MANITOU

HANDLING YOUR WORLD

647840 EN-USM4 B092021

MC-X 25-2 D K ST3A S1
MC-X 25-4 D K ST3A S1
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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:

⚠ IMPORTANT ⚠

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

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1 - OPERATING AND SAFETY INSTRUCTIONS

RED UCE
04
MANITOU

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

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1 - OPERATING AND SAFETY INSTRUCTIONS

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INSTRUCTIONS TO THE COMPANY MANAGER

THE SITE

- Proper management of the 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, authorised personnel can use the lift truck. This authorisation is given in writing by the appropriate person in the establishment with respect to the use of lift trucks and must be carried permanently by the operator.

⚠ IMPORTANT ⚠

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

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

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

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

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

The person in charge of the equipment must take these criteria into account when assessing the suitability of a person to drive.

THE LIFT TRUCK

A - THE TRUCK'S SUITABILITY FOR THE JOB

- MANITOU has ensured that this lift truck is suitable for use under the standard operating conditions defined in this operator's manual, with a **STATIC TEST COEFFICIENT OF 1.33** and a **DYNAMIC TEST COEFFICIENT OF 1**, as specified in harmonised standard **ISO 3691-1** for mast trucks.
- Before commissioning, the company manager must make sure that the lift truck is appropriate for the work to be done, and perform certain tests (in accordance with current legislation).

B - ADAPTATION OF THE LIFT TRUCK TO STANDARD ENVIRONMENTAL CONDITIONS

- In addition to series equipment mounted on your lift truck, many options are available, such as: road lighting, stop lights, revolving light, reverse lights, reverse buzzer alarm, front light, rear light, etc.
- The operator must take into account the operating conditions to specify the lift truck's signalling and lighting equipment. Contact your dealer.
- Take the climatic and atmospheric conditions of the site of use into account.
  - Protection against frost (◁ 3 - MAINTENANCE).
  - Adaptation of lubricants (ask your dealer for information).
  - Engine filtration (◁ 3 - MAINTENANCE).

⚠ 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).

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- Our lift trucks comply with Directive 2004/108/EC concerning electromagnetic compatibility (EMC), and with the corresponding harmonised standard EN 12895. Their correct operation is no longer guaranteed if they are used within areas in which the electromagnetic fields exceed the limit specified by this standard (10 V/m).
- Directive 2002/44/EC requires company managers to not expose their employees to excessive vibration doses. There is no recognised code of measurement for comparing the machines of different manufacturers. The actual doses received cannot therefore be measured under actual operating conditions at the user's premises.
- The following are some tips for minimising 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 suspensions. Inflate the tyres 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 own safety and that of others, you must not change the structure and settings of the various components used in your lift truck by yourself (hydraulic pressure, limiter calibration, engine speed, addition of extra equipment, addition of counterweights, unapproved attachments, alarm systems, etc.). In this event, the manufacturer cannot be held liable.

D - FRENCH ROAD TRAFFIC RULES

- Only one certificate of conformity is issued. It must be kept in a safe place.
- The driving of non-approved lift trucks 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 license plate.

INSTRUCTIONS

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

MAINTENANCE

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

⚠ IMPORTANT ⚠

Your lift truck must be inspected periodically to ensure that it remains in compliance.

The frequency of this inspection is defined by current legislation in the country in which the lift truck is used.

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

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INSTRUCTIONS TO THE OPERATOR

FOREWORD

⚠ IMPORTANT ⚠

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

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

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.

- Only the operations and manoeuvres described in this 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.
- As operator, you must anticipate at all times the potential risks for yourself, for others and for the lift truck.

GENERAL INSTRUCTIONS

A - OPERATOR'S MANUAL

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

B - AUTHORISATION FOR USE IN FRANCE

(or see current legislation in other countries)

- Only qualified, authorised personnel can use the lift truck. This authorisation 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 and weekly maintenance (◁ 3 - MAINTENANCE).
- For the safety of the operator, maintenance must be carried out with the engine off and the ignition key removed.
- The operator must ensure tyres are appropriate for the type of ground (◁ 2 - DESCRIPTION). There are optional solutions, consult your dealer.
  - SAND tyres.
  - FARM tyres.
  - Snow chains.

⚠ IMPORTANT ⚠

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

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

- 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 own safety and that of others, you must not change the structure and settings of the various components used in your lift truck by yourself (hydraulic pressure, limiter calibration, engine speed, addition of extra equipment, addition of counterweights, unapproved attachments, alarm systems, etc.). In this event, the manufacturer cannot be held liable.

E - LIFTING PEOPLE

- It is forbidden to lift or carry people.

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A - BEFORE STARTING THE LIFT TRUCK

- Perform the daily maintenance operations (◁ 3 - MAINTENANCE).
- Make sure that the driver's cab is clean, particularly the floor and floor mat. Check that no movable objects can hinder 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.

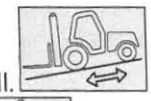
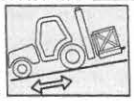
B - DRIVER'S OPERATING INSTRUCTIONS

⚠ IMPORTANT ⚠

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

- Whatever his experience, the operator is advised to familiarise 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 out of the driver's cab.
  - Use the handle(s) provided for this purpose.
  - Use the step(s).
  - Do not jump out of the lift truck.
- 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.
- The operator must always be in his normal position in the driver's cab. It is prohibited to have arms or legs, or generally any part of the body, protruding from the driver's cab of the lift truck.
- The safety belt must be worn and adjusted to the operator's size.
- The control units must never in any event be used for any other than their intended purposes (e.g. climbing onto or down from the lift truck, portmanteau, etc.).
- If the control components are fitted with a forced operation (lever lock) device, it is forbidden to leave the cab without first putting these controls in neutral.
- It is prohibited to carry passengers either on the lift truck or in the cab.

C - ENVIRONMENT

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

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- Never stack loads on uneven ground, they may tip over.
- The load or the attachment must not be left just above a structure for long periods at a time because of the descending mast. In such a case, a constant watch must be kept and the height of the forks or the attachment readjusted if necessary.
- When working near aerial lines, ensure that the safety distance is sufficient between the working area of the lift truck and the aerial line.

⚠ 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 mast in the transport position.
- Special precautions must be taken if the size of the load restricts visibility towards the front:
  - Moving in reverse,
  - Site layout,
  - assisted by a person directing the manoeuvre (while standing outside the truck's area of travel), making sure to keep this person clearly in view at all times,
  - In any event, avoid reversing over long distances.
- 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).
- 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).
- For lift trucks operating on gas carburisation, open the gas bottle.
- Ensure that the forward/reverse selector is set to neutral.
- Turn the ignition key to the position I to activate the electrical and preheat 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.

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F - DRIVING THE LIFT TRUCK

SAFETY INSTRUCTIONS

⚠ IMPORTANT ⚠

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

- Observe the company's traffic regulations or, by default, the public highway code.
- Do not carry out operations which exceed the capacities of your lift truck or attachments.
- Always drive the lift truck with the forks or attachment to the transport position, i.e. at 300 mm from the ground and the carriage sloping backwards.
- Only carry loads which are balanced and properly anchored to avoid any risk of a load falling off.
- Ensure that pallets, cases, etc. are in good order and suitable for the load to be lifted.
- Familiarise yourself with the lift truck on the terrain where it will be used.
- Ensure that the service brakes are working properly.
- The loaded lift truck must not travel at speeds in excess of 12 km/h.
- Drive smoothly at an appropriate speed for the operating conditions (land configuration, load on the lift truck).
- Do not use the hydraulic mast controls when the lift truck is moving.
- Do not manoeuvre the lift truck with the mast in the raised position unless under exceptional circumstances and then with extreme caution, at very low speed and using gentle braking. Ensure that visibility is adequate.
- Take bends slowly.
- In all circumstances make sure you are in control of your speed.
- On damp, slippery or uneven terrain, drive slowly.
- Brake gently, never abruptly.
- Only use the lift truck's 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 running 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 voluminous loads, since this operation requires particular precautions to be taken. It must only be used exceptionally and after risk analysis.
- The ignition switch has an emergency stop mechanism in case of an operating anomaly occurring in the case of lift trucks not fitted with a punch-operated cut-out.

INSTRUCTIONS

- Always drive the lift truck with the forks or attachment to the transport position, i.e. at 300 mm from the ground and the carriage sloping backwards.
- For lift trucks with gearboxes, use the selected gear (◁ 2 - DESCRIPTION).
- Release the hand brake.
- Shift the forward/reverse selector to the selected direction of travel and accelerate gradually until the lift truck moves off.

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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 metre 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.
- Lower the forks or attachment to rest on the ground.
- When using an attachment with a grab or jaws, or a bucket with hydraulic opening, close the attachment fully.
- Before stopping the lift truck after a long working period, leave the engine idling for a few moments, to allow the coolant liquid and oil to lower the temperature of the engine and transmission. Do not forget this precaution, in the event of frequent stops or warm stalling of the engine, or else the temperature of certain parts will rise significantly due to the stopping of the cooling system, with the risk of badly damaging such parts.
- Stop the engine with the ignition switch.
- Remove the ignition key.
- Lock all the accesses to the lift truck (doors, windows, cowls...).
- For lift trucks operating on gas carburisation, shut the LPG bottle. For a long lasting stop, let the engine stop naturally by shutting the LPG bottle before switching off the ignition, so as to eliminate all the fuel in the feed tube.

H - DRIVING THE LIFT TRUCK ON THE PUBLIC HIGHWAY

FRENCH ROAD TRAFFIC RULES

- The driving of non-approved lift trucks 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 license plate.

SAFETY INSTRUCTIONS

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

INSTRUCTIONS

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

⚠ IMPORTANT ⚠

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

DRIVING THE LIFT TRUCK WITH A FRONT-MOUNTED ATTACHMENT

- You must comply with current regulations in your country, covering the possibility of driving on the public highway with a front-mounted attachment on your lift truck.
- If road legislation in your country authorises 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).
  - 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.

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For lift trucks equipped with a towing system

OPERATING THE LIFT TRUCK WITH A TRAILER

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

IF NECESSARY, CONSULT YOUR DEALER.

INSTRUCTIONS FOR HANDLING A LOAD

A - CHOICE OF ATTACHMENTS

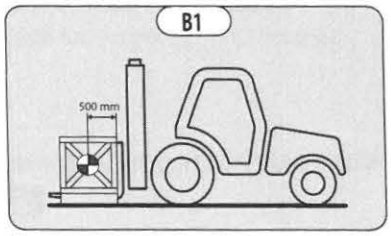
- Only attachments approved by MANITOU can be used on its lift trucks.
- Make sure the attachment is appropriate for the work to be done (◁ 4 - ADAPTABLE ATTACHMENTS AVAILABLE ON THE RANGE).
- Make sure the attachment is correctly installed and locked onto the lift truck carriage.
- Make sure that your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

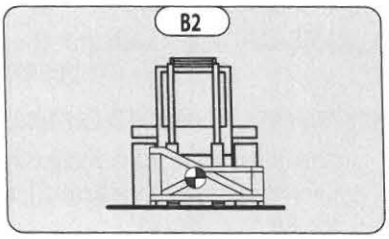
B - WEIGHT OF LOAD AND CENTRE OF GRAVITY

- Before picking up a load, you must know its weight 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 or 600 mm from the base of the forks (depending on the model of lift truck) (Fig. B1). For a higher centre of gravity, contact your dealer.
- For irregular loads, determine the transverse centre of gravity before any movement (fig. B2) and set it in the longitudinal axis of the lift truck.

⚠ IMPORTANT ⚠

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





C - TRANSVERSE ATTITUDE OF THE LIFT TRUCK

- The transverse attitude is the lateral tilt of the frame in relation to the floor.
- Raising the mast reduces the lift truck's lateral stability.
- The transverse attitude must be horizontal with the mast in the down position:

  Depending on the model of lift truck

  • Position the lift truck so that the bubble in the spirit level is between the two lines (◁ 2 - DESCRIPTION).

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MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

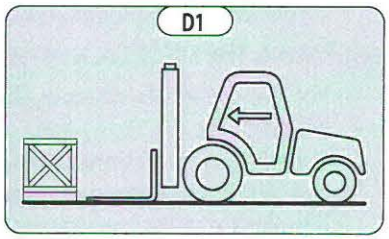
D - PICKING UP A LOAD ON THE GROUND

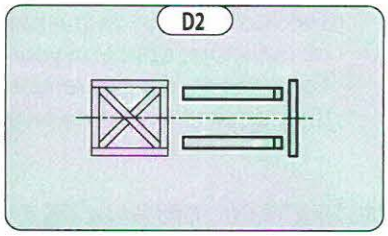
- Approach the lift truck perpendicular to the load, with the forks in a horizontal position (fig. D1).
- Adjust the fork spread and centring in connection with the load (fig. D2) (optional solutions exist, consult your dealer).
- Never lift a load with a single fork.

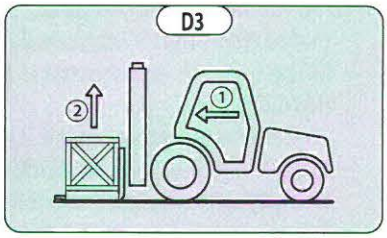
⚠ IMPORTANT ⚠

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

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

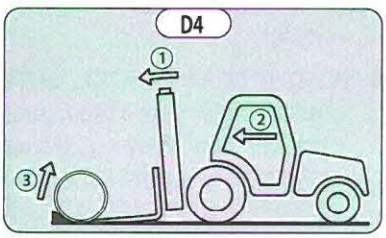






FOR A NON-PALLETISED LOAD

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



PICKING UP AND LAYING DOWN A HIGH LOAD ON TIRES

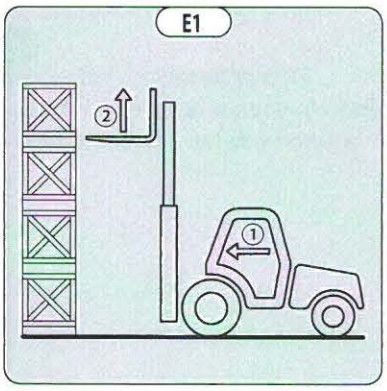
⚠ IMPORTANT ⚠

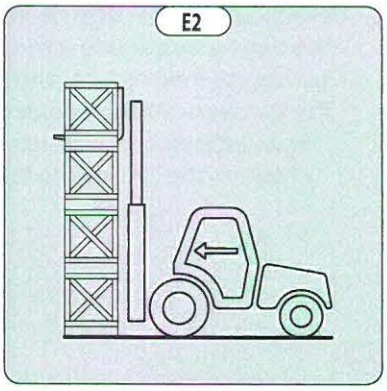
You must not raise the mast if you have not checked the transverse attitude of the lift truck (◁ INSTRUCTIONS FOR HANDLING A LOAD).

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

PICKING UP A HIGH LOAD ON TIRES

- Ensure that the forks will easily pass under the load.
- Keeping the mast vertical (1), advance the lift truck and raise the forks to level with the load (2) (fig. E1).
- Manoeuvre carefully and gently to bring the forks to the stop in front of the load (fig. E2). Set the handbrake and place the forward/reverse selector to neutral.





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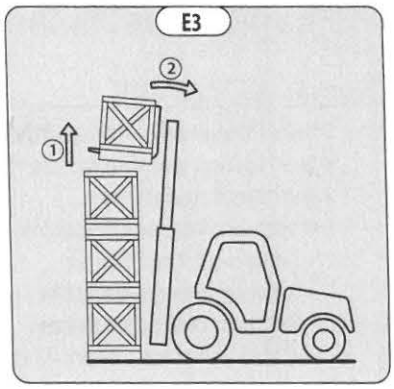
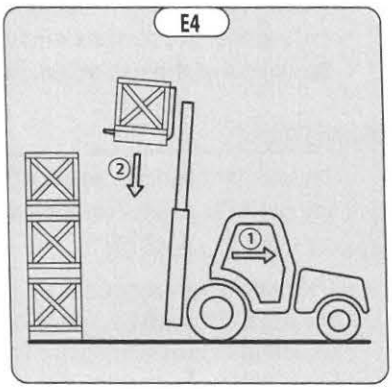
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

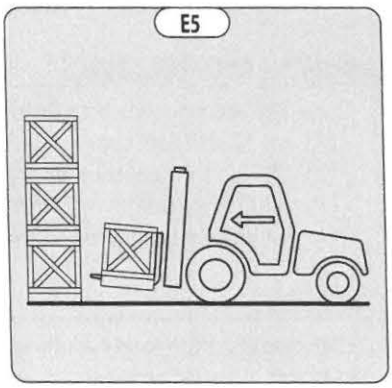
- Slightly raise the load (1) and tilt the carriage (2) backwards to stabilise the load (fig. F3).
- Tilt the load sufficiently backwards to ensure its stability.
- Reverse the lift truck (1) very carefully and gently to free the load. Lower the mast (2) to bring the load into transport position (fig. E4).

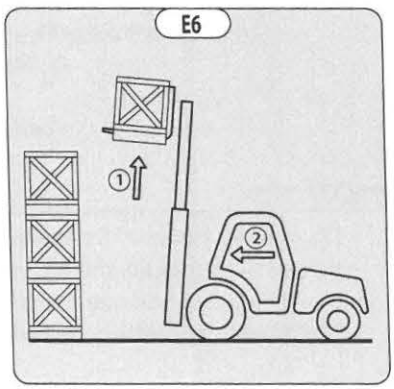


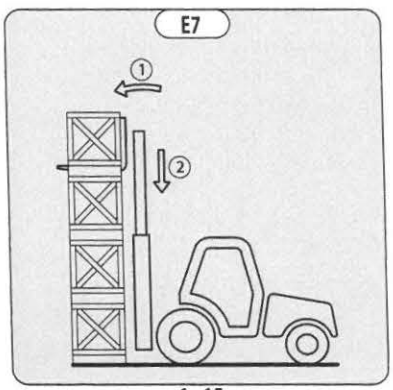


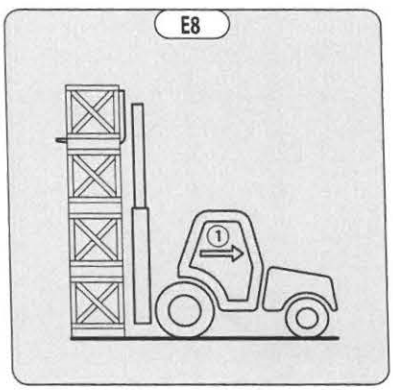
LAYING A HIGH LOAD ON TYRES

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









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MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

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 back and protect your hair, if necessary.
- Before carrying out any work on the lift truck:
  - Switch off the engine
  - Apply the parking brake.
  - Remove the ignition key.
- 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.).

MAINTENANCE

- Perform the periodic service (◁ 3 - MAINTENANCE) to keep your lift truck in good working condition. Failure to perform the periodic service may invalidate the contractual warranty.

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 are recorded in a maintenance logbook. The entry for each operation should include the date of the work, 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 components that are replaced are indicated.

LUBRICANT AND FUEL LEVELS

- 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.

HYDRAULICS

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

⚠ IMPORTANT ⚠

It is dangerous to change the setting and remove the BALANCING VALVES or SAFETY VALVES which may be fitted to your lift truck cylinders.
The HYDRAULIC ACCUMULATORS that may be fitted on your lift truck are pressurised units.
Removing these accumulators and their pipework is dangerous.
Such operations must only be performed by approved personnel (consult your dealer).

ELECTRICITY

- 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.

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MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

WELDING

- 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 tire. The heat would increase the pressure which could cause the tire 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

- 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

⚠ IMPORTANT ⚠

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

- Towing, slinging or transporting the lift truck (◁ 3 - MAINTENANCE).

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MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

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 period of long-term stoppage must not exceed 12 months.

PREPARING THE LIFT TRUCK

- Clean the lift truck thoroughly.
- Check and repair any leakage of fuel, oil, water or air.
- 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 mast 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

- Empty and rinse the "DEF" tank.
- Replace the "DEF" (Diesel Exhaust Fluid) feed pump filter (◁ 3 - MAINTENANCE).
- Fill up with new "DEF" (Diesel Exhaust Fluid) (◁ 2 - DESCRIPTION).
- Start up the lift truck to pressurise the circuit and bring it up to working temperature.
- Switch off the engine.
- Check the "DEF" level and top up if required.

PROTECTING THE ENGINE

- Contact your dealer to obtain the procedure for protecting the inside of the engine (use of protection product).
- Fill the tank with fuel (◁ 3 - MAINTENANCE).
- Replace the coolant (◁ 3 - MAINTENANCE).
- Leave the engine running at idling speed for a few minutes, then switch off.
- Replace the engine oil and oil filter (◁ 3 - MAINTENANCE).
- Run the engine for a short time so that the oil and coolant 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 not in contact with the ground and release the parking brake.
- Protect cylinder rods which will not be retracted, from corrosion.
- Wrap the tyres.

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

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MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

BRINGING THE LIFT TRUCK BACK INTO SERVICE

- Remove the waterproof adhesive tape from all the holes.
- Refit and reconnect the battery.
- Remove the protection from the cylinder rods.
- Perform the daily maintenance operations (◁ 3 - MAINTENANCE).
- Put the handbrake on and remove the axle stands.
- Drain and clean the fuel tank (◁ 3 - MAINTENANCE).
- Fill the fuel tank with clean diesel filtered through the filler port.
- Replace the fuel filter (◁ 3 - MAINTENANCE).
- Replace the fuel pre-filter (◁ 3 - MAINTENANCE) (depending on the model of lift truck)
- Drain and rinse the DEF tank (depending on the model of lift truck)
- Top up, slowly fill the tank with new "DEF" (Diesel Exhaust Fluid) up to the bottom of the filler neck (depending on the model of lift truck)
- Refit the drive belts and adjust the tension (◁ 3 - MAINTENANCE).
- Turn the engine over with the starter, to allow the oil pressure to rise.
- Reconnect the engine cut-off solenoid.
- Lubricate the lift truck completely (◁ 3 - MAINTENANCE).

⚠ 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.

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MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

LIFT TRUCK DISPOSAL

⚠ IMPORTANT ⚠

Please consult your dealer before disposing of your lift truck.

RECYCLING OF MATERIALS

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 the plastic components are made of "thermoplastic" plastics, which are easily recycled by melting, granulating or grinding.

RUBBER

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

GLASS

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

ENVIRONMENTAL PROTECTION

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

WORN OR DAMAGED PARTS

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

USED OIL

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

USED BATTERIES

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

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

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MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

2 - DESCRIPTION

2 - DESCRIPTION

SAFETY PLATES AND STICKERS

⚠ IMPORTANT ⚠

Clean all stickers and safety plates so that they are legible.
Any safety plates and stickers which are illegible or damaged must be replaced.
Check that stickers and safety plates are present after replacing any spare parts.

EXTERNAL PLATES AND STICKERS

REF.	PART NO.	DESCRIPTION
1	24653	- Slinging point
2	234802	- Diesel
3	52563320	- Tie-down point
4	52502757	- Overall height (Option)

STICKERS AND PLATES UNDER THE ENGINE HOOD

REF.	PART NO.	DESCRIPTION
5	293887	- Anti-freeze
6	234798	- Hydraulic oil
7	233088	- Engine block heater (Option)
8	234797	- Air conditioning (Option)

STICKERS AND PLATES IN THE CAB

ITEM	PART NO.	DESCRIPTION
9	Consult your dealer	- Load charts (according to model) *
10	239594	- Sound power 104 dB
11	Consult your dealer	- Manufacturer's plate
12	300681	- Safety instruction
13	288174	- Load suspension (Option)
14	172385	- Towing forbidden
15	253267	- Joystick function
16	52691105	- Lever 3rd hydraulic line (Option)
17	52690933	- Lever 3rd-4th hydraulic lines (Option)
18	52691107	- Lever 4th-5th hydraulic lines (Option)
19	52691109	- Lever 4th line - hydraulic locking (Option)
20	52690934	- JSM function (Option)
21	52531617	- Turnover instructions
22	52686805	- Fixed height indicator
23	52686806	- Moving height indicator

* The load chart referred to in the notice is a standard or blank chart. Each lift truck which can be used with an attachment has a specific chart. To obtain this, consult your dealer.

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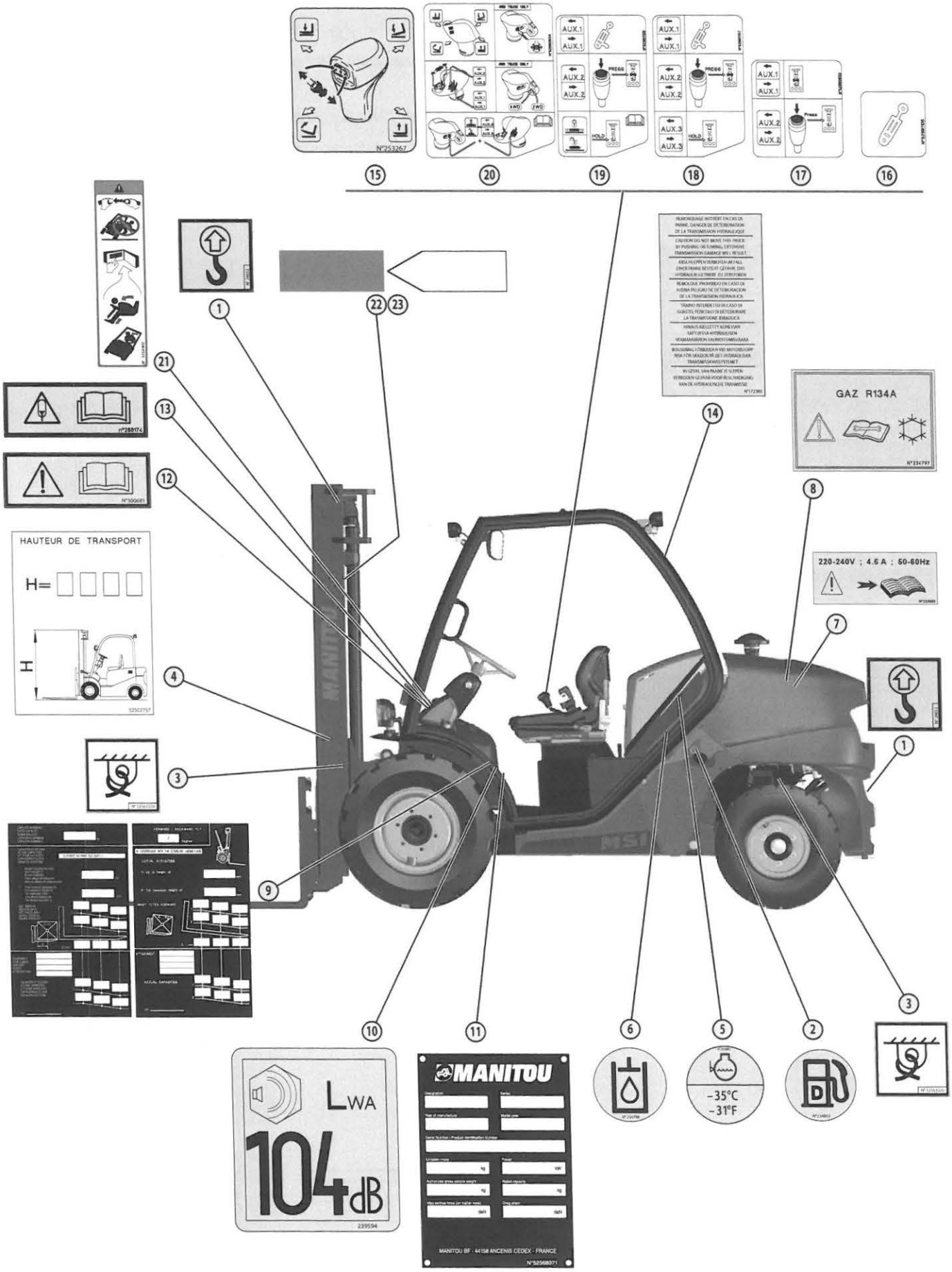
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1


N°253267
AUX.1
AUX.2
AUX.3
PRESS
HOLD
4WD
2WD
15
20
19
18
17
16
1
22
23
21
13
12
14
8
7
4
3
9
10
11
6
5
2
HAUTEUR DE TRANSPORT
H=
H
GAZ R134A
220-240V ; 4.5 A ; 60-60Hz
LWA
104dB
239594
MANITOU
MANITOU BF - 44158 ANCENIS CEDEX - FRANCE
-35°C
-31°F

IDENTIFICATION OF THE LIFT TRUCK

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

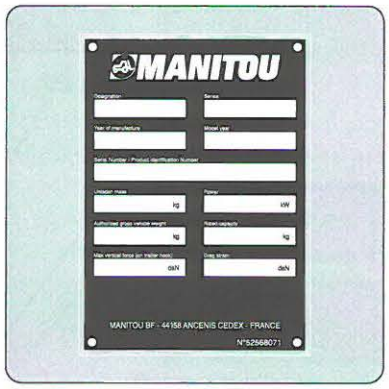
When you order parts, or when you require any technical information, always specify the following information.

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.

All further technical information regarding your lift truck is listed in the chapter: CHARACTERISTICS.

