



**MANITOU ITALIA S.r.l.**  
**Via Cristoforo Colombo, 2 - Località Cavazzona**  
**41013 CASTELFRANCO EMILIA (MO) - ITALIA**  
**Tel. +39 059 95 98 11 - Fax +39 059 95 98 50**

YOUR DEALER

DRAFT

648777 IT (21/09/2013)

**MLT 960**

**OPERATOR'S MANUAL**

*(ORIGINAL INSTRUCTIONS)*



✓

**IMPORTANT**

*Carefully read and understand this instruction manual before using the lift truck.*

*It contains all information relating to operation, handling and lift truck equipment,  
as well as important recommendations to be followed.*

*This document also contains precautions for use, as well as information on the servicing and routine maintenance required  
to ensure the lift truck's continued safety of use and reliability.*

**WHenever you see this symbol it means:**



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

- This manual has been produced on the basis of the equipment list and the technical characteristics given at the time of its design.
- The level of equipment of the lift truck depends on the options chosen and the country of sale.
- According to the lift truck options and the date of sale, certain items of equipment/functions described herein may not be available.
- Descriptions and figures are non binding.
- MANITOU reserves the right to change its models and their equipment without being required to update this manual.
- The MANITOU network, consisting exclusively of qualified professionals, is at your disposal to answer all your questions.
- This manual is an integral part of the lift truck.
- It is to be kept in its storage space at all times for ease of reference.
- Hand this manual to the new owner if the lift truck is resold.

21/09/2013	1ST DATE OF ISSUE
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**1 - OPERATING AND SAFETY INSTRUCTIONS**

**2 - DESCRIPTION**

**3 - MAINTENANCE**

**4 - ADAPTABLE ATTACHMENTS IN OPTION ON THE RANGE**

DRAFT



# ***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.

### ⚠ IMPORTANT ⚠

*Experience has shown that there are a number of inappropriate ways in which the lift truck might be used. Such foreseeable misuse, of which the main examples are listed below, are strictly forbidden.*

- *The foreseeable abnormal behaviour resulting from ordinary negligence, but which 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 effort" 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, operators tempted to operate a truck for the purposes of a bet, a competition or for their own personal experience.*
- The person in charge of the equipment must take these criteria into account when assessing the suitability of a person to drive.*

## THE LIFT TRUCK

### A - THE 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 standard **EN 1459** for variable range 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, revolving light, reverse lights, reverse buzzer alarm, front light, rear light, light at the jib head, etc. (according to the lift truck model).
- 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 AND FUEL).
  - Adaptation of lubricants (ask your dealer for information).
  - Engine filtration (see: 3 - MAINTENANCE: FILTERS CARTRIDGES AND BELTS).

### ⚠ IMPORTANT ⚠

*For operation under average climatic conditions, i.e.: between -15 °C and +35 °C, 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.*

*The same applies to the cooling liquid.*

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

### ⚠ IMPORTANT ⚠

*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 flammable products, etc.).*

*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 standard 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 standard (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 cannot therefore be measured 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.

### 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, engine speed, addition of extra equipment, addition of counterweight, unapproved attachments, alarm systems, etc.) yourself. In this event, the manufacturer cannot be held responsible.

### D - FRENCH ROAD TRAFFIC RULES

(or see current legislation in other countries)

- Only one certificate of conformity is issued. It must be kept in a safe place.
- The driving of non EC type-approved tractors on the public highway is subject to the provisions of the highway code relating to special machines, defined in article R311-1 of the highway code, in category B of the Equipment Order of 20 November 1969 that determines the procedures applicable to special machines. The lift truck must be fitted with a licence plate.
- The driving of EC type-approved tractors on the public highway is subject to the provisions of the highway code regarding agricultural tractors, defined in article R311-1 of the highway code. The lift truck must be registered.

### SPECIAL INSTRUCTION APPLYING TO "EC TRACTOR" TYPE-APPROVED LIFT TRUCKS

- All EC tractor type-approved lift trucks are supplied with an "EC tractor" certificate complying with directive 2003/37/EC, to be retained by the owner, and a page of administrative details together with a CNIT number (national type approval code) for registration at the prefecture.
- The lift truck owner is responsible for carrying out the necessary procedures for obtaining the vehicle registration document within the time limit defined by the regulations.
- The operator must hold an HGV licence, unless granted an exemption.
- The lift truck must be driven on the public highway in accordance with the instructions given in the manual supplied with the lift truck (Gross weight, Gross combination weight, towing load, axle loads, maximum speeds, etc. according to type/version). The operator must be in possession of the lift truck's registration document.

#### ⚠ IMPORTANT ⚠

*When towing a trailer or agricultural equipment, the travelling speed of the lift truck is limited to 25 km/h.  
In this case, a "25" disc must be affixed to the rear of the convoy.*

### E - LIFT TRUCK CAB PROTECTION

- All lift trucks comply with the requirements of ISO 3471 (wheel loader code) regarding cab rollover protection (ROPS) and ISO 3449 (Level II) regarding the protection of the cab against falling objects (FOPS).
- "EC TRACTOR" type-approved lift trucks comply, in addition, with Directive 79/622/EC (OECD Code 4) regarding cab rollover protection (ROPS).

#### ⚠ IMPORTANT ⚠

*Structural damage or overturning, a modification, changes or a poorly executed repair can reduce the protective efficiency of the cab, cancelling its compliance.  
Do not perform welding or drilling on the cab structure.  
Consult your dealer to determine the limits of this structure without cancelling its compliance.*

## 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.

#### ⚠ IMPORTANT ⚠

*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.*

- Example for France "The manager in charge of the establishment using a lift truck must open and maintain a maintenance log for each machine (order of 2 March 2004) and undergo a general periodic inspection every 6 months (order of 1 March 2004)".

# INSTRUCTIONS FOR THE OPERATOR

## PREAMBLE

### ⚠ IMPORTANT ⚠

*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. 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.*

- Only the operations and manoeuvres 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.

### ⚠ IMPORTANT ⚠

*In order to reduce or avoid any danger with a MANITOU-approved attachment, follow the instructions of paragraph:  
4 - ADAPTABLE ATTACHMENTS IN OPTION ON THE RANGE: INTRODUCTION.*

## 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 - AUTHORISATION FOR USE IN FRANCE

*(or see current legislation in other countries).*

- 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.
- 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: FRONT AND REAR TYRES). There are optional solutions, consult your dealer.
  - SAND tyres.
  - LAND tyres.
  - Snow chains.

### ⚠ IMPORTANT ⚠

*Do not use the lift truck if the tyres are incorrectly inflated, 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.*

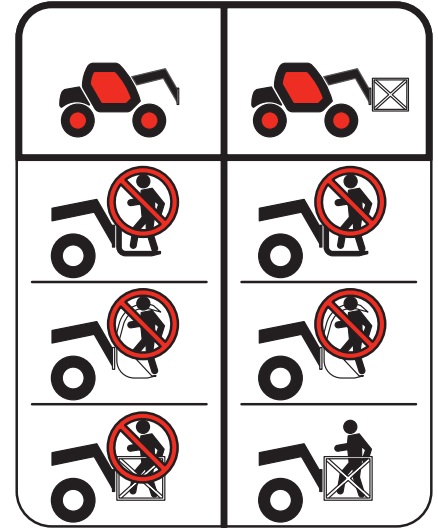
*The fitting of foam inflated tyres is prohibited and is not guaranteed by the manufacturer, excepting prior authorisation.*

### 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, 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).
- The pictogram posted at the operator station reminds you that:
  - Left-hand column
    - It is forbidden to lift people, with any kind of attachment, using a non PLATFORM-fitted lift truck.
  - Right-hand column
    - With a PLATFORM-fitted lift truck, people can only be lifted using platforms designed by MANITOU for the purpose.
- MANITOU sells equipment specifically designed for lifting people (OPTION PLATFORM lift truck, contact your dealer).



## OPERATING INSTRUCTIONS UNLADEN AND LADEN

### A - BEFORE STARTING THE LIFT TRUCK

- Perform the daily service (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.

#### ⚠ IMPORTANT ⚠

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

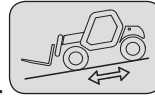
- The operator must always be in his normal position in the driver's cab. It is prohibited to have arms or legs, or generally any part of the body, protruding from the driver's cab of the lift truck.
- The safety belt must be worn and adjusted to the operator's size.
- The control units must never in 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

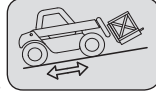
- Comply with site safety regulations.
- If you have to use the lift truck in a dark area or at night, make sure it is equipped with working lights.
- During handling operations, make sure that no one is in the way of the lift truck and its load.
- Do not allow anybody to come near the working area of the lift truck or pass beneath an elevated load.
- When using the lift truck on a transverse slope, before lifting the boom, follow the instructions given in the paragraph: INSTRUCTIONS FOR HANDLING A LOAD: D - TRANSVERSE ATTITUDE OF THE LIFT TRUCK.



- Travelling 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 and/or stabilizers before lifting or removing the load. If necessary, add sufficient wedging under the stabilizers.
- 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.

#### **⚠ IMPORTANT ⚠**

*If the load or the attachment must remain above a structure for a prolonged period of time, there is the risk that it will bear on the structure as the boom descends due to cooling of the oil in the cylinders.*

*To eliminate this risk:*

*- Regularly check the distance between the load or the attachment and the structure and readjust this if necessary.*

*- If possible use the lift truck at an oil temperature as close as possible to ambient temperature.*

- When working near aerial lines, ensure that the safety distance is sufficient between the working area of the lift truck and the aerial line.

#### **⚠ IMPORTANT ⚠**

*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 jeopardises 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 travelling with no load and with the boom 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 manoeuvre (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.
- Certain special accessories may require the truck to travel with the boom in the raised position. In such cases, visibility on the right hand side is restricted, and special precautions must be taken:
  - site layout,
  - assisted by a person directing the manoeuvre (while standing outside the truck's area of travel).
  - replacement of a suspended load by a load on a pallet.
- If visibility of your road is inadequate, ask someone to assist by directing the manoeuvre (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

#### **⚠ IMPORTANT ⚠**

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

- Never try to start the lift truck by pushing or towing it. Such operation may cause severe damage to the transmission. If necessary, to tow the lift truck in an emergency, the transmission must be placed in the neutral position (see: 3 - MAINTENANCE: G - OCCASIONAL MAINTENANCE).
- If using an emergency battery for start-up, use a battery with the same characteristics and respect battery polarity when connecting it. Connect at first the positive terminals before the negative terminals.

#### **⚠ IMPORTANT ⚠**

*Failure to respect polarity between batteries can cause serious damage to the electrical circuit.*

*The electrolyte in the battery may produce an explosive gas. Avoid flames and generation of sparks close to the batteries.*

*Never disconnect a battery while it is charging.*

### INSTRUCTIONS

- Check the closing and locking of the hood(s).
- Check that the cab door is closed.
- Check that the forward/reverse selector is in neutral, and that the parking brake is applied.
- Press on the service brake pedal and maintain it down.
- Turn the ignition key to the position I to activate the electrical and pre-heating system.
- Whenever you switch on the lift truck, perform the automatic check on the longitudinal stability limiter and warning device (see: 2 - DESCRIPTION: INSTRUMENTS AND CONTROLS). Do not use the lift truck if it does not conform to the regulations.
- Check the fuel level on the indicator.
- Turn the ignition key fully, the engine should then start. Release the ignition key and let the engine run at idle.
- Do not engage the starter motor for more than 15 seconds and carry out the preheating between unsuccessful attempts.
- Make sure all the signal lights on the control instrument panel are off.
- Check all control instruments when the engine is warm and 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, stop the engine and immediately carry out the necessary operations.

## F - DRIVING THE LIFT TRUCK

### SAFETY INSTRUCTIONS

#### **⚠ IMPORTANT ⚠**

*The 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, the boom retracted 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 pallets, 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 boom controls when the lift truck is moving.
- Never change the steering mode whilst driving.
- Do not manoeuvre the lift truck with the boom 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 forward/reverse selector 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.
- Never leave the engine on when the lift truck is unattended.

- 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 bulky 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, the boom retracted and the carriage sloping backwards.
- For lift trucks with gearboxes, use the recommended gear (see: 2 - DESCRIPTION: INSTRUMENTS AND CONTROLS).
- Select the steering mode appropriate for its use and/or working conditions (see: 2 - DESCRIPTION: INSTRUMENTS AND CONTROLS) (as model of lift truck).
- Release the hand brake.
- Shift the forward/reverse selector to the selected direction of travel and accelerate gradually until the lift truck moves off.

### **⚠ IMPORTANT ⚠**

*Starting and driving a lift truck on a slope can present a very real danger.*

*The lift truck being parked or stopped, scrupulously follow the following instructions for moving off:*

- *Press the service brake pedal.*
- *Engage 1st or 2nd gear and select forward or reverse.*
- *Check that there is nothing and no-one obstructing the lift truck's path.*
- *Release the service brake pedal and increase the engine revs.*

*The risk is increased if the lift truck is laden or towing a trailer, requiring extreme vigilance.*

## **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 place the forward/reverse selector 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, particularly from frost (check the level of antifreeze), close and lock all the lift truck accesses (doors, windows, cowls, etc.).

## INSTRUCTIONS

- Park the lift truck on flat ground or on an incline lower than 15 %.
- Set the forward/reverse selector to neutral.
- Engage the parking brake.
- For lift trucks with gearboxes, place the gear lever in neutral.
- Fully retract the boom.
- 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.
- Before stopping the lift truck after a long working period, leave the engine idling for a few moments, to allow the coolant liquid and oil to lower the temperature of the engine and transmission. Do not forget this precaution, in the event of frequent stops or warm stalling of the engine, or else the temperature of certain parts will rise significantly due to the stopping of the cooling system, with the risk of badly damaging such parts.
- Stop the engine with the ignition switch.
- Remove the ignition key.
- Lock all the accesses to the lift truck (doors, windows, cowls...).

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

(or see current legislation in other countries)

### FRENCH ROAD TRAFFIC RULES

- The driving of non EC type-approved tractors on the public highway is subject to the provisions of the highway code relating to special machines, defined in article R311-1 of the highway code, in category B of the Equipment Order of 20 November 1969 that determines the procedures applicable to special machines. The lift truck must be fitted with a licence plate.
- The driving of EC type-approved tractors on the public highway is subject to the provisions of the highway code regarding agricultural tractors, defined in article R311-1 of the highway code. The lift truck must be registered.
- The lift truck must be driven on the public highway in accordance with the instructions given in the manual supplied with the lift truck (Gross weight, Gross combination weight, towing load, axle loads, maximum speeds, etc. according to type/version). The operator must be in possession of the lift truck's registration document.
- The operator must hold an HGV licence, unless granted an exemption.
- When towing a trailer or agricultural equipment, the travelling speed of the lift truck is limited to 25 km/h. In this case, a "25" disc must be affixed to the rear of the convoy. When driving with a trailer, the fact of not engaging 4th gear will ensure compliance with the towing speed limit (max. 25 km/h). On "POWERSHIFT" models, as 3rd gear is slower than on other models, it is preferable to use 5th gear and disable automatic upshifting to 6th gear (see: 2 - DESCRIPTION: INSTRUMENTS AND CONTROLS).

### 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.
- Select the steering mode "HIGHWAY TRAFFIC" (as model of lift truck) (see: 2 - DESCRIPTION: INSTRUMENTS AND CONTROLS).
- Fully retract the boom and set the attachment approximately 300 mm off the ground.
- Place the roll corrector in the central position, i.e. the transverse axis of the axles parallel to the chassis (as model of lift truck).
- Fully raise the stabilizers and turn the blocks inwards (according to model of lift truck).

#### **⚠ IMPORTANT ⚠**

*Never coast in neutral (forward/reverse selector or gear lever in neutral or transmission cut-off button pressed) to preserve the lift truck engine brake. Failure to observe this instruction on a slope will lead to excessive speed which may make the lift truck uncontrollable (steering, brakes) and cause serious mechanical damage.*

### 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 (see: 2 - DESCRIPTION: CHARACTERISTICS).

**IF NECESSARY, CONSULT YOUR DEALER.**

### A - CHOICE OF ATTACHMENTS

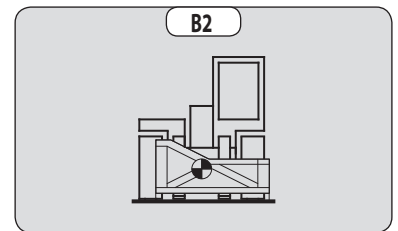
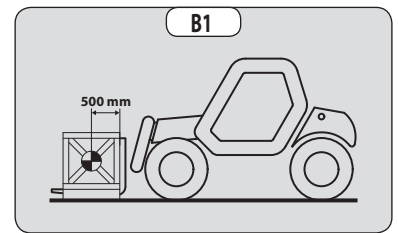
- Only attachments approved by MANITOU can be used on its lift trucks.
- Make sure the attachment is appropriate for the work to be done (see: 4 - ADAPTABLE ATTACHMENTS IN OPTION ON THE RANGE).
- If the lift truck is equipped with the Single side-shift carriage OPTION (TSDL), use only the authorised attachments (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, as the sling risks to slip (see: INSTRUCTIONS FOR HANDLING A LOAD: H - TAKING UP AND LAYING DOWN A SUSPENDED LOAD).
- Do not handle loads that are hung directly from the forks with straps (e.g.: big-bag), as there is a risk that the straps will shear against the sharp edges. Use an attachment designed for this purpose.

### 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 mm from the base of the forks (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.

#### ⚠ IMPORTANT ⚠

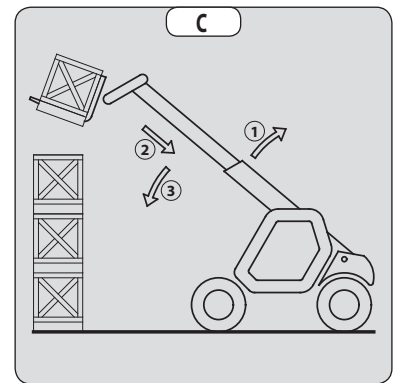
*It is forbidden to move a load heavier than the effective capacity defined on the lift truck load chart.  
For loads with a moving centre of gravity (e.g. liquids), take account of the variations in the centre of gravity in order to determine the load to be handled and be vigilant and take extra care to limit these variations as far as possible.*



### C - LONGITUDINAL STABILITY LIMITER AND WARNING DEVICE

This device gives an indication of the longitudinal stability of the lift truck, and limits hydraulic movements in order to ensure this stability, at least under the following operating conditions:

- when the lift truck is at a standstill,
  - when the lift truck is on firm, stable and consolidated ground,
  - when the lift truck is performing handling and placing operations.
- Move the jib very carefully when approaching the authorized load limit (see: 2 - DESCRIPTION: INSTRUMENTS AND CONTROLS).
  - Always watch this device during handling operations.
  - In the event that "AGGRAVATING" hydraulic movements are cut-off, only perform de-aggravating hydraulic movements in the following order (fig. C): if necessary, raise the jib (1), retract the jib as far as possible (2) and lower the jib (3) to set down the load.



#### ⚠ IMPORTANT ⚠

*The instrument reading may be erroneous when the steering is at full lock or the rear axle is oscillated to its maximum extent.  
Before lifting a load, make sure that the lift truck is not in either of these situations.*

## D - TRANSVERSE ATTITUDE OF THE LIFT TRUCK

Depending on the model of lift truck

The transverse attitude is the transverse slope of the chassis with respect to the horizontal.

Raising the jib reduces the lift truck's lateral stability. The transverse attitude must be set with the jib in down position as follows:

### 1 - LIFT TRUCK WITHOUT ROLL CORRECTOR USED ON TYRES

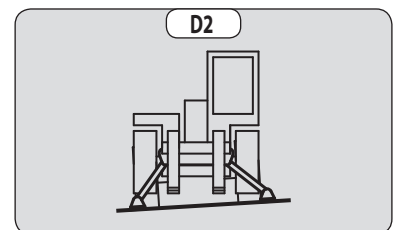
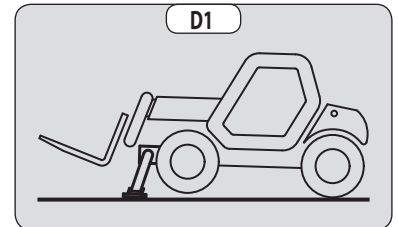
- Position the lift truck so that the bubble in the level is between the two lines (see: 2 - DESCRIPTION: INSTRUMENTS AND CONTROLS).

### 2 - LIFT TRUCK WITH ROLL CORRECTOR USED ON TYRES

- Correct the roll using the hydraulic control and check horizontality with the spirit level. The bubble in the level must be between the two lines (see: 2 - DESCRIPTION: INSTRUMENTS AND CONTROLS).

### 3 - LIFT TRUCK USED ON STABILIZERS

- Set the two stabilizers on the ground and raise the two front wheels of the lift truck (fig. D1).
- Correct the roll using the stabilizers (fig. D2) and check horizontality with the spirit level. The bubble of the level must be between the two lines (see: 2 - DESCRIPTION: INSTRUMENTS AND CONTROLS). In this position, the two front wheels must be off the ground.



## E - TAKING UP A LOAD ON THE GROUND

- Approach the lift truck perpendicular to the load, with the jib retracted and the forks in a horizontal position (fig. E1).
- Adjust the fork spread and centring relative to the load to ensure stability (fig. E2) (optional solutions exist, consult your dealer).
- Never lift a load with a single fork.

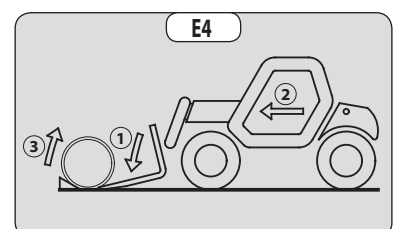
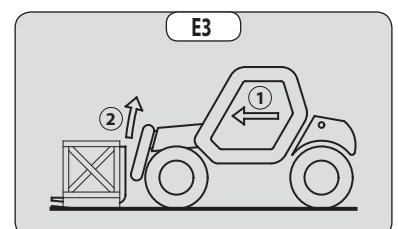
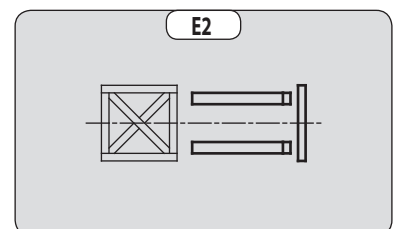
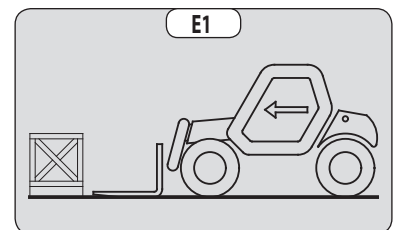
### ⚠ IMPORTANT ⚠

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

- Move the lift truck forward slowly (1) and insert the forks under the load as far as they will go (fig. E3). If necessary, slightly lift the jib (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-PALLETISED LOAD

- Tilt the carriage (1) forwards and move the lift truck slowly forwards (2), to insert the fork under the load (fig. E4) (block the load if necessary).
- Continue to move the lift truck forwards (2) tilting the carriage (3) (fig. E4) backwards to position the load on the forks and check the load's longitudinal and lateral stability.



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

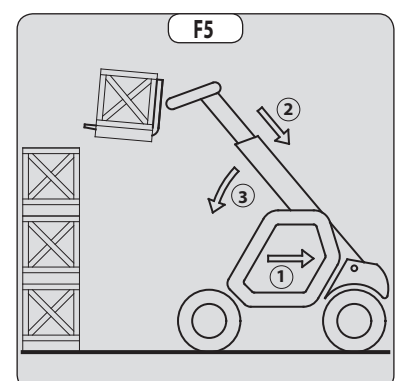
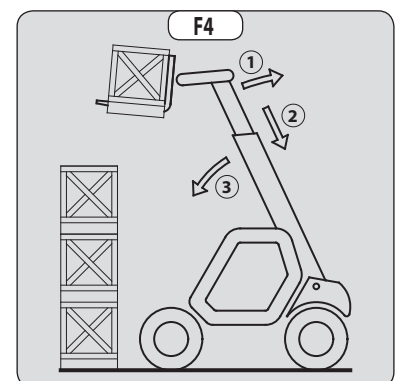
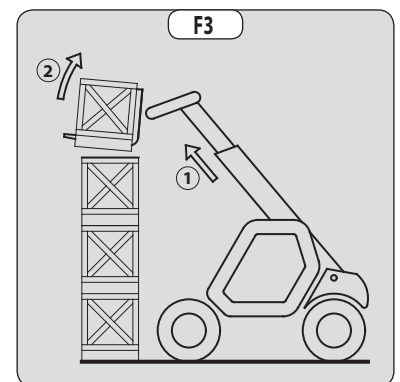
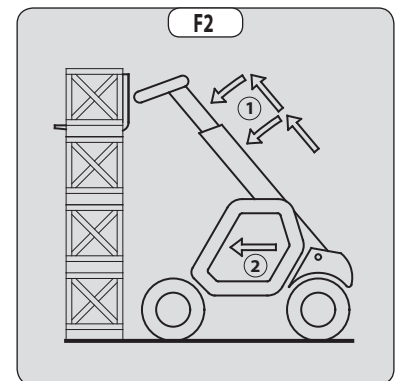
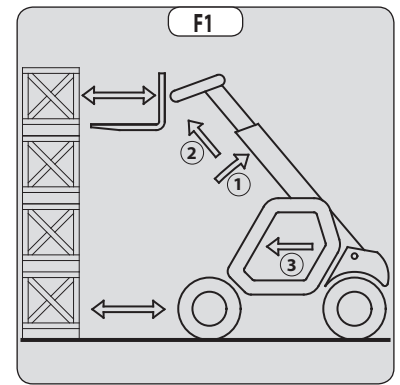
### ⚠ IMPORTANT ⚠

*You must not raise the jib if you have not checked the transverse attitude of the lift truck (see: INSTRUCTIONS FOR HANDLING A LOAD: D - 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

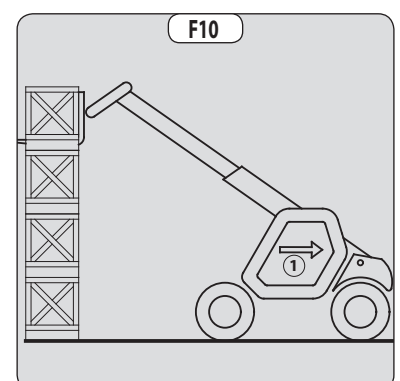
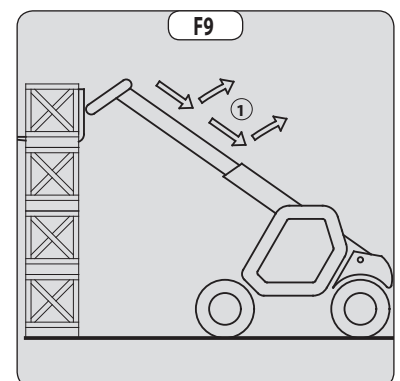
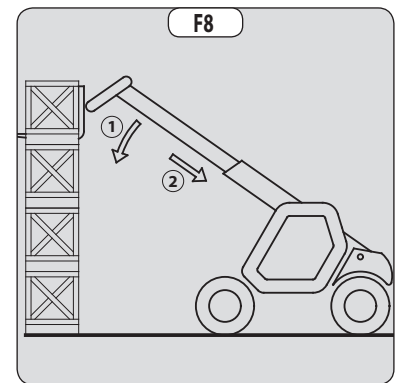
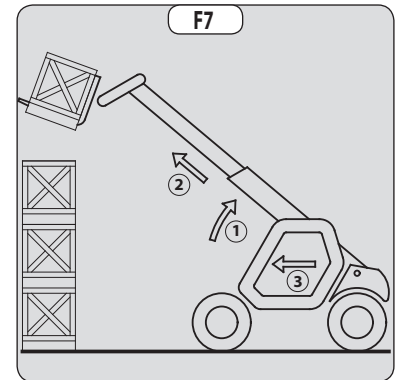
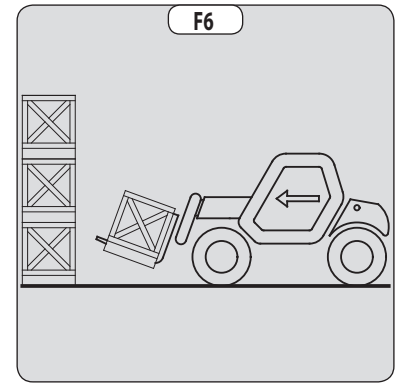
- Ensure that the forks will easily pass under the load.
- Lift and extend the jib (1) (2) until the forks are level with the load, moving the lift truck (3) forward if necessary (fig. F1), moving very slowly and carefully.
- Always remember to keep the distance necessary for inserting the forks under the load, between the stack and the lift truck (fig. F1) and use the shortest possible length of jib.
- Insert the forks under the load as far as they will go by alternately extending and lowering the jib (1) or, if necessary, moving the lift truck forward (2) (fig. F2). Apply the handbrake and place the forward/reverse selector in neutral.
- Slightly raise the load (1) and tilt the carriage (2) backwards to stabilize the load (fig. F3).
- Tilt the load sufficiently backwards to ensure its stability.
- Monitor the longitudinal stability limiter and warning device (see: INSTRUCTIONS FOR HANDLING A LOAD: C - LONGITUDINAL STABILITY LIMITER AND WARNING DEVICE). If it is overloaded, set the load back down in the place from which it was taken.
- If possible lower the load without shifting the lift truck. Lift the jib (1) to release the load, retract (2) and lower the jib (3) to bring the load into the transport position (fig. F4).
- If this is not possible, back up the lift truck (1), manoeuvring very gently and carefully to release the load. Retract (2) and lower the jib (3) to bring the load into the transport position (fig. F5).





## LAYING A HIGH LOAD ON TYRES

- Approach the load in the transport position in front of the stack (fig. F6).
- Apply the parking brake and place the forward/reverse selector in neutral.
- Raise and extend the jib (1) (2) until the load is above the stack, while monitoring the longitudinal stability limiter and warning device (see: INSTRUCTIONS FOR HANDLING A LOAD: C - LONGITUDINAL STABILITY LIMITER AND WARNING DEVICE). If necessary, move the lift truck (3) forward (fig. F7), driving very slowly and carefully.
- Place the load in a horizontal position and lay it down on the pile by lowering and retracting the jib (1) (2) in order to position the load correctly (fig. F8).
- If possible, release the fork by alternately retracting and raising the jib (1) (fig. F9). Then set the forks into transport position.
- If this is not possible, reverse the lift truck (1) very slowly and carefully to release the forks (fig. F10). Then set them into transport position.



## G - TAKING UP AND LAYING A HIGH LOAD ON STABILIZERS

Depending on the model of lift truck

### ⚠ IMPORTANT ⚠

*You must not raise the jib if you have not checked the transverse attitude of the lift truck (see: INSTRUCTIONS FOR HANDLING A LOAD: D - 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).

The stabilizers are used to optimise the lift truck's lifting performances (see: 2 - DESCRIPTION: INSTRUMENTS AND CONTROLS).

POSITION THE STABILIZERS WITH THE FORKS IN TRANSPORT POSITION (UNLADEN AND LADEN)

- Set the forks in transport position in front of the elevation.
- Stay far enough away to have room for the jib to be raised.
- Apply the parking brake and place the forward/reverse selector in neutral.
- Set the two stabilizers on the ground and lift the two front wheels of the lift truck (fig. G1), while maintaining its transverse stability.

RAISE THE STABILIZERS WITH THE FORKS IN TRANSPORT POSITION (UNLADEN AND LADEN)

- Raise both stabilizers fully and at the same time.

LOWERING OF STABILISERS WITH JIB UP (UNLADEN AND LADEN).

### ⚠ IMPORTANT ⚠

*This operation must be exceptional and performed with great care.*

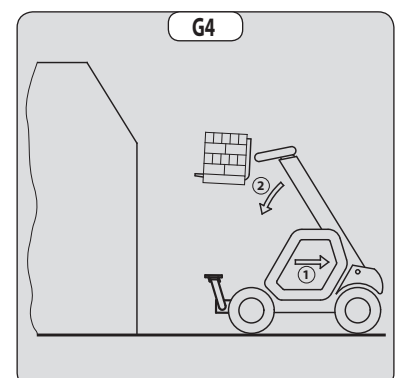
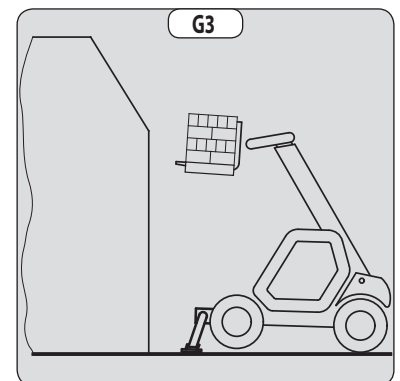
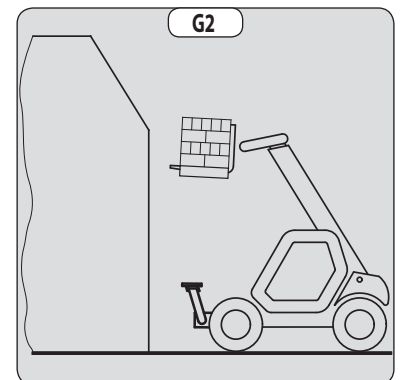
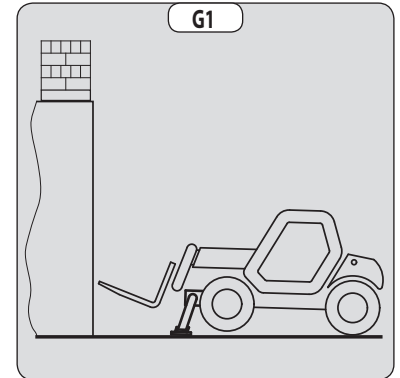
- Raise the jib and retract the telescopes completely.
- Set the lift truck in position in front of the elevation (fig. G2) moving very slowly and carefully.
- Apply the parking brake and place the forward/reverse selector in neutral.
- Move the stabilizers very slowly and gradually as soon as they are close to the ground or in contact with it.
- Lower the two stabilizers and lift the two front wheels of the lift truck (fig. G3). During this operation, transverse attitude must be permanently maintained: the bubble in the level must be kept between the two lines.

SETTING THE STABILIZERS WITH THE JIB UP (UNLADEN AND LADEN)

### ⚠ IMPORTANT ⚠

*This operation must be exceptional and performed with great care.*

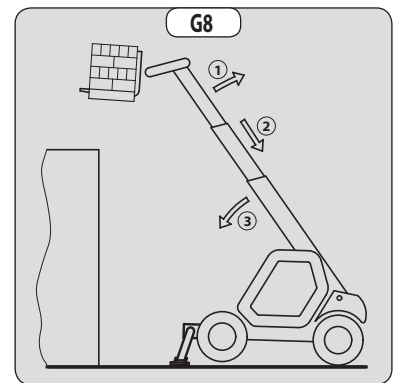
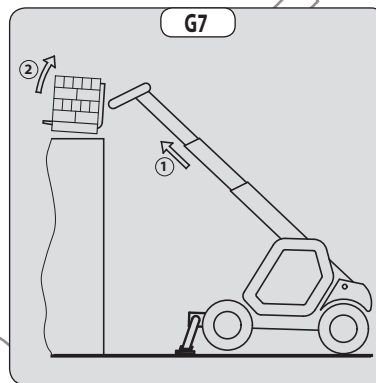
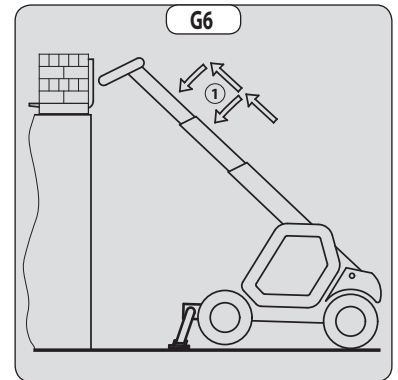
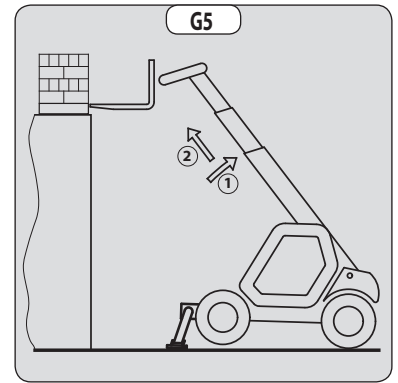
- Keep the jib up and retract the telescopes completely (fig. G3).
- Move the stabilizers very slowly and gradually as soon as they are in contact with the ground and when they leave the ground. During this operation, the transverse attitude must be permanently maintained: the bubble in the level must be kept between the two lines.
- Raise both stabilizers completely.
- Release the parking brake and reverse the lift truck (1) very slowly and carefully, to release it and lower the forks (2) into transport position (fig. G4).





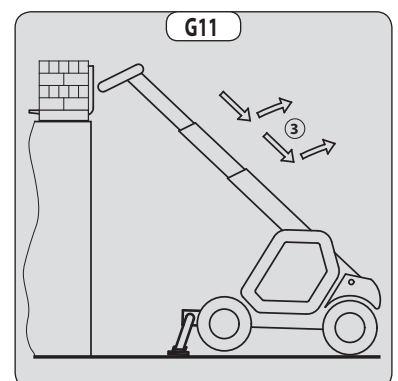
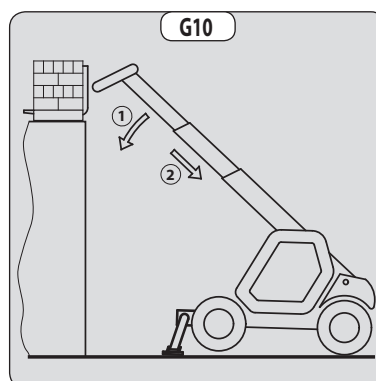
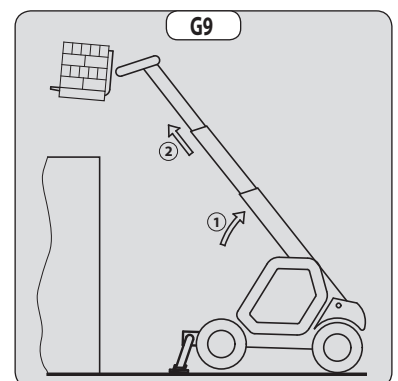
## TAKING UP A HIGH LOAD ON STABILISERS

- Ensure that the forks will easily pass under the load.
- Check the position of the lift truck with respect to the load and make a test run, if necessary, without taking the load.
- Raise and extend the jib (1) (2) until the forks are at the level of the load (fig. G5).
- Insert the forks under the load as far as they will go by alternately extending and lowering the jib (1) (fig. G6).
- Lift the load slightly (1) and tilt the carriage (2) backwards to stabilise the load (fig. G7).
- Monitor the longitudinal stability limiter and warning device (see: INSTRUCTIONS FOR HANDLING A LOAD: C - LONGITUDINAL STABILITY LIMITER AND WARNING DEVICE). If it is overloaded, set the load back down in the place from which it was taken.
- If possible lower the load without moving the lift truck. Raise the jib (1) to release the load, retract (2) and lower the jib (3) to set the load into transport position (fig. G8).



