



**647531 EN (23/10/2019)**

**MLT-X 732 95P ST3A S1**

**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.

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## **1 - OPERATING AND SAFETY INSTRUCTIONS**

## **2 - DESCRIPTION**

## **3 - MAINTENANCE**

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



# ***1 - OPERATING AND SAFETY INSTRUCTIONS***



## ASSISTANCE | 23 SIMPLE TIPS

The Manitou Group wishes to assist you in reducing the consumption of the machines to help you reduce your carbon footprint.



Chose a machine with an appropriate power rating for your needs.



Switch off your engine after running at idle for more than 3 minutes.



Optimum engine efficiency is achieved at the maximum torque engine speed.



Preferably use a fan control and reversal system.



Favor "smart" electronically-managed transmissions.



Use the air-conditioning with windows and doors closed.



Preferably use LED headlights.



Adapt the type of tire to your environment.



Ensure that your tires are inflated to the correct pressure.



Check the parking brake adjustment.

### Preferably use manufacturer-recommended attachments



Check the general condition of your trailer.



Adapt your maximum towable load.



Use the attachments that are suitable for your machine.



Check the hydraulic adjustment of your attachments.



Observe the maintenance periods.



Regularly clean the radiator, the air filter, etc.



Lubricate regularly.



Preferably buy through a manufacturer-approved dealer.



Favor OEM parts.



Study the manufacturers' maintenance contracts.



You can follow eco-driving courses.



Demand to know the consumption and emissions of the machines.



Calculate your consumption and emissions at [reduce.manitou.com](http://reduce.manitou.com)



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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, is strictly forbidden.*

*-The foreseeable abnormal behaviour resulting from ordinary negligence, but not from any intentional misuse of the machinery.*

*- 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 the machine to win a bet, in competition or for their own personal experience.*

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

## THE LIFT TRUCK

### A - THE 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 reach 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 specify the lift truck's signaling and lighting equipment. Contact your dealer.
- Take into account climatic and atmospheric conditions of the site of utilisation.
  - Protection against frost (↖ 3 - MAINTENANCE: LUBRICANTS AND FUEL).
  - Adaptation of lubricants (ask your dealer for information).
  - Engine filtration (↖ 3 - MAINTENANCE: FILTER 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.*

- Preventing fire risks associated with use in dusty and flammable conditions (e.g. straw, flour, sawdust, organic waste, etc.).
- 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 prohibits company managers from exposing their employees to excessive levels of vibration. There is no recognized code of measurement for comparing the machines of different manufacturers. The actual doses received can only 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 EC declaration of conformity is issued. It must be kept in a safe place.
- The road traffic rules of lift trucks are subject to the provisions of the highway code, according to the following categories:
  - Construction-type trucks (MT range): public works vehicle not predominantly for use on roads (point 6.9 of Article R311-1 of the French Highway Code). The truck must have a 25 disc displayed on the rear of the vehicle and an operating licence plate.
  - Agricultural-type trucks (MLT range) that are non-EC type approved tractors: (point 6.2 of Article R311/1 of the French Highway Code). The truck must be fitted with an operating licence plate.
  - Agricultural-type trucks (MLT range) that are EC type approved tractors: agricultural tractor type T1a (point 5.1.1 of Article R311/1 of the French Highway Code). The 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 a category B driver's 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, modification, changes or poorly executed repairs can reduce the protective efficiency of the cab, resulting in cancellation of its compliance. Do not carry out any welding or drilling on the cab structure. Consult your dealer to determine the limits of this structure without cancelling its compliance.*

## INSTRUCTIONS

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- 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.

## MAINTENANCE

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- Maintenance or repairs other than those detailed in part: 3 - MAINTENANCE must be carried out by qualified personnel (→ 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

## FOREWORD

### **IMPORTANT**

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

*Failure to comply with the safety instructions and instructions for the use, repair or servicing of your lift truck may result in serious or even fatal accidents.*

- 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 AVAILABLE ON THE RANGE: INTRODUCTION.**

## GENERAL INSTRUCTIONS

### A - INSTRUCTION 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 ( 3 - MAINTENANCE: 10 HOUR - DAILY MAINTENANCE OR EVERY 10 HOURS OF SERVICE).
- The operator must ensure tyres are appropriate for the type of ground ( area of the contact surface of the tyres in the chapter: 2 - DESCRIPTION: TYRES). There are optional solutions, consult your dealer.
  - SAND tires.
  - FARM tires.
  - 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.*

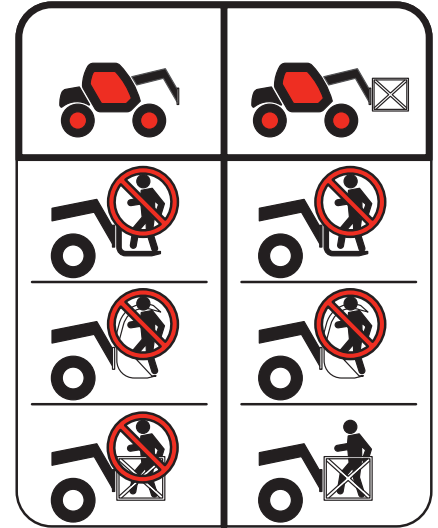
- The operator is responsible for deciding and adjusting the frequency of cleaning needed to prevent the risk of fire ensuing from the build-up of flammable material(s). The operator should pay special attention to all the areas of the lift truck where these risk materials are likely to accumulate.

### 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 authorised exceptionally and under certain conditions (↩ 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

- Carry out daily maintenance (↩ 3 - MAINTENANCE: 10 HOUR - DAILY MAINTENANCE OR EVERY 10 HOURS OF SERVICE).
- Make sure that the driver's cab is clean, particularly the floor and floor mat. Check that no movable object may hinder the operation of the lift truck.
- 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 task to be performed.
- 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.*

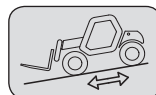
- The operator must always be in his normal position in the driver's cab. It is prohibited to have arms or legs, or generally any part of the body, protruding from the driver's cab of the lift truck.
- The safety belt must be worn and adjusted to the operator's size.
- The control units must never in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

### C - ENVIRONMENT

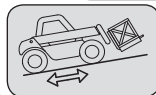
- Comply with site safety regulations.
- If you have to use the lift truck in a dark area or at night, make sure it is equipped with working lights.
- During handling operations, make sure that no one is in the way of the lift truck and its load.
- Do not allow anybody to come near the working area of the lift truck or pass beneath an elevated load.
- When using the lift truck on a transverse slope, before lifting the jib, 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 long time, there is the risk that it will rest on the structure because of the boom descending owing to the oil in the cylinders cooling down.*

*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 with the 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.*

- Prevent fire risks associated with use in dusty and flammable conditions (e.g. straw, flour, sawdust, organic waste, etc.).

## **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 jib 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 jib 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 hauling it. Such an operation may cause severe damage to the transmission. If necessary, towing requires the transmission to be put in neutral (< 3 - MAINTENANCE: OCCASIONAL OPERATION).
- 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 engaged.
- Turn the ignition key to the position I to activate the electrical and pre-heating system.
- 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 ⚠**

*Operators' attention is drawn to the risks involved in using the forklift truck, in particular:*

*- Risk of losing control.*

*- Risk of losing lateral and frontal stability of the forklift 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 jib 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, crates, etc, are in good condition 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 jib controls when the lift truck is moving.
- Never change the steering mode whilst driving.
- Do not manoeuvre the lift truck with the jib 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 jib retracted and the carriage sloping backwards.
- For lift trucks with gearboxes, use the recommended gear (◀ 2 - DESCRIPTION: CONTROL AND COMMAND INSTRUMENTS).
- Select the steering mode appropriate for the use and/or working conditions (◀ 2 - DESCRIPTION: CONTROL AND COMMAND INSTRUMENTS) (according to 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.
- Apply the parking brake.
- For lift trucks with gearboxes, place the gear lever in neutral.
- Fully retract the jib.
- 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 access to the lift truck (doors, windows, cowls, etc.).

## 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 (➤ 2 - DESCRIPTION: CONTROL AND COMMAND INSTRUMENTS).

### 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" (according to model of lift truck) (➤ 2 - DESCRIPTION: CONTROL AND COMMAND INSTRUMENTS).
- Fully retract the jib 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 move 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 respect 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 (➤ 4 - ADAPTABLE ATTACHMENTS AVAILABLE 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 (➤ 2 - DESCRIPTION: CHARACTERISTICS).

**IF NECESSARY, CONSULT YOUR DEALER.**

### A - CHOICE OF ATTACHMENTS

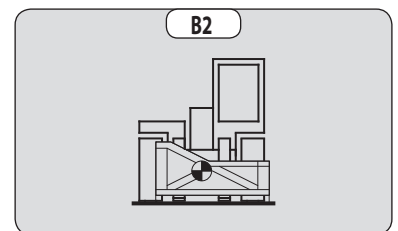
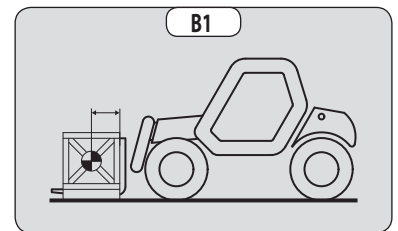
- Only attachments approved by MANITOU can be used on its lift trucks.
- Make sure the attachment is appropriate for the work to be done (➤ 4 - ADAPTABLE ATTACHMENTS AVAILABLE ON THE RANGE).
- If the lift truck is equipped with the single side-shift carriage OPTION (TSDL), use only the authorised attachments (➤ 4 - ADAPTABLE ATTACHMENTS AVAILABLE 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 there is a risk of the sling slipping (➤ 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 bags), as there is a risk that the straps will shear against the sharp edges. Use an attachment designed for this purpose.

### B - WEIGHT 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 ⚠

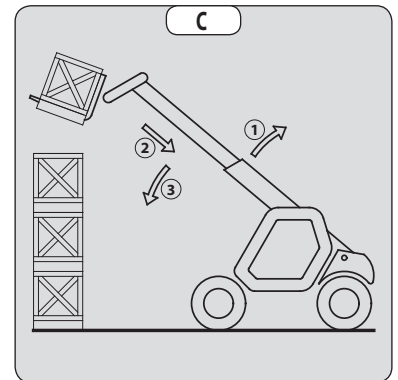
*It is forbidden to handle a load heavier than the effective capacity specified on the truck load chart.  
For loads with a moving centre of gravity (e.g. liquids), take account of the variations in the centre of gravity in order to determine the load to be handled and be extra vigilant and careful to 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 boom very carefully when approaching the authorised load limit (➤ 2 - DESCRIPTION: CONTROL AND COMMAND INSTRUMENTS).
- 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 its maximum limit or the rear axle oscillated to its limit.  
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

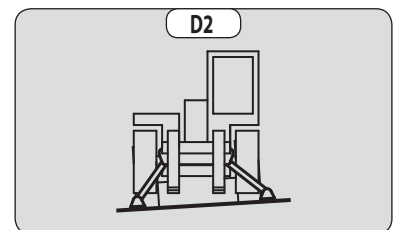
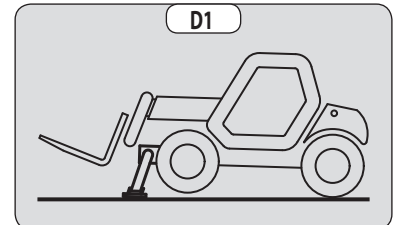
- Position the lift truck so that the bubble in the level is between the two lines (↖ 2 - DESCRIPTION: CONTROL AND COMMAND INSTRUMENTS).

### 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 (↖ 2 - DESCRIPTION: CONTROL AND COMMAND INSTRUMENTS).

### 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 stabilisers (fig. D2) and check horizontality with the spirit level. The bubble of the level must be between the two lines (↖ 2 - DESCRIPTION: CONTROL AND COMMAND INSTRUMENTS). 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 centering relative to the load to ensure stability (fig. E2) (optional solutions exist, consult your dealer).
- Never lift a load with a single fork.

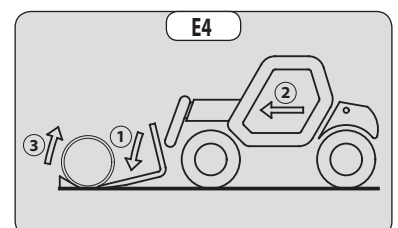
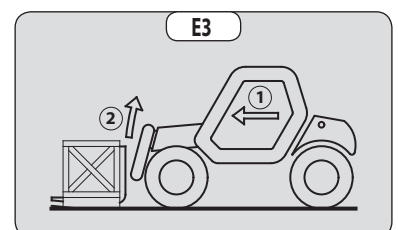
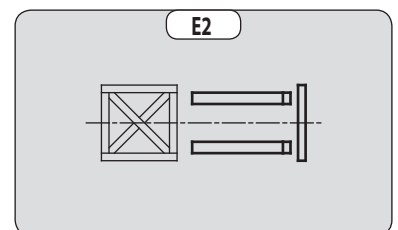
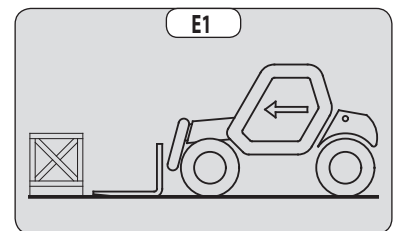
### ⚠ IMPORTANT ⚠

*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-PALLETIZED 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 SETTING DOWN A HIGH LOAD ON TYRES

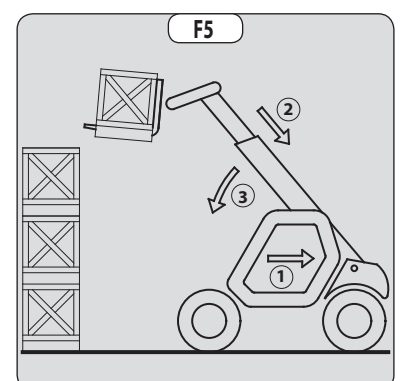
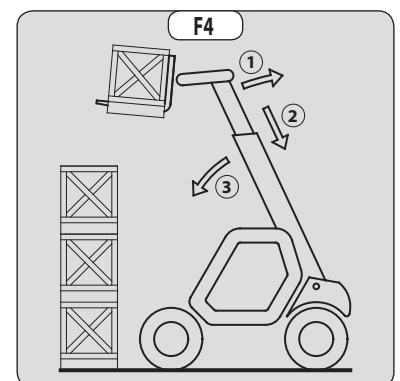
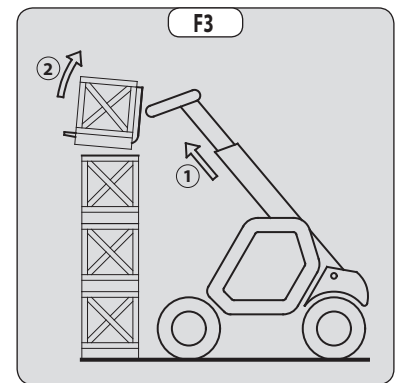
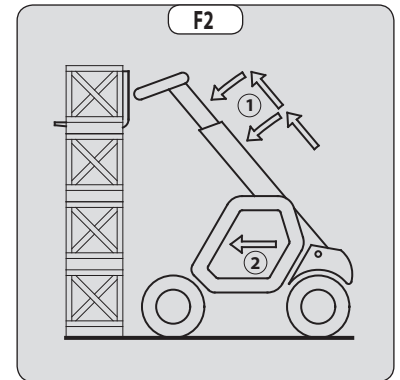
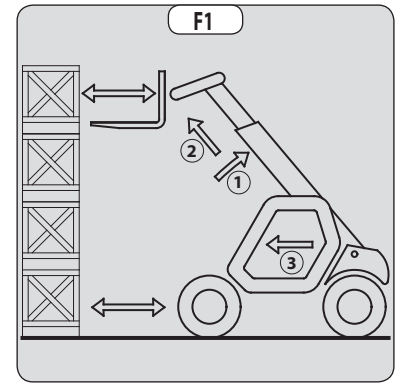
### ⚠ IMPORTANT ⚠

*You must not raise the jib if you have not checked the transverse attitude of the lift truck (➤ 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 (➤ OPERATION INSTRUCTIONS UNLADEN AND LADEN: D - VISIBILITY).

### TAKING UP A HIGH LOAD ON TYRES

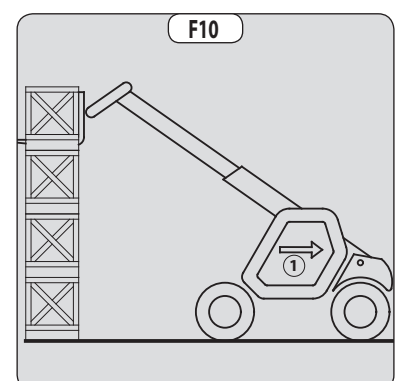
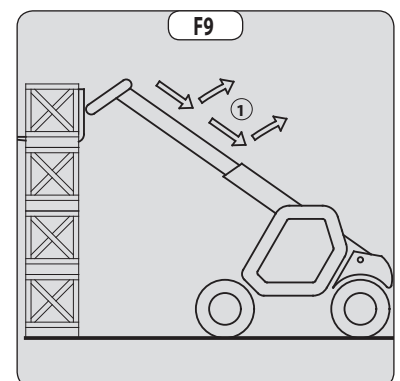
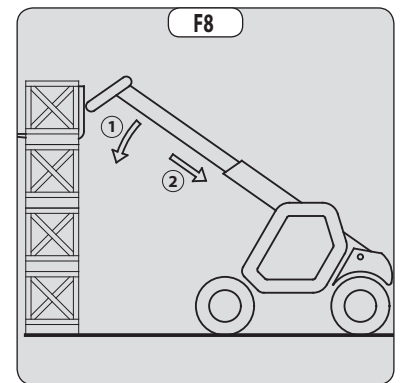
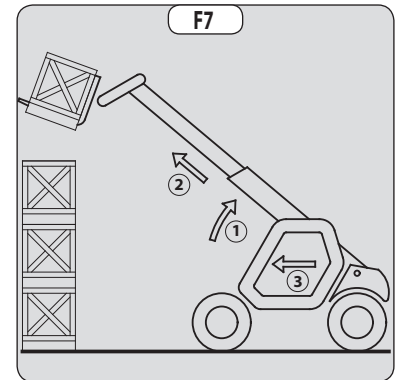
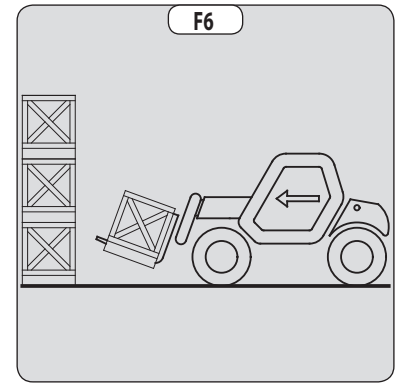
- Ensure that the forks will easily pass under the load.
- Lift and extend the jib (1) (2) until the forks are level with the load, moving the lift truck (3) forward if necessary (fig. F1), moving very slowly and carefully.
- Always remember to keep the distance necessary for inserting the forks under 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 (➤ 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).





## SETTING DOWN 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 (⚠️ 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), manoeuvring very slowly and carefully to release the forks (fig. F10). Then set them into transport position.



## G - TAKING UP AND SETTING DOWN A HIGH LOAD ON STABILISERS

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 (⚠ 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 (⚠ OPERATION INSTRUCTIONS UNLADEN AND LADEN: D - VISIBILITY).

The stabilisers are used to optimise the lift truck's lifting performance (⚠ 2 - DESCRIPTION: CONTROL AND COMMAND INSTRUMENTS).

### POSITIONING THE STABILISERS 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.

### RAISING THE STABILISERS 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.*

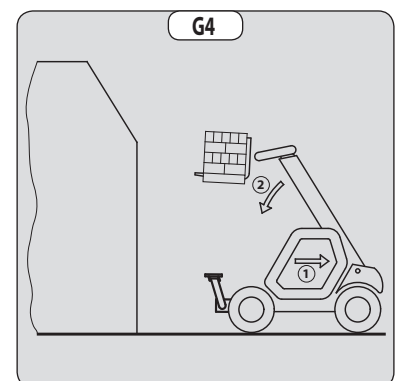
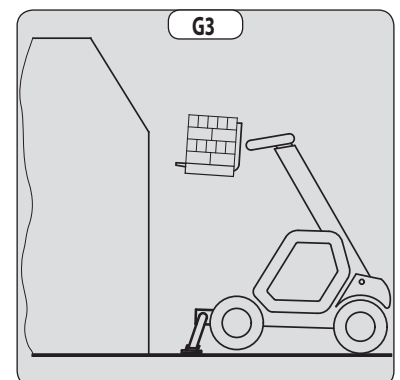
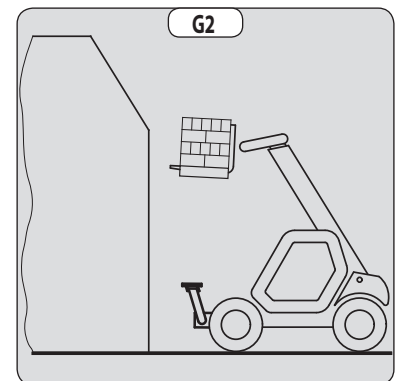
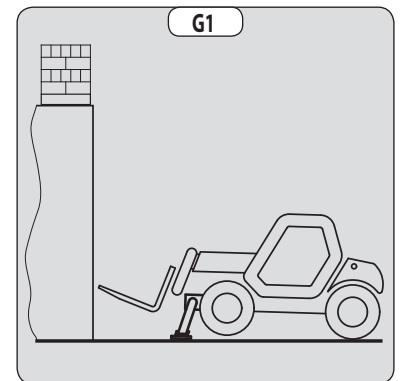
- Raise the jib and retract the telescopes completely.
- Set the lift truck in position in front of the elevation (fig. G2) moving very slowly and carefully.
- Apply the parking brake and place the forward/reverse selector in neutral.
- Move the stabilizers very slowly and gradually as soon as they are 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 STABILISERS WITH THE BOOM UP (UNLADEN AND LADEN)

### ⚠ IMPORTANT ⚠

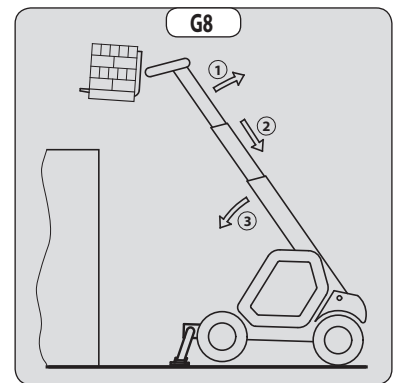
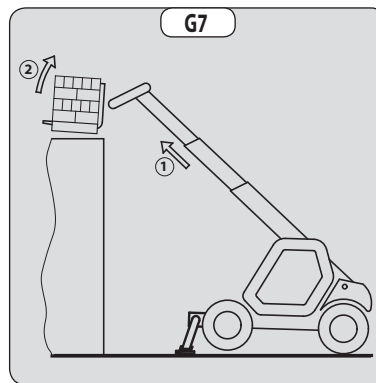
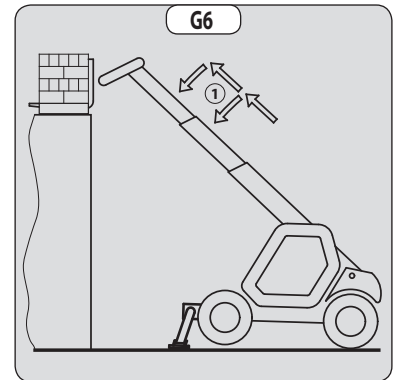
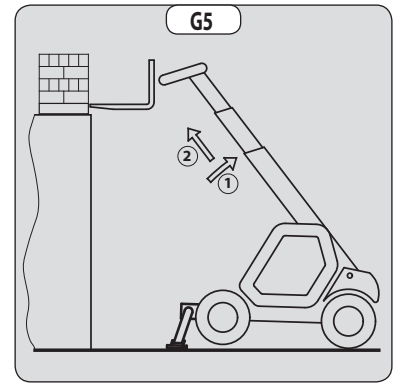
*This operation must be exceptional and performed with great care.*

- Keep the jib up and retract the telescopes completely (fig. G3).
- Move the stabilisers 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).



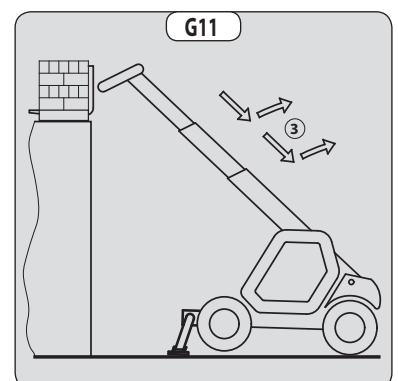
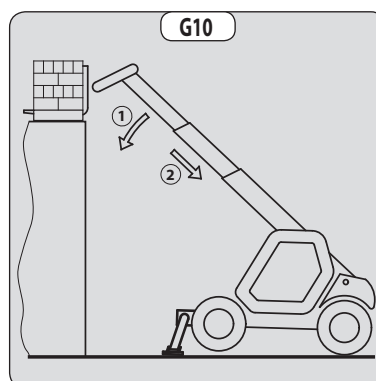
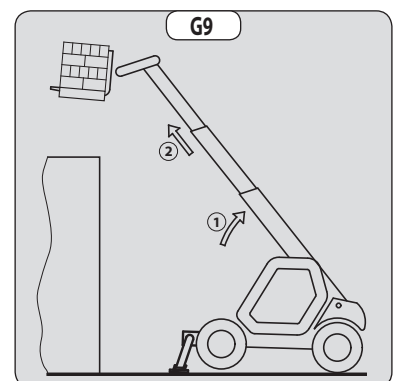
## TAKING UP A HIGH LOAD ON STABILISERS

- 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 (➤ 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).



## SETTING DOWN 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 (➤ 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 - PICKING UP AND SETTING DOWN A SUSPENDED LOAD

### **IMPORTANT**

*Failure to follow the above instructions may lead the lift truck to lose 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 ( 2 - DESCRIPTION: INSTRUMENTS AND CONTROLS), only the green LEDs and possibly 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 the longitudinal stability limiter and warning device ( 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.