LIFT TRUCK MANUFACTURER'S PLATE

"Designation" Designation	
"Series" Series	
"Year of manufacture" Year of manufacture	
"Model year" Model year	
"Serial Number / Product Identification Number" Serial number/Product identification number	
"Unladen mass" Unladen weight	
"Power" Power	
"Authorized gross vehicle weight" Authorised gross vehicle weight	
"Rated capacity" Rated capacity	
"Max vertical force (on trailer hook)" Maximum vertical force (on trailer hook)	
"Drag strain" Tensile stress	



ATTACHMENT MANUFACTURER'S PLATE

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

ENGINE

"Modèle" Model	
"N° de série" Serial number	
"N° de moteur thermique" Engine number	

HYDROSTATIC PUMP

"Référence" MANITOU Part No.	
"Type de codification" Type of codification	
"N° série" Serial number	
"N° de fabrication" Manufacturing number	
"Année de fabrication" Year of manufacture	

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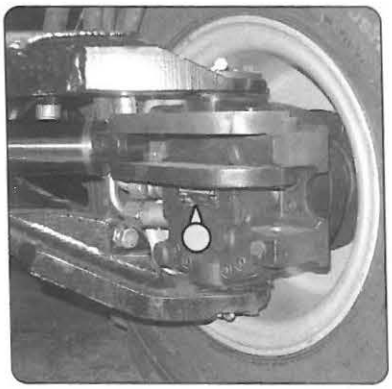
FRONT WHEEL ELECTRIC MOTORS

"Type de codification" Type of codification	
"N° de moteur" Engine number	
"N° de fabrication" Manufacturing number	
"Année de fabrication" Year of manufacture	

REAR WHEEL HYDROSTATIC MOTORS

Only for MC-X . . -4 D

"Type de codification" Type of codification	
"N° de moteur" Engine number	
"N° de fabrication" Manufacturing number	
"Année de fabrication" Year of manufacture	

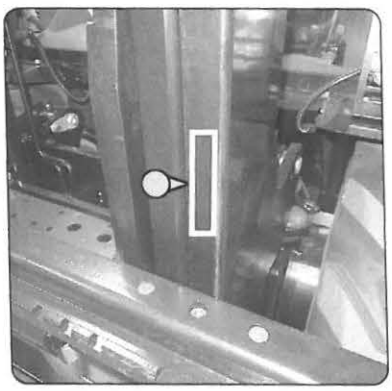


OVERHEAD GUARD / CAB

"Constructeur" Manufacturer	
"Type Cabine" Cab type	
"Numéro de série" Serial number	

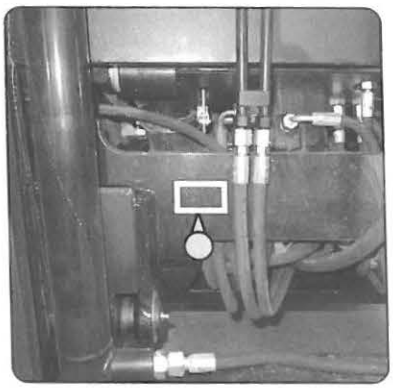
MASTS WITH ROLLERS

Part No. MANITOU	



FRAME

Serial number/Product identification number	



SPECIFICATIONS MC-X 25-2... MC-X 30-2...

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

DESIGNATION	1.1	Manufacturer		MANITOU	
	1.2	Model type / Serial no.		MC-X 25-2 D K ST3A S1	MC-X 30-2 D K ST3A S1
	1.3	Propulsion: battery, diesel, petrol, LPG, mains		Diesel	
	1.4	Type of operation: manual, pedestrian, standing, seated		Seated	
	1.5	Rated capacity/load on forks (basic capacity)	Q (t)	2.5	3.0
	1.6	Centre of gravity of load	c (mm)	500	
	1.8	Distance from the load bearing surface to the centre of the front axle	x (mm)	621	626
	1.9	Wheelbase	y (mm)	1900	
WEIGHT	2.1	Weight of truck in working order	kg	3826	4323
	2.2	Front axle load laden	kg		
	2.2.1	Rear axle load laden	kg		
	2.3	Front axle load unladen	kg		
	2.3.1	Rear axle load unladen	kg		
RUNNING CARRIAGE	3.1	Tyre equipment bandage (V), super-elastic (SE), pneumatic (L)		L	
	3.2	Size of front wheels	" or mm	12,5/80-18/12 SL R4	
	3.3	Size of rear wheels	" or mm	7.00-12/12 ED PLUS	
	3.5	Number of front wheels (x = drive wheel)		2x	
	3.5.1	Number of rear wheels (x = drive wheel)		2	
	3.6	Front track (middle of wheels)	b10 (mm)	1159	
	3.7	Rear track (middle of wheels)	b11 (mm)	1112	
DIMENSIONS	4.1	Tilt of mast forward	α (°)	12	
	4.1.1	Tilt of mast backward	β (°)	10	
	4.2	Height of mast lowered	h1 (mm)	2310	
	4.3	Normal free lift	h2 (mm)	102	107
	4.4	Lift height	h3 (mm)	3300	
	4.5	Height of extended mast	h4 (mm)	4062	
	4.7	Standard height of the overhead guard, cab or cab with air conditioning	h6 (mm)	2155	
	4.7	Lowered height of the overhead guard, cab or cab with air conditioning	h6* (mm)	1990	
	4.8	Height of seat	h7 (mm)	1034	
	4.12	Height of towing coupling	h10 (mm)	-	
	4.19	Total length	l1 (mm)	4195	4235
	4.20	Length of forks at heel	l2 (mm)	3045	3085
	4.21	Overall width	b1 (mm)	1450	
	4.22	Section of fork arms	s (mm)	40	45
	4.22.1	Width of fork arms	e (mm)	100	
	4.22.2	Length of fork arms	l (mm)	1200	
	4.23	Fork carriage (in accordance with standard DIN 15173 A/B)		FEM 2A	FEM 3A
	4.24	Width of fork carriage (with load backrest)	b3 (mm)	1260	
	4.31	Ground clearance of mast unladen	m1 (mm)	300	
	4.32	Ground clearance at centre of wheel-base unladen	m2 (mm)	320	
	4.33	Aisle width for 1000x1200 pallet widthways	Ast (mm)	4641	4676
	4.34	Turning radius	Wa (mm)	2620	2650

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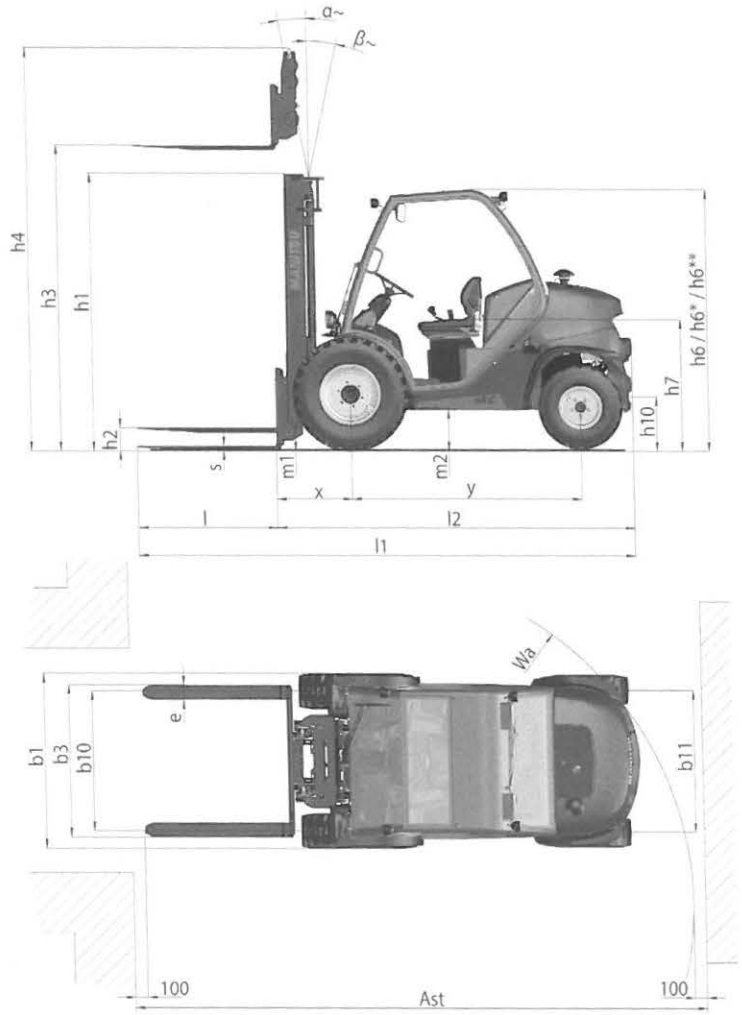
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

PERFORMANCES	5.1	Speed of travel laden	km/h	12	
	5.1.1	Speed of travel unladen (2RM / 4RM)	km/h	25 / -	
	5.2	Speed of rise laden	m/s	0.47	
	5.2.1	Speed of rise unladen	m/s	0.46	
	5.3	Speed of lowering laden	m/s	0.5	
	5.3.1	Speed of lowering unladen	m/s	0.3	
	5.5	Nominal towing power laden	daN	1775	1810
	5.5.1	Nominal towing power unladen	daN	1110	1150
	5.7	Slope laden	%	29	23
	5.7.1	Slope unladen	%	30	26
	5.8	Acceleration time unladen (2RM / 4RM)	s	13 / -	
	5.9	Service brake		Low pressure hydraulic	
ENGINE SPECIFICATION	7.1	Engine manufacturer/Type		KUBOTA / V2403	
	7.2	Engine power (in accordance with ISO 1585)	kW	36.5	
	7.3	Rated speed	rpm	2700	
	7.4	Number of pistons/Capacity	cm^3	4 / 2434	
	7.5	Fuel consumption (according to VDIcycle)	l/h	5.2	5.3
MISCELLANEOUS	8.1	Speed control		Cable	
	8.2	Working hydraulic pressure for attachments	Bars	230	
	8.3	Pump outlet oil flow rate	l/min	46	
	8.3	Oil flow rate for attachments	l/min	43	
	8.4	Sound level in the driver's ear (according to DIN 12053) (guard/cab)	db (A)	80	
	8.5	Guaranteed sound power level to the environment LWA (according to Directive 2000/14/EC modified by Directive 2005/88/EC)	db (A)	104	
	8.6	Average weighted acceleration on driver's body (according to standard NF EN 13059)	m/s	0.97	



647840 M4 (B092021)
MC-X . . . D K ST3A S1 / MSI-X . . . D K ST3A S1

SPECIFICATIONS MC-X 25-4... MC-X 30-4...

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

DESIGNATION	1.1	Manufacturer		MANITOU	
	1.2	Model type / Serial no.		MC-X 25-4 D K ST3A S1	MC-X 30-4 D K ST3A S1
	1.3	Propulsion: battery, diesel, petrol, LPG, mains		Diesel	
	1.4	Type of operation: manual, pedestrian, standing, seated		Seated	
	1.5	Rated capacity/load on forks (basic capacity)	Q (t)	2.5	3.0
	1.6	Centre of gravity of load	c (mm)	500	
	1.8	Distance from the load bearing surface to the centre of the front axle	x (mm)	621	626
	1.9	Wheelbase	y (mm)	1900	
WEIGHT	2.1	Weight of truck in working order	kg	3986	4511
	2.2	Front axle load laden	kg		
	2.2.1	Rear axle load laden	kg		
	2.3	Front axle load unladen	kg		
	2.3.1	Rear axle load unladen	kg		
RUNNING CARRIAGE	3.1	Tyre equipment bandage (V), super-elastic (SE), pneumatic (L)		L	
	3.2	Size of front wheels	" or mm	12,5/80-18/12 SL R4	
	3.3	Size of rear wheels	" or mm	27x10-12 SKS	
	3.5	Number of front wheels (x = drive wheel)		2x	
	3.5.1	Number of rear wheels (x = drive wheel)		2x	
	3.6	Front track (middle of wheels)	b10 (mm)	1159	
	3.7	Rear track (middle of wheels)	b11 (mm)	1176	
DIMENSIONS	4.1	Tilt of mast forward	α (°)	12	
	4.1.1	Tilt of mast backward	β (°)	10	
	4.2	Height of mast lowered	h1 (mm)	2310	
	4.3	Normal free lift	h2 (mm)	102	107
	4.4	Lift height	h3 (mm)	3300	
	4.5	Height of extended mast	h4 (mm)	4062	
	4.7	Standard height of the overhead guard, cab or cab with air conditioning	h6 (mm)	2155	
	4.7	Lowered height of the overhead guard, cab or cab with air conditioning	h6* (mm)	1990	
	4.8	Height of seat	h7 (mm)	1094	
	4.12	Height of towing coupling	h10 (mm)	-	
	4.19	Total length	l1 (mm)	4195	4235
	4.20	Length of forks at heel	l2 (mm)	3045	3085
	4.21	Overall width	b1 (mm)	1450	
	4.22	Section of fork arms	s (mm)	40	45
	4.22.1	Width of fork arms	e (mm)	100	
	4.22.2	Length of fork arms	l (mm)	1200	
	4.23	Fork carriage (in accordance with standard DIN 15173 A/B)		FEM 2A	FEM 3A
	4.24	Width of fork carriage (with load backrest)	b3 (mm)	1260	
	4.31	Ground clearance of mast unladen	m1 (mm)	300	
	4.32	Ground clearance at centre of wheel-base unladen	m2 (mm)	310	
	4.33	Aisle width for 1000x1200 pallet widthways	Ast (mm)	5426	5461
	4.34	Turning radius	Wa (mm)	3405	3435

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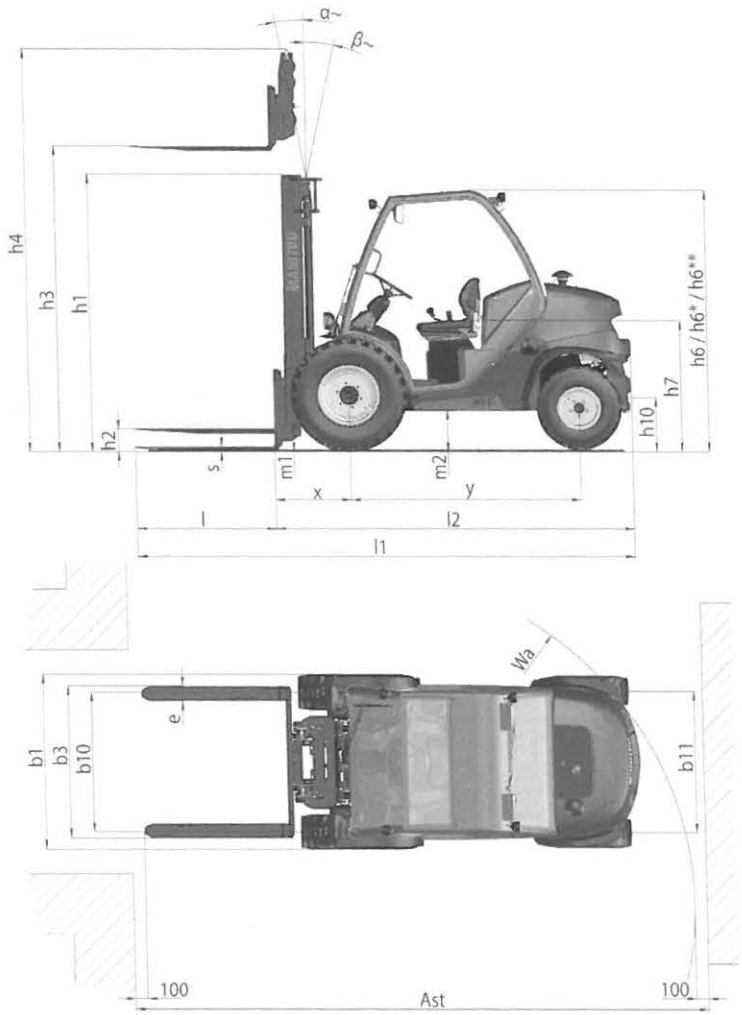
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

43PERFORMANCES	5.1	Speed of travel laden	km/h	12	
	5.1.1	Speed of travel unladen (2RM / 4RM)	km/h	25 / 14	
	5.2	Speed of rise laden	m/s	0.47	
	5.2.1	Speed of rise unladen	m/s	0.46	
	5.3	Speed of lowering laden	m/s	0.5	
	5.3.1	Speed of lowering unladen	m/s	0.3	
	5.5	Nominal towing power laden	daN	3275	3270
	5.5.1	Nominal towing power unladen	daN	2035	1860
	5.7	Slope laden	%	47	40
	5.7.1	Slope unladen	%	58	43
	5.8	Acceleration time unladen (2RM / 4RM)	s	13 / 7	
	5.9	Service brake		Low pressure hydraulic	
ENGINE SPECIFICATION	7.1	Engine manufacturer/Type		KUBOTA / V2403	
	7.2	Engine power (in accordance with ISO 1585)	kW	36.5	
	7.3	Rated speed	rpm	2700	
	7.4	Number of pistons/Capacity	cm^3	4 / 2434	
	7.5	Fuel consumption (according to VDIcycle)	l/h	6.1	
MISCELLANEOUS	8.1	Speed control		Cable	
	8.2	Working hydraulic pressure for attachments	Bars	230	
	8.3	Pump outlet oil flow rate	l/min	46	
	8.3	Oil flow rate for attachments	l/min	43	
	8.4	Sound level in the driver's ear (according to DIN 12053) (guard/cab)	db (A)	80	
	8.5	Guaranteed sound power level to the environment LWA (according to Directive 2000/14/EC modified by Directive 2005/88/EC)	db (A)	104	
	8.6	Average weighted acceleration on driver's body (according to standard NF EN 13059)	m/s	0.97	



647840 M4 (B092021)
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

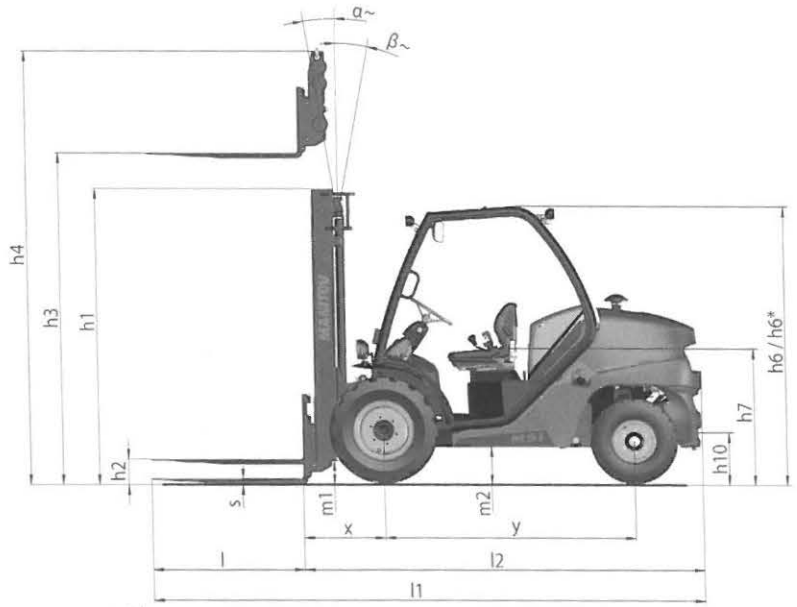
SPECIFICATIONS MSI-X 25... MSI-X 30... MSI-X 35...

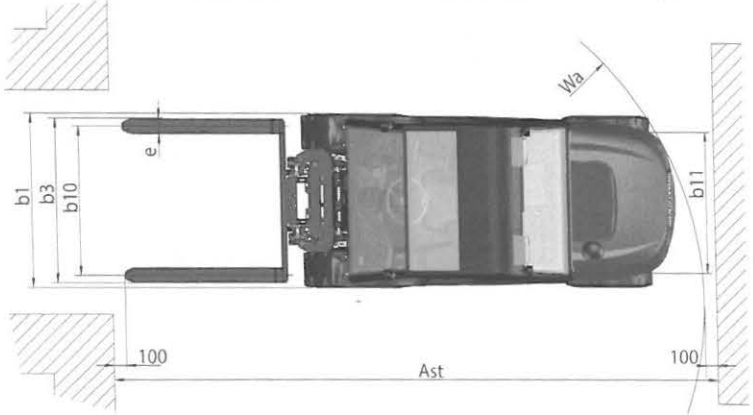
NOTE: The specifications given are not binding on the manufacturer and can be modified without prior notification.

DESIGNATION	1.1	Manufacturer		MANITOU		
	1.2	Model type / Serial no.		MSI-X 25 D K ST3A S1	MSI-X 30 D K ST3A S1	MSI-X 35 D K ST3A S1
	1.3	Propulsion: battery, diesel, petrol, LPG, mains		Diesel		
	1.4	Type of operation: manual, pedestrian, standing, seated		Seated		
	1.5	Rated capacity/load on forks (basic capacity)	Q (t)	2.5	3.0	3.5
	1.6	Centre of gravity of load	c (mm)	500		
	1.8	Distance from the load bearing surface to the centre of the front axle	x (mm)	621	626	631
	1.9	Wheelbase	y (mm)	1900		
WEIGHT	2.1	Weight of truck in working order	kg	3826	4323	4613
	2.2	Front axle load laden	kg			
	2.2.1	Rear axle load laden	kg			
	2.3	Front axle load unladen	kg			
	2.3.1	Rear axle load unladen	kg			
RUNNING CARRIAGE	3.1	Tyre equipment bandage (V), super-elastic (SE), pneumatic (L)		L		
	3.2	Size of front wheels	" or mm	300-15/18 6T P43		
	3.3	Size of rear wheels	" or mm	7.00-12/12 ED PLUS		
	3.5	Number of front wheels (x = drive wheel)		2x		
	3.5.1	Number of rear wheels (x = drive wheel)		2		
	3.6	Front track (middle of wheels)	b10 (mm)	1044		
	3.7	Rear track (middle of wheels)	b11 (mm)	1108		
DIMENSIONS	4.1	Tilt of mast forward	α (°)	12		
	4.1.1	Tilt of mast backward	β (°)	10		
	4.2	Height of mast lowered	h1 (mm)	2253		
	4.3	Normal free lift	h2 (mm)	76	81	81
	4.4	Lift height	h3 (mm)	3300		
	4.5	Height of extended mast	h4 (mm)	4005		
	4.7	Standard height of the overhead guard, cab or cab with air conditioning	h6 (mm)	2095		
	4.7	Lowered height of the overhead guard, cab or cab with air conditioning	h6* (mm)	1930		
	4.8	Height of seat	h7 (mm)	972		
	4.12	Height of towing coupling	h10 (mm)	-		
	4.19	Total length	l1 (mm)	4193	4234	4289
	4.20	Length of forks at heel	l2 (mm)	2993	3034	3139
	4.21	Overall width	b1 (mm)	1330		
	4.22	Section of fork arms	s (mm)	40	45	45
	4.22.1	Width of fork arms	e (mm)	100	100	125
	4.22.2	Length of fork arms	l (mm)	1200		
	4.23	Fork carriage (in accordance with standard DIN 15173 A/B)		FEM 2A	FEM 3A	FEM 3A
	4.24	Width of fork carriage (with load backrest)	b3 (mm)	1260		
	4.31	Ground clearance of mast unladen	m1 (mm)	260		
	4.32	Ground clearance at centre of wheel-base unladen	m2 (mm)	238		
	4.33	Aisle width for 1000x1200 pallet widthways	Ast (mm)	4641	4676	4711
	4.34	Turning radius	Wa (mm)	2620	2650	2680

647840 M4 (B092021)
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

PERFORMANCES	5.1	Speed of travel laden	km/h	18		
	5.1.1	Speed of travel unladen	km/h	22		
	5.2	Speed of rise laden	m/s	0.5		
	5.2.1	Speed of rise unladen	m/s	0.5		
	5.3	Speed of lowering laden	m/s	0.5		
	5.3.1	Speed of lowering unladen	m/s	0.3		
	5.5	Nominal towing power laden	daN	2010	2140	2070
	5.5.1	Nominal towing power unladen	daN	1250	1340	1380
	5.7	Slope laden	%	33	30	26
	5.7.1	Slope unladen	%	34	32	31
	5.8	Acceleration time unladen (2RM / 4RM)	s	-		
	5.9	Service brake		Low pressure hydraulic		
ENGINE SPECIFICATION	7.1	Engine manufacturer/Type		KUBOTA / V2403		
	7.2	Engine power (in accordance with ISO 1585)	kW	36.5		
	7.3	Rated speed	rpm	2700		
	7.4	Number of pistons/Capacity	cm^3	4 / 2434		
	7.5	Fuel consumption (according to VDIcycle)	l/h	5.2	5.3	5.3
MISCELLANEOUS	8.1	Speed control		Cable		
	8.2	Working hydraulic pressure for attachments	Bars	230		
	8.3	Pump outlet oil flow rate	l/min	51		
	8.3	Oil flow rate for attachments	l/min	48		
	8.4	Sound level in the driver's ear (according to DIN 12053) (guard/cab)	db (A)	80		
	8.5	Guaranteed sound power level to the environment LWA (according to Directive 2000/14/EC modified by Directive 2005/88/EC)	db (A)	104		
	8.6	Average weighted acceleration on driver's body (according to standard NF EN 13059)	m/s	0.86		





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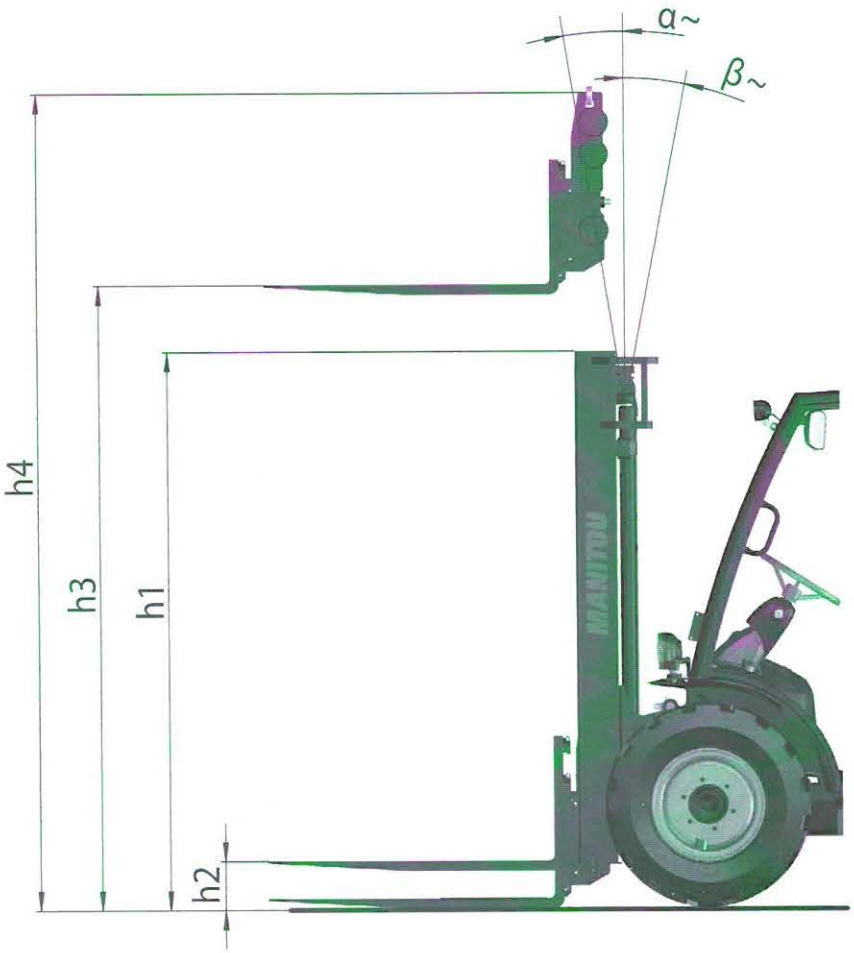
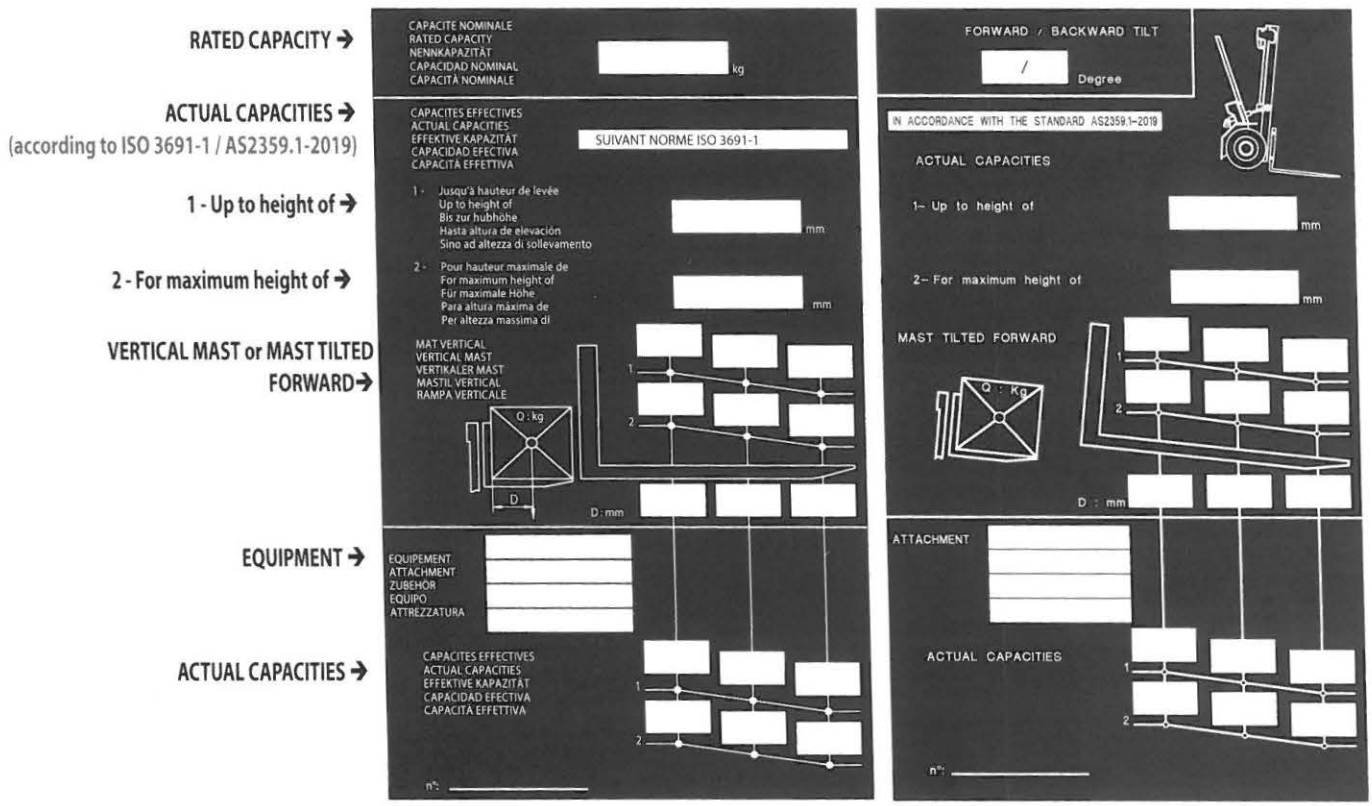
MC-X . . . D K ST3A S1 / MSI-X . . . D K ST3A S1