## LAYING A HIGH LOAD ON STABILISERS

- Raise and extend the jib (1) (2) until the load is above the elevation (fig. G9), while monitoring the longitudinal stability limiter and warning device (see: INSTRUCTIONS FOR HANDLING A LOAD: C - LONGITUDINAL STABILITY LIMITER AND WARNING DEVICE).
- Position the load horizontally and release it by lowering and retracting the jib (1) (2) to position the load correctly (fig. G10).
- Free the forks by alternating retracting and raising the jib (3) (fig. G11).
- If possible, set the jib in transport position without moving the lift truck.



## H - TAKING UP AND LAYING DOWN A SUSPENDED LOAD

### **⚠ IMPORTANT ⚠**

*Failure to follow the above instructions may lead the lift truck to loose stability and overturn.  
MUST be used with a lift truck equipped with an operational hydraulic movement cut-out device.*

#### CONDITIONS OF USE

- The length of the sling or the chain shall be as short as possible to limit swinging of the load.
- Lift the load vertically along its axis, never by pulling sideways or lengthways.

#### HANDLING WITHOUT MOVING THE LIFT TRUCK

- Whether on stabilisers or on tyres, the lateral attitude must not exceed 1 % and the longitudinal attitude must not exceed 5%, the bubble of the level must be held at "0".
- Ensure that the wind speed is not higher than 10 m/s.
- Ensure that there is no one between the load and the lift truck.

#### I - TRAVELLING WITH A SUSPENDED LOAD

- Before moving, inspect the terrain in order to avoid excessive slopes and cross-falls, bumps and potholes, or soft ground.
- Ensure that the wind speed is not higher than 36 km/h.
- The lift truck must not travel at more than 0,4 m/s (1,5 km/h, i.e., one quarter walking speed).
- Drive and stop the lift truck gently and smoothly to minimise swinging of the load.
- Carry the load a few centimetres above the ground (max. 30 cm) the shortest possible jib length. Do not exceed the offset indicated on the load chart. If the load begins to swing excessively, do not hesitate to stop and lower the jib to set down the load.
- Before moving the lift truck, check the longitudinal stability limiter and warning device (see: 2 - DESCRIPTION: INSTRUMENTS AND CONTROLS), only the green LEDs and possible the yellow LEDs should be lit.
- During transport, the lift truck operator must be assisted by a person on the ground (standing a minimum of 3 m from the load), who will limit swinging of the load using a bar or a rope. Ensure that this person is always clearly in view.
- The lateral attitude must not exceed 5 %, the bubble in the level must be kept between the two "MAX" marks
- The longitudinal attitude must not exceed 15 %, with the load facing uphill, and 10%, with the load facing downhill.
- The jib angle must not exceed 45°.
- If the first red LED of longitudinal stability limiter and warning device (see: 2 - DESCRIPTION: INSTRUMENTS AND CONTROLS) comes on while travelling, gently bring the lift truck to a halt and stabilise the load. Retract the telescope to reduce the offset of the load.

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## PLATFORM OPERATING INSTRUCTIONS

For lift trucks fitted with a PLATFORM

### ⚠ IMPORTANT ⚠

*Installation of the platform on the lift truck is only possible if the shields "operating the platform" of the lift truck and the platform are identical (see: 2 - DESCRIPTION: OPERATING THE PLATFORM).*

#### A - AUTHORISATION FOR USE

- Operation of the platform requires further authorisation in addition to that of the lift truck.

#### B - LIFT TRUCK SUITABILITY FOR USE

- MANITOU has ensured that this platform is suitable for use under the normal operating conditions defined in this operator's manual, with a **STATIC** test coefficient **OF 1,25** and a **DYNAMIC** test coefficient **OF 1,1**, as specified in harmonised standard **EN 280** for "mobile elevating work platforms".
- Before commissioning, the company manager must make sure that platform is appropriate for the work to be done, and perform certain tests (in accordance with current legislation).

#### C - PRECAUTIONS WHEN USING THE PLATFORM

- Wear suitable clothing when using the platform, avoid loosely-fitting garments.
- Never operate the platform when hands or feet are wet or soiled with greasy substances.
- Remain alert at all times when using the platform. Do not listen to the radio or music using headphones or earphones.
- For increased comfort, adopt the correct position at the platform's operator station.
- The platform's guard rail exempts the operator from wearing a safety harness under normal operating conditions. As a result, you are responsible for deciding whether to wear a safety harness.
- 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.).
- Safety helmets must be worn.
- The operator must always be in the normal operator's position. It is prohibited to have arms or legs, or generally any part of the body, protruding from the basket.
- Ensure that any materials loaded onto the platform (pipes, cables, containers, etc.) cannot fall out. Do not pile these materials to the point where it is necessary to step over them.

#### D - USING THE PLATFORM

- However experienced they may be, operators must acquaint themselves with the emplacement and operation of all control instruments prior to operating the platform.
- Check before use that the platform has been correctly assembled and locked onto the lift truck.
- Check before operating the platform that the access gate has been properly locked.
- The platform should be operated in an area free of any obstructions or danger when it is lowered to the ground.
- The operator using the platform must be aided on the ground by a person with adequate training.
- You should stay within the limits set out in the platform load chart.
- The lateral stresses are limited pressure (see: 2 - DESCRIPTION: CHARACTERISTICS).
- It is strictly forbidden to hang a load from the platform or the lift truck jib without a specially designed attachment (see: INSTRUCTIONS FOR HANDLING A LOAD: H - TAKING UP AND LAYING DOWN A SUSPENDED LOAD).
- The platform cannot be used as a crane or a lift for permanently transporting people or materials, nor as jacks or supports.
- The lift truck must not be moved with one (or more) person(s) in the platform.
- It is forbidden to transport people on the platform using the hydraulic controls in the lift truck's driver's cab (except in case of rescue).
- The operator must not climb onto or off the platform when it is not on ground level (jib retracted and in the down position).
- The platform must not be fitted with attachments that increase the unit's wind load.
- Do not use ladders or improvised structures in the platform to gain extra height.
- Do not climb onto the sides of the platform to gain extra height.

#### E - ENVIRONMENT

### ⚠ IMPORTANT ⚠

*It is forbidden to use the platform close to electricity cables. Maintain the specified safe distances.*

RATED VOLTAGE	DISTANCE ABOVE GROUND OR FLOOR IN METRES
$50 < U < 1000$	2,30 M
$1000 < U < 30000$	2,50 M
$30000 < U < 45000$	2,60 M
$45000 < U < 63000$	2,80 M
$63000 < U < 90000$	3,00 M
$90000 < U < 150000$	3,40 M
$150000 < U < 225000$	4,00 M
$225000 < U < 400000$	5,30 M
$400000 < U < 750000$	7,90 M

# **⚠ IMPORTANT ⚠**

*It is strictly forbidden to use the platform when the wind speed exceeds 45 km/h.*

- To visually recognise this wind speed, refer to the empirical wind evaluation scale below:

BEAUFORT scale (wind speed at a height of 10 m on a flat site)						
Force	Type of wind	Speed (knots)	Speed (km/h)	Speed (m/s)	Effects on Land	Sea conditions
0	Calm	0 - 1	0 - 1	< 0,3	- Smoke rises vertically.	- Sea is like a mirror.
1	Light air	1 - 3	1 - 5	0,3 - 1,5	- Smoke indicates direction of wind.	- Ripples with appearance of scale, no foam crests.
2	Light breeze	4 - 6	6 - 11	1,6 - 3,3	- Wind felt on face, leaves rustle.	- Short wavelets, but pronounced.
3	Gentle breeze	7 - 10	12 - 19	3,4 - 5,4	- Leaves and small twigs in constant motion.	- Very small waves, crests begin to break.
4	Moderate breeze	11 - 16	20 - 28	5,5 - 7,9	- Wind raises dust and loose pieces of paper; small branches are moved.	- Small waves, becoming longer, numerous whitecaps.
5	Fresh breeze	17 - 21	29 - 38	8 - 10,7	- Small trees in leaf begin to sway.	- Wavelets form on inland waters; moderate waves, taking longer form.
6	Strong breeze	22 - 27	39 - 49	10,8 - 13,8	- Large branches in motion, whistling heard in overhead wires, umbrella use becomes difficult.	- Larger waves forming, whitecaps everywhere, some spray.
7	Near gale	28 - 33	50 - 61	13,9 - 17,1	- Whole trees in motion, inconvenience felt when walking against the wind.	- Sea heaps up; white foam from breaking waves begins to be blown in streaks along the direction of the wind.
8	Gale	34 - 40	62 - 74	17,2 - 20,7	- Wind breaks twigs off trees; impedes progress.	- Moderately high waves of greater length; edges of crests begin to break into spindrift.
9	Strong gale	41 - 47	75 - 88	20,8 - 24,4	- Wind damages roofs (chimneys, slates, etc.).	- High waves, crests of waves begin to topple, streaks of foam; reduced visibility.
10	Storm	48 - 55	89 - 102	24,5 - 28,4	- Seldom experienced inland; trees uprooted; considerable structural damage occurs.	- Very high waves; white streaks of foam; reduced visibility.
11	Violent storm	56 - 63	103 - 117	28,5 - 32,6	- Very rare, widespread damage.	- Exceptionally high waves able to hide medium sized ships from view, reduced visibility.
12	Hurricane	64 +	118 +	32,7 +	- Devastating damage.	- Sea completely white; air filled with foam and spray, very reduced visibility.

## **F - MAINTENANCE**

# **⚠ IMPORTANT ⚠**

*Your platform must be periodically inspected to ensure its continued compliance.*

*The inspection frequency is defined by the legislation applying in the country in which the platform is used.*

*In France, a general periodic inspection every 6 months (order of 1 March 2004).*

## INSTRUCTIONS FOR USING THE RADIO-CONTROL

For lift trucks with RC radio control

### HOW TO USE THE RADIO-CONTROL

#### SAFETY INSTRUCTIONS

- This radio-control consists of electronic and mechanical safety elements. It cannot receive commands from another transmitter because the internal encoding is unique to each radio-control.

#### **⚠ IMPORTANT ⚠**

*If it is used improperly or incorrectly, there is a risk of danger to:*

- *The physical and mental health of the user or others.*
- *The lift truck and other neighbouring items.*

*All those working with this radio-control:*

- *Must be qualified in line with current regulations and trained accordingly.*
- *Must follow this instruction manual as closely as possible.*

- The system is used to control the lift truck remotely via radio waves. Commands are also transmitted if the lift truck is out of sight (behind an obstacle or a building for example), this is why:
  - After stopping the truck and removing the key switch (only possible when it is stationary), always place the transmitter in a safe, dry place.
  - Before performing any installation, servicing or repair work, always switch off power sources (in particular, electric welding devices and electric head units on hydraulic distributors must be disconnected at each section).
  - Never remove or alter the safety devices (such as the hand-guard frame, key, emergency stop button, etc.).

#### **⚠ IMPORTANT ⚠**

*Never drive the lift truck if it is not continuously and perfectly within view of the operator!*

- Before leaving the transmitter, the operator must make sure that it cannot be used by an unauthorized third person: either by removing the key button from the transmitter or locking it in an inaccessible place.
- The user must ensure that the instruction manual is accessible at all times and that operators have read and understood it.

#### INSTRUCTIONS

- Take up position in a stable place with no risk of slipping.
- Before using the transmitter, make sure there is nobody within the working area.
- Only use the transmitter with its carrying device or installed correctly on the platform.

#### **⚠ IMPORTANT ⚠**

*When you remove the transmitter, remove the accumulator and key button so that it cannot be used accidentally or deliberately by anyone else.*

#### PROTECTIVE DEVICES

- The lift truck will be immobilised within a maximum of 450 milliseconds (approx. 0.5 second):
  - If the emergency stop button of the transmitter is pressed (50 milliseconds), or that of the lift truck.
  - If the transmission distance of the radio waves is exceeded.
  - If the transmitter is faulty.
  - If an interfering radio signal is received from elsewhere.
  - If the accumulator is removed from its housing in the transmitter.
  - If the battery reaches the end of its autonomy.
  - If the transmitter is switched off by turning the key switch to the off position.
- These protective devices are provided for the safety of personnel and property and must never be altered, removed or bypassed in any way whatsoever!
- The hand-guard frame prevents external action on a manipulator (e.g. if the transmitter is dropped, or if the operator leans on a guard-rail).
- An electronic safety device prevents radio transmission from being initiated if the manipulators are not mechanically and electrically at rest and if the internal combustion engine speed selector is not set to idle.

#### **⚠ IMPORTANT ⚠**

*In an emergency, press the transmitter emergency stop button immediately ; then follow the manual's instructions (see: 2 - DESCRIPTION: INSTRUMENTS AND CONTROLS).*

# LIFT TRUCK MAINTENANCE INSTRUCTIONS

## GENERAL INSTRUCTIONS

- Ensure the area is sufficiently ventilated before starting the lift truck.
- Wear clothes suitable for the maintenance of the lift truck, avoid wearing jewellery and loose clothes. Tie and protect your hair, if necessary.
- Stop the engine and remove the ignition key, when an intervention is necessary.
- 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 (exhaust, radiator, engine, etc.).

## PLACING THE JIB SAFETY WEDGE

- The lift truck is equipped with a jib safety wedge (see: 2 - DESCRIPTION: INSTRUMENTS AND CONTROLS) that must be installed on the rod of the lifting cylinder when working beneath the jib.

### FITTING THE WEDGE

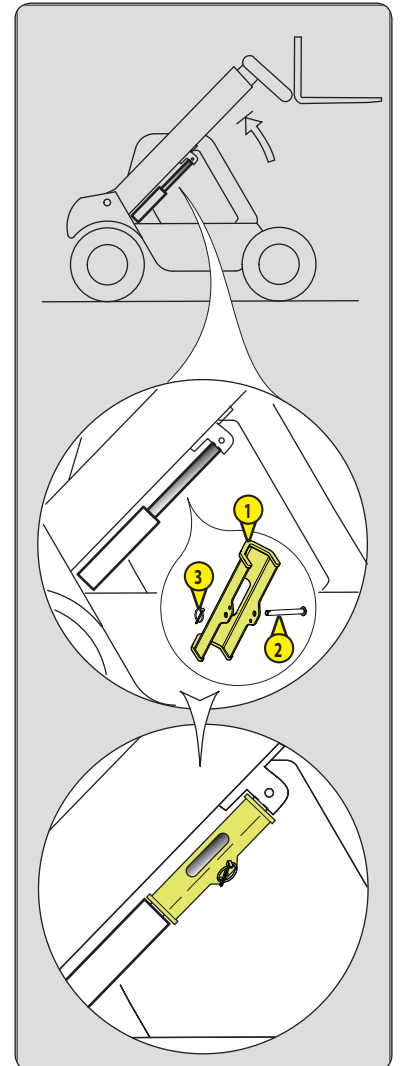
- Fully raise the jib.
- Place the safety wedge 1 on the rod of the lifting cylinder and secure with the rod 2 and the pin 3.
- Slowly lower the jib then stop the hydraulic movements before it comes into contact with the wedge.

### REMOVING THE WEDGE

- Fully raise the jib.
- Remove the pin and the rod.
- Return the safety wedge to the storage location provided on the lift truck.

**⚠ IMPORTANT ⚠**

*Only use the wedge supplied with the lift truck.*



## 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 AND FUEL LEVELS**

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- Use the recommended lubricants (never use contaminated lubricants).
- Do not fill the fuel tank when the engine is running.
- Only fill up the fuel tank in areas specified for this purpose.
- Do not fill the fuel tank to the maximum level.
- Do not smoke or approach the lift truck with a flame, when the fuel tank is open or is being filled.

## **HYDRAULIC**

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- 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.

### **⚠ IMPORTANT ⚠**

***BALANCING VALVE: It is dangerous to change the setting and remove the balancing valves or safety valves which may be fitted to your lift truck cylinders. The HYDRAULIC ACCUMULATORS that may be fitted on your lift truck are pressurised units. Removing these accumulators and their pipework is a dangerous operation and must only be performed by approved personnel (consult your dealer).***

## **ELECTRICITY**

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- Do not short-circuit the starter relay to start the engine. If the forward/reverse selector is not in neutral and the parking brake is not applied, the lift truck may suddenly start to move.
- Do not drop metallic items on the battery.
- Disconnect the battery before working on the electrical circuit.

## **WELDING**

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- Disconnect the battery before any welding operations on the lift truck.
- When carrying out electric welding work on the lift truck, connect the negative cable from the equipment directly to the part being welded, so as to avoid high tension current passing through the alternator.
- Never carry out welding or work which gives off heat on an assembled tyre. The heat would increase the pressure which could cause the tyre to explode.
- If the lift truck is equipped with an electronic control unit, disconnect this before starting to weld, to avoid the risk of causing irreparable damage to electronic components.

## **WASHING THE LIFT TRUCK**

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- Clean the lift truck or at least the area concerned before any intervention.
- Remember to close and lock all accesses to the lift truck (doors, windows, cowls...).
- 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 and the injection pump.
- Clean the lift truck of any fuel, oil or grease trace.

## **TRANSPORTING THE LIFT TRUCK**

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### **⚠ IMPORTANT ⚠**

***Transporting the lift truck involves real risks for the operator and others involved.***

- Towing, slinging or transporting the lift truck (see: 3 - MAINTENANCE: G - OCCASIONAL MAINTENANCE).



## 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.

For these operations, we recommend the use of a MANITOU protective product, reference 603726.

Instructions for using the product are given on the packaging.

#### **⚠ IMPORTANT ⚠**

*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 fuel, oil, water or air 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 jib cylinder rods are all in retracted position.
- Release the pressure in the hydraulic circuits.

### PROTECTING THE ENGINE

- Fill the tank with fuel (see: 3 - MAINTENANCE: A - DAILY OR EVERY 10 HOURS SERVICE).
- Empty and replace the cooling liquid (see: 3 - MAINTENANCE: F - EVERY 2000 HOURS SERVICE).
- Leave the engine running at idling speed for a few minutes, then switch off.
- Replace the engine oil and oil filter (see: 3 - MAINTENANCE: D - EVERY 500 HOURS SERVICE).
- Add the protective product to the engine oil.
- Run the engine for a short time so that the oil and cooling liquid circulate inside.
- Disconnect the battery and store it in a safe place away from the cold, after charging it to a maximum.
- Remove the injectors and spray the protective product into each cylinder for two seconds with the piston in low neutral position.
- Turn the crankshaft once slowly and refit the injectors (see engine REPAIR MANUAL).
- Remove the intake hose from the manifold or turbocharger and spray the protective product into the manifold or turbocharger.
- Cap the intake manifold or turbocharger hole with waterproof adhesive tape.
- Remove the exhaust pipe and spray the protective product into the exhaust manifold or turbocharger.
- Refit the exhaust pipe and block the outlet with waterproof adhesive tape.

NOTE: The spray time is noted on the product packaging and must be increased by 50 % for turbo engines.

- Open the filler plug, spray the protective product around the rocker arm shaft and refit the filler plug.
- Cap the fuel tank using waterproof adhesive tape.
- Remove the drive belts and store them in a safe place.
- Disconnect the engine cut-off solenoid on the injection pump and carefully insulate the connection.

### PROTECTING THE LIFT TRUCK

- Set the lift truck on axle stands so that the tyres are not in contact with the ground and release the handbrake.
- 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

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- Remove the waterproof adhesive tape from all the holes.
- Refit the intake hose.
- Refit and reconnect the battery.
- Remove the protection from the cylinder rods.
- Perform the daily service (see: 3 - MAINTENANCE: A - DAILY OR EVERY 10 HOURS SERVICE).
- Put the handbrake on and remove the axle stands.
- Empty and replace the fuel and replace the fuel filter (see: 3 - MAINTENANCE: D - EVERY 500 HOURS SERVICE).
- Refit and set the tension in the drive belts (see: 3 - MAINTENANCE: C - EVERY 250 HOURS SERVICE).
- Turn the engine over with the starter, to allow the oil pressure to rise.
- Reconnect the engine cut-off solenoid.
- Lubricate the lift truck completely (see: 3 - MAINTENANCE: SERVICING SCHEDULE).

### **⚠ IMPORTANT ⚠**

*Ensure the area is sufficiently ventilated before starting the lift truck.*

- Start up the lift truck, following the safety instructions and regulations (see: OPERATING INSTRUCTIONS UNLADEN AND LADEN).
- Run all the jib's hydraulic movements, concentrating on the ends of travel for each cylinder.

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## LIFT TRUCK DISPOSAL

MANITOU complies with the regulations deriving from Directive 2000/53/EC relating to lift truck end-of-life. This lift truck contains no substances or materials forbidden by Directive 2000/53/EC.

NOTE: Consult your dealer before disposing of your lift truck.

### RECYCLING OF MATERIALS

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#### METALS

- Metals are 100 % recoverable and recyclable.

#### PLASTICS

- Plastic parts are identified with a marking in accordance with current regulations.
- A limited range of materials is used to simplify the recycling process.
- The majority of plastic components are made of "thermoplastic" plastics, that are easily recycled by melting, granulating or grinding.

#### RUBBER

- Tyres and seals can be ground for use in cement manufacture or to obtain reusable granules.

#### GLASS

- Glass items can be removed and collected for processing by glaziers.

### ENVIRONMENTAL PROTECTION

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By entrusting the maintenance of your lift truck to the MANITOU network, the risk of pollution is limited and the contribution to environmental protection contribution is made.

#### WORN OR DAMAGED PARTS

- Do not dump them in the countryside.
- MANITOU and its network have signed-up to a scheme of environmental protection through recycling.

#### USED OIL

- The MANITOU network organises the collection and processing of used oil products.
- By handing over your waste oil to MANITOU, the risk of pollution is limited.

#### USED BATTERIES

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

NOTE: MANITOU aims to manufacture lift trucks that provide the best performance and limit polluting emissions.

## ***2 - DESCRIPTION***

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### 2 - DESCRIPTION

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## CE DECLARATION OF CONFORMITY

### 1) **DECLARATION "CE" DE CONFORMITE (originale)** **" EC" DECLARATION OF CONFORMITY (original)**

2) La société, *The company* : **MANITOU ITALIA S.r.l.**

3) Adresse, *Address* : **Via Cristoforo Colombo 2, 41013 Cavazzona in Castelfranco Emilia -ITALIE**

4) Dossier technique, *Technical file* : **MANITOU ITALIA S.r.l. Via Cristoforo Colombo 2, 41013 Cavazzona in Castelfranco Emilia (MO) , Italie**

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

**CHARIOT TELESCOPIQUE ROTATIF MRT 2150 PRIVILEGE N° 763407**  
**NACELLE ORH EXTENSIBLE 2,25/4M - Capacité 365 Kg p.n. 711204 (GSS POSITION B)**  
**PFB p.n.709835 + FOURCHES FEM 4999 KG p.n.578097 (GSS POSITION A)**  
**TREUIL 5 TON p.n.711934 (GSS POSITION J)**

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 the machines IV machines* :

9) - Numéro d'attestation, *Certificate number*: **ME.0017.10 REV.05 du, of 05/07/2011**

10) - Organisme notifié, *Notified body* : **ECO s.p.a. EUROPEAN CERTIFYNG ORGANIZATION, Via Mengolina 33 48018 Faenza- Ravenna - Italia - Organismo notificato n° 0714**

**2000/11/CE + 2005/84/CE**

11) - Procédure appliquée, *Applied procedure* : **Annexe VI - 2000 / 14 / CE proc.I**

10) - Organisme notifié, *Notified body* : **ECO s.p.a. EUROPEAN CERTIFYNG ORGANIZATION, Via Mengolina 33 48018 Faenza- Ravenna - Italia - Organismo notificato n° 0714**

12) - Niveau de puissance acoustique, *Sound power level* :

13) Mesuré, *Measured* : **103 dB (A)**

14) Garanti, *Guaranteed* : **104 dB (A)**

**2004/108/CE**

- ☐ 15)-Normes harmonisées utilisées, *Harmonised standards used* : **EN 12895, EN 280 :2001+A2 :2009**

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

17) - Fait à, *Done at* : **CASTELFRANCO EMILIA** 18) - Date, *Date* : **04/01/2013**

19) - Nom du signataire, *Name of signatory* : **IOTTI MARCO**

20) - Fonction, *Function* : **DIRECTEUR GENERAL**

21) - Signature, *Signature* :

**MANITOU ITALIA Srl**  
A Socio Unico - Sede Legale e Amm.va - Via C. Colombo, 2  
Località Cavazzona, 41013 CASTELFRANCO E. (MO)  
Tel. 059/959811 - Fax 059/959850  
Cap. Soc. € 1.000.000 I.V.  
Reg. Impr. Di Modena e CP. 04/173970369  
P.IVA IT 02591050360 - N. Mecc. MO 033322 R.E.A. 148776

**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 směrnici a směrnici transponovanými do vnitrostátního práva, 8) Pro stroje v příloze IV, 9) Číslo certifikátu, 10) Notifikační orgán, 15) harmonizované normy použity, 16) Normy 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) Konstruktor 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 standardite, 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 kuvaton 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, 17) Paikka, 18) Aika, 19) Allekirjoittajan nimi, 20) Toimi, 21) Allekirjoitus.

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

**hu :** 1) CE megfelelősségi nyilatkozat (eredeti), 2) A vállalat, 3) Cím, 4) műszaki dokumentáció, 5) A gépi gyártó, 6) Kijelenti, hogy a gép, 7) Megfelel az alábbi irányelveknek valamint azok honosított előírásainak, 8) A IV. melléklet gépeihez, 9) Bizonylati száma, 10) Értékteljesítés, 15) felhasznált harmonizált szabványok, 16) egyéb felhasznált műszaki szabványok és előírások hivatkozásai, 17) Kelt (hely), 18) Dátum, 19) Aláírás, 20) Hely, 21) Aláírás.

**is :** 1) Samræmisvottorð ESB (upprunalega), 2) Fyrirtækið, 3) Aðsetur, 4) Tæknilegarið, 5) Hver er nafnið á þessum líst er hér á eftir, 6) Staðfestir að tækið, 7) Samræmist eftirfarandi stöðlum og staðfærslu þeirra með hljóðjón af þjóðarrétti, 8) Fyrir, 9) Á nafni, 10) Stillingarnúmer, 10) Tilkynnt til, 15) samhæfða taðla 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) Dichiaro che questa macchina, 7) È conforme alle direttive seguenti e alle relative trasposizioni nel diritto nazionale, 8) Per le macchine all'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 perkeltose IV priede išvardytose mašinose, 8) Sertifikato Nr, 10) Paskelbtoji įstaiga, 15) suderintus standartus naudojamus, 16) Kiti standartai ir techninės specifikacijos, 17) Pasirašyta, 18) Data, 19) Įmonės pavadinimas, 20) Pareigos, 21) Parašas.

**lv :** 1) EK atbilstības deklarācija (originals), 2) Uzņēmums, 3) Adrese, 4) tehniskās lietas, 5) Jālak aprakstītās iekārtas ražotājs, 6) Apliecinā, ka šī iekārta, 7) Ir atbilstoša tālāk norādītajām direktīvām un to transpozīcijai nacionālajā likumdošanā, 8) IV pielikuma, 9) Apliecinātājs, 10) Reģistrētā organizācija, 15) lietotajiem saskaņotajiem standartiem, 16) lietotajiem tehniskajiem standartiem un specifikācijām, 17) Parakstīts, 18) Datums, 19) Parakstītāja vārds, 20) Amats, 21) Paraksts.

**mt :** 1) Dikjarazzjoni ta' Konformità (originali), 2) Il-kumpanija, 3) Indirizz, 4) fajl tekniku, 5) Manifattriċi 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-leġi nazzjonali, 8) Għall-magni fl-Anness IV, 9) Numru ta-certifikat, 10) Entità nnotifikata, 15) l-istandards armonizzati użati, 16) standards teknici u specifikazzjonijiet oħra użati, 17) Magħmul f', 18) Data, 19) Isem il-firmatarju, 20) Kariga, 21) Firma.

**nl :** 1) EG-verklaring van overeenstemming (oorspronkelijk), 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) dokumentacja technicznej, 5) Wykonawca maszyny opisanej poniżej, 6) Oświadczam, 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) Declarație de conformitate CE (originală), 2) Societatea, 3) Adresa, 4) cartii tehnice, 5) Constructor al mașinii descrise mai jos, 6) Declară că prezenta mașină, 7) Este conformă cu directivele următoare și cu transpunerea lor în dreptul național, 8) Pentru mașinile din anexa IV, 9) Număr de atestare, 10) Organism notificat, 15) standardele armonizate utilizate, 16) alte standarde și specificații tehnice utilizate, 17) Întocmit la, 18) Data, 19) Numele persoanei care semnează, 20) Funcția, 21) Semnătură.

**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) Ustrezna 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) Konstruktor 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.



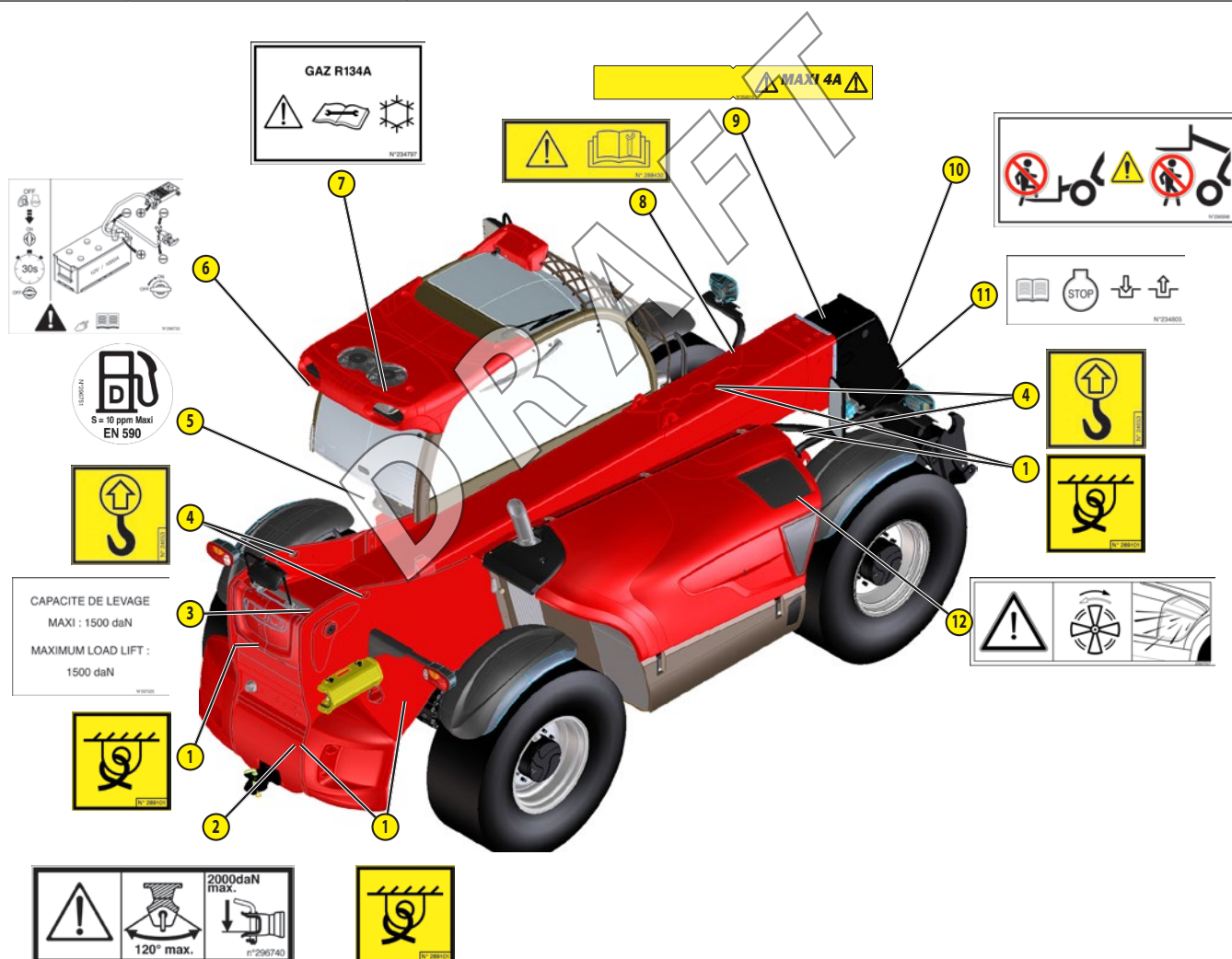
## SAFETY PLATES AND STICKERS

### ⚠ IMPORTANT ⚠

Clean all of the stickers and safety plates to make them legible.  
It is essential to replace stickers and safety plates which are illegible or damaged.  
Check the presence of stickers and safety plates after replacing any spare parts.

### EXTERNAL PLATES AND STICKERS

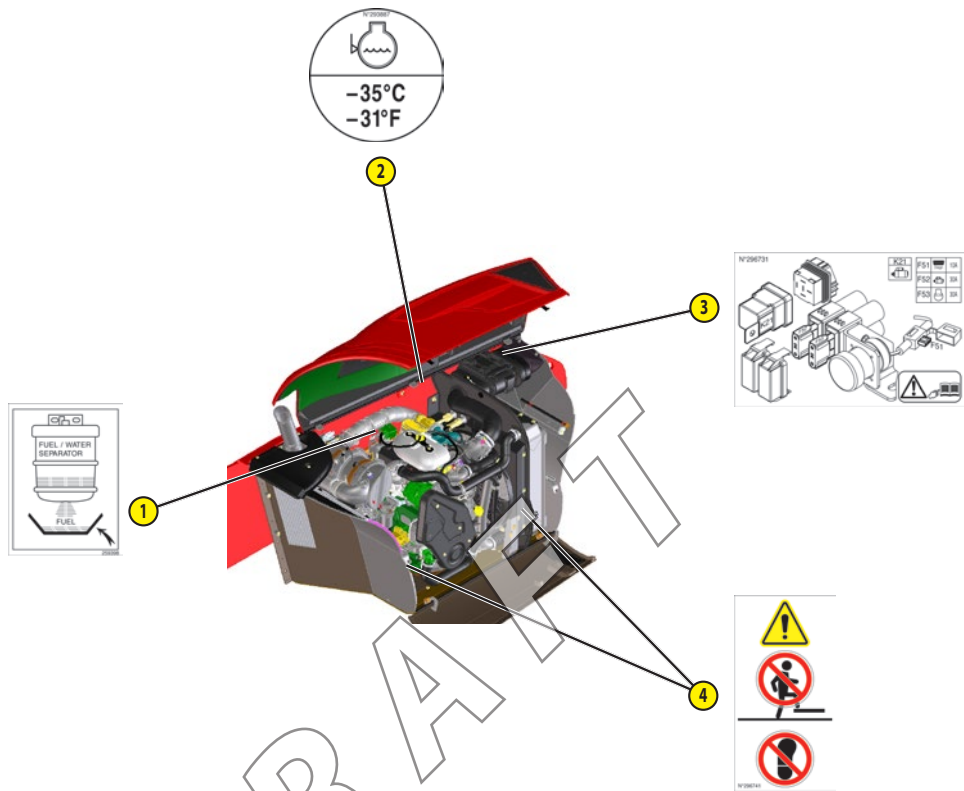
REF	PART NUMBER	DESCRIPTION
1	289101	- Tie-down point
2	296740	- Towing instruction
3	207525	- Hydraulic trailer hook (optional)
4	24653	- Sliding point
5	296751	- Diesel fuel
6	296733	- Battery cut-off instruction
7	234797	- Air conditioning (option)
8	288430	- Repair instruction
9	256513	- Electrical predisposition on boom (option)
10	296998	- Maniscopic safety instruction
11	234805	- Hydraulic coupling instruction
12	250707	- Fan reversal





STICKERS AND PLATES UNDER THE ENGINE HOOD

REF	PART NUMBER	DESCRIPTION
1	259398	- Water/diesel separator
2	293887	- Anti-freeze
3	306583	- Engine fuse
4	296741	- "Do not mount" safety instruction



## STICKERS AND PLATES IN THE CAB

REF	PART NUMBER	DESCRIPTION
1	268491	- Brake fluid instruction
2	239596	- Sound power level 106dB <b>MLT 840-115 PS</b>
	240078	- Sound power level 107dB <b>MLT 840-137 PS</b>
3	302780	- Driver presence/start-up instruction
4	297735	- Operating mode management instruction
5	290183	- Bucket instruction on telescope
6	204079	- Hydraulic trailer hook ( <b>option</b> )
7	184276	- Steering selection control
8	193032	- Cab compliance
9	223324	- Patents
10	296739	- Cab homologation ( <b>depending on model</b> )
11	Consult your dealer	- Manufacturer's plate
12	Consult your dealer	- Lift truck certification plate
13	306360	- Fuses
14	261307	- Reach chart sheet
15	Consult your dealer	- Load chart + manipulator function
16	296749	- Greasing instruction + tyre pressure
17	296940	- Head telescope electrovalve ( <b>option</b> )
18	296939	- Head telescope electrovalve + locking hydraulic attachment ( <b>option</b> )
19	299042	- Single-acting hydraulic control provision ( <b>option</b> )
20	299003	- Double-acting hydraulic control provision ( <b>option</b> )
21	299038	- Hydraulic trailer hook + single-acting control provision ( <b>option</b> )
22	299039	- Hydraulic trailer hook + double-acting control provision ( <b>option</b> )

DRAFT



## 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.

### LIFT TRUCK MANUFACTURER'S PLATE

- 1 - MODEL
- 2 - SERIES
- 3 - Year of manufacture
- 4 - Model year
- 5 - Serial No.
- 6 - Power ISO 3046
- 7 - Empty ground
- 8 - Authorised gross vehicle weight
- 9 - Rated capacity
- 10 - Drag strain
- 11 - Maximum vertical force (on trailer hook)
- 12 - Tyre pressure (bar)
- 13 - Homologation no.

