atmosphere, reduce this interval to 10 working hours or every day.***

Clean and lubricate the following points with grease (see: 3 - MAINTENANCE: LUBRICANTS) and remove the surplus of grease.

1 - Lubricators of the articulation axles at the foot of the mast (2 lubricators) (fig. B2/1).
2 - Lubricators of the tilt cylinders foot axles (2 lubricators) (fig. B2/2).
3 - Lubricators of the tilt cylinders head axles (2 lubricators) (fig. B2/3).
4 - Lubricators of the side-shift carriage (5 lubricators) (fig. B2/4).



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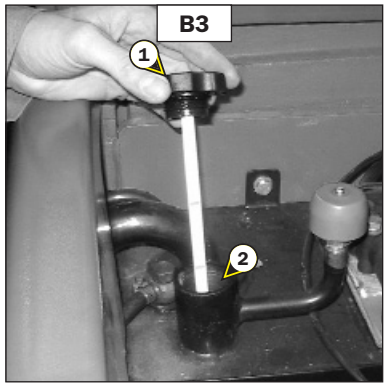
## B3 - HYDRAULIC OIL LEVEL

**CHECK**




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

- Lift up the battery cover (see: 2 - DESCRIPTION: INSTRUMENTS AND CONTROLS).
- Remove dipstick 1 (fig. B3).
- Wipe the dipstick and check the correct level between the MINI and MAXI marks.
- If necessary, add oil (see: 3 - MAINTENANCE: LUBRICANTS) by the filler port 2 (fig. B3).

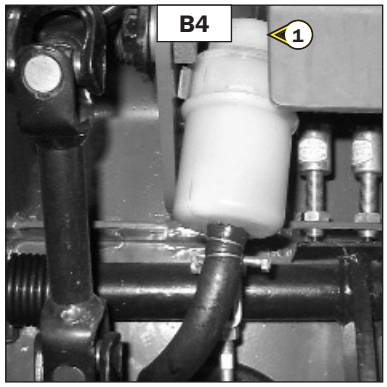
***Use a clean funnel and clean the underside of the oil drum before filling.***

- Put back the dipstick 1 (fig. B3).
- Check visually that there is no leakage in the tank and pipes.

Always maintain the oil level at maximum as cooling depends on the oil flowing through the tank.

## B4 - BRAKE OIL LEVEL

**CHECK**




Place the lift truck on level ground.

- Check visually the level.
- The level is correct when it is at the MAXI level on the tank.
- If necessary, add oil (see: 3 - MAINTENANCE: LUBRICANTS) by the filler port 1 (fig. B4).
- Check visually that there is no leakage in the tank and pipes.

***If the braking oil level is abnormally low, consult your dealer.***

## B5 - ELECTROLYTE LEVEL OF ALL BATTERY CELLS

**CHECK**

Perform the same operation as that carried out daily (see: 3 - MAINTENANCE: A2 - BATTERY ELECTROLYTE LEVEL), but checking all of the cells of the battery.

## B6 - BATTERY ELECTROLYTE DENSITY

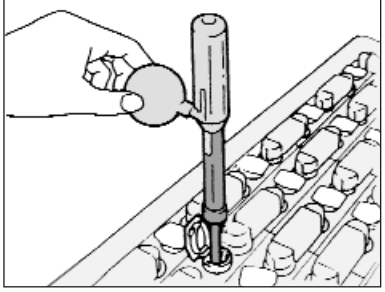
**CHECK**

- Lift up the battery cover (see: 2 - DESCRIPTION: INSTRUMENTS AND CONTROLS).
- Disconnect the battery plug.
- Measure the temperature of the electrolyte (see: NOTE).
- Measure the electrolyte density in each battery cell using a hydrometer (fig. B6/1).
- Compare the electrolyte reading against the table (fig. B6/2).
- Do not carry out this check immediately after topping up with distilled water. Recharge the battery for at least one hour before checking the battery electrolyte density.
- Clean and dry the caps (see: 3 - MAINTENANCE: A4 - CLEANING THE BATTERY).
- Check the terminal connections and lightly smear them with petroleum jelly to prevent the formation of verdigris.
- Close the battery cowl.