MC-X 25-2 D K ST3A S1 MC-X 25-4 D K ST3A S1	LIFTING MAST	FREE LIFT	HEIGHT OF MAST		TILTING	
	h3 (mm)	h2 (mm)	h1 (mm) lowered	h4 (mm) extended	FRONT α (°)	MISCELLANEOUS β (°)
DUPLEX TOTAL VISIBILITY	3300	112	2338	4090	12	10
	3700	112	2598	4490	12	10
	4500	112	3038	5290	12	10
TRIPLEX WITHOUT FREE LIFT	3300	124	1878	4079	12	10
TRIPLEX FREE LIFT	3400	1210	1988	4236	12	10
	3700	1310	2088	4536	12	10
	4000	1410	2188	4836	12	10
	4300	1510	2338	5168	12	10
	4700	1660	2438	5536	12	10
	5500	1920	2788	6408	6	6



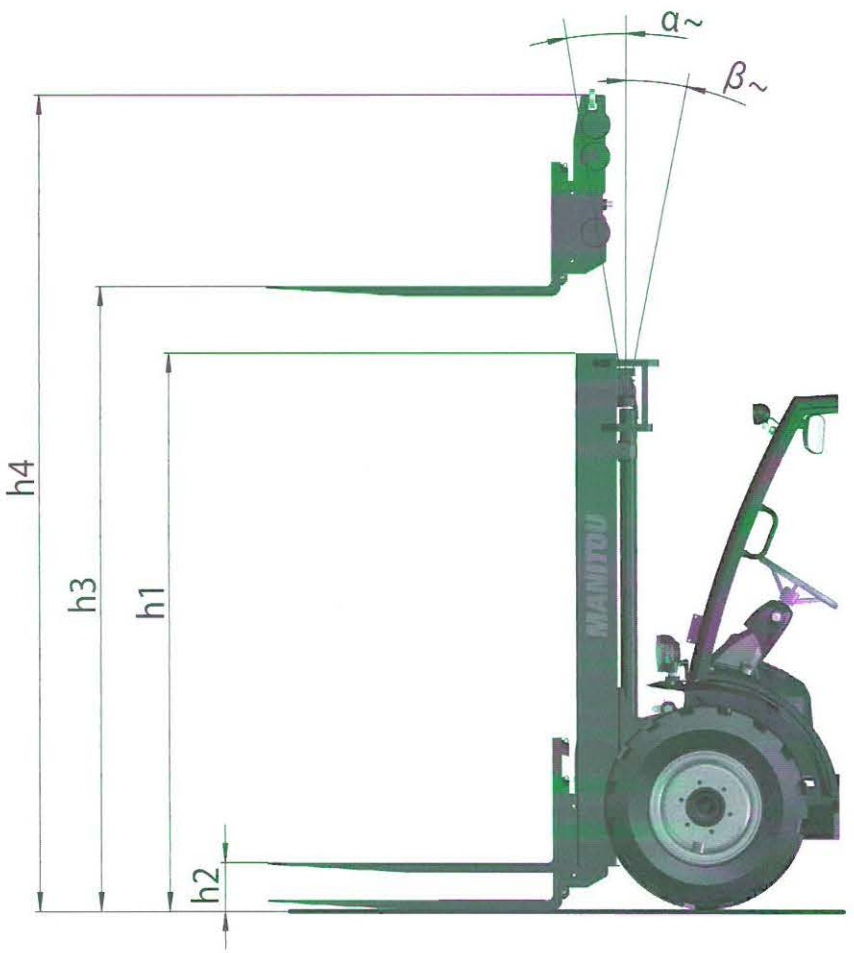
647840 M4 (B092021)
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

VALUES ON FORKS		VALUES WITH INTEGRATED SIDESHIFT ATTACHMENT	
Height at max. capacity (mm)	Capacity at max. height CoG at 500 mm (kg)	Height at max. capacity (mm)	Capacity at max. height CoG at 500 mm (kg)
3000	1900	3000	1800



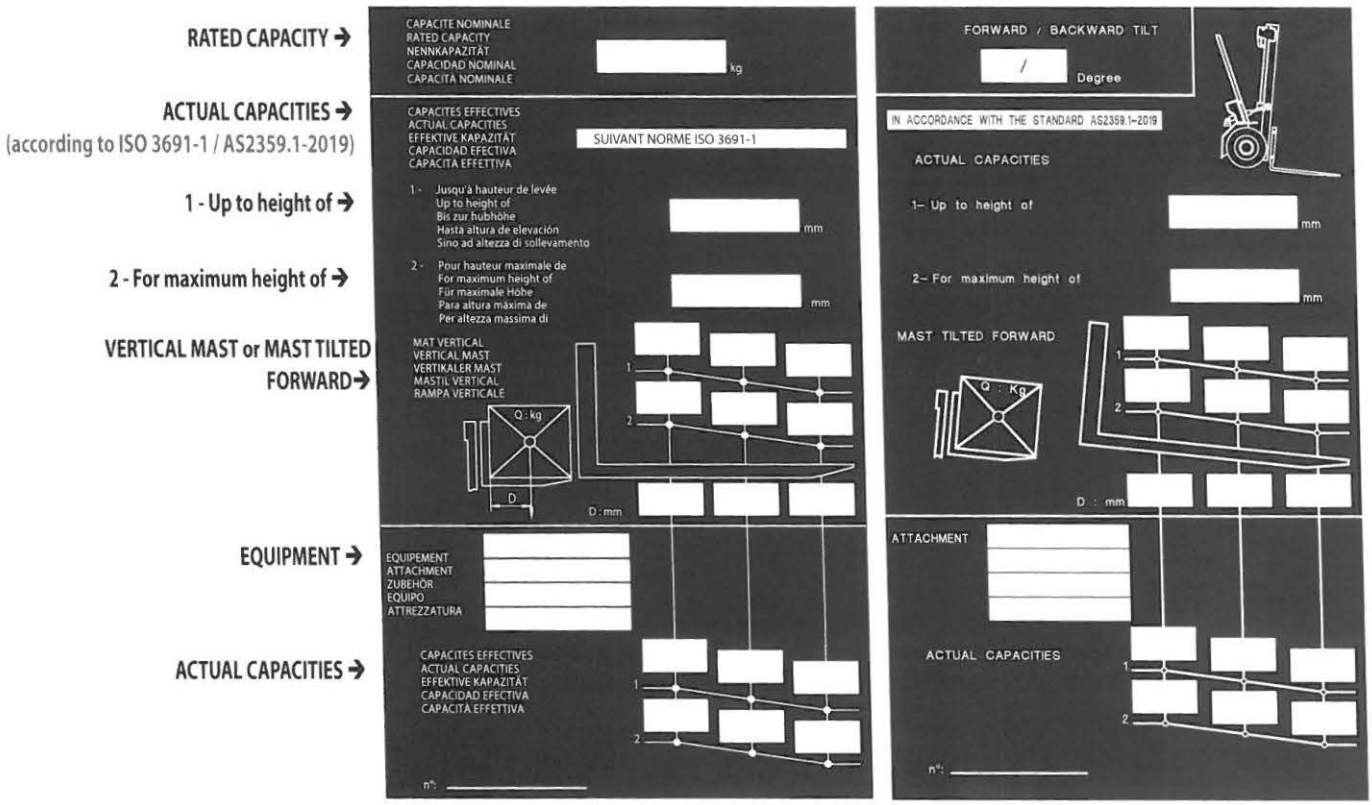
- The **"offroad" load chart (according to standard ISO 22915-13)** for use on natural, undeveloped, non-level ground or on construction sites.
- The **"industrial floor" load chart (according to standard ISO 22915-2)** for use on hard, smooth, flat and prepared surfaces.

MC-X 30-2 D K ST3A S1 MC-X 30-4 D K ST3A S1	LIFTING MAST	FREE LIFT	HEIGHT OF MAST		TILTING	
	h3 (mm)	h2 (mm)	h1 (mm) lowered	h4 (mm) extended	FRONT α (°)	MISCELLANEOUS β (°)
DUPLEX TOTAL VISIBILITY	3300	117	2338	4090	12	10
	3700	117	2598	4490	12	10
	4500	117	3038	5290	12	10
TRIPLEX WITHOUT FREE LIFT	3300	129	1878	4079	12	10
TRIPLEX FREE LIFT	3400	1235	1988	4236	12	10
	3700	1335	2088	4536	12	10
	4000	1435	2188	4836	12	10
	4300	1585	2338	5136	12	10
	4700	1685	2438	5536	12	10
	5500	2035	2788	6336	6	6



647840 M4 (B092021)
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

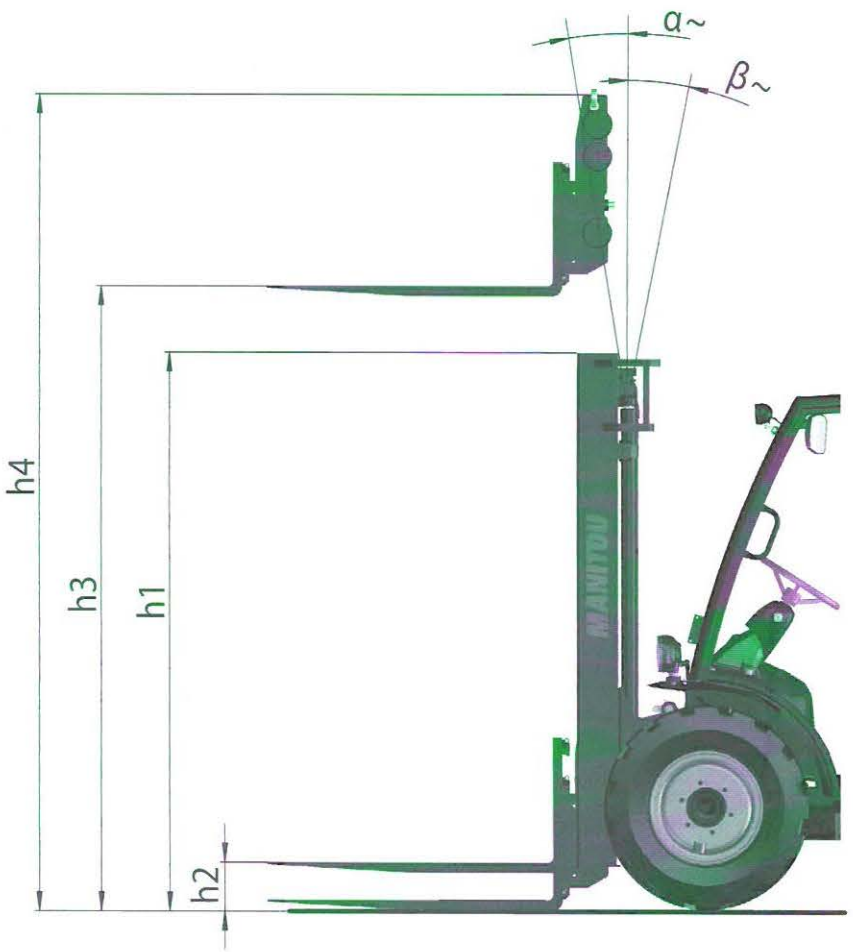
VALUES ON FORKS		VALUES WITH INTEGRATED SIDESHIFT ATTACHMENT	
Height at max. capacity (mm)	Capacity at max. height CoG at 500 mm (kg)	Height at max. capacity (mm)	Capacity at max. height CoG at 500 mm (kg)
2700	1750	2700	1800



- The **"offroad" load chart (according to standard ISO 22915-13)** for use on natural, undeveloped, non-level ground or on construction sites.
- The **"industrial floor" load chart (according to standard ISO 22915-2)** for use on hard, smooth, flat and prepared surfaces.

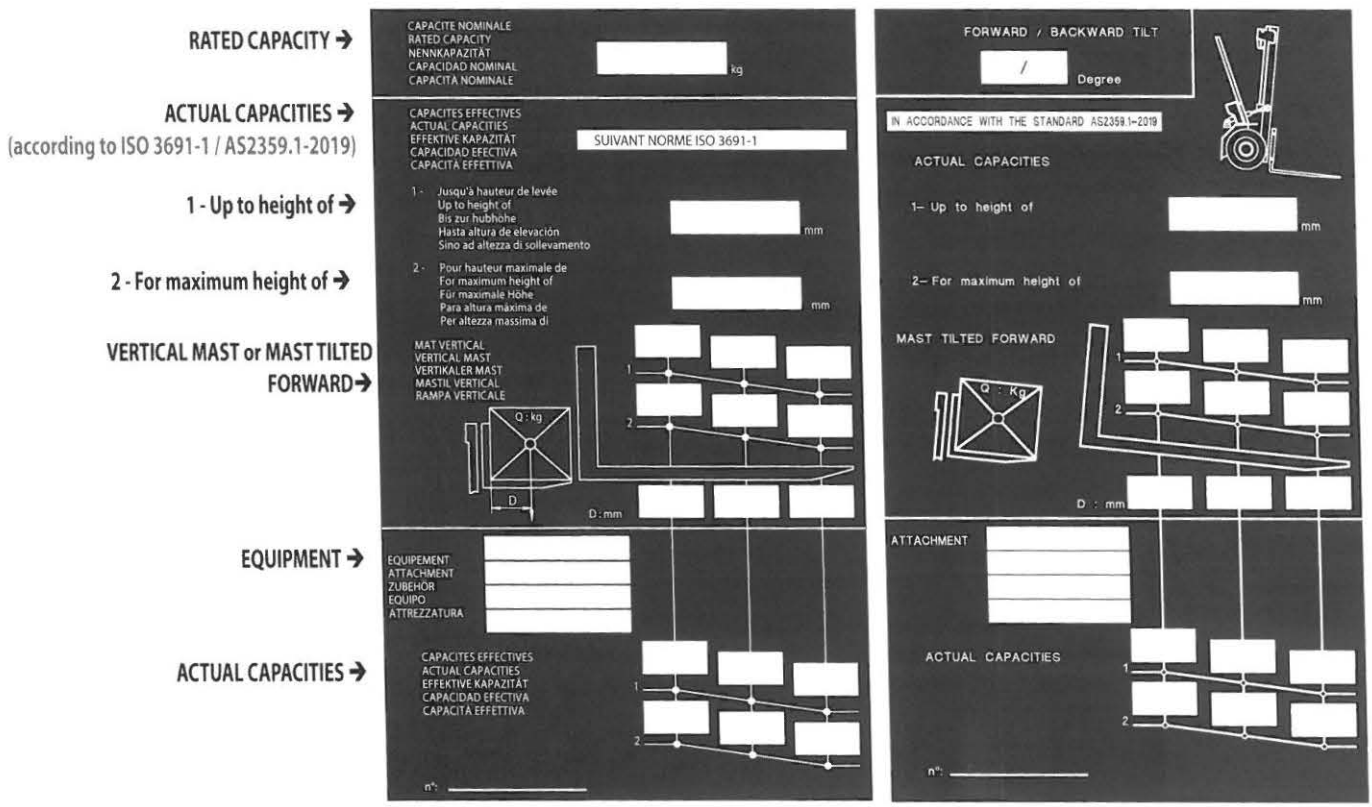
647840 M4 (B092021)
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

MSI-X 25 D K ST3A S1	LIFTING MAST	FREE LIFT	HEIGHT OF MAST		TILTING	
	h3 (mm)	h2 (mm)	h1 (mm) lowered	h4 (mm) extended	FRONT α (°)	MISCELLANEOUS β (°)
DUPLEX TOTAL VISIBILITY	3000	85	2136	3738	12	10
	3300	85	2286	4038	12	10
	3700	85	2546	4438	12	10
	4000	85	2736	4738	12	10
	4500	85	2986	5238	12	10
TRIPLEX WITHOUT FREE LIFT	3300	72	1826	4027	12	10
TRIPLEX FREE LIFT	3400	1183	1936	4184	12	10
	3700	1283	2036	4484	12	10
	4000	1383	2136	4784	12	10
	4300	1483	2286	5116	12	10
	4700	1633	2386	5484	12	10
	5500	1893	2736	6356	6	6
	6000	2083	2986	6916	6	6

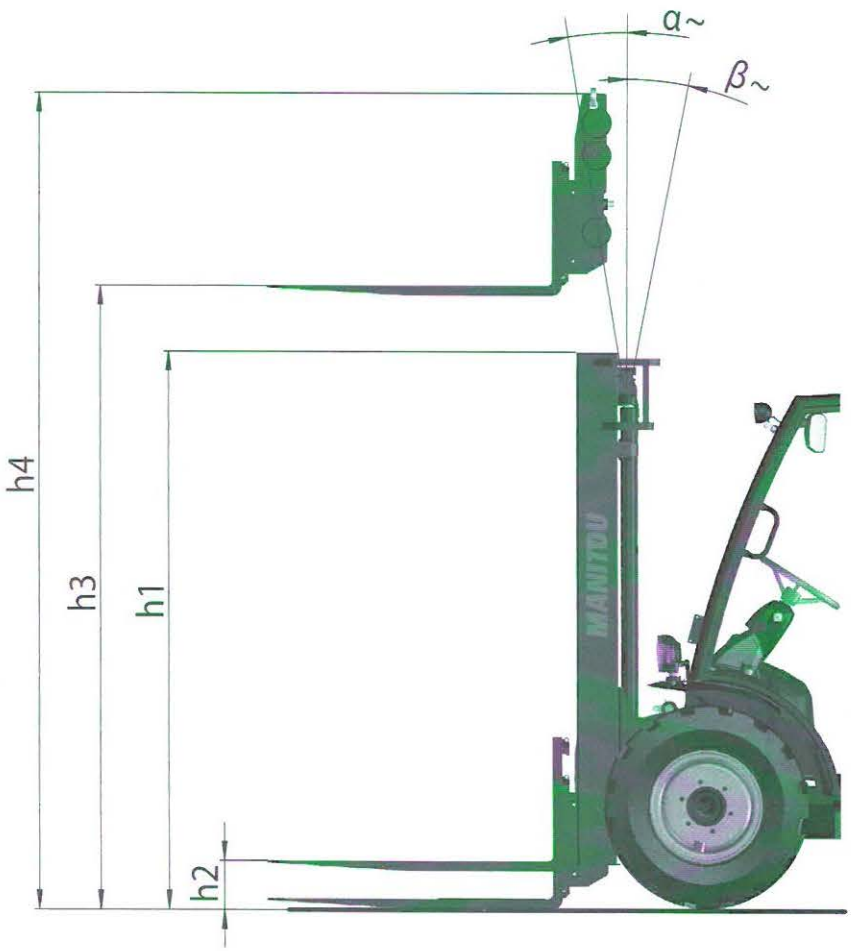


647840 M4 (B092021)
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

	VALUES ON FORKS		VALUES WITH INTEGRATED SIDESHIFT ATTACHMENT	
	Height at max. capacity (mm)	Capacity at max. height CoG at 500 mm (kg)	Height at max. capacity (mm)	Capacity at max. height CoG at 500 mm (kg)
	3000	2500	3000	2500
	3300	2500	3300	2500
	3400	2500	3400	2500
	3700	2500	3700	2500
	4000	2500	4000	2500
	4300	2500	4300	2500
	4700	2500	4700	2500

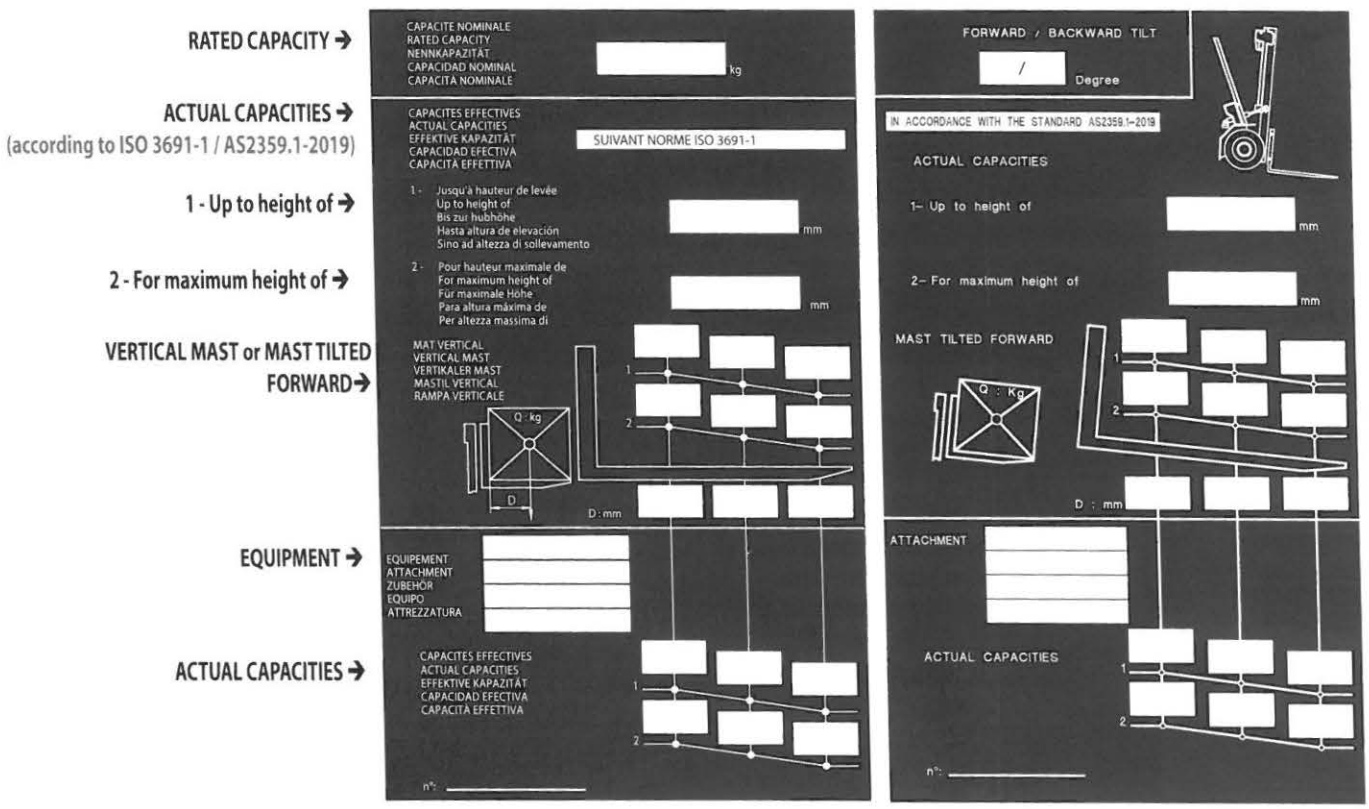


MSI-X 30 D K ST3A S1	LIFTING MAST	FREE LIFT	HEIGHT OF MAST		TILTING	
	h3 (mm)	h2 (mm)	h1 (mm) lowered	h4 (mm) extended	FRONT α (°)	MISCELLANEOUS β (°)
DUPLEX TOTAL VISIBILITY	3000	90	2136	3738	12	10
	3300	90	2286	4038	12	10
	3700	90	2546	4438	12	10
	4000	90	2736	4738	12	10
	4500	90	2986	5238	12	10
TRIPLEX WITHOUT FREE LIFT	3300	77	1826	4027	12	10
TRIPLEX FREE LIFT	3400	1208	1936	4184	12	10
	3700	1308	2036	4484	12	10
	4000	1408	2136	4784	12	10
	4300	1558	2286	5084	12	10
	4700	1658	2386	5484	12	10
	5500	2008	2736	6284	6	6
	6000	2258	2986	6784	6	6

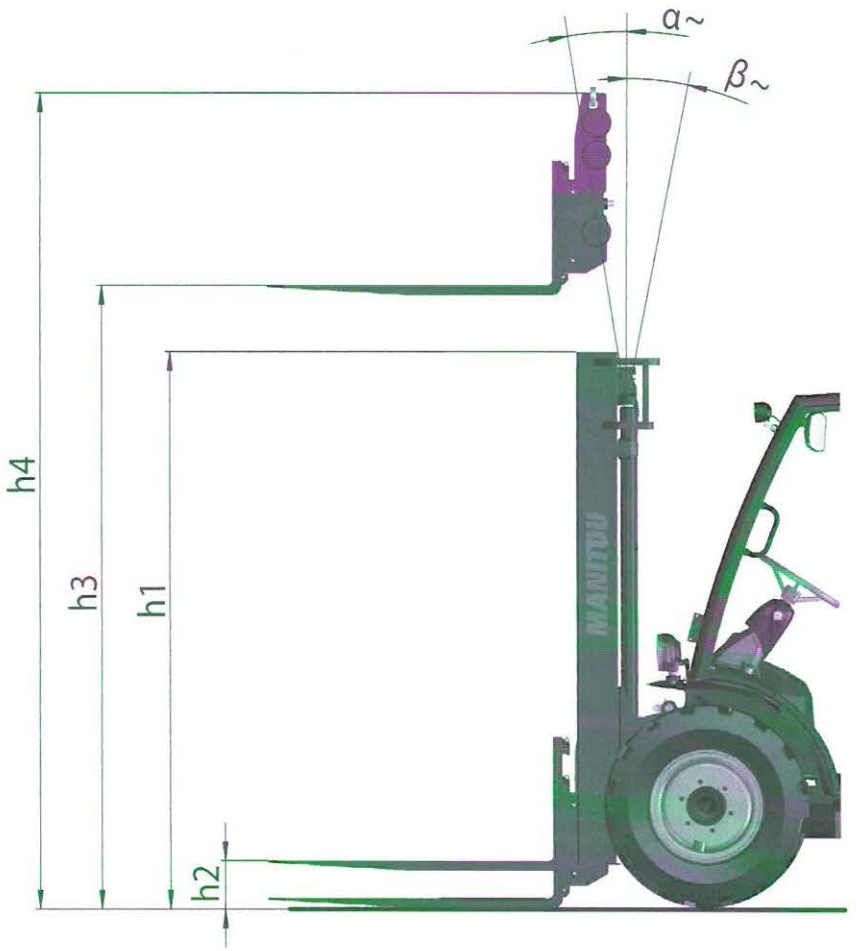


647840 M4 (B092021)
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

	VALUES ON FORKS		VALUES WITH INTEGRATED SIDESHIFT ATTACHMENT	
	Height at max. capacity (mm)	Capacity at max. height CoG at 500 mm (kg)	Height at max. capacity (mm)	Capacity at max. height CoG at 500 mm (kg)
	3000	3000	3000	3000
	3300	3000	3300	3000
	3400	3000	3400	3000
	3700	3000	3700	3000