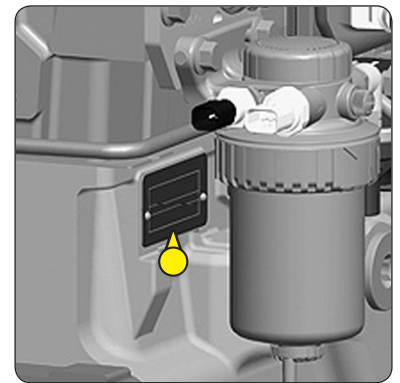
For any further technical information regarding your lift truck refer to chapter: 2 - DESCRIPTION: CHARACTERISTICS.

 <b>MANITOU</b>			
MANITOU B <sup>®</sup> 4415S ANCIENTS CEDEX FRANCE			
MODEL	MODELLO	SERIE	SERIE
1		SERIES	SERIE
3	Année de fabrication Année di fabbricazione Year of manufacture Anno di costruzione	Année model Anno modello	Année model Anno modello
5	N° de série Numero di serie Serial No. Numero di serie	Puissance ISO 3046 Power ISO 3046 Potenza ISO 3046 Potenza ISO 3046	
7	Masse à vide Masse a vuoto Unladen mass Mass on wheels		kW
8	kg P.T.A. Max. total weight	Capacité max. nominale Nominal maximum capacity Capacité max. nominale Capacities nominal	kg
10	Effort de traction Force di trazione Traction effort Traction force	Effort vertical max. au scapoteur maximal Vertical max. effort on hoist travel Carico max. verticale sul garzo di risalita Max. vertical force on hoist cable at retraction	daN
12	Pression des pneumatiques (bar) Tire pressure (bar) Pressione dei pneumatici (bar) Pressure of the pneumatic (bar)	Autre: other Altro: other Altri: other Altri: other	
	Autre: other Altro: other Altri: other Altri: other	Autre: other Altro: other Altri: other Altri: other	

N°295507

## I.C. ENGINE

- Model
- Serial No.



## GEAR BOX

- Type
- MANITOU reference
- Serial No.



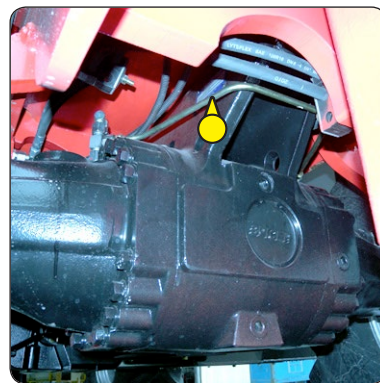
## FRONT AXLE

- Type
- Serial No.
- MANITOU reference



## REAR AXLE

- Type
- Serial No.
- MANITOU reference



## CAB

- Type
- Serial No.



## BOOM

- MANITOU reference
- Date of manufacture



## CHASSIS

- Lift truck serial no.



## CONNECTION MANUFACTURER'S PLATE

- Model
- Serial no.
- Year of manufacture





## CHARACTERISTICS MLT 960

### I.C. ENGINE

Type	JOHN DEERE 4045 PWX 86KW DD10604	
Fuel	Diesel	
Number of cylinders	4 in line	
Suction	Supercharged	
Injection system	Direct	
Ignition sequence	1.3.4.2	
Capacity	cm <sup>3</sup>	4500
Bore and stroke	mm	106 x 127
Compression ratio	17,2	
Nominal speed laden	rpm	2200
Idling speed slow unladen	rpm	850
Max. speed unladen	rpm	2350
Power ISO 3046	cv - kW	115 - 86
Power SAE J 1995	cv - kW	115 - 86
Maximum torque ISO 3046	Nm	480 to 1500 rpm
Gravimetric efficiency ISO 5011	%	99,9
Type of cooling	By water	
Fan	Puller	

### TRANSMISSION

Gear box	DANA	
- Type	Mechanical	
- Forward/ reverse lever	Electro-hydraulic	
- Torque converter	SACHS	
- Number of forward speeds	1	
- Number of reverse speeds	1	
Angle gear box	-	
Front axle	DANA	
- Differential	Without locking	
Rear axle	DANA	
- Differential	Without locking	
Drive wheels	4WD permanent	
- Switch for 2/4 drive wheels	No	
Front tyres	ALLIANCE	
- Size	500/70 - R24 AGRO-IND RADIAL R-4 (580)	
- Pressure	bar	4,0
Rear tyres	ALLIANCE	
- Size	500/70 - R24 AGRO-IND RADIAL R-4 (580)	
- Pressure	bar	4,0

### ELECTRIC CIRCUIT

Battery	12 V - 180 Ah - 1000 A EN	
Alternator	14 V - 120 A	
- Type	BOSCH HD 8	
Starter	12 V - 3,8 kW	
- Type	ISKRA	

### BRAKE CIRCUIT

Service brake	Hydraulic power brake	
- Type of brake	Multidisc brake immersed in oil	
- Type of control	Foot-operated for the front and rear axles	
Parking brake	Low pressure brake	
- Type of brake	Disk on gear-box output	
- Type of control	Electro-hydraulic	

### SOUND AND VIBRATION

Sound pressure level in the driver's cab LpA (according to NF EN 12053)	dB(A)	80 (cab closed)
Sound pressure (according to directive 2009/76)	dB(A)	(cab closed); (cab open)
Sound pressure level ensured in the LwA environment (according to directive 2000/14/EC modified by directive 2005/88/EC)	dB(A)	105 (measured); 105 (guaranteed)
Sound level in motion (according to directive 2009/63)	dB(A)	
Average weighted acceleration on driver's body (according to NF EN 13059)	m/s <sup>2</sup>	0,786
The average weighted acceleration transmitted to the driver's hand/ arm system (as per ISO 5349-2)	m/s <sup>2</sup>	< 2,5
Standard seat vibration	m/s <sup>2</sup>	1,14 (lightweight operator); 0,91 (heavyweight operator)

HYDRAULIC CIRCUIT			
Hydraulic pump			
- Type		Variable volume piston pump	
		1st casing	
- Capacity	cm <sup>3</sup>	85	
- Max. rating capacity unladen	L/min	300	
- Flow rate at 1600 rpm	L/min	280	
Filtration			
- Return	µm	10	
- Suction	µm	135	
Maximum service pressure		200	
- Telescoping circuit	bar	190 / 200	
- Lifting circuit	bar	190 / 200	
- Tilting circuit	bar	190 / 200	
- Stabiliser system	bar	-	
- Roll corrector circuit	bar	-	
- Attachment circuit	bar	120	
- Steering circuit	bar	175	

HYDRAULIC MOVEMENTS			
Longitudinal stability limiter and warning device		Electronic	
Lifting motions (boom retracted)			
- Unladen lifting	s	8,5	
- Laden lifting	s	9,3 @ 4000 kg	
- Unladen lowering	s	6,5	
- Laden lowering	s	5,5 @ 4000 kg	
Telescoping motions (boom raised)			
- Unladen extending	s	7,0	
- Laden extending	s	6	
- Unladen retracting	s		
- Laden retracting	s		
Tilting movements			
- Unladen digging	s	3,8	
- Forward tilting unladen	s	3,6	

SPECIFICATIONS AND GROUNDS			
Speed of movement for lift truck in standard configuration on flat ground			
- Forward unladen	1	km/h	40
	2	km/h	40
	3	km/h	10
	4	km/h	10
	5	km/h	
- Rear unladen	1	km/h	200
	2	km/h	78
	3	km/h	6000
Standard attachment			
- Ground with forks	kg	600	
- Ground of forks (each one)	kg	9000	
Rated capacity with standard attachment	kg		
Tipping load at maximum reach on stabilisers	kg		
Distance from the centre of gravity from the load to the lug of the forks	mm	11700	
Standard lifting height	mm	17700	
Lift truck ground without attachment	kg		
Lift truck ground with standard attachment		4550	
- Unladen	kg	7150	
- At rated load	kg	-	
Ground per axle with standard attachment (transport position)		-	
- Front unladen	kg		
- Rear unladen	kg		
- Front rated load	kg		
- Rear rated load	kg	-	
Ground per axle with standard attachment (boom extended)		10000	
- Front rated load	kg		
- Rear rated load	kg		
Contact pressure on the ground for the whole surface of each stabiliser at maximum load when tilting	kg/cm <sup>2</sup>		
Drag strain on the coupling hook		8730	
- Unladen (sliding)	daN	5630	
- At rated load (transmission setting)	daN	8730	
Pull strain with open carrier (according to ISO 8313)	daN	5522	



## FRONT AND REAR TIRES

MLT 960		PRESSURE	LOAD PER TYRE (kg)			
			FRONT UNLADEN	FRONT LADEN	REAR UNLADEN	REAR LADEN
ALLIANCE	500/70 - R24 AGRO-INDUSTRIAL RADIAL R-4 (580)	4,0	2275		3575	

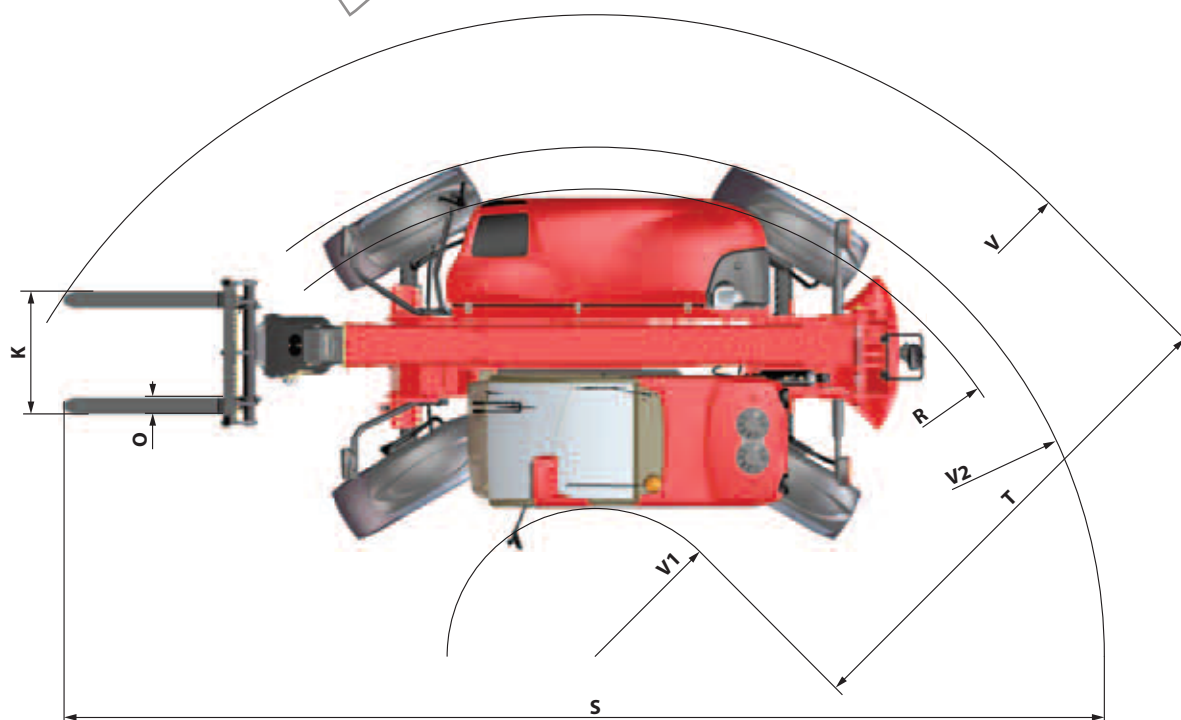
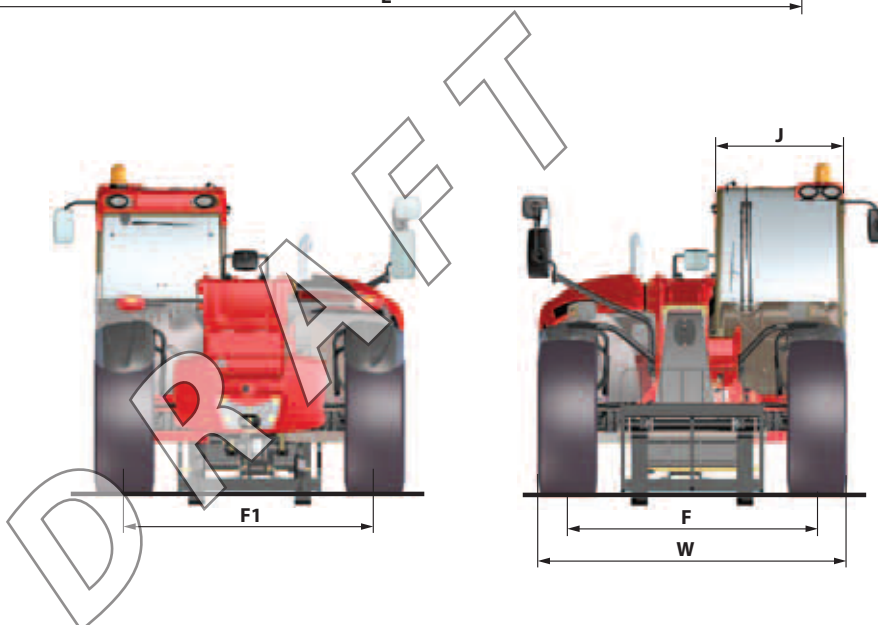
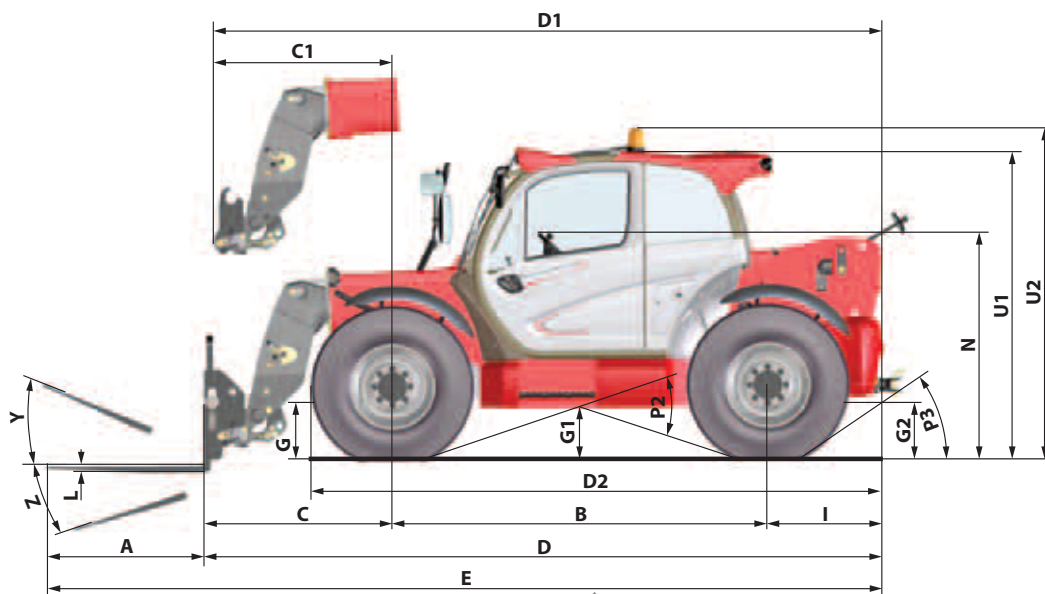
MLT 960		PRESSURE (bar)	LOAD (kg)	GROUND CONTACT PRESSURE (kg/cm²)		GROUND CONTACT AREA (cm²)	
				HARD SOIL	LOOSE SOIL	HARD SOIL	LOOSE SOIL
ALLIANCE	500/70 - R24 AGRO-INDUSTRIAL RADIAL R-4 (580)	4,0	925	6,61	1,83	165	596
			1820	7,07	1,96	195	704
			2380	8,69	2,40	305	1105
			5275	8,73	2,42	315	1135

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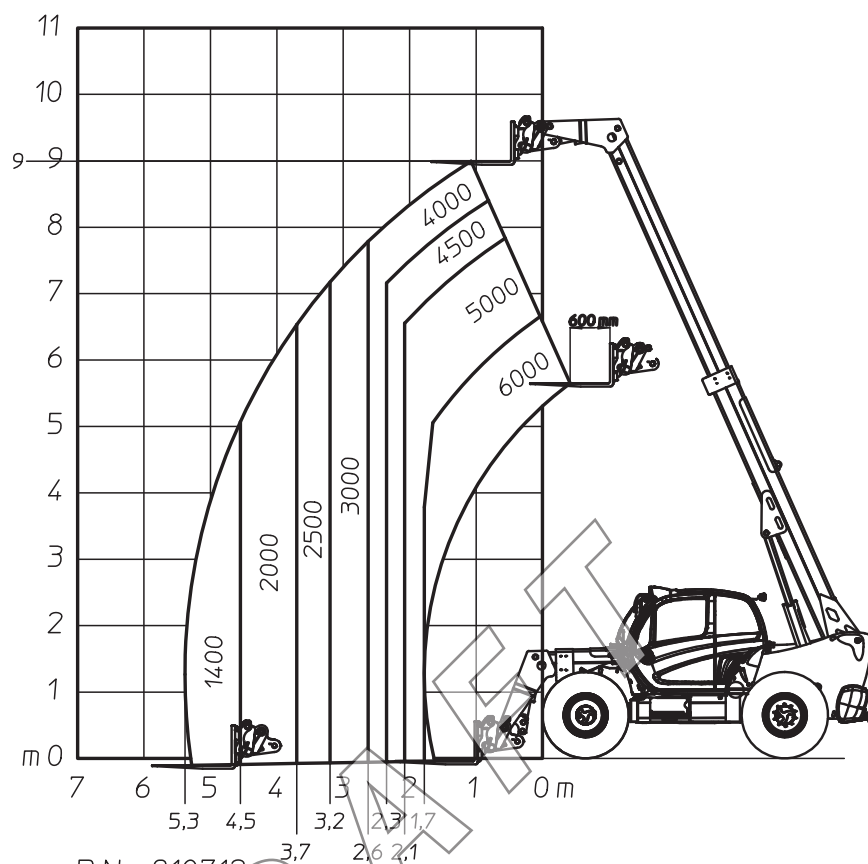
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## DIMENSIONS AND LOAD CHARTS

	mm	in
<b>A</b>	1200	47,24
<b>B</b>	3000	118,11
<b>C</b>	1648	64,88
<b>C1</b>	1511	59,49
<b>D</b>	6106	240,39
<b>D1</b>	5969	235,00
<b>D2</b>	5110	201,18
<b>E</b>	7306	287,64
<b>F</b>	1970	77,56
<b>F1</b>	1970	77,56
<b>G</b>	450	17,72
<b>G1</b>	450	17,72
<b>G2</b>	490	19,29
<b>I</b>	1459	57,44
<b>J</b>	995	39,17
<b>L</b>	60	2,36
<b>N</b>	1891	74,45
<b>O</b>	200	7,87
<b>P2</b>	42°	
<b>P3</b>	23°	
<b>R</b>	4050	159,45
<b>S</b>	8654	340,71
<b>T</b>	4168	164,09
<b>U1</b>	2530	99,61
<b>U2</b>	2670	105,12
<b>V</b>	5492	216,22
<b>V1</b>	1325	52,17
<b>V2</b>	4303	169,41
<b>W</b>	2482	97,72
<b>Y</b>	12°	
<b>Z</b>	138°	



# MLT 960



P.N.: 910712

20/06/2013

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## VISIBILITY

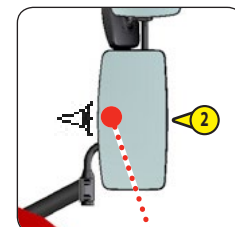
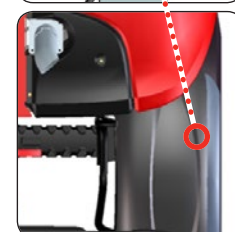
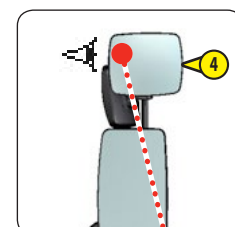
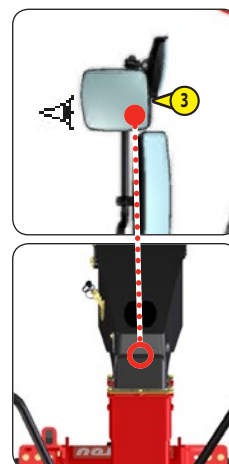
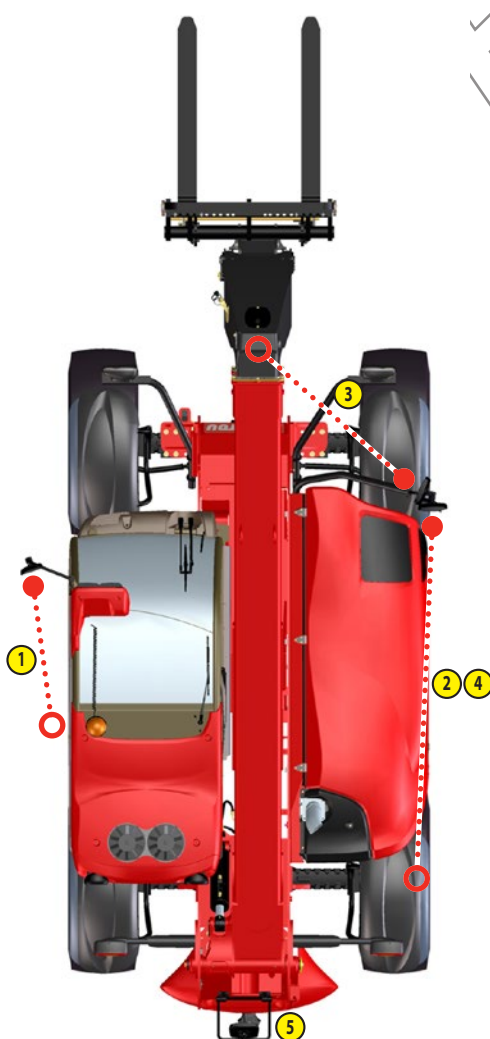
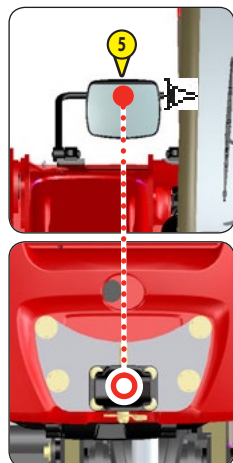
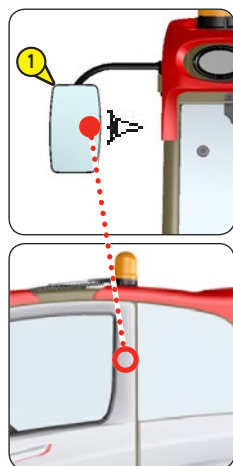
Our lift trucks conform to European standard EN15830 with regard to operator visibility.

- Follow the instructions for optimizing operator visibility of the immediate vicinity (see: 1 - OPERATING AND SAFETY INSTRUCTIONS: INSTRUCTIONS TO THE OPERATOR: DRIVING INSTRUCTIONS UNLADEN AND LADEN: D - VISIBILITY).

### DESCRIPTION AND ADJUSTMENT OF REAR-VIEW MIRRORS

- 1 - LEFT REAR-VIEW MIRROR
- 2 - MAIN RIGHT REAR-VIEW MIRROR
- 3 - CENTRAL RIGHT REAR-VIEW MIRROR
- 4 - UPPER RIGHT REAR-VIEW MIRROR
- 5 - REAR REAR-VIEW MIRROR

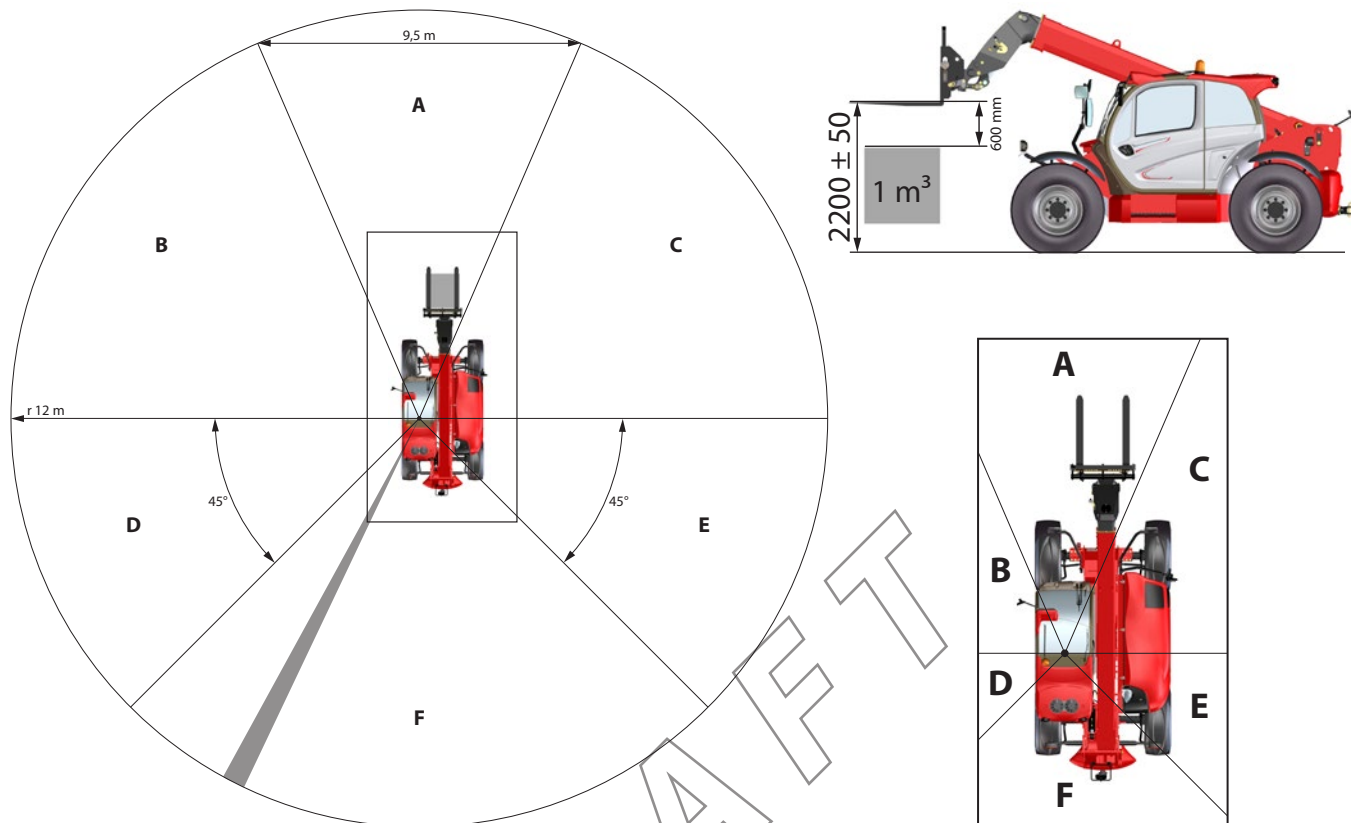
- Place the lift truck on level ground with the I.C. engine stopped, and the jib retracted and lowered as far as possible.
- Note the position of the reference points ●...○ in the illustrations, to see and correctly adjust the rear-view mirrors.



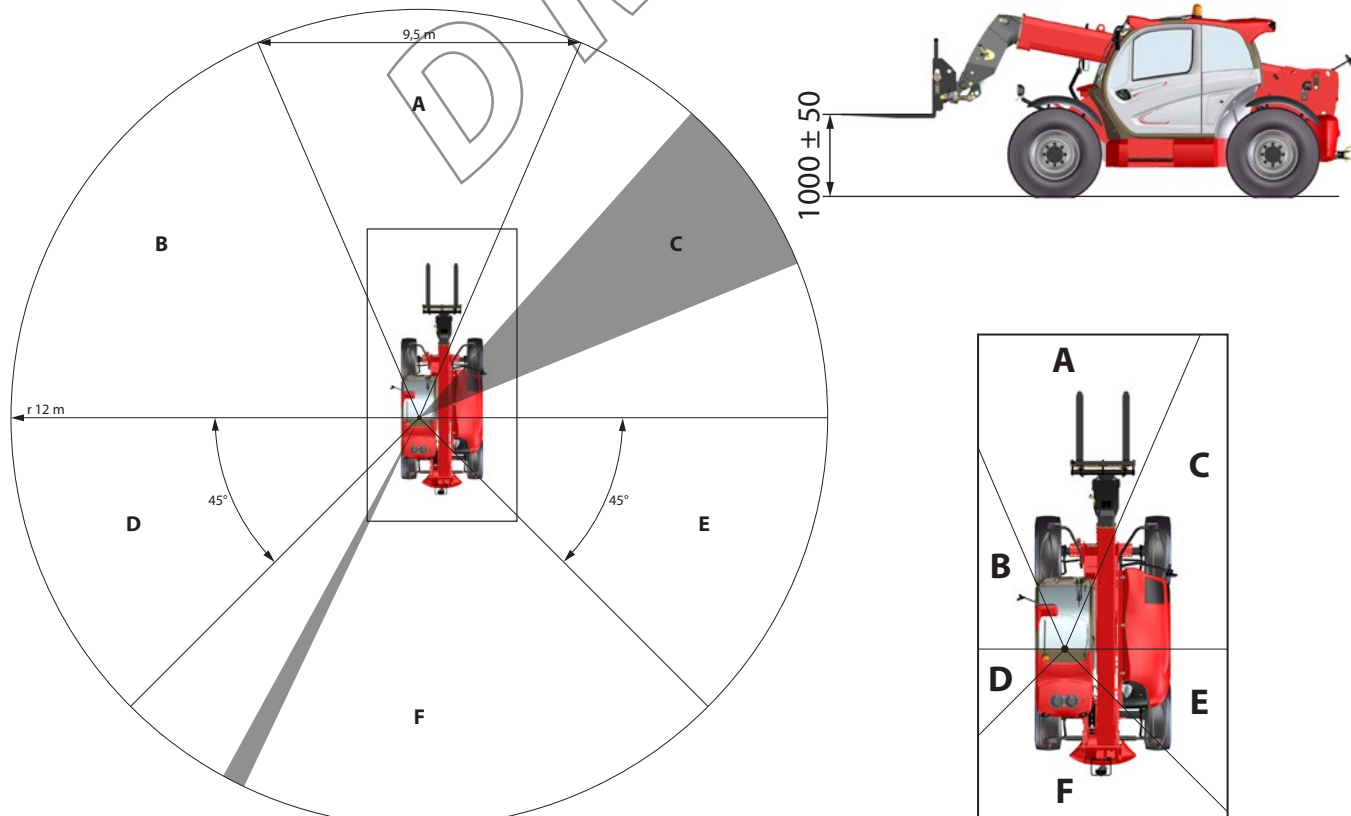
## DIRECT AND/OR INDIRECT VISIBILITY BLIND SPOT ZONES

In accordance with EN15830, the two diagrams indicate blind spot zones on the visibility test circle (r 12m) and the 1m rectangular zone around the lift truck.

### HANDLING SUSPENDED LOADS

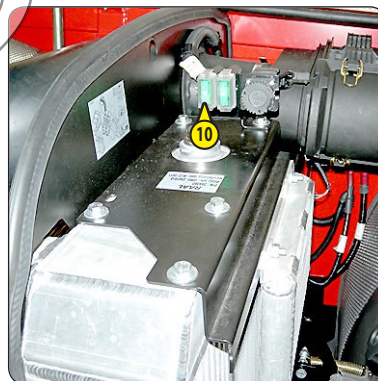
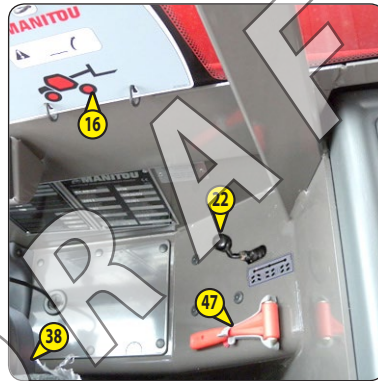
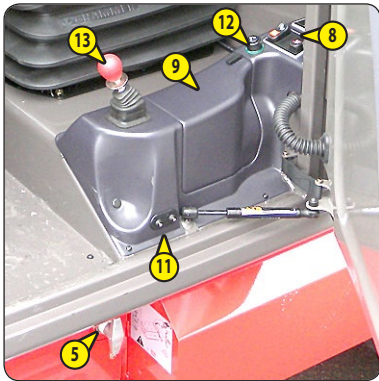
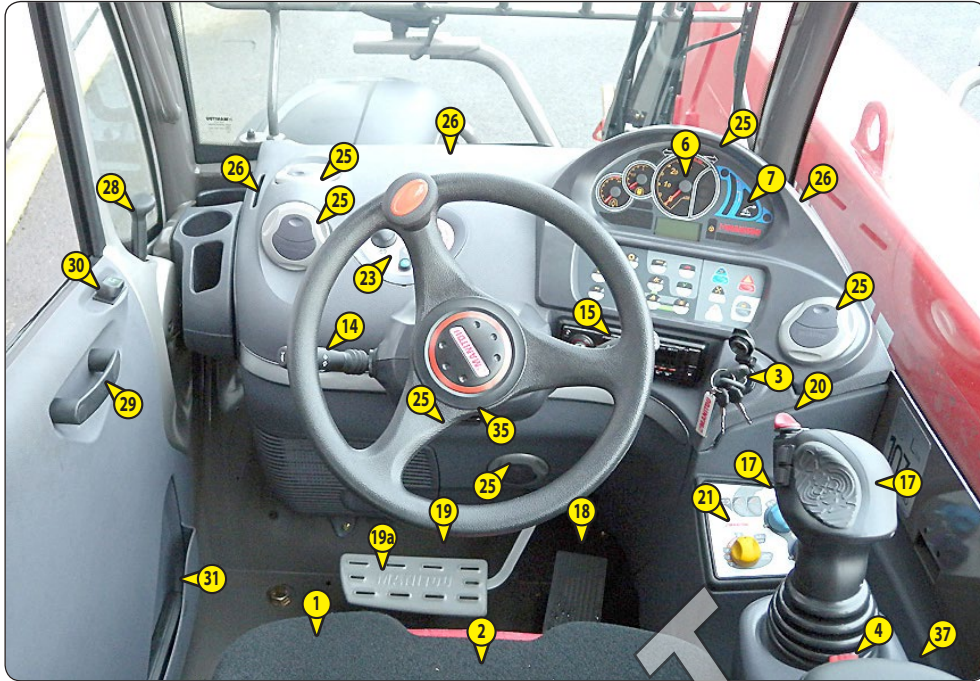


### LOADING THE TRAILER





## INSTRUMENTS AND CONTROLS





## DESCRIPTION

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- 1 - DRIVER'S SEAT
- 2 - SEAT BELT
- 3 - IGNITION SWITCH
- 4 - EMERGENCY STOP BUTTON
- 5 - BATTERY CUT-OFF
- 6 - MAN-MACHINE INTERFACE (MMI)
- 7 - LONGITUDINAL STABILITY LIMITER AND WARNING DEVICE
- 8 - SWITCHES
- 9 - FUSES AND RELAYS IN THE CAB
- 10 - FUSES AND RELAYS UNDER THE ENGINE HOOD
- 11 - DOOR PRESENCE SENSORS
- 12 - CIGARETTE LIGHTER
- 13 - EMERGENCY BRAKE LEVER
- 14 - LIGHTING, HORN AND INDICATOR LIGHTS
- 15 - FRONT AND REAR WINDSCREEN WIPER SWITCH
- 16 - FUNCTION FILES
- 17 - HYDRAULIC CONTROLS
- 18 - ACCELERATOR PEDAL
- 19 - SERVICE BRAKE PEDAL
- 19a INCHING PEDAL (Not shown)
- 20 - FORWARD/NEUTRAL/REVERSE GEAR SELECTION
- 21 - GEAR SELECTOR
- 22 - STEERING SELECTION
- 23 - HEATER CONTROL
- 24 - AIR CONDITIONING CONTROLS (AIR CONDITIONING OPTION)
- 25 - HEATING VENTS
- 26 - DEMIST VENTS
- 27 - LEVEL INDICATOR
- 28 - DOOR OPEN LEVER
- 29 - DOOR CLOSE HANDLE
- 30 - WINDOW WIND UP SWITCH
- 31 - SIDE STORAGE SPACE
- 32 - CEILING LIGHT
- 33 - HANDLE FOR REAR WINDOW OPENING
- 34 - HANDLE FOR REAR WINDOW CLOSING
- 35 - STEERING WHEEL ADJUSTMENT LEVER
- 36 - DOCUMENT HOLDER NET
- 37 - ARMREST AND STORAGE
- 38 - ARMREST ADJUSTMENT (NOT ILLUSTRATED)
- 39 - FRONT HEADLIGHTS (NOT ILLUSTRATED)
- 40 - REAR LIGHTS (NOT ILLUSTRATED)
- 41 - ROTATING BEACON LIGHT (NOT ILLUSTRATED)
- 42 - INSIDE REAR-VIEW MIRROR (OPTION)
- 43 - BOOM SAFETY WEDGE (NOT ILLUSTRATED)
- 44 - NUMBER PLATE LIGHTING (NOT ILLUSTRATED)
- 45 - NUMBER PLATE (NOT ILLUSTRATED)
- 46 - EMERGENCY EXIT

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

### DRIVER'S SEAT (STANDARD)

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

#### SEAT HEIGHT ADJUSTMENT

- Sit down correctly in the seat.
- Turn the knob 1 according to the desired height, clockwise to rise, anti-clockwise to lower, ensuring that the green indicator lamp 2 remains visible.
- If indicator lamp 2 is red, re-adjust the height.

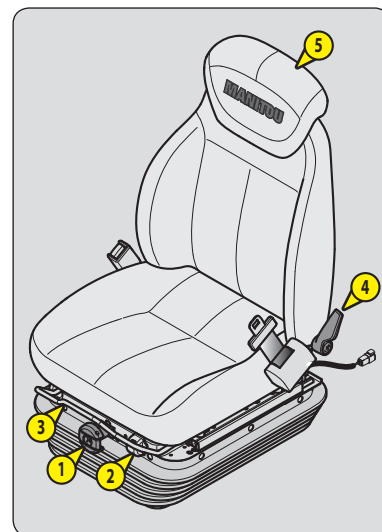
NOTE: The seat is designed so as not to require adjustment according to the driver's weight.

#### LONGITUDINAL ADJUSTMENT

- Pull the locking lever 3 upwards.
- Slide the seat to the desired position.
- Release the lever and be sure it returns to the lock position.

#### ANGLE ADJUSTMENT OF THE BACK-REST

- Support the back-rest, push the lever 4 backward and tilt the back-rest to the desired position.



