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MT-X 625 Série 2-E3
MT-X 625 COMFORT Série 2-E3

OPERATOR'S MANUAL
(ORIGINAL INSTRUCTIONS)

IMPORTANT

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

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

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

WHENEVER YOU SEE THIS SYMBOL IT MEANS:



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

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

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See also the operator's manual supplement: 647065 AU



1 - OPERATING AND SAFETY INSTRUCTIONS

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INSTRUCTIONS TO THE COMPANY MANAGER

THE SITE

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

THE OPERATOR

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

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

- *The foreseeable abnormal behaviour resulting from ordinary neglect, but does not result from any wish to put the machinery to any improper use.*
 - *The reflex reactions of a person in the event of a malfunction, incident, fault, etc. during operation of the lift truck.*
 - *Behaviour resulting from application of the «principle of least action» when performing a task.*
 - *For certain machines, the foreseeable behaviour of such persons as: apprentices, teenagers, handicapped persons, trainees tempted to drive a lift truck, operator tempted to operate a truck to win a bet, in competition or for their own personal experience.*
- The person in charge of the equipment must take these criteria into account when assessing whether or not a person will make a suitable driver.*

THE LIFT TRUCK

A - THE 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 harmonized norm **EN 1459** for variable range trucks.
- Before commissioning, the company manager must make sure that the lift truck is appropriate for the work to be done, and perform certain tests (in accordance with current legislation).

B - ADAPTATION OF THE LIFT TRUCK TO STANDARD ENVIRONMENTAL CONDITIONS

- In addition to series equipment mounted on your lift truck, many options are available, such as: road lighting, stop lights, flashing light, reverse lights, reverse buzzer alarm, front light, rear light, light at the jib head, etc... (as model of lift truck).
- The operator must take into account the operating conditions to define the lift truck's signalling and lighting equipment. Contact your dealer.
- Take into account climatic and atmospheric conditions of the site of utilisation.
 - . Protection against frost (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL).
 - . Adaptation of lubricants (ask your dealer for information).
 - . I.C. engine filtration (see: 3 - MAINTENANCE: FILTERS CARTRIDGES AND BELTS).

! *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. It is the same for the cooling liquid.*

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

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

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

C - MODIFICATION OF THE LIFT TRUCK

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

D - FRENCH ROAD TRAFFIC RULES

(or see current legislation in other countries)

- Only one certificate of conformity is issued. It must be kept in a safe place.

THE INSTRUCTIONS

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

THE MAINTENANCE

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

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

INSTRUCTIONS FOR THE OPERATOR

PREAMBLE

WHENEVER YOU SEE THIS SYMBOL IT MEANS:



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

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

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

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

GENERAL INSTRUCTIONS

A - OPERATOR'S MANUAL

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

B - AUTHORISATION FOR USE IN FRANCE

(or see current legislation in other countries)

- Only qualified, authorized personnel can use the lift truck. This authorization is given in writing by the appropriate person in the establishment with respect to the use of lift trucks and must be carried permanently by the operator.
- The operator is not competent to authorise the driving of the lift truck by another person.

C - MAINTENANCE

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

⚠ Do not use the lift truck if the tyres are incorrectly inflated, damaged or excessively worn, because this could put your own safety or that of others at risk, or cause damage to the lift truck itself. The fitting of foam inflated tyres is prohibited and is not guaranteed by the manufacturer, excepting prior authorisation.

D - MODIFICATION OF THE LIFT TRUCK

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

E - LIFTING PEOPLE

- The use of working equipment and load lifting attachments to lift people is:
 - either forbidden
 - or authorized exceptionally and under certain conditions (see current regulations in the country in which the lift truck is used).
- The pictogram posted at the operator station reminds you that:
 - Left-hand column
 - It is forbidden to lift people, with any kind of attachment, using a non PLATFORM-fitted lift truck.
 - Right-hand column
 - With a PLATFORM-fitted lift truck, people can only be lifted using platforms designed by MANITOU for the purpose.
- MANITOU sells equipment specifically designed for lifting people (OPTION PLATFORM lift truck, contact your dealer).



A - BEFORE STARTING THE LIFT TRUCK

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

B - DRIVER'S OPERATING INSTRUCTIONS

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



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

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

C - ENVIRONMENT

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

- Moving without load: Forks or attachment facing downhill.



- Moving with load: Forks or attachment facing uphill.



- Take into account the lift truck's dimensions and its load before trying to negotiate a narrow or low passageway.
- Never move onto a loading platform without having first checked:
 - That it is suitably positioned and made fast.
 - That the unit to which it is connected (wagon, lorry, etc.) will not shift.
 - That this platform is prescribed for the total weight of the lift truck to be loaded.
 - That this platform is prescribed for the size of the lift truck.
- Never move onto a foot bridge, floor or freight lift, without being certain that they are prescribed for the weight and size of the lift truck to be loaded and without having checked that they are in sound working order.
- Be careful in the area of loading bays, trenches, scaffolding, soft land and manholes.
- Make sure the ground is stable and firm under the wheels and/or stabilizers before lifting or removing the load. If necessary, add sufficient wedging under the stabilizers.
- Make sure that the scaffolding, loading platform, pilings or ground is capable of bearing the load.
- Never stack loads on uneven ground, they may tip over.