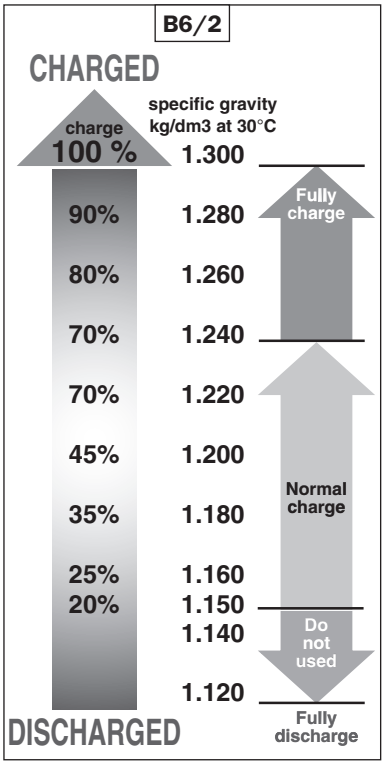
NOTE: The electrolyte density varies according to its temperature. It must therefore be measured and converted in accordance with the following rule:
If T°C > 30°C the correction will be + 0,0007 per °C above this temperature.
If T°C < 30°C the correction will be - 0,0007 per °C below this temperature.
Example: Density reading 1,285 at 36°C
1,285 + (0,0007 x 6) = 1,289 kg/dm3 at 30°C

***Handling and servicing a battery can be dangerous, take the following precautions:***
***- Wear protective goggles, gloves, an apron and acid-resistant clothing.***
***- Remove rings, 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.***
***- Wash your hands each time you work on the battery, as acid is corrosive.***
***- In the event of electrolyte being spilled onto the skin or splashed in the eyes, rinse thoroughly with cold water for 15 minutes and call a doctor.***

B6/1



B6/2



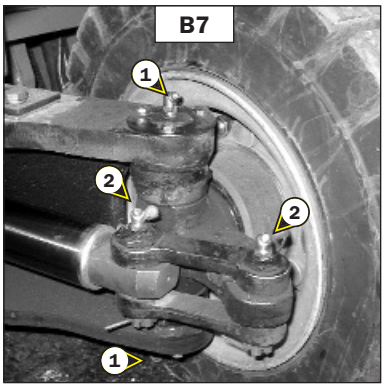

## B7 - REAR AXLE

**GREASE**

Clean and lubricate the following points with grease (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL) and remove the surplus of grease.

1 - Lubricators of the swivel pins (4 lubricators) (fig. B7).
2 - Lubricators of the steering cylinder head axles (4 lubricators) (fig. B7).

B7



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# C - EVERY 250 HOURS SERVICE

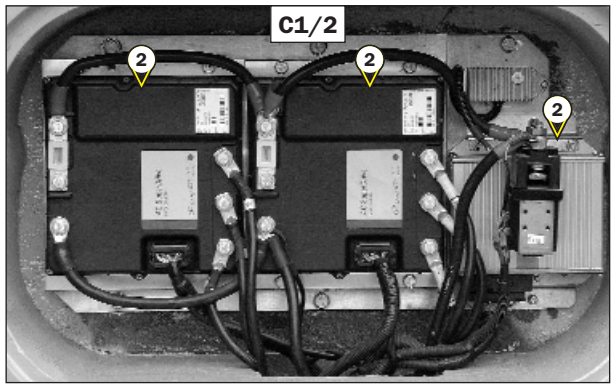
*Carry out the operations described previously as well as the following operations.*

## C1 - CONDITION OF CONTROL PANELS

**CHECK**

- Remove the access panel 1 (fig. C1/1).
- Check connections and the general condition of the control panels 2 (fig. C1/2) (oxidation, bared wires, etc.).