#### ⚠ IMPORTANT ⚠

*If you do not support the back-rest when making adjustments, it swings completely forwards.*

#### EXTENDING THE HEAD-REST

- The height of the head-rest 5 can be adjusted by pulling it upwards (the notches will click) up to the stop.
- The head-rest can be removed by applying sufficient pressure to pull it off the stop.

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### LOW FREQUENCY DRIVER'S PNEUMATIC SEAT (OPTION)

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

#### **SEAT HEIGHT ADJUSTMENT**

- Sit down correctly in the seat.
- Switch on lift truck ignition.
- Pull or push lever 1 according to the desired height, making sure that the green indicator lamp 2 remains visible.
- If indicator lamp 2 is red, re-adjust the height.

NOTE: The seat is designed so as not to require adjustment according to the driver's weight.

#### **LONGITUDINAL ADJUSTMENT**

- Pull the locking lever 3 upwards.
- Slide the seat to the desired position.
- Release the lever and be sure it returns to the lock position.

#### **ANGLE ADJUSTMENT OF THE BACK-REST**

- Support the back-rest, push the lever 4 backward and tilt the back-rest to the desired position.



**IMPORTANT**

*If you do not support the back-rest when making adjustments, it swings completely forwards.*

#### **EXTENDING THE HEAD-REST**

- The height of the head-rest 5 can be adjusted by pulling it upwards (the notches will click) up to the stop.
- The head-rest can be removed by applying sufficient pressure to pull it off the stop.

### DRIVER'S PNEUMATIC SEAT (OPTION)

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

#### **SEAT HEIGHT ADJUSTMENT**

- Sit down correctly in the seat.
- Switch on lift truck ignition.
- Pull or push lever 1 according to the desired height, making sure that the green indicator lamp 2 remains visible.
- If indicator lamp 2 is red, re-adjust the height.

NOTE: The seat is designed so as not to require adjustment according to the driver's weight.

#### **LONGITUDINAL ADJUSTMENT**

- Swing lever 3 upwards.
- Slide the seat to the desired position.
- Release the lever and be sure it returns to the lock position.

#### **HORIZONTAL DAMPER**

In certain conditions (e.g. driving with a trailer) it is advised that a horizontal shock absorber be used. The driver's seat is thus better able to absorb jerks in the direction of travel.

- Swing lever 3 downwards to block the horizontal damper.

#### **ANGLE ADJUSTMENT OF THE BACK-REST**

- Support the back-rest, push the lever 4 backward and tilt the back-rest to the desired position.



**IMPORTANT**

*If you do not support the back-rest when making adjustments, it swings completely forwards.*

#### **EXTENDING THE HEAD-REST**

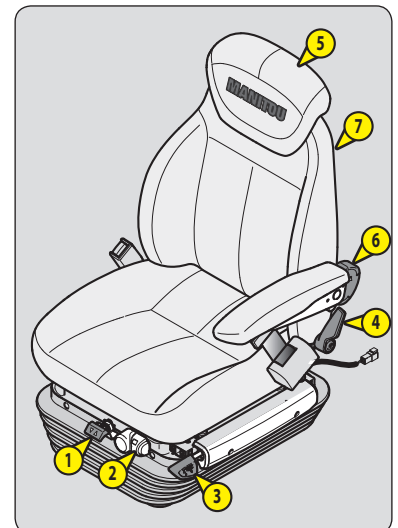
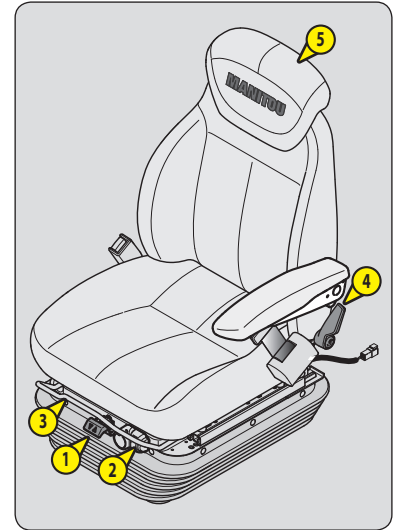
- The height of the head-rest 5 can be adjusted by pulling it upwards (the notches will click) up to the stop.
- The head-rest can be removed by applying sufficient pressure to pull it off the stop.

#### **LUMBAR ADJUSTMENT**

- Turn knob 6 anti-clockwise to select one of the 5 lumbar support settings.

#### **SEAT HEATING**

- Switch 7 operates the heating of the seat cushion and the back-rest.



## 2 - SEAT BELT

### ⚠ IMPORTANT ⚠

*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.*

- Sit correctly on the seat.
- Check that seat belt is not twisted.
- Place the seat belt at hip level.
- Attach the seat belt and check that it locks.
- Adjust the seat belt to your body shape without squeezing your hip and without over-slack.

## 3 - IGNITION SWITCH

The ignition switch has five positions:

- P - Not used.
- O - Ignition switched off and engine stopped.
- I - Ignition + preheating.
- II - Not used.
- III - The engine starts, return to position I as soon as the key is released.

## 4 - EMERGENCY STOP BUTTON

In the event of danger, it lets you stop the I.C. engine and thereby cut out all hydraulic movements.

### ⚠ IMPORTANT ⚠

*Warning, hydraulic movements suddenly stop when using this button.  
If possible, stop the lift truck before using the emergency stop.*

- Turn the button to disable it and to restart the lift truck.



## 5 - BATTERY CUT-OFF

For quickly disconnecting the battery when working on the electric circuit or when soldering, for example.

### ⚠ IMPORTANT ⚠

*Operate the battery cut-off no less than 30 seconds after having switched off the ignition with the ignition key.*



## 6 - MAN-MACHINE INTERFACE (MMI)

- 6A - DRIVER PRESENCE
- 6B - INSTRUMENT CONTROL PANEL
- 6C - PANEL FOR BUTTONS AND KEYBOARD
- 6D - SCREEN DISPLAY

UPDATED: In order to gain maximum advantage from the Man-Machine Interface of your lift truck, contact your dealer to receive the most recent available version of the software.



## **6A - DRIVER PRESENCE**

The driver's presence is validated when the operator is correctly seated and the cab door is closed.

- It is only from that moment that the lift truck is operational; the operator can perform hydraulic movements and move the lift truck.

## **6B - INSTRUMENT CONTROL PANEL**



### **A - REV COUNTER**

### **B - FUEL LEVEL**

When the yellow warning light B1 comes on it means that you are in reserve and that your running time is limited.

### **C - LONGITUDINAL STABILITY WARNING LIGHT**

See: 2 - DESCRIPTION: 7 - LONGITUDINAL STABILITY LIMITER AND WARNING DEVICE.

### **D - FORWARD/NEUTRAL/REVERSE LIGHT**

See: 2 - DESCRIPTION: 20 - FORWARD/NEUTRAL/REVERSE GEAR SELECTION.

### **E - GREEN STEERING LIGHTS**

A continuous beeping sound on and off at the same time as the steering lights when using indicator lights or hazard warning lights.

### **F - GREEN WARNING LIGHTS FOR WHEEL ALIGNMENT**

See: 2 - DESCRIPTION: 22 - STEERING SELECTION.

### **G - DIGICODE INDICATOR LIGHT**

This light flashes when the digicode is enabled (see: 2 - DESCRIPTION: 6D - SCREEN DISPLAY).

### **H - ENGINE WATER LEVEL AND TEMPERATURE LIGHT**

**COLD ENGINE:** If the H1 light comes on when the lift truck is running, this means that the cooling liquid level is too low. Immediately stop the engine and check the level.

**HOT ENGINE:** If the H1 light comes on when the lift truck is running, this means that the cooling liquid temperature is too high or its level is too low. Immediately stop the engine and seek the cause of the cooling system malfunction.



### **MAJOR FAULT WARNING LIGHT**

When this light is on it indicates that there is a major fault that may affect the safety for the lift truck or the driver. Stop the lift truck and refer to the error codes (see: 2 - DESCRIPTION: 6D - SCREEN DISPLAY: MENU SCREEN).



### **GREEN LIGHT FOR LOW BEAM**



### **BLUE LIGHT FOR MAIN BEAM**



### **AIR FILTER CLOGGING LIGHT**

The light comes on when the air filter cartridge is clogged up. When this light remains continuously lit the cartridge needs changing. Stop the lift truck and carry out the necessary repairs (see: 3 - MAINTENANCE: SERVICING SCHEDULE).



### **HYDRAULIC RETURN OIL FILTER CARTRIDGE CLOGGING LIGHT**

The light comes on when the hydraulic return oil filter cartridge is clogged up. When this light remains continuously lit the cartridge needs changing. Stop the lift truck and carry out the necessary repairs (see: 3 - MAINTENANCE: SERVICING SCHEDULE).

NOTE: This light comes on by cold weather or when starting the fork lift truck, it goes off when the hydraulic oil reaches its operating temperature.



### **POWER-ASSISTED STEERING FAULT INDICATOR LIGHT**

If the light comes on when the lift truck is running, stop the engine immediately and look for the cause (possible leak, etc.).



### **BRAKE FLUID LEVEL OR POWER-ASSISTED BRAKING FAULT INDICATOR LIGHT**

If the light comes on, when the lift truck is running, stop the I.C. engine immediately and check the braking oil level. In the event of an abnormal drop in the level, consult your dealer.



### **HIGH EXHAUST GAS TEMPERATURE INDICATOR LIGHT**

The light comes on while the lift truck is running to indicate a high exhaust gas temperature.



### **WATER IN FUEL PRE-FILTER LIGHT**

This light will come on when there is water in the fuel pre-filter. Stop the lift truck and carry out the necessary repairs (see: 3 - MAINTENANCE: SERVICING SCHEDULE).



### **I.C. ENGINE AUTOMATIC PREHEATING LIGHT**

This light comes on when the lift truck's ignition is switched on and should go out as soon as pre-heating is ended. If it comes on while the lift truck is in operation, immediately stop the I.C. engine and find the cause.



### **I.C. ENGINE OIL PRESSURE LIGHT**

If the light comes on when the lift truck is running, stop the I.C. engine immediately and look for the cause (see oil level in I.C. engine crankcase).



### **I.C. ENGINE PREHEATING FAULT INDICATOR LIGHT**

If the light comes on when the lift truck is running, stop the engine immediately and look for the cause (possible leak, etc.).

NOTE: This light comes on the moment the ignition key is in position I and until the engine is started.





### BATTERY LOAD LIGHT

If this light comes on when the lift truck is running, switch off the I.C engine immediately and check the electric circuit and the alternator belt.



### GREEN PROGRESSIVE INCHING TRANSMISSION MODE INDICATOR LIGHT

This light comes on when using the progressive transmission "INCHING" mode (see: 2 - DESCRIPTION: 6C - PANEL FOR BUTTONS AND KEYBOARD).



### GEAR BOX OIL PRESSURE LIGHT

This light comes on when there is an abnormal drop in gear box pressure. Stop the lift truck and look for the cause (e.g., Low oil level in the transmission, internal leak in the transmission, etc.).



### GEAR BOX OIL TEMPERATURE LIGHT

This light comes on when the temperature of the gear box oil is abnormally high. In this case, place the forward/reverse selector in neutral and let the I.C. engine running at idle for a few minutes. If the light remains on, stop the lift truck and contact your dealer.

NOTE: Abnormal heating of the oil may be linked to an incorrect use of the gear box ratios (see: 2 - DESCRIPTION: 21 - GEAR SELECTOR).



### PARKING BRAKE LIGHT

This light comes on when the parking brake is applied.

A flashing light indicates a fault (see: 2 - DESCRIPTION: 6D - SCREEN DISPLAY: MENU SCREEN).



### HYDRAULIC MOVEMENT NEUTRALISATION LIGHT

The lights when the hydraulic controls are neutralised and when a forbidden hydraulic movement is requested.

NOTE: When driving on the road, it is strongly recommended that you lock all hydraulic movements.

#### 6C - PANEL FOR BUTTONS AND KEYBOARD



A beep is sounded each time one of the buttons is pressed.



### "BUCKET" MODE

See: 2 - DESCRIPTION: 7 - LONGITUDINAL STABILITY LIMITER AND WARNING DEVICE.



### NOT USED

The progressive "INCHING" transmission mode is activated automatically (see: 2 - DESCRIPTION: 21 GEAR SELECTOR).



### "SUSPENDED LOAD" MODE

See: 2 - DESCRIPTION: 7 - LONGITUDINAL STABILITY LIMITER AND WARNING DEVICE.





## ATTACHMENT CIRCUIT

### ⚠ IMPORTANT ⚠

*By default, the attachment circuit in continuous mode is disabled as soon as the operator leaves the driver's cab.  
This condition can be changed from the OPT menu on the menu screen.*



ATTACHMENT CIRCUIT UNLOCKED (by default)



ATTACHMENT CIRCUIT LOCKED

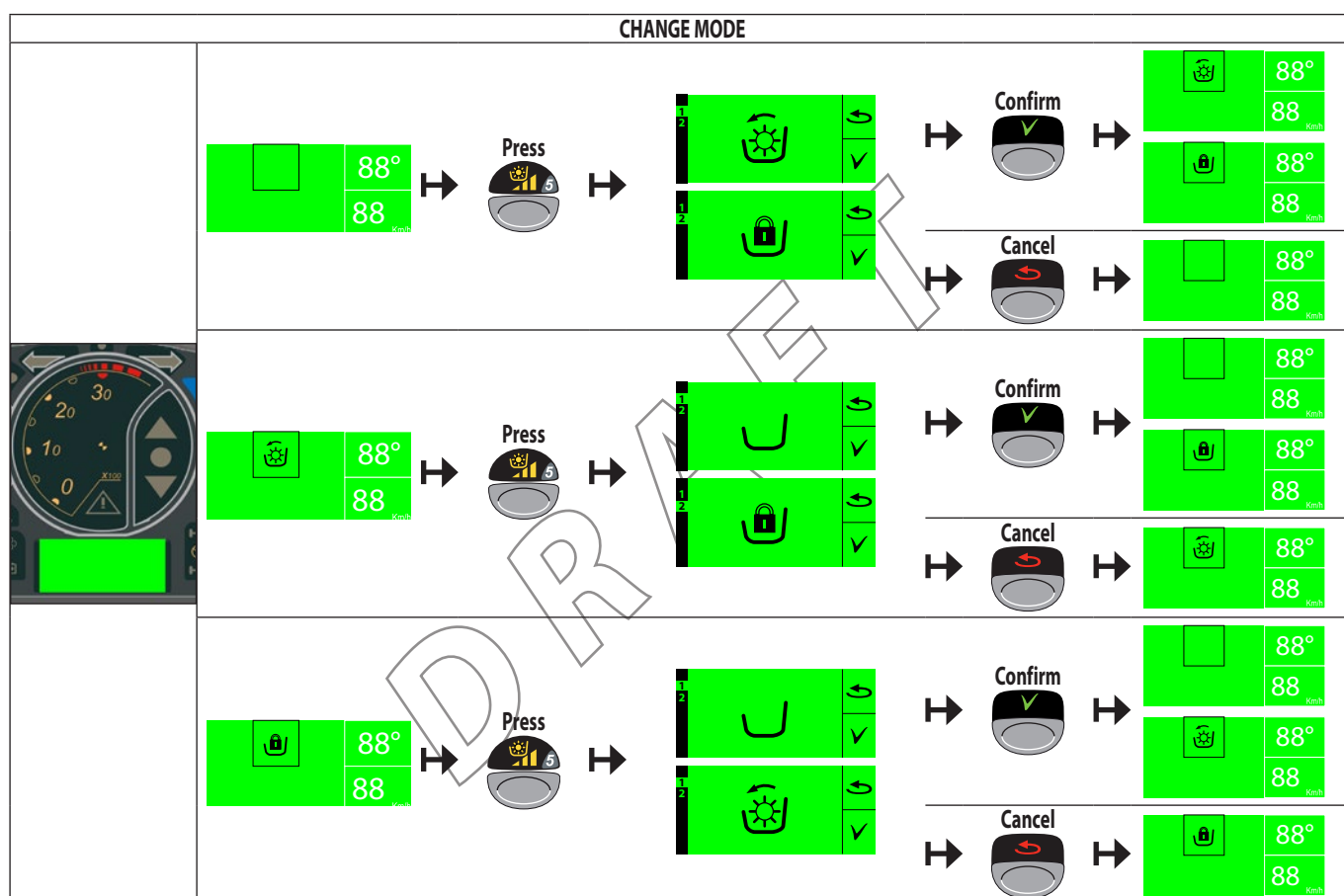
• It is recommended to use this function when the lift truck is not fitted with hydraulic attachment.





ATTACHMENT CIRCUIT IN CONTINUOUS MODE

• The  indicator will light when it is in use.



The operating screen displays the enabled mode. Press  or   button to display the other available mode(s).



## ADJUSTING THE ATTACHMENT CIRCUIT HYDRAULIC FLOW RATE IN CONTINUOUS MODE

- The  pictogram flashes, and switches to the setting  screen as soon as hydraulic flow rate is selected using button A on the attachment hydraulic control lever.
- Button A forward for positive percentage (+ XX %), backward for negative percentage (XX %).
- Hold button A in the same position for 4 seconds to confirm the chosen hydraulic

flow rate 

- Press the button , or actuate button A, to return to the  screen with the flashing pictogram and thus disable continuous mode.
- Switches B and C limit the attachment hydraulic flow (see: 2 - DESCRIPTION: 17 HYDRAULIC CONTROLS).





#### OPTION BOOM SUSPENSION

See: 2 - DESCRIPTION: DESCRIPTION AND USE OF THE OPTIONS.



#### OPTION - ATTACHMENT EASY HYDRAULIC CONNECTION

See: 2 - DESCRIPTION: DESCRIPTION AND USE OF THE OPTIONS.



#### OPTION - REAR FOG LIGHT

Only works when the low beam or main beam lights are switched on. The indicator will light when in use.



#### OPTION - FRONT WORKING HEADLIGHTS



#### ROTATING BEACON LIGHT

NOTE: Except in case of emergency, it is advised to disable the rotating beacon light when the ignition is switched off to avoid a flat battery.



#### MENU SCREEN DISPLAY

A flashing light indicates a fault (see: 2 - DESCRIPTION: 6D - SCREEN DISPLAY: MENU SCREEN).



#### CANCEL OR BACK



#### CONFIRM



#### TESTING THE LONGITUDINAL STABILITY LIMITER AND WARNING DEVICE

See: 2 - DESCRIPTION: 7 - LONGITUDINAL STABILITY LIMITER AND WARNING DEVICE.






#### REVERSAL FAN

Cleans the radiator core and the grille of the engine cover by reversing the air flow.

The button is constantly lit as soon as automatic mode is activated.

#### ⚠ IMPORTANT ⚠

*When in use, beware of the risk of projection into the eyes.*

- A short press on the button launches an individual fan reversal cycle.
- The  screen appears when there is insufficient time between two individual ventilation fan reversal cycle requests.
- Holding down the button launches the automatic fan reversal every 3 minutes, the  screen appears.
- A short press on the button stops the automatic fan reversal, the  screen appears.



#### HAND-OPERATED PARKING BRAKE

The hand-operated or automatic (by default) parking brake can be configured from the OPT menu in the menu screen.



#### HAZARD WARNING LIGHTS

This switch enables the L.H. and R.H. Indicators to be switched on simultaneously, with the ignition off.

NOTE: Except in case of emergency, it is advised to disable the hazard warning lights when the ignition is switched off to avoid a flat battery.



## LOCKING HYDRAULIC CONTROLS



HYDRAULIC CONTROLS AVAILABLE (by default)



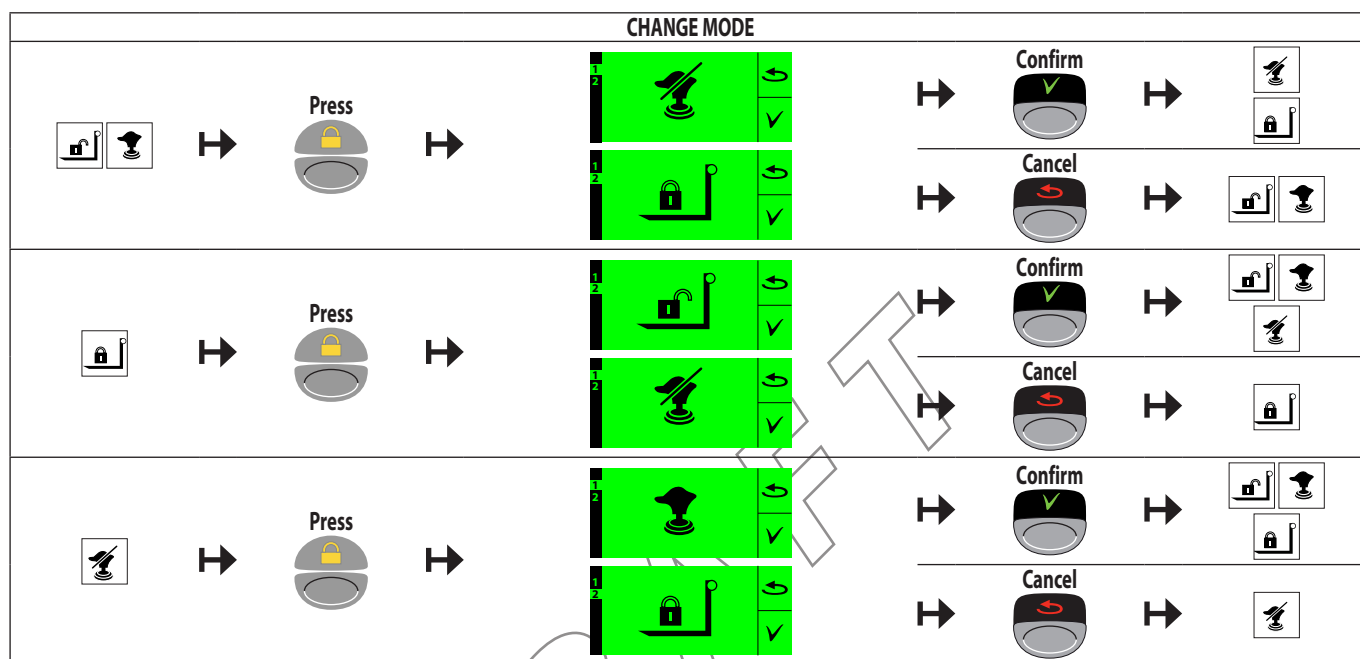
TILTING CONTROL LOCKED



HYDRAULIC CONTROLS LOCKED

- When driving on the road, it is strongly recommended that you lock all hydraulic movements.

Press or button to display the other available mode(s), the first screen displayed is the opposite of the enabled mode.



## 6D - SCREEN DISPLAY



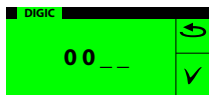
### SCREEN OFF

Lift truck parked, with ignition off and without the driver.



### LOGO SCREEN

System initialising. A beep is sounded when this screen appears. If the screen remains permanently displayed, contact your dealer.

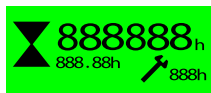


### DIGICODE SCREEN

The digicode is disabled by default. It can be enabled from the OPT menu on the menu screen. A beep is sounded when this screen appears.

- Switch on the lift truck ignition. Enter the code (default 0000) using the keys on the keyboard and confirm with the confirm button

NOTE: The code can be modified in the OPT menu (see: MENU SCREENS).



## 

With the operator present in the cab and the electrical contact cut, the screen displays the total number of hours worked [888888h], the number of hours for that working day [888.88h] and the number of hours before the next major maintenance [888h].


### 

- Authorization of this function can be configured from the OPT or XPRT menu (see: MENU SCREEN).

NOTE: Authorising this function can be configured from the OPT menu in the menu screen.

### 

- Reset the maintenance counter to 500h from the XPRT menu (see: MENU SCREEN).

NOTE: The hour meter screen can be displayed as required by means of the  button from the operating display.
















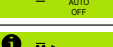




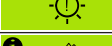









## 

The screen displays the lift truck's operating state (different screen for each operating mode).

1	2	3	4
88°			
88			
5	6	7	8
1		Blank screen.	
		If no function is unlocked and at least one function is locked (see fault screen).	
		If at least one function is unlocked (see fault screen).	
2		Blank screen.	
		Attachment circuit unlocked.	
		Flashing screen.	
		Attachment circuit in requested continuous mode disabled.	
		Steady screen.	
		Attachment circuit in continuous mode enabled.	
3		Blank screen.	
		Rear axle locking cylinder fault.	
		Flashing screen.	
		Boom suspension requested not enabled.	
		Steady screen.	
		Boom suspension activated.	
4		Boom lifting angle in degrees.	
		Lifting angle sensor fault (see: MENU SCREEN / XPRT / CALIB > BOOM)	
5		Blank screen.	
		Maintenance key.	
6		Blank screen.	
		Automatic exhaust particle filter regeneration disabled (see: 8 - SWITCHES).	
		High or very high soot level (see: 8 - SWITCHES).	
7		Blank screen.	
		Transmission locked in neutral, driver presence not validated.	
		OPTION Progressive INCHING transmission mode in forward and reverse gear.	
8		Lift truck speed in km/h.	
		Lift truck speed sensor fault (contact your dealer).	
		Automatic gear change + selected gear.	
		Manual gear change + selected gear.	

## HELP SCREEN

One of these screens appears to inform the operator of the operations to be performed in the current configuration. The appearance of this screen generates an audible beep.

	Necessary maintenance (see: 3 - MAINTENANCE: D - EVERY 500 HOURS SERVICE).		Automatic fan reversal mode disabled.
	Time to next maintenance in hours (see: 3 - MAINTENANCE: D - EVERY 500 HOURS SERVICE).		Automatic fan reversal mode enabled.
	Shut the door.		Low fuel level.
	Speed too high.		Fan fault (consult your dealer).
	Speed too high.		High soot level in exhaust particle filter automatic regeneration enabled mode (see: 2 - DESCRIPTION: 8 - SWITCHES).
	Pull down the boom.		High soot level in exhaust particle filter automatic regeneration disabled mode (see: 2 - DESCRIPTION: 8 - SWITCHES).
	Using the attachment circuit in continuous mode and indicating the hydraulic capacity.		Moderate soot level in exhaust particle filter automatic regeneration enabled mode (see: 2 - DESCRIPTION: 8 - SWITCHES).
	Reset the forward/reverse selector via neutral.		Moderate soot level in exhaust particle filter automatic regeneration disabled mode (see: 2 - DESCRIPTION: 8 - SWITCHES).
	Defective indicator bulb.		"Stationary lift truck" exhaust particle filter regeneration in progress (see: 3 - MAINTENANCE: I - OCCASIONAL MAINTENANCE).
	Computer over-heat (consult your dealer).		Condition not met for "stationary lift truck" exhaust particle filter regeneration (see: 3 - MAINTENANCE: I - OCCASIONAL MAINTENANCE).
	Computer fault (consult your dealer).		Exhaust particle filter automatic regeneration enabled (see: 2 - DESCRIPTION: 8 - SWITCHES).
	Driver presence not detected (see: 2 - DESCRIPTION: 6 - MAN-MACHINE INTERFACE (MMI)).		Exhaust particle filter automatic regeneration disabled (see: 2 - DESCRIPTION: 8 - SWITCHES).
	Parking brake applied.		
	Hydraulic attachment decompression in progress.		
	Hydraulic attachment decompression in progress.		
	Insufficient time between two individual ventilation fan reversal cycle requests.		



## FAULT SCREEN

### ⚠ IMPORTANT ⚠

*In any event, stop the lift truck and contact your dealer.*

By default, the operator is not permitted to unlock the functions (see: 2 - DESCRIPTION: 6D - SCREEN DISPLAY: MENU SCREEN). One of these screens appears when the system detects an operating defect on the lift truck. A beep is sounded when this screen appears.

These defects cause certain functions to be prohibited in order to ensure safety. However it is possible for the operator and under his own responsibility (and/or that of the person in charge of the establishment) to override the prohibition in order to secure the parking of the lift truck (e.g., unlocking the hydraulic distributor fault in order to retract and lower the boom). The unlocking is activated temporarily; the function will be locked again as soon as the engine is switched off.

	Boom raising fault.
	Hydraulic control fault.
	Fuel gauge fault.
	Exhaust particle filter clogged fault.
	Transmission fault.
	Steering fault.
	Parking brake fault.






### UNLOCKING THE FUNCTION (if authorised)

- Validate with button  to unlock the fault.

		Lock/unlock transmission fault.
		Lock/unlock hydraulic control fault.
		Lock/unlock parking brake fault.

INFO FUEL CLOCK LCD  
09:35:51  
10/06/2010

## MENU SCREEN


- Press the button  to display the menu screen with the time and date. Navigate horizontally between menus using the buttons  and  and vertically in the sub-menus using the buttons  and .

### INFO

- Time and date (by default).
- Lift truck in degraded mode and/or fault detected (see error code table).
- "Check Maintenance" appears for a few seconds if maintenance is necessary.

### FUEL

- RATE: Instantaneous consumption.
- AUTO: Fuel autonomy.
- DAILY: Daily consumption and average consumption.

(validate with the  button to reset consumption back to zero).

### CLOCK

- HOUR: Change the hour
- DATE: Change the date
- FORM: Change the time or date format.

### LCD

- BACKL: Backlight.
- CONTR: Contrast.

### OPT

The contents of this menu can be accessed by means of a customer password with the engine switched off.

- RST H: Resetting of daily hour counter to zero, permitted (by default) or not permitted.
- PARK: Hand-operated parking brake or automatic (by default).
- CFLOW: Forced operation without driver presence permitted or not permitted (by default).
- LLMC: Disabling of aggravating hydraulic movement cut-off permitted (by default) or not permitted.
- PASS: Fault override permitted or not permitted (by default).
- UNIT: Speed of travel displayed in MPH or Km/h (by default).
- DIGI1: Digicode enabled or not enabled (by default).
- DIGI2: Change the 4 figure digicode (lift truck start-up).
- CUST: Change the customer code.

### DIAG

The contents of this menu enable your dealer to perform diagnostics on the Man-Machine Interface.

### XPRT

- RESET > HOURM: Reset the daily hour meter to zero.  
MAINT: Reset the maintenance interval to 500 hours.
- ADMIN > ADMIN: Change the administrator code.
- ERASE > MC: Clear faults from the computer of the Man-Machine Interface.  
MP1: Clear faults from computer MP1.  
MP2: Clear faults from computer MP2.
- CALIB > SECU: Calibration of boom angle and strain gauge.  
GAUGE: Recalibration of strain gauge.  
BOOM: Calibration of boom angle.  
MT HR: IC engine speed regulator calibration.  
BRAKE: Brake pedal calibration.



DRAFT

## 7 - LONGITUDINAL STABILITY LIMITER AND WARNING DEVICE

### ⚠ IMPORTANT ⚠

*The operator must respect the lift truck's load chart, and the operating mode according to the attachment.*

This device warns the operator of the lift truck's longitudinal stability limits. However, lateral stability can reduce the load chart in the upper part, and this reduction is not detected by the device.

Depending on the type of work required, the longitudinal stability limiter and warning device allows the operator to operate the lift truck in complete safety.

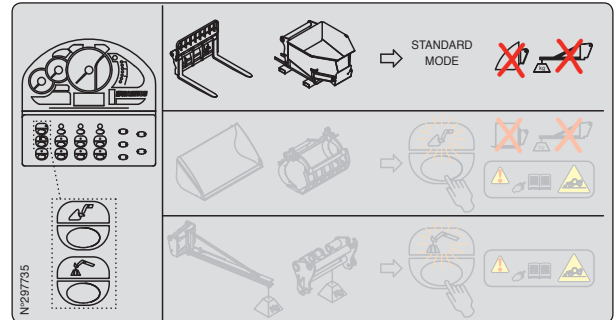
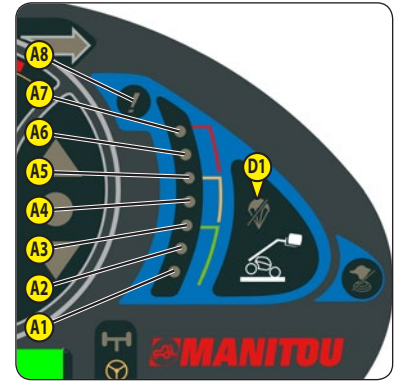
### A - "HANDLING" MODE

Use on forks.

- By default, the device is in "HANDLING" MODE when the lift truck is started-up, except if the "SUSPENDED LOAD" MODE has been selected before shutting-down the engine.

- A1 - A2 - A3: There is a significant reserve of longitudinal stability.
- A4 - A5: The lift truck is nearing the limit of longitudinal stability. The alarm sounds simultaneously with a very slow intermittent sound. Move with care.
- A6: The lift truck is near at the limit of longitudinal stability. The alarm sounds with a slow intermittent sound. Move with care.
- A7: The lift truck is very near at the limit of longitudinal stability. The alarm sounds with a fast intermittent sound. Move with extreme care.
- A8: The lift truck is at the authorized limit of longitudinal stability. The alarm sounds with a very fast intermittent sound. All "AGGRAVATING" hydraulic movements are cut-off. Cut-off may be preceded by an automatic slowing of the hydraulic movement. Only make de-aggravating hydraulic movements in the following order: retract and raise the boom.

NOTE: When the boom is retracted, the function for cutting-off "AGGRAVATING" hydraulic movements is disconnected.



### B - "BUCKET" MODE

Use with bucket.

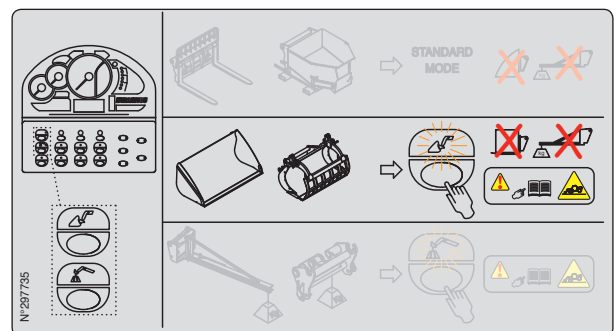
- Place the lift truck in the transport position.



- Press the button , the "BUCKET" MODE is confirmed by an audible beep and the lighting of the light.

- Return to "HANDLING" MODE by pressing the button , or shutting down the engine.

- A1 - A2 - A3: There is a significant reserve of longitudinal stability.
- A4 - A5: The lift truck is approaching the limit of longitudinal stability, move with care.
- A6: The lift truck is approaching the limit of longitudinal stability. An audible beep is sounded. Move with care.
- A7: The lift truck is very close to the limit of longitudinal stability. Move with extreme care.
- A8: The lift truck is at the authorized limit of longitudinal stability. Boom raising and lowering movements are cut-off, the other movements remain available. Cut-off may be preceded by an automatic slowing of hydraulic movement.




NOTE: When the boom is retracted, the function for cutting-off "AGGRAVATING" hydraulic movements is disconnected.

## C - "SUSPENDED LOAD" MODE

Providing a higher margin of safety, use with boom crane.


- Place the lift truck in the transport position.



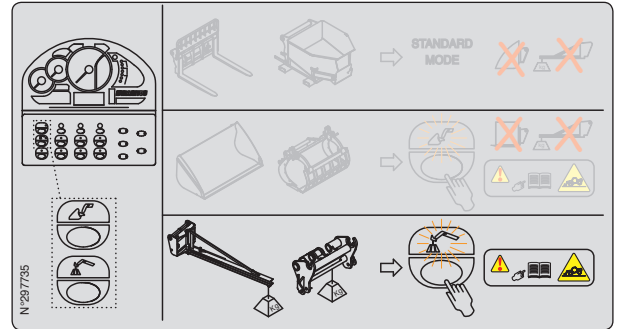
- Press the button , "SUSPENDED LOAD" MODE is validated by an audible beep and the lighting of the lamp. Hydraulic tilting movements are neutralised.

NOTE: The "SUSPENDED LOAD" MODE always stays active as long as the operator does not change the mode, even after the engine is restarted.



- Return to "HANDLING" MODE by pressing the  button.

- A1 - A2 - A3: There is a significant reserve of longitudinal stability.
- A4 - A5: The lift truck is nearing the limit of longitudinal stability. The alarm sounds simultaneously with a very slow intermittent sound. Move with care.
- A6: The lift truck is near at the limit of longitudinal stability. The alarm sounds with a slow intermittent sound. Move with care.
- A7: The lift truck is very near at the limit of longitudinal stability. The alarm sounds with a fast intermittent sound. Move with extreme care.
- A8: The lift truck is at the authorized limit of longitudinal stability. The alarm sounds with a very fast intermittent sound. All "AGGRAVATING" hydraulic movements are cut-off. Cut-off may be preceded by an automatic slowing of the hydraulic movement. Only make de-aggravating hydraulic movements in the following order: retract and raise the boom.



NOTE: When the boom is retracted, the function for cutting-off "AGGRAVATING" hydraulic movements is disconnected.

## D - DISABLING "AGGRAVATING" HYDRAULIC MOVEMENT CUT-OFF

### ⚠ IMPORTANT ⚠

*Remain very vigilant during this operation. The only information available to the operator is the lift truck's dynamic stability.*

Authorization of this function can be configured from the OPT menu in the menu screen.


In certain cases, in order to get out of a difficult situation, the operator can bypass this safety system. Button D temporarily disables the cutting-off of "AGGRAVATING" hydraulic movements.

- Hold down button D, D1 lamp will light (60 second time delay), and simultaneously perform the necessary "AGGRAVATING" hydraulic movement with extreme care.



## E - TESTING OF THE LONGITUDINAL STABILITY LIMITER AND WARNING DEVICE



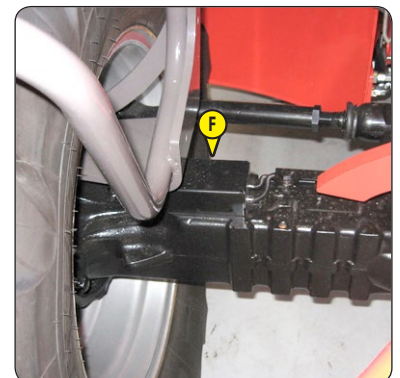
- Short press the  button to verify at any time that the longitudinal stability alarm is working.
- Correct operation: All the LEDs A1 to A8 light for two seconds and an audible beep is sounded.

NOTE: This test does not check the proper adjustment of the longitudinal stability limiter that must be inspected daily or after every 10 hours of service (see: 3 - MAINTENANCE: A - DAILY OR EVERY 10 HOURS SERVICE).