## INSTRUCTIONS FOR USE AS A LOADER

For agricultural-type lift trucks (MLT range)

### A - LOADING

#### ⚠ IMPORTANT ⚠

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

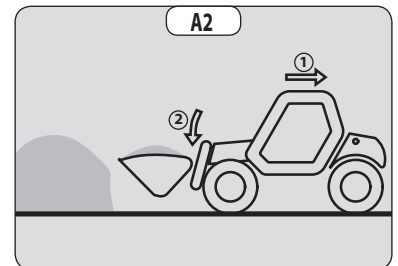
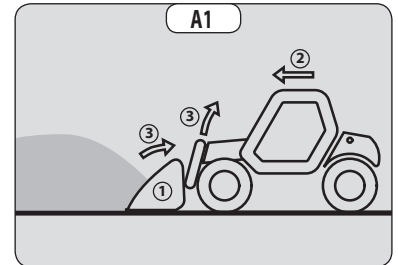
REMINDER: Make sure that the following operations can be performed with good visibility (⚠ OPERATION INSTRUCTIONS UNLADEN AND LADEN: D - VISIBILITY).

#### FILLING THE BUCKET

- Place the bottom of the bucket in a horizontal position, just in contact with the ground (1) (fig. A1).
- Move forward gradually (2) while simultaneously raising the boom and tilting the bucket backwards (3), for improved filling and breakout (fig. A1).
- Reverse the lift truck (1) very carefully and gently to free the bucket. Lower the boom (2) into the transport position (fig. A2).

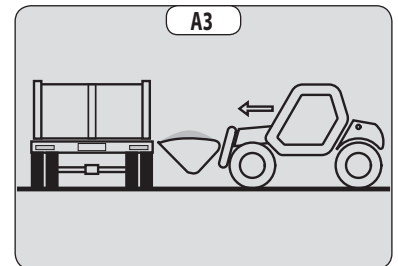
#### ⚠ IMPORTANT ⚠

*Tilt the bucket sufficiently back to avoid spilling product and ensure its stability (loss of product under braking).*

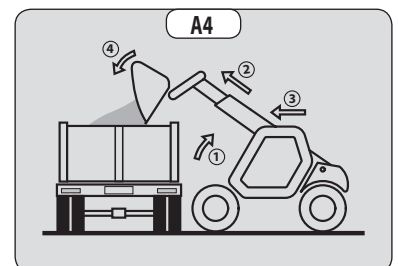


#### LOADING A TRAILER

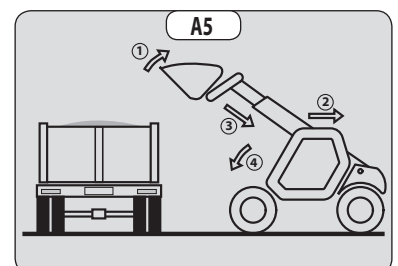
- Approach the side of the trailer in the transport position (fig. A3).



- Raise and extend the boom (1) (2) until the bucket is above the trailer, while monitoring the longitudinal stability limiter and warning device (⚠ INSTRUCTIONS FOR HANDLING A LOAD: C - LONGITUDINAL STABILITY LIMITER AND WARNING DEVICE) (fig. A4).
- Drive the lift truck forward (3) very carefully and gently so that the bucket empties its load at the centre of the trailer (fig. A4).
- Apply the parking brake on and set the reversing lever to neutral.
- Slowly discharge the material (4) (fig. A4).



- Tilt back the bucket (1) and reverse the lift truck (2) very carefully and gently (fig. A5).
- Retract (3) and lower the boom (4) into the transport position (fig. A5).

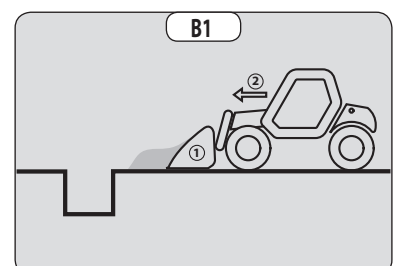


### B - BACKFILLING

- Place the bottom of the bucket in a horizontal position, just in contact with the ground (1) (fig. B1).
- Drive forward gradually (2). Once filled, the bucket will act as a levelling blade (fig. B1).

#### ⚠ IMPORTANT ⚠

*When driving, beware of trenches as well as recently excavated and/or backfilled ground.*



## PLATFORM OPERATING INSTRUCTIONS

For lift trucks fitted with a 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 constraints are limited (➤ 2 - DESCRIPTION: CHARACTERISTICS).
- It is strictly forbidden to suspend a load from the platform or the lift truck jib without a specially designed attachment (➤ INSTRUCTIONS FOR HANDLING A LOAD: H - PICKING UP AND SETTING 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 to 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.
- It is forbidden to use the platform on forks. The fork slots are only to, be used for storing the platform and not for lifting people under any circumstances.

### E - ENVIRONMENT



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

RATED VOLTAGE	SAFE DISTANCE (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 inspected periodically to ensure that it remains in compliance.*

*The frequency of this inspection is defined by the current legislation in force in the country in which the equipment is used*

*For France, this means one general periodic inspection every 6 months (Decree 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.*

*Everyone working with this radio-control:*

- *Must be qualified in line with current regulations and therefore appropriately trained.*
- *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 modified, 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 (➔ 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.
- Ensure that process materials and of spare parts are disposed in all safely and in an ecological manner.
- 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 (➤ 2 - DESCRIPTION: INSTRUMENTS AND CONTROLS) that must be installed on the rod of the lifting cylinder when working beneath the jib.

### FITTING THE WEDGE

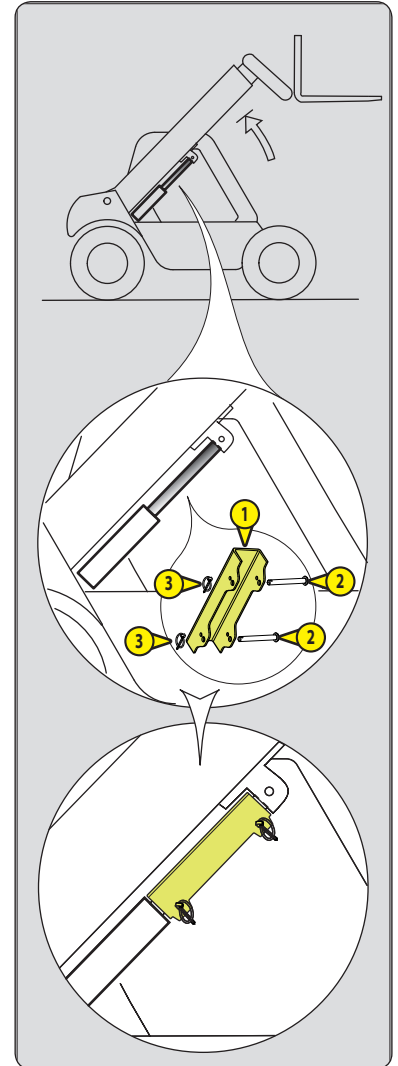
- Fully raise the jib.
- Place the safety wedge 1 on the rod of the lifting cylinder and secure with the rod 2 and the pin 3.
- Slowly lower the jib then stop the hydraulic movements before it comes into contact with the wedge.

### 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 (➤ 3 - MAINTENANCE) to keep your lift truck in good working condition. 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 SYSTEM

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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**

*COUNTERBALANCE VALVE: It is dangerous to change the settings and remove the counterbalance 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 place metal 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 (  3 - MAINTENANCE: OCCASIONAL OPERATION).

## 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.

#### 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. This long-term storage period must not exceed 12 months.*

*After 12 months, perform the lift truck return to service and long term shutdown procedures again.*

### 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 (➤ OPERATING INSTRUCTIONS UNLADEN AND LADEN).
- Make sure the jib cylinder rods are all in retracted position.
- Release the pressure in the hydraulic circuits.

### DEF (Diesel Exhaust Fluid) TANK

Depending on the model of lift truck

- Drain and rinse the DEF tank.
- Replace the "DEF" (Diesel Exhaust Fluid) feed pump filter (➤ 3 - MAINTENANCE: 1000 HOUR - PERIODIC MAINTENANCE - EVERY 1000 HOURS OF SERVICE OR EVERY 2 YEARS).
- Slowly fill the tank with new "DEF" (Diesel Exhaust Fluid) up to the bottom of the filler neck.
- Start up the lift truck to pressurise the circuit and bring it up to working temperature, then shut down the engine.
- If necessary, top up the tank.

### PROTECTING THE ENGINE

- Contact your dealer to obtain the procedure for protecting the inside of the engine (use of protection product).
- Fill the fuel tank.
- Empty and replace the cooling liquid (➤ 3 - MAINTENANCE: 2000 HOUR - PERIODIC MAINTENANCE - EVERY 2000 HOURS OF SERVICE OR EVERY 4 YEARS).
- Leave the engine running at idling speed for a few minutes, then switch off.
- Replace the engine oil and oil filter (➤ 3 - MAINTENANCE: 500 HOUR - PERIODIC MAINTENANCE - EVERY 500 HOURS SERVICE).
- 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.
- Block the outlet with 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 off the ground.
- Release the parking brake (according to model of lift truck).
- Protect cylinder rods which will not be retracted, from corrosion.
- Wrap the tires.

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 and reconnect the battery.
- Remove the protection from the cylinder rods.
- Carry out daily maintenance (⚠ 3 - MAINTENANCE: 10 HOUR - DAILY MAINTENANCE OR EVERY 10 HOURS OF SERVICE).
- Put the handbrake on and remove the axle stands.
- Empty and clean the fuel tank (⚠ 3 - MAINTENANCE: 1000 HOUR - PERIODIC MAINTENANCE - EVERY 1000 HOURS OF SERVICE OR EVERY 2 YEARS)
- Fill the fuel tank with clean diesel filtered through the filler port.
- Replace the fuel filter (⚠ 3 - MAINTENANCE: 500 HOUR - PERIODIC MAINTENANCE - EVERY 500 HOURS OF SERVICE).
- Replace the fuel pre-filter (⚠ 3 - MAINTENANCE: 500 HOUR - PERIODIC MAINTENANCE - EVERY 500 HOURS OF SERVICE) (according to model of lift truck).
- Drain and rinse the DEF tank (according to model of lift truck).
- Slowly fill the tank with new "DEF" (Diesel Exhaust Fluid) up to the bottom of the filler neck (according to model of lift truck).
- Refit and set the tension in the drive belts (⚠ 3 - MAINTENANCE: FILTER CARTRIDGES AND BELTS).
- Turn the engine over with the starter, to allow the oil pressure to rise.
- Reconnect the engine cut-off solenoid.
- Grease the lift truck completely (⚠ 3 - MAINTENANCE: 50 HOUR - WEEKLY MAINTENANCE OR EVERY 50 HOURS OF SERVICE).

### **⚠ IMPORTANT ⚠**

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

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

## LIFT TRUCK DISPOSAL



*Please 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

- Tires 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 organizes 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 seeks 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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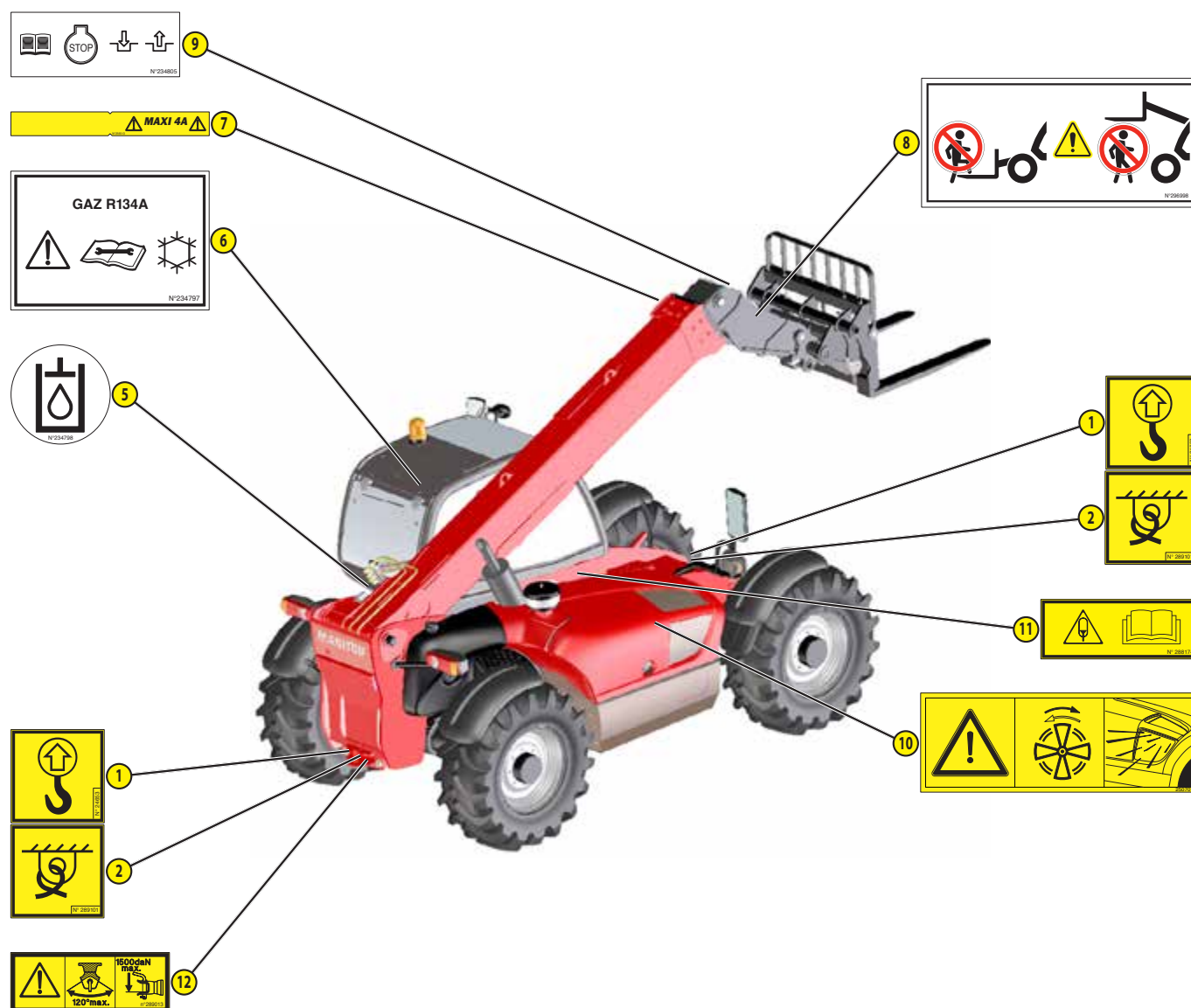
## SAFETY PLATES AND STICKERS

### ⚠ IMPORTANT ⚠

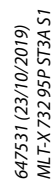
*Clean all of the stickers and safety plates to make them legible.  
It is essential to replace stickers and safety plates which are illegible or damaged.  
Check the presence of stickers and safety plates after replacing any spare parts.*

### EXTERNAL PLATES AND STICKERS

ITEM	REFERENCE	DESCRIPTION
1	24653	- Slings point
2	289101	- Tie-down point
5	234798	- Hydraulic oil
6	234797	- Air conditioning (option)
7	256513	- Boom electrical predisposition (option)
8	296998	- Maniscopic safety instruction
9	234805	- Hydraulic coupling instruction
10	250707	- Fan reversal (option)
11	288174	- Accumulator instructions
12	289013	- Towing instruction

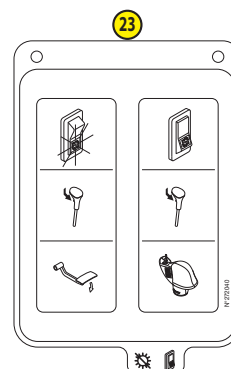
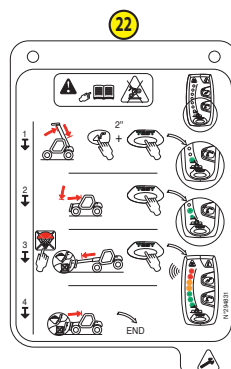
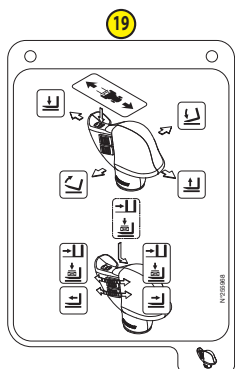
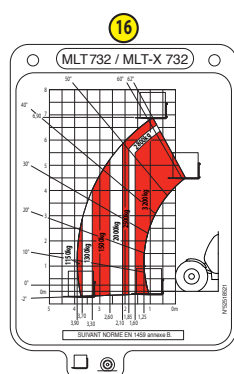


ITEM	REFERENCE	DESCRIPTION
1	293887	- Anti-freeze
2	259398	- Water/diesel separator
3	233088	- Preheat rod <b>(option)</b>
4	Consult your dealer	- Engine safety instruction
5	Consult your dealer	- Cooling liquid
6	Consult your dealer	- Engine setting instruction
7	Consult your dealer	- Explosion risk instruction



## PLATES AND STICKERS IN THE CAB

ITEM	REFERENCE	DESCRIPTION
1	193032	- Cab compliance
2	223324	- Patents
3	Consult your dealer	- Manufacturer's plate
6	239595	- Sound power level 105dB
8	268491	- Break fluid instruction
9	33460	- Gear lever
10	265284	- Lifting ring on single carriage ( <b>option</b> )
11	184276	- Steering selection control
12	290183	- Bucket instruction on telescope
13	297733	- Operating mode management instruction ( <b>option</b> )
14	291213	- Fuses
15	52503175	- Reach chart sheet
16	Consult your dealer	- Load chart
19	255968	- Manipulator function
21	241621	- Safety instruction
22	294831	- Resetting procedure
23	272040	- Transmission cut-off switch function
24	52651762	- Hydraulic controls activation ( <b>DEPENDENT ON ASSEMBLY</b> )







## 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/TR 14396
- 7 - Empty ground
- 8 - Authorised gross vehicle weight
- 9 - Rated capacity
- 10 - Pulling force
- 11 - Maximum vertical force (on trailer hook)
- 12 - Tyre pressure (bar)
- 13 - Homologation no.

MANITOU			
MANITOU BF 44158 ANCENIS CEDEX FRANCE			
1	MODELE MODEL	2	SERIE SERIE
3	Année de fabrication Year of manufacture	4	Année modèle Model year
5	N° de série Serial No.	6	Puissance ISO/TR 14396 Power ISO/TR 14396
7	Masse à vide Unladen mass	8	Poids autorisé Authorised gross vehicle weight
9	Capacité nominale Nominal capacity	10	Effort de traction Pulling force
11	Effort vertical max. sur câble d'attelage Maximum vertical force on tow bar	12	Pression des pneumatiques (bar) Tyre pressure (bar)
13	N° d'homologation Homologation No.		

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

### ENGINE

- Engine No.



### GEAR BOX

- Type
- MANITOU Part no.
- Serial No.



### ANGLE GEAR-BOX

- Type
- MANITOU Part no.
- Serial No.



## **FRONT AXLE**

---

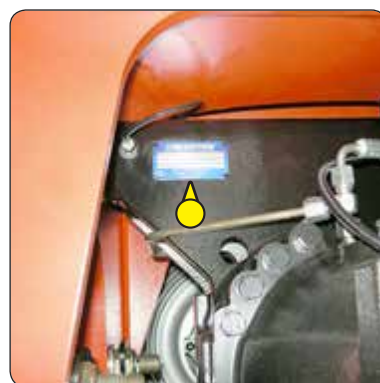
- Type
- Serial No.
- MANITOU Part no.



## **REAR AXLE**

---

- Type
- Serial No.
- MANITOU Part no.



## **CAB**

---

- Type
- Serial No.



## **BOOM**

---

- MANITOU Part no.
- Date of manufacture



## **FRAME**


---

- Lift truck serial no.



## CONNECTION MANUFACTURER'S PLATE

- Model
- Serial no.
- Year of manufacture

	
MANITOU BP 95100 ARGENNES CEDEX FRANCE	
CE	
MODELE	
N° dans la série	
Année fabrication	
Masse à vide	
kg	
C d G / Tableau	
A vide / En charge : mm	
/	
Cap. Nominale	
Pression de service	
AVERTISSEMENT - RESPECTEZ LA CAPACITE DE CHARGE "CHARIOT ET EQUIPEMENT"	
N° 241415	



## CHARACTERISTICS

I.C. ENGINE		
Type		PERKINS 1104D-44T NL38857
Fuel		Diesel
Number of cylinders		4 in line
Suction		Supercharged
Injection system		Direct
Ignition sequence		1.3.4.2
Capacity	cm <sup>3</sup>	4400
Bore and stroke	mm	105 x 127
Compression ratio		18,2:1
Nominal speed laden	rpm	2200
Idling speed slow unladen	rpm	930
Max. speed unladen	rpm	2380
Power ISO/TR 14396	cv - kW	95 - 70
Power SAE J 1995	cv - kW	95 - 70
Maximum torque ISO/TR 14396	Nm	392 to 1400 rpm
Air cleaner efficiency	%	99,9
Type of cooling		By water
Fan		Puller

TRANSMISSION		
Gear box		TURNER
- Type		Mechanical
- Forward/reverse selector		Electro-hydraulic
- Torque converter		SACHS
- Number of forward speeds		4
- Number of reverse speeds		4
Angle gear box		TURNER
Front axle		DANA
- Differential		Limited slip
Rear axle		DANA
- Differential		Without locking
Drive wheels		4RM Permanent
- Switch for 2/4 drive wheels		No
Front tyres		ALLIANCE
- Size		17,5LR24 150A8 A570
- Pressure	bar	3,2
Rear tyres		ALLIANCE
- Size		17,5LR24 150A8 A570
- Pressure	bar	3,2

ELECTRIC CIRCUIT		
Battery	STANDARD OPTION	12 V - 110 Ah - 750 A EN
Alternator		12 V - 85 A
- Type		Denso A115i
Starter		12 V - 3,2 kW
- Type		AZE

BRAKE CIRCUIT		
Service brake		Non-servo hydraulic brake
- Type of brake		Multidisk brake immersed in oil
- Type of control		Foot-operated for the front and rear axles
Parking brake		Mechanical
- Type of brake		Disk on gear-box output
- Type of control		Manual

SOUND AND VIBRATION		
Sound pressure level in the driver's cab LpA (according to standard NF EN 12053)	dB(A)	78 (cab closed) ; xx (cab open)
Sound pressure (according to directive 2009/76)	dB(A)	xx (cab closed) ; xx (cab open)
Sound pressure level ensured in the LwA environment (according to directive 2000/14/EC modified by directive 2005/88/EC)	dB(A)	104 (measured) ; 105 (ensured)
Sound level in motion (according to directive 2009/63)	dB(A)	xx
Average weighted acceleration on driver's body (according to standard NF EN 13059)	m/s <sup>2</sup>	1,1
The average weighted acceleration transmitted to the driver's hand/ arm system (according to standard ISO 5349-2)	m/s <sup>2</sup>	< 2,5
Standard seat vibration	m/s <sup>2</sup>	xx (lightweight operator) ; xx (heavyweight operator)

HYDRAULIC CIRCUIT			
Hydraulic pump			
- Type		Gear type with flow divider	
		1st casing	2nd casing
- Capacity	cm <sup>3</sup>	22	22
- Max. rating capacity unladen	l/mn	52	52
- Flow rate at 1600 rpm	l/mn	35	35
Filtration			
- Return	µm	10	10
- Suction	µm	125	125
Maximum service pressure		250	
- Telescoping circuit	bar	190 / 250	
- Lifting circuit	bar	250 / 250	
- Tilt circuit	bar	250 / 190	
- Attachment circuit	bar	250	
- Steering circuit	bar	140	

HYDRAULIC MOVEMENTS			
Longitudinal stability limiter and warning device		Electronic	
Lifting motions (boom retracted)			
- Unladen lifting	s - m/mn	7,2 - 37,6	
- Laden lifting	s - m/mn	7,2 - 37,6	
- Unladen lowering	s - m/mn	5,5 - 49,2	
- Laden lowering	s - m/mn	5,8 - 46,6	
Telescoping motions (boom raised)			
- Unladen extending	s - m/mn	6,5 - 24,9	
- Laden extending	s - m/mn	6,5 - 24,9	
- Unladen retracting	s - m/mn	5,4 - 30	
- Laden retracting	s - m/mn	5,9 - 27,5	
Tilting movements			
- Unladen digging	s - °/s	2,9 - 43,3	
- Forward tilting unladen	s - °/s	2,8 - 44,9	

SPECIFICATIONS AND WEIGHTS			
Speed of movement for lift truck in standard configuration on flat ground (except particular conditions)			
Front unladen	1	km/h	4,4
	2	km/h	7,1
	3	km/h	15
	4	km/h	26,7
Rear unladen	1	km/h	4,4
	2	km/h	7,1
	3	km/h	15
	4	km/h	26,7
Standard attachment		PFB 35 MT 1260	
- Weight with forks	kg	93	
- Weight of forks (each one)	kg	72	
Rated capacity with standard attachment	kg	3200	
Tipping load at maximum reach on tyres	kg	1620	
Distance from the centre of gravity from the load to the lug of the forks	mm	500	
Standard lifting height	mm	6900	
Lift truck weight without attachment	kg	6600	
Lift truck weight with standard attachment			
- Unladen	kg	6940	
- At rated load	kg	10040	
Weight per axle with standard attachment (transport position)			
- Front unladen	kg	2910	
- Rear unladen	kg	3930	
- Front rated load	kg	8420	
- Rear rated load	kg	1620	
Weight per axle with standard attachment (boom extended)			
- Front rated load	kg	6095	
- Rear rated load	kg	745	
Drag strain on the coupling hook			
- Unladen (sliding)	daN	5295	
- At rated load (transmission setting)	daN	9000	
Pull strain with open carrier (according to standard ISO 8313)	daN	5770	