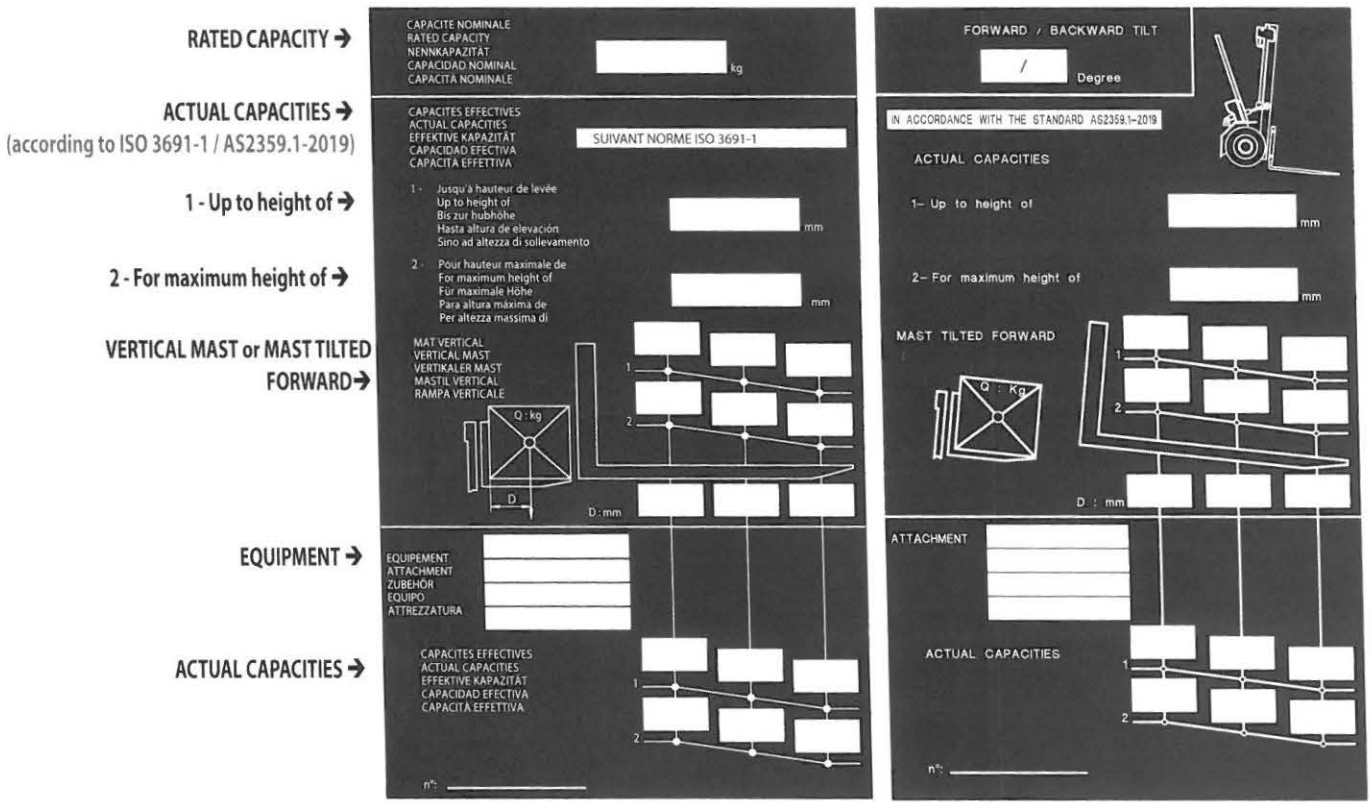


MSI-X 35 D K ST3A S1	LIFTING MAST	FREE LIFT	HEIGHT OF MAST		TILTING	
	h3 (mm)	h2 (mm)	h1 (mm) lowered	h4 (mm) extended	FRONT α (°)	MISCELLANEOUS β (°)
DUPLEX TOTAL VISIBILITY	3000	90	2136	3738	12	10
	3300	90	2286	4038	12	10
	3700	90	2546	4438	12	10
	4000	90	2736	4738	12	10
	4500	90	2986	5238	12	10
TRIPLEX FREE LIFT	3400	1208	1936	4184	12	10
	3700	1308	2036	4484	12	10
	4000	1408	2136	4784	12	10
	4300	1558	2286	5084	12	10
	4700	1658	2386	5484	12	10
	5500	2008	2736	6284	6	6
	6000	2258	2986	6784	6	6



647840 M4 (B092021)
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

	VALUES ON FORKS		VALUES WITH INTEGRATED SIDESHIFT ATTACHMENT	
	Height at max. capacity (mm)	Capacity at max. height CoG at 500 mm (kg)	Height at max. capacity (mm)	Capacity at max. height CoG at 500 mm (kg)
	3000	3500	3000	3500
	3300	3500	3300	3500
	3400	3500	3400	3500
	3700	3500	3700	3500



TYRES

FRONT

		PRESSURE (bar) LOAD PER TYRE (kg)	MC-X 25-2 D	MC-X 25-4 D	MC-X 30-2 D	MC-X 30-4 D	MSI-X 25 D	MSI-X 30 D	MSI-X 35 D
SOLIDEAL/ CAMSO	12,5/80-18/12 SL R4	PRESSURE	3,7	3,7	3,7	3,7			
		Front unladen							
		Front laden							
	300-15/18 ED PLUS	PRESSURE					8	8	8
		Front unladen							
		Front laden							
CONTINENTAL	275/80R20 14PR	PRESSURE	5,3	5,3	5,6	5,6			
		Front unladen							
		Front laden							
	315/70 R15 22PR RT20	PRESSURE					10	10	10
		Front unladen							
		Front laden							
	300-15 22PR IC40	PRESSURE					10	10	10
		Front unladen							
		Front laden							
	315/70 -15/8.0 SC20 M+ PPS	PRESSURE					SOLID	SOLID	SOLID
		Front unladen							
		Front laden							
ALIANCE	300/75 R18 A580	PRESSURE	4,4	4,4	4,8	4,8			
		Front unladen							
		Front laden							
DUNLOP	15.5/55 R18 MPT SPPG7 14PR	PRESSURE	4	4	4	4	4	4	4
		Front unladen							
		Front laden							
BKT	12.5/80-18 TL12	PRESSURE		3,7		3,7			
		Front unladen							
		Front laden							

647840 M4 (B092021)
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

REAR

		PRESSURE (bar) LOAD PER TYRE (kg)	MC-X 25-2 D	MC-X 25-4 D	MC-X 30-2 D	MC-X 30-4 D	MSI-X 25 D	MSI-X 30 D	MSI-X 35 D
SOLIDEAL/ CAMSO	7.00-12/12 ED PLUS	PRESSURE	8,5		8,5		8,5	8,5	8,5
		Rear unladen							
		Rear laden							
	27x10-12 14PR SKS	PRESSURE		8,3		8,3			
		Rear unladen							
		Rear laden							
CONTINENTAL	27-10-12 14PR IC12	PRESSURE	4,5		4,5				
		Rear unladen							
		Rear laden							
	27-10-12 14PR IC30	PRESSURE		7		7			
		Rear unladen							
		Rear laden							
	7.00 R12 16PR RT20	PRESSURE					10	10	10
		Rear unladen							
		Rear laden							
	7.00-12 14 PR IC40	PRESSURE					5,3	6,7	7,5
		Rear unladen							
		Rear laden							
	7.00-12 SC20 M+ S PPS	PRESSURE					SOLID	SOLID	SOLID
		Rear unladen							
		Rear laden							
BKT	10/80-12 TL10	PRESSURE		3,9		3,9			
		Rear unladen							
		Rear laden							

647840 M4 (B092021)
MC-X . . . D K ST3A S1 / MSI-X . . . D K ST3A S1

		PRESSURE (bar)	LOAD (kg)	GROUND CONTACT PRESSURE (kg/cm2)		GROUND CONTACT AREA (cm2)	
				HARD GROUND	SOFT GROUND	HARD GROUND	SOFT GROUND
SOLIDEAL/CAMSO	12,5/80-18/12 SL R4	3,7					
	300-15/18 ED PLUS	8					
	7.00-12/12 ED PLUS	8,5					
	27x10-12 14PR SKS	8,3					
ALIANCE	300/75 R18 A580	4,4					
		4,8					
DUNLOP	15.5/55 R18 MPT SPPG7 14PR	4					
BKT	12.5/80-18 TL12	3,7					
	10/80-12 TL10	3,9					

647840 M4 (B092021)
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

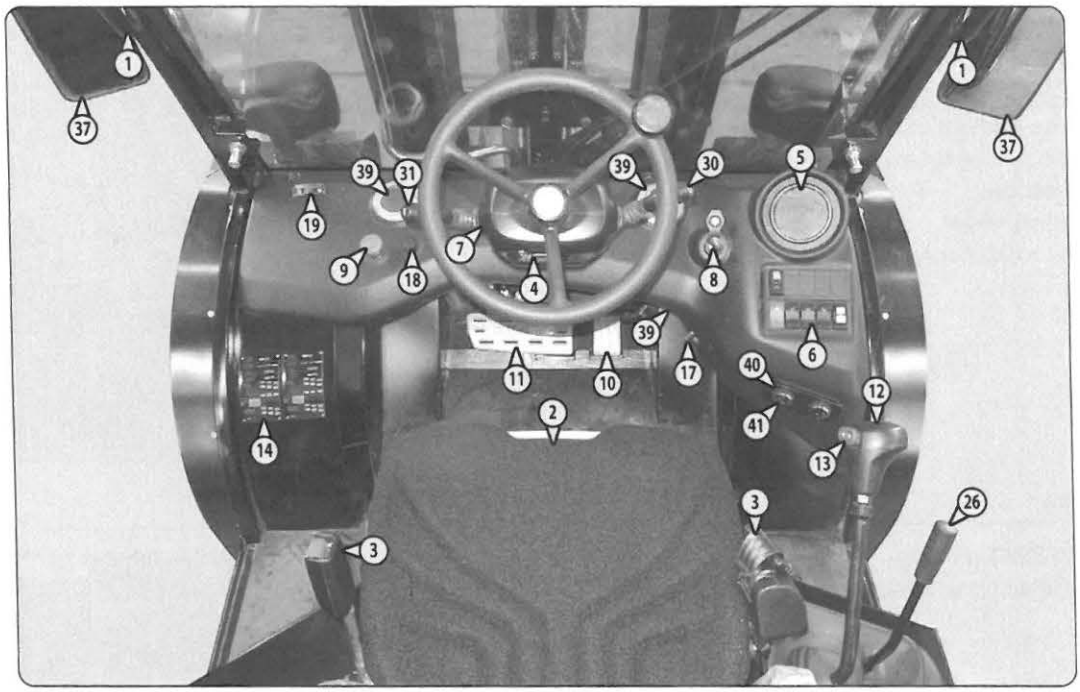
		PRESSURE (bar)	LOAD (kg)	GROUND CONTACT PRESSURE (kg/cm2)		GROUND CONTACT AREA (cm2)	
				HARD GROUND	SOFT GROUND	HARD GROUND	SOFT GROUND
CONTINENTAL	275/80R20 14PR	5,3					
		5,6					
	315/70 R15 22PR RT20	10					
	300-15 22PR IC40	10					
	315/70 -15/8.0 SC20 M+ PPS	SOLID					
	27-10-12 14PR IC12	4,5					
	27-10-12 14PR IC30	7					
	7.00 R12 16PR RT20	10					
	7.00-12 14 PR IC40	5,3					
		6,7					
		7,5					
	7.00-12 SC20 M+ S PPS	SOLID					

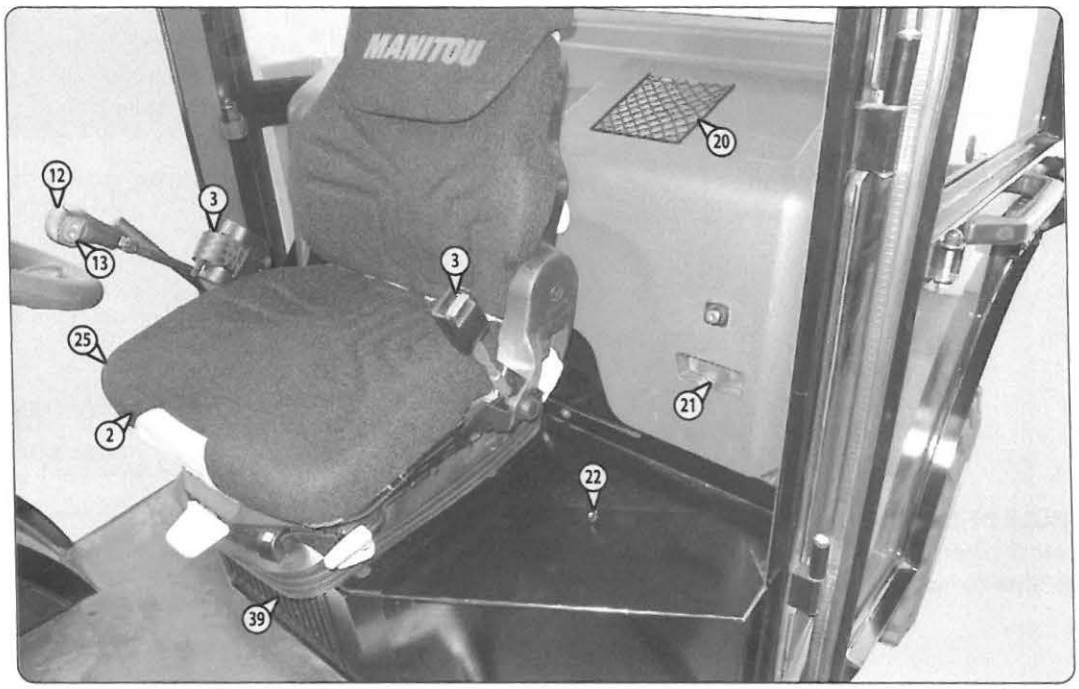
NOTE: All the terms such as: RIGHT, LEFT, FRONT, REAR are as seen by an observer occupying the driver's seat and looking straight ahead.

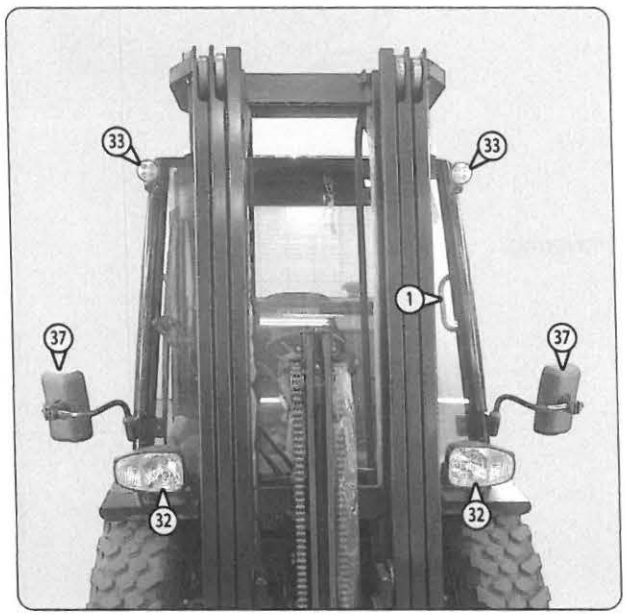
DESCRIPTION (standard)

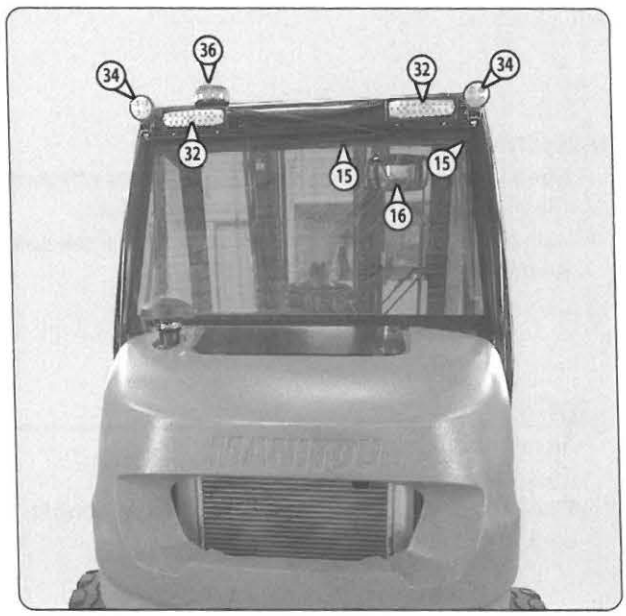
DESCRIPTION (option)

647840 M4 (B092021)
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1









647840 M4 (B092021)
MC-X . . . D K ST3A S1 / MSI-X . . . D K ST3A S1

DESCRIPTION (standard)

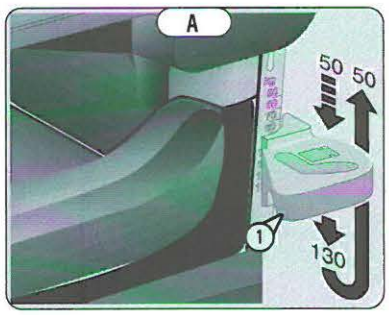
1 - DRIVER'S CAB ACCESS

- Getting into and out of the driver's cab.
- Use the three support points provided.
  1 - Left handle.
  2 - Steering wheel.
  3 - Driver's cab floor.

2 - DRIVER'S SEAT

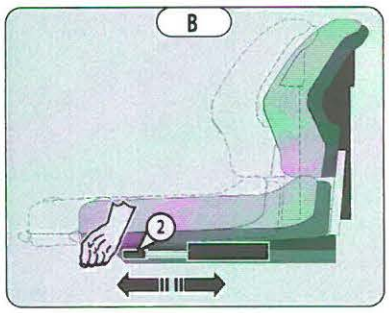
ADJUSTING WEIGHT (FIG. A)

- Lower the lever (1) to the desired position.



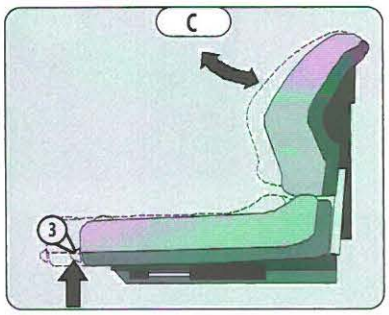
ADJUSTING DEPTH (FIG. B)

- Pull lever 2, then move the seat forward or backward into the desired position.
- Release the lever to lock it.



ADJUSTING ANGLE OF BACKREST (FIG. C)

- Pull the lever (3), then tilt the backrest to the desired position.
- Release the lever to lock it.



MAINTENANCE

- Keep your seat clean to ensure it operates efficiently
- Clean the cushions using a suitable product.
- Apply to a small hidden area first, to check the colour-fastness of covering.
- Avoid wetting the cushions.

3 - SEAT BELT

- Sit correctly on the seat.
- Check the condition of the seat belt.
- Place the seat belt at hip level, without twisting it.
- Lock the seat belt.

647840 M4 (B092021)
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

4 - STEERING WHEEL ADJUSTMENT LEVER

- Pull the handle (1) to adjust the steering wheel.
- Push in the handle (1) to lock the steering wheel in the desired position.

5 - DASHBOARD HANDSET

CONTROL INSTRUMENTS

A - HOUR METER

B - FUEL LEVEL

Red zone B1 indicates that you are using the reserve supply and that time of use is limited.

SIGNAL LIGHTS

When the lift truck ignition is switched on, all the red indicator lights and the buzzer on the dashboard should light up.

RED LAMP - HYDRAULIC RETURN FILTER CLOGGED

This lamp may come on when starting the lift truck and in cold weather. It should go off when the hydraulic fluid has reached its operating temperature.

- Stop the lift truck and carry out the necessary repairs (◁ MAINTENANCE).

NOT USED

RED ENGINE WATER TEMPERATURE LAMP

- Stop the engine immediately and search the for the cause of the malfunction in the cooling circuit.

RED PARKING BRAKE INDICATOR LAMP

The parking brake is applied.

RED BATTERY CHARGE FAULT INDICATOR LAMP

- Switch off the engine immediately and check the electrical circuit and the alternator belt.

RED ENGINE OIL PRESSURE WARNING INDICATOR LAMP

- Switch off the engine immediately and search for the cause (check engine oil level, etc.).

RED AIR FILTER CLOGGING INDICATOR LAMP

- Stop the lift truck and carry out the necessary repairs (◁ MAINTENANCE).

BLUE MAIN BEAM LAMP (OPTION)

GREEN INDICATOR LAMP (OPTION)

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MC-X ... D K ST3A S1 / MSI-X ... D K ST3A S1

6 - SWITCHES

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

A - PARKING BRAKE

- Press the top of the switch to apply the parking brake. The indicator lamp lights up.
- Lower button A1 and press the bottom of the switch to disengage the parking brake.

B - OPTION

C - OPTION

Only for MC-X . . -2
MSI-X . .

C - SWITCHING TO 4WD (low speed) **<-> 2WD** (high speed)

Only for MC-X . . -4

When starting the lift truck, low speed (14 km/h - 4WD) is automatically selected.

- Press the top of the switch for 2 seconds to activate fast speed (24 km/h - 2WD) . The green indicator lamp on the top of the switch will come on.
- Press the bottom of the switch for 2 seconds to activate slow speed (14 km/h - 4WD) . The green indicator lamp on the bottom of the switch will come on.

CONDITIONS OF USE

	FORWARD/REVERSE SELECTOR		
	Forward gear	**Neutral**	**Reverse gear**
(14 km/h) **4WD --> 2WD** (24 km/h)	Permitted (*)	Permitted (*)	Impossible
(24 km/h) **2WD --> 4WD** (14 km/h)	Permitted (**)	Permitted (**)	Permitted (**)

(*) After minimum 2 seconds.

(**) With the lift truck stopped, press the service brake pedal down for 2 seconds before performing the manoeuvre.

D - OPTION

Only for MC-X . . -2
MSI-X . .

D - DIFFERENTIAL LOCK

Only for MC-X . . -4

If skidding occurs, the differential lock improves traction, whatever the ground conditions (slippery or soft surface, etc.).

- Keep the switch in the bottom position to enable the 4 drive wheels to rotate at the same speed.

E - OPTION

F - HAZARD WARNING LIGHTS OPTION

- Press the top of the switch to turn on the hazard warning lights . The top red indicator lamp will come on.

G - FRONT WORKLIGHTS OPTION

- Press the top of the switch to turn on the headlights . The top red indicator lamp will come on.

H - ROTATING BEACON LIGHT OPTION

- Press the top of the switch to turn on the rotating beacon light . The top red indicator lamp will come on.

I - REAR WORKLIGHTS OPTION

- Press the top of the switch to turn on the headlights . The top red indicator lamp will come on.

J - REAR DEFROST OPTION

- Press the top of the switch to demist the rear window . The top red indicator lamp will come on.

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MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

7 - HORN

8 - IGNITION KEY

This switch has 4 positions:

- P - Ignition off, parking position.
- O - Ignition cut off and engine stopped.
- I - Ignition and preheat.
- II - Start-up and return to position I as soon as the key is released.

9 - EMERGENCY STOP

- Press the button (1) to stop the lift truck.
- Turn the button to unlock the emergency stop.

10 - ACCELERATOR PEDAL

11 - BRAKE AND "INCHING" TRANSMISSION CUT-OFF PEDAL

This pedal operates in two steps:

- 1 - Gradually press on the cut-off pedal, which cuts off the hydrostatic transmission so as to carry out a slow approach with all the engine output.
- 2 - Continue to press the pedal gradually to stop the lift truck.

12 - HYDRAULIC CONTROLS

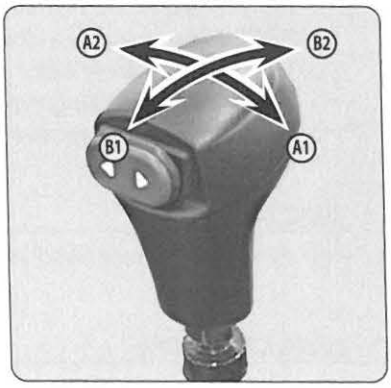
⚠ IMPORTANT ⚠

In the event of a malfunction, consult your dealer.
For your own safety, do not attempt to alter the hydraulic pressure in the system.
ANY MODIFICATION WILL INVALIDATE THE WARRANTY.

The hydraulic controls must be used carefully without jerking, to avoid accidents caused by shaking the lift truck.

Using the hydraulic controls is only possible if the driver is present and seated correctly in the seat.

If the operator is not present in the seat, the hydraulic controls are frozen.



A1 - LIFTING

NOTE: Engine speed automatically increases. (Standard for MSI-X / Optional for MC-X)

A2 - LOWERING

B1 - CROWD

B2 - DUMP

647840 M4 (B092021)
MC-X . . . D K ST3A S1 / MSI-X . . . D K ST3A S1

13 - FORWARD/NEUTRAL/REVERSE GEAR SELECTION

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

To start the lift truck, the switch must be in neutral.

A - FORWARD GEAR

- Press the front of the switch.

B - REVERSE GEAR

- Press the back of the switch.

NOTE: A reversing alarm and a reversing light are available as an option.

C - NEUTRAL

- Lightly press the front or back of the switch.

SAFETY FOR MOVING THE LIFT TRUCK

Movement of the lift truck is only authorised if the operator is present.

To move the lift truck, the following sequence must be observed:

- 1 - Sit correctly in the driver's seat,
- 2 - Fasten the seat belt,
- 3 - Release the parking brake,
- 4 - Engage forward or reverse gear.

To stop the lift truck, the following sequence must be observed:

- 1 - Put the gear lever in neutral,
- 2 - Engage the parking brake,
- 3 - Remove the seat belt,
- 4 - Get out of the lift truck.

If the operator leaves the driver's cab with forward or reverse gear in operation:

- The alarm sounds continuously, the operator may sit back in the seat and continue moving.
- If the alarm sounds discontinuously, the operator must sit back in the seat and reset the forward/reverse selector to neutral before continuing to move.

NOTE: As an option, a safety device on the seat belt fastener prevents movement. A beep signals it is in operation.

AUSTRALIAN SPECIFICATION

If the operator leaves the driver's cab with forward or reverse gear in operation:

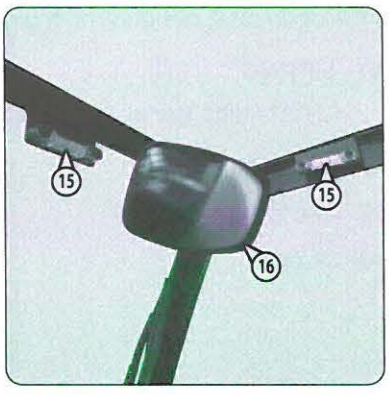
- If the alarm sounds continuously, the operator may sit back in the seat and continue moving.
- If the alarm sounds discontinuously, the operator must, before continuing to move:
  - 1 - Reset the forward/reverse selector to neutral,
  - 2 - Sit down correctly in the driver's seat,
  - 3 - Fasten the safety belt,
  - 4 - Release the parking brake,
  - 5 - Engage forward or reverse gear.

14 - LOAD CHARTS

For your safety, and before handling any load, consult the load charts provided in the driver's cab.

15 - LEVEL INDICATORS

Standard for MC-X/Optional for MSI-X



For your safety, and before handling any load, ensure that the lift truck is level.

16 - INTERNAL REAR-VIEW MIRROR

647840 M4 (B092021)
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

17 - BATTERY CUT-OFF

Enables the battery to be rapidly cut off from the electric circuit in the event of a short circuit or a fire.

18 - 12V SOCKET

NOTE: As an option there is a reading light for a 12 V socket.

19 - DOCUMENT CLIP

20 - DOCUMENT STORAGE NET

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

NOTE: As an option there is a waterproof document holder.

21 - MOTOR COVER PANEL

NOTE: Cab option, open the side doors before opening the engine cover.

To open the engine cover:

- Fold the seat backrest onto the seat.
- Move the seat forward as far as possible.
- Press the button (1) and lift the cover using the handle (2).
- Gain access to the engine compartment to service the lift truck, as well as to the fuses and relays.

22 - BATTERY COVER

- Turn the thumb wheel (1).
- Remove the battery cover (2).

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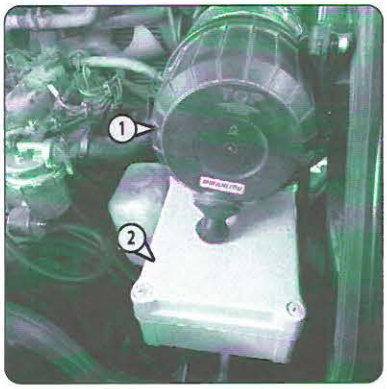
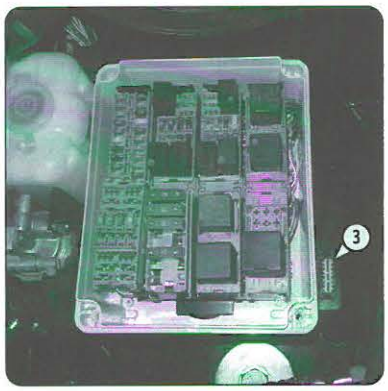
MC-X . . . D K ST3A S1 / MSI-X . . . D K ST3A S1

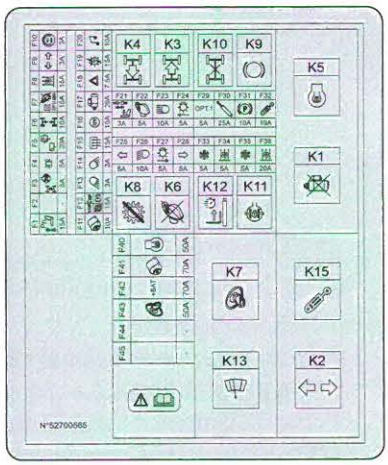
23 - FUSES AND RELAYS

- Open the engine cover (◁ INSTRUMENTS AND CONTROLS).
- Remove the air filter cover (1) and the cartridge.
- Loosen the screws and remove the cover (2) from the fuse and relay box.