*In case of technical faults, consult your dealer.*

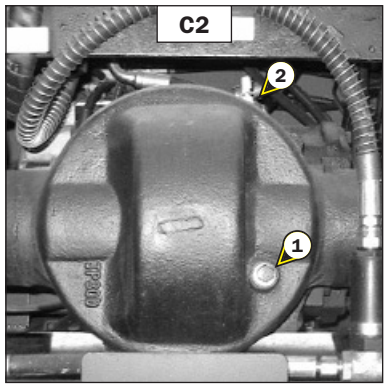




## C2 - TRANSMISSION OIL LEVEL

**CHECK**

Place the lift truck on level ground with the I.C. engine stopped.

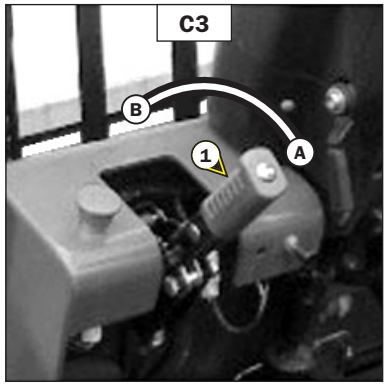
- Remove level plug 1 (fig. C2). The oil should be flush with the edge of the hole.
- If necessary, add oil (see: 3 - MAINTENANCE: LUBRICANTS) by the filler port 2 (fig. C2/1).
- Replace and tighten the level plug 1 (fig. C2).
- Check visually that there is no leakage or seepage of oil in the transmission.




## C3 - PARKING BRAKE

**CHECK - ADJUST**

Place the lift truck on a slope less than 15 % with the rated load in the transport position.
- Check the tightening adjustment by locking the parking brake in position A (fig. C3).
- The adjustment is correct when the lift truck is held stationary on a slope.
- Carry out adjustments if necessary.
- Leave the parking brake in position B (fig. C3).
- Progressively tighten the end piece of the lever 1 (fig. C3) and recheck braking.
- Repeat the operation until the correct braking adjustment is obtained.

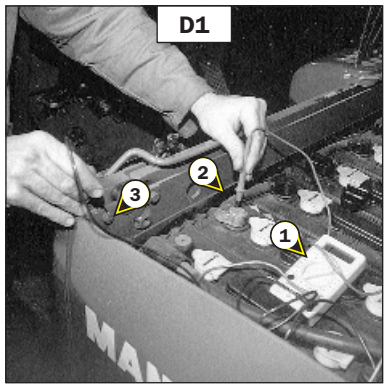


# D - EVERY 500 HOURS SERVICE

*Carry out the operations described previously as well as the following operations.*

## D1 - BATTERY INSULATION RESISTANCE

***CHECK***

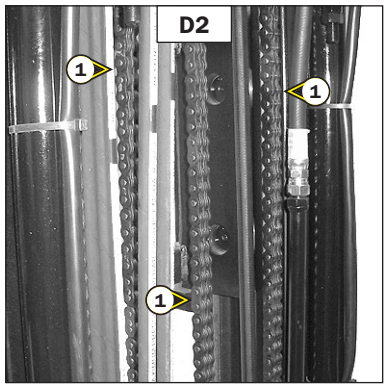



- Lift up the battery cover (see: 2 - DESCRIPTION: INSTRUMENTS AND CONTROLS).
- Set the mutimeter 1 to the ohmmeter position.
- Place the multimeter between a terminal of the battery 2 (fig. D1) and the battery tray 3 (fig. D1), the insulation resistance reading must be at least 1 ohm.

***In case of technical faults, consult your dealer.***

## D2 - MAST LIFTING CHAINS

***CLEAN - CHECK- GREASE***




- Wipe the mast lifting chains 1 (fig. D2) with a clean, lint-free cloth, then examine them closely so as to detect any signs of wear.
- Vigorously brush the chains to get rid of any foreign matter, with a hard nylon brush and clean diesel fuel.
- Rinse the chains by means of a paint brush impregnated with clean diesel fuel and dry them with a compressed air jet.
- Moderately lubricate the chains (see: 3 - MAINTENANCE: LUBRICANTS).