! *If the load or the attachment must remain above a structure for a long time, there is the risk that it will rest on the structure because of the jib descending owing to the oil in the cylinders cooling down.*

To eliminate this risk:

- *Regularly check the distance between the load or the attachment and the structure and readjust this if necessary.*
- *If possible use the lift truck at an oil temperature as close as possible to ambient temperature.*

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

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

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

D - VISIBILITY

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

E - STARTING THE LIFT TRUCK

SAFETY INSTRUCTIONS



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

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



Failure to respect polarity between batteries can cause serious damage to the electrical circuit. The electrolyte in the battery may produce an explosive gas. Avoid flames and generation of sparks close to the batteries. Never disconnect a battery while it is charging.

INSTRUCTIONS

- Check the closing and locking of the hood(s).
- Check that the cab door is closed.
- Check that the forward/reverse selector is in neutral.
- Turn the ignition key to the position I to activate the electrical system and the preheat.
- Whenever you switch on the lift truck, perform the automatic check on the longitudinal stability limiter and warning device system (see: 2 - DESCRIPTION: INSTRUMENTS AND CONTROLS). Do not use the lift truck if it does not conform to the regulations.
- Check the fuel level on the indicator.
- Turn the ignition key fully: the I.C. engine should then start. Release the ignition key and let the I.C. 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 I.C. 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 I.C. engine and immediately carry out the necessary operations.

F - DRIVING THE LIFT TRUCK

SAFETY INSTRUCTIONS



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

- Risk of losing control.
- Risk of losing lateral and frontal stability of the lift truck.

The operator must remain in control of the lift truck.

In the event of the lift truck overturning, do not try to leave the cabin during the incident. YOUR BEST PROTECTION IS TO STAY FASTENED IN THE CABIN.

- Observe the company's traffic regulations or, by default, the public highway code.
- Do not carry out operations which exceed the capacities of your lift truck or attachments.
- Always drive the lift truck with the forks or attachment to the transport position, i.e. at 300 mm from the ground, the jib retracted and the carriage sloping backwards.
- Only carry loads which are balanced and properly anchored to avoid any risk of a load falling off.
- Ensure that pallets, 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 jib controls when the lift truck is moving.
- Never change the steering mode whilst driving.
- Do not manoeuvre the lift truck with the jib in the raised position unless under exceptional circumstances and then with extreme caution, at very low speed and using gentle braking. Ensure that visibility is adequate.
- Take bends slowly.
- In all circumstances make sure you are in control of your speed.
- On damp, slippery or uneven terrain, drive slowly.
- Brake gently, never abruptly.
- Only use the lift truck's forward/reverse selector from a stationary position and never do so abruptly.
- Do not drive with your foot on the brake pedal.
- Always remember that hydrostatic type steering is extremely sensitive to movement of the steering wheel, so turn it gently and not jerkily.
- Never leave the I.C. engine on when the lift truck is unattended.
- Do not leave the cab when the lift truck has a raised load.
- Look where you are going and always make sure you have good visibility along the route.

- Use the rear-view mirrors frequently.
- Drive round obstacles.
- Never drive on the edge of a ditch or steep slope.
- It is dangerous to use two lift trucks simultaneously to handle heavy or 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, the jib retracted and the carriage sloping backwards.
- For lift trucks with gearboxes, use the recommended gear (see: 2 - DESCRIPTION: INSTRUMENTS AND CONTROLS).
- Select the steering mode appropriate for its use and/or working conditions (see: 2 - DESCRIPTION: INSTRUMENTS AND CONTROLS) (as model of lift truck).
- Release the parking brake.
- Shift the forward/reverse selector to the selected direction of travel and accelerate gradually until the lift truck moves off.



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

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

- Press the service brake pedal.
 - Engage 1st or 2nd gear and select forward or reverse.
 - Check that there is nothing and no-one obstructing the lift truck's path.
 - Release the service brake pedal and increase the engine revs.
- The risk is increased if the lift truck is laden or towing a trailer, requiring extreme vigilance.**

G - STOPPING THE LIFT TRUCK

SAFETY INSTRUCTIONS

- Never leave the ignition key in the lift truck during the operator's absence.
- When the lift truck is stationary, or if the operator has to leave his cab (even for a moment), place the forks or attachment on the ground, apply the parking brake and place the forward/reverse selector in neutral.
- Make sure that the lift truck is not stopped in any position that will interfere with the traffic flow and at less than one meter from the track of a railway.
- In the event of prolonged parking on a site, protect the lift truck from bad weather, particularly from frost (check the level of antifreeze), close and lock all the lift truck accesses (doors, windows, cowls...).