NOTE: For hydraulic control joystick option, remove the cover to access the diagnostics plug 3.







Fuses

⚠ IMPORTANT ⚠

Replace the faulty fuse with a new fuse with the same rating.

F1	3A	Dashboard handset
F2	3A	Indicator lights (option)
F3	15A	Ventilation/heating (option)
F4	15A	Hydraulic movement cut-off ISO 3691 Diagnostics plug (option) Joystick hydraulic controls General ECU (option) Joystick hydraulic controls
F5	10A	Forward/reverse electrovalve
F6	20A	Front/rear windscreen wiper + washer (option)
F7	5A	Rotating beacon light (option)
F8	5A	Differential lock indicator lamp MC-X..-4 4WD -> 2WD indicator lamp MC-X..-4
F9	-	Free
F10	15A	Pneumatic seat (option)
F11	10A	Alternator
F12	15A	Parking brake Audible alarm Transmission cut-off Stop switch (option)
F13	3A	Front working lights (option)
F14	3A	Rear working lights (option)
F15	15A	Rear windscreen defrost (option)
F16	10A	12V socket (with ignition on)
F17	20A	Starter
F18	7,5A	Hazard warning lights (option)
F19	15A	Lighting control (option)
F20	10A	Car radio (option)
F21	3A	Driver/seat belt presence
F22	5A	Diagnostics plug power supply (option) General ECU power supply (option)
F23	10A	Main beam headlights (option)
F24	5A	Left hand sidelight (option)
F25	5A	Left indicator lights (option)
F26	10A	Dipped beam headlights (option)
F27	5A	Right hand sidelight (option)
F28	5A	Right indicator lights (option)
F29	5A	Immobiliser (option)
F30	25A	Electrovalves 3rd, 4th and 5th hydraulic lines (option) Joystick hydraulic controls
F31	10A	Hand brake electrovalve
F32	10A	Controls 4th and 5th hydraulic lines (option) Standard hydraulic controls
F33	5A	Ventilation/heating control lighting (option)
F34	20A	Air conditioning condenser fan (option)
F35	5A	Air conditioning compressor (option)
F36	5A	Heating/air conditioning block (option)
F40	50A	Engine preheat
F41	70A	Alternator
F42	70A	12 V permanent
F43	50A	12 V (ignition on) General power supply

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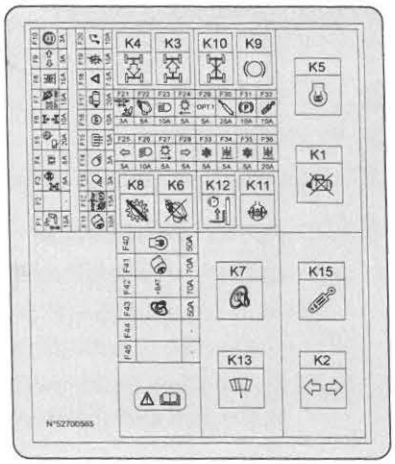
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

Relay

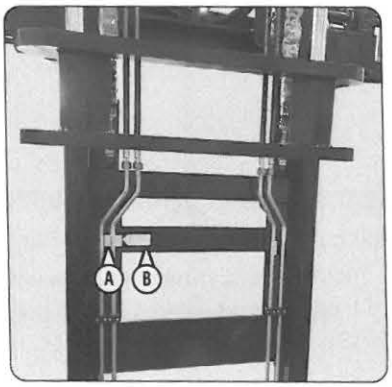
K1		Start safety
K2		Flashing light unit (option)
K3		Forward gear
K4		Reverse gear
K5		Engine preheat
K6		Hydraulic movement cut-off ISO3691. Standard hydraulic controls
K7		General power supply
K8		Transmission cut-off on brake pedal
K9		Braking
K10		4WD -> 2WD MC-X..-4
K11		Differential lock MC-X..-4
K12		Lifting acceleration MSI-X / (option) MC-X
K13		Intermittent windscreen wiper (option)
K15		Hydraulic controls 4th and 5th hydraulic lines (option) Standard hydraulic controls



24 - HEIGHT INDICATOR

The height indicator is composed of a fixed indicator A and a mobile indicator B. Use these indicators to read the load charts.

- If indicator B is below or level with indicator A, load chart values of the category "1 - Up to height of" are applicable.
- If indicator B is above indicator A, load charts values are of the category "2 - For a maximum height" are applicable..



25 - DRIVER'S SEAT

DRIVER'S SEAT "CLASSIC"

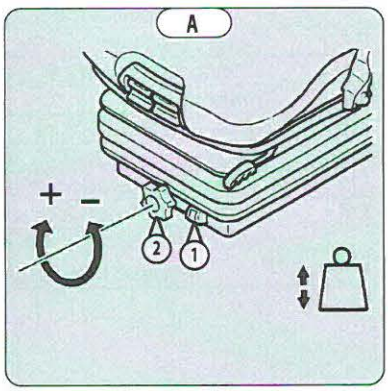
DESIGNED FOR MAXIMUM COMFORT, THIS SEAT CAN BE ADJUSTED AS FOLLOWS.

WEIGHT ADJUSTMENT (FIG. A)

It is advised that the weight be adjusted when the driver is not sitting in the cab.

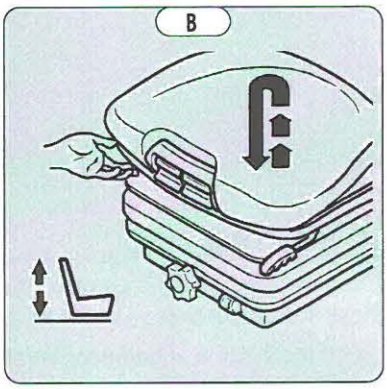
- Refer to the graduation (1) of the seat.
- Turn the handle (2) according to the driver's weight.

NOTE: To avoid any health problems, it is recommended that the weight adjustment is checked and adjusted before starting the lift truck.



SEAT HEIGHT ADJUSTMENT (FIG. B)

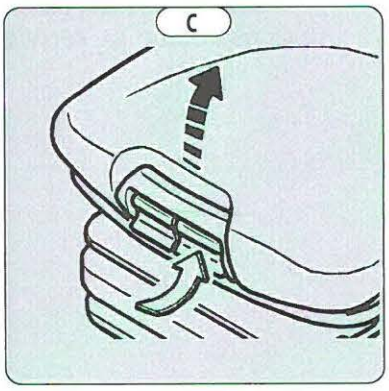
Raise the seat to the desired position, until you hear the ratchet click. If you raise the seat above the last notch (stop), the seat returns to the lowest position.



SEAT BACKREST ANGLE ADJUSTMENT (FIG. C)

The backrest angle of the seat may be adjusted to suit the individual.

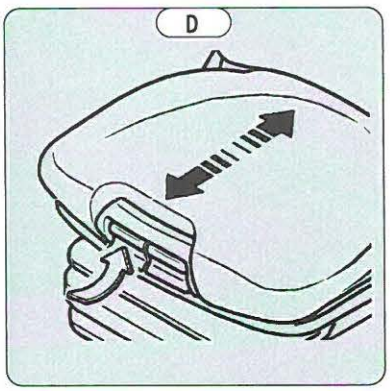
- Press the left-hand button while pushing on the seat or relaxing pressure on the seat to find a comfortable position.



SEAT DEPTH ADJUSTMENT (FIG. D)

The depth of the seat may be adjusted to suit the individual.

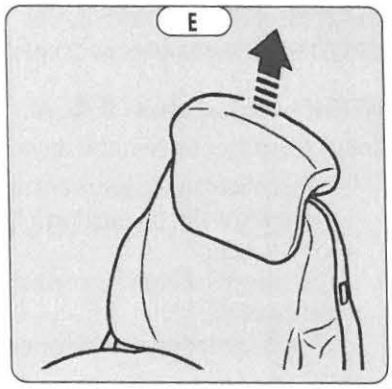
- Press the right-hand button while raising or lowering the seat to find the desired position.



647840 M4 (B092021)
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

EXTENDING THE HEAD-REST (FIG. E)

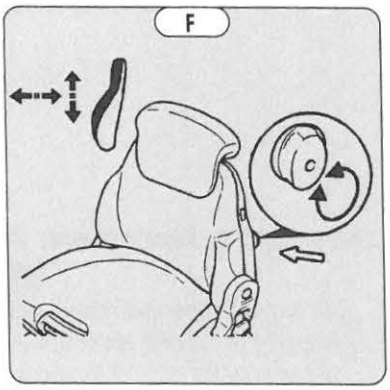
- The height of the head-rest can be adjusted by pulling it upwards (the notches will click) up to the stop.
- The head-rest can be removed by applying sufficient pressure to pull it off the stop.



LUMBAR ADJUSTMENT (FIG. F)

This increases the comfort of the seat and the driver's freedom of movement.

- Turn the handle either left or right to adjust the height or depth of the lumbar support.

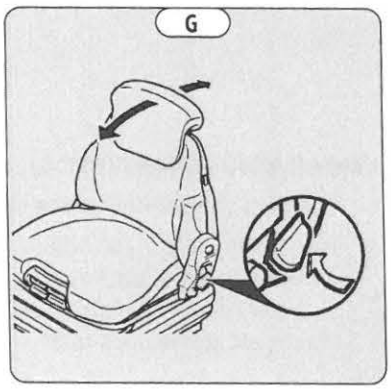


ADJUSTMENT OF THE ANGLE OF THE BACKREST (FIG. G)

- Support the backrest, pull the lever and position the backrest to find the desired position.

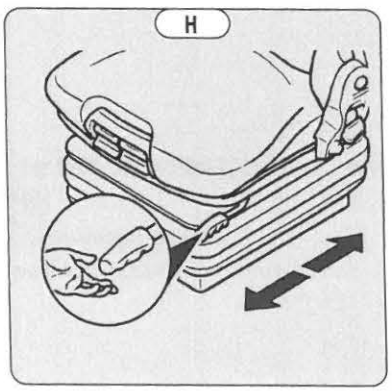
⚠ IMPORTANT ⚠

If you do not support the backrest when making adjustments, it swings completely forwards.



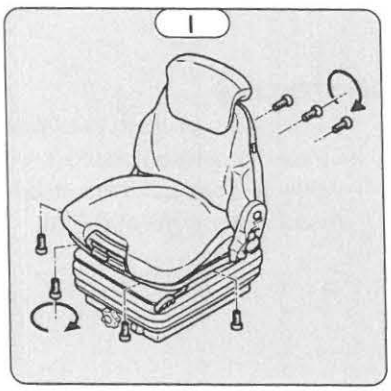
LONGITUDINAL ADJUSTMENT (FIG. H)

- Adjust the locking lever until you reach the position required. This then locks and the seat will not shift into another position.



MAINTENANCE (FIG. I)

- Keep your seat clean to ensure it operates efficiently
- Clean the cushions using a suitable product.
- Apply to a small hidden area first, to check the colour-fastness of covering.
- Avoid wetting the cushions.
- To facilitate cleaning remove the cushions from the seat frame.



647840 M4 (B092021)
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

"PREMIUM" DRIVER'S PNEUMATIC SEAT

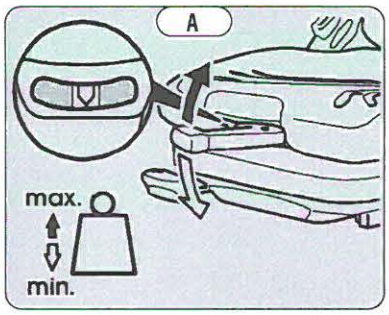
DESIGNED FOR MAXIMUM COMFORT, THIS SEAT CAN BE ADJUSTED AS FOLLOWS.

WEIGHT ADJUSTMENT (FIG. A)

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

- Pull the weight adjustment lever (1) fully out.
- Move the weight adjustment lever (1) upwards to increase the weight or downwards to reduce it.
- The driver's weight is correctly adjusted when the arrow is in the centre of the indicator (2).
- After completing the weight adjustment, fully lower the lever (1).

NOTE: To avoid any health problems, it is recommended that the weight adjustment is checked and adjusted before starting the lift truck.

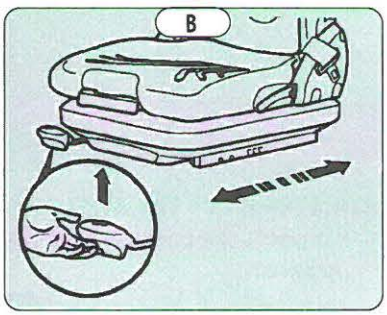


LONGITUDINAL ADJUSTMENT (FIG. B)

⚠ IMPORTANT ⚠

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

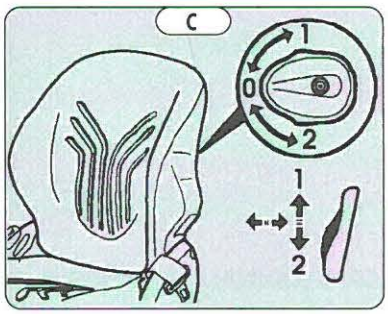
- Adjust the locking lever until you reach the position required. This then locks and the seat will not shift into another position.



LUMBAR ADJUSTMENT (FIG. C)

This increases the comfort of the seat and the driver's freedom of movement.

- Turn the handle (1) to adjust the height and depth of the lumbar support of the upper part of the back-rest.
- Turn the handle (2) to adjust the height and depth of the lumbar support of the lower part of the back-rest.

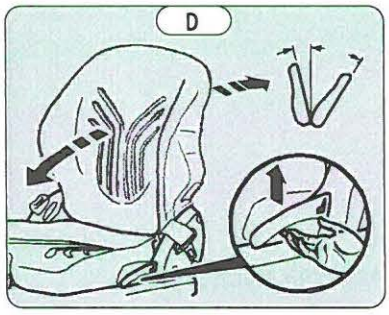


ANGLE ADJUSTMENT OF THE BACKREST (FIG. D)

⚠ IMPORTANT ⚠

If you do not support the backrest when making adjustments, it will tilt forwards.

- Support the backrest, pull the lever and position the backrest to find the desired position.



MAINTENANCE

- Keep your seat clean to ensure it operates efficiently
- Clean the cushions using a suitable product.
- Apply to a small hidden area first, to check the colour-fastness of covering.
- Avoid wetting the cushions.

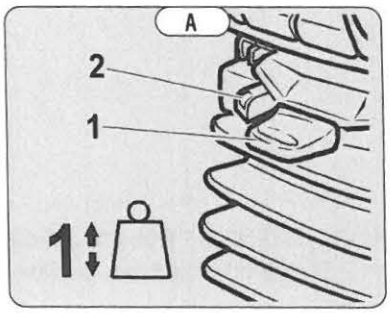
647840 M4 (B092021)
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

"ÉLITE" DRIVER'S PNEUMATIC SEAT

NOTE: Do not operate the pneumatic compressor for more than 1 minute.

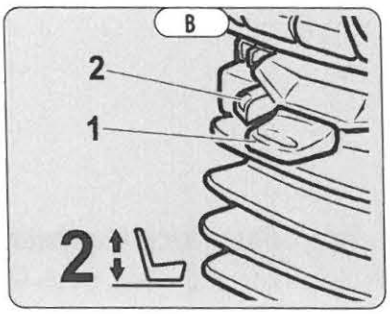
WEIGHT ADJUSTMENT (FIG. A)

- Sit on the seat.
- Switch on lift truck ignition.
- Pull or push the thumb wheel (1) until the green area appears in the indicator lamp (2).



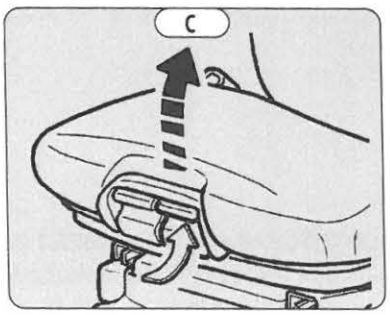
SEAT HEIGHT ADJUSTMENT (FIG. B)

- Keep the ignition on in the lift truck.
- Pull or push the thumb wheel (1) to adjust the height of the seat while monitoring the green area of the indicator lamp (2).



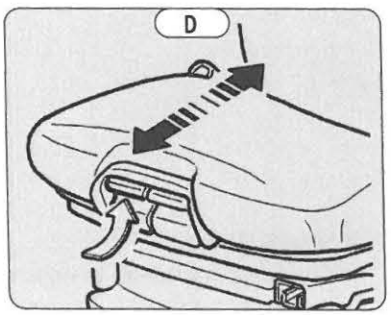
SEAT BACKREST ANGLE ADJUSTMENT (FIG. C)

- Press the left-hand button, then push or release pressure on the seat to find the desired position.



SEAT DEPTH ADJUSTMENT (FIG. D)

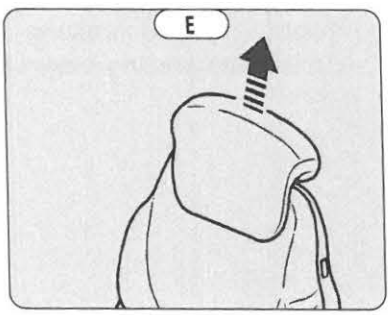
- Press the right-hand button, then move the seat backwards or forwards to find the desired position.



HEAD-REST HEIGHT ADJUSTMENT (FIG. E)

- Pull or push the head-rest to the desired position.

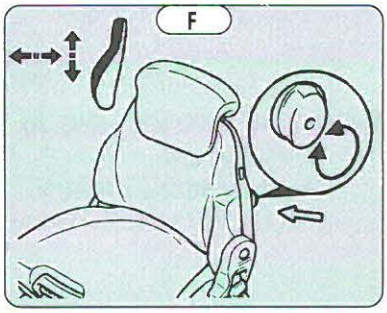
The head-rest can be removed by applying sufficient pressure to pull it off the stop.



647840 M4 (B092021)
MC-X . . . D K ST3A S1 / MSI-X . . . D K ST3A S1

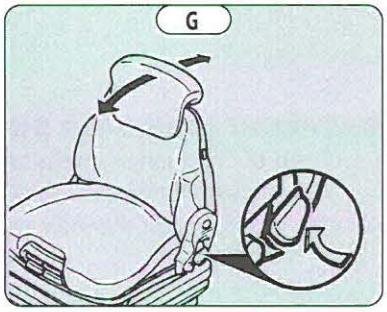
LUMBAR ADJUSTMENT (FIG. F)

- Turn the handle either left or right to adjust the height and depth to the desired position.



ADJUSTMENT OF THE ANGLE OF THE BACKREST (FIG. G)

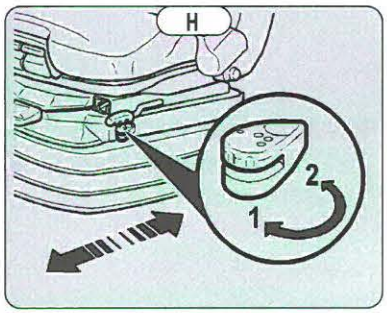
- Support the backrest, pull the lever and tilt the backrest to find the desired position.



HORIZONTAL SHOCK ABSORBER (FIG. H)

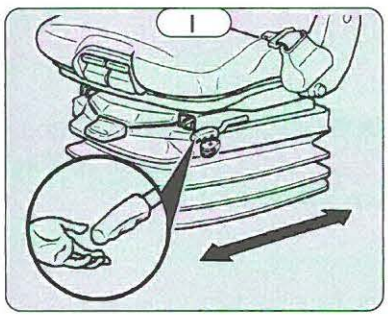
In certain conditions (e.g. rough terrain, etc.) the driver's seat can absorb shocks.

- Turn the button to position (1) to activate the shock absorber.
- Turn the button to position (2) to deactivate the shock absorber.



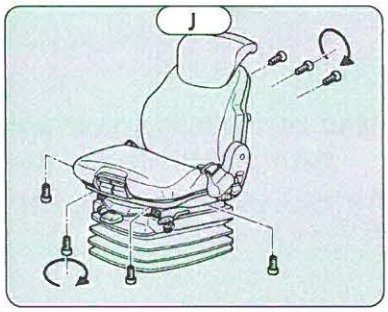
LONGITUDINAL ADJUSTMENT (FIG. I)

- Pull the lever, then move the seat forwards or backwards into the desired position.
- Release the lever to lock it.



SERVICING (FIG. J)

- Keep your seat clean to ensure it operates efficiently
- Clean the cushions using a suitable product.
- Apply to a small hidden area first, to check the colour-fastness of covering.
- Avoid wetting the cushions.
- To facilitate cleaning remove the cushions from the seat frame.



26 - HYDRAULIC CONTROLS FOR ADDITIONAL ATTACHMENTS

⚠ IMPORTANT ⚠

In the event of a malfunction, consult your dealer.
For your own safety, do not attempt to alter the hydraulic pressure in the system.
ANY MODIFICATION WILL INVALIDATE THE WARRANTY.

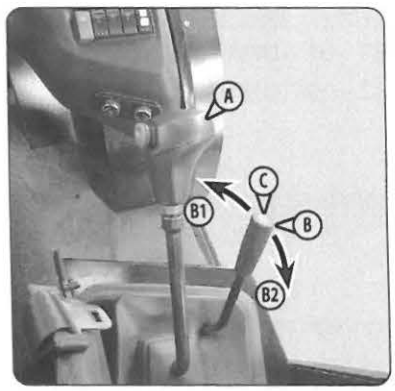
The hydraulic controls must be used carefully without jerking, to avoid accidents caused by shaking the lift truck.

Using the hydraulic controls is only possible if the driver is present and seated correctly in the seat.

Optional: if the operator is not in the seat, the hydraulic controls are frozen.

NOTE: For lever A (◁ INSTRUMENTS AND CONTROLS).

- Pull or push lever B to use the additional attachment(s).
- Press button C to select an attachment (depending on options).



WITH A SINGLE HYDRAULIC ATTACHMENT

B1 - OPTIONAL 3RD HYDRAULIC LINE

B2 - OPTIONAL 3RD HYDRAULIC LINE

WITH MORE THAN ONE HYDRAULIC ATTACHMENT

- Press button C on lever B to select the attachment AUX.1 or AUX.2:

  • The blue indicator lamp C1 coming on indicates activation of the attachment (below).

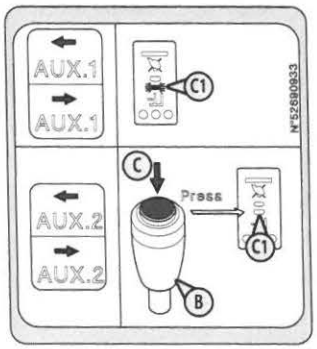
B1 - OPTIONAL 3RD HYDRAULIC LINE (AUX.1)

B2 - OPTIONAL 3RD HYDRAULIC LINE (AUX.1)

  • The blue indicator lamp C1 going out indicates activation of the attachment (below).

B1 - OPTIONAL 4TH HYDRAULIC LINE (AUX.2)

B2 - OPTIONAL 4TH HYDRAULIC LINE (AUX.2)



TILTABLE CARRIAGE option

WITHOUT ADDITIONAL HYDRAULIC ATTACHMENT

B1 - OPTIONAL 3RD HYDRAULIC LINE (TILTABLE CARRIAGE)

B2 - OPTIONAL 3RD HYDRAULIC LINE (TILTABLE CARRIAGE)

WITH MORE THAN ONE HYDRAULIC ATTACHMENT

- Press button C on lever B to select the attachment AUX.1 or AUX.2:

  • The blue indicator lamp C1 going out indicates activation of the attachment (below).

B1 - OPTIONAL 3RD HYDRAULIC LINE (AUX.1 - TILTABLE CARRIAGE)

B2 - OPTIONAL 3RD HYDRAULIC LINE (AUX.1 - TILTABLE CARRIAGE)

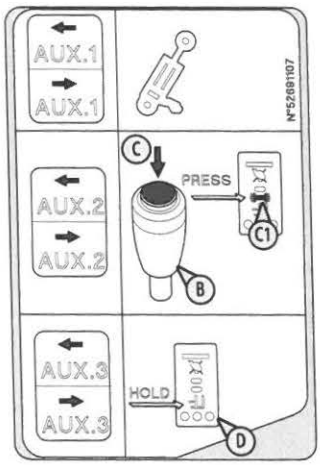
  • The blue indicator lamp C1 coming on indicates activation of the attachment (below).

B1 - OPTIONAL 4TH HYDRAULIC LINE (AUX.2)

B2 - OPTIONAL 4TH HYDRAULIC LINE (AUX.2)

D + B1 - OPTIONAL 5TH HYDRAULIC LINE (AUX.3)

D + B2 - OPTIONAL 5TH HYDRAULIC LINE (AUX.3)



647840 M4 (B092021)
MC-X . . D K ST3A S1 / MSI-X . . . D K ST3A S1

TILTABLE CARRIAGE AND HYDRAULIC ATTACHMENT LOCKING option

⚠ IMPORTANT ⚠

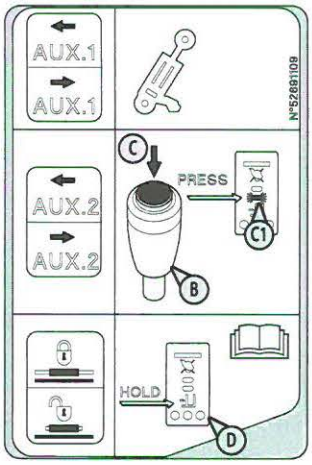
If the attachment's hydraulic locking equipment is used, make sure that the attachment is properly locked onto the tiltable carriage before use.

WITHOUT ADDITIONAL HYDRAULIC ATTACHMENT

B1 - OPTIONAL 3RD HYDRAULIC LINE (TILTABLE CARRIAGE)

B2 - OPTIONAL 3RD HYDRAULIC LINE (TILTABLE CARRIAGE)

WITH MORE THAN ONE HYDRAULIC ATTACHMENT



- Press button C on lever B to select the attachment AUX.1 or AUX.2:

  • The blue indicator lamp C1 going out indicates activation of the attachment (below).

B1 - OPTIONAL 3RD HYDRAULIC LINE (AUX.1 - TILTABLE CARRIAGE)

B2 - OPTIONAL 3RD HYDRAULIC LINE (AUX.1 - TILTABLE CARRIAGE)

  • The blue indicator lamp C1 coming on indicates activation of the attachment (below).

B1 - OPTIONAL 4TH HYDRAULIC LINE (AUX.2)

B2 - OPTIONAL 4TH HYDRAULIC LINE (AUX.2)

D + B1 - OPTIONAL 5TH HYDRAULIC LINE (HYDRAULIC ATTACHMENT LOCKING)

D + B2 - OPTIONAL 5TH HYDRAULIC LINE (HYDRAULIC ATTACHMENT LOCKING)

27 - HYDRAULIC CONTROL JOYSTICK

NOTE: Depending on the model, some functions described on the joystick sticker are not relevant.

HYDRAULIC CONTROLS

⚠ IMPORTANT ⚠

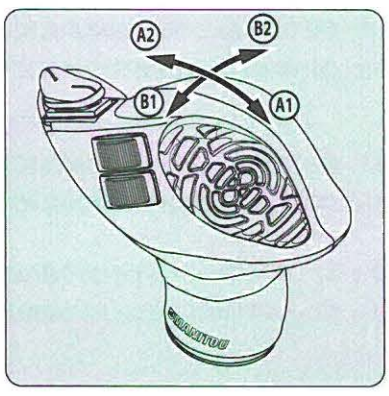
In the event of a malfunction, consult your dealer.

For your own safety, do not attempt to alter the hydraulic pressure in the system.

ANY MODIFICATION WILL INVALIDATE THE WARRANTY.

The hydraulic controls must be used carefully without jerking, to avoid accidents caused by shaking the lift truck.

Optional: if the operator is not in the seat, the hydraulic controls are frozen.