***In case of technical faults, consult your dealer.***



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# E - EVERY 1000 HOURS SERVICE

*Carry out the operations described previously as well as the following operations.*

## E1 - TRANSMISSION OIL

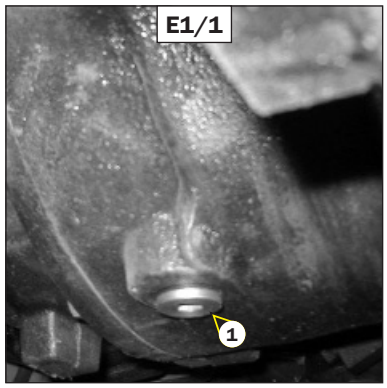
***DRAIN***

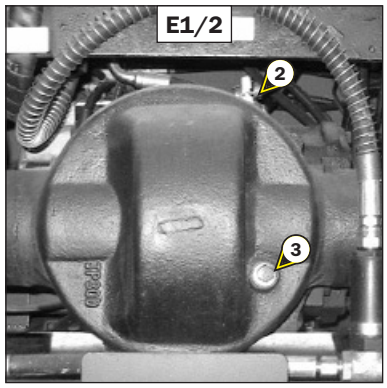
Place the lift truck on level ground with the transmission oil still warm.

- Place a container under drain plug 1 (fig. E1/1) and unscrew the plug.
- Remove filling plug 2 (fig. E1/2) in order to ensure that the oil is drained properly.

***Dispose of the drain oil in an ecological manner.***

- Refit and tighten the drain plug 1 (fig. E1/2) (tightening torque 22 N.m).
- Fill up with oil (see: 3 - MAINTENANCE: LUBRICANTS) by filler port 2 (fig. E2).
- Remove the level plug 3 (fig. E2), the level is correct when the oil level is flush with the edge of port.
- Check for any possible leaks at the drain plug.
- Refit and tighten filling plug 2 (fig. E2) and level plug 3 (fig. E2).



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## E2 - HYDRAULIC OIL

***DRAIN***

## E3 - HYDRAULIC OIL TANK BREATHERS

***CHANGE***

## E4 - SUCTION STRAINER FOR HYDRAULIC OIL TANK

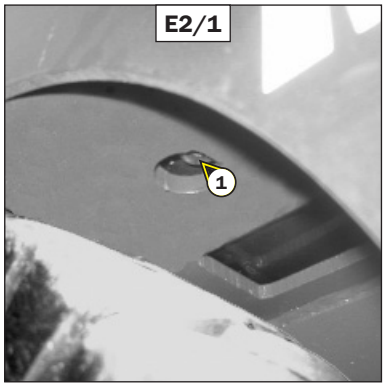
***CLEAN***

## E5 - HYDRAULIC RETURN FILTER

***CHANGE***

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

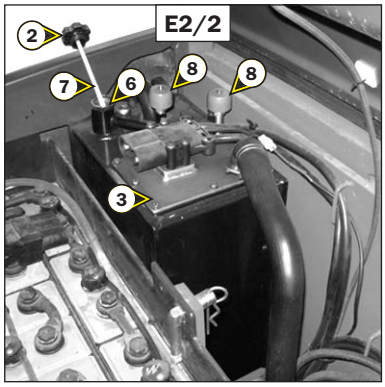
***Before any intervention, thoroughly clean the area surrounding the drain plug and the access panel on the hydraulic tank.***




**DRAINING THE OIL**

- Place a container under drain plug 1 (fig. E2/1) and unscrew the plug.
- Lift up the battery cover (see: 2 - DESCRIPTION: INSTRUMENTS AND CONTROLS).
- Remove filling plug 2 (fig. E2/2) in order to ensure that the oil is drained properly.

***Dispose of the drain oil in an ecological manner.***

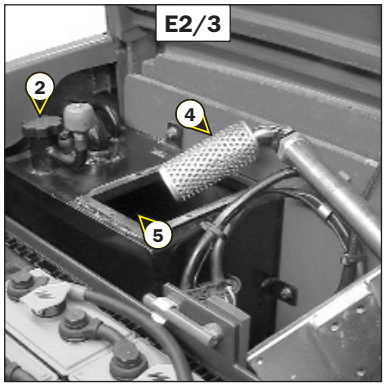



**REPLACEMENT OF BREATHERS**

- Unscrew the breathers 8 (fig. E3/3) and replace with new ones (see: 3 - MAINTENANCE: FILTERS CARTRIDGES AND BELTS).