## TIRES

		PRESSURE (bar)	TYRE LOAD (kg)			
			FRONT UNLADEN	FRONT LADEN	REAR UNLADEN	REAR LADEN
ALLIANCE	460/70R24 159A8 A580	4	1450	4200	1950	800
	17,5 LR 24 150A8 A570 TUBELESS	3,2				

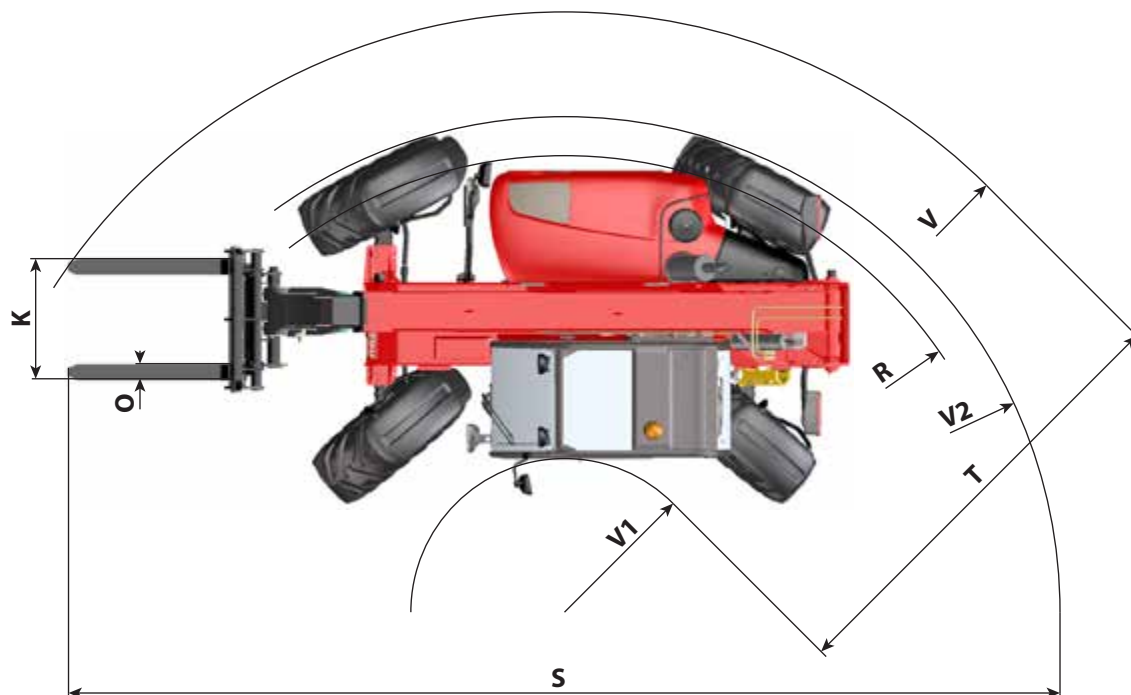
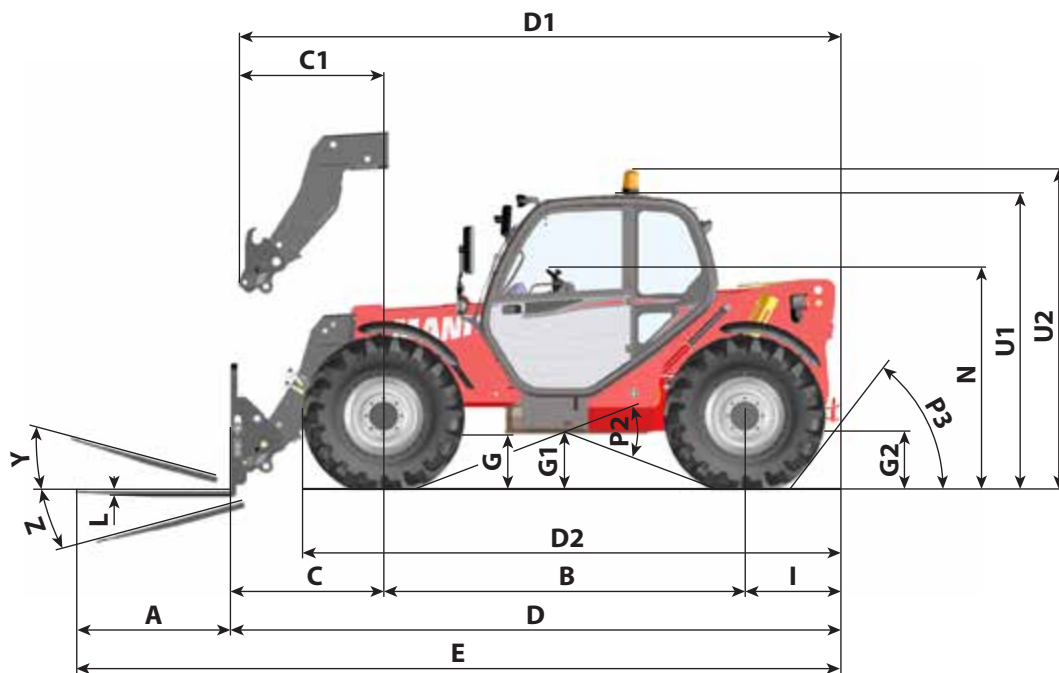
		PRESSURE (bar)	LOAD (kg)	PRESSURE ON THE CONTACT SURFACE (kg/cm <sup>2</sup> )		AREA OF THE CONTACT SURFACE (cm <sup>2</sup> )	
				HARD SOIL	LOOSE SOIL	HARD SOIL	LOOSE SOIL
ALLIANCE	460/70R24 159A8 A580	4	800				
			1450				
			1950				
			4200				
	17,5 LR 24 150A8 A570 TUBELESS	3,2	800				
			1450				
			1950				
			4200				

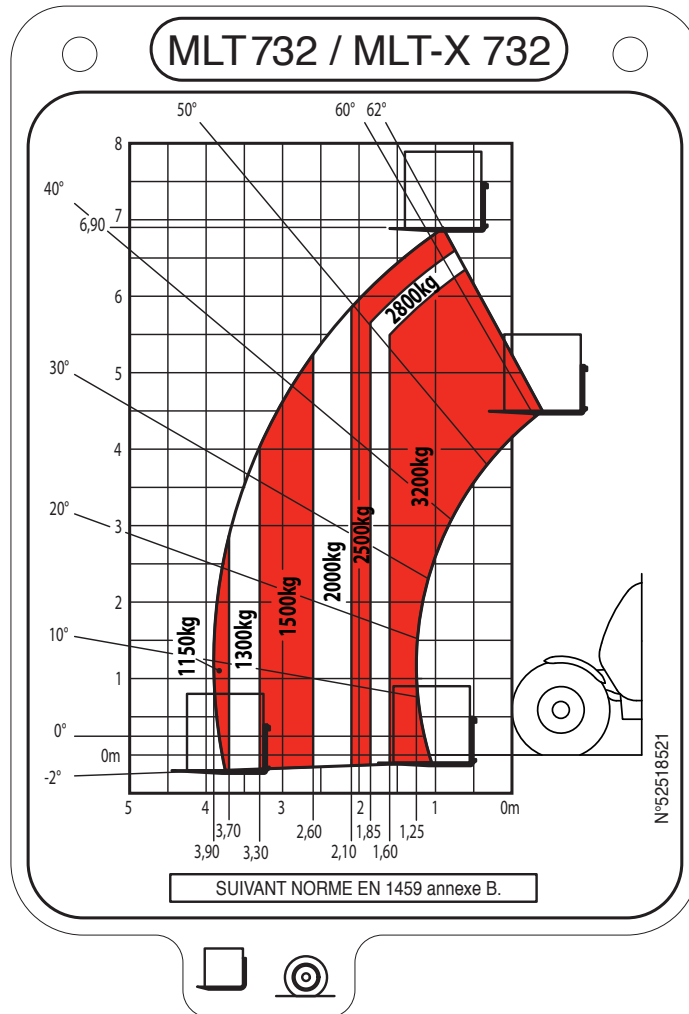




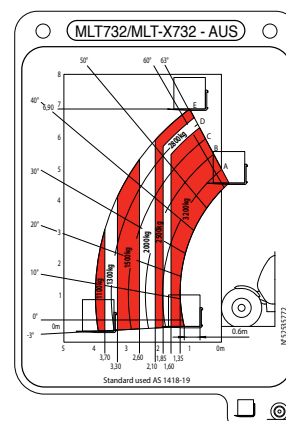
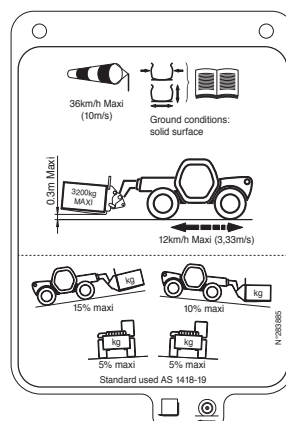
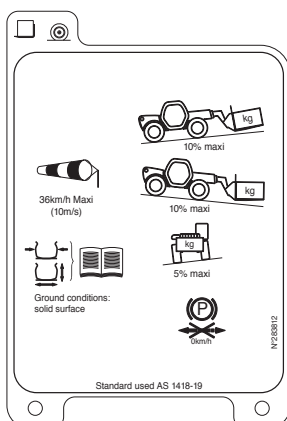
## DIMENSIONS AND LOAD CHART

A	mm	1200
B	mm	2810
C	mm	1188
C1	mm	1128
D	mm	4740
D1	mm	4680
D2	mm	4180,5
E	mm	5940
F	mm	1870
F1	mm	1870
G	mm	450
G1	mm	435
G2	mm	435
I	mm	742
J	mm	890
K	mm	1260
L	mm	45
N	mm	1715
O	mm	125
P2	°	38
P3	°	53
R	mm	3598
S	mm	7614
T	mm	3519
U1	mm	2299
U2	mm	2488
V	mm	4829
V1	mm	1310
V2	mm	3820,5
W	mm	2340
Y	°	13
Z	°	134





ONLY FOR AUSTRALIA



## INSTRUMENTS AND CONTROLS



## DESCRIPTION

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- 1 - DRIVER'S SEAT
- 2 - SEAT BELT
- 3 - CONTROL AND SIGNAL LIGHTS PANEL
- 4 - LONGITUDINAL STABILITY LIMITER AND WARNING DEVICE
- 5 - EMERGENCY STOP BUTTON
- 6 - SWITCHES
- 7 - LIGHTING, HORN AND INDICATOR LIGHTS
- 8 - FRONT AND REAR WINDSCREEN WIPER SWITCH
- 9 - IGNITION SWITCH
- 10 - FUSES AND RELAYS IN THE CAB
- 11 - FUSES AND RELAYS UNDER THE ENGINE BONNET
- 12 - DIAGNOSTIC PLUG
- 13 - ACCELERATOR PEDAL
- 14 - SERVICE BRAKE PEDAL AND TRANSMISSION CUT-OFF
- 15 - GEAR LEVER AND TRANSMISSION CUT-OFF
- 16 - PARKING BRAKE LEVER
- 17 - FORWARD/NEUTRAL/REVERSE GEAR SELECTION
- 18 - STEERING SELECTION
- 19 - HYDRAULIC CONTROLS
- 20 - FUNCTION FILES
- 21 - LEVEL INDICATOR
- 22 - HEATER CONTROL
- 23 - AIR CONDITIONING CONTROLS (AIR CONDITIONING OPTION)
- 24 - CAB VENTILATION FILTER
- 25 - WINDSCREEN DEMISTER VENTS
- 26 - HEATING VENTS
- 27 - BRAKE OIL AND WINDSCREEN WASHER TANK ACCESS PANEL
- 28 - DOOR LOCK
- 29 - LOCKING HANDLE FOR UPPER HALF-DOOR
- 30 - UNLOCKING BUTTON FOR UPPER HALF-DOOR
- 31 - HANDLE FOR REAR WINDOW OPENING
- 32 - STORAGE COMPARTMENT
- 33 - SUN VISOR (OPTION)
- 34 - ROOF LIGHT (NOT ILLUSTRATED)
- 35 - HOOK
- 36 - CIGARETTE LIGHTER
- 37 - ARMREST AND STORAGE
- 38 - TOOL BOX (OPTION)
- 39 - BATTERY CUT-OFF (OPTION)
- 40 - FRONT LIGHTS (NOT ILLUSTRATED)
- 41 - REAR LIGHTS (NOT ILLUSTRATED)
- 42 - ROTATING BEACON LIGHT (NOT ILLUSTRATED)
- 43 - BOOM SAFETY WEDGE

NOTE: All the terms such as: RIGHT, LEFT, FRONT, REAR are as seen by an observer seated on driver's seat and looking straight ahead.

## 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.

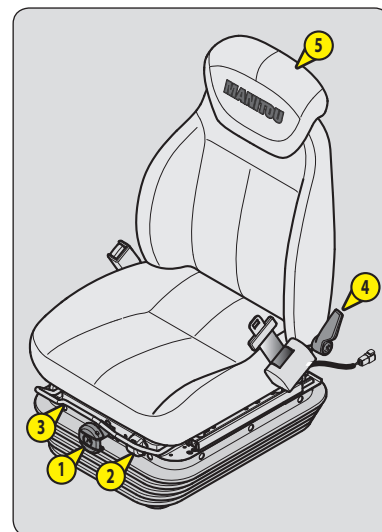
NOTE: The seat is designed so as not to require adjustment according to the driver's weight.

#### LONGITUDINAL ADJUSTMENT

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

#### BACK-REST ANGLE ADJUSTMENT

- Hold the back-rest, push the lever 4 backwards 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.

### 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.

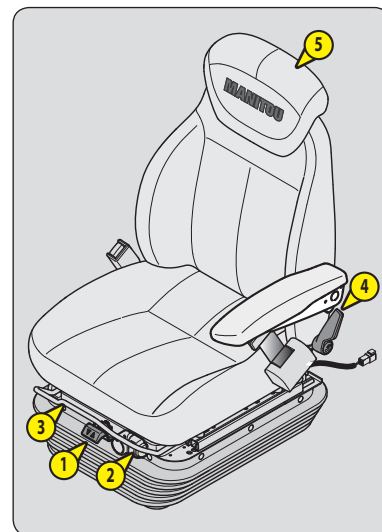
NOTE: The seat is designed so as not to require adjustment according to the driver's weight.

#### LONGITUDINAL ADJUSTMENT

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

#### BACK-REST ANGLE ADJUSTMENT

- Hold the back-rest, push the lever 4 backwards 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 SHOCK ABSORBER**

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.

#### **BACK-REST ANGLE ADJUSTMENT**

- Hold the back-rest, push the lever 4 backwards 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**

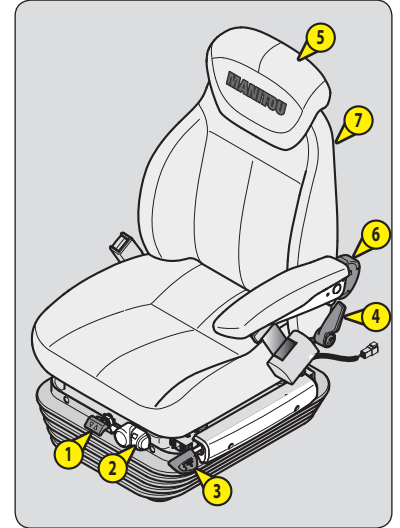
- The height of the head-rest 5 can be adjusted by pulling it upwards (the notches will click) up to the stop.
- The head-rest can be removed by applying sufficient pressure to pull it off the stop.

#### **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.

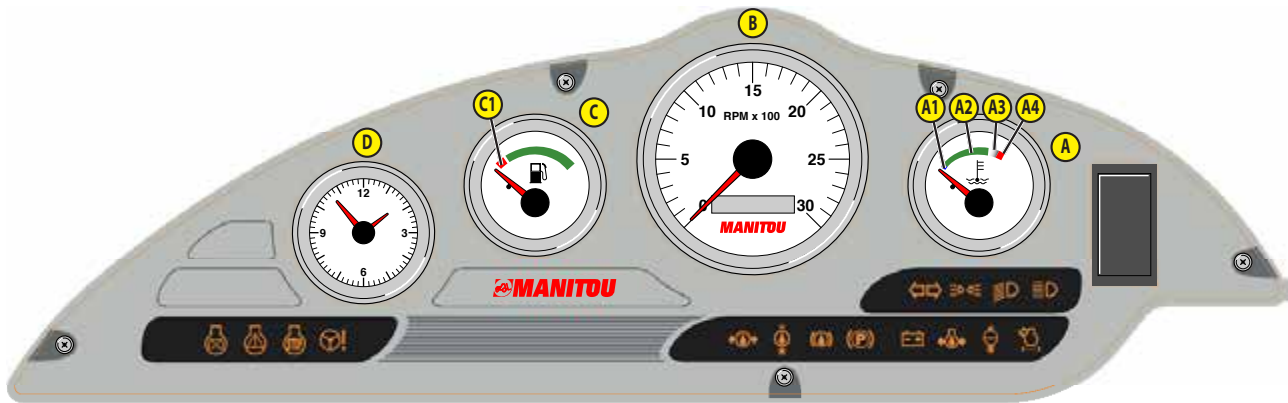


## **2 - SEAT BELT**

#### **⚠ 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.



#### CONTROL INSTRUMENTS

##### A - ENGINE WATER TEMPERATURE

###### TEMPERATURE ZONE

- A1 - Blue Zone (0° - 50°) Use the lift truck with moderation, wait for temperature to increase before normal operation.
- A2 - Green zone (50° - 100°) Use lift truck normally.
- A3 - White/red zone (100° - 105°) Use lift truck with moderation, monitor the temperature.
- A4 - Red zone (105° - 120°) Stop the lift truck, look for the cause of overheating.

NOTE: The red indicator light  comes on between zone A3 and A4.

##### B - HOUR METER AND REV COUNTER

##### C - FUEL LEVEL

Red zone C1 indicates that you are using the reserve supply and that time of use is limited.

##### D - CLOCK

#### SIGNAL LIGHTS

#### ⚠ IMPORTANT ⚠

*A permanently lit or flashing warning lamp, with the engine running, is the sign of an operating fault. The lighting of some lamps may be accompanied by an audible signal. Do not ignore this warning, consult your dealer without delay.*

*If one of the warning lamps comes on while the lift truck is in motion, stop the lift truck under the safest possible conditions.*

When activating the electrical system of the lift truck, all the red and orange lamps and the panel's buzzer must light to indicate their good working order. If one of the red lamps or the buzzer does not function, carry out the necessary repairs.



NOT USED



NOT USED



NOT USED



NOT USED



**RED GEAR BOX OIL PRESSURE WARNING INDICATOR LIGHT**

The indicator lamp and buzzer come on when there is an abnormal drop in gear box pressure, in forward gear. Stop the engine and look for the cause (gear box oil level, possible leak, radiator, etc.).

NOTE: This indicator lamp operates in forward travel conditions only, and can be ignored when the lift truck is stopped with the engine idling.





#### **RED TRANSMISSION OIL TEMPERATURE FAULT INDICATOR LIGHT**

The indicator lamp and buzzer come on when the gearbox oil temperature is abnormally high. Stop the engine and look for the cause (gear box oil level, possible leak, radiator, etc.).



#### **RED BRAKING OIL LEVEL WARNING INDICATOR LIGHT**

If the indicator lamp and buzzer come on, when the lift truck is running, stop the engine immediately and look for the cause (braking oil level, possible leak, etc.). In the event of an abnormal drop in the level, consult your dealer.



#### **RED PARKING BRAKE INDICATOR LAMP**

This indicator lamp comes on when the parking brake is applied.



#### **RED BATTERY CHARGE WARNING INDICATOR LIGHT**

If the indicator lamp and buzzer come on when the lift truck is running, stop the engine immediately and look for the cause (electric circuit, alternator belt, alternator, etc.).



#### **RED I.C. ENGINE OIL PRESSURE WARNING INDICATOR LIGHT**

If the lamp and the buzzer come on when the lift truck is running, stop the I.C. engine immediately and look for the cause (engine oil level, possible leak, etc.).



#### **RED I.C. ENGINE WATER TEMPERATURE WARNING INDICATOR LIGHT**

If the indicator lamp and buzzer come on when the lift truck is running, stop the engine immediately and look for the cause (coolant level, possible leak, radiator, etc.).



#### **RED AIR FILTER OR HYDRAULIC RETURN FILTER CLOGGED INDICATOR LIGHT**

The indicator lamp and buzzer come on when the air filter cartridge or the hydraulic return oil filter cartridge is clogged up. Stop the engine and carry out the necessary repairs (see cleaning and replacement requirements in chapter: 3 - MAINTENANCE: FILTERS CARTRIDGES AND BELTS).



#### **GREEN DIRECTION INDICATOR LIGHT LAMP**



#### **GREEN SIDELIGHTS LAMP**



#### **GREEN LOW BEAM LAMP**



#### **BLUE MAIN BEAM INDICATOR LAMP**

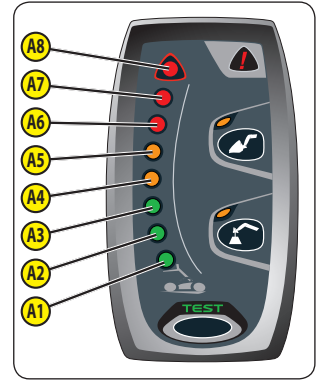
## 4 - LONGITUDINAL STABILITY LIMITER AND WARNING DEVICE

### ⚠ 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/BUCKET" MODE



- By default, the device is in "HANDLING/BUCKET" 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 acoustic alarm simultaneously starts to beep. All "AGGRAVATING" hydraulic movements are stopped. Only make hydraulic movements that increase stability in the following order; retract and raise the boom.

NOTE: When the jib is retracted, the function for switching off "AGGRAVATING" hydraulic movements is disconnected.

### B - "SUSPENDED LOAD" MODE




### ⚠ IMPORTANT ⚠

*All attachments with a suspended load (winch, crane jib, crane jib with winch, hook, etc.) MUST be used with a lift truck equipped with a working hydraulic movement cut-out device.*

Providing a higher margin of safety, use with a jib or hoisting eye.

- Place the lift truck in the transport position.

- Press the button for 2 seconds , "SUSPENDED LOAD" MODE is validated by an audible beep and the lighting of the lamp.

- Return to "HANDLING/BUCKET" 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 acoustic alarm simultaneously starts to beep. All "AGGRAVATING" hydraulic movements are stopped. Only make hydraulic movements that increase stability in the following order; retract and raise the boom.

NOTE: When the boom is retracted, the switch off "AGGRAVATING" hydraulic movements function is disconnected

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

Switch A allows you to cut off "DANGEROUS" hydraulic movements or not.

- Place the lift truck in the transport position, with the boom lowered and retracted.

WITH CUT-OUT OF "AGGRAVATING" HYDRAULIC MOVEMENTS: VISUAL INDICATOR C1 OFF:

NOTE: When the jib is retracted, the function for switching off "AGGRAVATING" hydraulic movements is disconnected.

WITHOUT CUTTING-OUT "AGGRAVATING" HYDRAULIC MOVEMENTS: VISUAL INDICATOR C1 ON:




#### ⚠ IMPORTANT ⚠

*In this case, only the visual and sound alarm will inform the user.*

- To allow the use of loading or earth moving buckets, for example.

### D - TESTING 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 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).

### E - FAULT WARNING LAMP

A permanently lit fault indicator lamp E, together with a combination of illuminated LEDs, indicates a major fault liable to affect the safety of the lift truck. Refer to your agent or dealer.

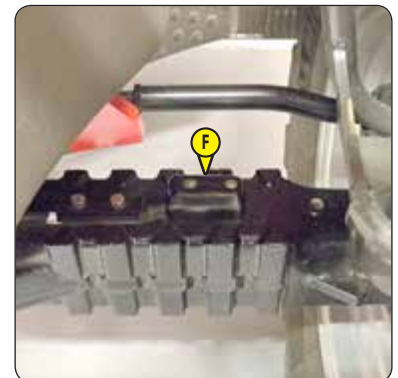
- The fault indicator lamp  plus LEDs A1 and A7 lighting alternately with A4 and A8 indicates a defective link in the operation of the longitudinal stability limiter and warning device.
- The fault indicator lamp  plus continuously lit LEDs A7 and A8 indicate a faulty box.



### F - STRAIN GAUGE

#### ⚠ IMPORTANT ⚠

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



### 5 - EMERGENCY STOP BUTTON

In the event of danger, it enables the engine to be shut down, thereby cutting-off 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 knob to deactivate it before restarting the lift truck.



## 6 - SWITCHES

NOTE: The location of the switches may vary depending on the options.

### A - BOOM ELECTRICAL PREDISPOSITION OPTION OR HEAD TELESCOPE ELECTROVALVE OPTION

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

### B - BLUE FRONT AND REAR WORKING LIGHTS OPTION

### C - WHEEL ALIGNMENT LAMPS

See: 2 - DESCRIPTION: 20 - STEERING SELECTION.

### D - HAZARD WARNING LIGHTS

### E - REAR FOG LIGHTS

### F - SELF-CLEANING FAN OPTION

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

### G - STEERING SELECTION

See: 2 - DESCRIPTION: 18 - STEERING SELECTION.

### H - TRANSMISSION CUT-OFF

NOTE: In all cases transmission cut-off can be activated using the gear lever.

- Position 1: Indicator lamp is on, transmission is cut-off with the service brake pedal and the forward/neutral/reverse gear lever.
- Position 2: Indicator lamp is off, transmission is cut-off with the forward/neutral/reverse gear selector.

#### USE OF TRANSMISSION CUT-OFF

- Transmission cut-off to brake pedal (position 1).
  - When loading.
- Transmission cut-off with forward/neutral/reverse gear selector (position 2).
  - When driving.
  - For inching and continuous stop/start (delicate handling).
  - Start-up on a slope.