A1 - LIFTING

NOTE: Engine speed automatically increases. (Standard for MSI-X / Optional for MC-X)

A2 - LOWERING

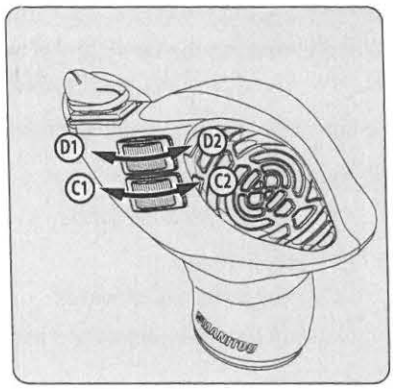
B1 - CROWD

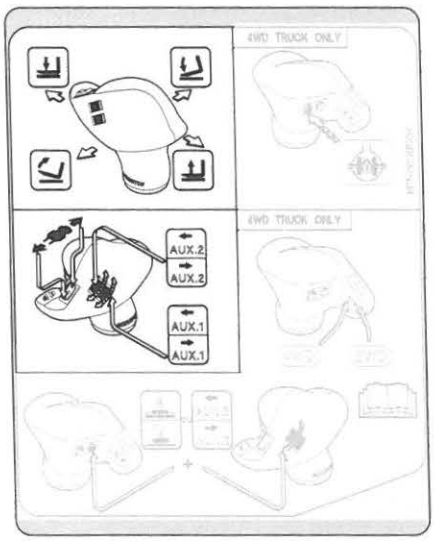
B2 - DUMP

HYDRAULIC CONTROLS WITH MORE THAN ONE HYDRAULIC ATTACHMENT

C1 - OPTIONAL 3RD HYDRAULIC LINE (AUX.1)
C2 - OPTIONAL 3RD HYDRAULIC LINE (AUX.1)

D1 - OPTIONAL 4TH HYDRAULIC LINE (AUX.2)
D2 - OPTIONAL 4TH HYDRAULIC LINE (AUX.2)





TILTABLE CARRIAGE option

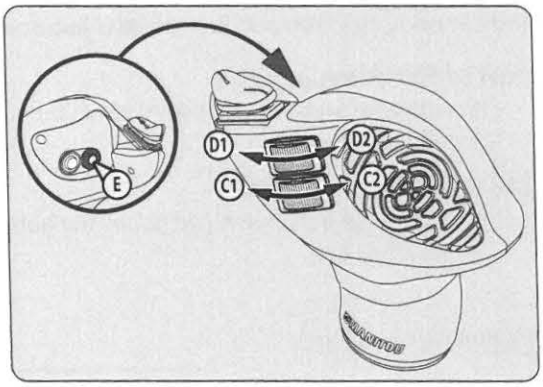
C1 - OPTIONAL 3RD HYDRAULIC LINE (AUX.1 - TILTABLE CARRIAGE)
C2 - OPTIONAL 3RD HYDRAULIC LINE (AUX.1 - TILTABLE CARRIAGE)

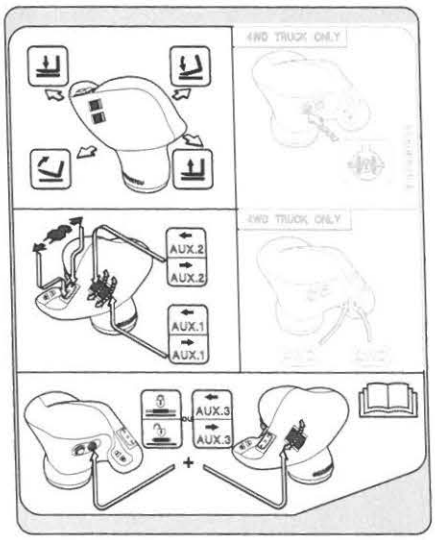
D1 - OPTIONAL 4TH HYDRAULIC LINE (AUX.2)
D2 - OPTIONAL 4TH HYDRAULIC LINE (AUX.2)

E + D1 - OPTIONAL 5TH HYDRAULIC LINE (AUX.3 or HYDRAULIC ATTACHMENT LOCKING)
E + D2 - OPTIONAL 5TH HYDRAULIC LINE (AUX.3 or HYDRAULIC ATTACHMENT LOCKING)

⚠ IMPORTANT ⚠

If the attachment's hydraulic locking equipment is used, make sure that the attachment is properly locked onto the tiltable carriage before use.

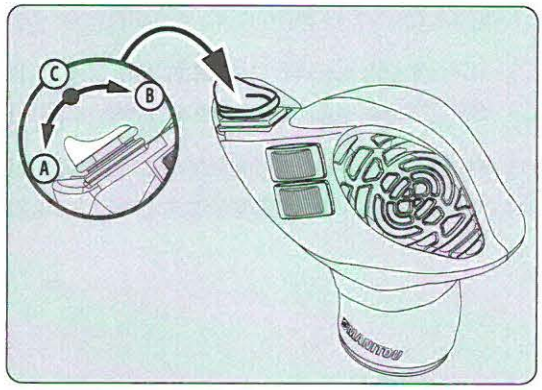




FORWARD/NEUTRAL/REVERSE GEAR SELECTION

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

To start the lift truck, the switch must be in neutral.



A - FORWARD GEAR

- Push the switch forwards.

B - REVERSE GEAR

- Pull the switch backwards.

NOTE: A reversing alarm and a reversing light are available as an option.

C - NEUTRAL

- Lightly press the front or back of the switch.

SAFETY FOR MOVING THE LIFT TRUCK

◁ FORWARD/NEUTRAL/REVERSE GEAR SELECTOR (Standard)

DIFFERENTIAL LOCK

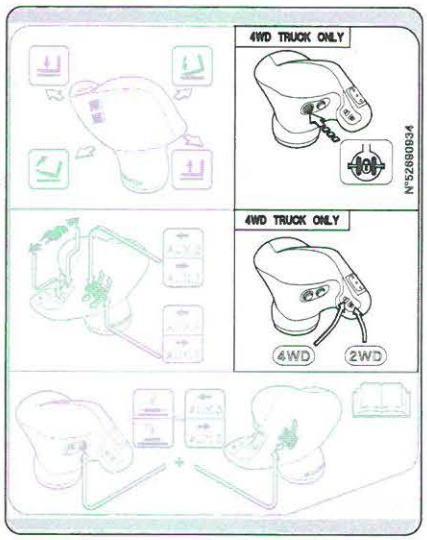
Only for MC-X . . -4

⚠ IMPORTANT ⚠

When it is being used, always drive in a straight line and slowly.

If skidding occurs, the differential lock improves traction, whatever the ground conditions (slippery or soft surface, etc.).

- Hold the switch F down to enable the 4 drive wheels to rotate at the same speed.



SWITCHING BETWEEN 4WD (low speed) <-> *2WD* (high speed)

Only for MC-X . . -4

When starting the lift truck, low speed is automatically selected.

HIGH SPEED 24 km/h (2WD)

- Press the "+" switch on the joystick or the top of switch 2. The indicator lamp 2a will come on.

LOW SPEED 14 km/h (4WD)

- Press the "-" switch on the joystick or the bottom of switch 2. The indicator lamp 2b will come on.

CONDITIONS OF USE

	FORWARD/REVERSE SELECTOR		
	Forward gear	**Neutral**	**Reverse gear**
4WD --> 2WD (14 km/h) --> (24 km/h)	Permitted (*)	Permitted (*)	Impossible
2WD --> 4WD (24 km/h) --> (14 km/h)	Permitted (**)	Permitted (**)	Permitted (**)

(*) After minimum 2 seconds.

(**) With the lift truck stopped, press the service brake pedal down for 2 seconds before performing the manoeuvre.

647840 M4 (B092021)
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

28 - LOAD SUSPENSION

The purpose of this option is to damp lifting and lowering of the load.

29 - DECOMPRESSION OF THE HYDRAULIC ATTACHMENT CIRCUIT (ECS)

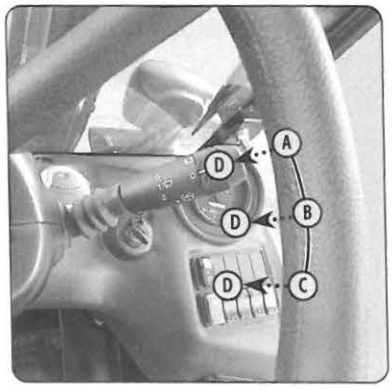
The purpose of this option is to easily connect a hydraulic attachment:

1 - Sit in the seat.
2 - Switch off the engine.
3 - Turn the ignition back on.
4 - Use knobs C and D to decompress the hydraulic attachment circuit.
5 - Connect or disconnect the hydraulic attachment.

30 - WINDSCREEN WIPER CONTROL

FRONT WINDSCREEN WIPER

- A - Off.
- B - On.
- C - Intermittent.
- D - Windscreen washer (pulsing).



REAR WINDSCREEN WIPER

- E - Off.
- F - On.

ROOF WINDSCREEN WIPER

- G - Roof windscreen wiper and windscreen washer (pulsing).

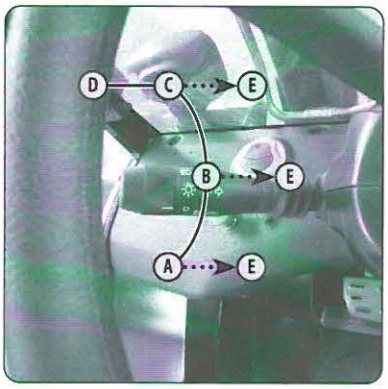
647840 M4 (B092021)
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

31 - LIGHTING, HORN AND INDICATOR LIGHT CONTROL

ROAD LIGHTS

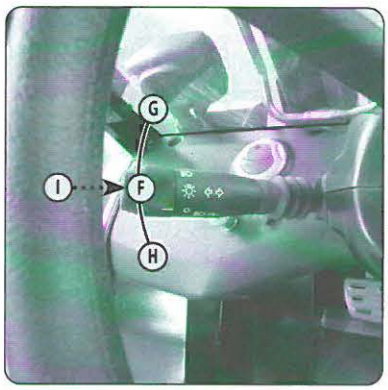
The road lights can be used without the ignition key.

- A - Off.
- B - Front and rear side lights.
- C - Dipped beam headlights.
- D - Main beam headlights.
- E - Headlight flashing (pulsing).



INDICATOR LIGHTS AND SOUND ALARM

- F - Off.
- G - Right indicator lights.
- H - Left indicator lights.
- I - Sound alarm (pulsing).

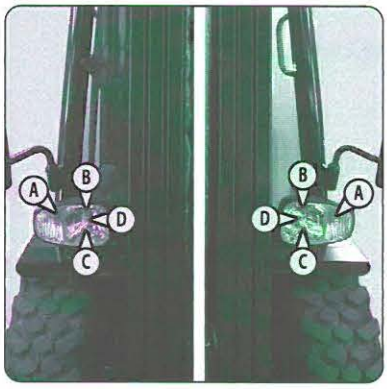


32 - ROAD LIGHTS

FRONT HEADLIGHTS

- A - Indicator lights.
- B - Dipped beam headlights.
- C - Main beam headlights.
- D - Side lights.

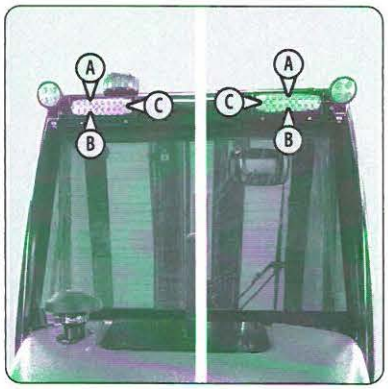
NOTE: As an option there is a guard for the main beam headlights.



REAR LIGHTS

- A - Indicator lights.
- B - Stop lights.
- C - Side lights.

NOTE: As an option there is a guard for the main beam headlights.



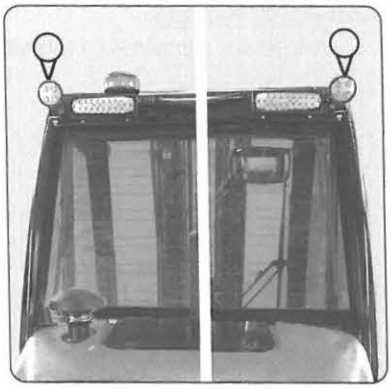
647840 M4 (B092021)
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

33 - FRONT WORKLIGHTS

NOTE: As an option there is a guard for the front worklights.

34 - REAR WORKLIGHTS

NOTE: As an option there is a guard for the rear worklights.



35 - REVERSING LIGHT

36 - ROTATING BEACON LIGHT OR LED FLASHING LIGHT

The magnetic rotating beacon light can be fitted by disconnecting plug A.

37 - WING MIRRORS

647840 M4 (B092021)
MC-X . . . D K ST3A S1 / MSI-X . . . D K ST3A S1

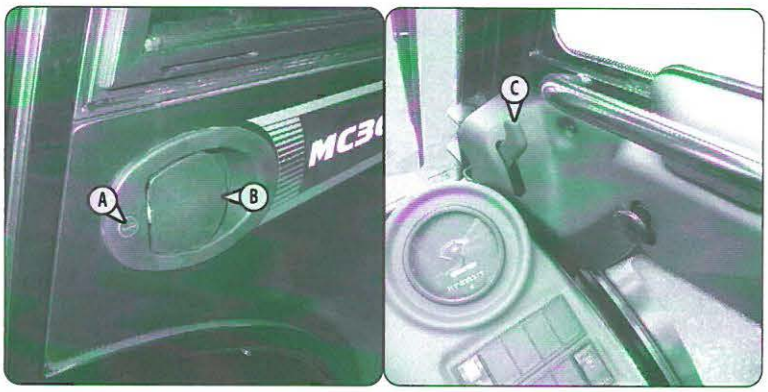
38 - CAB OPTION

DOOR OPENING HANDLES

- Insert the ignition key into lock A to lock or unlock the cab.
- Pull on the handle B or C to open the door.

NOTE: The door must be:

- Either closed.
- Either completely open and locked on the door arrester system.



DOOR RELEASE HANDLES

- Pull on the handle A to release and close the door.

SLIDING WINDOWS ON LEFT-HAND DOOR

- Press the latches A and slide the windows.

HALF-DOOR ON RIGHT-HAND DOOR

- Lower the latch A to open the half-door.

NOTE: The half-door must be:

- Either closed.
- Either completely open and locked on the door arrester system.

647840 M4 (B092021)
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

39 - HEATING VENTS

40 - HEATER CONTROL

- A - Temperature adjustment.
- B - Ventilation speed adjustment.

41 - AIR CONDITIONING CONTROL

⚠ IMPORTANT ⚠

Once a week in winter operate the air conditioning on a one-off basis to guarantee it is operating correctly.
In cold weather, start and warm up the engine before starting the air conditioning to avoid damaging the air conditioning circuit.
If the air conditioning seems to operate irregularly carry out a service (◁ 3 - MAINTENANCE) or consult your dealer.
Never try to repair possible faults in the circuit, consult your dealer.

- A - Temperature adjustment.
- B - Ventilation speed adjustment.
- C - On/Off for the air conditioning with indicator lamp.

CONDITIONS OF USE:

- The air conditioning only works if the engine is running.
- The doors and windows must be closed.
- The air intakes must not be obstructed (frost, snow, leaves, etc.).
- As a minimum, one cab heating vent must be open to avoid the risk of the air conditioning circuit freezing.

NOTE: Possible water loss under the lift truck are due to the dehumidifying effect of the unit. These losses may vary depending on the exterior temperature and humidity.

647840 M4 (B092021)
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

42 - CAR RADIO

43 - ENGINE IMMOBILISER SYSTEM

44 - WATERPROOF DOCUMENT HOLDER

45 - REVERSING BUZZER ALARM

46 - ROOF SUNSHADE

47 - LOCKABLE CAP

48 - ENGINE BLOCK HEATER

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

SUPPLY CHARACTERISTICS OF PREHEATING SYSTEM:

- Rated power supply voltage range: 220-240 V; 50-60 Hz.
- Current consumed: 4.5 A.
- Class 1 equipment.
- Equipment can only be connected to TT or TN supply diagrams.
- Installation category 2.

ENVIRONMENTAL CONDITIONS FOR USE:

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

CONDITIONS FOR CONNECTION AND USE OF PREHEATING:

- The preheat 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.

49 - ENGINE WATER TEMPERATURE GAUGE

- Zone A1 - Use the lift truck with moderation, wait for temperature to increase before normal operation.
- Zone A2 - Use lift truck normally.
- Zone A3 - Use lift truck with moderation, monitor the temperature.
- Zone A4 - Stop the lift truck, look for the cause of overheating.

647840 M4 (B092021)
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

SLINGING AND SECURING PIN

⚠ IMPORTANT ⚠

This lift truck is not intended for use with a trailer.

This device is used only for slinging and lashing the lift truck (◁ 3 - MAINTENANCE - OCCASIONAL OPERATION).

IF NECESSARY, CONSULT YOUR DEALER.

647840 M4 (B092021)
MC-X. . D K ST3A S1 / MSI-X. . D K ST3A S1

3 - MAINTENANCE

647840 M4 (B0920021)
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

3 - MAINTENANCE

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:

⚠ IMPORTANT ⚠

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

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

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

647840 M4 (B092021)
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

FORKLIFT TRUCK MAINTENANCE

DAILY AND WEEKLY MAINTENANCE

⚠ IMPORTANT ⚠

THE OPERATOR IS AUTHORISED TO CARRY OUT THIS MAINTENANCE.

These maintenance operations enable the operator to maintain the lift truck in a clean and safe condition.

MANDATORY FIRST 500 HOURS OR 6 MONTHS SERVICE

⚠ IMPORTANT ⚠

THIS SERVICE MUST BE CARRIED OUT AFTER THE FIRST 500 HOURS OF SERVICE OR WITHIN THE 6 MONTHS FOLLOWING PUTTING THE MACHINE INTO SERVICE (WHICHEVER OCCURS FIRST).

PERIODIC SERVICE

⚠ IMPORTANT ⚠

THE PERIODIC MAINTENANCE MUST BE CARRIED OUT BY A PROFESSIONAL APPROVED BY THE MANITOU NETWORK

MAINTENANCE SCHEDULE

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

OCCASIONAL MAINTENANCE AND OPERATION

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

DAILY AND WEEKLY MAINTENANCE

10H - DAILY SERVICE OR EVERY 10 HOURS OF SERVICE

50H - WEEKLY SERVICE OR EVERY 50 HOURS OF SERVICE

*** Only for the first 50 hours of service, and then every 500 hours of service or 1 year.*

MANDATORY FIRST 500 HOURS OR 6 MONTHS SERVICE

FIRST 500 HOURS BEFORE THE FIRST 6 MONTHS

- If the lift truck has reached the first 500 hours of service before the first 6 months have expired, perform both the mandatory service and routine 500 H service (◁ ➲ ❶ 500H - PERIODIC SERVICE - EVERY 500 HOURS OF SERVICE OR 1 YEAR).

FIRST 6 MONTHS BEFORE THE FIRST 500 HOURS

- If the lift truck has not completed 500 hours of service in the first 6 months, just carry out the mandatory service.

➲ MANDATORY SERVICE

** Consult your dealer.*

*** Engine service, consult your dealer.*

647840 M4 (B092021)
MC-X . . . D K ST3A S1 / MSI-X . . . D K ST3A S1

PERIODIC SERVICE

MAINTENANCE SCHEDULE

	❶ OR ❶					
WHEN DUE ➲	FIRST 6 MONTHS	FIRST 500 HOURS	500 H or 1 YEAR	1000 H or 2 YEARS	1500 H or 3 YEARS	2000 H or 4 YEARS
PERIODIC SERVICE ➲	MANDATORY SERVICE	MANDATORY SERVICE + ❶	❶	❶+❷	❶	❶+❷+❸
MACHINE COUNTER ➲						
DATE OF SERVICING ➲						

WHEN DUE ➲	2500 H or 5 YEARS	3000 H or 6 YEARS	3500 H or 7 YEARS	4000 H or 8 YEARS	4500 H or 9 YEARS	5000 H or 10 YEARS	5500 H or 11 YEARS
PERIODIC SERVICE ➲	❶	❶+❷+❹	❶	❶+❷+❸	❶	❶+❷	❶
MACHINE COUNTER ➲							
DATE OF SERVICING ➲							

WHEN DUE ➲	6000 H or 12 YEARS	6500 H or 13 YEARS	7000 H or 14 YEARS	7500 H or 15 YEARS	8000 H or 16 YEARS	8500 H or 17 YEARS	9000 H or 18 YEARS
PERIODIC SERVICE ➲	❶+❷+❸+❹	❶	❶+❷	❶	❶+❷+❸	❶	❶+❷+❹
MACHINE COUNTER ➲							
DATE OF SERVICING ➲							

➲❶ 500H - PERIODIC SERVICE - EVERY 500 HOURS OF SERVICE OR 1 YEAR

** Consult your dealer.*

647840 M4 (B092021)
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

➲❷ 1000H - PERIODIC SERVICE - EVERY 1,000 HOURS OF SERVICE OR 2 YEARS

ALSO CARRY OUT THE PERIODIC MAINTENANCE FOR 500 HOURS OF SERVICE.

*** Engine service, consult your dealer.*

** Consult your dealer.*

➲❸ 2000H - PERIODIC SERVICE - EVERY 2,000 HOURS OF SERVICE OR 4 YEARS

ALSO PERFORM THE 500 HOUR AND 1,000 HOUR PERIODIC MAINTENANCE OPERATIONS.

** Consult your dealer.*

➲❹ 3000H - PERIODIC SERVICE - EVERY 3,000 HOURS OF SERVICE OR 6 YEARS

ALSO PERFORM THE 500 HOUR AND 1,000 HOUR PERIODIC MAINTENANCE OPERATIONS.

** Consult your dealer.*

*** Engine service, consult your dealer.*

647840 M4 (B092021)
MC-X . . . D K ST3A S1 / MSI-X . . . D K ST3A S1

OCCASIONAL MAINTENANCE

OCCASIONAL OPERATION

647840 M4 (B092021)
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

FILTER CARTRIDGES AND BELTS

➲ ❷ 500H - PERIODIC SERVICE - EVERY 500 HOURS OF SERVICE OR 1 YEAR

ENGINE OIL FILTER
Part no.: 272192

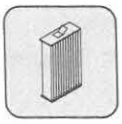
FUEL FILTER CARTRIDGE
Part no.: 748087

FUEL PRE-FILTER CARTRIDGE
Part no.: 942722

ALTERNATOR BELT
Part no.: 942714

HYDRAULIC RETURN OIL FILTER CARTRIDGE
Part no.: 52555157

CAB INTERIOR VENTILATION FILTER (OPTION)
Part no.: 52577675



CAB EXTERIOR VENTILATION FILTER (OPTION)
Part no.: 52640879

COMPRESSOR BELT (OPTION)
Part no.: 52596849

➲ ❸ 1000H - PERIODIC SERVICE - EVERY 1,000 HOURS OF SERVICE OR 2 YEARS

ALSO ADD THE FILTER CARTRIDGES FROM THE PERIODIC MAINTENANCE FOR 500 HOURS OF SERVICE.

DRY AIR FILTER CARTRIDGE
Part no.: 227959

➲ ❹ 2000H - PERIODIC SERVICE - EVERY 2,000 HOURS OF SERVICE OR 4 YEARS

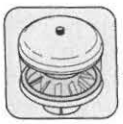
ALSO ADD FILTER ELEMENTS FOR PERIODIC MAINTENANCE AT 500 HOURS AND 1,000 HOURS OF SERVICE.

SAFETY DRY AIR FILTER CARTRIDGE
Part no.: 227960

FILTER CAP FOR HYDRAULIC FLUID TANK
Part no.: 62415

SUCTION STRAINER FOR HYDRAULIC OIL TANK
Part number: 52550828

➲ OCCASIONAL MAINTENANCE



CYCLONIC PRE-FILTER (OPTION)
Part no.: 52519289

SELF-CLEANING PRE-FILTER (OPTION)
Part no.: 240334

647840 M4 (B092021)
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

⚠ 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 set up 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.

- EN590 Diesel fuel (sulphur content < 10 ppm)
- ASTM D975 Diesel fuel (sulphur content < 15 ppm)

RECOMMENDATION

ENGINE

DESCRIPTION	CAPACITY	RECOMMENDATION
ENGINE	8,3 l	-40 °C -30 -20 -10 0 +10 +20 +30 +40 +50 °C 5W30 5W40 10W30 MANITOU EVOLOGY OIL 10W40 API CJ4 15W30 15W40
COOLING CIRCUIT	XX l	-40 °C -30 -20 -10 0 +10 +20 +30 +40 +50 °C COOLANT -35 °C
FUEL TANK	71 l	-40 °C -30 -20 -10 0 +10 +20 +30 +40 +50 °C HP NON-ROAD DIESEL (GNR) *

MAST

DESCRIPTION	RECOMMENDATION
MAST LIFTING CHAINS	-40 °C -30 -20 -10 0 +10 +20 +30 +40 +50 °C MANITOU SPECIAL CHAINS LUBRICANT
GREASING OF THE MAST	-40 °C -30 -20 -10 0 +10 +20 +30 +40 +50 °C MANITOU BLACK MULTI-PURPOSE LUBRICANT

HYDRAULICS

DESCRIPTION	CAPACITY	RECOMMENDATION
HYDRAULIC OIL TANK	66 l	-40 °C -30 -20 -10 0 +10 +20 +30 +40 +50 °C ISO VG 100 ISO VG 68 MANITOU ISO VG 46 HYDRAULIC OIL ISO VG 37 ISO VG 32

OVERHEAD GUARD

DESCRIPTION	CAPACITY	RECOMMENDATION
WINDSCREEN WASHER TANK	2 l	WINDSCREEN WASHER LIQUID

647840 M4 (B092021)
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

REAR AXLE MC-X . .-2 / MSI-X . .										
DESCRIPTION	**RECOMMENDATION**									
	-40 °C	-30	-20	-10	0	+10	+20	+30	+40	+50 °C
SWIVEL PINS STEERING CONNECTING RODS REAR AXLE OSCILLATION	MANITOU BLUE MULTI-PURPOSE LUBRICANT									

REAR AXLE MC-X . .-4										
DESCRIPTION	**RECOMMENDATION**									
	-40 °C	-30	-20	-10	0	+10	+20	+30	+40	+50 °C
WHEEL REDUCTION GEAR PIVOTS STEERING CONNECTING RODS REAR AXLE OSCILLATION	MANITOU BLUE MULTI-PURPOSE LUBRICANT									

PACKAGING

OIL						
PRODUCT	**PACKAGING / PART NO.**					
	1 l	**2 l**	**5 l**	**20 l**	**55 l**	**209 l**
- MANITOU EVOLOGY OIL 10W40 API CJ4			895837	895838	895839	895840
- MANITOU ISO VG 46 HYDRAULIC OIL			545500	582297	546108	546109

GREASE						
PRODUCT	**PACKAGING / PART NO.**					
	400 ml	**400 gr**	**1 kg**	**5 kg**	**20 kg**	**50 kg**
- MANITOU BLACK MULTI-PURPOSE LUBRICANT		947766	161590			499235
- MANITOU BLUE MULTI-PURPOSE LUBRICANT		161589	720683	554974	499233	489670
- MANITOU SPECIAL CHAINS LUBRICANT	554271					

LIQUID						
PRODUCT	**PACKAGING / PART NO.**					
	1 l	**2 l**	**5 l**	**20 l**	**55 l**	**209 l**
- COOLANT -35 °C			894967	894968		894969
- WINDSCREEN WASHER LIQUID	490402		486424			

647840 M4 (B092021)
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

10H - DAILY SERVICE OR EVERY 10 HOURS OF SERVICE

CHECK — Lift truck environment

IMPORTANT

Follow the operator instructions (◁ 1 - OPERATING AND SAFETY INSTRUCTIONS: OPERATOR INSTRUCTIONS).

- Carry out a general inspection of the lift truck:
  - Fluid leaks or stains on the ground.
  - Additional object on the lift truck or in the overhead guard or the cab.
  - Mounting and adjustment of lights and rear view mirrors.
  - Mounting and locking of the attachment.
  - Condition of the tyres, to detect cuts, blisters, wear, etc.
- According to the conditions of use and the environment, ensure that the lift truck is clean:
  - Lights, rear view mirrors, windows, bodywork.
  - Driver's cab (◁ OCCASIONAL MAINTENANCE).
  - Engine housing and inside the frame (◁ OCCASIONAL MAINTENANCE) to prevent leaks and build-up of materials (e.g. straw, flour, sawdust, organic waste, etc.).

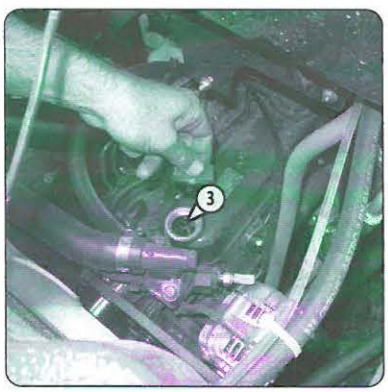
IMPORTANT

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

CHECK — Engine oil level

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

- Open the engine cover (◁ 2 - DESCRIPTION - INSTRUMENTS AND CONTROLS).
- Pull out, clean and reinsert the dipstick 1.
- Pull the dipstick out again and check the correct level between the two notches.
- If necessary, add oil (◁ LUBRICANTS AND FUEL).
- Remove the access panel 2.
- Add oil through filler port 3.
- Check for leaks.



647840 M4 (B092021)
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

CHECK — Coolant level

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

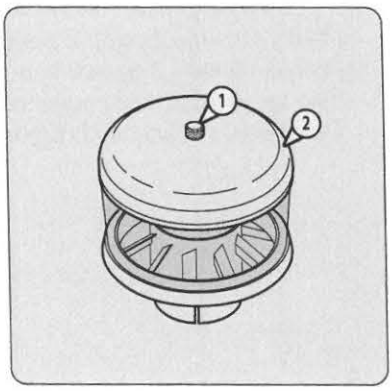
⚠ IMPORTANT ⚠

To avoid any risk of spraying or scalding, wait until the engine has cooled down before removing the cooling system filler plug.