**CLEANING THE STRAINER**

- Unscrew the locking screws of the access panel 3 (fig. E2/2).
- Lift the access panel, unscrew the suction strainer 4 (fig. E2/3), clean it with the help of a compressed air jet, check its condition and change it, if necessary (see: 3 - MAINTENANCE: FILTER ELEMENTS).
- Refit the suction strainer 4 (fig. E2/3).




**REPLACEMENT OF THE RETURN FILTER**

- Unscrew the hydraulic return oil filter 5 (fig. E2/3) and replace with a new one (see: 3 - MAINTENANCE: FILTER ELEMENTS).
- Refit access panel 3 (fig. E2/2).

**FILLING UP THE OIL**

- Clean and refit drain plug 1 (fig. E2/1).
- Fill up with oil (see: 3 - MAINTENANCE: LUBRICANTS) by filler port 6 (fig. E2/2).

***Use a clean container and funnel and clean the underside of the oil drum before filling.***

- Wipe the dipstick 7 (fig. E2/2) and check the correct level between the MIN and MAX marks.
- Check for any possible leaks at the drain plug.
- Refit the filling plug 2 (fig. E2/3).

## E6 - SEAT BELT

***CHECK***

- Check the following points:
  - Fixing of the anchoring points on the seat.
  - Cleanness of the strap and the locking mechanism.
  - Triggering of the locking mechanism.
  - Condition of the strap (cuts, curled edges).
  - The correct winding of the belt.
  - Condition of the reel guards.
  - Roller locking mechanism when the strap is given a sharp tug.

NOTE: After an accident, replace the seat belt.

***In no event should the lift truck be used if the seat belt is defective (fixing, locking, cuts, tears, etc.). Repair or replace the seat belt immediately.***

# F - OCCASIONAL MAINTENANCE

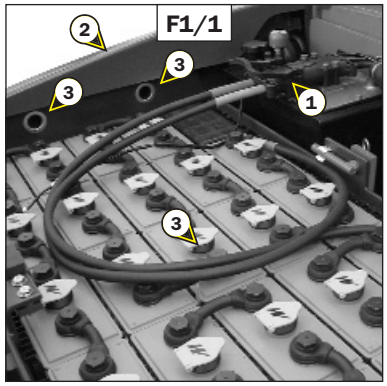
## F1 - BATTERY TRAY

***REMOVE***

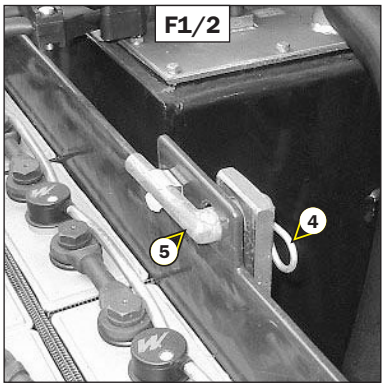
Place the lift truck on level ground.

- Lift up the battery cover (see: 2 - DESCRIPTION: INSTRUMENTS AND CONTROLS).
- Disconnect the battery plug 1 (fig. F1/1).
- Remove the right- and left-hand side casings 2 (fig. F1/1).
- Place the hooks in the fastening points 3 provided (fig. F1/1).
- Remove the pin 4 (fig. F1/2) and the locking pin 5 (fig. F1/2).
- Carefully lift the battery (fig. F1/3) and remove it from the right-hand side (fig. F1/3).
- Carefully set down the battery.