### I - OPTION

### J - OPTION FRONT AND REAR WORKING LIGHTS

### K - HEAD TELESCOPE WORKING LIGHT OPTION

### L - REAR WINDOW DEFROSTING OPTION

### M - REAR WINDSCREEN WIPER + ROOF / SIDE WINDSCREEN WIPER

### N - OPTION

### O - ROTATING BEACON LIGHT

### J - OPTION FRONT AND REAR WORKING LIGHTS

### Q - ATTACHMENT HYDRAULIC LOCKING OPTION

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

### R - NEUTRALIZATION OF HYDRAULIC MOVEMENTS

When driving on the road, it is highly recommended (mandatory in Germany) that you cut-off all the hydraulic movements. The indicator lamp shows when it is in use.

### S - OPTION

### T - OPTION



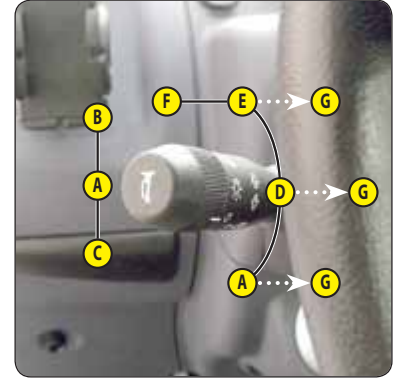
## 7 - LIGHTING, HORN AND INDICATOR LIGHTS

The switch controls the visual and sound alarms.

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

Pressing the end of the switch sounds the horn.

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



## 8 - FRONT AND REAR WINDSCREEN WIPER SWITCH

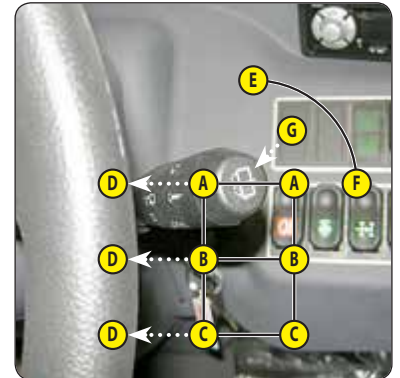
FRONT WINDSCREEN WIPER

- A - Front windscreen wiper off.
- B - Front windscreen wiper low speed setting.
- C - Front windscreen wiper high speed setting.
- D - Front windscreen wiper intermittent setting.

REAR WINDSCREEN WIPER

- E - Rear windscreen wiper off.
- F - Rear windscreen wiper on.
- G - Rear windscreen washer, pulse driven (not used).

NOTE: These functions will only work when the ignition is switched on.



## 9 - IGNITION SWITCH

This switch has 5 positions:

- P - Not used.
- O - Ignition switched off and engine stopped.
- I - Ignition on.
- II - Preheating.
- III - Start-up and returns to position I as soon as the key is released.

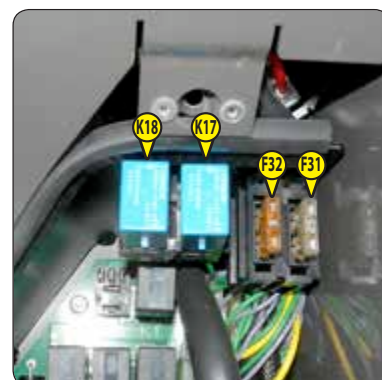
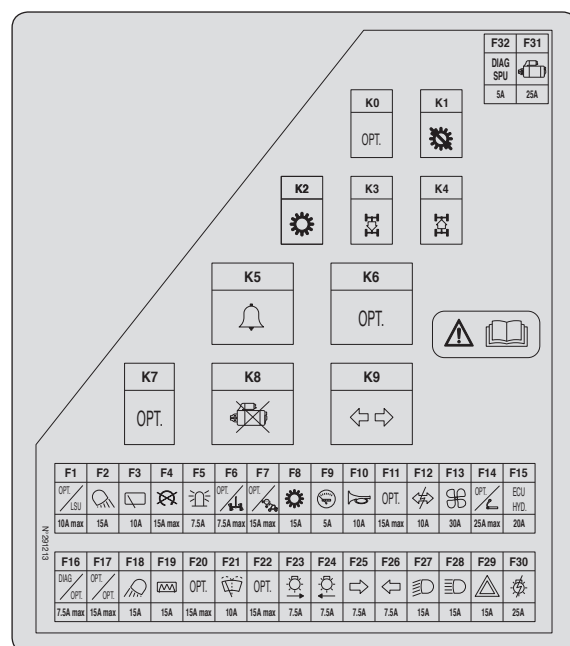
## 10 - FUSES AND RELAYS IN THE CAB

A sticker on the inside of the access panel provides a quick indication of the use of the fuse plate's 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.

### MINIFUSE

- F1 - Hydraulic control unit (7,5A).  
OPTION.
- F2 - OPTION Rear working lights (15A).
- F3 - Rear windscreen wiper + OPTION roof windscreen wiper + OPTION side windscreen wiper (10A).
- F4 - Engine Stop Electrovalve (10A).
- F5 - Rotating beacon light (7,5A).
- F6 - Wheel alignment (5A).  
OPTION.
- F7 - Longitudinal stability limiter and warning device (7,5A).  
Disabling of "aggravating" hydraulic movement cut-off (7,5A).  
OPTION Blue front and rear working lights (15A).
- F8 - Forward/neutral/reverse gear selection (15A).  
Transmission cut-off (15A).  
Reversing lights (15A).  
OPTION Reversing sound alarm (15A).
- F9 - Control panel (5A).
- F10 - Sound alarm (10A).  
Stop switch (10A).
- F11 - OPTION Telescope head working lights (15A).
- F12 - Flashing unit (10A).
- F13 - Ventilation/heating (20A).
- F14 - Cigarette lighter (25A).  
OPTION.
- F15 - Hydraulic movement control unit (20A).
- F16 - Diagnostic plug (5A). OPTION.
- F17 - OPTION Self cleaning fan (10A). OPTION MODCOD /  
MODCLÉ Anti-theft system (10A).
- F18 - Front working lights (15A).
- F19 - OPTION Rear window defrosting (15A).
- F20 - OPTION Pneumatic seat (15A).  
OPTION Low frequency pneumatic seat (20A).
- Front windscreen wiper and windscreen washer (10A).
- A - OPTION Electrical boom pre-equipment (5A).  
OPTION Head telescope electrovalve (7,5A).
- F23 - Right sidelights (7,5A).  
Dashboard lighting (7,5A).
- F24 - Left sidelights (7,5A).  
Number plate lighting (7,5A).
- F25 - Right indicator lights (7,5A).
- F26 - Left indicator lights (7,5A).
- F27 - Dipped beam headlights (15A).  
Dipped beam headlights indicator lamp (15A).  
Rear fog lights (15A).
- F28 - Main beam headlights (15A).  
Main beam headlights indicator lamp (15A).
- F29 - Hazard warning lights (15A).  
Roof light (15A).  
Anti-theft device predisposition (15A).  
Clock (15A).  
Rev. counter (15A).





- F30 - Lights, horn and indicator lights switch (25A).
- F31 - Starter relay (5A).
- F32 - Diagnostic plug (5A).
- Hydraulic movement control unit (5A).

## RELAYS

- K0 - OPTION.
- K1 - Transmission cut-off relay.
- K2 - Transmission cut-off relay.
- K3 - Reverse gear relay.
- K4 - Forward gear relay.
- K5 - Buzzer.
- K6 - OPTION.
- K7 - OPTION.
- K8 - Safety system starting switch relay.
- K9 - Flashing unit.
- K17 - Indicator lamp module relay.
- K18 - Neutral security system switch relay.

## 11 - FUSES AND RELAYS UNDER THE ENGINE BONNET

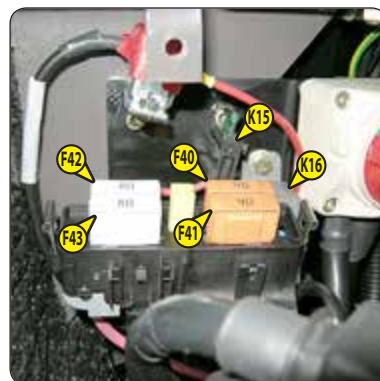
- Open engine bonnet 1 in order to gain access to the fuses and relays. Replace a used fuse with a new fuse of the same quality and capacity. Never reuse a repaired fuse.

## RELAYS

- K15 - OPTION Diesel decongealant.
- K16 - Engine preheating relay.

## MAXIFUSE

- F40 - Ignition switch (40A).
- F41 - Ignition switch (40A).
- F42 - Engine preheating (80A).
- F43 - Alternator (80A).



## 12 - DIAGNOSTIC PLUG



### 14 - SERVICE BRAKE PEDAL AND TRANSMISSION CUT-OFF

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. Depending on the position of the transmission cut-off switch, it enables the transmission to be cut off during the free travel (see: 2 - DESCRIPTION: 6 - SWITCHES).

### 15 - GEAR LEVER AND TRANSMISSION CUT-OFF

In order to change gear, it is necessary to cut-off the transmission by pressing button 1 on the lever.

- 1st gear: To the right, backwards.
- 2nd gear: To the right, forwards.
- 3rd gear: To the left, backwards.
- 4th gear: To the left, forwards.

#### USING THE GEARS ON THE GEAR BOX

On lift trucks such as these, that are equipped with torque converters, it is not necessary to systematically set off in first gear and work up through the gears.

#### **⚠ IMPORTANT ⚠**

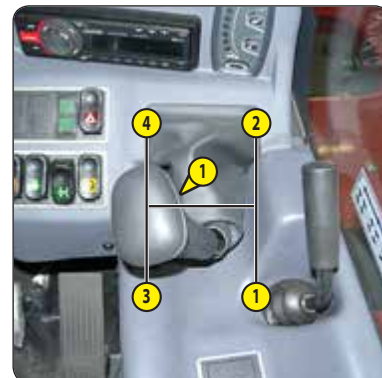
*The choice of transmission gear ratio should be made carefully according to the nature of the work being carried out.*

*A poor choice may result in the extremely rapid rise of the transmission oil temperature through excessive slipping of the converter, which could lead to serious damage to the transmission (it is essential to stop and change the working conditions if the transmission oil temperature indicator lamp comes on).*

*This poor choice may also result in a reduction in the lift truck's performance in forward gear. When the forward force increases, the forward speed in the r gear (for example, in 3rd gear) may be lower than the forward speed that could be obtained with the r-1 gear (in 2nd instead of 3rd).*

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

- ON THE ROAD: Set off in 3rd gear and change up to 4th if the conditions and state of the road permit it. In hilly areas, set off in 2nd gear and change up to 3rd if the conditions and state of the road permit it.
- WITH A TRAILER ON THE ROAD: Set off in 2nd gear and change up to 3rd if the conditions and state of the road permit it.
- HANDLING: Use 3rd gear. In confined spaces use 2nd gear.
- LOADING (picking-up with bucket, manure fork, etc.): Use 2nd gear.
- EARTH MOVING: Use 1st gear.



### 16 - PARKING BRAKE LEVER

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

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





## 17 - FORWARD/NEUTRAL/REVERSE GEAR SELECTION

When changing the direction of travel, the lift truck should be traveling at slow speed and not accelerating.

- FORWARD: Push the switch forward (position A).
- REVERSE: Pull the switch backward (position B). The reverse lights indicate that the lift truck is running in reverse motion. An OPTIONAL audible reversing alarm can also be fitted.
- NEUTRAL: The switch must be in the intermediate position to start the lift truck (position C).

### SAFETY FOR MOVING THE LIFT TRUCK

Authorization to move the lift truck is controlled by an electronic unit. The operator must observe the following sequence of operations to move the truck forwards or backwards:

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

NOTE: The alternating display of F/N or R/N on the screen and a rapid, discontinuous beep indicates that the selector needs to be set to neutral.

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

- 1 - set the forward/reverse selector to neutral,
- 2 - engage the parking brake,
- 3 - get out of the lift truck.

NOTE: A discontinuous beep will inform the driver if he has left the driver's cab without applying the parking brake.



## 18 - STEERING SELECTION

### A - GREEN WHEEL ALIGNMENT INDICATOR LIGHTS

**⚠ IMPORTANT ⚠**

*Before selecting one of the three possible steering positions, bring all 4 wheels into alignment with the lift truck axis.  
Never change the steering mode whilst driving.*

These green lamps come on to indicate the alignment of the wheels in relation to the lift truck. The A1 indicator lamp for the front wheels and the A2 indicator lamp 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).

### CHECKING WHEEL ALIGNMENT

**⚠ IMPORTANT ⚠**

*Before driving on roads, it is necessary to check the alignment of the rear wheels and to drive in front wheel steering mode.*

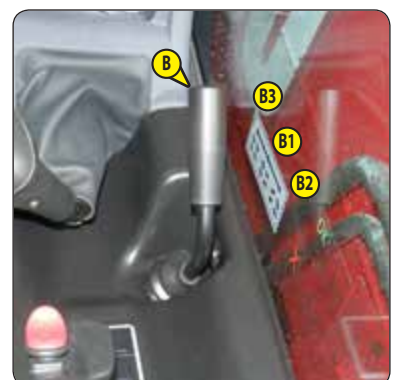
*The alignment of the rear wheels must be regularly checked done using the green indicator lamps, while driving the lift truck.*

*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 indicator lamp comes on.
- Shift the steering selection lever B into position B1 (highway traffic).
- Turn the steering wheel and bring the front wheels into alignment until lamp A1 lights up.

### C - SWITCH FOR ALIGNMENT OF THE WHEELS

This switch enables or disables the wheel alignment device. The indicator light indicates that it is in use.



**⚠ IMPORTANT ⚠**

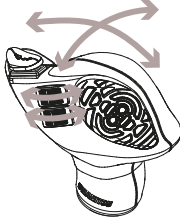
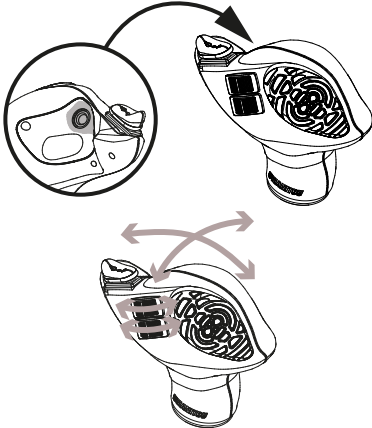
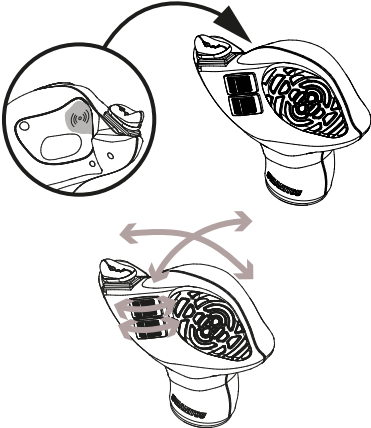
*Do not attempt to alter the hydraulic system pressure by interfering with the pressure regulating valve. In the event of suspected malfunction, contact your dealer. ANY ALTERATION MAY RENDER THE WARRANTY NULL AND VOID AND INCURS LIABILITY IN THE EVENT OF AN ACCIDENT.*

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

- NOTE: If necessary, operate the steering to reset the hydraulic control steering accumulator.
- NOTE: When driving on the road, it is highly recommended (mandatory in Germany) that you cut-off all the hydraulic movements (see: 2 - DESCRIPTION: 6 - SWITCHES).

**HYDRAULIC CONTROLS ACTIVATION (EXCEPT FOR AUSTRALIA)**

To avoid inadvertent operation of the hydraulic lifting, tilting, telescoping and attachment controls, a safety device is added to the lift truck (SECOND FIT).

FIRST FIT: NO HYDRAULIC CONTROLS ACTIVATION			
	- Place your hand on the lever and perform the hydraulic movement.		
SECOND FIT: HYDRAULIC CONTROLS ACTIVATION			
USING THE BUTTON		USING THE CAPACITIVE SENSOR	
	- Place your hand on the lever, activate the hydraulic controls by pressing the button and perform the hydraulic movement.		- Place your hand on the lever, activate the hydraulic controls by contact on the capacitive sensor and perform the hydraulic movement.
<p>- Hydraulic controls activation is maintained on a timer while the lift truck is being used.</p> <p>- If necessary, reactivate the hydraulic controls.</p>			

- A - Lifting and tilting control lever.
- B - Telescoping control button.
- C - Attachment control button.
- D - Head telescope electrovalve OPTION control button.

**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.

**TELESCOPING**

- Button B forwards for extending.
- Button B backwards for retracting.

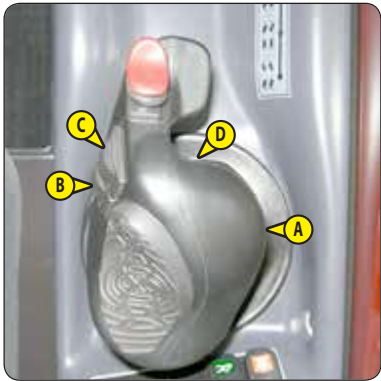
**ATTACHMENTS**

- Button C forwards or backwards.

**BOOM ELECTRICAL PREDISPOSITION OPTION**

**HEAD TELESCOPE ELECTROVALVE OPTION**

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



## 20 - FUNCTION FILES

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



## 21 - LEVEL INDICATOR

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



## 22 - HEATER CONTROL

### A - FAN CONTROL

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

### B - TEMPERATURE CONTROL

Adjusts the temperature inside the cab.

- 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.



## 23 - 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.*

*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 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 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

Adjusts the temperature inside the cab.

- 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.

#### AIR CONDITIONING 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.

NOTE: Possible losses of water under the lift truck are due to condensate discharges caused by the dehumidifying effect of the system, especially under high outside temperature and high relative humidity conditions. For the air conditioning to perform properly, the air intakes must not be blocked by frost, snow or leaves. When the system is in operation, at least one of the cab air grilles must be open so as to avoid any risk of freezing to the evaporator.



## 24 - CAB VENTILATION FILTER

See: 3 - MAINTENANCE: D - EVERY 500 HOURS SERVICE.

## 25 - WINDSCREEN DEMISTER VENTS

For optimum effectiveness, close the heating ventilators.

## 26 - HEATING VENTS

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

### **27 - BRAKING OIL AND WINDSCREEN WASHER TANK ACCESS PANEL**

- Loosen screw 1 and lift up the braking oil and windscreen washer tank access panel (see: 3 - MAINTENANCE: B - EVERY 50 HOURS OF SERVICE).



### **28 - DOOR LOCK**

Two keys are provided with the lift truck to enable the cabin to be locked.

### **29 - LOCKING HANDLE FOR UPPER HALF-DOOR**

### **30 - UNLOCKING BUTTON FOR UPPER HALF-DOOR**

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

#### **EMERGENCY EXIT**

Use the rear window as an emergency exit, in the event that it is impossible to leave the cab by the door or by opening the windscreen.



### **32 - STORAGE COMPARTMENT**

Ensure that the operator's manual is in its place in the document holder.

NOTE: OPTION A waterproof document-holder exists.



### **33 - SUN VISOR (OPTION)**

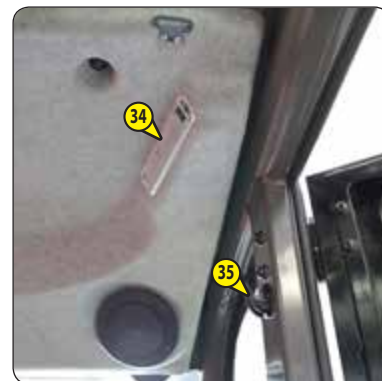


### **34 - ROOF LIGHT (OPTION)**

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### **35 - HOOK**

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### **36 - CIGARETTE LIGHTER**

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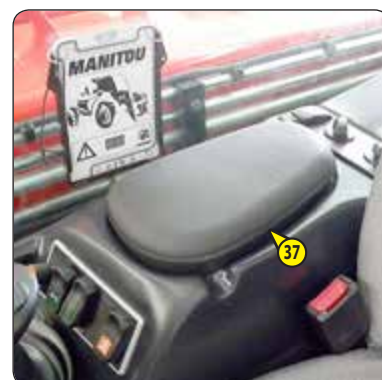
For 12 V appliance and max. amperage 10A.



### **37 - ARMREST AND STORAGE**

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Lift the armrest to access the storage.



### **38 - TOOL BOX (OPTION)**

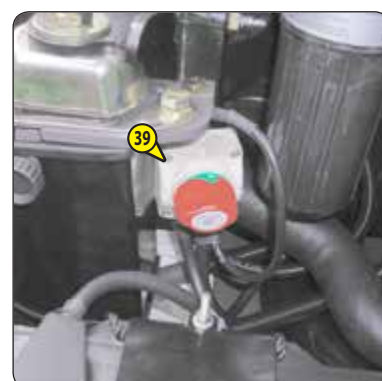
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### **39 - BATTERY CUT-OFF ("OPTION)**

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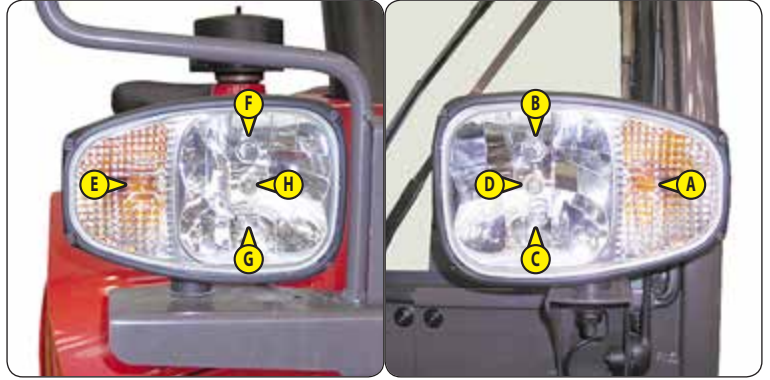
For quickly disconnecting the battery when working on the electric circuit or when soldering, for example.





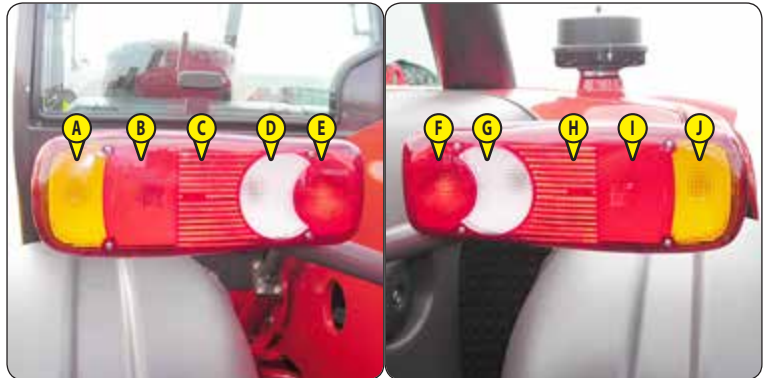
#### 40 - FRONT HEADLIGHTS

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



#### 41 - REAR LIGHTS

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



#### 42 - ROTATING BEACON LIGHT

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



#### 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).



## 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 visible to the driver at all times and must wait until the lift truck has stopped, the handbrake is on and the 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 (tire condition and pressures, electrical connection, hydraulic hose, brake system, etc.).

NOTE: There is an OPTIONAL rear-view mirror which allows the lift truck to be approached more closely to the trailer ring.

### 1 - COUPLING FITTING

#### ⚠ IMPORTANT ⚠

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

*Do not forget to the cotter pin back in place.*

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

#### COUPLING AND UNCOUPLING THE TRAILER

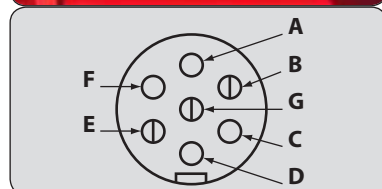
- To couple the trailer, position the lift truck as close as possible to the trailer ring.
- Apply the handbrake on and switch off the engine.
- Remove the clip 1, lift the trailer pin 2 and place or remove the trailer ring.



### 2 - 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 light.
- B - Rear fog lights.
- C - Ground.
- D - Right rear indicator.
- E - Right rear headlight.
- F - Rear stoplight.
- G - Left rear headlight + number plate.



### 3 - COUPLING LADDER (OPTIONAL)

#### ⚠ IMPORTANT ⚠

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

*Do not forget to put the pins and cotter pins back in place.*

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

#### COUPLING AND UNCOUPLING THE TRAILER

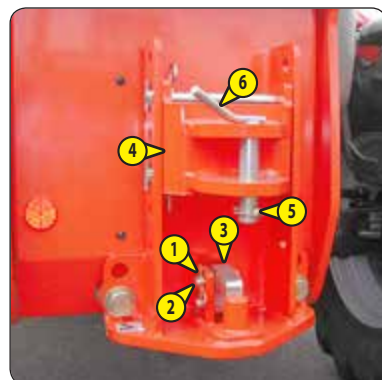
- To couple the trailer, position the lift truck as close as possible to the trailer ring.
- Apply the handbrake on and switch off the engine.

##### 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.

##### ON THE COUPLING LADDER

- Set the coupling fitting 4 according to the height of the trailer ring.
- Remove the clip 5, lift the trailer pin 6 and place or remove the trailer ring.





#### 4 - 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 yoke.  
The pin can be lowered by hand using lever 1.

##### UNCOUPLING THE TRAILER

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



## DESCRIPTION AND USE OF THE OPTIONS

- 1 - PREHEAT ROD
- 2 - CLEANFIX SELF-CLEANING FAN
- 3 - MODCOD ANTI-THEFT SYSTEM
- 4 - MODCLE ANTI-START SYSTEM
- 5 - BOOM ELECTRICAL PROVISION
- 6 - HEAD TELESCOPE ELECTROVALVE
- 7 - ATTACHMENT HYDRAULIC LOCKING
- 8 - TELESCOPE HEAD ELECTROVALVE + HYDRAULIC ATTACHMENT LOCKING
- 9 - EXTERIOR DRAIN-BACK
- 10 - LIFTING RING ON SINGLE CARRIAGE
- 11 - ANGULAR SECTOR ON BOOM
- 12 - LONGITUDINAL STABILITY LIMITER AND WARNING DEVICE (NORM EN15000)

### 1 - PREHEAT ROD

Enables the engine to be kept warm during prolonged periods of stoppage and thus improves engine starting.