In an emergency, you can use water as a coolant. In such a case, the fluid in the cooling system should be changed as soon as possible (◁ 1000H: REPLACE coolant).

- Open the engine cover (◁ 2 - DESCRIPTION - INSTRUMENTS AND CONTROLS).
- The liquid must be at the MAX. level on the expansion tank 1.
- If necessary, add coolant (◁ LUBRICANTS AND FUEL) through the filler hole 2.
- Check for leaks.

CLEAN — Cyclonic pre-filter (OPTION)



The frequency of cleaning is given as an example. However, as soon as impurities reach the MAX level on the tank, the pre-filter must be emptied and cleaned.

⚠ IMPORTANT ⚠

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

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

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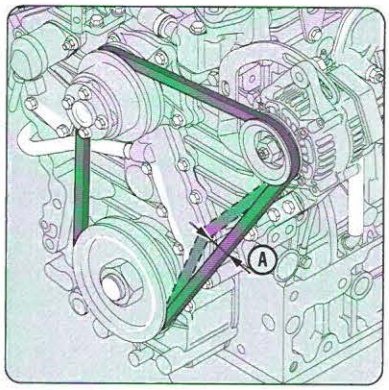
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

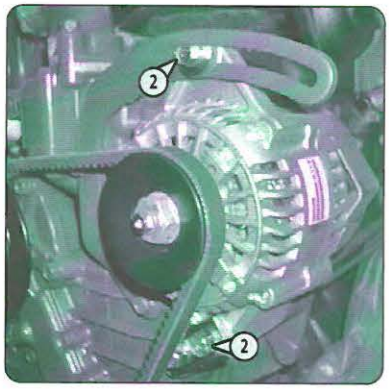
CHECK — Alternator belt tension

IMPORTANT

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

- Remove the access panel 1.
- Check the belt for signs of wear and cracks and change if necessary (◁ FILTER CARTRIDGES AND BELTS).
- Check the belt tension between the crankshaft and alternator pulleys.
- Check the belt tension between the crankshaft and alternator pulleys, i.e.
  - Under normal thumb pressure (98 N), measure the clearance A of between 7 and 9 mm.
  - Using the MANITOU tension meter (Part No. 895692), measure the value 130 Hz.
- Carry out adjustments if necessary.
- Loosen screws 2 by two to three thread turns.
- Swivel the alternator assembly so as to obtain the required belt tension.
- Retighten the screws 2 (tightening torque 22 Nm).



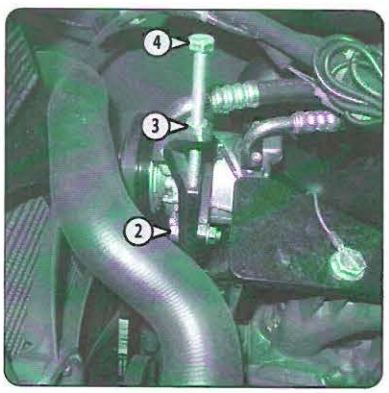


CHECK — Compressor belt tension (Air conditioning OPTION)

IMPORTANT

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

- Remove the access panel 1.
- Check the belt for signs of wear and cracks and change if necessary (◁FILTER CARTRIDGES AND BELTS).
- Check the belt tension between the pulleys of the crankshaft and of the compressor.
- Using the MANITOU tension meter (Part No. 895692), measure the value 65 to 67 Hz.
- If required, adjust the belt.
- Loosen screw 1 by two to three turns.
- Loosen lock nut 2.
- Adjust the compressor using screw 3, so as to obtain the belt tension required.
- Retighten lock nut 2.
- Retighten the screws 1.



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MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

CHECK — Tyre pressures

CHECK — Wheel nut tightening

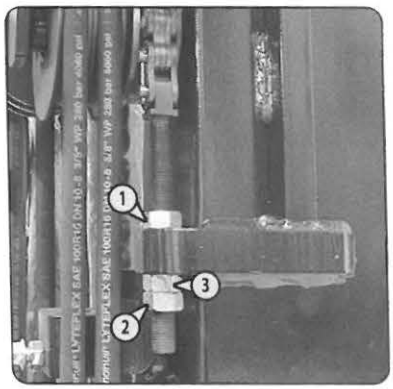
⚠ IMPORTANT ⚠

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

- Check the wheel nut tightening. Non-compliance with this instruction can lead to deterioration and breakage of the wheel bolts and distortion of the wheels.
- Check and, if necessary, adjust the tyre pressures (◁ 2 - DESCRIPTION: TYRES).

NOTE: There is an OPTIONAL wheel toolkit.

CHECK — Tension and alignment of mast lifting chains



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

⚠ IMPORTANT ⚠

These checks are important to ensure correct mast operation.
In case of technical faults, consult your dealer.

- Check the alignment of the mast lifting chains between the carriage chain fasteners and the chain rollers.
- Manually inspect the chain tension and, if necessary, adjust as indicated below while ensuring that the carriage is perpendicular to the mast.
- Loosen nut 1.
- Loosen the chain tensioner locknut 2.
- Adjust the tension by tightening or loosening the nut 3 while checking the alignment of the lifting chains.
- Then tighten locknut 2 and nut 3.
- Retighten the nut 1.

CHECK — Hydraulic oil level

Place the lift truck on level ground with the engine stopped, the mast tilted backwards 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 be at the level of the red dot.
- If necessary, add oil (◁ LUBRICANTS AND FUEL).
- Open the engine cover (◁ 2 - DESCRIPTION - INSTRUMENTS AND CONTROLS).
- Remove the cap 2.
- Add oil through filler port 2.
- Refit the cap.
- Check for leaks.

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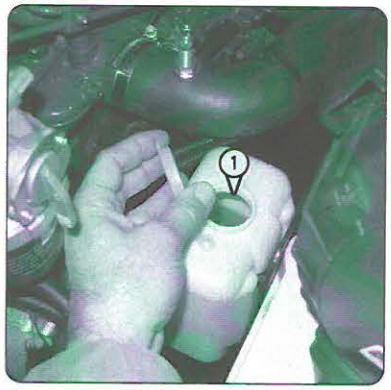
CHECK — Windscreen washer liquid level (OPTION)



- Open the engine cover (◁ 2 - DESCRIPTION - INSTRUMENTS AND CONTROLS).
- Visually check the level in the tank.
- If necessary, add windscreen washer fluid (◁ LUBRICANTS AND FUEL) through the filler hole 1.

CLEAN — Dry air filter cartridge

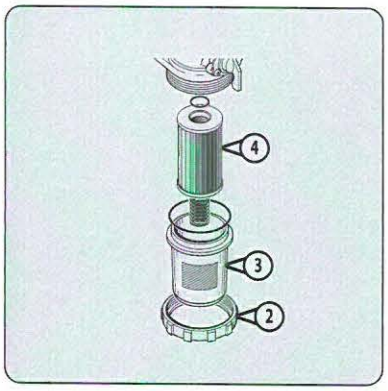
Pre-filtration cartridges are available for use in very dusty atmospheres (◁ FILTER CARTRIDGES AND BELTS). In this case, the cartridge checking and cleaning interval must be reduced.

⚠ IMPORTANT ⚠

If the clogging indicator light comes on, this operation should be performed as soon as possible (maximum 1 hour).
Never operate the lift truck with the air filter removed or damaged.
Clean the cartridge in a clean place away from the air filter unit.
Protect your eyes during this operation.
Never clean the cartridge by tapping it on a hard surface.
Never wash the dry air filter cartridge.
Never clean the air filter safety cartridge. Replace it with a new one if it is clogged or damaged.

- For the dismantling and refitting of the cartridge (◁ 1000H: REPLACE Air filter cartridge).
- Leave the safety cartridge in place.
- Clean the filter cartridge from inside to outside using a compressed air jet (max. 2 bar), maintaining a safe distance (min. 30 mm) to avoid damaging the cartridge.
- Use a damp, clean, lint-free cloth to clean the surface of the cartridge seal.
- Lubricate the surface of the seal with a silicone lubricant (MANITOU Part No.: 479292).
- Visually inspect the outer condition of the air filter and its attachments.
- Also check the condition and attachments of the hoses.

CLEAN — Fuel pre-filter



- Switch off the lift truck's ignition.
- Open the engine cover (◁ 2 - DESCRIPTION - INSTRUMENTS AND CONTROLS).
- Carefully clean the outside of the filter and its holder, to prevent dust from getting into the system.
- Close the filter tap 1 in the "OFF". position
- Unscrew the retaining ring 2, remove the bowl 3 and clean inside using a brush soaked in clean diesel.
- Remove the filter cartridge 4 and immerse it in diesel oil to rinse it.
- Clean the inside of the filter head using a brush immersed in clean diesel oil.
- Refit the unit.
- Tighten the ring by hand pressure only and lock with a quarter turn
- Open the filter tap 1 in the "ON" position.
- Bleed the fuel supply circuit (◁ OCCASIONAL MAINTENANCE).

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MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

CLEAN — Radiator harness

⚠ 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 fins.
Wear a mask and protective goggles for cleaning.

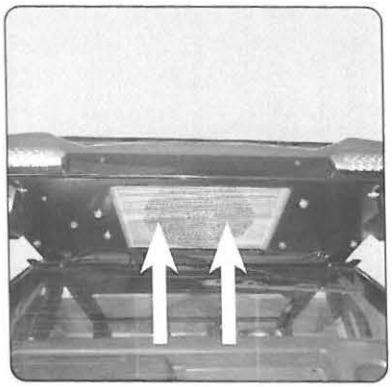
- Remove the access panel 1.
- Using a soft cloth, clean the core in order to remove as much dirt as possible.
- Clean the radiator using a compressed air jet aimed from the engine towards the radiator, in the opposite direction to the cooling air flow.
- Refit access panel 1

CLEAN — Condenser harness (Air conditioning OPTION)

⚠ IMPORTANT ⚠

In a polluting atmosphere, clean the radiator core every day.
Do not use a water jet or high-pressure steam as this could damage the condenser fins.

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



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MC-X . . . D K ST3A S1 / MSI-X . . . D K ST3A S1

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

⚠ IMPORTANT ⚠

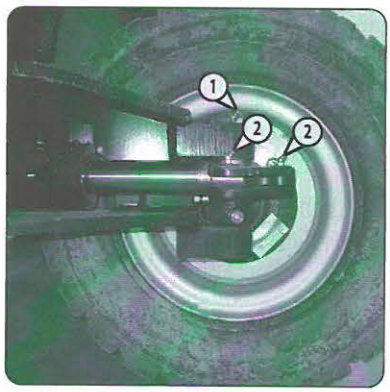
In the event of prolonged use in an extremely dusty or oxidising atmosphere, reduce this interval to every 10 hours of service or every day.

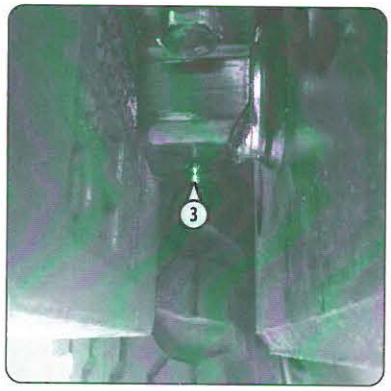
- Clean, then lubricate the following points with grease (◁ LUBRICANTS AND FUEL) and remove the surplus.

REAR AXLE

MC-X ..-2
MSI-X..

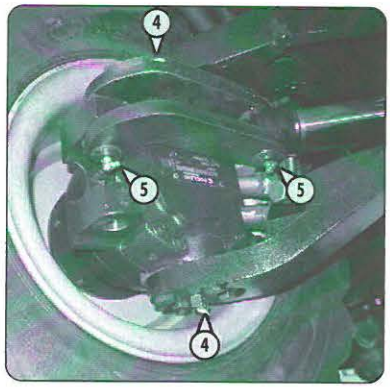
1 - Swivel pins (2 lubricators).
2 - Steering connecting rods (4 lubricators).
3 - Axle oscillation pin (2 lubricators).

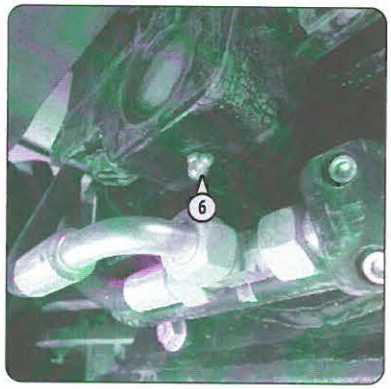




MC-X ..-4

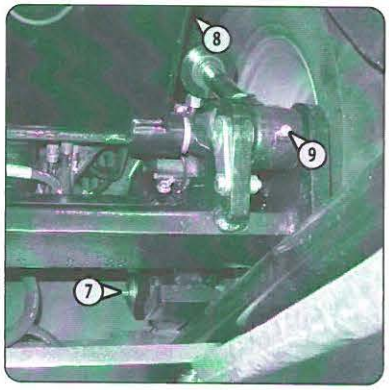
4 - Wheel motor pivots (4 lubricators).
5 - Steering connecting rods (4 lubricators).
6 - Axle oscillation pin (2 lubricators).





MAST

7 - Mast foot hinge pins (2 lubricators).
8 - Tilt cylinder foot axles (2 lubricators).
9 - Tilt cylinder head axles (2 lubricators).



647840 M4 (B092021)
MC-X.. D K ST3A S1 / MSI-X.. D K ST3A S1

REPLACE — Engine oil **

REPLACE — Engine oil filter **

** Only for the first 50 hours of service, and then every 500 hours of service or 1 year.

NOTE: When the lift truck is first put into service, the maintenance key is lit up. The oil and oil filter must be replaced after the first 50 hours of service to abide by the guarantee.

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

⚠ IMPORTANT ⚠

Dispose of the drain oil in an ecological manner.

- Open the engine cover (◁ 2 - DESCRIPTION - INSTRUMENTS AND CONTROLS).
- Remove the access panel 1.
- Clean the areas around the plugs and oil filter.

DRAINING THE OIL

- Place a container under the drain port 2 and unscrew the plug.
- Remove the filler plug 3 to ensure that the oil is drained properly.

REPLACEMENT OF THE FILTER

- Unscrew and recycle the engine oil filter 4, together with its seal.
- Clean the filter bracket with a clean, lint-free cloth.
- Lightly grease the seal before refitting the new oil filter (◁ FILTER CARTRIDGES AND BELTS) on its bracket.
- Tighten the oil filter by hand pressure only and lock the filter in place by a quarter turn.

FILLING WITH OIL

- Refit and tighten the drain plug 2 (tightening torque 32,4 - 37,2 N.m).
- Fill up with oil (◁ LUBRICANTS AND FUEL) through filler hole 5.
- 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
- Check the correct level between the two notches on the dipstick 6.
- Top up if necessary.
- Refit the filler plug 3.
- Refit access panel 1.

647840 M4 (B092021)
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

500H - PERIODIC SERVICE - EVERY 500 HOURS OF SERVICE OR 1 YEAR

CHECK — Hydraulic oil

MANITOU offers a hydraulic oil analysis kit which makes it possible to extend the recommended interval for routine servicing (2,000 hours).

In this case, we recommend an analysis of the hydraulic oil every 500 hours of service.

This analysis makes it possible to confirm the oil quality to reach the deadline of 2,000 hours.

NOTE: This kit is highly recommended for specific uses causing stresses on the hydraulic circuit:

- Extreme environmental conditions,
- Use of attachments with a very high hydraulic flow rate (sweepers, mixers, etc.).

ANALYSIS PROCEDURE

- Order an oil analysis kit from your dealer (Part No. MANITOU 958162).
- On receipt of the kit, take a sample and follow the detailed instructions.
- According to the results, keep the analysis report or replace the hydraulic oil.

GREASE — Mast lifting chains

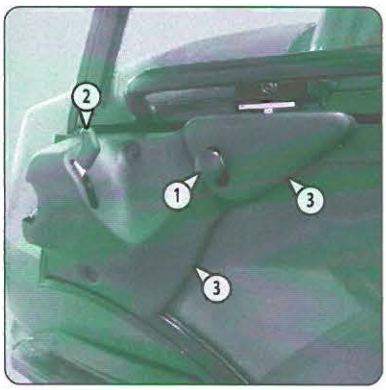
- Wipe the mast lifting chains with a clean, lint-free cloth.
- Vigorously brush the chains to get rid of any foreign matter, with a hard nylon brush and clean diesel fuel.
- Rinse the chains by means of a paint brush impregnated with clean diesel fuel and dry them with a compressed air jet.
- Carefully check each chain for any signs of wear.

⚠ IMPORTANT ⚠

In case of technical faults, consult your dealer.

- Grease the chains sparingly (◁ LUBRICANTS AND FUEL).

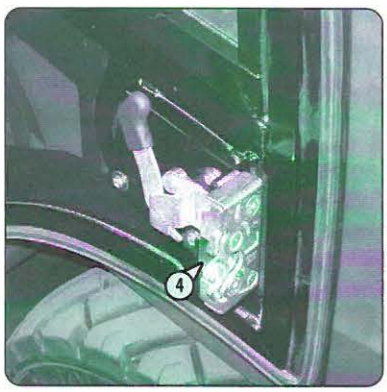
LUBRICATE — Cab door locks (OPTION)



- Unscrew the tip 1 of the opening control for the right-hand half-door.
- Remove the tip of the lever 2 on each lock.
- Remove the protective casings 3 from each lock.

LUBRICATION OF THE LOCKS

- Clean and check the operation.
- Lubricate the mechanism 4.
- Refit the casings and the tips.



647840 M4 (B092021)
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

REPLACE Engine oil filter

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

⚠ IMPORTANT ⚠

Dispose of the drain oil in an ecological manner.

- Open the engine cover (◁ 2 - DESCRIPTION - INSTRUMENTS AND CONTROLS).
- Remove the access panel 1.
- Clean the areas around the plugs and oil filter.

DRAINING THE OIL

- Place a container under the drain port 2 and unscrew the plug.
- Remove the filler plug 3 to ensure that the oil is drained properly.

REPLACEMENT OF THE FILTER

- Unscrew and recycle the engine oil filter 4, together with its seal.
- Clean the filter bracket with a clean, lint-free cloth.
- Lightly grease the seal before refitting the new oil filter (◁ FILTER CARTRIDGES AND BELTS) on its bracket.
- Tighten the oil filter by hand pressure only and lock the filter in place by a quarter turn.

FILLING WITH OIL

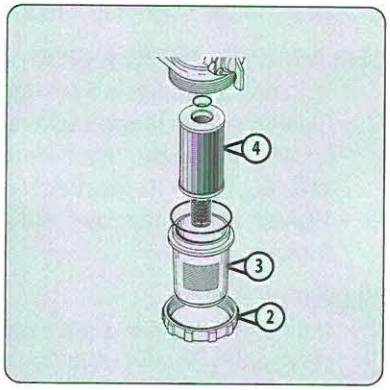
- Refit and tighten the drain plug 2 (tightening torque 32,4 - 37,2 N.m).
- Fill up with oil (◁ LUBRICANTS AND FUEL) through filler hole 5.
- Wait a few minutes to allow the oil to flow into the sump.
- Start the engine and let it run for a few minutes.
- Check for possible leaks from the drain plug and the oil filter.
- Stop the engine; wait a few minutes
- Check the correct level between the two notches on the dipstick 6.
- Top up if necessary.
- Refit the filler plug 3.
- Refit access panel 1.

647840 M4 (B092021)
MC-X... D K ST3A S1 / MSI-X... D K ST3A S1

REPLACE — Fuel pre-filter

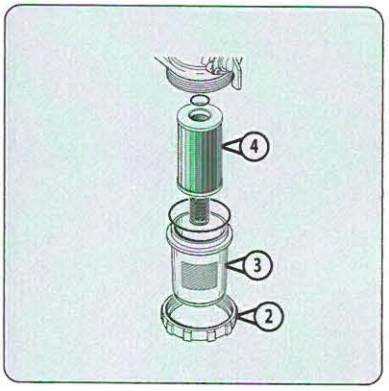
- Switch off the lift truck's ignition.
- Open the engine cover (◁ 2 - DESCRIPTION - INSTRUMENTS AND CONTROLS).
- Carefully clean the outside of the pre-filter and its holder, to prevent dust from getting into the system.
- Close the pre-filter tap 1 in the "OFF". position.
- Unscrew the retaining ring 2, remove the bowl 3 and clean inside using a brush soaked in clean diesel.
- Remove and recycle the filter cartridge 4.
- Clean the inside of the filter head using a brush immersed in clean diesel oil.
- Lightly grease the seal before fitting the new fuel filter (◁ FILTER CARTRIDGES AND BELTS).
- Tighten the ring by hand pressure only and lock with a quarter turn.
- Open the filter tap 1 in the "ON" position.

After replacing the fuel pre-filter, replace the fuel filter.



REPLACE — Fuel filter

- Carefully clean the outside of the filter and its holder, to prevent dust from getting into the system.
- Close the filter tap 1 in the "OFF". position
- Unscrew the retaining ring 2, remove the bowl 3 and clean inside using a brush soaked in clean diesel.
- Remove and recycle the filter cartridge 4.
- Clean the inside of the filter head using a brush immersed in clean diesel oil.
- Lightly grease the seal before fitting the new fuel filter (◁ FILTER CARTRIDGES AND BELTS).
- Tighten the ring by hand pressure only and lock with a quarter turn.
- Open the filter tap 1 in the "ON" position.
- Bleed the fuel supply circuit (◁ OCCASIONAL MAINTENANCE).



647840 M4 (B092021)
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

REPLACE — Alternator belt

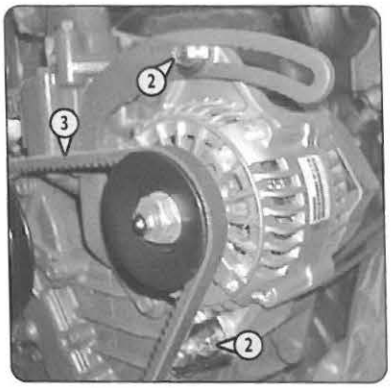
⚠ IMPORTANT ⚠

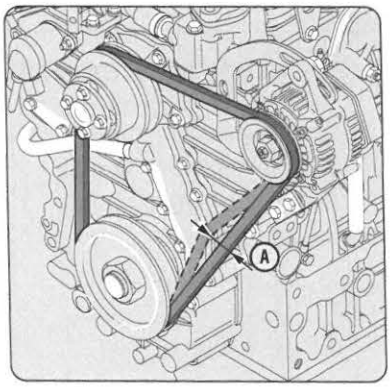
Check the belt tension again after the first 20 hours of operation.

- Remove the access panel 1.
- Loosen screws 2 by two to three thread turns.
- Swivel the alternator assembly so as to free the belt 3.

NOTE: Take the opportunity provided by the removal of the belt to check that the pulleys and bearings are working correctly (noise, friction, play, etc.).

- Remove the belt and replace with a new one (◁ FILTER CARTRIDGES AND BELTS).
- Ensure that it is properly seated in the grooves of each pulley.
- Adjust the belt tension between the crankshaft and alternator pulleys.
- Swivel the alternator assembly so as to obtain the required belt tension, namely.
  - Under normal thumb pressure (98 N), measure the clearance A of between 7 and 9 mm.
  - Using the MANITOU tension meter (Part No. 895692), measure the value 130 Hz.
- Retighten the screws 2 (tightening torque 22 Nm).



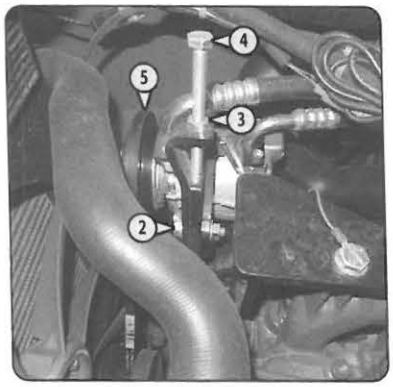


REPLACE — Compressor belt (Air Conditioning OPTION)

⚠ IMPORTANT ⚠

Check the belt tension again after the first 20 hours of operation.

- Remove the access panel 1.
- Loosen screws 2 by two to three thread turns.
- Loosen the locknut 3 and the screw 4.
- Swivel the compressor assembly so as to free the belt 5.
- Remove the belt and replace with a new one (◁ FILTER CARTRIDGES AND BELTS).
- Ensure that it is properly seated in the grooves of each pulley.
- Adjust the compressor using the screw 4, so as to obtain the belt tension required.
- Under normal pressure applied by the thumb (98 N), belt movement should be between 7 and 9 mm.
- Retighten locknut 3.
- Retighten the screws 2.



647840 M4 (B092021)
MC-X . . . D K ST3A S1 / MSI-X . . . D K ST3A S1

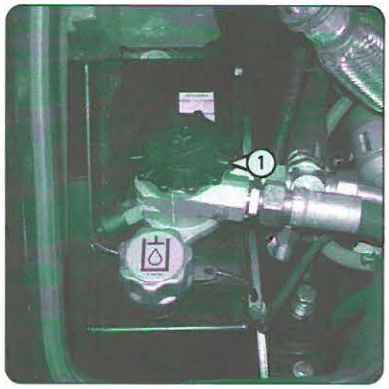
REPLACE — Hydraulic return oil filter cartridge

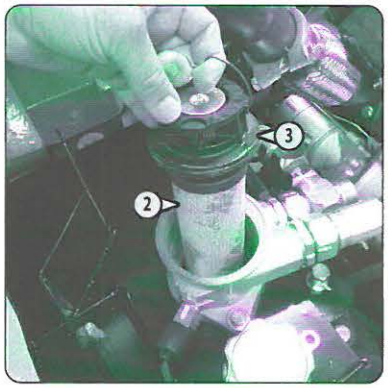
Place the lift truck on level ground with the engine stopped.

⚠ IMPORTANT ⚠

Do not operate the lift truck without the cartridge in place, as this would immediately damage the hydraulic transmission system, the pump and the hydrostatic wheel motors.

- Release the pressure from the circuits by operating the hydraulic controls.
- Open the engine cover (◁ 2 - DESCRIPTION - INSTRUMENTS AND CONTROLS).
- Carefully clean the outside of the filter and the area surrounding it
- Unscrew the plug 1 with a wrench.
- Remove the hydraulic oil filter cartridge 2 from the filter head 3 and replace it with a new one (◁ FILTER CARTRIDGES AND BELTS).
- Refit the unit.

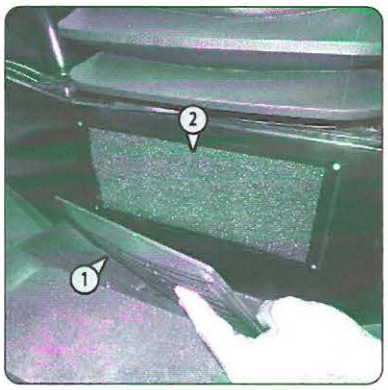




REPLACE — Cab fan filters (OPTION)

INTERIOR CAB VENTILATION FILTER

- Remove the protective grid 1.
- Remove the cab ventilation filter 2 and replace it with a new one (◁ FILTER CARTRIDGES AND BELTS).
- Refit the protective grid.



EXTERIOR CAB VENTILATION FILTER

- Remove the floor mat.
- Remove the cab ventilation filter 3 and replace it with a new one (◁ FILTER CARTRIDGES AND BELTS).
- Put back the floor mat.

CHECK — Fork wear *

** Consult your dealer.*

647840 M4 (B092021)
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

➲ ❷ 1000H - PERIODIC SERVICE - EVERY 1,000 HOURS OF SERVICE OR 2 YEARS

ALSO CARRY OUT THE PERIODIC MAINTENANCE FOR 500 HOURS OF SERVICE.

CHECK — Seat belt

⚠ IMPORTANT ⚠

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

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.

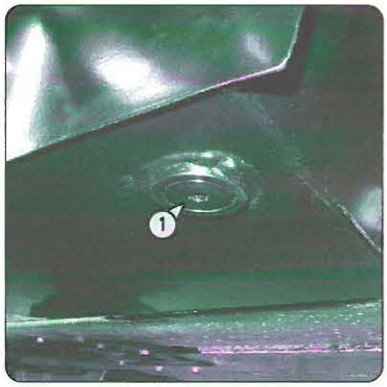
CLEAN — Fuel tank

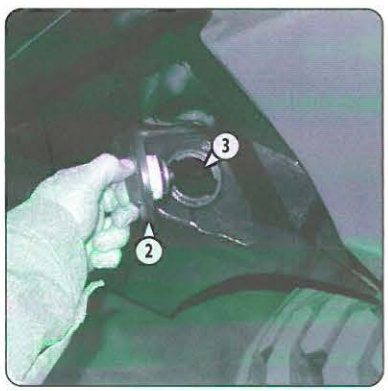
Place the lift truck on level ground with the engine stopped.