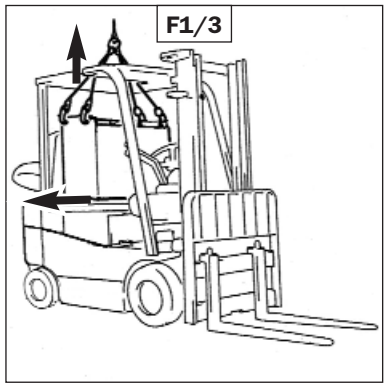
F1/1




F1/2




F1/3



## F2 - LIFT TRUCK

***TOW***

***The lift truck must be towed at very slow speed (less than 5 km/h) over the shortest possible distance (less than 100 m).***

- Place the reversing gear in neutral
- Untighten the hand brake.
- As there will be no steering or braking hydraulics, operate the steering and pedal slowly avoiding sudden jerky movements.
- Switch off the ignition to avoid damaging the electrical boards.

## F3 - LIFT TRUCK

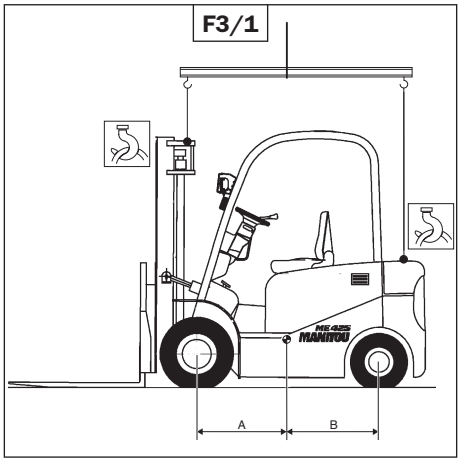
***SLING***

- Take into account the position of the lift truck gravity center for lifting (fig. F3/1).

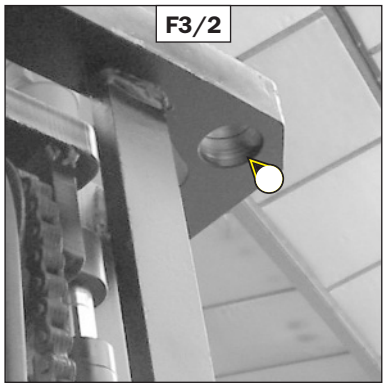
| | | |
|---|---|---|
| A = mm | B = mm | ME 425 |
| A = mm | B = mm | ME 430 |

- Place the hooks in the fastening points provided (fig. F3/2 and F3/3).

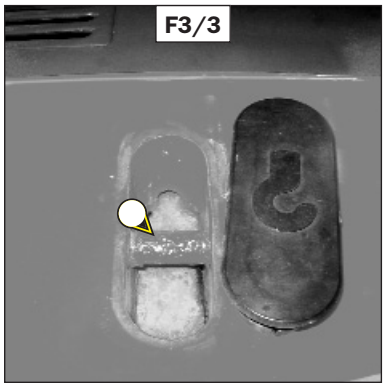
F3/1




F3/2



F3/3





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## F4 - LIFT TRUCK ON A PLATFORM



***Ensure that the safety instructions connected to the platform are respected before the loading of the lift truck and that the driver of the means of transport is informed about the dimensions and the weight of the lift truck (see: 2 - DESCRIPTION: CHARACTERISTICS).***

***Ensure that the platform has got dimensions and a load capacity sufficient for transporting the lift truck. Check also the pressure on the contact surface allowable for the platform in connection with the lift truck.***

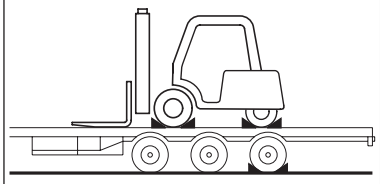
**LOAD THE LIFT TRUCK**

- Block the wheels of the platform.
- Fix the loading ramps so that you obtain an angle as little as possible to lift the lift truck.
- Load the lift truck parallel to the platform.
- Stop the lift truck (see: 1 - OPERATING AND SAFETY INSTRUCTIONS: DRIVING INSTRUCTIONS UNLADEN AND LADEN).