## F - STRAIN GAUGE

### ⚠ IMPORTANT ⚠

*Disassembly or calibration of the strain gauge is prohibited, this must only be done by specially trained personnel, consult your dealer.*



## 8 - SWITCHES

### A - OPTION REAR WORKING LIGHTS

### B - OPTION WORKING LIGHTS ON TELESCOPE

### C - ROOF WINDSCREEN WIPER AND WINDSCREEN WASHER

This switch, when set in the “high” position, allows the windscreen wiper to be worked and with the “down” position pressed, the windscreen washer to be operated.

### D - OPTION FOR SIDE WINDSHIELD WIPER AND WINDSHIELD WASHER

This switch, when set in the “high” position, allows the windscreen wiper to be worked and with the “down” position pressed, the windscreen washer to be operated.

### E - OPTION REAR WINDOW DE-ICING

### F - OPTION

### G - OPTION SINGLE OR DUAL EFFECT REAR HYDRAULIC PREDISPOSITION

See: 2 - DESCRIPTION: DESCRIPTION AND USE OF THE OPTIONS.

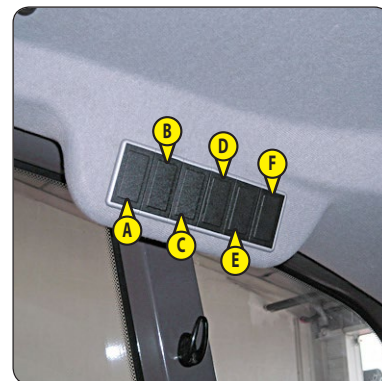
### H - OPTION BOOM HEAD ELECTRICAL PROVISION

### I - OPTION

### J - EXHAUST PARTICLE FILTER REGENERATION

- J1: DISABLE AUTOMATIC REGENERATION
- J2: “STATIONARY LIFT TRUCK” REGENERATION  
(see: 3 - MAINTENANCE: I2 - “STATIONARY LIFT TRUCK” EXHAUST PARTICLE FILTER)



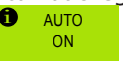
J1: DISABLE AUTOMATIC REGENERATION














#### ⚠ IMPORTANT ⚠

*Disabling automatic regeneration of the exhaust particle filter is a function that is only to be used in case of necessity (confined or unventilated space, etc.).*

By default, exhaust particle filter automatic regeneration is enabled each time the lift truck is started.

- To disable automatic regeneration of the exhaust particle filter, hold down the bottom of the switch. The temporary display of the  screen and an audible beep followed by the  screen on the operating display confirm that it has been disabled.
- To re-enable automatic regeneration of the exhaust particle filter, hold down the bottom of the switch again. The temporary display of the  screen and an audible beep confirm that it has been re-enabled.

MANAGEMENT OF EXHAUST PARTICLE FILTER REGENERATION	
INDICATIONS	ACTIONS
 + 1 short beep Moderate soot level.	The  screen appears on the operating display, the switching on of the  indicator light and the speeding up of the engine idling speed indicates that automatic regeneration is in progress. NOTE: Preferably wait until automatic regeneration is completed before switching off the ignition.
 + 1 short beep Moderate soot level, automatic regeneration disabled.	Enable automatic regeneration at the earliest possible time.
 +  + 1 long beep High soot level.	Reduced lift truck efficiency, only “stationary lift truck” regeneration can be performed (see: 3 - MAINTENANCE: OCCASIONAL MAINTENANCE).
 +  + 1 long beep High soot level, automatic regeneration disabled.	
 +  +  + 1 short beep Very high soot level, particle filter clogged.	<i>Reduced lift truck efficiency, shut down the lift truck and contact your dealer.</i>

### K - OPTION

### D - DISABLING “AGGRAVATING” HYDRAULIC MOVEMENTS

See: 2 - DESCRIPTION: 7 - LONGITUDINAL STABILITY LIMITER AND WARNING DEVICE.

## 9 - FUSES AND RELAYS IN THE CAB

A sticker on the inside of the access panel gives a clear display of the use of the components described below.

- Remove access panel 1 to gain access to the fuses and relays, Replace a used fuse with a new fuse of the same quality and capacity. Never reuse a repaired fuse.

### RELAYS

- K1 - OPTION Automatic wheel alignment.
- K2 - Front windshield wiper intermittence relay.
- K3 - OPTION.
- K4 - OPTION Front working lights.
- K5 - Transmission control unit power supply time delay relay.
- K6 - Air conditioning relay.

### MINIFUSE

- F1 - Front working headlights (15A).  
OPTION xenon front working headlight (20A).
- F2 - Free.
- F3 - OPTION Rear hydraulic control switch power supply (2A).
- F4 - Heating and ventilation (20A).
- F5 - Disabling "AGGRAVATING" hydraulic movement cut-off + seat switch (2A).
- F6 - OPTION Electrical predisposition on telescope head (15A).
- F7 - OPTION Immobiliser (2A).
- F8 - OPTION Pneumatic seat (15A).
- F9 - Ignition (2A).
- F10 - OPTION Car radio (2A).
- F11 - Cigarette lighter (10A).
- F12 - Front windscreen wiper and windscreen washer (15A).
- F13 - Rear windscreen wiper and windscreen washer (10A).
- F14 - OPTION.
- F15 - OPTION.
- F16 - OPTION Working lights on telescope (15A).
- F17 - OPTION Rear working light (15A).
- F18 - OPTION Rear window de-icing (15A).
- F19 - OPTION Roof windscreen wiper and windscreen washer (7,5A).
- F20 - Window winder (15A).
- F21 - Roof light + door switch (3A).
- F22 - Man-Machine Interface (MMI) (3A).
- F23 - Transmission computer power supply (15A).
- F24 - Front windscreen wiper motor (15A).
- F25 - OPTION Immobiliser (2A).
- F26 - OPTION Car radio (7,5A).
- F27 - Rear windscreen wiper motor (10A).  
OPTION Roof windscreen wiper motor (10A).  
OPTION Roof windscreen wiper motor + side windscreen wiper motor (15A).
- F28 - Diagnostic socket (5A).
- F29 - OPTION.
- F30 - OPTION Air conditioning compressor + fan (20A).
- F31 - Engine electronic control unit alert (5A).
- F32 - OPTION Side windscreen wiper and windscreen washer (7,5A).
- F33 - Diagnostic socket (5A).
- F34 - OPTION.
- F35 - Electronic hydraulic pump control unit (7,5A).
- F36 - OPTION.
- F37 - Hydraulic pump control unit and transmission computer power supply (5A).
- F38 - Not used.
- F39 - Not used.
- F40 - Not used.

### MAXIFUSE F41 TO F46

- F41 - Free.
- F42 - Electronic box MP2 (40A).
- F43 - Ignition switch (50A).
- F44 - Electronic box MP1 (40A).
- F45 - OPTION Air conditioning relays K3 and K12 (30A).
- F46 - Free.



F46		F40		F30	20A	F20	15A	F10	2A		
F45	30A	F39		F29		F19	7.5A	F9	2A		
F44	40A	F38		F28	5A	F18	15A	F8	15A		
F43	50A	F37	5A	F27	15A	F17	15A	F7	2A		
F42	40A	F36		F26	7.5A	F16	15A	F6	OPT. 15A		
F41		F35	LSU 7.5A	F25	2A	F15	15A	F5	2A		
		F34		F24	15A	F14		F4	2A		
		F33	5A	F23	15A	F13	10A	F3	OPT. 2A		
		F32	7.5A	F22	3A	F12	15A	F2	15A		
		F31	5A	F21	3A	F11	10A	F1	20A		
N°306360											
										K3	K6
										K2	K5
										K1	K4



## 10 - FUSES AND RELAYS UNDER THE ENGINE HOOD

- Open engine hood 1 in order to gain access to the fuses and relays. Replace a used fuse with a new fuse of the same quality and capacity. Never reuse a repaired fuse.

### RELAYS

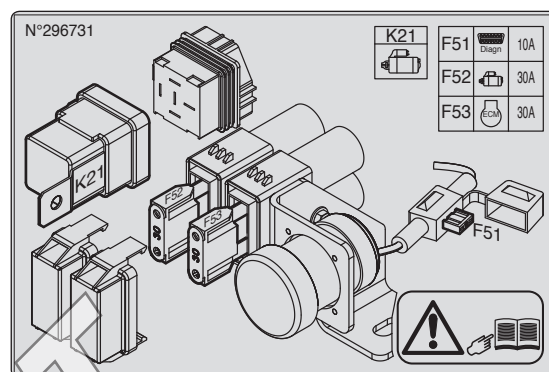
- K20 - Not used.
- K21 - Engine start control relay.
- K22 - Not used.
- K23 - Not used.
- K24 - Not used.
- K25 - Not used.
- K26 - Not used.

### MAXIFUSE

- F52 - Engine start-up (30A).
- F53 - Engine ECM computer (30A).

### MINIFUSE

- F51 - Diagnostic socket (10A).



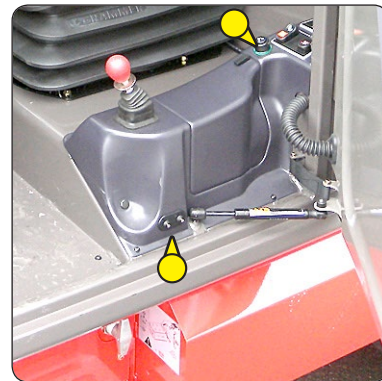
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## 11 - DOOR PRESENCE SENSORS

See: 2 - DESCRIPTION: 6 - MAN-MACHINE INTERFACE (MMI).

## 12 - CIGARETTE LIGHTER

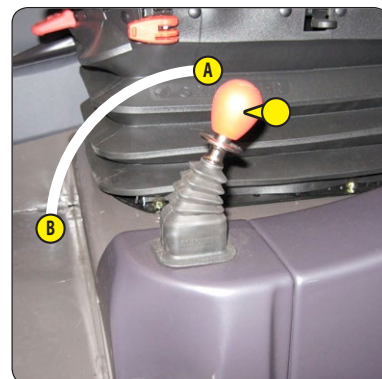


## 13 - EMERGENCY BRAKE LEVER

To prevent accidental loosening or release, the lever is fitted with safety locking.

The emergency brake lever is used in the event that the parking brake malfunctions on the MMI or if the lift truck is not to be used for a long time.

- To apply the emergency brake, pull the lever backwards (position A).
- To release the emergency brake, release and push the lever forwards (position B).



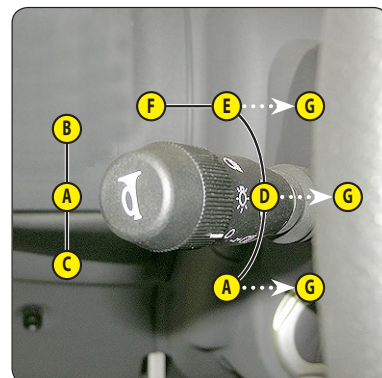
## 14 - LIGHTING, HORN AND INDICATOR LIGHTS

The switch controls the visual and sound alarms.

- A - All lights are off, the direction indicator lights do not flash.
- B - The right hand direction indicator lights flash.
- C - The left hand direction indicator lights flash.
- D - The sidelights and the rear lights are on.
- E - The dipped headlights and the rear lights are on.
- F - The main beam headlights and the rear lights are on.
- G - Headlight signal.

Pressing the switch sounds the horn.

NOTE: Positions D - E - F - G can be used without the ignition being on.



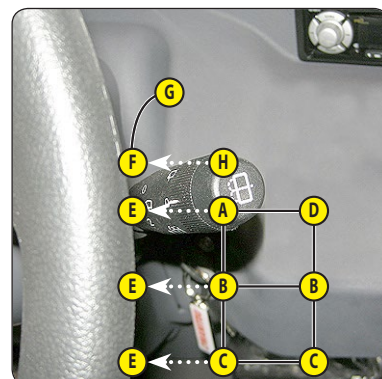
## 15 - FRONT AND REAR WINDSCREEN WIPER SWITCH

FRONT WINDSCREEN WIPER

- A - Front windscreen wiper stop.
- B - Slow speed for front windscreen wiper.
- C - Fast speed for front windscreen wiper.
- D - Front windscreen wiper intermittent control.
- E - Front windscreen washer, pulse-driven.

REAR WINDSCREEN WIPER

- F - Rear windscreen wiper stop.
- G - Rear windscreen wiper.
- H - Rear windscreen washer, pulse-driven.



## 16 - FUNCTION FILES

These files contain the description of the hydraulic controls and the load charts for the attachments used on the lift truck.



## 17 - HYDRAULIC CONTROLS

Authorization for using the hydraulic controls is given by the validation of the driver's presence (see: 2 - DESCRIPTION: 6 - MAN-MACHINE INTERFACE (MMI)) and if the conditions for using the hydraulic control are followed.

### ⚠ IMPORTANT ⚠

**Do not attempt to alter the hydraulic system pressure. 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.**

- A - Lifting and tilting control lever.
- B - Telescoping control button.
- C - Attachment control button.
- D - Boom head electrovalve option control button.
- OK - manoeuvre consent pushbuttons.



### LIFTING THE LOAD

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

### TILT OF CARRIAGE

- The lever A to the left for reverse tilt.
- The lever A to the right for forward tilt.
- Button B forwards for extending.
- Button B backwards for retracting.

### ATTACHMENT

- The button C forwards or backwards.
- Button C forwards, button C1 limits from 0% to 100% the hydraulic flow of the attachment line.
- Button C backwards, button C2 limits from 0% to 100% the hydraulic flow of the attachment line.

### OPTIONAL ELECTROVALVE ON BOOM HEAD

- Button D (see: 2 - DESCRIPTION: DESCRIPTION AND USE OF ELECTRICAL AND HYDRAULIC OPTIONS).



## 18 - ACCELERATOR PEDAL

### 19 - SERVICE BRAKE PEDAL

The pedal acts on the front and rear wheels by a power assisted hydraulic brake system, and allows the lift truck to be slowed down and stopped.

#### 19a - INCHING PEDAL

The pedal acts on the front and rear wheels by a power assisted hydraulic brake system, and allows the lift truck to move slowly, accurate handling of loads.

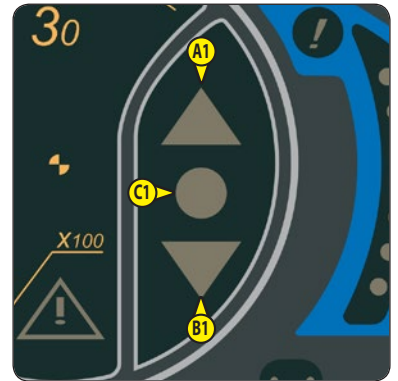
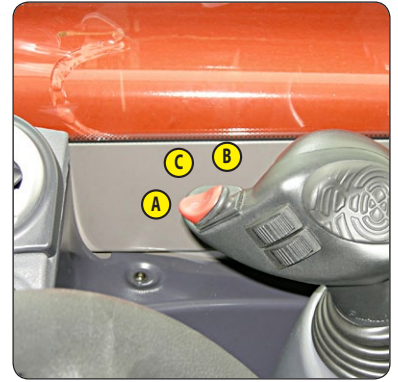
## 20 - FORWARD/NEUTRAL/REVERSE GEAR SELECTION

Authorisation to use the gear selector is given by validation of driver presence (see: 2 - DESCRIPTION: 6 - MAN-MACHINE-INTERFACE MMI).

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

- FORWARD GEAR: Push the switch forward (position A), indicator light A1 will flash then remain steady the moment you press on the accelerator pedal.
- REVERSE: Push the switch backward (position B), indicator light B1 will flash then remain steady the moment you press on the accelerator pedal. Reversing lights and an acoustic reversing alarm indicate that the lift truck is running in reverse.
- NEUTRAL: Set the switch to the centre position (position C), indicator light C1 will come on and the handbrake is applied (by default).

NOTE: An indicator light that flashes while the lift truck is in use indicates a fault (see: 2 - DESCRIPTION: 6D - SCREEN DISPLAY: MENU SCREEN).



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## 21 - GEAR SELECTOR

### A - ROAD TRAVEL MODE BUTTON



Pressing button A authorises movement of the lift truck at maximum speed.

### B - HANDLING MODE BUTTON



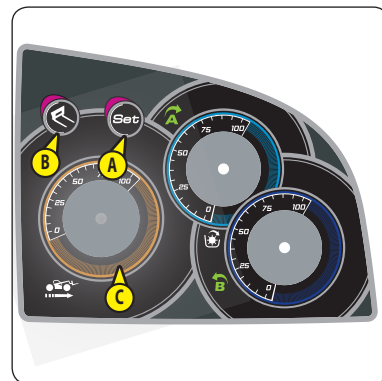
Pressing button B limits the speed of the lift truck to 10 km/h.

- There is 1 forward and 1 reverse gears available.
- Progressive "inching" transmission mode authorised in automatic.

### C - GEAR SELECTION SWITCH

- Selector switch C allows to adjust the speed rate from 0% to 100%.

In general, we would advise you to use the following gears according to the nature of the work being carried out.



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## 22 - STEERING SELECTION

### A - GREEN WHEEL ALIGNMENT LIGHTS




#### ⚠ IMPORTANT ⚠

*Before selecting one of the three possible steering positions, bring all 4 wheels into alignment with regards to the lift truck axle.*

*Never change the steering mode whilst driving.*

These lights come on to indicate the alignment of the wheels in relation to the lift truck. The A1 light for the front wheels and the A2 light for the rear wheels.

### B - STEERING SELECTION LEVER

- B1 - Front drive wheels (highway traffic). 
- B2 - Front and rear drive wheels in opposite direction (short steering lock). 
- B3 - Front and rear drive wheels in the same direction (crab steering). 

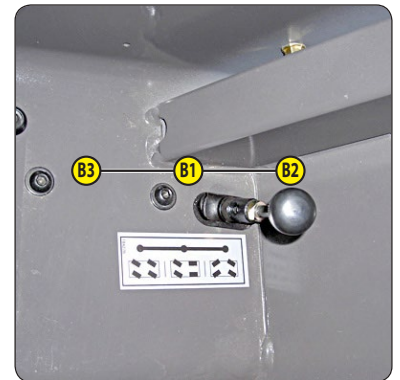
#### CONTROL FOR ALIGNMENT OF THE WHEELS

#### ⚠ IMPORTANT ⚠

*Before driving on roads, it is necessary to check the alignment of the rear wheels and to drive in front wheel steer. The control of the alignment of the rear wheels must be regularly done with the help of the green lights, while driving the lift truck.*

*In case of anomalies, consult your dealer.*

- Shift the steering selection lever B into position B2 (short steering lock).
- Turn the steering wheel and bring the rear wheels into alignment until the A2 light lights up.
- Shift the steering selection lever B into position B1 (highway traffic).
- Turn the steering wheel and bring the front wheels into alignment until the A1 light lights up.



## 23 - HEATER CONTROL

### A - FAN CONTROL

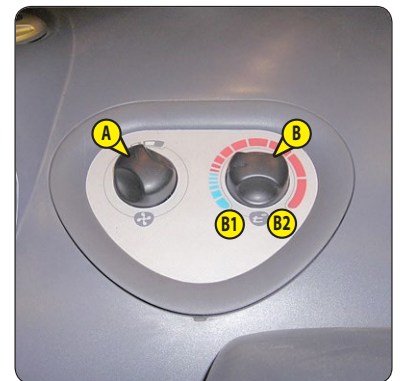
This 3-speed control allows the air to be ventilated through the air vents.

### B - TEMPERATURE CONTROL

Allows the temperature inside the cab to be adjusted.

- B1 - The fan pumps in the air at ambient temperature.
- B2 - The fan pumps in warm air.

The intermediate positions allow the temperature to be adjusted.





## 24 - AIR CONDITIONING CONTROLS (AIR CONDITIONING OPTION)

### ⚠ IMPORTANT ⚠

*The air conditioning only works if the lift truck has been started up.*

*When using your air conditioning unit you must work with the cab closed off.*

*In winter: So as to ensure correct operation and complete efficiency of the air conditioning unit, start up the compressor once a week, if only for a short spell, so as to lubricate the internal seals.*

*In cold weather: Warm the I.C. engine before switching on the compressor, so as to allow the coolant that has collected in a liquid state at the lowest point of the compressor circuit to turn into gas under the effect of the heat given off by the I.C. engine, as the compressor is liable to be damaged by coolant in a liquid state.*

*If your air conditioning does not seem to be working correctly, have it examined by your dealer (see 3 - MAINTENANCE: F - EVERY 2000 HOURS OF SERVICE).*

*Never try to repair any faults yourself.*

### A - FAN CONTROL

This 3-speed control allows the air to be ventilated through the air vents.

### B - TEMPERATURE CONTROL

Allows the temperature inside the cab to be adjusted.

- B1 - The fan pumps in cold air.
- B2 - The fan pumps in warm air.

The intermediate positions allow the temperature to be adjusted.

### C - AIR CONDITIONING CONTROL

This control with a pilot light allows the air conditioning unit to be switched on.

#### HEATING MODE

- The controls must be adjusted in the following way:
  - C - Control with pilot light off.
  - B - At the required temperature.
  - A - At the desired speed: 1, 2 or 3.

#### CONDITIONED AIR MODE

- The controls must be adjusted in the following way:
  - C - Control with pilot light on.
  - B - At the required temperature.
  - A - At the desired speed: 1, 2 or 3.

#### DEMISTING MODE

- The controls must be adjusted in the following way:
  - C - Control with pilot light on.
  - B - At the required temperature.
  - A - At speed 2 or 3.
- For optimum effectiveness, close the heating ventilators.



## 25 - HEATING VENTS

These swivelling heating vents, which can be shut off, allow you to direct and adjust the flow rate inside the cab.

## 26 - DEMIST VENTS

These vents allow the front windscreen and side windows to be demisted. For optimum efficiency, shut off the heating vents.

## **27 - LEVEL INDICATOR**

Enables the operator to check that the lift truck is in the horizontal position.



## **28 - DOOR OPEN LEVER**

## **29 - DOOR CLOSE HANDLE**

## **30 - WINDOW REGULATOR SWITCH**

## **31 - SIDE STORAGE SPACE**

## **32 - CEILING LIGHT**

## **33 - HANDLE FOR REAR WINDOW OPENING**

### **EMERGENCY EXIT**

- Use the rear window as an emergency exit, if it is impossible to leave the cab by the door.



## **34 - HANDLE FOR REAR WINDOW CLOSING**



## **35 - STEERING WHEEL ADJUSTMENT LEVER**

This handle enables the angle and height of the steering wheel to be adjusted.

- Pull the knob backwards.
- Adjust the steering wheel to the desired position.
- Push the knob back to lock the steering wheel in position.





### 36 - DOCUMENT HOLDER NET

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

NOTE: An OPTION waterproof document-holder exists.

### 37 - STORAGE COMPARTMENT

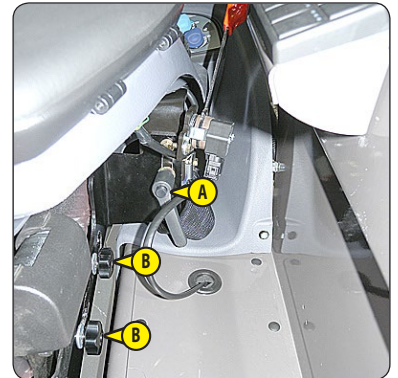
### 38 - ARMREST ADJUSTMENT

The armrest adjustment positions the controller.

#### ⚠ IMPORTANT ⚠

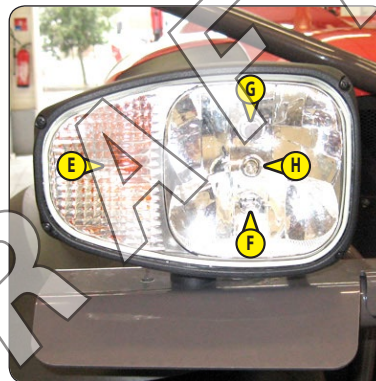
*Make sure that the armrest's position is as ergonomic as possible to improve comfortable operation or handling hydraulics.*

- Adjust the height of the armrest with handle A
- Adjust the armrest upwards or downwards using thumbscrews B



### 39 - FRONT HEADLIGHTS

- A - Left front indicator.
- B - Left front dipped headlight.
- C - Left front main beam.
- D - Left front sidelight.
- E - Right front indicator.
- F - Right front dipped headlight.
- G - Right front main beam.
- H - Right front sidelight.



### 40 - REAR LIGHTS

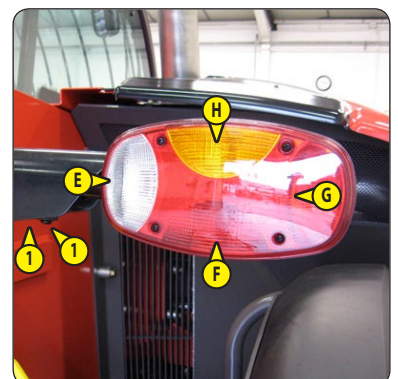
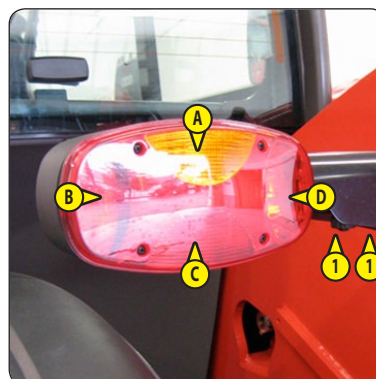
- A - Left rear indicator.
- B - Left rear stoplight.
- C - Rear left headlight.
- D - Rear fog light
- E - Rear reverse light.
- F - Right rear headlight.
- G - Right rear stoplight.
- H - Right rear indicator.

#### ⚠ IMPORTANT ⚠

*When driving on the road, widen the rear lights by means of the thumbscrews.*

- I - Handling position.
- J - Road driving position.

NOTE: A light protection kit is available as an OPTION.

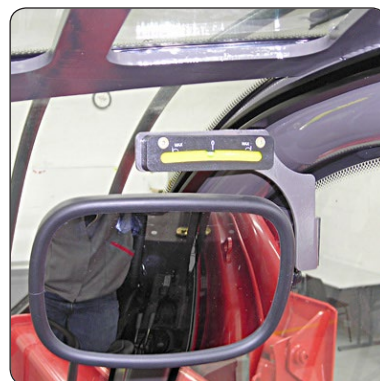


#### 41 - ROTATING BEACON LIGHT

The magnetic rotating beacon light must be clearly visible on the roof of the cab and plugged-in to socket 1.



#### 42 - INSIDE REAR-VIEW MIRROR (OPTION)



#### 43 - BOOM SAFETY WEDGE

**⚠ IMPORTANT ⚠**

*Only use the wedge supplied with the lift truck.*

The lift truck is equipped with a boom safety wedge that must be installed on the rod of the lifting cylinder when working beneath the boom (see: 1 - OPERATING AND SAFETY INSTRUCTIONS).



#### 44 - NUMBER PLATE LIGHTING

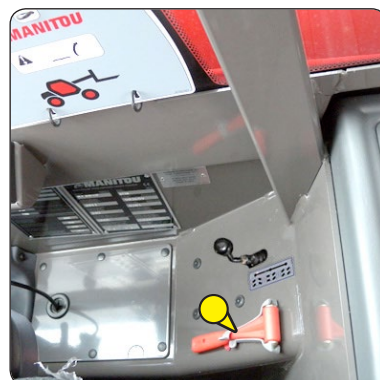
#### 45 - NUMBER PLATE



#### 46 - EMERGENCY EXIT

##### EMERGENCY HAMMER

Use the emergency hammer to break one of the windows in the event that it is impossible to exit the cab by the door or by opening the rear window.



## TOWING PIN AND HOOK

### ⚠ IMPORTANT ⚠

*Do not tow a trailer or an attachment that is not in perfect working order.*

*Using a trailer that is not in good condition may affect the steering and braking of the lift truck and therefore the safety of the whole unit.*

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

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 authorized 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, brake system...).

### 1 - COUPLING FITTING

#### ⚠ IMPORTANT ⚠

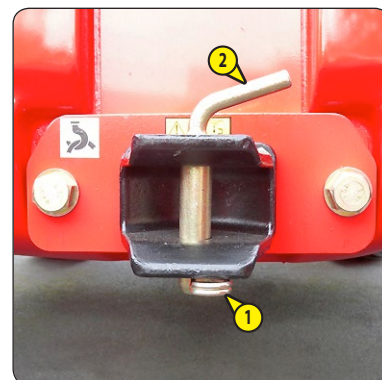
*Be careful not to get your fingers caught or crushed during this operation.*

*Do not forget to put pin back in place.*

*When uncoupling, make sure that the trailer is supported independently.*

#### COUPLING AND UNCOUPLING THE TRAILER

- To couple the trailer, position the lift truck as close as possible to the trailer ring.
- Put the handbrake on and switch off the I.C. engine.
- Remove the clip 1, lift the trailer pin 2 and place or remove the trailer ring.



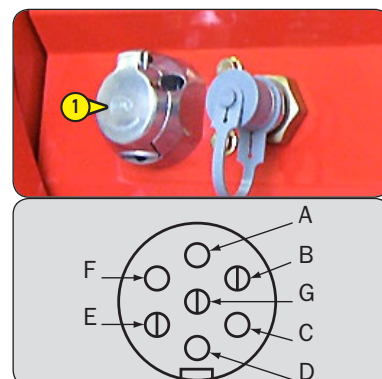
### 2 - REAR-VIEW MIRROR



### 3 - REAR ELECTRIC SOCKET

- Connect the male plug to the female socket 1 on the lift truck and make sure the lights of the trailer or the light bar are working properly.

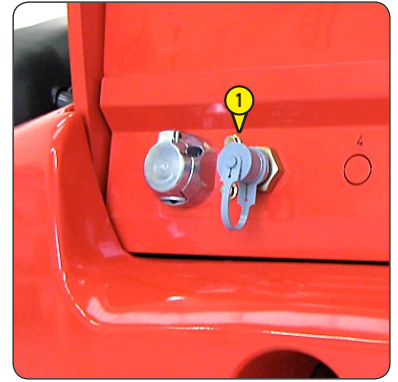
- A - Left rear indicator.
- B - OPTION Rear fog lights.
- C - Ground.
- D - Right rear indicator.
- E - Right rear headlight.
- F - Rear stoplight.
- G - Rear left headlight + number plate.





#### 4 - TRAILER BRAKE SYSTEM

- Connect the brake hose to the provided brake unit 1 on the lift truck.
- Make sure the trailer brakes are working properly and test the effects of braking before taking the trailer onto the public highway.



#### 5 - CHASSIS-MOUNTED FRONT TRAILER HOOK

##### **⚠ IMPORTANT ⚠**

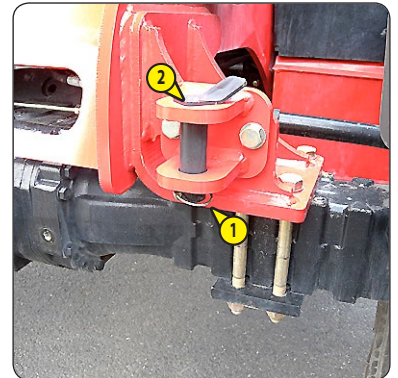
*Be careful not to get your fingers caught or crushed during this operation.*

*Do not forget to put pin back in place.*

*When uncoupling, make sure that the trailer is supported independently.*

##### **COUPLING AND UNCOUPLING THE TRAILER**

- To couple the trailer, position the lift truck as close as possible to the trailer ring.
- Put the handbrake on and switch off the I.C. engine.
- Remove the clip 1, lift the trailer pin 2 and place or remove the trailer ring.



#### 6 - COUPLING LADDER (OPTIONAL)

##### **⚠ IMPORTANT ⚠**

*Be careful not to get your fingers caught or crushed during this operation.*

*Do not forget to put pin back in place.*

*When uncoupling, make sure that the trailer is supported independently.*

##### **COUPLING AND UNCOUPLING THE TRAILER**

- To couple the trailer, position the lift truck as close as possible to the trailer ring.
- Put the handbrake on and switch off the I.C. engine.

##### **ON THE FIXED PIN**

- Remove pin 1, remove rod 2 and raise latch 3.
- Insert or remove the trailer ring, lower latch 3 and refit rod 2.

##### **⚠ IMPORTANT ⚠**

*Do not forget to put clip 1 back in place.*

##### **ON THE COUPLING LADDER**

- Set the coupling fitting 4 according to the height of the trailer ring.

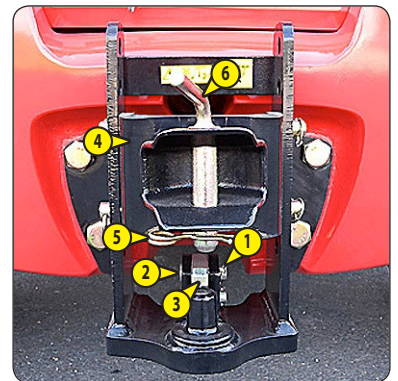
##### **⚠ IMPORTANT ⚠**

*Do not forget to put rods and clip back in place.*

- Remove the clip 5, lift the trailer pin 6 and place or remove the trailer ring.

##### **⚠ IMPORTANT ⚠**

*Do not forget to put clip 5 back in place.*



## 7 - HYDRAULIC TRAILER HOOK (OPTIONAL)

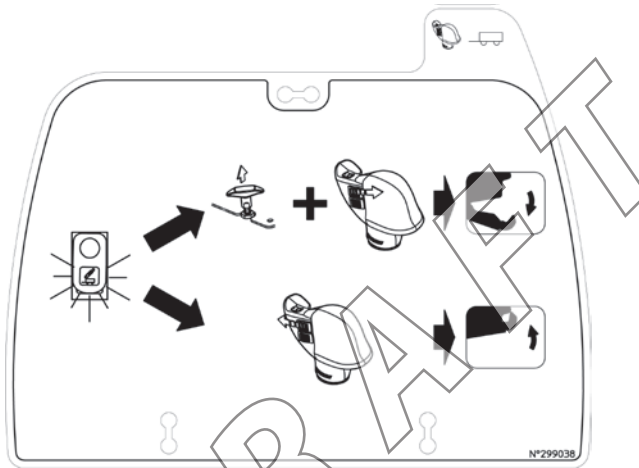
### ⚠ IMPORTANT ⚠

*Never use the trailer hook to raise the rear of the lift truck  
(when changing the rear wheel for example).*

### ⚠ IMPORTANT ⚠

*When uncoupling, make sure that the trailer is supported independently.*

- Raise the hydraulic trailer hook to release the hook lock 1 by pressing the upper part of switch 2.
- Pull the knob 3, retain this position and press the lower part of switch 2 to lower the trailer hook.
- Release knob 3.
- Couple or uncouple the trailer.
- Raise the trailer hook by pressing the upper part of switch 2 and then lower the hook to verify that the lock pin is in proper contact with hook 1 lock.



## 8 - AUTOMATIC TRAILER HOOK (OPTIONAL)

### ⚠ IMPORTANT ⚠

*When uncoupling, make sure that the trailer is supported independently.*

### COUPLING THE TRAILER

- Remove the automatic towing pin using lever 1.
- Move the lift truck backwards so that the trailer ring slots into the automatic hook.

NOTE: The pin closes automatically when the trailer ring touches the end of the fitting.

The pin can be lowered by hand using lever 1.

### UNCOUPLING THE TRAILER

- Remove the pin using lever 1 to uncouple the trailer.



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## DESCRIPTION AND USE OF THE OPTIONS

- 1 - REVERSE SOUND ALARM
- 2 - "XÉNON" FRONT WORKING HEADLIGHTS
- 3 - BOOM ELECTRICAL PREDISPOSITION
- 4 - STEERING SELECTION ASSISTANT
- 5 - I.C. ENGINE SPEED REGULATOR
- 6 - EXTERIOR DRAIN-BACK
- 7 - ATTACHMENT EASY HYDRAULIC CONNECTION
- 8 - BOOM SUSPENSION
- 9 - ATTACHMENT HYDRAULIC LOCKING
- 10 - BOOM HEAD TELESCOPE
- 11 - BOOM HEAD TELESCOPE + LOCKING HYDRAULIC ATTACHMENT
- 12 - SINGLE OR DOUBLE-ACTING OR DOUBLE-ACTING + DOUBLE-ACTING REAR HYDRAULIC CONTROL PROVISION
- 13 - HYDRAULIC TRAILER HOOK + SINGLE OR DUAL EFFECT REAR HYDRAULIC CONTROL PREDISPOSITION
- 14 - ANGULAR SECTOR ON BOOM
- 15 - WINDSCREEN GRILL

### 1 - REVERSE SOUND ALARM

### 2 - "XÉNON" FRONT WORKING HEADLIGHTS

This option cannot be used when driving on the road due to glare.

### 3 - BOOM ELECTRICAL PREDISPOSITION

Enables an electrical function to be used at the head of the boom.

#### OPERATION

- Set switch 1 to position A to enable the predisposition, the indicator lights up to show that it is enabled.





#### 4 - STEERING SELECTION ASSISTANT

##### ⚠ IMPORTANT ⚠

*Before driving on roads, it is necessary to check the alignment of the rear wheels and to drive in front wheel steer.  
The alignment of the rear wheels must be regularly checked using the green lights while driving the lift truck.  
It is not possible to change the steering mode above 11 km/h  
In case of anomalies, consult your dealer.*

##### A - GREEN WHEEL ALIGNMENT LIGHTS

These lights come on to indicate the alignment of the wheels in relation to the lift truck. The A1 light for the front wheels and the A2 light for the rear wheels.

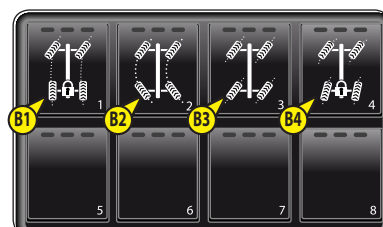
##### B - DIRECTION SELECTION CONTROL

- B1 - Front drive wheels (highway traffic).
- B2 - Front and rear drive wheels in opposite direction (short steering lock).
- B3 - Front and rear drive wheels in the same direction (crab steering).
- B4 - Front drive wheels and locking of the rear wheel steering angle.

##### CHANGING THE STEERING MODE

- Press on one of the steering modes B1, B2, B3 or B4.
- Align the rear and front wheels.
  - A continual central light indicates active steering mode.
  - A continual green light + a flashing orange light indicate active steering mode and the requested steering mode.
  - A continual green light + 3 red lights indicate that it is no longer possible to change the steering mode (speed greater than 11 km/h).
  - The 4 lit red lights indicate a fault; operate the wheel to correctly align the wheels.