⚠ IMPORTANT ⚠

While carrying out these operations, do not smoke or work near a flame.
Never try to carry out a weld or any other operation by yourself, this could provoke an explosion or a fire.

- Check for any possible leaks in the fuel circuit and tank.
- In the event of a leak, consult your dealer.
- Place a container under drain plug 1 and unscrew the plug.
- Remove the filler plug 2 to ensure correct drainage.
- Rinse with ten litres of clean diesel through filler hole 3.
- Refit and tighten the drain plug 1 (tightening torque 73 - 97 N.m).
- Fill the fuel tank with clean, filtered diesel.
- Turn on the lift truck's ignition to bleed air from the circuit.
- If necessary, bleed the fuel supply circuit (◅ OCCASIONAL MAINTENANCE).





647840 M4 (B092021)
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

REPLACE — *Coolant*

These operations are to be carried out as necessary 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 anti-corrosion element and must be filled with a mixture containing 25% of ethylene glycol-based antifreeze all year round.

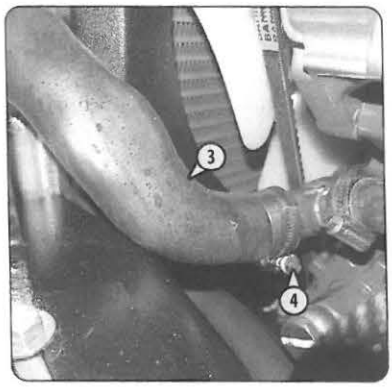
- Open the engine cover (◁ 2 - DESCRIPTION - INSTRUMENTS AND CONTROLS).
- Remove the access panel 1.

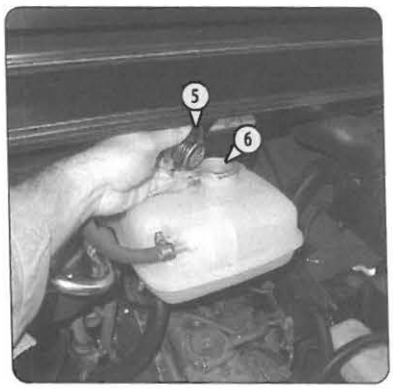
DRAINING THE LIQUID

- Open the tap 2 to ensure good drainage.
- Place a container under hose 3.
- Undo the clamp 4 and remove the hose 3.
- Remove the filler plug 5 to ensure that the oil is drained properly.
- Let the cooling circuit drain entirely while ensuring that the ports do not get clogged.
- Check the condition of the hoses and their attachments, and change if necessary.
- Rinse the circuit with clean water, or use a cleaning agent if necessary.

FILLING WITH COOLANT

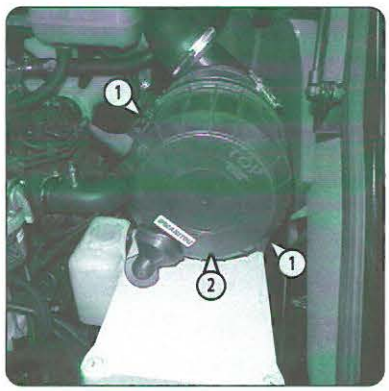
- Refit the hose 3 with its clamp 4.
- Close tap 2 again.
- Slowly fill the system with the coolant (◁ LUBRICANTS AND FUEL) through the filler hole 6.
- Refit the filler plug 5.
- Run the engine at idle for a few minutes.
- Visually check that there is no leakage in the radiator and pipes.
- Check the level. The liquid must be at the MAX. level on the expansion tank.
- Top up if necessary.

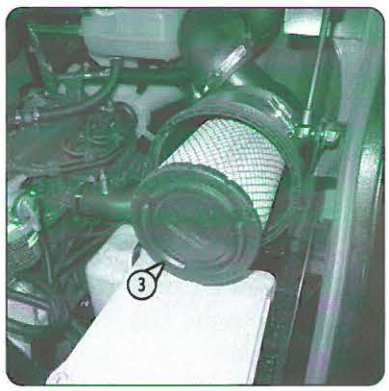




647840 M4 (B092021)
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

REPLACE — Dry air filter cartridge





Pre-filtration cartridges are available for use in very dusty atmospheres (◁ FILTER CARTRIDGES AND BELTS). In this case, the cartridge replacement interval must be reduced.

⚠ IMPORTANT ⚠

Replace the cartridge in a clean location.

Never operate the lift truck with the air filter removed or damaged.

- Switch off the engine.
- Open the engine cover (◁ 2 - DESCRIPTION - INSTRUMENTS AND CONTROLS).
- Release the locks 1 and remove the cover 2.
- Gently remove the cartridge 3 to reduce dust falling as far as possible.
- Leave the safety cartridge in place.
- Carefully clean the following parts 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.
- Lubricate the surface of the seal with a silicone lubricant (MANITOU Part No.: 479292).
- Visually inspect the outer condition of the air filter and its attachments.
- Also check the condition and attachments of the hoses.
- Check the connection and condition of the clogging indicator on the filter.
- Before fitting check the condition of the new cartridge (◁ FILTER CARTRIDGES AND BELTS).
- Introduce the cartridge into the filter axis, pressing on the edges and not the middle.
- Reassemble the cover, guiding the valve downwards.

CHECK — Silentblocks **

CHECK — Valve lash **

CHECK — Injectors **

CHECK — Condition of wheels and tyres *

CHECK — Condition of wiring harnesses and cables *

CHECK — Lights and signals *

CHECK — Warning indicators *

CHECK — Condition of the rear-view mirrors *

CHECK — Structure of the overhead guard or the cab *

CHECK — Frame structure *

CHECK — Attachment mounting system *

CHECK — Condition of attachments *

** *Engine service, consult your dealer.*

* *Consult your dealer.*

647840 M4 (B092021)
MC-X . . . D K ST3A S1 / MSI-X . . . D K ST3A S1

➲ ❸ 2000H - PERIODIC SERVICE - EVERY 2,000 HOURS OF SERVICE OR 4 YEARS

ALSO PERFORM THE 500 HOUR AND 1,000 HOUR PERIODIC MAINTENANCE OPERATIONS.

CHECK — Wheel nut tightening torques

- Check the condition of the tyres to detect cuts, blisters, wear, etc.
- Check the tightening torque of the wheel nuts with a torque wrench.
  - Front wheels = 550 N.m ± 55 N.m
  - Rear wheels = 110 N.m ± 16 N.m MC-X . . -2 / MSI-X . .
  - Rear wheels = 200 N.m ± 20 N.m MC-X . . -4

CLEAN — Air conditioning (OPTION) *

⚠ IMPORTANT ⚠

This operation must be performed by a qualified, accredited person (coolant certificate). Consult your dealer.
NEVER TRY TO REPAIR ANY FAULTS YOURSELF.
WHEN REFILLING CIRCUITS, ALWAYS REFER TO A DEALER WHO HAS THE CORRECT SPARE PARTS AND THE TECHNICAL KNOWLEDGE AND TOOLS REQUIRED.
In any of the following circumstances, call a doctor.
If inhaled, take the victim to fresh air.
If there is contact with the skin, wash immediately with plenty of water.
If there is frostbite, apply a sterile dressing.
If there is contact with the eyes, rinse with clear water for 15 minutes.

CLEANING CONDENSER AND EVAPORATOR COILS

CLEANING CONDENSATE TRAY AND RELIEF VALVE

COLLECTING COOLANT TO REPLACE DRIER FILTER

REFILLING WITH COOLANT AND CHECKING THE THERMOSTATIC CONTROL AND PRESSURE SWITCHES

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

IMPORTANT INFORMATION REGARDING THE COOLANT USED

- This product contains fluorinated greenhouse gases covered by the Kyoto Protocol.
- Coolant type: R134A; it is colourless and odourless and heavier than air. Its GWP (Global Warming Potential) is 1430.
- Do not allow the gases to escape into the atmosphere. Do not open the circuit under any circumstances, as this could cause refrigerant to escape.

- The compressor has a fluid level gauge; never unscrew this gauge because it would depressurise the system. The fluid level should only be checked when draining the system.

REPLACE — Dry air filter safety cartridge

⚠ IMPORTANT ⚠

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

- For the dismantling and refitting of the cartridge (◁ 1000H: REPLACE Air filter cartridge).
- Remove the dry air filter safety cartridge 1 carefully, to minimise dust fall.
- Clean the gasket surface of the safety cartridge with a clean, damp, lint-free cloth.
- Before fitting, check the condition of the new safety cartridge (◁ FILTER CARTRIDGES AND BELTS).
- Insert the cartridge in the filter axis and push the cartridge pressing against the outer edge and not the centre.

647840 M4 (B092021)
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

REPLACE ***Hydraulic oil***

CLEAN ***Hydraulic oil tank suction strainer***

REPLACE ***Hydraulic oil tank filter cap***

Place the lift truck on level ground with the engine stopped, the mast tilted backwards and lowered as far as possible.

⚠ IMPORTANT ⚠

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

Dispose of the drain oil in an ecological manner.

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

- Open the engine cover (◁ 2 - DESCRIPTION - INSTRUMENTS AND CONTROLS).

DRAINING THE OIL

- Place a container under drain plug 1 and unscrew the plug.
- Remove level and filling plug 2 to ensure that the oil is drained properly and discard.
- Allow the hydraulic tank to empty completely.

CLEANING THE STRAINER

- Consult your dealer.

FILLING WITH OIL

- Clean and refit the drain plug 1 (tightening torque 73 - 97 N.m).
- Fill up with oil (◁ LUBRICANTS AND FUEL) through filler hole 3.
- Check the oil level on the dipstick 4, the oil level should be level with the red point.
- Check for any possible leaks at the drain plug.

FILTER PLUG REPLACEMENT

- Replace filler plug with a new filler plug 2 (◁ FILTER CARTRIDGES AND BELTS).

HYDRAULIC CIRCUIT DECONTAMINATION

- Let the engine run (accelerator pedal at mid position) for 5 minutes without using any accessories on the lift truck, then for 5 more minutes while using all the hydraulic movements (except the steering system and the service brakes).
- Accelerate the engine at full speed for 1 minute, then activate the steering system and the service brakes.
- This operation allows the circuit to be decontaminated by the hydraulic oil filter.

⚠ IMPORTANT ⚠

It is sometimes necessary to bleed the circuits at the pump inlet when an air bubble forms during draining. Then consult your dealer.

647840 M4 (B092021)
MC-X . . . D K ST3A S1 / MSI-X . . . D K ST3A S1

CHECK — Radiator *

CHECK — Hydrostatic transmission circuit pressures *

CHECK — Hydrostatic transmission/accelerator cut-off *

CHECK — Steering *

CHECK — Steering swivel joints *

CHECK — Rear axle *

CHECK — Mast assembly *

CHECK — Mast lifting chains *

CHECK — Mast rollers *

CHECK — Condition of hoses and flexible pipes *

CHECK — Condition of cylinders (leakage, rods) *

CHECK — Speeds of hydraulic movements *

CHECK — Hydraulic circuit pressures *

CHECK — Bearings and bushings of the frame*

* Consult your dealer.

647840 M4 (B092021)
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

➲ ❹ 3000H - PERIODIC SERVICE - EVERY 3,000 HOURS OF SERVICE OR 6 YEARS

ALSO PERFORM THE 500 HOUR AND 1,000 HOUR PERIODIC MAINTENANCE OPERATIONS.

CHECK ***Turbocharger *****

CHECK ***Injection pump *****

** Consult your dealer.*

*** Engine service, consult your dealer.*

647840 M4 (B092021)
MC-X . . . D K ST3A S1 / MSI-X . . . D K ST3A S1

CLEAN — Driver's cab

NOTE: The frequency of cleaning is given as an example.

⚠ IMPORTANT ⚠

Do not use a high pressure cleaner or water jet.

Take precautions with electrical and electronic components.

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

CLEAN — Engine compartment

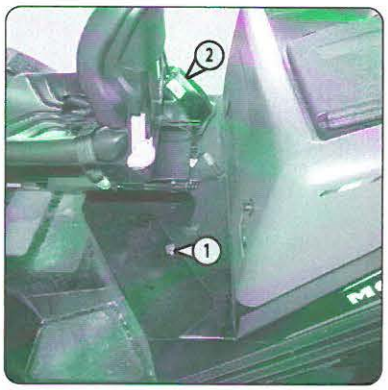
CLEAN — Inside of the frame

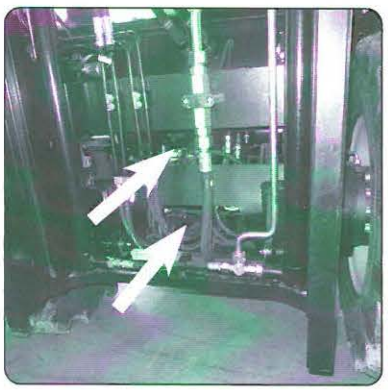
⚠ IMPORTANT ⚠

Do not use a high pressure cleaner or water jet.

Take precautions with electrical and electronic components.

- Open the engine cover (◁ 2 - DESCRIPTION - INSTRUMENTS AND CONTROLS).
- Open the battery access flap 1.
- Remove the protection for the hydraulic controls 2.
- Clean the engine compartment and the inside of the frame using a compressed air jet.





647840 M4 (B092021)
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

⚠ 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.
- Stop the lift truck (◁ 1 - OPERATING AND SAFETY INSTRUCTIONS: DRIVING INSTRUCTIONS UNLADEN AND LADEN).
- Switch on the hazard warning lights (Option).
- Immobilise 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.

REAR WHEEL

For this operation, we advise you to use the hydraulic jack (MANITOU Part no.: 505507).

- Place the jack under the counterweight. It must be situated in the middle and under the flat part of the counterweight.
- Lift the wheel until it comes off the ground and put in place the safety block 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 security block and lower the lift truck with the jack.
- Tighten the wheel nuts with a torque wrench (◁ 2000H - PERIODIC SERVICE - EVERY 2,000 HOURS OF SERVICE OR EVERY 4 YEARS) for the tightening torque.

FRONT WHEEL

- Lift the carriage and tilt the mast backwards.
- Immobilise under the foot of the mast on the side where the wheel is being changed.
- Tilt the mast forwards to lift the wheel.
- Place wedges under the chassis as near as possible to the wheel.
- 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 wedges under the axle and lower the lift truck.
- Tighten the wheel nuts with a torque wrench (◁ 2000H - PERIODIC SERVICE - EVERY 2,000 HOURS OF SERVICE OR EVERY 4 YEARS) for the tightening torque.

647840 M4 (B092021)
MC-X . . . D K ST3A S1 / MSI-X . . . D K ST3A S1

REPLACE — Battery

⚠ IMPORTANT ⚠

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

- Wear protective goggles.

- Keep the battery horizontal.

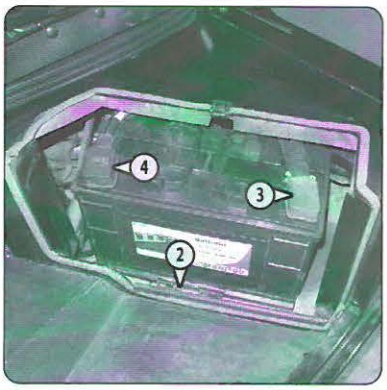
- Never smoke or work near a naked flame.

- Work in a well-ventilated area.

- In the event of electrolyte being spilled onto the skin or splashed in the eyes, rinse thoroughly with cold water for 15 minutes and call a doctor.

- Turn off the power to the battery cut-off.
- Open the battery access flap 1.
- Unscrew the battery fastener 2.
- Disconnect terminal 3 (+) then terminal 4 (-).
- Replace the battery.

NOTE: A large-capacity battery is available as an OPTION.



BLEED — Fuel supply circuit

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

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

- Ensure that the fuel level in the tank is sufficient and bleed in the following order:
- Open the engine cover (◁ 2 - DESCRIPTION - INSTRUMENTS AND CONTROLS).
- Remove the access panel 1.

BLEEDING THE FUEL FILTER

- Unscrew bleeder screw 2.
- Switch on the lift truck ignition until the diesel fuel flows from the bleeder screw free of any air.
- Tighten the bleed screw while the diesel fuel is flowing out.

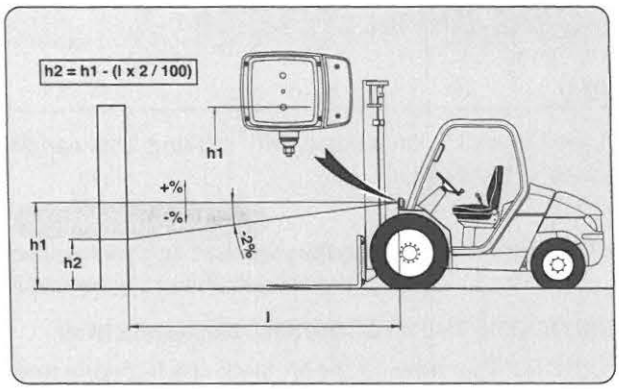
BLEEDING THE INJECTION PUMP

- Open bleed screw 3.
- Switch on the lift truck ignition until the diesel fuel flows from the bleeder screw free of any air.
- Hermetically close the bleed valve while the diesel fuel is flowing.

The engine is now ready to be started.

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

647840 M4 (B092021)
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1



RECOMMENDED SETTING

(according to standard ECE-76/756 76/761 ECE20)

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

ADJUSTMENT PROCEDURE

- Place the unladen lift truck in the transport position and perpendicular to a white wall on flat, level ground.
- Check the tyre pressures (◁ 2 - DESCRIPTION: 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.

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MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

TOW

Lift truck

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

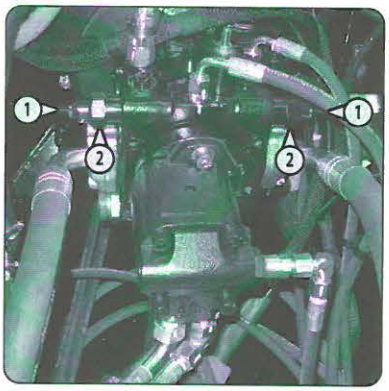
⚠ IMPORTANT ⚠

The lift truck must be towed very slowly (less than 5 km/h) and for as short a distance as possible (less than 100 m). Use a rigid drawbar, as the lift truck is disconnected from its brake system.

UNLOCKING THE HYDROSTATIC TRANSMISSION

NOTE: When towing the lift truck, the high pressure limiters 1 must be unlocked to avoid damaging the hydrostatic transmission.

- Open the engine cover (◁ 2 - DESCRIPTION - INSTRUMENTS AND CONTROLS).
- Unscrew the nuts 2 by two turns at the most.



UNLOCKING THE FRONT WHEEL BRAKES

- Open the battery access flap 3.
- Push button 4.
- Pump (minimum of 20 times) using the button 5 to release the front wheel brakes.

TOWING THE LIFT TRUCK

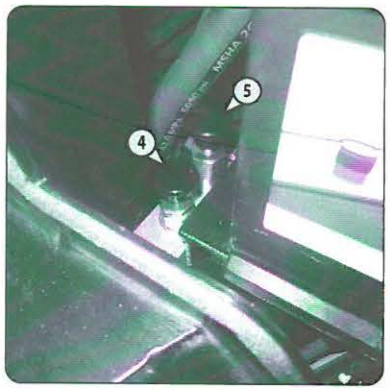
- Switch on the hazard warning lights (Option).
- Tow the lift truck gently and carefully.

Steering hydraulic assistance fails:

- Use the steering wheel slowly but powerfully.
- Avoid sudden or jerky movements.

AFTER TOWING THE LIFT TRUCK

- Proceed in the reverse order to lock the high pressure limiters.
- Pull the button 4 to reactivate braking.



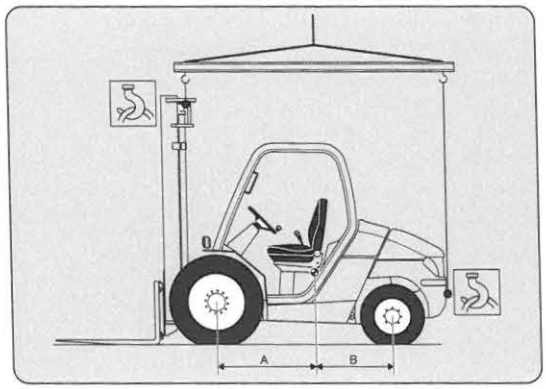
647840 M4 (B092021)
MC-X... D K ST3A S1 / MSI-X... D K ST3A S1

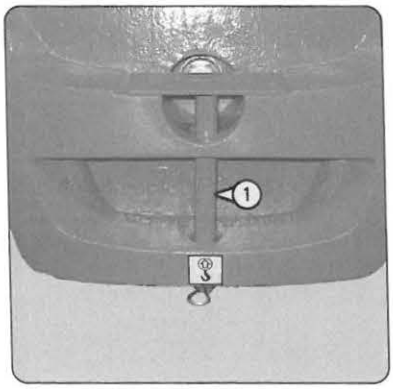
SLING — Lift truck

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

A = 1150 mm	B = 750 mm	MC-X 25-2
A = 1160 mm	B = 740 mm	MC-X 25-4
A = 1180 mm	B = 720 mm	MC-X 30-2
A = 1130 mm	B = 770 mm	MC-X 30-4
A = 1150 mm	B = 750 mm	MSI-X 25
A = 1180 mm	B = 720 mm	MSI-X 30
A = 1210 mm	B = 690 mm	MSI-X 35

- Place the hooks in the fastening points 1 provided.



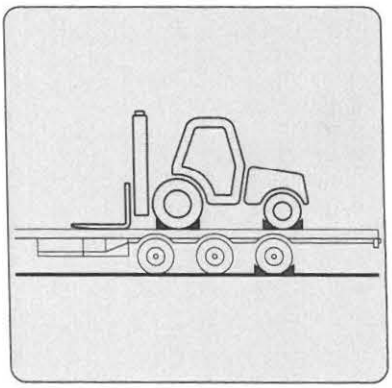


TRANSPORT — Lift truck

⚠ IMPORTANT ⚠

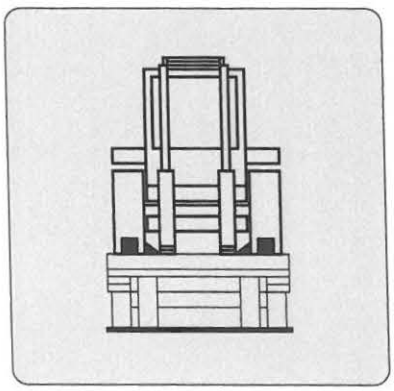
Check that the safety instructions relating to the flatbed have been correctly applied before loading the lift truck and that the transport company is informed about the dimensions and the weight of the lift truck (◁ 2 - DESCRIPTION: SPECIFICATIONS).

Ensure that the platform is of sufficient size and load capacity for transporting the lift truck.
Also check the allowable ground contact pressure of the platform relative to the lift truck.



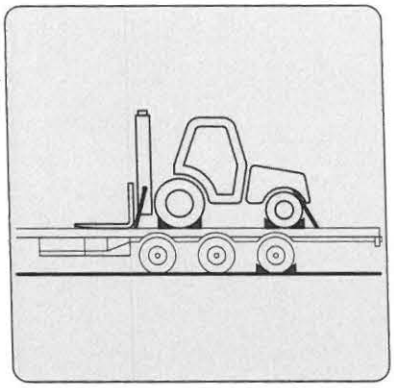
LOADING THE LIFT TRUCK

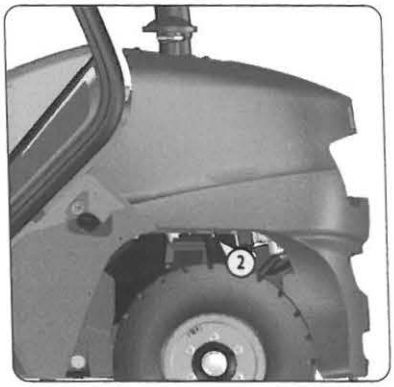
- Block the wheels of the platform.
- Attach the loading ramps to the platform in such a way as to give the shallowest possible ramp angle for the lift truck.
- Load the lift truck parallel to the platform.
- Stop the lift truck (◁ 1 - OPERATING AND SAFETY INSTRUCTIONS: DRIVING INSTRUCTIONS UNLADEN AND LADEN).



STOWING THE LIFT TRUCK

- Fix the chocks to the flatbed at the front and at the back of each tyre.
- Also fix the chocks to the flatbed on the inside of each tyre.
- Secure the lift truck to the platform with sufficiently strong straps:
  - At the front, at the foot of the mast, to the anchorage points 1.
  - At the rear, to the anchorage points 2.
- Tighten the straps.





647840 M4 (B092021)
MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

4 - OPTIONAL ADAPTABLE ATTACHMENTS FOR THE RANGE

4 - OPTIONAL ADAPTABLE ATTACHMENTS FOR THE RANGE

INTRODUCTION

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

A wide range of attachments is available, guaranteed by MANITOU and designed to fit your lift truck perfectly.

⚠ IMPORTANT ⚠

Only attachments approved by MANITOU can be used with their lift trucks (see: 4 ADAPTABLE ATTACHMENTS AVAILABLE ON THE RANGE: TECHNICAL SPECIFICATIONS OF ATTACHMENTS).

The manufacturer cannot be held responsible for any modifications or adaptations to attachments without its knowledge.

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.

Should the attachment have a lower capacity than the lift truck, never exceed this limit.

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

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

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MC-X . . D K ST3A S1 / MSI-X . . D K ST3A S1

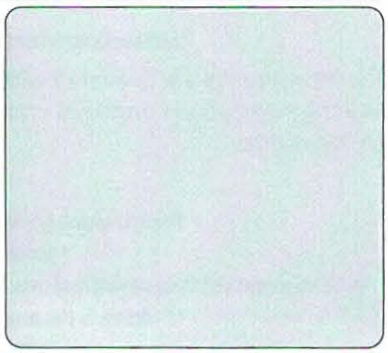
TECHNICAL SPECIFICATIONS OF ATTACHMENTS

*: Double mast with all-round vision (DVT)

**: Double mast with free-acting lift (DLL)

***: Triple mast with free-acting lift (TLL)

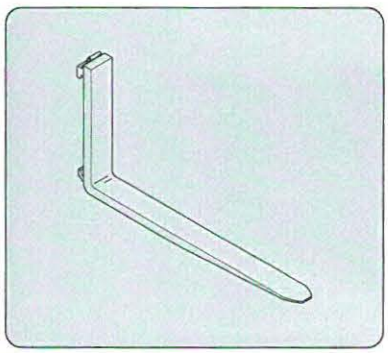
STANDARDISED SIDESHIFT CARRIAGE



	-
PART NO.	-
Rated capacity	kg
Sideshift	- mm
Width	mm
Weight	kg

STANDARDISED FORK

MC-X 25-2 D K ST3A S1 / MC-X 25-4 D K ST3 S1 / MSI-X 25 D K ST3A S1

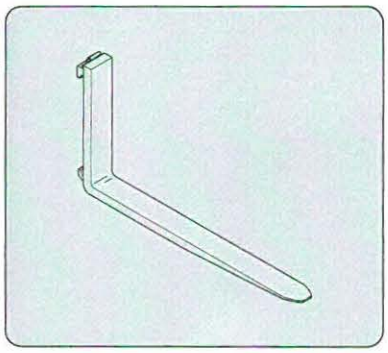


PART NO.	**52585528**	**52596822**	**52585529**
Section	100 x 40 x 1,100 mm	122 x 40 x 1,150 mm	100 x 40 x 1,200 mm
Weight	kg	kg	kg

PART NO.	**52585530**	**52585531**
Section	100 x 40 x 1,500 mm	125 x 45 x 1,200 mm
Weight	kg	kg

STANDARDISED FORK

MC-X 30-2 D K ST3A S1 / MC-X 30-4 D K ST3A S1 / MSI-X 30 D K ST3A S1

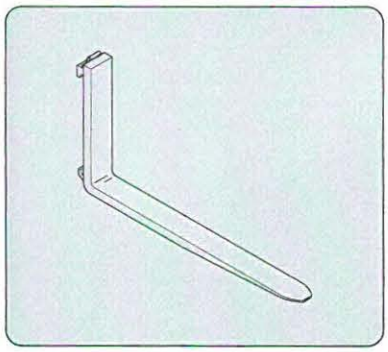


PART NO.	**52585536**	**52596827**	**52585538**
Section	100 x 45 x 1,100 mm	122 x 45 x 1,150 mm	100 x 45 x 1,200 mm
Weight	kg	kg	kg

PART NO.	**52585540**	**52585534**
Section	100 x 45 x 1,500 mm	150 x 50 x 1,200 mm
Weight	kg	kg

STANDARDISED FORK

MSI-X 35 D K ST3A S1



PART NO.	**52585534**	**52585535**	**52596829**
Section	150 x 50 x 1,200 mm	125 x 45 x 1,100 mm	122 x 50 x 1,150 mm
Weight	kg	kg	kg

PART NO.	**52585537**	**52585539**
Section	125 x 45 x 1,200 mm	125 x 45 x 1,500 mm
Weight	kg	kg

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ATTACHMENT GUARDS

FORK GUARD

PART NO. 227801