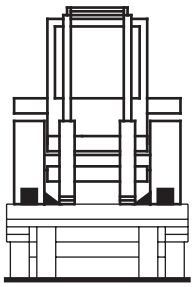
**STOW THE LIFT TRUCK**

- Fix the chocks to the platform at the front and at the back of each tyre (fig. F4/1).
- Fix also the chocks to the platform in the inside of each tyre (fig. F4/2).
- Stow the lift truck onto the semi-trailer with sufficiently resistant ropes. To the front by passing above the articulation fittings 1 (fig. F4/3) of the mast and to the back onto the towing pin 2 (fig. F4/4).
- Tighten the ropes (fig. F4/5).

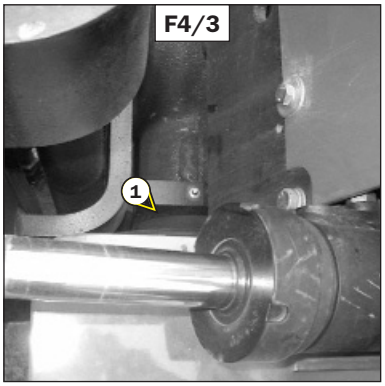
F4/1



F4/2

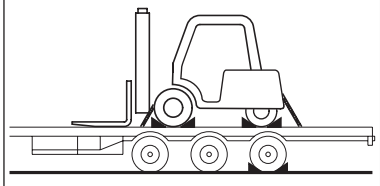


F4/3




F4/4

F4/5





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# 4 - ADAPTABLE ATTACHMENTS IN OPTION ON THE RANGE

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# TABLE OF CONTENTS

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# INTRODUCTION

- Your lift truck must be used with interchangeable equipment. These items are called: ATTACHMENTS.

- A wide range of attachments, specially designed and perfectly suitable for your lift truck is available and guaranteed by MANITOU.

- The attachments are delivered with a load chart concerning your lift truck. The operator's manual and the load chart should be kept in the places provided in the lift truck. For standard attachments, their use is governed by the instructions contained on this notice.

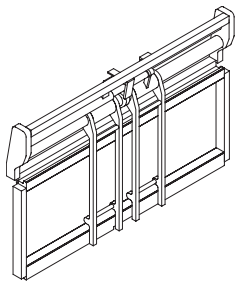
- Some particular uses require the adaptation of the attachment which is not provided in the price-listed options. Optional solutions exist, consult your dealer.

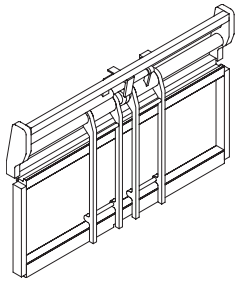
***All attachments with a suspended load (winch, crane jib, crane jib with winch, hook, etc.) MUST be used with a lift truck equipped with a hydraulic movement cut-out device. In this case, the movement cut-out must be switched on and the transverse attitude perfectly horizontal.***

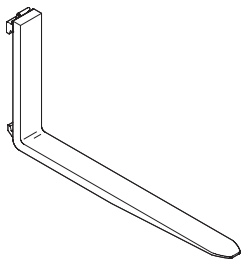
***Only attachments approved by MANITOU are to be used on our lift trucks (see: 4 - ADAPTABLE ATTACHMENTS IN OPTION ON THE RANGE: TECHNICAL SPECIFICATIONS OF ATTACHMENTS). The manufacturer's liability will be denied in case of modification or of attachment adaptation carried out without his knowing it.***

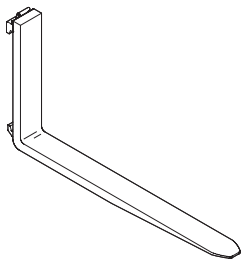
***Maximum loads are defined by the capacity of a lift truck taking account of the attachment's mass and centre of gravity. In the event of the attachment having less capacity than the lift truck, never exceed this limit.***