#### SUPPLY CHARACTERISTICS OF PREHEATING SYSTEM:

- Rated power supply voltage range: 220-240V; 50-60Hz
- Current consumed: 4,5A
- Class 1 equipment
- Equipment can only be connected to TT or TN supply systems
- Installation category 2

#### ENVIRONMENTAL CONDITIONS FOR USE:

- Maximum ambient temperature for using preheating: + 25 °C
- Pollution level 2

#### CONDITIONS FOR CONNECTION AND USE OF PREHEATING:

- The preheating system should not be used for an external ambient temperature higher than + 25 °C.
- It is essential that the power supply to the preheating system:
  - Is effected with a cable that conforms to the installation standards in force and contains a protective earth conductor.
  - Contains an appropriate sectioning system.
  - Incorporates an appropriate safety system against short circuits (fuses or circuit breaker) and a differential circuit breaker with 30 mA sensitivity.
- Only connect to and disconnect from the power supply while the unit is switched off and the engine is stopped.

#### ⚠ IMPORTANT ⚠

*Make sure that the electrical extension is still in the right place, i.e. in the document holder net.*



### 2 - CLEANFIX SELF-CLEANING FAN

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

#### ⚠ IMPORTANT ⚠

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

#### FUNCTIONING

- Set switch 1 to position A (indicator light on), the fan operates in self-cleaning mode for a few seconds once every 3 minutes.
- Set switch 1 to position B (indicator light on), the fan operates normally.



### 3 - MODCOD ANTI-THEFT SYSTEM

#### FUNCTIONING

- Switch on the lift truck: the red indicator 1 will flash.
- Enter your user code followed by "V" to validate: the green indicator 2 will come on.
- Start the lift truck within the next 60 seconds; otherwise the anti-theft system will be reactivated and the red indicator 1 will flash.

NOTE: If you make a mistake when entering the code, press key "A" to cancel and re-enter the code in full. If you wait more than 5 seconds between key presses or do not complete entering the code, the anti-theft system will be reactivated and the red indicator will flash.

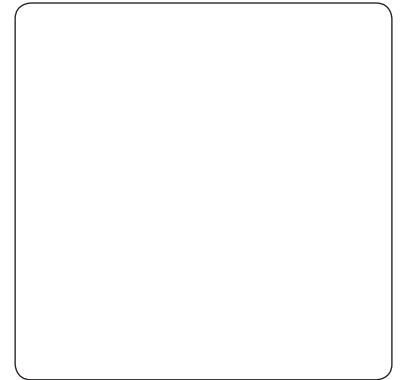


### 4 - MODCLE ANTI-START SYSTEM

#### FUNCTIONING

- Switch on lift truck ignition, red LED 1 will flash.
- Apply key 2 to its base 3, and withdraw the moment the system emits a continuous beep, and LED 1 turns green.
- Start the lift truck within the next 20 seconds; otherwise the anti-theft system will be reactivated and red LED 1 will flash.

NOTE: You can restart the lift truck within 20 seconds of stopping it; after this time, the anti-start system reacts and red LED 1 flashes.



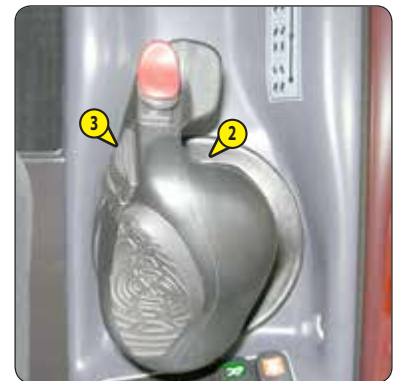
### 5 - BOOM ELECTRICAL PROVISION

Enables an electrical function to be used at the telescope head.

#### BOOM ELECTRIC FUNCTION CONTROL

- Set switch 1 to position B (indicator lamp on).
- Hold down button 2 and operate button 3 forwards or backwards.

NOTE: Setting switch 1 to position A (indicator lamp off) controls the hydraulic attachment line (see: 2 - DESCRIPTION: 20 - HYDRAULIC AND TRANSMISSION CUT-OFF CONTROLS).



### 6 - HEAD TELESCOPE ELECTROVALVE

Enables use of two hydraulic functions on the attachment circuit.

#### ⚠ IMPORTANT ⚠

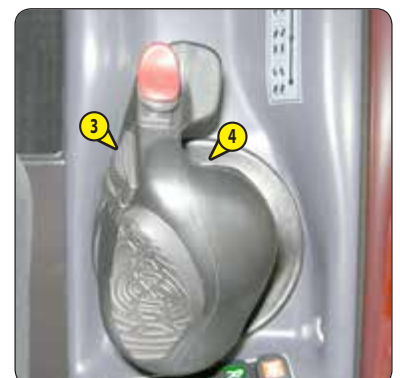
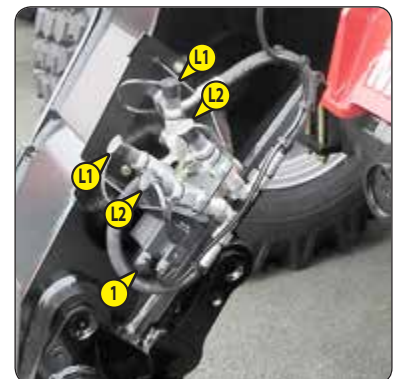
*For ease of connection of the quick-release couplers, decompress the hydraulic circuit by pressing button 1 on the electrovalve.*

#### ATTACHMENT LINE L1 CONTROL

- Set switch 2 to position A (indicator lamp on).
- Push switch 3 forward or backward.

#### ATTACHMENT LINE L2 CONTROL

- Set switch 2 to position B (indicator lamp on).
- Hold down button 4 and operate button 3 forwards or backwards.



## 7 - 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 ⚠

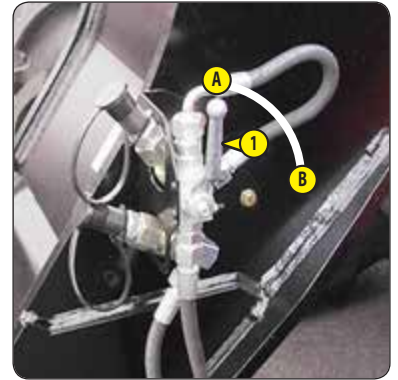
*After locking the attachment, return switch 2 to position A (indicator lamp off) to prevent accidental release of the attachment.*

#### ATTACHMENT LOCKING CONTROL

- Set valve 1 to position A and press switch 2 at position B (indicator lamp on).
- Push switch 3 forward to lock the attachment and backward to release it.

#### HYDRAULIC ATTACHMENT CONTROL

- Set valve 1 to position B and press switch 2 in position B (indicator lamp on).
- Push switch 3 forward or backward.



## 8 - TELESCOPE HEAD ELECTROVALVE + HYDRAULIC ATTACHMENT LOCKING

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

### ⚠ IMPORTANT ⚠

*For ease of connection of the quick-release couplers, decompress the hydraulic circuit by pressing button 1 on the electrovalve.*

*After locking the attachment, return valve 4 to position B to prevent accidental release of the attachment.*

#### ATTACHMENT LINE L1 CONTROL

- Set switch 2 to position A (indicator lamp off).
- Push switch 3 forward or backward.

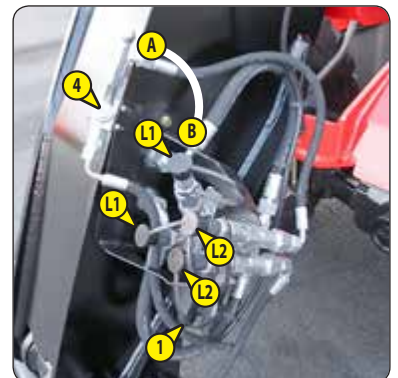
#### ATTACHMENT LINE L2 CONTROL + HYDRAULIC ATTACHMENT LOCKING

##### LOCKING AN ATTACHMENT

- Set valve 4 to position A.
- Set switch 2 to position B (indicator lamp on).
- Hold down button 5 and push button 3 forward to lock the attachment and backward to release it.

##### HYDRAULIC ATTACHMENT

- Set switch 2 to position B (indicator lamp on).
- Hold down button 5 and operate button 3 forwards or backwards.





## 9 - EXTERIOR DRAIN-BACK

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



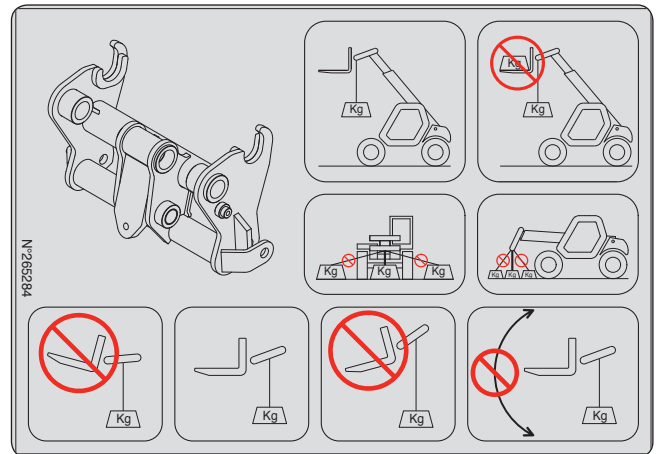
## 10 - LIFTING RING ON SINGLE CARRIAGE

### CONDITIONS OF USE

#### ⚠ IMPORTANT ⚠

Follow the instructions given in the instruction manual (see: 1 - OPERATING AND SAFETY INSTRUCTIONS: INSTRUCTIONS FOR HANDLING LOADS).

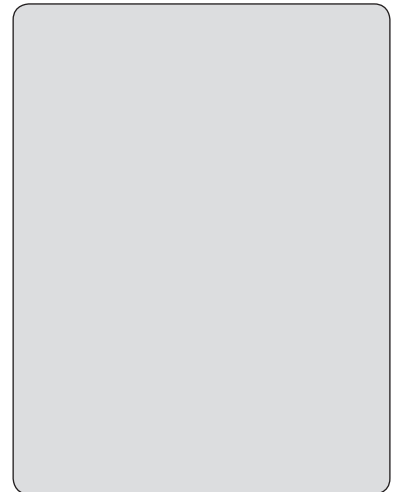
- The lifting ring must be used WITHOUT FORKS AND ATTACHMENTS, but the angle of inclination of the carriage must be same as when the forks are used in the horizontal position.
- Check the maximum permitted angle, which is 45°.
- Do not change the angle of the carriage while using the lifting ring.
- The lifting hook, the chains and slings shall have a minimum capacity of 3000 kg with a factor of safety against breakage of 4.



### LOAD CHARTS AND FUNCTION SHEETS

#### ⚠ IMPORTANT ⚠

The load charts are given for use without forks and without attachments.



## 11 - ANGULAR SECTOR ON BOOM

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



## 12 - LONGITUDINAL STABILITY LIMITER AND WARNING DEVICE (NORM EN15000)

### ⚠ IMPORTANT ⚠

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

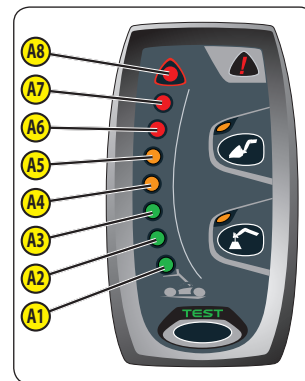
This device warns the operator of the lift truck's longitudinal stability limits. However, lateral stability can reduce the load chart in the upper part, and this reduction is not detected by the device.

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.

UPDATE: In order to gain maximum advantage from the longitudinal stability limiter and warning device of your lift truck, contact your dealer to receive the most recent available version of the software.

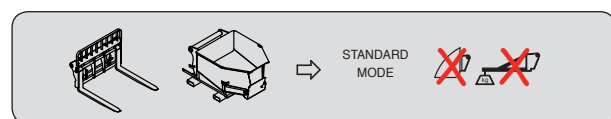
### ⚠ IMPORTANT ⚠

*The cut-off of "AGGRAVATING" hydraulic movements can be configured in different ways.*



### IDENTIFICATION OF YOUR SETTINGS

<b>CONFIGURATION 1</b>	"BUCKET" mode remain enabled when the lift truck is at a standstill.
<b>CONFIGURATION 2</b>	"BUCKET" mode is disabled when the lift truck is at a standstill.



### "HANDLING" MODE

USE ON FORKS


#### CONFIGURATION 1

- By default, the device is in "HANDLING" MODE when the lift truck is started-up, except if "BUCKET" MODE has been selected before switching off the ignition.
- Protection against forward tip-over when making aggravating movements is ensured, except when the telescopic boom is retracted.

DEVICE STATUS	
HALTED	TELESCOPE(S) IN RETRACTED POSITION (★)
A4-A5: Very slow intermittent sound alarm. A6: Slow intermittent sound alarm. A7: Fast intermittent sound alarm. A8: Very fast intermittent sound alarm.	- No sound alarm.

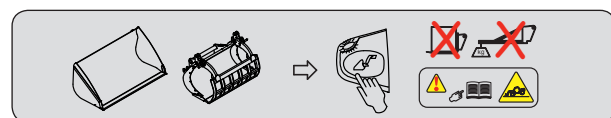
#### CONFIGURATION 2

- By default, the device is in "HANDLING MODE" each time the lift truck is started.
- Protection against forward tip-over when making aggravating movements is ensured, except when the telescopic boom is retracted.

DEVICE STATUS	
HALTED	TELESCOPE(S) IN RETRACTED POSITION (★)
A4-A5: Very slow intermittent sound alarm. A6: Slow intermittent sound alarm. A7: Fast intermittent sound alarm. A8: Very fast intermittent sound alarm.	- No sound alarm. 

(★) FOR AUSTRALIA: Telescope(s) in retracted position and angle <10° below the lowest boom position.


NOTE: Only in configuration 2, when A9 is ON, it warns operator that the cut-off movement function is disabled (overridden).



### "BUCKET" MODE

USE WITH BUCKET


#### CONFIGURATION 1


- Place the lift truck in the transport position.
- Press the  button, "BUCKET" MODE is confirmed by an audible beep and the lighting of the indicator lamp.
- Press this button again to return to "HANDLING" MODE.
- Protection against forward tip-over when making aggravating movements is ensured, except when the telescopic boom is retracted.
- NOTE: "BUCKET" MODE remains enabled as long as the mode is not changed by the operator, even after switching off the ignition.

DEVICE STATUS	
HALTED	TELESCOPE(S) IN RETRACTED POSITION (★)
A6: An audible signal on passing into the red zone.	- No sound alarm.

## CONFIGURATION 2

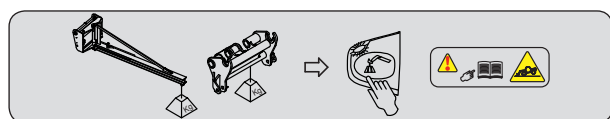
- Place the lift truck in the transport position.

- Press the  button, "BUCKET" MODE is confirmed by an audible beep and the lighting of the indicator lamp.
- Press this button again or switch off the ignition with the ignition key to return to "HANDLING" MODE.
- Protection against forward tip-over when making aggravating movements is ensured, except when the telescopic boom is retracted.

DEVICE STATUS	
HALTED	TELESCOPE(S) IN RETRACTED POSITION (★)
- "BUCKET" mode is disabled if the lift truck remains stationary.	- No sound alarm.  - Warning light A9 lit.

(★) FOR AUSTRALIA: Telescope(s) in retracted position and angle  $< 10^\circ$  below the lowest boom position.


NOTE: Only in configuration 2, when A9 is ON, it warns operator that the cut-off movement function is disabled (overridden).



## "SUSPENDED LOAD" MODE

USE WITH HOIST (offering a higher safety margin)


- Place the lift truck in the transport position.

- Press the  button, the "SUSPENDED LOAD" MODE is confirmed by a beep and the lighting of the indicator lamp. Hydraulic tilting movements are disabled, as well as the lifting movement when the longitudinal stability limit is reached (indicator lamp A8 lit).
- Press this button again or switch off the ignition with the ignition key to return to "HANDLING" MODE.
- Protection against forward tip-over when making aggravating movements is ensured, except when the telescopic boom is retracted.

## CONFIGURATION 1

DEVICE STATUS	
HALTED	TELESCOPE(S) IN RETRACTED POSITION (★)
A4-A5: Very slow intermittent sound alarm. A6: Slow intermittent sound alarm. A7: Fast intermittent sound alarm. A8: Very fast intermittent sound alarm.	- No sound alarm.


## CONFIGURATION 2

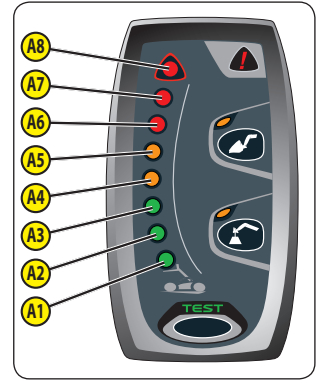
DEVICE STATUS	
HALTED	TELESCOPE(S) IN RETRACTED POSITION (★)
A4-A5: Very slow intermittent sound alarm. A6: Slow intermittent sound alarm. A7: Fast intermittent sound alarm. A8: Very fast intermittent sound alarm.	- No sound alarm.  - Warning light A9 lit.

(★) FOR AUSTRALIA: Telescope(s) in retracted position and angle  $< 10^\circ$  below the lowest boom position.

NOTE: Only in configuration 2, when A9 is ON, it warns operator that the cut-off movement function is disabled (overridden).

## A - VISUAL ALARMS

- 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 close to the limit for longitudinal stability. Drive carefully.
- A7: The lift truck is very close to the limit of longitudinal stability. Manoeuvre with extreme caution.
- A8: The lift truck is at the authorised limit of longitudinal stability.
- The warning light  accompanied by an audible signal indicates a fault. To view the error code (see: 2 - DESCRIPTION: 3B - SCREEN DISPLAY).



## B - HYDRAULIC MOVEMENT CUT-OFF

(★) FOR AUSTRALIA: Telescope(s) in retracted position and angle  $<10^\circ$  below the lowest boom position.

NOTE: Only in configuration 2, when A9 is ON, it warns operator that the cut-off movement function is disabled (overridden).

### "HANDLING" MODE

- A8: All "AGGRAVATING" hydraulic movements are cut-off. Only perform de-aggravating hydraulic movements in the following order: retract and raise the boom. Over a certain level of overload, lifting movement is cut-off to ensure operator safety.

### "BUCKET" MODE

- A8: The boom lowering and extension movements are cut-off, the other movements remain available, including tilting functions.

### "SUSPENDED LOAD" MODE

- A8: All "AGGRAVATING" and boom raising hydraulic movements are cut-off. Only the boom retraction hydraulic movement is available.

## C - 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.*

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

- Hold down button C, indicator lamps A9 and C1 lamp will light (60 second time delay), and at the same time perform the necessary "AGGRAVATING" hydraulic movement with extreme care.




## D - TESTING 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 signal is sounded.

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

## E - FAULT INDICATOR LAMP

The  warning indicator and a beep indicate a fault.

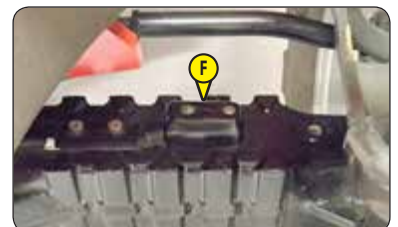
- To view this error code (see: 2 - DESCRIPTION: 3B - SCREEN DISPLAY).



## 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.*





# ***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 ⚠**

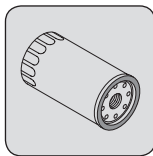
**ORIGINAL REPLACEMENT PARTS ARE DISTRIBUTED EXCLUSIVELY BY MANITOU AND ITS DEALER NETWORK.**

*The dealer network list is available on the MANITOU web site [www.manitou.com](http://www.manitou.com)*

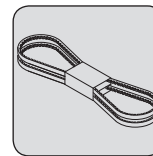
## FILTERS CARTRIDGES AND BELTS

### ENGINE

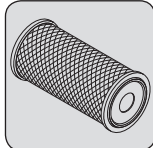
ENGINE OIL FILTER  
Part number: 476954  
Change: 500 H



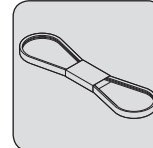
ALTERNATOR BELT  
Part number: 702974  
Change: 3000 H



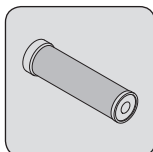
DRY AIR FILTER CARTRIDGE  
Part number: 563416  
Clean: 50 H  
Change: 1000 H



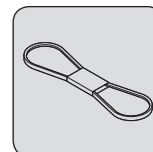
FAN BELT  
Part number: 257524



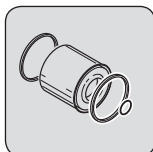
SAFETY DRY AIR FILTER CARTRIDGE  
Part number: 563415  
Change: 2000 H



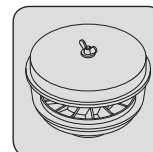
COMPRESSOR BELT  
(AIR CONDITIONING OPTION)  
Part number: 244237



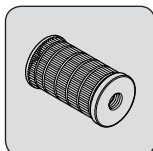
FUEL PRE-FILTER  
Part number: 706497  
Change: 500 H



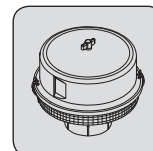
CYCLONIC PRE-FILTER  
Part number: 224713  
Clean: 10 H



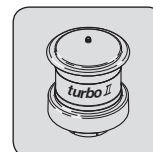
FUEL FILTER CARTRIDGE  
Part number: 605013  
Change: 500 H



AUTOMATIC VACUUM-CLEANING  
PRE-FILTER (OPTION)  
Part number: 226611

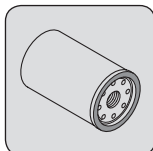


TURBO 2 SELF-CLEANING PRE-FILTER  
(OPTION)  
Part number: 266360



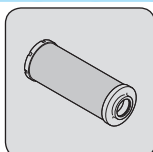
### TRANSMISSION

GEAR BOX OIL FILTER  
Part number: 561749  
Change: 500 H

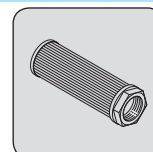


### HYDRAULIC

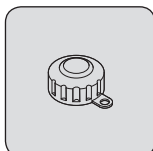
HYDRAULIC RETURN OIL FILTER CARTRIDGE  
Part number: 236095  
Change: 500 H



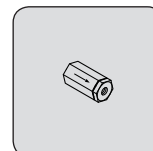
SUCTION STRAINER FOR HYDRAULIC OIL  
TANK  
Part number: 224726  
Clean: 1000 H



FILTER CAP FOR HYDRAULIC OIL TANK  
Part number: 62415  
Change: 1000 H

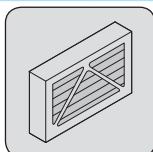


DISTRIBUTOR CONTROL HEAD FILTER  
Part number: 254780  
Change: 1000 H

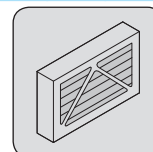


### CAB

CAB VENTILATION FILTER  
(WITHOUT AIR-CONDITIONING)  
Part number: 282619  
Clean: 500 H



CAB VENTILATION FILTER  
(WITH AIR-CONDITIONING)  
Part number: 282619  
Clean: 50 H  
Change: 250 H



## 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.

### (\*) REQUIRED 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

### RECOMMENDATION

ENGINE												
ORGANS TO BE LUBRICATED		CAPACITY	RECOMMENDATION									
			-40°C	-30	-20	-10	0	+10	+20	+30	+40	+50°C
ENGINE		11 Litres	0W20									
			0W30									
			0W40									
			5W30									
			5W40									
			10W30									
			MANITOU OIL PREMIUM 15W40 API CI4									
COOLING CIRCUIT		18,5 Litres	-40°C	-30	-20	-10	0	+10	+20	+30	+40	+50°C
			COOLING LIQUID -35°C									
			-40°C	-30	-20	-10	0	+10	+20	+30	+40	+50°C
FUEL TANK	120 Litres	DIESEL FUEL GNR HP *										
TRANSMISSION												
ORGANS TO BE LUBRICATED		CAPACITY	RECOMMENDATION									
			-40°C	-30	-20	-10	0	+10	+20	+30	+40	+50°C
GEAR BOX	16,6 Litres	MANITOU OIL AUTOMATIC TRANSMISSION DX IIG										
			-40°C	-30	-20	-10	0	+10	+20	+30	+40	+50°C
ANGLE GEAR BOX	2,2 Litres	MANITOU OIL SAE80W90 MECHANICAL TRANSMISSION										
BOOM												
ORGANS TO BE LUBRICATED			RECOMMENDATION									
			-40°C	-30	-20	-10	0	+10	+20	+30	+40	+50°C
BOOM PADS			MANITOU GREASE BLACK MULTI-PURPOSE									
			-40°C	-30	-20	-10	0	+10	+20	+30	+40	+50°C
GREASING OF THE BOOM			MANITOU GREASE BLUE MULTI-PURPOSE									
HYDRAULIC												
ORGANS TO BE LUBRICATED		CAPACITY	RECOMMENDATION									
			-40°C	-30	-20	-10	0	+10	+20	+30	+40	+50°C
HYDRAULIC OIL TANK		110 Litres	ISO VG 100									
			ISO VG 68									
			MANITOU OIL HYDRAULIC ISO VG 46									
			ISO VG 37									
			ISO VG 32									
BRAKE												
ORGANS TO BE LUBRICATED		CAPACITY	RECOMMENDATION									
BRAKE CIRCUIT	1 Litre	MANITOU OIL MINERAL BRAKE FLUID										

CAB									
ORGANS TO BE LUBRICATED	CAPACITY	RECOMMENDATION							
		-40°C	-30	-20	-10	0	+10	+20	+30 +40 +50°C
CAB DOOR		MANITOU GREASE BLUE MULTI-PURPOSE							
WINDSCREEN WASHER TANK	2 Litres	WINDSCREEN WASHER LIQUID							