CHANGING THE STEERING MODE			
MODE	0 km/h	From 1km/h to 11km/h	Over 11km/h
B1	YES	NO	NO
B2	YES	YES	NO
B3	YES	YES	NO
B4	YES	YES	NO



#### 5 - I.C. ENGINE SPEED REGULATOR

##### ⚠ IMPORTANT ⚠

*The engine speed regulator cannot under any circumstances be used while driving on the road.*

The engine speed regulator adjusts the engine speed and controls the hydraulic flow rate in the attachment circuit. The maximum speed using the engine speed regulator is sufficient to obtain the full hydraulic flow rate in the attachment circuit.



#### 6 - EXTERIOR DRAIN-BACK

Enables connection of an attachment for which drain-back is required.





- A - Fixed position, drain-back not connected.
- B - Movable position, drain-back connected.



## 7 - ATTACHMENT EASY HYDRAULIC CONNECTION

For easily connecting and disconnecting the hydraulic attachment.

### OPERATION


- Switch on lift truck ignition.
- Press on the button for two seconds to release the attachment circuit hydraulic pressure.     screens will be alternately displayed.
- Connect or disconnect the rapid connectors of the hydraulic attachment (see: 4 - OPTIONAL ATTACHMENTS FOR USE WITH THE RANGE: PICKING UP THE ATTACHMENTS).



## 8 - BOOM SUSPENSION

### ⚠ IMPORTANT ⚠


*Boom suspension is enabled up to a lifting height of 3m00 from the carriage pivot pin in relation to the ground with the boom retracted.*

*When you operate beyond this height or perform another hydraulic movement (tilting, lowering), boom suspension is momentarily deactivated and the  pictogram flashes.*

*- When the I.C. engine is off, boom suspension is automatically deactivated*

The boom is suspended to reduce shaking of the lift truck on rough ground (e.g. moving straw in a field).

### OPERATION

- Set the forks or attachment on the ground and relieve the front wheels a few centimetres only.
- A short press on the button activates the boom suspension.
- The  pictogram is continually displayed to confirm its activation.
- A second short press deactivates the boom suspension.



## 9 - ATTACHMENT HYDRAULIC LOCKING

Enables the attachment to be locked onto the carriage and a hydraulic attachment to be used by the same hydraulic circuit.

### ⚠ IMPORTANT ⚠

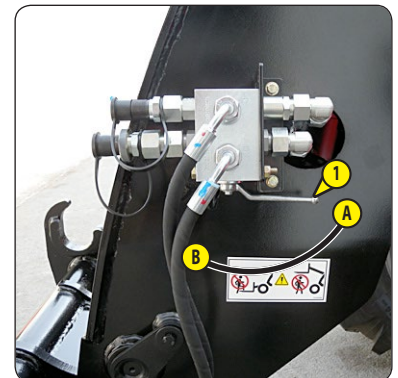
*Once the attachment is locked, return valve 1 to position A to prevent accidental release of the attachment.*

### ATTACHMENT LINE CONTROL

- Set valve 1 to position A.
- Push button 2 forward or backward.

### ATTACHMENT LOCKING CONTROL

- Set valve 1 to position B.
- Push button 2 forward to lock the attachment and backward to release it.



## 10 - BOOM HEAD TELESCOPE

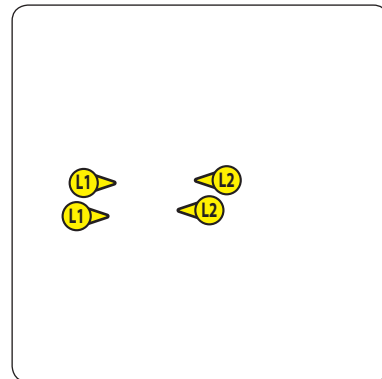
Enables use of two hydraulic functions on the attachment circuit.

### ATTACHMENT LINE L1 CONTROL

- Push button 1 forward or backward.

### ATTACHMENT LINE L2 CONTROL

- Hold down button 2 and push button 1 forwards or backwards.



## 11 - BOOM HEAD TELESCOPE + LOCKING HYDRAULIC ATTACHMENT

### ⚠ IMPORTANT ⚠

*Once the attachment is locked, return valve 1 to position A to prevent accidental release of the attachment.*

The addition of these two options on the attachment line allows two hydraulic functions to be used and locks the attachment onto the carriage.

### ATTACHMENT LINE L1 CONTROL

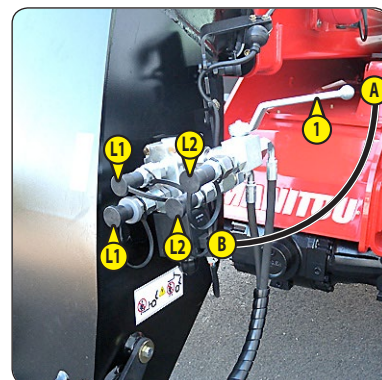
- Set valve 1 to position A.
- Push button 2 forward or backward.

### ATTACHMENT LINE L2 CONTROL

- Set valve 1 to position A.
- Hold down button 3 and push button 2 forwards or backwards.

### ATTACHMENT LOCKING CONTROL

- Set valve 1 to position B.
- Hold down button 3 and push button 2 forward to lock the attachment and backward to release it.

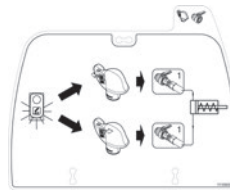


## 12 - SINGLE OR DOUBLE-ACTING OR DOUBLE-ACTING+DOUBLE-ACTING REAR HYDRAULIC CONTROL PROVISION

Enables the use of a hydraulic attachment at the rear of the lift truck (e.g. a trailer with hydraulic tipping).

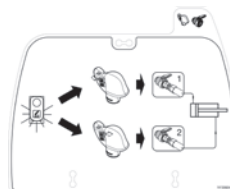
### SINGLE-ACTING L1 REAR HYDRAULIC CONTROL.

- Press the switch 1 (light on) to power the hydraulic control.
- Push button 2 forward or backward.



### DOUBLE-ACTING L1 / L2 REAR HYDRAULIC CONTROL

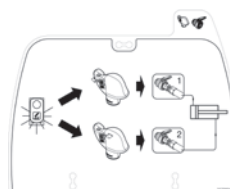
- Press the switch 1 (light on) to power the hydraulic control.
- Hold down button 3 and push button 2 forwards or backwards.



### DOUBLE-ACTING L1 / L2 AND DOUBLE-ACTING L3 / L4 REAR HYDRAULIC CONTROL

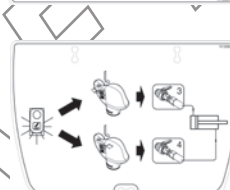
#### DUAL EFFECT ATTACHMENT L1 / L2

- Press the switch 1 (light on) to power the hydraulic control.
- Push button 2 forward or backward.



#### DUAL EFFECT ATTACHMENT L3 / L4

- Press the switch 1 (light on) to power the hydraulic control.
- Hold down button 3 and push button 2 forwards or backwards.



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### 13 - HYDRAULIC TRAILER HOOK + SINGLE OR DUAL EFFECT REAR HYDRAULIC CONTROL PREDISPOSITION

Enables the use of the trailer eye (see: 2 - DESCRIPTION: TRAILER PIN AND HOOK) or a hydraulic attachment at the rear of the lift truck.

#### HYDRAULIC TRAILER HOOK + SINGLE EFFECT REAR HYDRAULIC CONTROL L3

##### HYDRAULIC TRAILER HOOK

- Press the switch 1 (light on) to power the hydraulic control.
- Push the button 2 forwards or backwards to use the hydraulic trailer hook (see: 2 - DESCRIPTION: TRAILER PIN AND HOOK: F - HYDRAULIC TRAILER HOOK).

##### SINGLE EFFECT ATTACHMENT L3

- Press the switch 1 (light on) to power the hydraulic control.
- Hold down button 3 and push button 2 forwards or backwards.

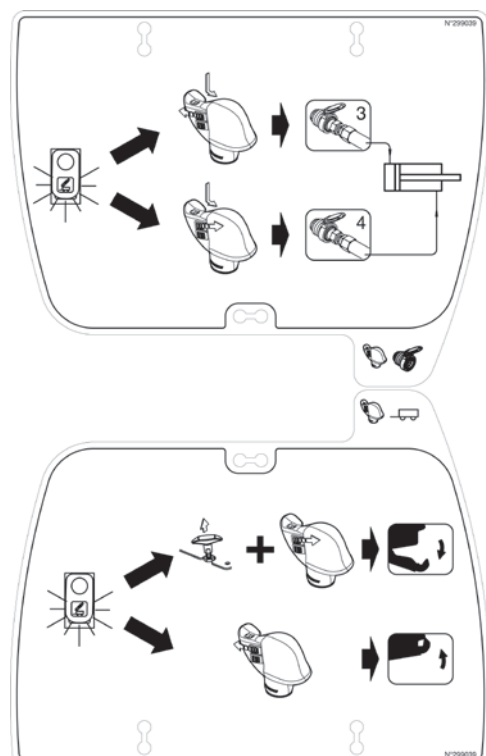
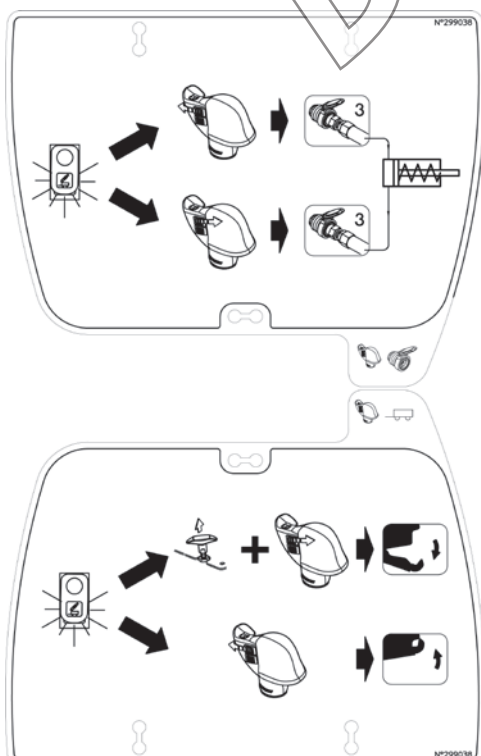
#### HYDRAULIC TRAILER HOOK + DUAL EFFECT REAR HYDRAULIC CONTROL L3 / L4

##### HYDRAULIC TRAILER HOOK

- Press the switch 1 (light on) to power the hydraulic control.
- Push the button 2 forwards or backwards to use the hydraulic trailer hook (see: 2 - DESCRIPTION: TRAILER PIN AND HOOK: F - HYDRAULIC TRAILER HOOK).

##### DUAL EFFECT ATTACHMENT L3 / L4

- Press the switch 1 (light on) to power the hydraulic control.
- Hold down button 3 and push button 2 forwards or backwards.



#### **14 - ANGULAR SECTOR ON BOOM**

The angular sector displays the boom angle, and thus improves the reading of the load charts.



#### **15 - WINDSCREEN GRILL**

##### **DESCRIPTION**

The windscreen grill provides additional protection for the operator from any external elements spattered on the windscreen.

This grill must be removable from inside the cab to enable an emergency exit.

##### **EMERGENCY EXIT**

- After breaking the windscreen with the emergency hammer, push (with force) on the grill at A to remove it.



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## ***3 - MAINTENANCE***



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## TABLE OF CONTENTS

### 3 - MAINTENANCE

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## ORIGINAL MANITOU SPARE PARTS AND EQUIPMENT

OUR LIFT TRUCKS MUST BE SERVICED USING ORIGINAL MANITOU PARTS.

### BY ALLOWING THE USE OF NON ORIGINAL MANITOU PARTS, YOU RISK:

- Legally -to be held responsible in the event of an accident.
- Technically - to cause operating malfunctions or shorten the life of the lift truck.

#### **⚠ IMPORTANT ⚠**

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

### BY USING ORIGINAL MANITOU PARTS FOR MAINTENANCE OPERATIONS, YOU BENEFIT FROM OUR KNOW-HOW

Through its network, MANITOU provides the user with,

- Know-how and competence.
- The guarantee of high-quality work.
- Original replacement parts.
- 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.

#### **⚠ IMPORTANT ⚠**

**ORIGINAL REPLACEMENT PARTS ARE DISTRIBUTED EXCLUSIVELY BY MANITOU AND ITS DEALER NETWORK.**  
*The dealer network list is available on the MANITOU web site [www.manitou.com](http://www.manitou.com)*

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## START-UP CHECKLIST

0 = OK; 1 = Missing; 2 = Incorrect

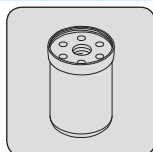
<b>100</b>	<b>ENGINE</b>	
01	Air filter	
02	Fuel tank	
03	Fuel lines - Filter	
04	Injection or carburetion system	
05	Radiator and cooling system	
06	Belts	
07	Hoses	
<b>101</b>	<b>TRANSMISSION</b>	
01	Direction reversal system	
02	Gear shift	
03	Cut-off pedal	
04	Clutch	
<b>102</b>	<b>AXLES/TRANSFER GEAR BOX</b>	
01	operation and seal	
02	Stop settings	
<b>103</b>	<b>HYDRAULIC/HYDROSTATIC CIRCUIT</b>	
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	
<b>104</b>	<b>BRAKE SYSTEM</b>	
01	Service brake and parking brake operation	
02	Brake fluid level	
<b>105</b>	<b>LUBRICATION AND GREASING</b>	
<b>106</b>	<b>JIB / MANISCOPIC / MANIACCESS ASSEMBLY</b>	
01	Beam and telescope(s)	
02	Skid	
03	Hinges	
04	Carriage	
05	Forks	
<b>107</b>	<b>MAST ASSEMBLY</b>	
01	Fixed and mobile uprights	
02	Carriage	
03	Chains	
04	Rollers	
05	Forks	
<b>108</b>	<b>ATTACHMENTS</b>	
01	Fitting on machine	
02	Hydraulic couplings	

<b>109</b>	<b>CABIN / PROTECTOR /ELECTRIC CIRCUIT</b>	
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	Revolving light	
11	Battery	
<b>110</b>	<b>WHEEL</b>	
01	Rims	
02	Tyre / Pressure	
<b>111</b>	<b>SCREWS</b>	
<b>112</b>	<b>FRAME AND BODYWORK</b>	
<b>113</b>	<b>PAINTING</b>	
<b>114</b>	<b>GENERAL OPERATION</b>	
<b>115</b>	<b>OPERATOR'S MANUAL</b>	
<b>116</b>	<b>CUSTOMER INSTRUCTIONS</b>	

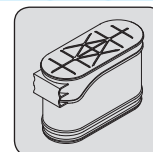
## FILTERS CARTRIDGES AND BELTS

### I.C. ENGINE

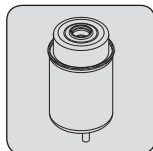
I.C. ENGINE OIL FILTER  
Part number: 798295  
Change: 500 H



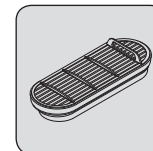
DRY AIR FILTER CARTRIDGE  
Part number: 299936  
Change: 1000 H



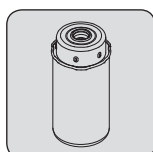
FUEL FILTER  
Part number: 798268  
Change: 500 H



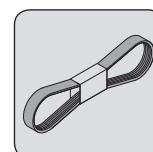
SAFETY DRY AIR FILTER CARTRIDGE  
Part number: 299937  
Change: 3000 H



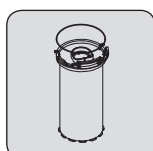
FUEL PRE-FILTER  
Part number: 798277  
Change: 500 H



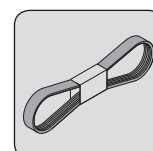
ALTERNATOR BELT  
Part number: 796667



ENGINE CRANKCASE VENTILATION FILTER  
Part number: 796022  
Change: 1000 H

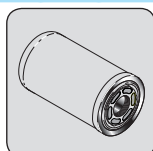


ALTERNATOR BELT  
(AIR CONDITIONING OPTION)  
Part number: 796760



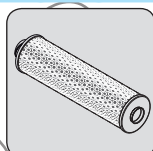
### TRANSMISSION

GEAR BOX OIL FILTER  
Part number: 745878  
Change: 1000 H

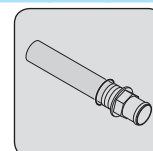


### HYDRAULIC

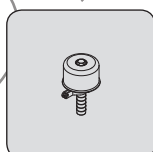
HYDRAULIC RETURN OIL FILTER CARTRIDGE  
Part number: 282526  
Change: 500 H



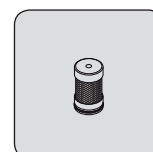
SUCTION STRAINER FOR HYDRAULIC OIL TANK  
Part number: 259500  
Clean: 1000 H



BREATHER FOR THE HYDRAULIC OIL TANK  
Part number: 278288  
Change: 1000 H

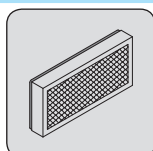


BRAKE ACCUMULATOR UNIT FILTER  
Part number: 746308  
Change: 1000 H

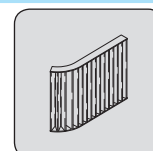


### CAB

CAB EXTERNAL VENTILATION FILTER  
Part number: 261971  
Clean: 50 H  
Change: 250 H



CAB INTERNAL VENTILATION FILTER  
Part number: 746106  
Clean: 50 H  
Change: 250 H



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## LUBRICANTS AND FUEL

### ⚠ IMPORTANT ⚠

USE THE RECOMMENDED LUBRICANTS AND FUEL:

- 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.

### (\*) RECOMMENDED FUEL SPECIFICATION:

Use a high-quality fuel to obtain optimal performance of the engine.

- Type of diesel fuel EN590
- Type of diesel fuel ASTM D975

ENGINE				
ORGANS TO BE LUBRICATED	CAPACITY	RECOMMENDATION	PACKAGING	PART NUMBER
ENGINE	13 Litres	MANITOU Oil GOLD	20 l	786745
		"API CJ-4 ; ACEA E9"	209 l	787729
		Oil JD	20 l	895529
COOLING CIRCUIT	23 Litres	Plus-50 II Premium	210 l	894967
		Cooling liquid	20 l	894968
		(protection - 35°)	210 l	894969
FUEL TANK	143 Litres	Diesel fuel (*)		

TRANSMISSION				
ORGANS TO BE LUBRICATED	CAPACITY	RECOMMENDATION	PACKAGING	PART NUMBER
GEAR BOX	23 Litres	MANITOU Oil Automatic transmission	1 l	62148
			20 l	546332
			55 l	546217
			209 l	546195
			1000 l	720148

JIB				
ORGANS TO BE LUBRICATED		RECOMMENDATION	PACKAGING	PART NUMBER
JIB PADS		MANITOU Grease BLACK multi-purpose	400G	545996
			1Kg	161590
			5kg	499235
GREASING OF THE JIB		MANITOU Grease BLUE multi-purpose	400G	161589
			1Kg	720683
			5kg	554974
			20kg	499233
			50kg	489670

HYDRAULIC				
ORGANS TO BE LUBRICATED	CAPACITY	RECOMMENDATION	PACKAGING	PART NUMBER
HYDRAULIC OIL TANK	175 Litres	MANITOU Oil Hydraulic ISO VG 46	5 l	545500
			20 l	582297
			55 l	546108
			209 l	546109

BRAKE				
ORGANS TO BE LUBRICATED		RECOMMENDATION	PACKAGING	PART NUMBER
BRAKE CIRCUIT		MANITOU Oil Mineral brake fluid	1 l	490408

CAB				
ORGANS TO BE LUBRICATED		RECOMMENDATION	PACKAGING	PART NUMBER
WINDSCREEN WASHER TANK		Windscreen washer liquid	1 l	490402
			5 l	486424

FRONT AXLE				
ORGANS TO BE LUBRICATED	CAPACITY	RECOMMENDATION	PACKAGING	PART NUMBER
FRONT AXLE DIFFERENTIAL	7,6 Litres	MANITOU Oil Special immersed brakes	5l	545976
			20l	582391
			209l	546222
			1 000l	720149
FRONT WHEELS REDUCTION GEARS	0,75 Litter	MANITOU Oil SAE80W90 Mechanical transmission	2l	499237
			5l	720184
			20l	546330
			55l	546221
FRONT WHEELS REDUCTION GEAR PIVOTS		MANITOU Grease BLUE multi-purpose	209l	546220
			400 g	545996
			1 kg	161590
			5 kg	499235

REAR AXLE				
ORGANS TO BE LUBRICATED	CAPACITY	RECOMMENDATION	PACKAGING	PART NUMBER
REAR AXLE DIFFERENTIAL	7,6 Litres	MANITOU Oil Special immersed brakes	5l	545976
			20l	582391
			209l	546222
			1 000l	720149
REAR WHEEL REDUCTION GEAR	0,75 Litter	MANITOU Oil SAE80W90 Mechanical transmission	2l	499237
			5l	720184
			20l	546330
			55l	546221
REAR WHEEL REDUCTION GEAR PIVOTS REAR AXLE OSCILLATION		MANITOU Grease BLUE multi-purpose	209l	546220
			400 g	545996
			1 kg	161590
			5 kg	499235

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# SERVICING SCHEDULE

## ⚠ IMPORTANT ⚠

(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).

(2): Every 10 hours during the first 50 hours then a final time at 250 hours.

(3): Contact your dealer.

A = ADJUST, C = CHECK, G = GREASE, N = CLEAN, P = BLEED, R = REPLACE, V = DRAIN	PAGE	(1)	DAILY OR EVERY 10 HOURS OF SERVICE	EVERY 50 HOURS OF SERVICE	EVERY 250 HOURS OF SERVICE	EVERY 500 HOURS OF SERVICE OR EVERY YEAR	EVERY 1000 HOURS OF SERVICE OR EVERY TWO YEARS	EVERY 2000 HOURS OF SERVICE OR EVERY TWO YEARS	EVERY 3000 HOURS OF SERVICE	EVERY 4000 HOURS OF SERVICE	OCCASIONALLY
<b>I.C. ENGINE</b>											
- I.C. engine oil level	3-12		C								
- Cooling liquid level	3-12	C	C								
- Fuel level	3-13	C	C								
- Fuel pre-filter	3-13		C								
- Radiator core	3-16	C/N		C/N							
- I.C. engine oil (according type of oil)	3-22	V			V	V					
- I.C. engine oil filter	3-22	R				R					
- Engine crankcase ventilation system	3-23	C				C					
- Fuel pre-filter	3-23	R				R					
- Fuel filter	3-23	R				R					
- Automatic alternator belt tensioner	3-24	C				C					
- Fuel tank	3-26						N				
- Dry air filter cartridge	3-26						R				
- Engine crankcase ventilation filter	3-27	R					R				
- I.C. engine silent blocks							C (3)				
- I.C. engine rates							C (3)				
- Cooling liquid	3-30							V			
- Safety dry air filter cartridge	3-32								R		
- Valves clearances									C (3)		
- Thermostat									C (3)		
- Preheating plug test									C (3)		
- Alternator belt	3-34										R
- "Stationary lift truck" exhaust particle filter	3-35										XXX
<b>TRANSMISSION</b>											
- Gear box oil level	3-16			C							
- Gear box oil	3-27	V					V				
- Gear box oil filter	3-27	R					R				
- Silentblocks in the gear box							C (3)				
- Gear box controls							C (3)				
- Transmission pressure								C (3)			
- Gear box calibration								C (3)			
- Wear of the brake pads and the brake disk										C (3)	
<b>TYRES</b>											
- Tyres pressure	3-16	C		C							
- Wheel nuts torque	3-16	C		C							
- Wheel nuts tightening torque	3-31	C						C			
- Wheel	3-36										R
<b>JIB</b>											
- Jib pads	3-13		G (2)								
- Jib	3-17	G		G							
- Jib pads wear							C (3)				
- Condition of jib unit		C						C (3)			
- Bearings and articulation rings								C (3)			
<b>HYDRAULIC</b>											
- Hydraulic oil level	3-18	C		C							
- Hydraulic oil	3-28						V				
- Hydraulic return oil filter cartridge	3-28	R					R				
- Breather for the hydraulic oil tank	3-28						R				
- Suction strainer for hydraulic oil tank	3-28						N				
- Brake accumulator unit filter	3-28						R				
- Condition of hoses and flexible pipes							C (3)				
- Condition of cylinders (leakage, shafts)							C (3)				
- Hydraulic circuit pressures								C (3)			
- Hydraulic oil tank								N (3)			

A = ADJUST, C = CHECK, G = GREASE, N = CLEAN, P = BLEED, R = REPLACE, V = DRAIN		PAGE	(1)	DAILY OR EVERY 10 HOURS OF SERVICE	EVERY 50 HOURS OF SERVICE	EVERY 250 HOURS OF SERVICE	EVERY 500 HOURS OF SERVICE OR EVERY YEAR	EVERY 1000 HOURS OF SERVICE OR EVERY TWO YEARS	EVERY 2000 HOURS OF SERVICE OR EVERY TWO YEARS	EVERY 3000 HOURS OF SERVICE	EVERY 4000 HOURS OF SERVICE	OCCASIONALLY
<b>BRAKE</b>												
- Brake oil level	3-18	C			C							
- Brake oil								V (3)				
- Brake system								P (3)				
- Brake system pressure								C (3)				
- Brake								A (3)				
<b>STEERING</b>												
- Steering									C (3)			
- Steering swivel joints									C (3)			
<b>CAB</b>												
- Windscreen washer liquid level	3-18	C			C							
- Cab ventilation filters	3-19/20	R			N	R						
- Condenser core (OPTION Air conditioning)	3-19	C/N			C/N							
- Seat belt	3-29							C				
- Condition of the rear view mirrors								C (3)				
- Structure								C (3)				
- Air conditioning (OPTION)	3-31								N/C			
<b>ELECTRICITY</b>												
- Longitudinal stability limiter and warning device	3-14/37	C		C								XXX
- Condition of wiring harness and cables								C (3)				
- Lights and signals								C (3)				
- Warning indicators								C (3)				
- Front headlights	3-38											A
- Battery failure	3-38											R
<b>FRONT AXLE</b>												
- Front wheels reducers pivots	3-17	G			G						C (3)	
- Front axle differential oil level	3-20					C						
- Front wheels reducers oil level	3-20					C						
- Front axle differential oil	3-25	V					V					
- Front wheels reducers oil	3-29	V						V				
- Wear of front axle brake discs											C (3)	
- Front wheels reducers universal joint											C (3)	
- Front wheels reducers clearance											C (3)	
<b>REAR AXLE</b>												
- Rear wheels reducers pivots	3-17	G			G						C (3)	
- Rear axle oscillation	3-17	G			G				G/C (3)			
- Rear axle differential oil level	3-20					C						
- Rear wheels reducers oil level	3-20					C						
- Rear axle differential oil	3-25	V					V					
- Rear wheels reducers oil	3-29	V						V				
- Wearing of rear axle brake discs											C (3)	
- Rear wheels reducers universal joint											C (3)	
- Rear wheels reducers clearance											C (3)	
<b>CHASSIS</b>												
- Structure								C (3)				
- Bearings and articulation rings									C (3)			
<b>ATTACHMENTS</b>												
- Forks wear		C (3)					C (3)					
- Attachment carriage								C (3)				
- Condition of attachments								C (3)				
<b>LIFT TRUCK</b>												
- Tow the lift truck	3-39											XXX
- Sling the lift truck	3-39											XXX
- Transport the lift truck on a platform	3-40											XXX

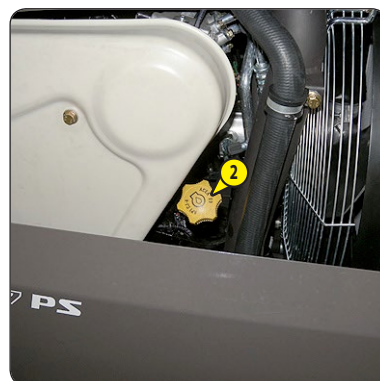
## A - DAILY OR EVERY 10 HOURS SERVICE

### A1 - ENGINE OIL LEVEL

CHECK

Place the lift truck on level ground with the I.C. engine stopped, and let the oil drain into the sump.

- Open the engine bonnet.
- Pull out dipstick 1.
- Clean the dipstick and check the correct level between the two notches.
- If necessary, add oil (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL) through the filler port 2.
- Visually check that there is no leakage or seepage of oil in the engine.



### A2 - COOLING LIQUID LEVEL

CHECK

Place the lift truck on level ground with the I.C. engine stopped, and allow the I.C. engine to cool.

#### ⚠ IMPORTANT ⚠

*To avoid any risk of spraying or burning, wait until the engine has cooled down before removing the cooling circuit filler plug. If the cooling liquid is very hot, add only hot cooling liquid (80°C).*

*In an emergency, you can use water as a cooling liquid; then change the cooling circuit liquid as soon as possible (see: 3 - MAINTENANCE: F1 - COOLING LIQUID).*

- Open the engine bonnet.
- The liquid must be at the MAXIMUM level on the expansion tank 1.
- If necessary, add cooling liquid (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL) through the filler port 2.
- Visually check that there is no leakage in the radiator and pipes.



### A3 – FUEL LEVEL

#### CHECK

Keep the fuel tank full, to reduce as much as possible any condensation due to the atmospheric conditions.

#### ⚠ IMPORTANT ⚠

*Never smoke or approach with a flame during filling operations or when the tank is open.  
Never refill while I.C. engine is running.*

- Check the fuel gauge on the instrument panel.
- If necessary, add diesel (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL).
- Open the fuel filler access panel with the ignition key.
- Remove cap 1.
- Fill the fuel tank with clean diesel filtered through the filler port 2.
- Refit the cap.
- Visually check that there is no leakage in the tank and pipes.



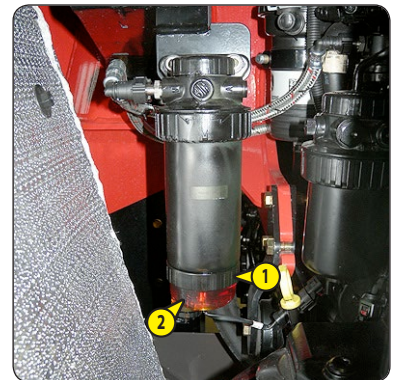
### A4 – FUEL PRE-FILTER

#### CHECK

#### ⚠ IMPORTANT ⚠

*Carefully clean the outside of the pre-filter and its holder, to prevent dust from getting into the system.*

- Open the engine bonnet.
- Check for the presence of water in pre-filter tank 1 and drain if necessary.
- Place a receptacle under the drain plug 2 and loosen it in two to three thread turns.
- Allow the diesel fuel to flow out until it is free from impurities and water.
- Tighten the drain plug 2 while the diesel fuel is running out.



### A5 – JIB PADS

#### CLEAN - GREASE

To be carried out every 10 hours during the first 50 hours service, then once at 250 hours.

#### ⚠ IMPORTANT ⚠

*If the lift truck is used in an abrasive environment (dust, sand, and coal.), use lubricating varnish (MANITOU reference: 483536).  
In this respect, consult your dealer.*

- Fully extend the jib.
- Apply the grease with a brush (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL) to the 4 sides of the telescope(s).
- Telescope the jib several times in order to spread the coat of grease evenly.
- Remove the surplus of grease.





**⚠ IMPORTANT ⚠**

Carefully follow the boom positioning instructions.

In case of doubt during the test procedure, exit by briefly pressing the cancel button .
















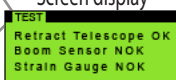




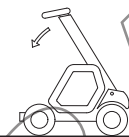



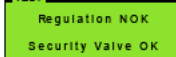




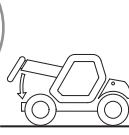














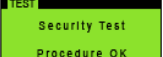

If in doubt, contact your dealer.

The appearance of the screen  indicates that an instruction, a cancellation request or a late response has not been observed.

These tests are essential for checking the correct operation and adjustment of the different components of the device.

- Place the lift truck on flat, level ground with the wheels straight.

- Hold down the test button .

<b>STAGE 1</b> 		 Start of procedure.	 	 Go to stage 2.
<b>STAGE 2</b> 		  Place the lift truck without any attachment, with the jib fully retracted and raised.	 	 TEST OK  Go to stage 3.
				 TEST NOT OK Screen display   Consult your dealer.
<b>STAGE 3</b> 		  Lower the jib with the engine running at full revs and the hydraulic control at the maximum setting. Lowering slows until movement is cut-off.	 TEST OK	 Go to stage 4.
				 TEST NOT OK Screen display   Consult your dealer.
<b>STAGE 4</b> 		  Continue to lower the jib with the engine running at full revs and the hydraulic control at the maximum setting. Lowering slows until movement is next cut-off.	 TEST OK	 Go to stage 5.
				 TEST NOT OK Screen display   Consult your dealer.
<b>STAGE 5</b> 		 Request in the following order: a reverse tilt, a carriage forward tilt (dumping), a telescope extension and a boom descent. None of these 4 movements should be possible.	 	 Go to stage 6.
				 TEST NOT OK Cancel  Exit test mode.  Consult your dealer.
<b>STAGE 6</b>		 End of procedure.		

DRAFT

## B - EVERY 50 HOURS SERVICE

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

### B1 – RADIATOR CORE

CHECK - CLEAN

#### ⚠ IMPORTANT ⚠

*In a polluting atmosphere, clean the radiator core every day.*

*Do not use a water jet or high-pressure steam as this could damage the radiator fins.*

- Open the engine bonnet.
- If necessary, clean the suction grid on the engine hood.
- Clean grid 1.
- Using a soft cloth, clean the radiator in order to remove as much dirt as possible.
- Clean the radiator using a compressed air jet aimed in the opposite direction to the cooling air flow.
- Remove impurities via the panel using handle 2.



### B2 – GEAR BOX OIL LEVEL

CHECK

Place the lift truck on level ground with the boom raised and the engine running.

#### ⚠ IMPORTANT ⚠

*Raise the boom and place the boom safety wedge on the rod of the lifting cylinder  
(see: 1 - OPERATING AND SAFETY INSTRUCTIONS: LIFT TRUCK MAINTENANCE INSTRUCTIONS).*

- Unscrew the level plug 1.
- Wipe the dipstick and check the correct level against the MAX mark.
- If necessary, add oil (see: 3 - MAINTENANCE: E4 - GEAR BOX OIL).
- Visually check that there is no leakage or seepage of oil in the transmission.



### B3 – TYRE PRESSURE AND WHEEL NUT TORQUES

CHECK

#### ⚠ IMPORTANT ⚠

*Check that the air hose is correctly connected to the tyre valve before inflating and keep all persons at a distance during inflation. Respect the recommended tyre pressures given.*

- 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.
- Check and restore tyre pressures if necessary (see: 2 - DESCRIPTION: TYRES).

NOTE: There is an OPTIONAL wheel toolkit.

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

**⚠ IMPORTANT ⚠**

*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 FUEL) and remove the surplus of grease.

**JIB**

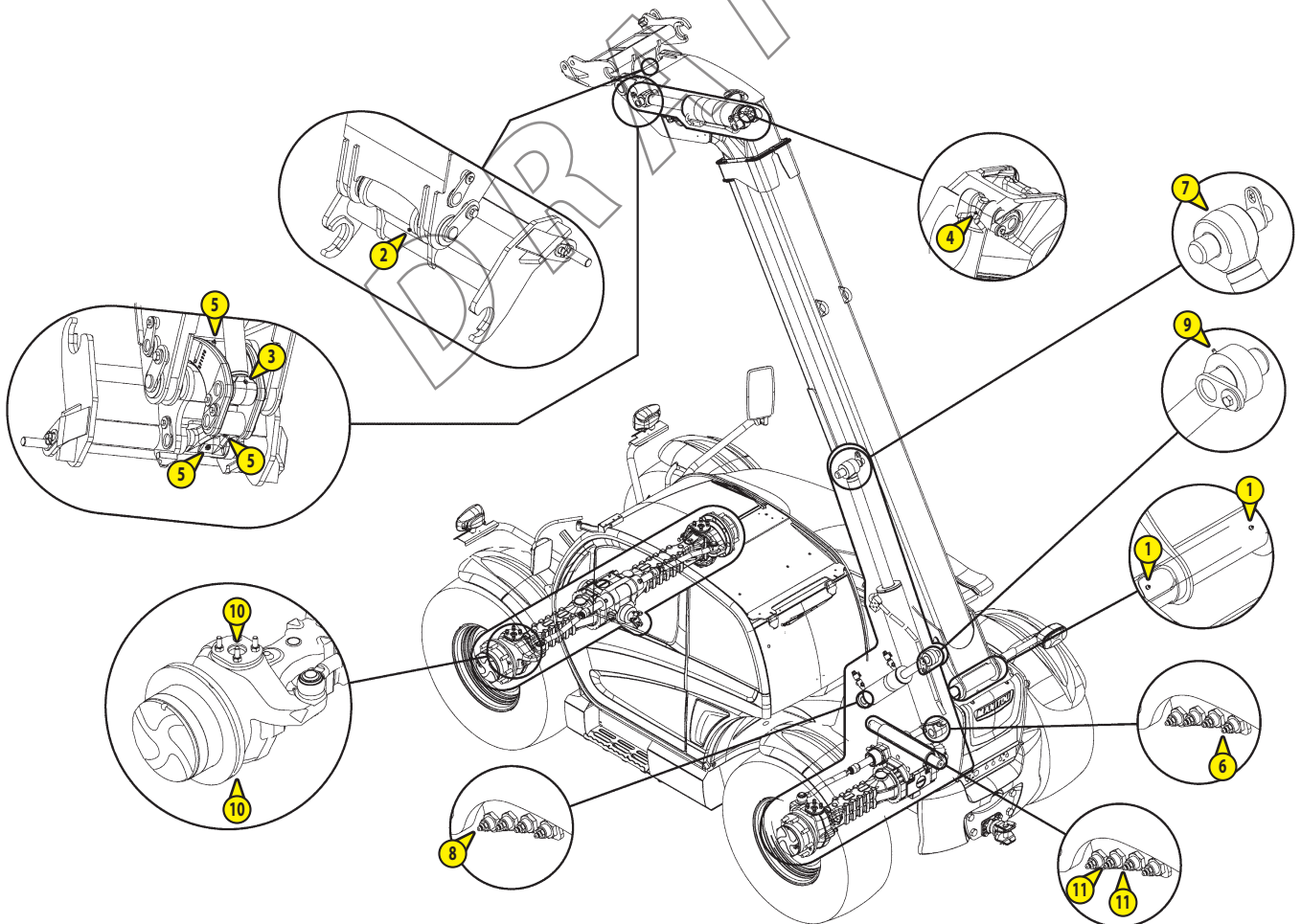
- 1 - Lubricators of the boom axle (2 lubricators).
- 2 - Lubricators of the carriage axle (1 lubricator).
- 3 - Lubricator of the tilt cylinder head axle (1 lubricator).
- 4 - Lubricator of the tilt cylinder foot axle (1 lubricator).
- 5 - Lubricators of the carriage connecting rod axles (3 lubricators).
- 6 - Lubricator of the lifting cylinder foot axle (1 lubricator).
- 7 - Lubricator of the lifting cylinder head axle (1 lubricator).
- 8 - Lubricator of the compensation cylinder foot axle (1 lubricator).
- 9 - Lubricator of the compensation cylinder head axle (1 lubricator).