# TECHNICAL SPECIFICATIONS OF ATTACHMENTS

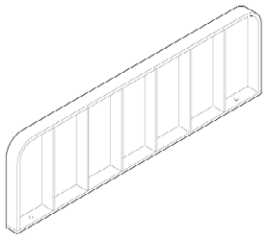
| FORK POSITIONER | | | | |
|---|---|---|---|---|
| ME 425 | | | |  |
| | FK 25 10A * | FK 25 10A *** | | |
| **PART NUMBER** | **662686** | **662689** | | |
| Rated capacity | 2500 Kg | 2500 Kg | | |
| Spacing | 340-915 mm | 340-915 mm | | |
| Width | 1040 mm | 1040 mm | | |
| Weight | 110 kg | 110 kg | | |
| | | | | |
| | | | | |

| FORK POSITIONER | | | | |
|---|---|---|---|---|
| ME 430 | | | |  |
| | FK 35 10B * | FK 35 10B *** | | |
| **PART NUMBER** | **662687** | **662690** | | |
| Rated capacity | 3000 Kg | 3000 Kg | | |
| Spacing | 370-965 mm | 370-965 mm | | |
| Width | 1100 mm | 1100 mm | | |
| Weight | 140 kg | 140 kg | | |
| | | | | |
| | | | | |

| STANDARDISED FORK | | | | |
|---|---|---|---|---|
| ME 425 | | | |  |
| **PART NUMBER** | **415645** | | | |
| Section | 100 x 40 x 1150 mm | | | |
| Weight | 44,5 kg | | | |
| | | | | |
| **PART NUMBER** | **415776** | **415691** | **415692** | |
| Section | 100 x 40 x 1000 mm | 100 x 40 x 1200 mm | 100 x 40 x 1500 mm | |
| Weight | 40 kg | 44 kg | 60 kg | |
| | | | | |

| STANDARDISED FORK | | | | |
|---|---|---|---|---|
| ME 430 | | | |  |
| **PART NUMBER** | **415305** | | | |
| Section | 125 x 45 x 1150 mm | | | |
| Weight | 71 kg | | | |
| | | | | |
| **PART NUMBER** | **415898** | **415693** | **415694** | |
| Section | 100 x 45 x 1000 mm | 100 x 45 x 1200 mm | 100 x 45 x 1500 mm | |
| Weight | 51,5 kg | 58 kg | 72 kg | |
| | | | | |

* : Double mast with all-round vision
*** : Triple mast with free-acting lift

| LOAD BACK REST | | | | |
|---|---|---|---|---|
| ME 425 | | | |  |
| **PART NUMBER** | **728128** | | | |
| Width | 1040 mm | | | |
| Weight | 18,5 Kg | | | |
| | | | | |
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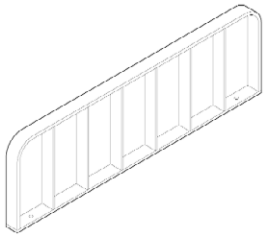
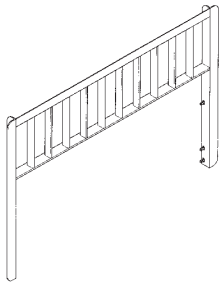
| LOAD BACK REST | | | | |
|---|---|---|---|---|
| ME 430 | | | |  |
| **PART NUMBER** | **728129** | | | |
| Width | 1100 mm | | | |
| Weight | 17 kg | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

| LOAD BACK REST | | | | |
|---|---|---|---|---|
| ME 425 | | | |  |
| **PART NUMBER** | **662724** | | | |
| Width | 1038 mm | | | |
| Weight | | | | |
| | | | | |
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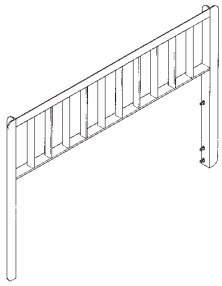
| | | | | |

| LOAD BACK REST | | | | |
|---|---|---|---|---|
| ME 430 | | | |  |
| **PART NUMBER** | **662725** | | | |
| Width | 1150 mm | | | |
| Weight | | | | |
| | | | | |
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# ATTACHMENT SHIELDS

| FORK PROTECTOR | | | | |
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| **REFERENCE** | **227801** | | | |
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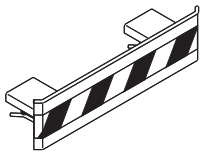



547943EN (10/10/2013)