FRONT AXLE									
ORGANS TO BE LUBRICATED	CAPACITY	RECOMMENDATION							
FRONT AXLE DIFFERENTIAL	8,1 Litres	MANITOU OIL SPECIAL IMMERSED BRAKES							
		-40°C	-30	-20	-10	0	+10	+20	+30 +40 +50°C
FRONT WHEELS REDUCTION GEARS	2 x 0,8 Litre	MANITOU OIL SAE80W90 MECHANICAL TRANSMISSION							
		-40°C	-30	-20	-10	0	+10	+20	+30 +40 +50°C
FRONT WHEELS REDUCTION GEAR PIVOTS		MANITOU GREASE BLUE MULTI-PURPOSE							

REAR AXLE									
ORGANS TO BE LUBRICATED	CAPACITY	RECOMMENDATION							
REAR AXLE DIFFERENTIAL	8,1 Litres	MANITOU OIL SPECIAL IMMERSED BRAKES							
		-40°C	-30	-20	-10	0	+10	+20	+30 +40 +50°C
REAR WHEEL REDUCTION GEAR	2 x 0,8 Litre	MANITOU OIL SAE80W90 MECHANICAL TRANSMISSION							
		-40°C	-30	-20	-10	0	+10	+20	+30 +40 +50°C
REAR WHEEL REDUCTION GEAR PIVOTS REAR AXLE OSCILLATION		MANITOU GREASE BLUE MULTI-PURPOSE							

## PACKAGING

OIL						
PRODUCT	PACKAGING / PART NUMBER					
	1 LITRE	2 LITRES	5 LITRES	20 LITRES	55 LITRES	209 LITRES
- MANITOU OIL PREMIUM 15W40 API C14			895831	895832	895833	895834
- MANITOU OIL AUTOMATIC TRANSMISSION DX IIIG	958186		947972	947973	947974	947975
- MANITOU OIL HYDRAULIC ISO VG 46			545500	582297	546108	546109
- MANITOU OIL MINERAL BRAKE FLUID	490408					4500078
- MANITOU OIL SPECIAL IMMERSED BRAKES			545976	582391		894257
- MANITOU OIL SAE80W90 MECHANICAL TRANSMISSION		499237	720184	546330	546221	546220

GREASE						
PRODUCT	PACKAGING / PART NUMBER					
	400 ML	400 GR	1 KG	5 KG	20 KG	50 KG
- MANITOU GREASE BLACK MULTI-PURPOSE		947766	161590			499235
- MANITOU GREASE BLUE MULTI-PURPOSE		161589	720683	554974	499233	489670

LIQUID						
PRODUCT	PACKAGING / PART NUMBER					
	1 LITRE	2 LITRES	5 LITRES	20 LITRES	55 LITRES	210 LITRES
- COOLING LIQUID -35°C			894967	894968		894969
- WINDSCREEN WASHER LIQUID	490402		486424			



## 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>ENGINE</b>											
- Engine oil level	3-10		C								
- Cooling liquid level	3-10	C	C								
- Fuel level	3-10	C	C								
- Fuel pre-filter	3-11		C								
- Cyclonic pre-filter	3-11	N	N								
- Dry air filter cartridge	3-14/28	R		C/N		R					
- Radiator cores	3-14	N		N							
- Fan belt tension	3-20	C/A			C/A						
- Alternator/crankshaft belt tension	3-20	C/A			C/A						
- Compressor belt tension (Air-conditioning OPTION)	3-21	C/A			C/A						
- Engine oil	3-24	V				V					
- Engine oil filter	3-24	R				R					
- Fuel pre-filter cartridge	3-25	R				R					
- Fuel filter cartridge	3-26	R				R					
- Fuel tank	3-28						N				
- Engine silent blocks							C (3)				
- Engine speeds							C (3)				
- Valve clearances		C					C (3)				
- Cooling liquid	3-32							V			
- Safety dry air filter cartridge	3-32							R			
- Radiator								C (3)			
- Water pump and the thermostat								C (3)			
- Alternator and the starter motor								C (3)			
- Turbo compressor								C (3)			
- Fuel system	3-34										P
<b>TRANSMISSION</b>											
- Gear box oil level	3-14			C							
- Angle gear box oil level	3-21				C						
- Gear box oil filter	3-26	R				R					
- Gear box oil	3-29	V					V				
- Gear box sump strainer	3-29	N					N				
- Angle gear box oil	3-30	V					V				
- Silent blocks in the gear box							C (3)				
- Gear box controls							C (3)				
- Transmission pressure								C (3)			
- Wear of the brake pads and the brake disk										C (3)	
<b>TIRES</b>											
- Tire pressures	3-15	C		C							
- Wheel nut tightening	3-15	C		C							
- Wheel nut tightening torques	3-33	C						C			
- Wheel	3-34										R
<b>BOOM</b>											
- Boom pads	3-11		N/G (2)								
- Boom	3-16	G		G							
- Boom pad wear							C (3)				
- Condition of boom assembly		C						C (3)			
- Bearings and articulation rings								C (3)			
<b>HYDRAULIC</b>											
- Hydraulic oil level	3-17	C		C							
- Hydraulic return oil filter cartridge	3-27	R				R					
- Hydraulic oil	3-30						V				
- Suction strainer for hydraulic oil tank	3-30						R				
- Filter cap for hydraulic oil tank	3-30						R				
- Distributor control head filter	3-30						R				
- Hydraulic pump tubular filter							N (3)				
- Condition of hoses and flexible pipes							C (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
- Condition of cylinders (leakage, shafts)							C (3)				
- Hydraulic circuit pressures								C (3)			
- Hydraulic oil tank								N (3)			
<b>BRAKING</b>											
- Brake oil level	3-17	C		C							
- Parking brake	3-21	C/R			C/R						
- Parking brake lever mechanism	3-27	G				G					
- Parking brake mechanism on the transmission		G				G (3)					
- 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>											
- Cab door	3-16	G		G							
- Windscreen washer liquid level	3-17	C		C							
- Cab ventilation filter (OPTION Air-conditioning)	3-18/22	R		N	R						
- Condenser core (Air-conditioning OPTION)	3-18	C/N		C/N							
- Heating block one way valve	3-22	N			N						
- Cab ventilation filter	3-27	N				N					
- Seat belt	3-31						C				
- Condition of the rear view mirrors							C (3)				
- Structure							C (3)				
- Air conditioning (OPTION)	3-33							N/C			
<b>ELECTRICITY</b>											
- Longitudinal stability limiter and warning device	3-12/35	C	C								XXX
- Condition of wiring harness and cables							C (3)				
- Lights and signals							C (3)				
- Warning indicators							C (3)				
- Front headlights	3-36										A
<b>FRONT AXLE</b>											
- Front wheel reduction gear pivots	3-16	G		G						G/C (3)	
- Front axle differential oil level	3-22				C						
- Front wheel reduction gear oil level	3-22				C						
- Front axle differential oil	3-27	V				V					
- Front wheel reduction gear oil	3-31	V					V				
- Wear of front axle brake discs										C (3)	
- Front wheel reduction gear universal joint										C (3)	
- Front wheel reduction gear clearance										C (3)	
<b>REAR AXLE</b>											
- Rear wheel reduction gear pivots	3-16	G		G						G/C (3)	
- Rear axle oscillation	3-16	G		G				G/C (3)			
- Rear axle differential oil level	3-22				C						
- Rear wheel reduction gear oil level	3-22				C						
- Rear axle differential oil	3-27	V				V					
- Rear wheel reduction gear oil	3-31	V					V				
- Wearing of rear axle brake discs										C (3)	
- Rear wheel reduction gear universal joint										C (3)	
- Rear wheel reduction gear clearance										C (3)	
<b>FRAME</b>											
- Structure							C (3)				
- Bearings and articulation rings								C (3)			
<b>ATTACHMENTS</b>											
- Fork wear		C				C (3)					
- Attachment carriage							C (3)				
- Condition of attachments							C (3)				
<b>LIFT TRUCK</b>											
- Towing the lift truck	3-36										XXX
- Sling the lift truck	3-36										XXX
- Transport the lift truck on a platform	3-37										XXX

## A - DAILY OR EVERY 10 HOURS SERVICE

### A1 - ENGINE OIL LEVEL

CHECK

Place the lift truck on level ground with the engine stopped, and let the oil settle in 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 engine stopped, and allow the engine to cool.

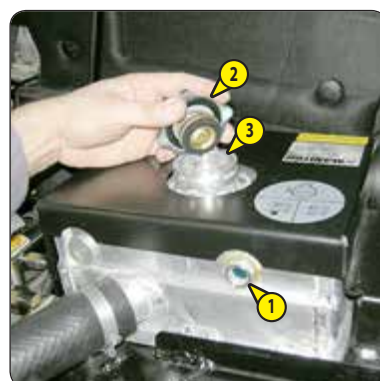
#### ⚠ IMPORTANT ⚠

*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.
- Check the correct level in the middle of gauge 1.
- If necessary, add cooling liquid (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL).
- Slowly turn the cap of the radiator 2 up to the safety stop.
- Allow the pressure and the steam to escape.
- Press down and turn the cap so as to release it.
- Add cooling liquid via filler port 3 up to the middle of gauge 1.
- Lubricate slightly the filler neck in order to facilitate the setting and the removal of the radiator cap.
- Visually check that there is no leakage in the radiator and pipes.



### A3 - FUEL LEVEL

CHECK

As far as possible, keep the fuel tank well filled in order to minimize 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 the engine is running.*

- Check the fuel gage on the instrument panel.
- If necessary, add diesel (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL).
- 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.

NOTE: A locking tank cap is available as an OPTION.



#### 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.
- Retighten the drain plug while the diesel fuel is flowing out.



#### A5 – CYCLONIC PRE-FILTER

CLEAN

The cleaning interval is given as a guide, however the pre-filter must be emptied and cleaned as soon as impurities reach the MAX level on the tank.

##### ⚠ IMPORTANT ⚠

*When cleaning, take care not to let impurities into the dry air filter.*

- Loosen nut 1 remove cover 2 and empty the tank.
- Clean the pre-filter unit with a clean dry cloth and reassemble the unit.



#### A6 – BOOM 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, coal) Use lubricating varnish (MANITOU part no.: 483536). Please consult your dealer. Fully extend the boom.*

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






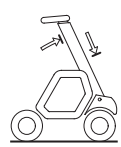





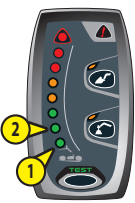

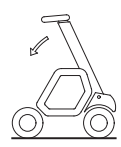





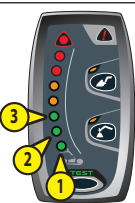











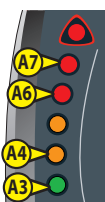

### **IMPORTANT**

Use the test button  only when requested to do so, applying short presses (less than 1 second) and long presses (5 seconds) as instructed.

If in doubt during the test procedure, exit cleanly by short pressing the "BUCKET"  or "SUSPENDED LOAD"  MODE buttons.

These tests are essential for checking correct operation and adjustment of the various system components.

- Place the lift truck on flat, level ground with the wheels straight.
- Hold down the test button. 

<b>STEP 1</b> 	<div data-bbox="295 456 430 660">  </div> <div data-bbox="526 582 566 627">  </div> <div data-bbox="678 481 798 627">  </div> <div data-bbox="901 582 941 627">  </div> <div data-bbox="949 515 1061 694"> <p>Short press the test button.</p>  </div> <div data-bbox="1061 582 1101 627">  </div> <div data-bbox="1141 492 1477 728"> <p><b>TEST OK</b></p> <ul style="list-style-type: none"> <li>- Beeps once and progresses to stage 2.</li> </ul> <p><b>TEST NOT OK</b></p> <ul style="list-style-type: none"> <li>- Beeps twice and warning indicator lamp  comes on.</li> <li>- Exit test mode.</li> <li>- Go to stage 4.</li> </ul> </div>
<b>STEP 2</b> 	<div data-bbox="295 761 430 963">  </div> <div data-bbox="526 884 566 929">  </div> <div data-bbox="678 772 798 918">  </div> <div data-bbox="901 884 941 929">  </div> <div data-bbox="949 828 1061 985"> <p>Short press the test button.</p>  </div> <div data-bbox="1061 884 1101 929">  </div> <div data-bbox="1141 795 1477 1030"> <p><b>TEST OK</b></p> <ul style="list-style-type: none"> <li>- Beeps once and progresses to stage 3.</li> </ul> <p><b>TEST NOT OK</b></p> <ul style="list-style-type: none"> <li>- Beeps twice and warning indicator lamp  comes on.</li> <li>- Exit test mode.</li> <li>- Go to stage 4.</li> </ul> </div>
<b>STEP 3</b> 	<div data-bbox="295 1064 430 1265">  </div> <div data-bbox="526 1209 566 1254">  </div> <div data-bbox="614 1120 909 1344"> <ul style="list-style-type: none"> <li>- Lower the boom until the movement is cut off.</li> <li>- Request, in the following order: a reverse tilt, a forward tilt (dumping) and a telescope extension. None of these 3 movements should be possible.</li> </ul> </div> <div data-bbox="901 1209 941 1254">  </div> <div data-bbox="949 1153 1061 1310"> <p>Short press the test button.</p>  </div> <div data-bbox="1061 1209 1101 1254">  </div> <div data-bbox="1141 1086 1477 1377"> <p><b>TEST OK</b></p> <ul style="list-style-type: none"> <li>- Conformity of aggravating movement cut-off.</li> <li>- Exit test mode. All the LEDs will light for 2 seconds and a beep will be sounded.</li> </ul> <p><b>TEST NOT OK</b></p> <ul style="list-style-type: none"> <li>- Fault indicator lamp  comes on.</li> <li>- Exit test mode.</li> <li>- Go to stage 4.</li> </ul> </div>
<b>STEP 4</b> 	<div data-bbox="295 1534 430 1736">  </div> <div data-bbox="526 1657 566 1702">  </div> <div data-bbox="614 1422 1477 1966"> <ul style="list-style-type: none"> <li>- The  warning indicator and a beep indicate a fault.</li> <li>- Press the button  briefly to view the error code.</li> <li>- If there are several error codes, press the button briefly several times  to loop through the error codes.</li> </ul> <p>NOTE: A faulty fuse may generate several error codes. In this case, check the fuses (see: 2 - DESCRIPTION: 10 - CAB FUSES AND RELAYS)</p> <div data-bbox="885 1635 989 1836">  </div> <p>If an error code is displayed , a reset of the warning device and the longitudinal stability limiter may resolve the problem (see: 3 - MAINTENANCE: G - OCCASIONAL MAINTENANCE).</p> <ul style="list-style-type: none"> <li>- Contact your dealer, stating the error code or codes (see table below).</li> </ul> <p>NOTE: For the stage 3 test, specify the non-conforming aggravating hydraulic movements, if necessary.</p> </div>

- The error codes are indicated by LEDs A3 to A7 on the warning device and longitudinal stability limiter.



ERROR CODES					
DESIGNATION	LEDs				
	A7	A6	A5	A4	A3
- Regulating fault (fault detected during the test).	☀	☀	☀	☀	☀
- Lowering control valve fault.	☀	☀	☀	☀	○
- Safety valve cut-off fault (fault detected during the test).	☀	☀	☀	○	☀
- Safety valve fault.	☀	☀	☀	○	○
- Gage calibration fault (fault detected during the test). <i>If the error code shown opposite is displayed, recalibrating the longitudinal stability limiter and warning device may resolve the problem (see: 3 - MAINTENANCE: G - OCCASIONAL MAINTENANCE).</i>	☀	☀	○	☀	☀
- Angle calibration fault (fault detected during test).	☀	☀	○	☀	○
- Tilting cut-off valve fault.	☀	☀	○	○	☀
- Strain gage fault.	☀	○	☀	☀	☀
- Boom angle sensor fault.	☀	○	☀	☀	○
- Telescope or attachment control fault.	☀	○	☀	○	☀
- Telescope retraction sensor fault.	☀	○	☀	○	○
- Computer ground output fault.	☀	○	○	☀	☀
- Aggravating hydraulic movement cut-off disable fault.	☀	○	○	☀	○
- Stability indicator fault.	○	☀	☀	☀	○
- Electronic handling controller fault.	○	☀	☀	○	☀
- Hydraulic control lever control setting fault.	○	☀	☀	○	○
- Transmission cut-off output fault.	○	☀	○	☀	☀
- Electronic handling controller supply fault.	○	☀	○	○	☀
- Telescope retraction sensor fault (fault detected during the test).	○	☀	○	○	○
- Telescope head electrovalve fault. (OPTION)	○	○	☀	☀	○
- Electrovalve attachment hydraulic control button fault and telescope electrical predisposition. (OPTION)	○	○	☀	○	○
- Handling electric controller 10V output fault.	○	○	○	☀	○



## B - EVERY 50 HOURS SERVICE

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

### B1 – DRY AIR FILTER CARTRIDGE

CHECK - CLEAN

In case of use in a heavily dust laden atmosphere, there are pre-filtration cartridges (see: 3 - MAINTENANCE: FILTERS CARTRIDGES AND BELTS). Also, the checking and cleaning periodicity of the cartridge must be reduced.

#### ⚠ IMPORTANT ⚠

*If the clogging indicator light comes on, this operation must be carried out as quickly as possible (1 hour maximum). The cartridge must not be cleaned more than seven times, after which the cartridge must be changed. Never use the lift truck without an air filter or with a damaged air filter.*

*Respect the safety distance of 30 mm between the air jet and the cartridge to avoid tearing or making a hole in the cartridge. The cartridge must not be blown anywhere near the air filter box. Never clean the cartridge by tapping it against a hard surface. Your eyes must be protected during this intervention.*

*Never clean the dry air filter cartridge by washing it in liquid. Do not clean by any means the safety cartridge located inside the filter cartridge, change it for a new one if it is clogged or damaged*

- For the disassembly and reassembly of the cartridge, see: 3 - MAINTENANCE: D3 - DRY AIR FILTER CARTRIDGE.
- Clean the filter cartridge using a compressed air jet (max. pressure 3 bar) directed from the top to the bottom and from the inside towards the outside at a minimum distance of 30 mm from the cartridge wall.
- Cleaning is completed when there is no more dust on the cartridge.
- Clean the cartridge seal surfaces with a damp, clean lint-free cloth and grease with a silicone lubricant (MANITOU reference: 479292).
- Check visually the outer condition of the air filter and its mounts. Verify the condition of the hoses and their mounts also.

### B2 – RADIATOR CORES

CLEAN

#### ⚠ IMPORTANT ⚠

*In a polluting atmosphere, clean the radiator cores 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 intake grille on the engine hood.
- Using a soft cloth, clean the radiator cores in order to remove as much dirt as possible.
- Clean the cores using a compressed air jet aimed in the same direction as the cooling air flow.
- Clean with the fan running for best results.

NOTE: An OPTIONAL straw deflector can also be fitted.



### B3 – GEAR BOX OIL LEVEL

CHECK

Park the lift truck on level ground with the boom raised, the engine stopped. Carry out the control within 5 minutes of the engine being stopped.

#### ⚠ 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).*

- Remove the plastic cap 1.
- Pull out dipstick 2.
- Wipe the dipstick and check the correct level between the two MIN and MAX marks.
- If necessary, add oil (see: 3 - MAINTENANCE: E5/E7 - GEAR BOX OIL).
- Visually check that there is no leakage or seepage of oil in the transmission.





**⚠ IMPORTANT ⚠**

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

- Check the condition of the tires, to detect cuts, blisters, wear, etc.
- Check the torque load of the wheel nuts. Non-compliance with this instruction can lead to damage and failure of the wheel bolts and distortion of the wheels.
- Check and restore tire pressures if necessary (see: 2 - DESCRIPTION: TIRES).

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 oxidizing atmosphere, reduce this interval to every 10 hours of service or every day.*

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

**BOOM**

- 1 - Lubricators of the boom axle (2 lubricators).
- 2 - Lubricators of the carriage axle (2 lubricators).
- 3 - Lubricator of the tilt cylinder foot axle (1 lubricator).
- 4 - Lubricator of the tilt cylinder head 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).

**CAB DOOR**

- 10 - Door lubricators (4 lubricators).

**FRONT AND REAR WHEEL REDUCTION GEAR PIVOTS**

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

**REAR AXLE OSCILLATION**

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



## B6 – HYDRAULIC OIL LEVEL

CHECK

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

### ⚠ IMPORTANT ⚠

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

- Check dipstick 1, the correct level must stand at the level of the red point.
- If necessary, add oil (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL).
- Remove cap 2.
- Add oil through filler port 3.
- Refit the cap.
- Visually check that there is no leakage in the tank and pipes.



## B7 – BRAKE OIL LEVEL

CHECK

Station the lift truck on level ground.

### ⚠ IMPORTANT ⚠

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

- Loosen screw 1 and lift up the brake fluid and windscreen washer tank access panel 2.
- The level is correct when it is at the MAX level on the tank 3.
- If necessary, add oil (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL) via the filler port.
- Pivot the tank 3 to access filler cap 4.
- Visually check that there is no leakage in the tank and pipes.



## B8 – WINDSCREEN WASHER LIQUID LEVEL

CHECK

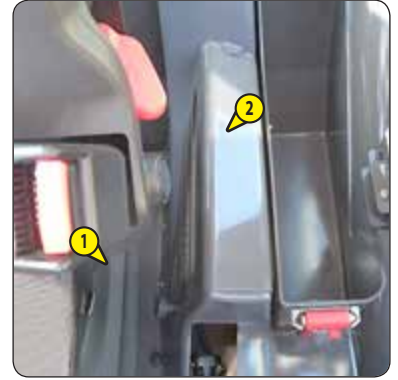
- Visually check the level.
- If necessary, add windscreen washer fluid (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL) through the filler port 3.
- Refit the brake oil and windscreen washer tank access panel 2 and re-tighten screw 1.



## **B9 – CAB VENTILATION FILTER (AIR-CONDITIONING OPTION)**

**CLEAN**

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



## **B10 – 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.*

- Remove the protective grid 1 and clean it if necessary.
- 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.

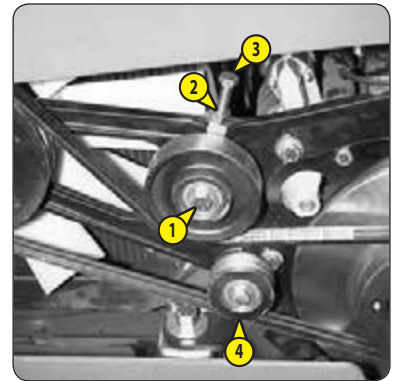
### C1 – FAN BELT TENSIONING

CHECK - ADJUST

#### ⚠ IMPORTANT ⚠

*When changing the fanbelt, tighten screw 3 by one and a half turns, having allowed the I.C. engine to idle for 30 minutes.*

- Open the engine bonnet.
- Check the belt for signs of wear and cracks and change if necessary (see: 3 - MAINTENANCE: FILTERS CARTRIDGES AND BELTS).
- Loosen the screw 1 on the tensioning pulley.
- Loosen the lock-nut 2 and the screw 3.
- Tighten the screw 2 until the belt is as close as possible to the groove of the pulley.
- Make a mark on the head of screw 3 and tighten, turning it 5 times.
- Tighten the lock nut 2.
- Retighten tensioning pulley screw 1.



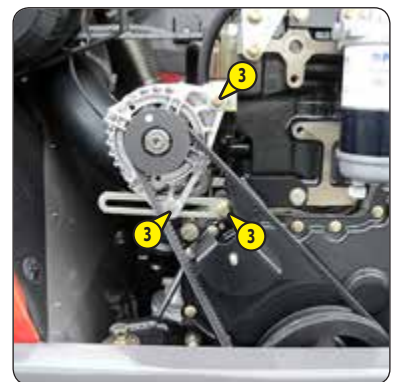
### C2 – ALTERNATOR/CRANKSHAFT BELT TENSION

CHECK - ADJUST

#### ⚠ IMPORTANT ⚠

*If the alternator belt has to be changed, check the tension again after the first 20 hours of operation.*

- Open the engine bonnet.
- Unscrew the fastening screws 1.
- Remove the protective casing 2.
- Check the belt for signs of wear and cracks and change if necessary (see: 3 - MAINTENANCE: FILTERS CARTRIDGES AND BELTS).
- Check the belt tension between the pulleys of the crankshaft and of the alternator.
- Under a normal pressure exerted with the thumb (45 N), the belt should move approximately 10 mm.
- Adjust if necessary.
- Loosen screws 3 by two to three turns.
- Swivel the alternator assembly so as to obtain the belt tension required.
- Re-tighten screws 3 (tightening torque 22 N.m).
- Refit the protective casing 2.





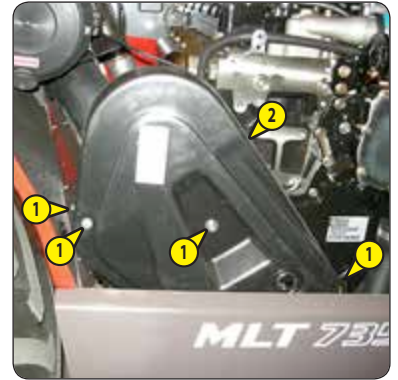
### C3 – COMPRESSOR BELT TENSION (AIR-CONDITIONING OPTION)

CHECK - ADJUST

#### ⚠ IMPORTANT ⚠

*If the compressor belt has to be changed, check the tension again after the first 20 hours of operation.*

- Open the engine bonnet.
- Unscrew the fastening screws 1.
- Remove the protective casing 2.
- Check the belt for signs of wear and cracks and change if necessary (see: 3 - MAINTENANCE: FILTERS CARTRIDGES AND BELTS).
- Check the belt tension between the pulleys of the crankshaft and of the compressor
- Under a normal pressure exerted with the thumb (45 N), the belt should move approximately 10 mm.
- Adjust if necessary.
- Loosen screws 3 by two to three turns.
- Swivel the compressor assembly so as to obtain the belt tension required.
- Retighten the screws 3.
- Refit the protective casing 2.



### C4 – ANGLE GEAR BOX OIL LEVEL

CHECK

Park the lift truck on level ground with the boom raised and the engine stopped.