**FRONT AND REAR WHEEL REDUCTION GEAR PIVOTS**

- 10 - Lubricators of the wheel reduction gear pivot pins (8 lubricators).

**REAR AXLE OSCILLATION**

- 11 - Rear axle oscillation lubricators (2 lubricators).





## B5 – HYDRAULIC OIL LEVEL

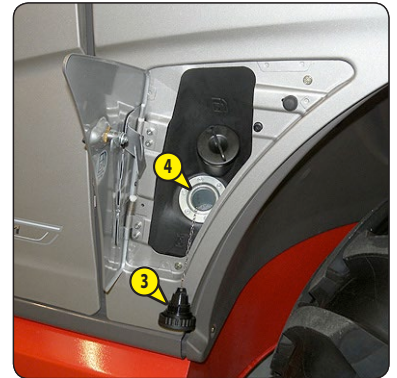
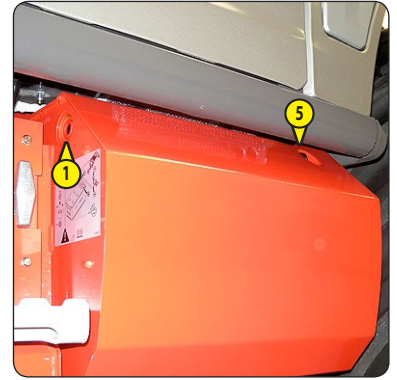
CHECK

Place the lift truck on level ground with the I.C. engine stopped, and the jib retracted and lowered as far as possible.

### ⚠ IMPORTANT ⚠

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

- Check the level on the low level gauge 1. The level is correct when it is situated above the level of the red point.
- If necessary, add oil (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL).
- Open the hydraulic oil filler access panel with the ignition key.
- Remove the filler cap lock 2.
- Remove cap 3.
- Add oil through filler port 4 up to the black dot on the high level gauge 5.
- Refit the cap and its lock.
- Visually check that there is no leakage in the tank and pipes.



## B6 – BRAKE OIL LEVEL

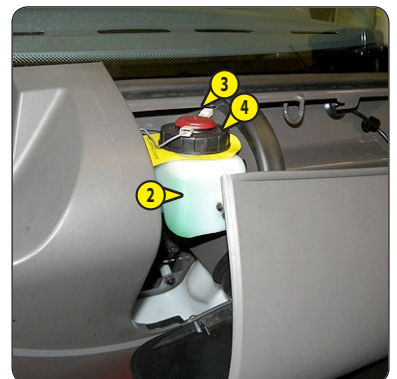
CHECK

Place the lift truck on level ground.

### ⚠ IMPORTANT ⚠

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

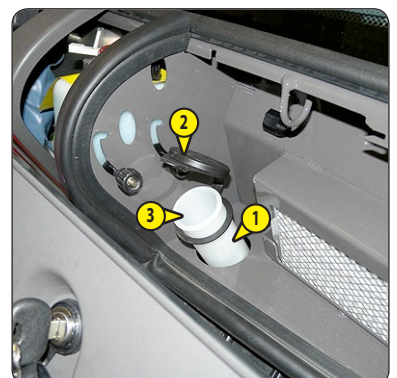
- Open the protective casing 1 with the ignition key.
- Check tank 2. The level is correct when it is situated at the MAX level on the tank.
- If necessary, add oil (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL).
- Remove cap 3.
- Add oil through filler port 4.
- Refit the cap.
- Visually check that there is no leakage in the tank and pipes.



## B7 – WINDSCREEN WASHER LIQUID LEVEL

CHECK

- Visually check the level in tank 1.
- If necessary add windscreen washer liquid (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL).
- Remove cap 2.
- Add windscreen washer liquid through filler port 3.
- Refit the cap.

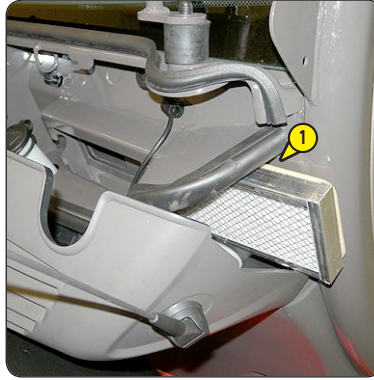


## B8 – CAB VENTILATION FILTERS

CLEAN

### EXTERNAL CAB VENTILATION FILTER

- Lift out cab ventilation filter 1.
- Clean the filter with a compressed air jet.
- Check its condition and change if necessary (see: 3 - MAINTENANCE: FILTERS CARTRIDGES AND BELTS).
- Reinstall the filter.
- Refit the protective casing 2.



### INTERNAL CAB VENTILATION FILTER

- Remove the protective grid 3.
- Lift out cab ventilation filter 4.
- Clean the filter with a compressed air jet.
- Check its condition and change if necessary (see: 3 - MAINTENANCE: FILTERS CARTRIDGES AND BELTS).
- Reinstall the filter.
- Refit the protective grid 3.



## B9 – CONDENSER CORE (AIR CONDITIONING OPTION)

CHECK - CLEAN

### ⚠ IMPORTANT ⚠

*In a polluting atmosphere, clean the radiator core every day.*

*Do not use a water jet or high-pressure steam as this could damage the condenser fins.*

- Visually check whether the condenser is clean and clean it if necessary.
- Clean the condenser using a compressed air jet aimed in the same direction as the air flow.
- Clean with the fans running for best results.





## C - EVERY 250 HOURS OF SERVICE

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

### C1 – CAB VENTILATION FILTERS

CHANGE

#### EXTERNAL CAB VENTILATION FILTER

- Remove protective casing 1 using the ignition key.
- Lift out cab ventilation filter 2 and replace it with a new one (see: 3 - MAINTENANCE: FILTERS, CARTRIDGES AND BELTS).
- Refit the protective casing.



#### INTERNAL CAB VENTILATION FILTER

- Remove the protective grid 3.
- Lift out cab ventilation filter 4 and replace it with a new one (see: 3 - MAINTENANCE: FILTERS, CARTRIDGES AND BELTS).
- Refit the protective grid.

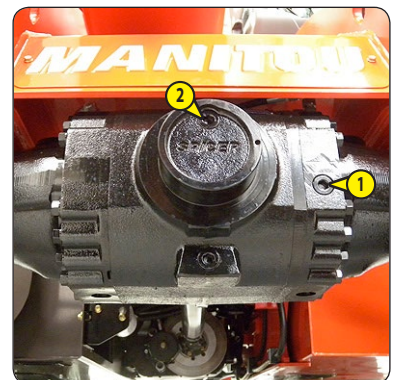


### C2 – FRONT AND REAR AXLE DIFFERENTIAL OIL LEVEL

CHECK

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

- Remove the level plug 1; the oil should be flush with the edge of the hole.
- If necessary, add oil (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL) through the filler port 2.
- Refit and tighten the level plug 1 (tightening torque 34 to 49 N.m).



### C3 – FRONT AND REAR WHEEL REDUCTION GEAR OIL LEVEL

CHECK

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

- Check the level on each wheel reduction gear.
- Place level plug 1 in a horizontal position.
- Remove the level plug; the oil should be flush with the edge of the opening.
- If necessary, add oil (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL) by the same hole.
- Refit and tighten the level plug (tightening torque 34 to 49 N.m).



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## D - EVERY 500 HOURS OF SERVICE OR EVERY YEAR

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

A maintenance warning is displayed at 480 hours on the help screen



the 500 hour maintenance deadline. After this period, the help screen



key . The maintenance then has to be performed.

NOTE: Once this maintenance has been conducted (D – EVERY 500 HOURS OF SERVICE), reset the maintenance counter to zero:

- Display the MAINT “reset the maintenance interval to 500 hours” menu



(see: 2 - DESCRIPTION: 6D - SCREEN

DISPLAY: MENU SCREEN) and validate

- Enter the CUSTOMER code



and validate

### D1 – ENGINE OIL

**DRAIN**

### D2 – I.C. ENGINE OIL FILTER

**CHANGE**

Place the lift truck on level ground, let the I.C. engine run at idle for a few minutes, then stop the I.C. engine.

#### ⚠ IMPORTANT ⚠

**USE THE RECOMMENDED LUBRICANTS:**

**Oil MANITOU GOLD "API CJ-4 ; ACEA E9" => CHANGE EVERY 250 HOURS**

**Oil JD Plus-50 II Premium => CHANGE EVERY 500 HOURS**

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

*Tighten the oil filter by hand pressure only and lock the filter in place by a quarter turn.*

#### DRAINING THE OIL

- Open the engine bonnet.
- Remove access panel 1.
- Place a container under drain plug 2 and unscrew the plug.
- Take drain hose 3.
- Place the end of the drain hose in the container and screw the hose fully to the drain connector 2.
- Remove level and filling plug 4 to ensure that the oil is drained properly.

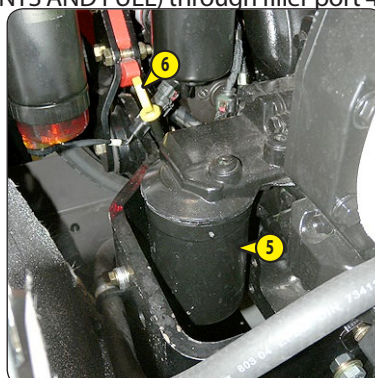
#### REPLACEMENT OF THE FILTER

- Unscrew and discard the engine oil filter 5, together with its seal.
- Clean the filter bracket with a clean, lint-free cloth.
- Lightly grease the new seal before refitting the new oil filter (see: 3 - MAINTENANCE: FILTERS AND BELTS) on its bracket.

NOTE: Ensure that the notches of the dust seal are correctly fitted in the grooves of the filter holder.

#### FILLING UP THE OIL

- Remove, clean and refit drain hose 3.
- Replace and tighten the drain plug 2.
- Fill up with oil (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL) through filler port 4.
- Wait a few minutes to allow the oil to flow into the sump.
- Start the engine and let it run for a few minutes.
- Check for possible leaks from the drain plug and the oil filter.
- Stop the engine, wait a few minutes and check the correct level between the two level marks on the dipstick 6.
- Top up the level if necessary.
- Refit access panel 1.

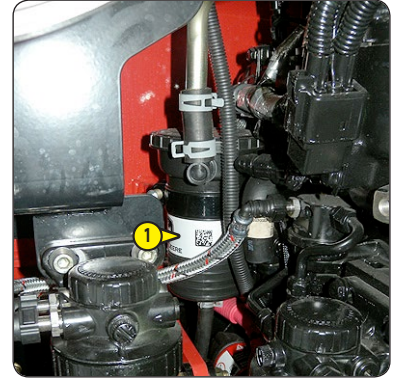




### D3 – ENGINE CRANKCASE VENTILATION SYSTEM

CHECK

- Visually check the condition of the ventilation filter hoses 1 (cracks, wear, deformation etc...) and replace if necessary. Also check the tightness of the hose clips.



### D4 – FUEL PRE-FILTER

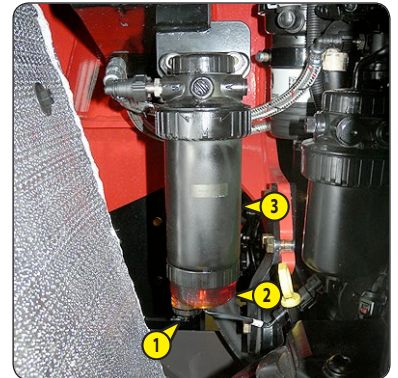
CHANGE

#### ⚠ IMPORTANT ⚠

*Carefully clean the outside of the pre-filter and its holder, to prevent dust from getting into the system.*

*Make sure the electrical contact on the lift truck is cut, otherwise fuel will be released if the lift pump is on.*

- Open the engine bonnet.
- Carefully clean the outside of the filter and its holder, to prevent dust from getting into the system.
- Place a receptacle under the pre-filter and empty using drain plug 1.
- Remove container 2 and discard cartridge 3 as well as its seals.
- Clean the inside of the filter head and the housing, using a brush immersed in clean diesel oil.
- Lightly lubricate the new seals with clean engine oil and refit the assembly with a new cartridge (see: 3 - MAINTENANCE: FILTERS AND BELTS).
- Retighten tank 2 (tightening torque 14 N.m).



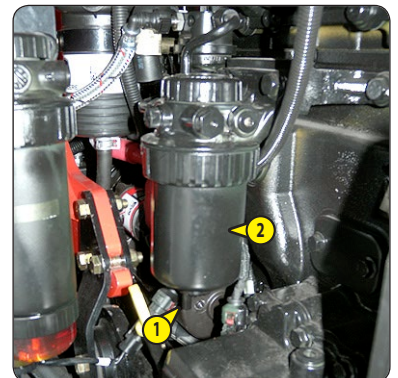
### D5 – FUEL FILTER

CHANGE

#### ⚠ IMPORTANT ⚠

*Carefully clean the outside of the pre-filter and its holder, to prevent dust from getting into the system.*

- Open the engine bonnet.
- Carefully clean the outside of the filter and its holder, to prevent dust from getting into the system.
- Place a receptacle under the filter and empty using drain plug 1.
- Loosen the filter 2 and discard it as well as its seals.
- Clean the inside of the filter head using a brush immersed in clean diesel oil.
- Lightly lubricate the new seals with clean engine oil and refit the assembly with a new filter (see: 3 - MAINTENANCE: FILTERS AND BELTS).
- Retighten the filter on its support (tightening torque 10 N.m).
- Start up the I.C. engine and make sure there is no leakage.



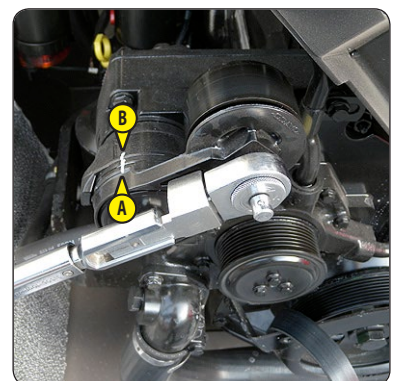
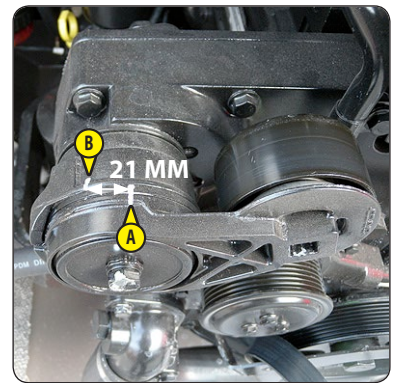
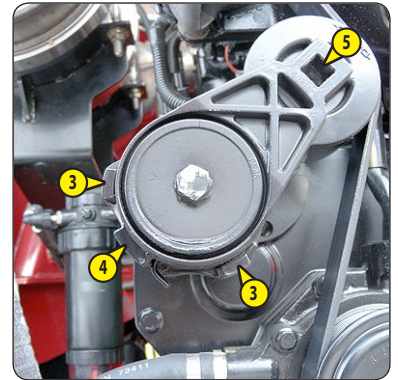
- Open engine bonnet and the lower cover 1.
- Remove the protective casing 2.

### ALTERNATOR BELT TENSION

- The belt tensioner is designed to work within the travel limits of the arm between the two fixed end-stops 3.
- Visually check the travel of the arm. If the pivoting arm stop 4 touches one of the two fixed end-stops 3, check the condition of the alternator bracket, the belt tensioner and the return pulley.
- Check the length of the alternator belt and change if necessary (see: 3 - MAINTENANCE: H - OCCASIONAL MAINTENANCE).
- Do not check the automatic tensioner spring tension if the alternator belt tension is correct. If in doubt, contact your dealer.

### AUTOMATIC TENSIONER SPRING TENSION (IF NECESSARY)

- Place a 1/2 in. socket wrench in the square of the automatic tensioner 5 to slacken the belt and remove it.
- Release the force and remove the socket wrench.
- Make a mark A on the pivoting arm, measure a distance of 21 mm from this point and make another mark B on the fixed part of the tensioner.
- Place a torque wrench, with the centres of the pulley and the tensioner aligned and turn the tensioner until marks A and B are aligned. The torque should be 20 N.m.
- If necessary replace the automatic belt tensioner.
- Refit the alternator belt (see: 3 - MAINTENANCE: H - OCCASIONAL MAINTENANCE).



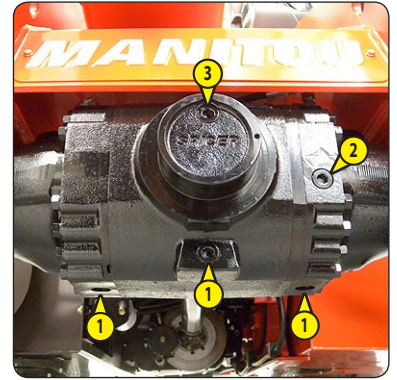
DRAFT

Place the lift truck on level ground with the I.C. engine stopped and the differential oil still warm.

**⚠ IMPORTANT ⚠**

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

- Place a container under the drain plugs 1 and unscrew them.
- Remove level plug 2 and filling plug 3 to ensure that the oil is drained properly.
- Refit and tighten the drain plugs 1 (tightening torque 34 to 49 N.m).
- Fill up with oil (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL) through filler port 3.
- The level is correct when the oil level is flush with the edge of opening 2.
- Check for any possible leaks at the drain plugs.
- Refit and tighten level plug 2 (tightening torque 34 to 49 N.m) and filler plug 3 (tightening torque 34 to 49 N.m).
- Repeat this operation for the rear axle differential.



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## E - EVERY 1000 HOURS OF SERVICE

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

### E1 – FUEL TANK

CLEAN

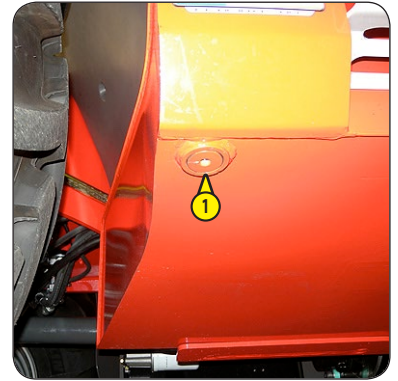
Place the lift truck on level ground with the I.C. engine stopped.

#### ⚠ IMPORTANT ⚠

*While carrying out these operations, do not smoke or work near a flame.*

*Never try to carry out welding or any other operation by yourself, as this could cause an explosion or a fire.*

- Inspect the parts susceptible to leaks in the fuel circuit and in the tank both visually and by touch.
- In the event of a leak, contact your dealer.
- Place a container under drain plug 1 and unscrew the plug.
- Open the fuel filler access panel with the ignition key.
- Remove filling plug 2 to ensure that the oil is drained properly.
- Rinse out with ten litres of clean diesel through filler port 3.
- Refit and tighten the drain plug (tightening torque 72 to 88 N.m).
- Fill the fuel tank with clean diesel filtered through the filler port.
- Refit the filler plug.



### E2 – DRY AIR FILTER CARTRIDGE

CHANGE

In case of use in a heavily dust laden atmosphere, the cartridge replacement interval must be reduced (to 250 hours in a heavily dust laden atmosphere).

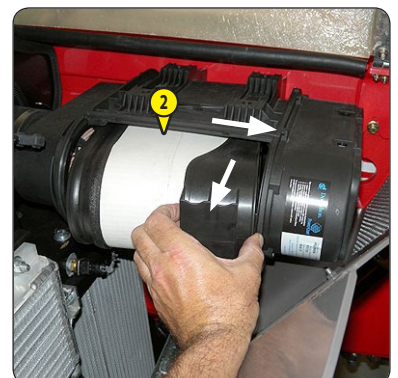
#### ⚠ IMPORTANT ⚠

*Change the cartridge in a clean location, with the engine stopped.*

*Never operate the lift truck without the air filter or with the air filter damaged.*

*If the air filter clogging indicator light comes on , replace the cartridge with minimum delay (maximum 1 hour).*

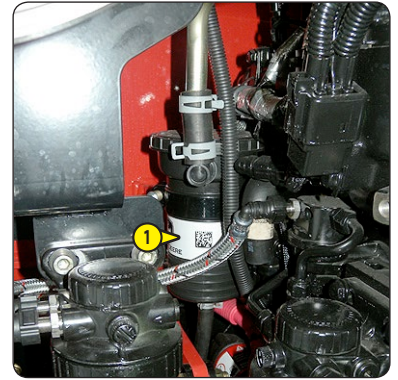
- Open the engine bonnet.
- Loosen the bolts and remove cover 1.
- Pivot cartridge 2 towards the front and carefully remove to avoid spilling the dust.
- Leave the safety cartridge in place.
- The following parts must be cleaned with a damp, clean lint-free cloth.
  - The inside of the filter and cover.
  - The inside of the filter inlet hose.
  - The gasket surfaces in the filter and in the cover.
- Check pipes and connections between the air filter and the engine and the connection and state of the clogging indicator on the filter.
- Before mounting, check the state of the new filter cartridge (see: 3 - MAINTENANCE: FILTERS, CARTRIDGES AND BELTS).
- Tilt the cartridge approximately 5° towards the front, insert it into the filter and position it by pressing the edges and not the middle.
- Refit the cover and ensure that the clips are properly secured. The cover should fit on easily, if this is not the case, check the position of the cartridges in the filter.



### E3 – ENGINE CRANKCASE VENTILATION FILTER

CHANGE

- Open the engine bonnet.
- Carefully clean the outside of the filter and its holder, to prevent dust from getting into the system.
- Loosen filter 1 and discard it as well as its seal.
- Lightly lubricate the new seals with clean engine oil and refit the assembly with a new filter (see: 3 - MAINTENANCE: FILTERS AND BELTS).
- Retighten the filter on its support (tightening torque 10 N.m).



### E4 – GEAR BOX OIL

DRAIN

### E5 – GEAR BOX OIL FILTER

CHANGE

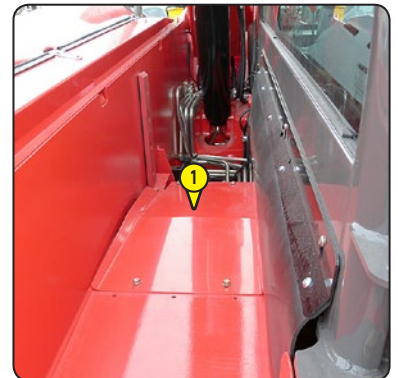
Place the lift truck on level ground with the I.C. engine stopped, the gear box oil still warm.

**⚠ IMPORTANT ⚠**

*Raise the boom and place the boom safety wedge on the rod of the lifting cylinder  
(see: 1 - OPERATING AND SAFETY INSTRUCTIONS: LIFT TRUCK MAINTENANCE INSTRUCTIONS).*

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

*Tighten the oil filter by hand pressure only and lock the filter in place by a quarter turn.*



#### DRAINING THE OIL

- Remove cover plate 1.
- Place a container under drain plug 2 and unscrew the plug.
- Remove level plug 2 in order to ensure that the oil is drained properly.

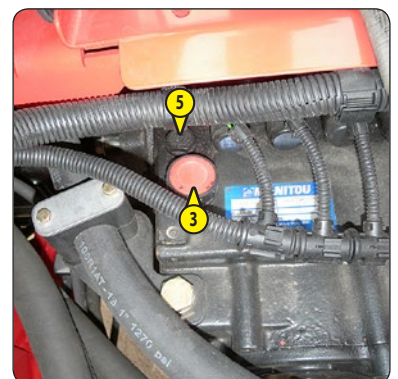
#### REPLACEMENT OF THE FILTER

- Unscrew and discard gear box oil filter 4, together with its seal.
- Clean the filter bracket with a clean, lint-free cloth.
- Lightly grease the new seal before refitting the new oil filter (see: 3 - MAINTENANCE: FILTERS, CARTRIDGES AND BELTS) on its bracket.



#### FILLING UP THE OIL

- Refit and tighten the drain plug 2 (tightening torque 34 to 54 N.m).
- Unscrew the filler cap 5, and fill up with oil (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL) through the port, and refit the filler cap 5.
- Start the engine and leave it at idle.
- Check for possible leaks from the drain plug and the oil filter.
- Check the correct level against the MAX mark on the level plug 3.
- Top up the level if necessary.
- Refit cover plate 1.





## E6 – HYDRAULIC OIL

DRAIN

## E7 – HYDRAULIC RETURN OIL FILTER CARTRIDGE

CHANGE

## E8 – BREATHER FOR THE HYDRAULIC OIL TANK

CHANGE

## E9 – SUCTION STRAINER FOR HYDRAULIC OIL TANK

CLEAN

## E10 – BRAKE ACCUMULATOR UNIT FILTER

CHANGE

Place the lift truck on level ground with the I.C. engine stopped and telescope jib retracted and lowered as far as possible.

### ⚠ IMPORTANT ⚠

*Before any intervention, thoroughly clean the area surrounding the drain plug, the suction strainer and the outside of the filter on the hydraulic tank.*

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

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

### DRAINING THE OIL

- Lift out protective casing 1.
- Place a container under drain plug 2 and unscrew the plug.
- Open the hydraulic oil filler access panel with the ignition key.
- Remove the filler cap lock 12.
- Remove filling plug 3 to ensure that the oil is drained properly.

### RELACING THE HYDRAULIC RETURN OIL FILTER CARTRIDGE

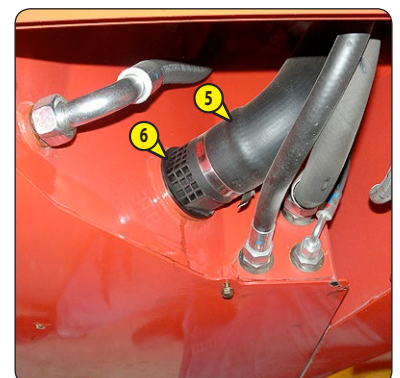
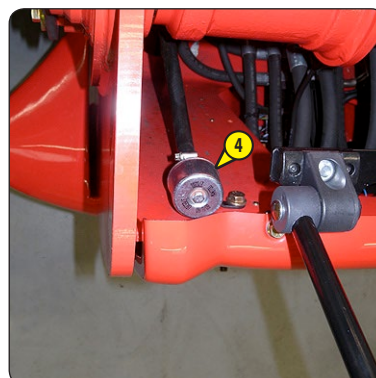
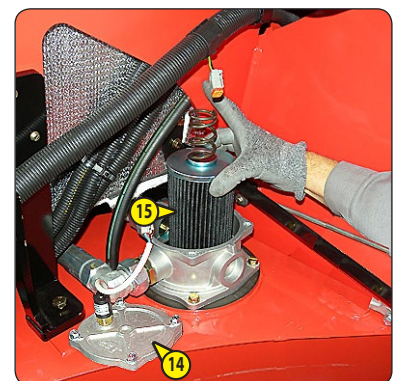
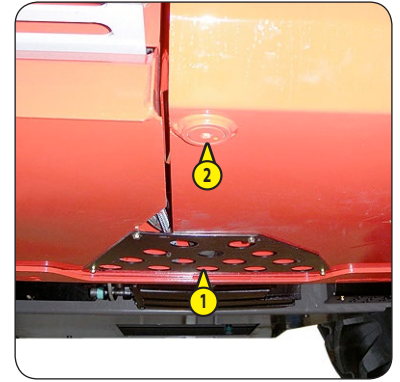
- Lift out protective casing 13.
- Unscrew the fastening screws of the cover 14.
- Wait a few moments while the oil flows into the tank.
- Remove the hydraulic return oil filter cartridge 15 and replace with a new one (see: 3 - MAINTENANCE: FILTERS CARTRIDGES AND BELTS).
- Make sure that the cartridge is correctly positioned and refit the cover 14.
- Refit the protective casing 13.

### REPLACING THE BREATHER

- Unscrew the breather 4 and replace it with a new one (see: 3 - MAINTENANCE: FILTERS, CARTRIDGES AND BELTS).

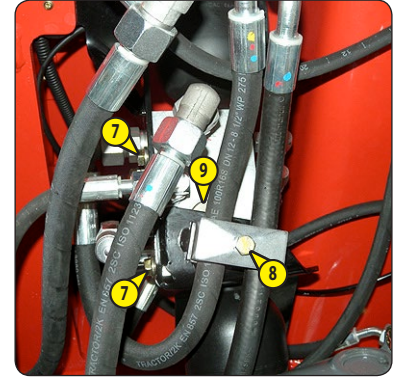
### CLEANING THE STRAINER

- Disconnect hose 5.
- Remove and clean the suction strainer 6 using a compressed air jet, check its condition and replace if necessary (see: 3 - MAINTENANCE: FILTERS CARTRIDGES AND BELTS).
- Refit the suction strainer making sure the seal is in the correct position.



### REPLACING THE BRAKE ACCUMULATOR UNIT FILTER

- Unscrew and remove the two fastening screws 7 and retaining ring screw 8 to free the accumulator block sufficiently.
- Unscrew plug 9, remove the filter and replace with a new one.
- Refit and tighten plug 9 (tightening torque 70 to 80 N.m).
- Refit and tighten the two fastening screws 7 and retaining ring screw 8.



### FILLING UP THE OIL

- Refit and tighten the drain plug 2 (tightening torque 29 to 39 N.m).
- Fill up with oil (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL) through filler port 10.
- Observe the oil level on dipstick 11; the oil level should be at the level of the black point.
- Check for any possible leaks at the drain plug.
- Refit the filler plug 3.

### HYDRAULIC CIRCUIT DECONTAMINATION

- Leave the engine running (accelerator pedal at halfway travel) for 5 minutes without using anything on the lift truck, then for 5 more minutes while fully using the hydraulic movements (except the steering system and the service brakes).
- Accelerate the engine at full speed for 1 minute, then activate the steering system and the service brakes.
- This operation makes a pollution abatement of the circuit possible through the hydraulic return oil filter.



## E11 – SEAT BELT

CHECK

### ⚠ IMPORTANT ⚠

*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.*

#### SEAT BELT WITH TWO ANCHORING POINTS

- 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).

#### REELED SEAT BELT WITH TWO ANCHORING POINTS

- Check the points listed above together with the following points:
  - 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.

## E12 – FRONT AND REAR WHEEL REDUCTION GEAR OIL

DRAIN

Place the lift truck on level ground with the I.C. engine stopped and the reducers oil still warm.

### ⚠ IMPORTANT ⚠

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

- Drain and change the oil of each wheel reduction gear.
- Place drain plug 1 in position A.
- Place a container under the drain plug and unscrew the plug.
- Let the oil drain fully.
- Place the drain port in position B, i.e. in a level port.
- Fill up with oil (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL) through level port 1.
- The level is correct when the oil level is flush with the edge of the hole.
- Refit and tighten the drain plug (tightening torque 34 to 49 N.m).





## F - EVERY 2000 HOURS OF SERVICE

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

### F1 - COOLING LIQUID

#### DRAIN

These operations are to be carried out if necessary or every two years at the beginning of winter. Place the lift truck on level ground with the I.C. engine stopped and cold.

#### ⚠ IMPORTANT ⚠

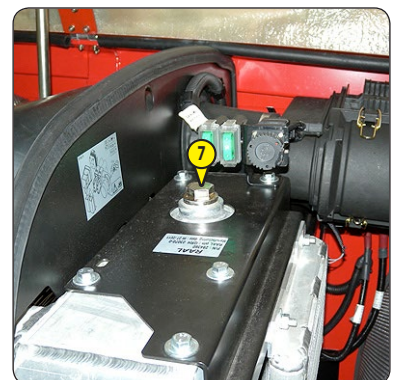
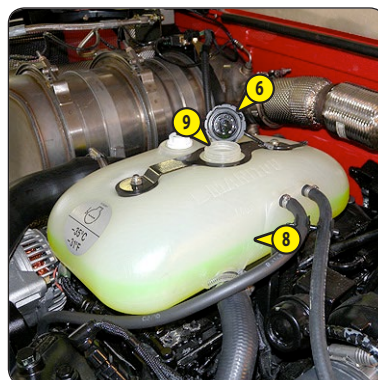
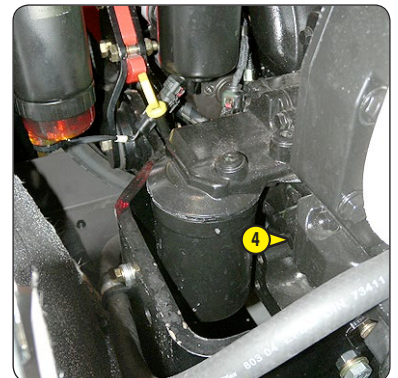
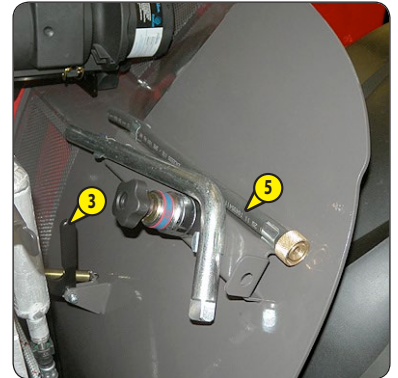
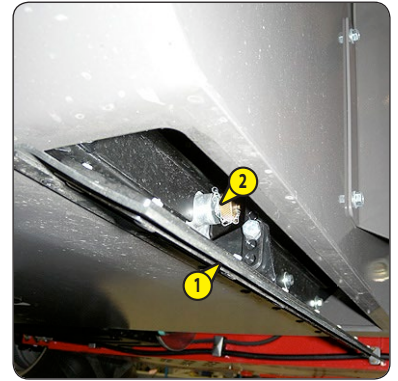
*The I.C. engine does not contain any corrosion resistor and must be filled during the whole year with a mixture containing 25 % of ethylene glycol-based antifreeze.*

#### DRAINING THE LIQUID

- Open the engine bonnet.
- Open the panel 1 under the drain plug 2 with the lever 3.
- Set a container under drain plug 2 on the radiator and drain plug 4 of the engine block and loosen them.
- Take drain hose 5.
- Place the end of the drain hose in the container and screw the hose fully to the drain connector 2.
- Remove filler plug 6 from the expansion tank and fully open the heating control to ensure proper emptying.
- Let the cooling circuit drain entirely while ensuring that the ports do not get clogged.
- Check the condition of the hoses as well as the fastening devices and change the hoses if necessary.
- Rinse the circuit with clean water and use a cleaning agent if necessary.

#### FILLING THE LIQUID

- Remove, clean and refit drain hose 5.
- Refit and tighten drain plug 2 and drain plug 4.
- Open the radiator filler plug 7 and slowly fill the circuit with the cooling liquid (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL) through the filler port.
- Retighten the radiator filler plug 7.
- Top up the cooling circuit level up to the centre of the expansion tank 8 via filler port 9.
- Refit filler plug 6.
- Run the engine at idle for a few minutes.
- Check for any possible leaks.
- Close the panel with the lever 3.
- Check the level and refill if necessary.



- Check the condition of the tyres, to detect cuts, protuberances, wear, etc.
- Check the tightening torque of the wheel nuts with a torque wrench.
  - Front wheels: 630 N.m  $\pm$  15%
  - Rear wheels: 630 N.m  $\pm$  15%

**F3 – AIR CONDITIONING (OPTION)****CLEANING CONDENSER AND EVAPORATOR COILS (\*)****CLEANING CONDENSATE TRAY AND RELIEF VALVE (\*)****COLLECTING COOLANT TO REPLACE FILTER-DRIER (\*)****REFILLING WITH COOLANT AND CHECKING THE THERMOSTATIC CONTROL AND PRESSURE SWITCHES (\*)**

NOTE: When opening the evaporator unit, remember to replace the cover seal.

(\*): (CONSULT YOUR DEALER).

**⚠ IMPORTANT ⚠**

**DO NOT ATTEMPT TO REPAIR ANY PROBLEMS YOURSELF. ALWAYS REFER TO YOUR DEALER WHEN REFILLING CIRCUITS, AS THEY HOLD THE CORRECT SPARE PARTS, AS WELL AS HAVING THE NECESSARY TECHNICAL KNOWLEDGE AND TOOLS.**

***In the event of inhalation, take the victim into fresh air, give oxygen or artificial respiration if necessary and call a doctor.***

***In the event of contact with the skin, wash it immediately under running water and remove any contaminated garments.***

***In the event of contact with the eyes, rinse with clear water for 15 minutes and call a doctor.***

- Do not open the circuit under any circumstances as this would loss of coolant.
- The cooling circuit contains a gas which can be dangerous under certain conditions. This gas, coolant R 134a, is colourless, odourless and heavier than air.
- The compressor has a fluid level gauge; never unscrew this gauge because it would depressurize the system. The fluid level should only be checked when draining the system.

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## G - EVERY 3000 HOURS OF SERVICE

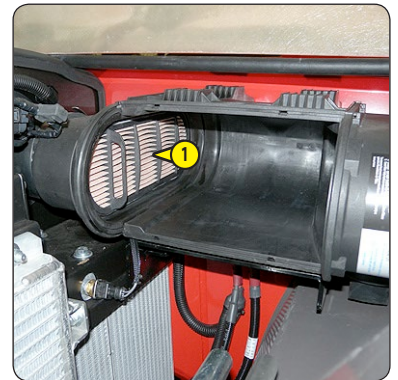
*Carry out the operations described previously as well as the following operations.*

### G1 – SAFETY DRY AIR FILTER CARTRIDGE

#### CHANGE

- For the disassembly and reassembly of the dry air filter cartridge, see: 3 - MAINTENANCE: D3 - AIR FILTER CARTRIDGE.
- Gently remove the dry air filter safety cartridge 1, taking care to avoid spilling the dust.
- Clean the gasket surface on the filter with a damp, clean lint-free cloth.
- Check the condition of the new safety cartridge before fitting (see: 3 - MAINTENANCE: FILTERS AND BELTS).
- Place the cartridge into the filter and position it by pressing the edges, not the middle.

NOTE: The periodicity for changing the safety cartridge is given for information only. It must be changed once for every three changes of the dry air filter.