#### ⚠ 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).*

- Pull out dipstick 1.
- Wipe the dipstick and check the correct level between the MIN and MAX marks.
- If necessary, add oil (see: 3 - MAINTENANCE: E9 - ANGLE GEAR BOX OIL).



### C5 – PARKING BRAKE

CHECK - ADJUST

Place the lift truck on level ground with the rated load in the transport position.

- Check the tightening adjustment by locking the parking brake in position A.
- Pull on the lift truck rear towing pin with a minimum force of 3500 daN. The wheels of the lift truck must not rotate.
- Adjust if necessary.
- Progressively tighten the end of the lever 1 and recheck braking.
- Repeat the operation until correct braking is obtained.

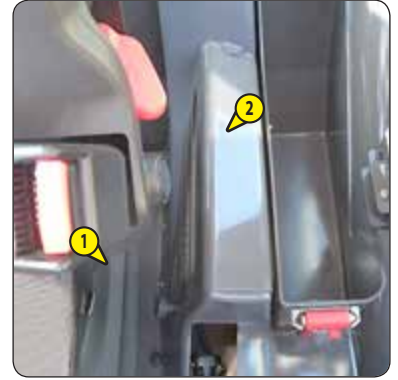




## **C6 – CAB VENTILATION FILTER (AIR-CONDITIONING OPTION)**

**REPLACE**

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



## **C7 – HEATING BLOCK ONE WAY VALVE**

**CLEAN**

- Since one way valve 1 is located under the cab, it is possible for it to become obstructed with spattered mud for example. Clean if necessary.



## **C8 – FRONT AND REAR AXLE DIFFERENTIAL OIL LEVEL**

**CHECK**

Place the lift truck on level ground with the 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).



## **C9 – FRONT AND REAR WHEEL REDUCTION GEAR OIL LEVEL**

**CHECK**

Place the lift truck on level ground with the 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).





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

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

### D1 - ENGINE OIL

DRAIN

### D2 - ENGINE OIL FILTER

REPLACE

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

#### ⚠ IMPORTANT ⚠

*Dispose of the waste oil in an ecological manner.  
Hand-tighten the oil filter and lock in place with a quarter turn.*

#### DRAINING THE OIL

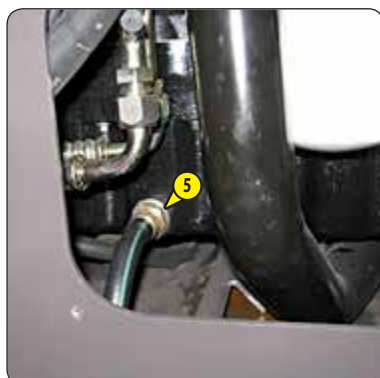
- Open the engine bonnet.
- Remove access panel 1
- Place a container under the drain port and unscrew the drain plug 3.
- Take drain hose 4.
- Place the end of the drain hose in the container and screw the hose fully to the drain connector 5.
- Remove filling plug 6 to ensure that the oil is drained properly.

#### REPLACEMENT OF THE FILTER

- Unscrew and discard the engine oil filter 7, 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

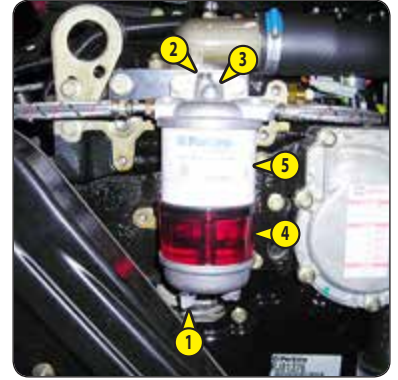
- Remove, clean and refit drain hose 4.
- Refit and tighten the drain plug 3.
- Refit access panel 1.
- Fill up with oil (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL) through filler port 7.
- Wait a few minutes to allow the oil to flow into the sump.
- Start the engine and let it run for a few minutes.
- 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 8.
- Top up the level if necessary.



**⚠ IMPORTANT ⚠**

*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 pre-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.
- Open bleed screw 2 to ensure proper emptying.
- Unscrew locking screw 3.
- Remove container 4 and discard cartridge 5 as well as its seals.
- Clean the inside of the pre-filter head and the housing, using a brush immersed in clean diesel oil.
- Refit the assembly with a new pre-filter and new seals (see: 3 - MAINTENANCE: FILTERS CARTRIDGES AND BELTS).
- If necessary, bleed the fuel supply system (see: 3 - MAINTENANCE: G1 - FUEL SUPPLY SYSTEM).



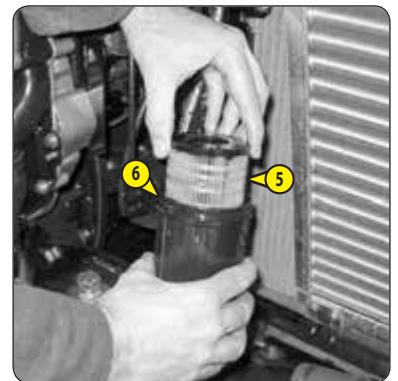
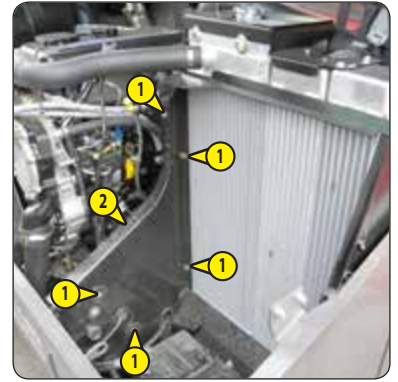
## D4 – FUEL FILTER CARTRIDGE

REPLACE

### ⚠ IMPORTANT ⚠

*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.
- Unscrew the fastening screws 1.
- Remove the protective casing 2.
- 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 3.
- Undo the filter housing 4.
- Remove the filter cartridge by pressing cartridge 5 down against the pressure of the spring and turn it to the left to extract it.
- Insert a new cartridge (see: 3 - MAINTENANCE: FILTERS CARTRIDGES AND BELTS), by pressing cartridge 5 down against the pressure of the spring and turn it to the right to lock it into the body of the filter.
- Place the new seal 6 onto the body of the filter and lightly lubricate the contact surface of the seal using clean motor oil.
- Remount the body of the filter onto its holder, hand-tighten it only and lock it with a quarter-turn.
- Close drain plug 3 and remove the container.
- Before starting the engine, leave the ignition on for three minutes on the lift truck, to give the lift pump time to release air from the filter.
- Start up the I.C. engine and make sure there is no leakage.
- If necessary, bleed the fuel supply system (see: 3 - MAINTENANCE: G1 - FUEL SUPPLY SYSTEM).



## D5 – GEAR BOX OIL FILTER

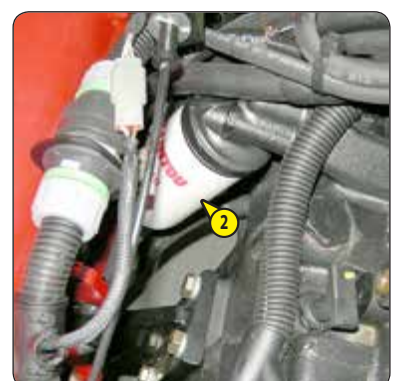
REPLACE

### ⚠ 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).*

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

- Remove the cover plate 1.
- Unscrew and discard gear box oil filter 2.
- Carefully clean the filter head with a clean, lint-free cloth.
- Lightly oil the new seal and fit it to the filter.
- Fill up the new gear box oil filter (see: 3 - MAINTENANCE: FILTERS CARTRIDGES AND BELTS) with oil (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL).
- Refit the filter, making sure that the seal is correctly positioned and tightened.
- Refit cover plate 1.





## D6 – HYDRAULIC RETURN OIL FILTER CARTRIDGE

REPLACE

Stop the engine and release the pressure from the systems by operating the hydraulic control.

### ⚠ IMPORTANT ⚠

*Thoroughly clean the outside of the filter and its surroundings before any operation to prevent any risk of polluting the hydraulic system. Tighten the body of the filter exclusively by hand and lock a quarter turn.*

- Place a container under hydraulic return filter 1.
- Unscrew the body of the filter.
- Remove the hydraulic return oil filter cartridge and replace with a new one (see: 3 - MAINTENANCE: FILTERS CARTRIDGES AND BELTS).
- Make sure that the cartridge is correctly positioned and refit the body of the filter.



## D7 – PARKING BRAKE LEVER MECHANISM

GREASE

- Clean and grease hinge pins 1 with grease (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL).



## D8 – CAB VENTILATION FILTER

CLEAN

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



## D9 – FRONT AND REAR AXLE DIFFERENTIAL OIL

DRAIN

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

### ⚠ 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).
- Repeat this operation for the rear axle differential.



## E - EVERY 1000 HOURS OF SERVICE OR TWO YEARS

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

### E1 – DRY AIR FILTER CARTRIDGE

#### REPLACE

In case of use in a heavily dust laden atmosphere, there are pre-filtration cartridges, see: 3 - MAINTENANCE: FILTERS CARTRIDGES AND BELTS. Also, the checking and cleaning periodicity of the cartridge must be reduced (up to 250 hours in a heavily laden dust atmosphere and with pre-filtration).

#### ⚠ IMPORTANT ⚠

*Change the cartridge in a clean location, with the engine stopped. Never operate the lift truck with the air filter removed or damaged.*

- Open the engine bonnet.
- Loosen the bolts and remove cover 1.
- Gently remove the cartridge 2 taking care 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 condition of the new cartridge (see: 3 - MAINTENANCE: FILTERS CARTRIDGES AND BELTS).
- Insert the cartridge in the filter axis and push it home, pressing against the outer edge and not the center.
- Reassemble the cover, guiding the valve downwards.



### E2 – FUEL TANK

#### CLEAN

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

#### ⚠ IMPORTANT ⚠

*Do not smoke or approach with a flame during this operation.*

*Never attempt 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.
- Remove the filling plug 2 to ensure that the oil is drained properly.
- Rinse out with ten liters of clean diesel through filler port 3.
- Refit and tighten the drain plug 1 (tightening torque 29 to 39 N.m).
- Fill the fuel tank with clean diesel filtered through the filler port.
- Refit the filler plug.
- If necessary, bleed the fuel supply system (see: 3 - MAINTENANCE: G1 - FUEL SUPPLY SYSTEM).





Place the lift truck on level ground with the 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.*

### DRAINING THE OIL

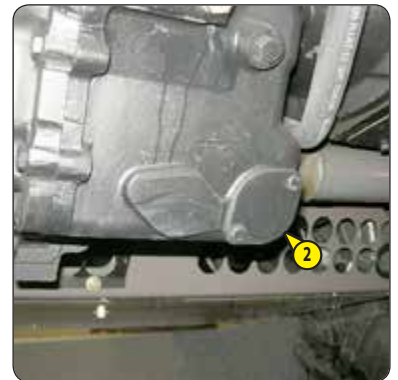
- Place a container under drain plug 1 and under cover 2 and unscrew the drain plug.
- Remove the cover plate 3.
- Remove dipstick 4 and unscrew filling plug 5 in order to ensure that the oil is drained properly.

### CLEANING THE STRAINER

- Remove cover 2 and set aside the O-ring joint and sealing washer.
- Allow the rest of the oil to drain away.
- Remove and clean the strainer using a compressed air jet.
- Clean the magnetic section on the plate.
- Refit the assembly and tighten up plate 2 (tightening torque 18 to 31 N.m).

### FILLING UP THE OIL

- Refit and tighten the drain plug 1 (tightening torque 34 to 54 N.m).
- Fill up with oil (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL) through the filler port 5 and refit the plug.
- Start the engine and let it run for a few minutes.
- Check any possible leaks from the drain plug or cover.
- Stop the engine, and within 5 minutes of the engine being stopped, check the correct level between the MIN and MAX marks on the dipstick 4.
- Top up the level if necessary.
- Refit cover plate 3.



## E5 – ANGLE GEAR BOX OIL

### DRAIN

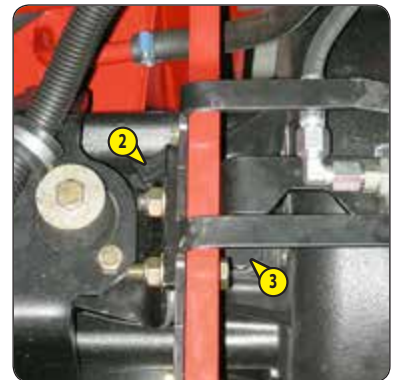
Place the lift truck on level ground with the I.C. engine stopped, the angle gear box oil still warm.

#### ⚠ 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.*

- Place a container under drain plug 1 and unscrew the plug.
- Remove dipstick 2 and unscrew filling plug 3 in order to ensure that the oil is drained properly.
- Refit and tighten the drain plug 1 (tightening torque 20 to 29 N.m).
- Fill up with oil (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL) through the filler port 3 and refit the plug.
- Check the correct level between the MIN and MAX marks on dipstick 2.
- Check for any possible leaks at the drain plug.



## E6 – HYDRAULIC OIL

### DRAIN

## E7 – HYDRAULIC OIL TANK SUCTION STRAINER

### CLEAN

## E8 – HYDRAULIC FLUID TANK FILTER CAP

### REPLACE

## E9 – DISTRIBUTOR CONTROL HEAD FILTER

### REPLACE

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

#### ⚠ IMPORTANT ⚠

*Before carrying out any work, thoroughly clean the area around the filter, the drain plugs and the inlet cover on the hydraulic tank.*

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

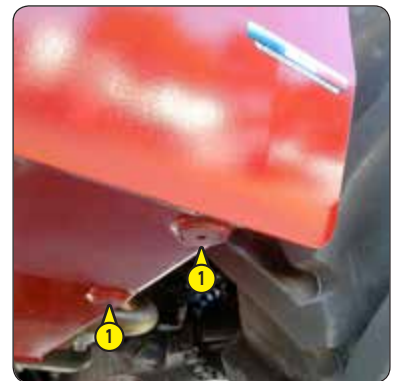
*Use a very clean container and funnel and clean the top of the oil drum before filling.*

### DRAINING THE OIL

- Place a container under the drain plugs 1 and unscrew them.
- Remove level and filling plug 2 to ensure that the oil is drained properly and discard.

### CLEANING THE STRAINER

- Remove the inlet cover 3.
- Remove and clean the suction strainer using a compressed air jet, check its condition and replace if necessary (see: 3 - MAINTENANCE: FILTERS CARTRIDGES AND BELTS).
- Refit the strainer and tighten the inlet cover 3 (tightening torque 81 N.m) making sure the seal is in the correct position.



## REPLACING THE DISTRIBUTOR CONTROL HEAD FILTER

### ⚠ IMPORTANT ⚠

*NOTE: Be careful to mount the filter 6 in the same direction as the arrow.*

- Remove the half clamp 4.
- Undo the two couplings 5 and replace the filter 6.
- Refit half clamp 4.

## FILLING UP THE OIL

- Clean and refit the drain plugs 1 (tightening torque 29 to 39 N.m).
- Fill up with oil (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL) through filler port 7.
- Observe the oil level on dipstick 8, the oil level should be at the level of the red point.
- Check for any possible leaks at the drain plugs.
- Replace filler plug with a new filler plug 2 (see: 3 - MAINTENANCE: FILTERS CARTRIDGES AND BELTS).

## HYDRAULIC CIRCUIT DECONTAMINATION

- This should be carried out by your dealer after each oil change.
- The hydraulic oil used in the circuit must be at least equal in quality to class 8 (according to NAS 1638). Your dealer will be able to clean the hydraulic circuit using an external unit and check the quality of the oil in order to ensure the long life of hydraulic components and particularly of the main pump.



## E10 – 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.

## E11 – FRONT AND REAR WHEEL REDUCTION GEAR OIL

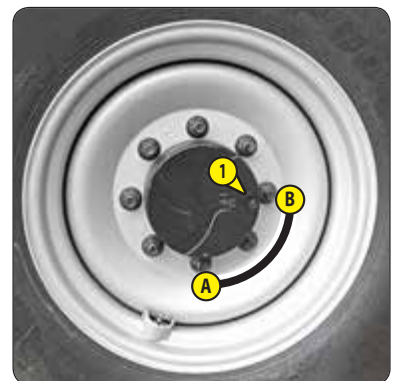
DRAIN

Place the lift truck on level ground with the I.C. engine stopped and the reducer's 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 OR EVERY TWO YEARS

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

### F1 - COOLING LIQUID

#### DRAIN

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

#### ⚠ IMPORTANT ⚠

*The 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.
- Lift the battery cover.
- Remove the cover plate 1.
- Place a container under drain valve 2 on the radiator and drain plug 3 of the engine block and loosen the plugs.
- Remove radiator filler cap 4.
- 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

- Tighten the drain valve 2 and drain plug 3 (tightening torque 40 N.m).
- Slowly fill up the circuit with cooling liquid (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL) up to the middle of gauge 5 through filler port 6.
- Refit the filling plug 4.
- Run the engine at idle for a few minutes.
- Check for any possible leaks.
- Refit cover plate 1.
- Check the level and refill if necessary.



### F2 - SAFETY DRY AIR FILTER CARTRIDGE

#### REPLACE

- 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).
- Insert the cartridge in the filter axis and push it home, pressing against the outer edge and not the center.

NOTE: The safety cartridge replacement frequency is given for information only. It must be changed every second time the dry air filter cartridge is changed.



### F3 – WHEEL NUT TIGHTENING TORQUE

CHECK

- Check the condition of the tires, to detect cuts, blisters, 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%

### F4 – AIR CONDITIONING (OPTION)

CLEAN-CHECK

#### 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 FAULTS BY 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 immediately with copious amounts of 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 colorless, odorless and heavier than air.
- The compressor has a fluid level gage; never unscrew this gage because it would depressurize the system. The fluid level should only be checked when draining the system.



## G - OCCASIONAL MAINTENANCE

### G1 – FUEL SYSTEM

#### BLEED

These operations are to be carried out only in the following cases:

- A component of the fuel system replaced.
- A drained tank.
- Running out of fuel.

Ensure that the level of fuel in the tank is sufficient and bleed in the following order:

- Open the engine bonnet.
- Put the ignition on for three minutes on the lift truck, to give the lift pump time to release air from the filter.
- Switch off the ignition with the ignition key.

#### BLEEDING FROM THE INJECTORS

- Remove the injector cover 1.
- Loosen high pressure connectors 2 of all the injectors.
- Activate the starter until the diesel fuel flows out free of air at high pressure connectors 2.

#### ⚠ IMPORTANT ⚠

*Do not engage the starter motor on a continual basis for more than 30 seconds and let it cool between unsuccessful attempts.*

- Tighten the connections while the diesel fuel is flowing out (tightening torque 30 N.m).
- The engine is now ready to be started up.
- Run the engine at idle for 5 minutes immediately after bleeding the fuel feed circuit, in order to ensure that the injection pump has been bled thoroughly.

NOTE: If the engine runs correctly for a short time then stops or runs irregularly, check for possible leaks in the low pressure circuit. If in doubt, contact your dealer.



### G2 – WHEEL

#### REPLACE

For this operation, we advise you to use the MANITOU hydraulic jack, part no. 505507 and the MANITOU safety support, part no. 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.
- To pass on stop of lift truck (see: 1 - OPERATING AND SAFETY INSTRUCTIONS: DRIVING INSTRUCTIONS UNLADEN AND LADEN).
- Switch on the hazard warning lights.
- Immobilize the lift truck in both directions on the axle opposite to the wheel to be changed.
- Unlock 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 SERVICE for tightening torque).



According to the use of the lift truck, the device may require to be periodically reset.

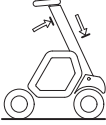



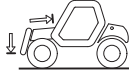



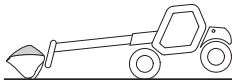


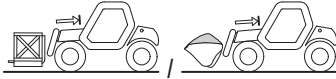
This procedure allows this operation to be easily done.

- 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.

**⚠ IMPORTANT ⚠**

*Carefully follow the boom positioning instructions. Two audible beeps and lighting of the warning indicator lamp  will inform you if you have failed to follow these instructions correctly. If in doubt, contact your dealer.*

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

<b>STEP 1 ENTRY</b> ↓	 <p>→</p> <p><b>Simultaneously press and hold down the "BUCKET" MODE  and TEST  buttons.</b></p> <ul style="list-style-type: none"> <li>- Without attachments.</li> <li>- Boom fully retracted and raised.</li> <li>- Two beeps will sound and all the LEDs will flash twice to confirm the start of the procedure.</li> </ul>
<b>STEP 2</b> ↓	 <p>→</p>  <p>→ <b>Short press the test button. </b></p> <ul style="list-style-type: none"> <li>- Without attachments.</li> <li>- Carriage tilted fully backwards.</li> <li>- Boom fully retracted and in the down position a few centimeters off the ground.</li> </ul>
<b>STEP 3</b> ↓	 <p>→</p>  <p>→</p>  <p>→ <b>Short press the test button. </b></p> <p><b>⚠ IMPORTANT ⚠</b></p> <p><i>Always keep the load as close to the ground as possible during this operation.</i></p> <ul style="list-style-type: none"> <li>- With the fork carrier or the bucket and a load (keep boom retracted to allow all other hydraulic movements).</li> <li>- Boom fully retracted and in the down position a few centimeters off the ground.</li> <li>- Two beeps will sound and all the LEDs will flash twice to confirm the end of the procedure.</li> </ul> <p><b>NOTE:</b> This stage consists in unloading the rear axle. It can be done using a jack but without bearing on the rear axle.</p>
<b>STEP 4 EXIT</b>	 <p>→</p>  <ul style="list-style-type: none"> <li>- After completing the resetting procedure, the lift truck is in an overloaded condition. Retract the telescope to restore the situation.</li> <li>- All LEDs lit.</li> <li>- A continuous audible beep.</li> </ul>



## G4 – FRONT HEADLIGHTS

### ADJUST

#### RECOMMENDED SETTING

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

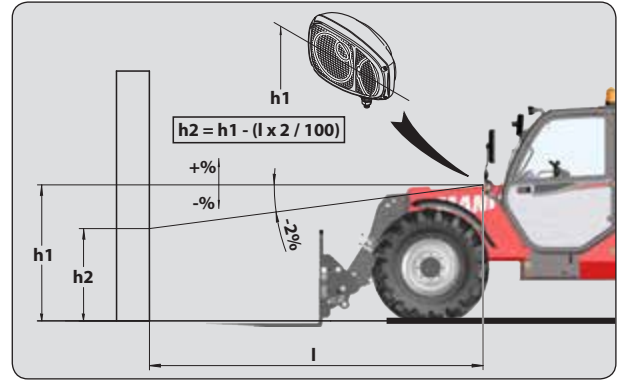
Adjustment of -2 % of the dipped beam relative to the horizontal axis of the headlight.

#### ADJUSTING PROCEDURE

- Place the unladen lift truck in the transport position and perpendicular to a white wall on flat, level ground.
- Check the tire 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.



## G5 – LIFT TRUCK

### TOW

#### ⚠ IMPORTANT ⚠

*Do not tow the lift truck at more than 25 km/h.*

- Place the forward/reverse selector and the gear lever in neutral.
- Release the hand brake.
- Switch on the hazard warning lights.
- Since there will be no hydraulic steering or braking assistance, operate the steering and pedal slowly avoiding sudden or jerky movements.

## G6 – LIFT TRUCK

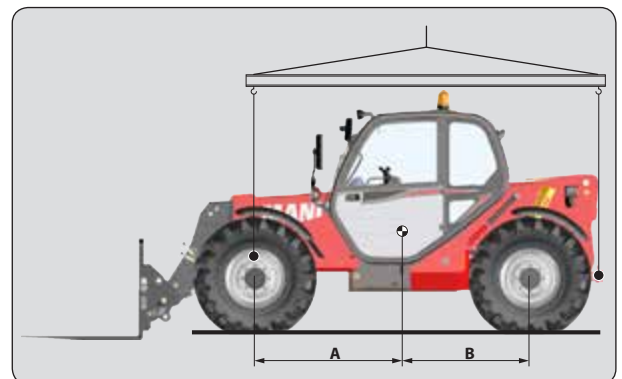
### SLING

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

A = 1460 mm

B = 1350 mm

- Place the hooks in the fastening points 1 provided.



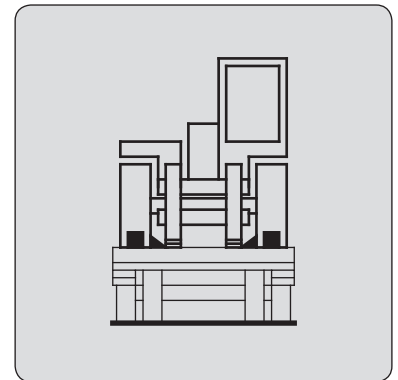
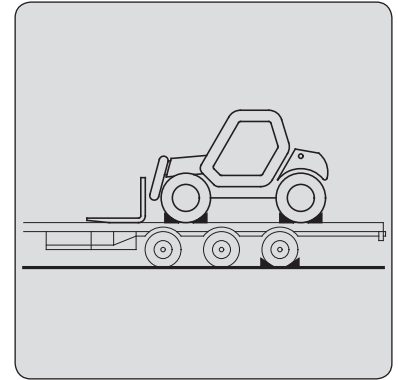
#### ⚠ IMPORTANT ⚠

Ensure that the safety instructions associated with the platform are complied with before loading the lift truck and that the driver of the carrier vehicle is informed of the dimensions and the ground 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.

#### ⚠ IMPORTANT ⚠

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

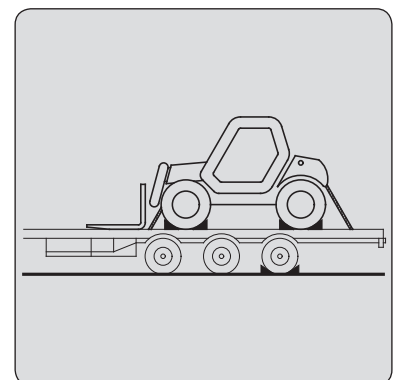


### LOADING THE LIFT TRUCK

- 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.
- Shut down 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 tire.
- Also fix the chocks to the platform on the inside of each tire.
- Secure the lift truck to the platform with sufficiently strong ropes to the anchoring points 1 provided.
- Tighten the ropes.





# ***4 - O P T I O N A L ATTACHMENTS FOR USE WITH THE RANGE***



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## 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).*

## 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

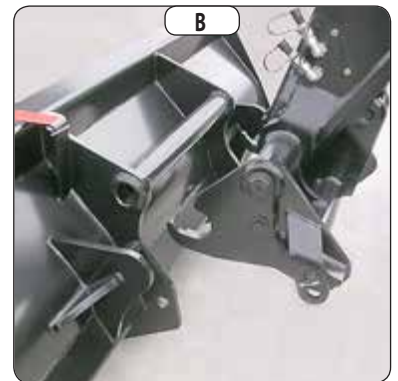
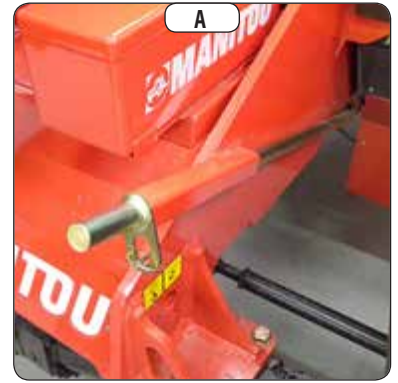
- Take the locking pin and the clip on the bracket (fig. A) and lock the attachment (fig. D). Do not forget to refit the clip.

#### 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.*

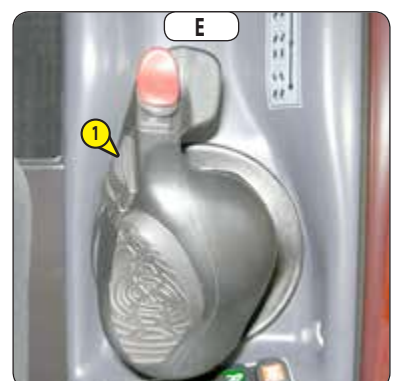
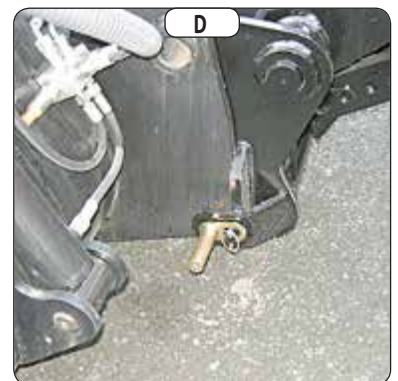
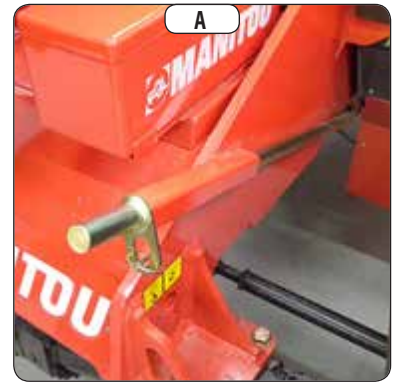
- Take the locking pin and the clip on the bracket (fig. A) and lock the attachment (fig. D). Do not forget to refit the clip.
- Stop the I.C. engine and keep the ignition on the lift truck.
- Remove the pressure of the hydraulic circuit by operating switch 1 (fig. E) on the distributor lever backwards and forwards 4 or 5 times.
- 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

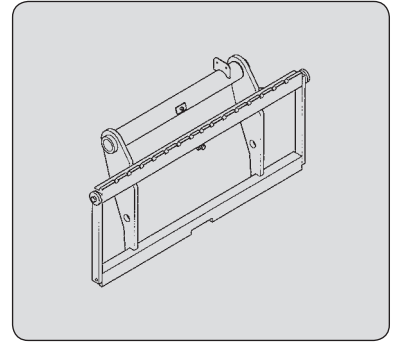
- Proceed in the reverse order of paragraph TAKING UP AN ATTACHMENT while making sure you place the attachment flat on the ground and in closed position.



## TECHNICAL SPECIFICATIONS OF ATTACHMENTS

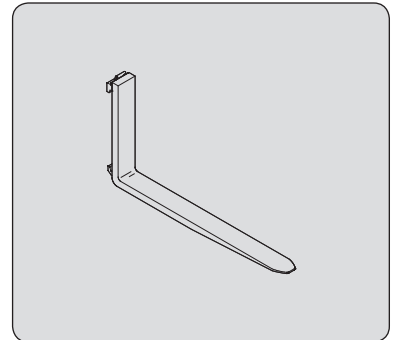
### STANDARDIZED TILTING FORK CARRIAGE

PART No.	PFB 35 N MT-1260 S2	PFB 35 N MT-1470 S2	PFB 35 N MT-1580 S2
Rated capacity	3500 kg	3500 kg	3500 kg
Width	1260 mm	1470 mm	1580 mm
Ground	95 kg	120 kg	125 kg



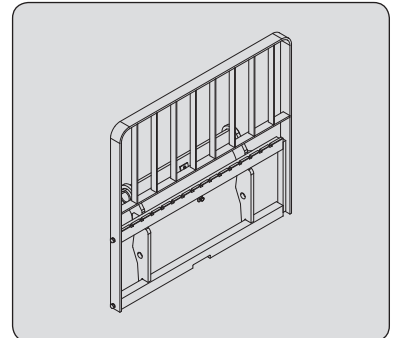
### STANDARDIZED FORK

PART No.	415618
Section	125x45x1200 mm
Ground	72 kg



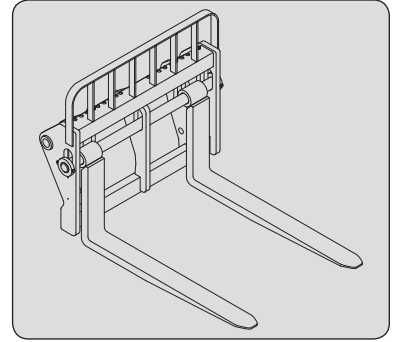
### STANDARDIZED TILTING FORK CARRIAGE + LOAD BACK REST

PART No.	PFB 35N 1260 LB	PFB 35N 1470 LB
Rated capacity	3500 kg	3500 kg
Width	1260 mm	1470 mm
Ground	130 kg	158 kg



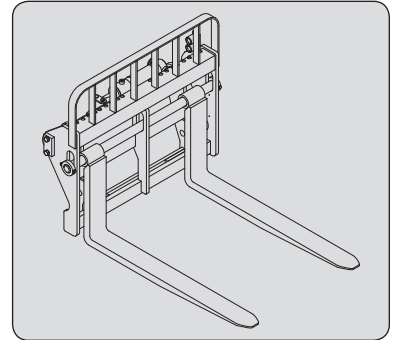
## FLOATING FORK CARRIAGE

PART No.	TFF 35 MT-1040 654093	TFF 35 MT-1300 654094
Rated capacity	3500 kg	3500 kg
Width	1040 mm	1300 mm
Ground	300 kg	340 kg



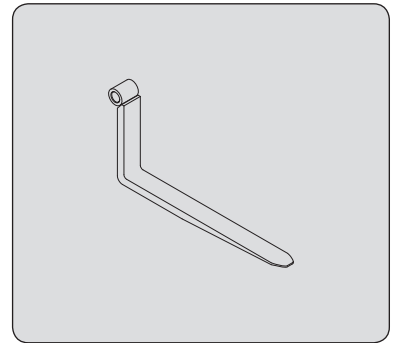
## FLOATING FORK SIDE-SHIFT CARRIAGE

PART No.	TFF 35 MT-1040 DL 751543	TFF 35 MT-1300 DL 751544
Rated capacity	3500 kg	3500 kg
Side-shift	2x100 mm	2x100 mm
Width	1040 mm	1300 mm
Ground	345 kg	375 kg



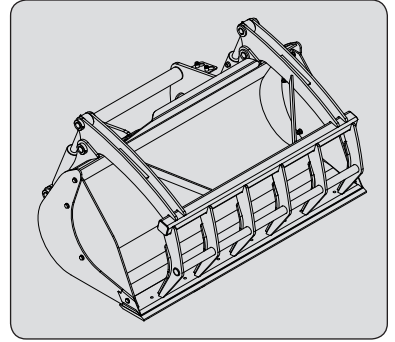
## FLOATING FORK

PART No.	415801
Section	125x45x1200 mm
Ground	68 kg



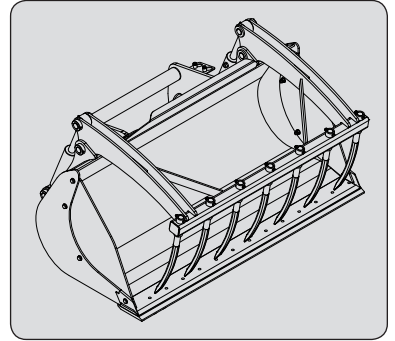
## BUCKET WITH GRAB

<b>PART No.</b>	<b>CBG 2450 MS</b> <b>790308</b>
Rated capacity	1130 l
Width	2450 mm
Teeth	8
Ground	780 kg



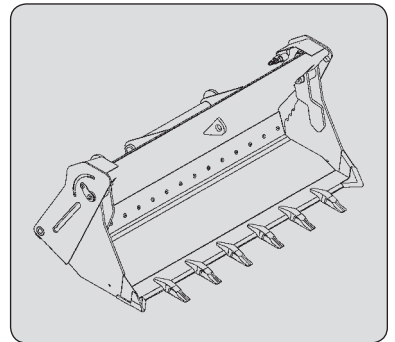
## BUCKET WITH GRAB

<b>PART No.</b>	<b>CBG 2450 FO</b> <b>790309</b>
Rated capacity	1130 l
Width	2450 mm
Teeth	10
Ground	780 kg



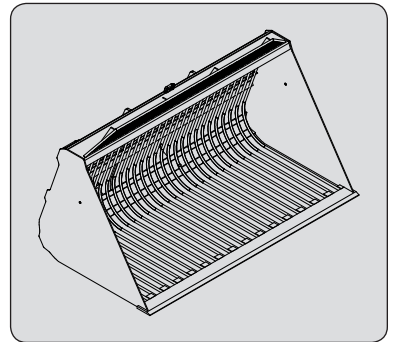
## MULTIPURPOSE BUCKET DISPLAY

<b>PART No.</b>	<b>CB4X1-900 L2450</b> <b>751465</b>
Rated capacity	900 l
Width	2450 mm
Ground	765 kg



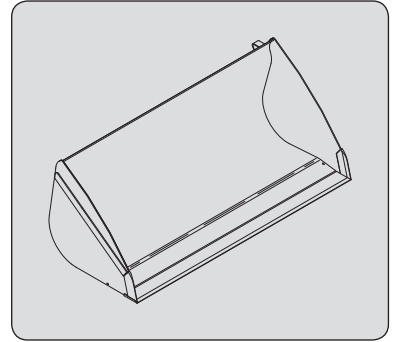
## BEET BUCKET

<b>PART No.</b>	<b>BSB 2450/2500</b> <b>757953</b>
Rated capacity	2,5 m <sup>3</sup> /1390 kg
Width	2450 mm
Ground	520 kg



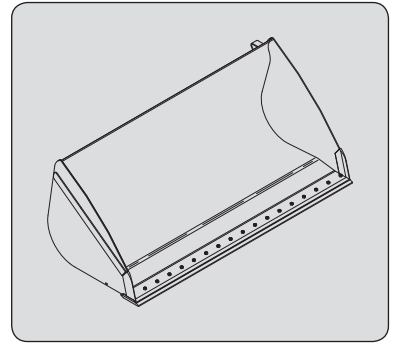
## GRAIN BUCKET

PART No.	CBA 1500 L2450 S3 570547	CBA 2000 L2450 S3 570551	CBA 2500 L2450 S3 570553
Rated capacity	1524 l	1998 l	2508 l
Width	2450 mm	2450 mm	2450 mm
Ground	500 kg	607 kg	701 kg



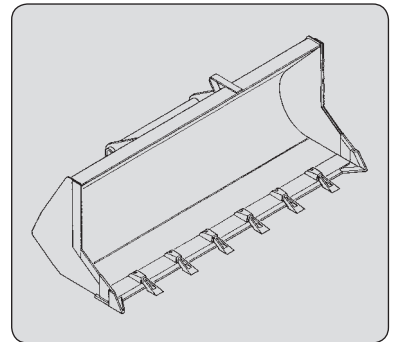
## FARMING BUCKET (REMOVABLE AND REVERSIBLE BLADE)

PART No.	CBA 1500 L2450 LDR S3 570548	CBA 2000 L2450 LDR S3 570552	CBA 2500 L2450 LDR S3 570554
Rated capacity	1524 l	1998 l	2508 l
Width	2450 mm	2450 mm	2450 mm
Ground	572 kg	678 kg	772 kg



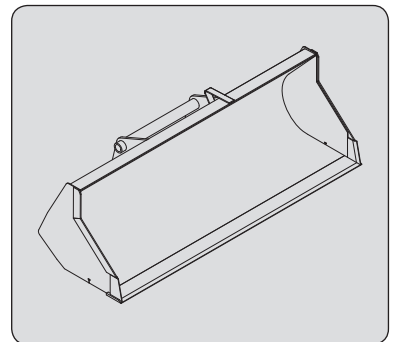
## BUILDING BUCKET

PART No.	CBC 700 L1950 654472	CBC 800 L2250 654471	CBC 900 L2450 654470
Rated capacity	697 l	814 l	893 l
Width	1950 mm	2250 mm	2450 mm
Ground	330 kg	366 kg	391 kg



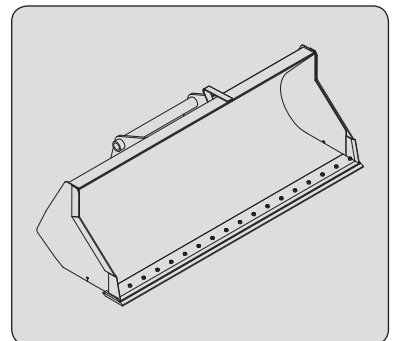
## LOADING BUCKET

PART No.	CBR 780 L1950 570613	CBR 900 L2250 653749	CBR 1000 L2450 654716
Rated capacity	778 l	904 l	990 l
Width	1950 mm	2250 mm	2450 mm
Ground	340 kg	390 kg	410 kg



## CLAMSHELL BUCKET (REMOVABLE AND REVERSIBLE BLADE)

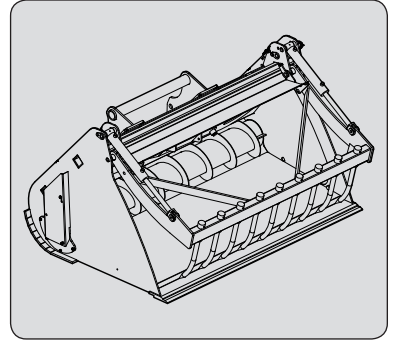
PART No.	CBR 1000 L2450 LDR 52000370
Rated capacity	990 l
Width	2450 mm
Ground	441 kg





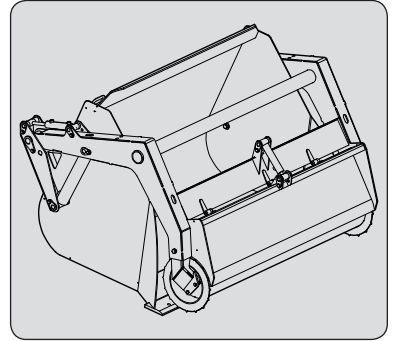
## SPREADER GRAB SHELL

	<b>CGD 2500/2500 FO</b>
<b>PART NUMBER</b>	<b>790312</b>
Rated capacity	2500 l
Width	2505 mm
Grab	11
Weight	1240 kg



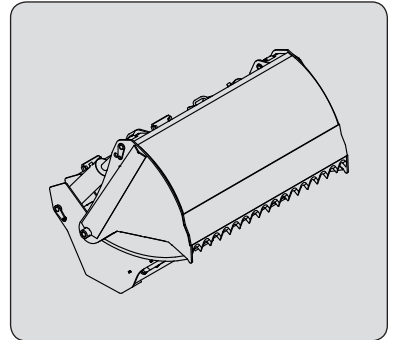
## SIMPLE ROTOR SHELL

	<b>CRS 2500/2120</b>
<b>PART NUMBER</b>	<b>790334</b>
Rated capacity	2120 l
Width	2830 mm
Weight	1010 kg



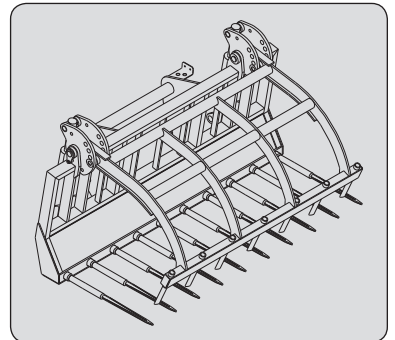
## JAW DESILAGE

	<b>SHG 1700/850</b>
<b>PART NUMBER</b>	<b>757723</b>
Rated capacity	850 l
Width	1865 mm
Weight	710 kg



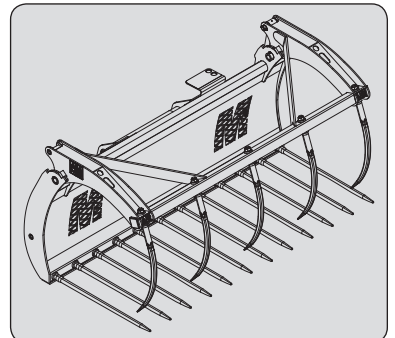
## MANURE FORK WITH GRAB

	<b>FFGR 30 MT 2100 S5</b>	<b>FFGR 30 MT 2400 S5</b>
<b>PART NUMBER</b>	<b>751403</b>	<b>751405</b>
Rated capacity	1700 Kg	1700 Kg
Width	2100 mm	2400 mm
Finger	10	12
Grab	7	8
Weight	567 kg	606 kg



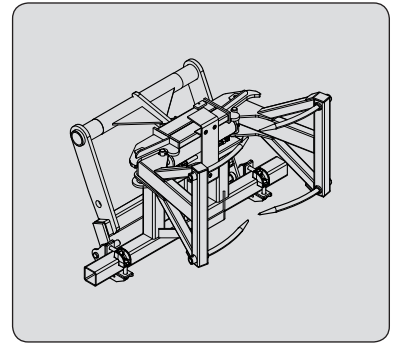
## MANURE FORK WITH GRAB

	<b>FMG 2450/2000</b>
<b>PART NUMBER</b>	<b>790534</b>
Rated capacity	2000 kg
Width	2435 MM
Finger	12
Grab	5
Weight	686



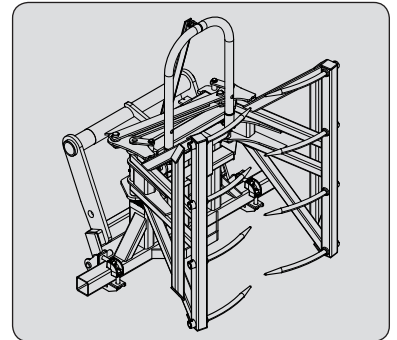
## BALE CLAMP

<b>PART NUMBER</b>	<b>PBG 2X2</b> <b>757639</b>
Rated capacity	800 kg
Width	1090 mm
Grab	2x2
Weight	158 kg



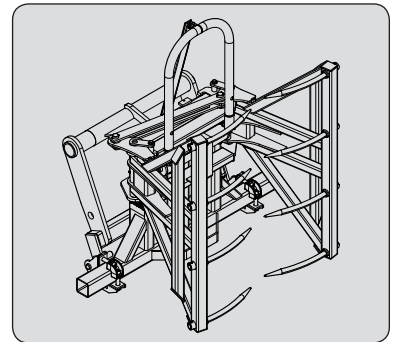
## BALE CLAMP

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



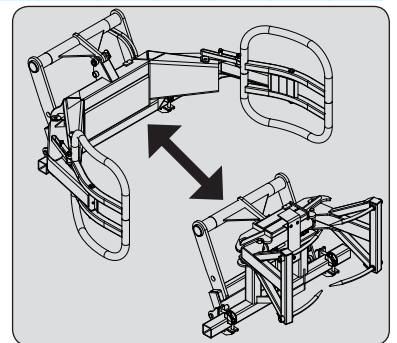
## BALE CLAMP

<b>PART NUMBER</b>	<b>P2BG 2X4</b> <b>790518</b>
Rated capacity	1500 kg
Width	1090 mm
Grab	2x4
Weight	275 kg



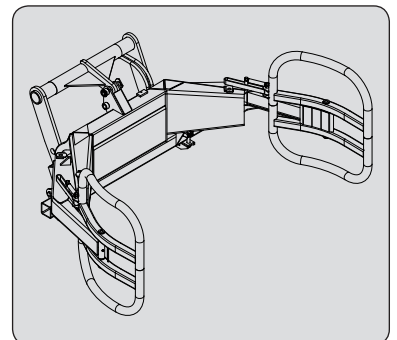
## BALE CLAMP

<b>PART NUMBER</b>	<b>MBC 2X3</b> <b>790506</b>
Rated capacity	800 kg
Width	1196 mm
Weight	290 kg



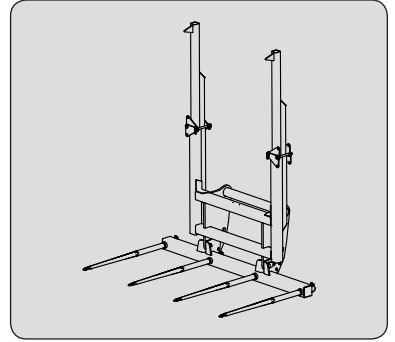
## BALE CLAMP

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



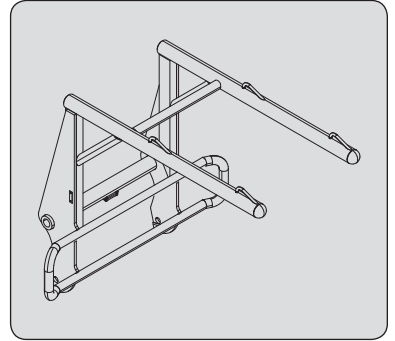
## BALE FORK

	<b>FB 1900/1700</b>
<b>PART No.</b>	<b>790699</b>
Rated capacity	1700 kg
Width	1878 mm
Teeth	4
Ground	215 kg



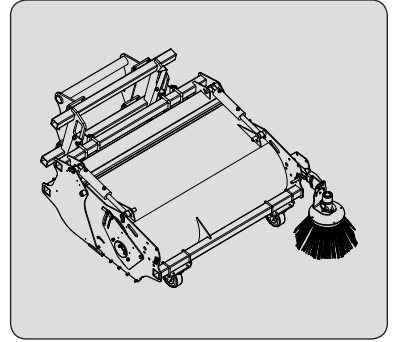
## BOOM CRANE WITH BIG BAG

	<b>HBB 1500/2400</b>
<b>PART No.</b>	<b>931627</b>
Rated capacity	2400 kg
Ground	186 kg



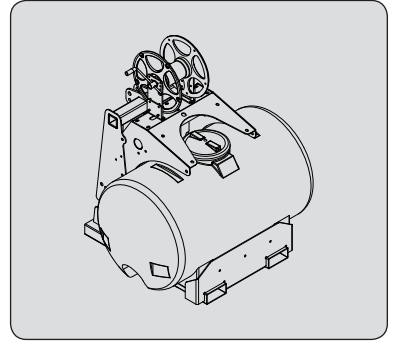
## **SWEEPER COLLECTOR WITH BRUSH**

<b>PART No.</b>	<b>BRB 2200</b>
Rated capacity	790315
Width	530 l
Ground	2600 mm
	925 kg



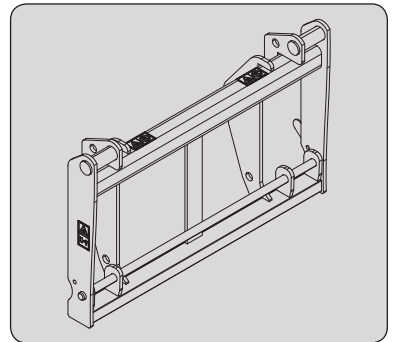
## **HIGH PRESSURE SCRUBBER**

<b>PART No.</b>	<b>VHPC 600</b>
Rated capacity	790335
Width	600 l
Ground	1450 mm
	240 kg



## **JCB INTERFACE**

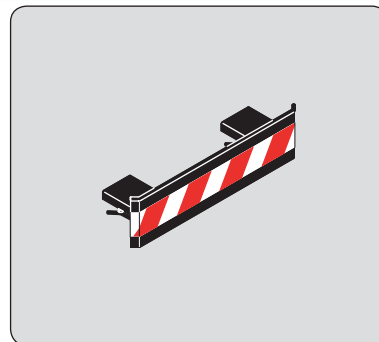
<b>PART No.</b>	<b>IC JCB</b>
Rated capacity	52000231
Width	4100Kg
Ground	1296 mm
	155 kg



## ATTACHMENT SHIELDS

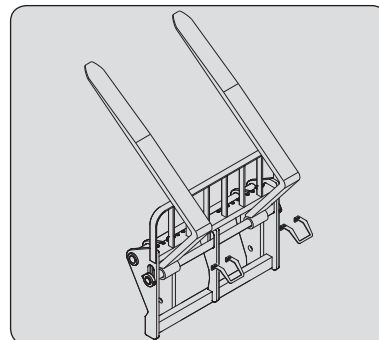
### FORK PROTECTOR

PART NUMBER 227801



### FORK BLOCK FOR FLOATING FORK CARRIAGE

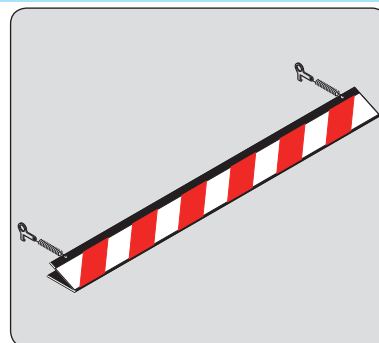
PART NUMBER 261210



### 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