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## H - OCCASIONAL MAINTENANCE

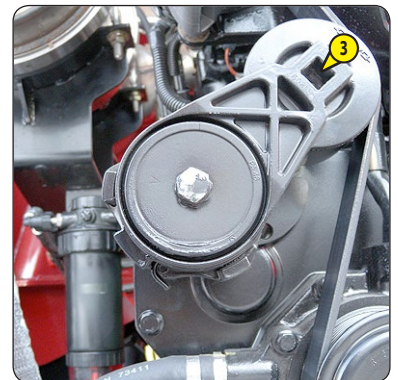
### H1 – ALTERNATOR BELT

CHANGE

- Open engine bonnet and the lower cover 1.
- Remove the protective casing 2.
- Place a 1/2 in. socket wrench in the square of the automatic tensioner 3 to slacken the belt and remove it.
- Release the force and remove the socket wrench.
- Refit a new alternator belt (see: 3 - MAINTENANCE: FILTERS AND BELTS) ensuring that it is properly seated in the grooves of each pulley and tighten the belt using the automatic tensioner 3.

NOTE: Take advantage of belt removal to check the correct operation of the pulleys and bearings (noise, rubbing, play, etc...).

- Refit the protective casing 2.






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### **⚠ IMPORTANT ⚠**

Exhaust particle filter cleaning is an automated procedure activated by the operator when the help screens are displayed

Once the exhaust particle filter regeneration procedure is completed, leave the engine idling for a few minutes to lower the temperature before switching off the ignition.





- Park the lift truck in a safe and adequately ventilated place.
- Check the following points:
  - Forward/reverse selector in neutral,
  - Parking brake applied,
  - Jib angle less than 5°,
  - Engine water temperature greater than 60 °C.
- Check that there is sufficient fuel.
- Start the lift truck and run the engine for a few minutes to bring it up to its operating temperature.
- Press down on the top of switch 1 for more than two seconds to begin the regeneration procedure.
- The help screen  will be displayed, the indicator light  will come on, then a beep will sound to confirm that "stationary lift truck" particle filter regeneration is running. Failing this, the help screen  will appear and a beep will sound. Recheck the positioning of the lift truck and consult your dealer if necessary.

### **⚠ IMPORTANT ⚠**

The exhaust particle filter regeneration procedure must only be stopped in case of necessity.  
If the operator presses the forward or reverse selector during regeneration, the procedure will automatically be halted.  
To properly interrupt the procedure, press the bottom of switch 1.

During the procedure, the engine speed is controlled by the engine electronic control unit.

- The time taken for exhaust particle filter regeneration to complete varies (between 20 and 50 minutes) according to various criteria, such as:
  - The level of clogging of the filter,
  - The ambient temperature,
  - The fuel quality and type of engine oil,
  - The number of exhaust particle filter automatic regeneration requests previously cancelled.
- The help screen  and the light  will come on when the regeneration procedure has finished. The engine speed returns to idle.

For this operation, we advise you to use the hydraulic jack MANITOU reference 505507 and the safety support MANITOU reference 554772.

**⚠ IMPORTANT ⚠**

*In the event of a wheel being changed on the public highway, secure the lift truck vicinity:*

- Stop the lift truck, if possible on firm, level ground.
- Shut down the lift truck (see: 1 - OPERATING AND SAFETY INSTRUCTIONS: DRIVING INSTRUCTIONS UNLADEN AND LADEN).
- Switch on the warning lights.
- Immobilise the lift truck in both directions on the axle opposite to the wheel to be changed.
- Loosen the nuts of the wheel to be changed.
- Place the jack under the flared axle tube, as near as possible to the wheel and adjust the jack.
- Raise the wheel until it is clear of the ground and place the safety support under the axle.
- Completely unscrew the wheel nuts and remove them.
- Free the wheel by reciprocating movements and roll it to the side.
- Slip the new wheel on the wheel hub.
- Hand-tighten the nuts, grease them if necessary.
- Remove the safety support and lower the lift truck with the jack.
- Tighten the wheel nuts with a torque wrench (see: 3 - MAINTENANCE: A - DAILY OR EVERY 10 HOURS OF SERVICE for tightening torque).



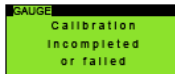


According to the use of the lift truck, the device may require to be periodically reset. This procedure simplifies the operation.

### ⚠ IMPORTANT ⚠

Carefully follow the boom positioning instructions.

The appearance of the screen



indicates that an instruction, a cancellation request or a late response has not been observed. If in doubt, consult your dealer.



or a late response has not been observed.

When the reset is completed, check the operation of the longitudinal stability limiter and warning device (see: 3 - MAINTENANCE: A - DAILY OF EVERY 10 HOURS SERVICE).

- Provide a fork carrier or a bucket and a load corresponding to at least half the lift truck's rated capacity.
- Preferably perform the reset when the lift truck is still cold (before it is used) or ensure that the temperature of the rear axle is not more than 50°C.
- Place the lift truck on flat, level ground with the wheels straight.

- Press the button to display the menu screen and navigate horizontally between menus using the buttons and vertically in the sub-menus using the buttons .

- Display the GAUGE "reset strain gauge" and confirm .

- Enter the CUSTOMER code and validate .

STAGE 1 ↓		- Fully raise the jib with the telescopes fully retracted.	Confirm 
STAGE 2 ↓		- Calibration in progress...	Go to stage 3
STAGE 3 ↓		- Fully lower the jib with the engine running at full revs and the hydraulic control at the maximum setting.	Confirm 
STAGE 4 ↓		<p></p> <p>- With the fork carriage or the bucket and a load. Jib fully retracted in the lowered position, approximately 20 centimetres from the ground.</p> <p></p> <p>⚠ IMPORTANT ⚠</p> <p>- Keep the load as close to the ground as possible throughout this operation.</p> <p>- Hold down the disable the "aggravating" hydraulic movement cut-off button  (indicator lamp lit), and telescope the jib until the rear wheels leave the ground.</p>	Wait 5 seconds and validate 
FINISH		- Retract the telescopes to restore the situation.	Check  to save the new parameters

## H5 – FRONT HEADLIGHTS

### ADJUSTING

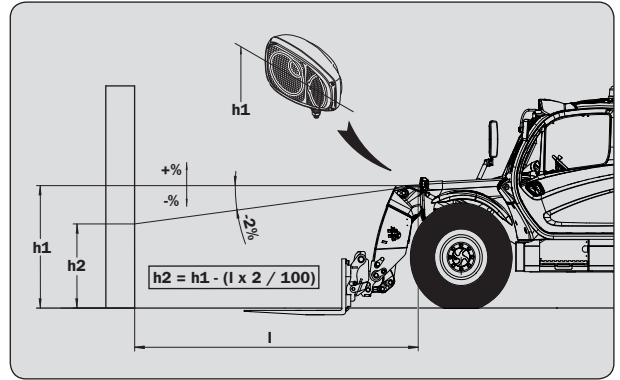
#### RECOMMENDED SETTING

(as per standard ECE-76/756 76/761 ECE20)

Set to -2 % of the dipped beam in relation to the horizontal axis of the headlamp.

#### ADJUSTING PROCEDURE

- Place the unladen lift truck in the transport position and perpendicular to a white wall on flat, level ground.
- Check the tyre pressures (see: 2 - DESCRIPTION: FRONT AND REAR TYRES).
- Place the forward/reverse selector in neutral.



#### CALCULATING THE HEIGHT OF THE DIPPED BEAM (H2)

- h1 = Height of the dipped beam in relation to the ground.
- h2 = Height of the adjusted beam.
- l = Distance between the dipped beam and the white wall.

## H6 – BATTERY FAILURE

### CHANGE

#### ⚠ IMPORTANT ⚠

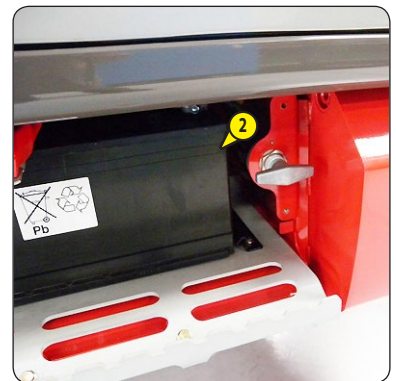
*Operate the battery cut-out no less than 30 seconds after having switched off the ignition with the ignition key.*

*Handling and servicing a battery can be dangerous, take the following precautions:*

- Wear protective goggles.
- Keep the battery horizontal.
- Never smoke or work near a naked flame.
- Work in a well-ventilated area.

*- 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.*

- Lift out protective casing 1.
- Change the battery 2.



#### ⚠ IMPORTANT ⚠

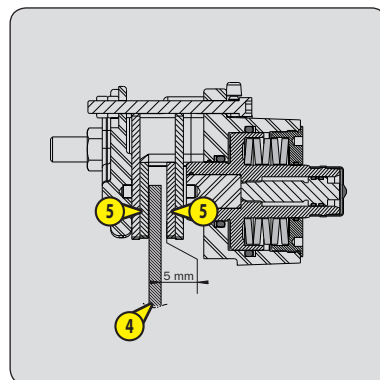
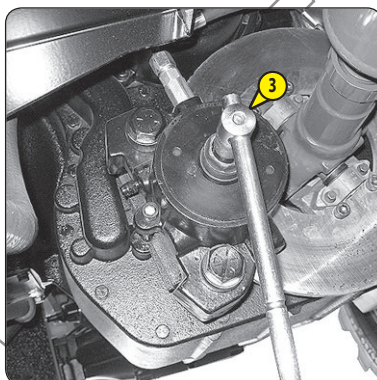
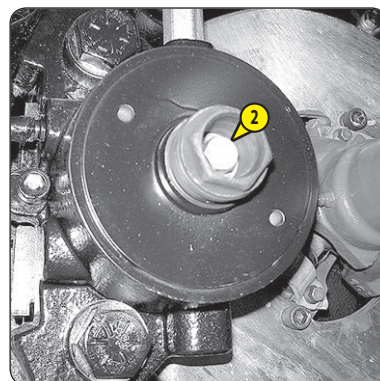
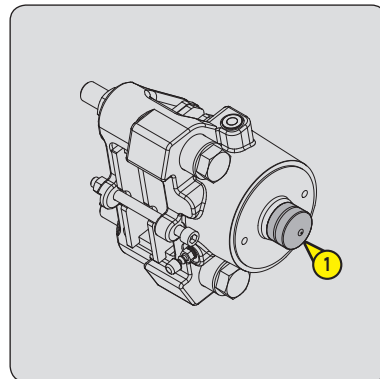
*Do not tow the lift truck at more than 6 km/h over a maximum distance of 5 km.  
This manoeuvre is dangerous.*

*Carefully chock the lift truck before towing, as the parking brake system is inoperative.*

*For adjusting the parking brake, please contact your dealer.*

- Place the forward/reverse selection lever and gear shift lever in neutral.
- Chock the lift truck.
- Remove the cap 1.
- Loosen screw 2 with a pin wrench 3 to release the brake disk. Leave a minimum clearance of 5 mm between the disk 4 and the brake pads 5.
- Put the towing device into place.
- Remove the chocks.
- Switch on the warning lights.

NOTE: Since there will be no steering or braking assistance, operate these controls slowly. Avoid sudden jerky movements.



## H8 – LIFT TRUCK

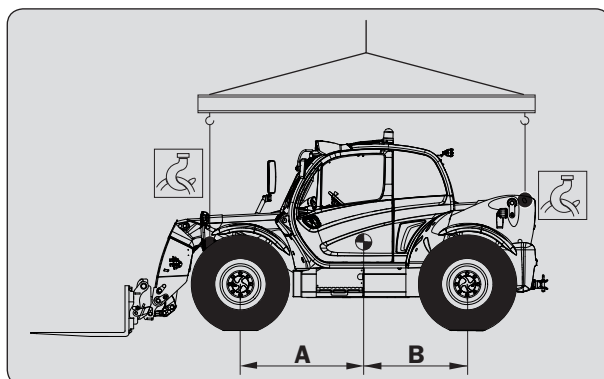
### SLINGING

- Take into account the position of the lift truck centre of gravity for lifting.

A = 1632 mm      B = 1248 mm      MLT 840 115 PS

A = 1632 mm      B = 1248 mm      MLT 840 115 PS

- Place the hooks in the fastening points 1 provided.

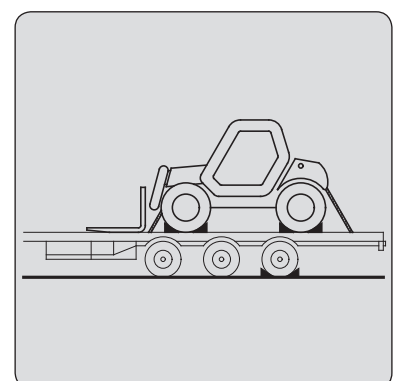
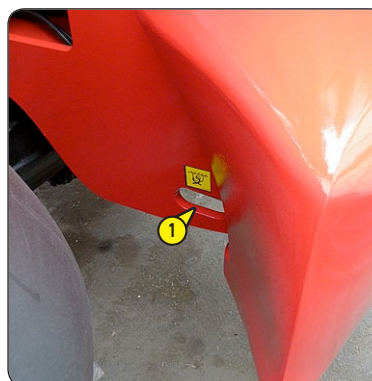
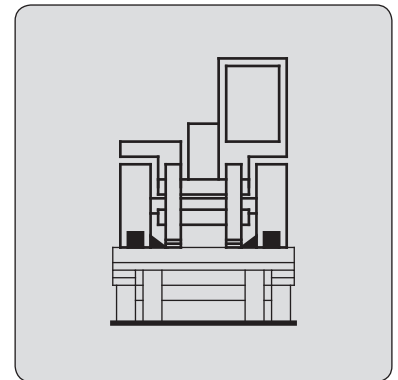
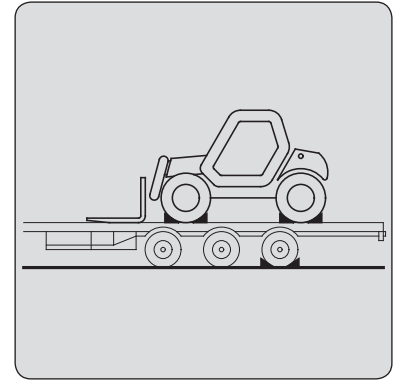


### ⚠ IMPORTANT ⚠

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 is of sufficient size and load capacity for transporting the lift truck.  
Check also the allowable ground contact pressure of the platform relative to the lift truck.

For lift trucks equipped with a turbo-charged I.C. engine, block off the exhaust outlet to avoid rotation of the turbo shaft without lubrication when transporting the vehicle.



### LOADING THE LIFT TRUCK

- Block the wheels of the platform.
- Attach the loading ramps to the platform in such a way as to give the shallowest possible ramp angle for 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).

### STOWING THE LIFT TRUCK

- Fix the chocks to the platform at the front and at the back of each tyre.
- Also fix the chocks to the platform on the inside of each tyre.
- Secure the lift truck to the platform with sufficiently strong ropes to the anchoring points 1 provided.
- Tighten the ropes.

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***4 - OPTIONAL  
ATTACHMENTS  
FOR USE WITH  
THE RANGE***



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# TABLE OF CONTENTS

## 4 - OPTIONAL ATTACHMENTS FOR USE WITH THE RANGE

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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.

### **⚠ IMPORTANT ⚠**

*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.*

- 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.

### **⚠ IMPORTANT ⚠**

*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.*

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

### **⚠ IMPORTANT ⚠**

*Depending on their size, certain attachments may, when the boom is lowered and retracted, come into contact with the front tyres and cause damage to them, if reverse tilt is activated in the forward tilt direction.*

*TO REMOVE THIS RISK, EXTEND THE TELESCOPE TO A SUFFICIENT EXTENT FOR THE PARTICULAR LIFT TRUCK AND ATTACHMENT SO THAT THIS CONTACT IS NOT POSSIBLE.*

## SUSPENDED LOAD

### **⚠ IMPORTANT ⚠**

*Suspended load MUST be handled with a lift truck designed for that purpose*

*(see: 1 - OPERATING AND SAFETY INSTRUCTIONS: LOAD HANDLING INSTRUCTIONS: H - TAKING-UP AND SETTING-DOWN A SUSPENDED LOAD).*

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## PICKING UP THE ATTACHMENTS

### 1 - ATTACHMENT WITHOUT HYDRAULICS AND HAND LOCKING DEVICE

#### TAKING UP AN ATTACHMENT

- Ensure that the attachment is in a position facilitating the locking to the carriage. If it is not correctly oriented, take the necessary precautions in order to move it safely.
- Check that the locking pin and the clip are in position in the bracket (fig. A).
- Place the lift truck with the boom fully lowered in front of and parallel to the attachment, tilt the carriage forwards (fig. B).
- Bring the carriage under the locking tube of the attachment, slightly lift the boom, incline the carriage backwards in order to position the attachment (fig. C).
- Lift the attachment off the ground to facilitate locking.

#### HAND LOCKING

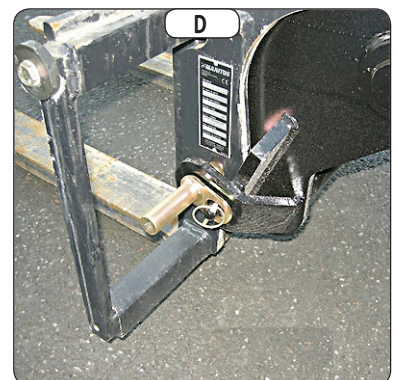
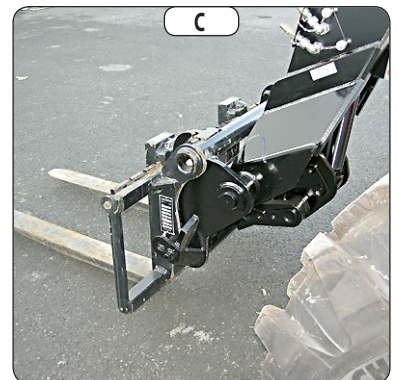
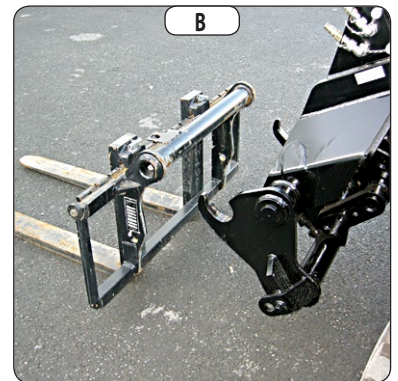
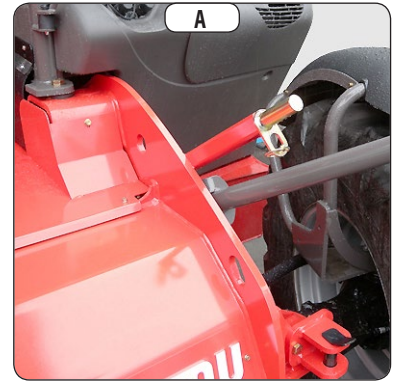
- Take the locking pin and the clip on the bracket (fig. A) and lock the attachment (fig. D). Do not forget to refit the clip.

#### HAND RELEASING

- Proceed in the reverse order of paragraph HAND LOCKING while making sure you put back the locking pin and the clip in the bracket (fig. A).

#### LAYING AN ATTACHMENT

- Proceed in the reverse order of paragraph TAKING UP AN ATTACHMENT while making sure you place the attachment flat on the ground and in closed position.

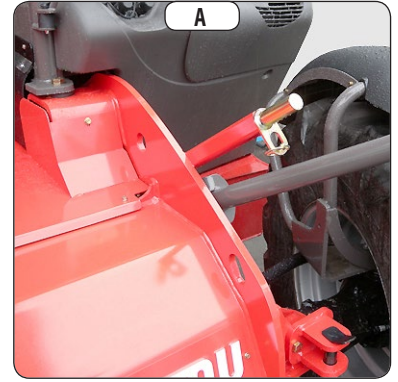




## 2 - HYDRAULIC ATTACHMENT AND MANUAL LOCKING DEVICE

### TAKING UP AN ATTACHMENT

- Ensure that the attachment is in a position facilitating the locking to the carriage. If it is not correctly oriented, take the necessary precautions in order to move it safely.
- Check that the locking pin and the clip are in position in the bracket (fig. A).
- Place the lift truck with the boom fully lowered in front of and parallel to the attachment, tilt the carriage forwards (fig. B).
- Bring the carriage under the locking tube of the attachment, slightly lift the boom, incline the carriage backwards in order to position the attachment (fig. C).
- Lift the attachment off the ground to facilitate locking.


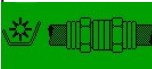



### MANUAL LOCKING AND CONNECTION OF THE ATTACHMENT

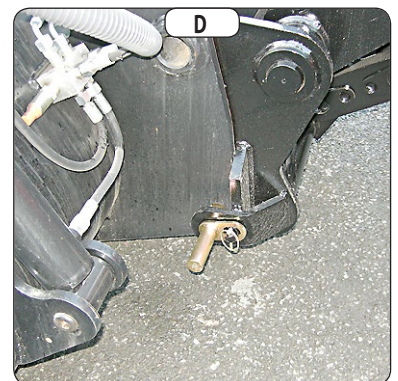
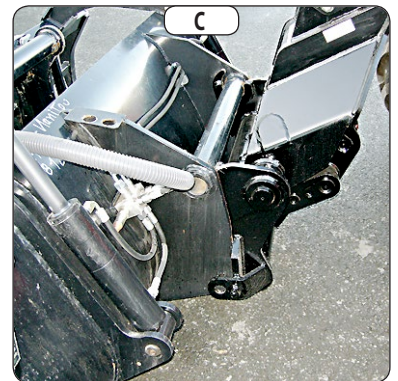
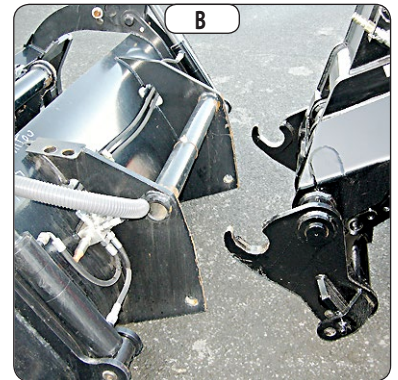
#### ⚠ IMPORTANT ⚠

*Make sure that the rapid connectors are clean and protect the holes which are not used, with the caps provided.*

- Take the locking pin and the clip on the bracket (fig. A) and lock the attachment (fig. D). Do not forget to refit the clip.
- Stop the I.C. engine and keep the ignition on the lift truck.

- Press for two seconds on the push-button  to release the attachment circuit hydraulic pressure. Screens  and  will be alternately displayed.

- Connect the rapid connectors according to the logic of the attachment's hydraulic movements.



### HAND RELEASING AND DISCONNECTING THE ATTACHMENT

- Proceed in the reverse order of paragraph HAND LOCKING AND CONNECTING THE ATTACHMENT while making sure you put back the locking pin and the clip in the bracket (fig. A).

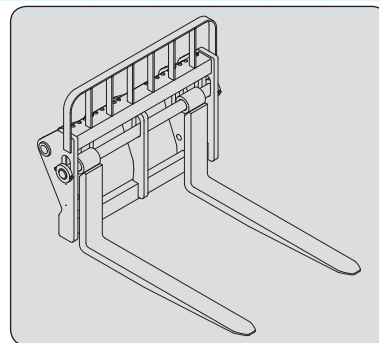
### LAYING AN ATTACHMENT

- Proceed in the reverse order of paragraph TAKING UP AN ATTACHMENT while making sure you place the attachment flat on the ground and in closed position.

## TECHNICAL SPECIFICATIONS OF ATTACHMENTS

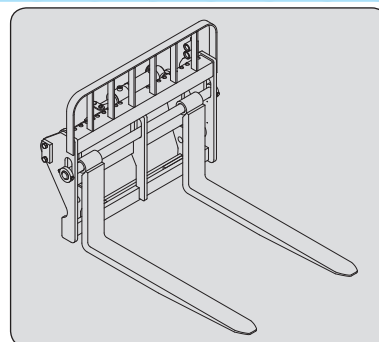
### FLOATING FORK CARRIAGE

PART NUMBER	TFF 45 MT-1040	TFF 45 MT-1300	TFF 45 MT-1040 UK
Rated capacity	293186 4500 kg	293187 4500 kg	293188 4500 kg
Width	1040 mm	1300 mm	1300 mm
Weight	370 kg	400 kg	400 kg



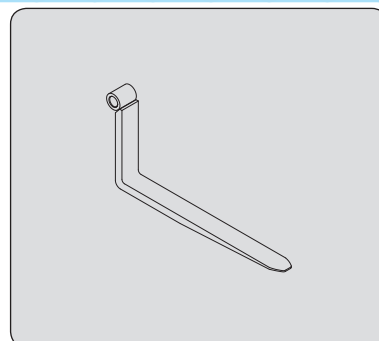
### FLOATING FORK SIDE-SHIFT CARRIAGE

PART NUMBER	TFF 45 MT-1040 DL	TFF 45 MT-1300 DL	TFF 45 MT-1300 DL
Rated capacity	293194 4500 kg	293195 4500 kg	293196 4500 kg
Side-shift	2x100 mm	2x100 mm	2x100 mm
Width	1040 mm	1300 mm	1040 mm
Weight	410 kg	450 kg	390 kg



### FLOATING FORK

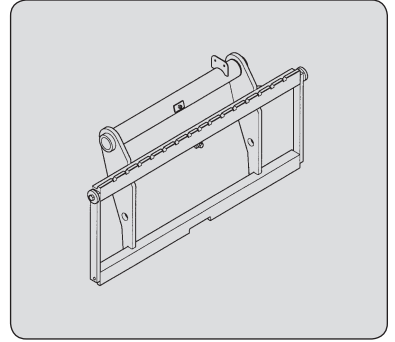
PART NUMBER	211922
Section	125x50x1200 mm
Weight	71 kg



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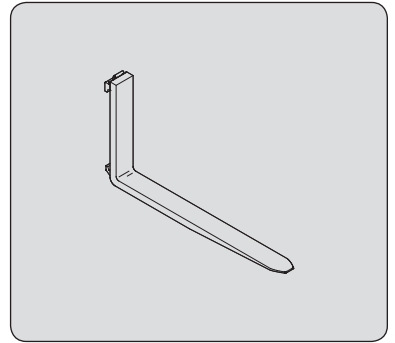
## STANDARDISED SIDE-SHIFT CARRIAGE

PART NUMBER	PFB 45 N MT-1260 S2	PFB 45 N MT-1670 S2	PFB 45 N MT-2000 S2
Rated capacity	654407 4500 kg	653747 4500 kg	653748 4500 kg
Width	1260 mm	1670 mm	2000 mm
Weight	200 kg	255 kg	300 kg



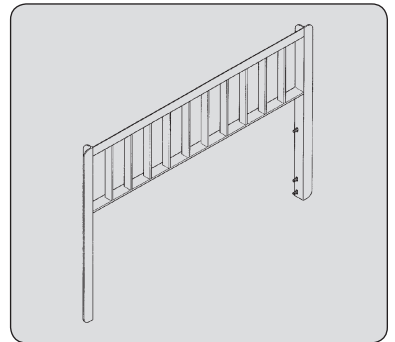
## STANDARDISED FORK

PART NUMBER	415652
Section	125x50x1200 mm
Weight	78 kg



## LOAD BACK REST

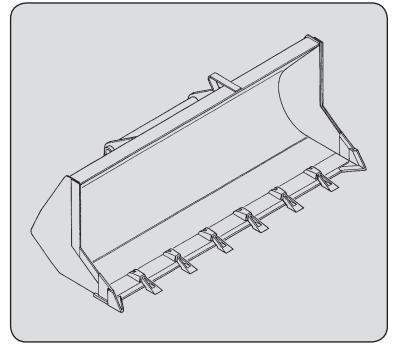
PART NUMBER	727035	572788	572790
Width	1260 mm	1670 mm	2000 mm
Weight	46 kg	56 kg	63 kg



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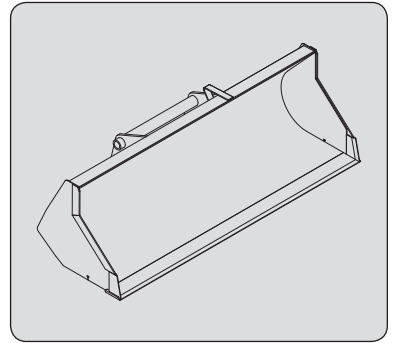
## BUILDING BUCKET

<b>PART NUMBER</b>	<b>CBC 900 L2450 S3</b> <b>790330</b>
Rated capacity	900 l
Width	2450 mm
Weight	408 kg



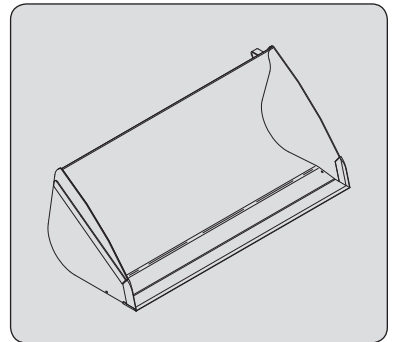
## BENNE DE REPRISE

<b>PART NUMBER</b>	<b>CBR 1000 L2450 S2</b> <b>790326</b>
Rated capacity	1004 l
Width	2450 mm
Weight	405 kg



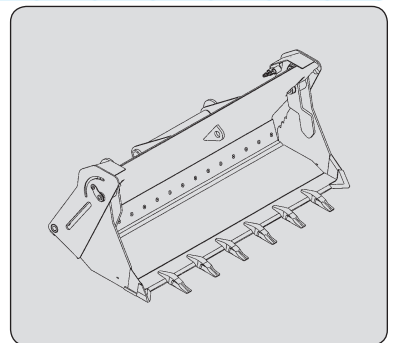
## GRAIN BUCKET

<b>PART NUMBER</b>	<b>CBA 2000 L2450</b> <b>790320</b>	<b>CBA 2500 L2450</b> <b>790321</b>	<b>CBA 3000 L2450</b> <b>790322</b>
Rated capacity	1978 l	2450 l	2916 l
Width	2450 mm	2450 mm	2450 mm
Weight	755 kg	860 kg	935 kg



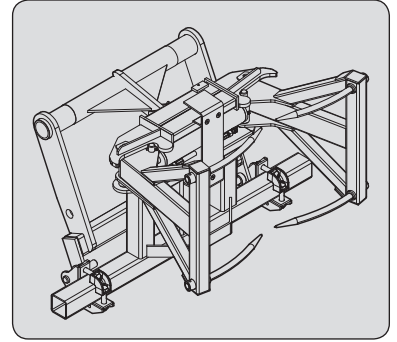
## BUCKET 4X1

<b>PART NUMBER</b>	<b>CB4X1 2300x850</b> <b>297549</b>
Rated capacity	
Width	
Weight	



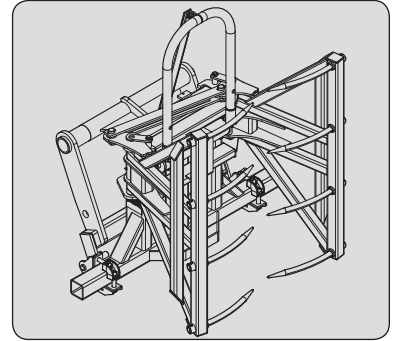
### BALE CLAMP WITH GRAB

<b>PART NUMBER</b>	<b>PBG 2X2</b> <b>757639</b>
Rated capacity	800 kg
Width	1300 mm
Grab	2x2
Weight	158 kg



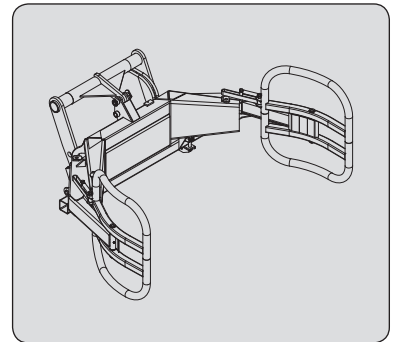
### BALE CLAMP WITH GRAB

<b>PART NUMBER</b>	<b>PBG 2X4</b> <b>757612</b>
Rated capacity	1000 kg
Width	1300 mm
Grab	2x4
Weight	262 kg



### WRAPPED BALE CLAMP

<b>PART NUMBER</b>	<b>PBE</b> <b>757613</b>
Rated capacity	1000 kg
Width	1600 mm
Weight	242 kg

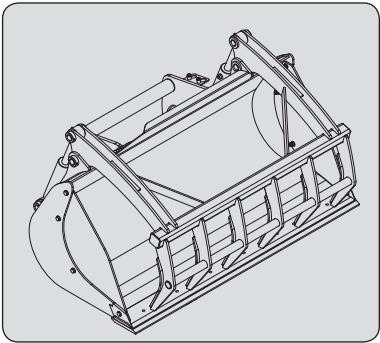


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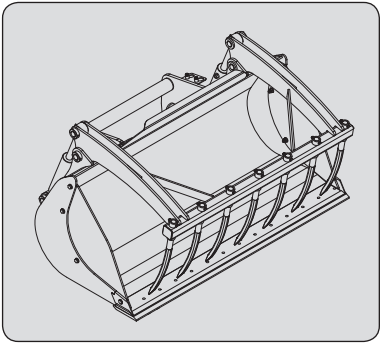
**GRAB BUCKET**

<b>PART NUMBER</b>	<b>CBG 2450 MS</b>
Rated capacity	790308
Width	
Grab	
Weight	



**GRAB BUCKET**

<b>PART NUMBER</b>	<b>CBG 2450 FO</b>
Rated capacity	790309
Width	
Grab	
Weight	



**MANURE FORK WITH GRAB**

<b>PART NUMBER</b>	<b>FFG 2450 FO</b>
Rated capacity	297050
Width	
Finger	
Grab	
Weight	



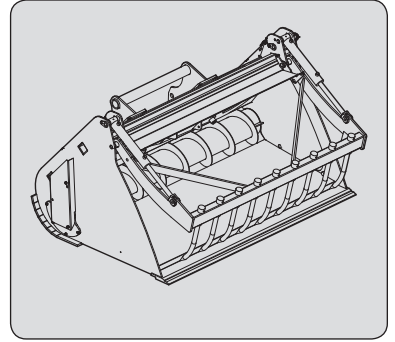
**MANURE FORK**

<b>PART NUMBER</b>	<b>FF 2450</b>
Rated capacity	297054
Width	
Finger	
Grab	
Weight	



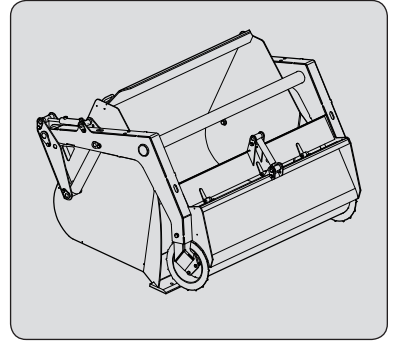
## COQUE GRAPPIN DISTRIBUTEUR

	<b>CGD 2500/2500 FO</b>
<b>PART NUMBER</b>	<b>790312</b>
Rated capacity	1700 l
Width	2205 mm
Grab	9
Weight	1025 kg



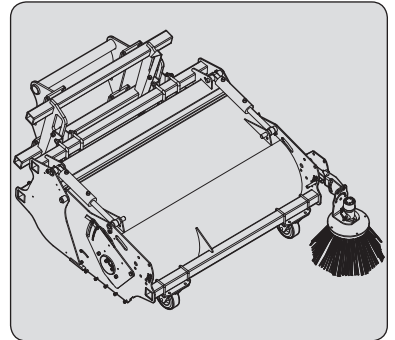
## SIMPLE ROTOR SHELL

	<b>CRS 2300/1960</b>
<b>PART NUMBER</b>	<b>790303</b>
Rated capacity	
Width	
Weight	



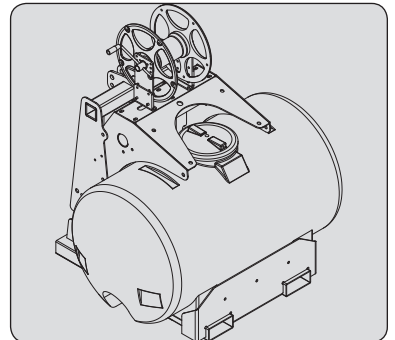
## SWEEPER COLLECTOR WITH BRUSH

	<b>BRB 2200</b>
<b>PART NUMBER</b>	<b>790315</b>
Rated capacity	
Width	
Weight	



## HIGH-PRESSURE AUTOWASHER

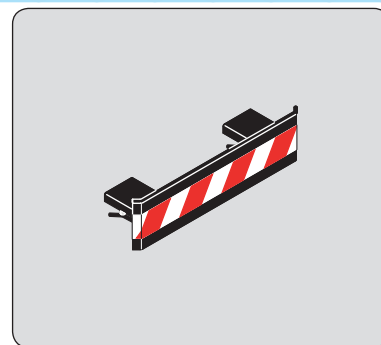
	<b>AHP 40</b>
<b>PART NUMBER</b>	<b>790335</b>
Rated capacity	600 l
Width	1450 mm
Weight	240 kg
Pressure	190 bar



## ATTACHMENT SHIELDS

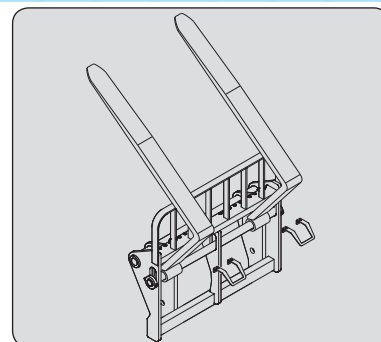
### FORK PROTECTOR

PART NUMBER 227801



### FORK BLOCK FOR FLOATING FORK CARRIAGE

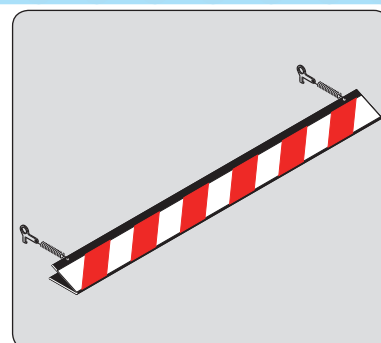
PART NUMBER 261210



### BUCKET PROTECTOR

*Always ensure that the width of the protector you choose is less than or equal to the width of the bucket.*

	PART NUMBER	206734	206732	206730
Width		1375 mm	1500 mm	1650 mm
	PART NUMBER	235854	206728	206726
Width		1850 mm	1950 mm	2000 mm
	PART NUMBER	223771	223773	206724
Width		2050 mm	2100 mm	2150 mm
	PART NUMBER	206099	206722	223775
Width		2250 mm	2450 mm	2500 mm



### MANURE FORK PROTECTOR

PART NUMBER 230689