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.
- Retract entirely the jib.
- Lower the forks or attachment to rest on the ground.
- When using an attachment with a grab or jaws, or a bucket with hydraulic opening, close the attachment fully.
- Before stopping the lift truck after a long working period, leave the I.C. engine idling for a few moments, to allow the coolant liquid and oil to lower the temperature of the I.C. engine and transmission. Do not forget this precaution, in the event of frequent stops or warm stalling of the I.C. 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 I.C. engine with the ignition switch.
- Remove the ignition key.
- Lock all the accesses to the lift truck (doors, windows, cowls...).

H - DRIVING THE LIFT TRUCK ON THE PUBLIC HIGHWAY

(or see current legislation in other countries)

SAFETY INSTRUCTIONS

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

INSTRUCTIONS

- Make sure the revolving light is in place, switch it on and verify its operation.
- Make sure the lights, indicators and windscreen wipers are working properly.
- Switch off the working headlights if the lift truck is fitted with them.
- Select the steering mode "HIGHWAY TRAFFIC" (as model of lift truck) (see: 2 - DESCRIPTION: INSTRUMENTS AND CONTROLS).
- Retract entirely the jib and put the attachment at 300 mm from the ground.
- Place the slope correctors in the central position, i.e. the transverse shaft of the axles parallel to the chassis (as model of lift truck).
- Lift up the stabilizers to the maximum and turn the blocks inwards (as model of lift truck).



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

DRIVING THE LIFT TRUCK WITH A FRONT-MOUNTED ATTACHMENT

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

OPERATING THE LIFT TRUCK WITH A TRAILER

- For using a trailer, observe the regulations in force in your country (maximum travel speed, braking, maximum weight of trailer, etc.).
- Do not forget to connect the trailer's electrical equipment to that of the lift truck.
- The trailer's braking system must comply with current legislation.
- If pulling a trailer with assisted braking, the tractor lift truck must be equipped with a trailer braking mechanism. In this case, do not forget to connect the trailer braking equipment to the lift truck.
- The vertical force on the towing hook must not exceed the maximum authorised by the manufacturer (consult the manufacturer's plate on your lift truck).
- The authorised gross vehicle weight must not exceed the maximum weight authorised by the manufacturer (see: 2 - DESCRIPTION: CHARACTERISTICS).

IF NECESSARY, CONSULT YOUR DEALER.

A - CHOICE OF ATTACHMENTS

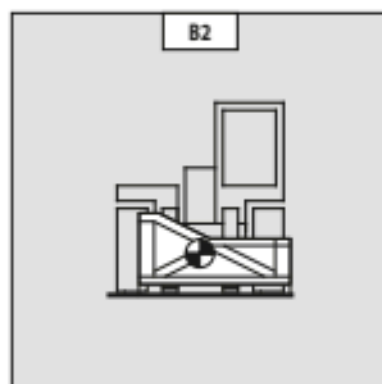
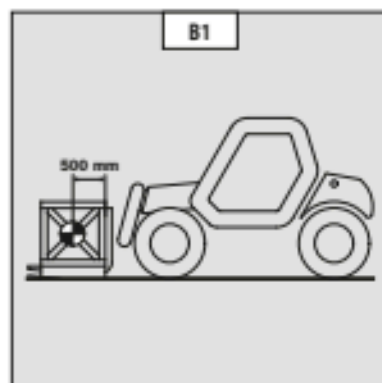
- Only attachments approved by MANITOU can be used on its lift trucks.
- Make sure the attachment is appropriate for the work to be done (see: 4 - ADAPTABLE ATTACHMENTS IN OPTION ON THE RANGE).
- If the lift truck is equipped with the Single side-shift carriage OPTION (TSDL), use only the authorised attachments (see: 4 - ADAPTABLE ATTACHMENTS IN OPTION ON THE RANGE).
- Make sure the attachment is correctly installed and locked onto the lift truck carriage.
- Make sure that your lift truck attachments work properly.
- Comply with the load chart limits for the lift truck for the attachment used.
- Do not exceed the rated capacity of the attachment.
- Never lift a load in a sling without the attachment provided for the purpose, as the sling risks to slip (see: INSTRUCTIONS FOR HANDLING A LOAD: H - TAKING UP AND LAYING DOWN A SUSPENDED LOAD).
- Do not handle loads that are hung directly from the forks with straps (e.g.: big-bag), as there is a risk that the straps will shear against the sharp edges. Use an attachment designed for this purpose.

B - MASS OF LOAD AND CENTRE OF GRAVITY

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

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

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

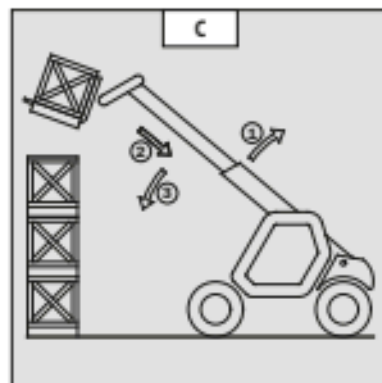


C - LONGITUDINAL STABILITY LIMITER AND WARNING DEVICE

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

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

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



D - TRANSVERSE ATTITUDE OF THE LIFT TRUCK

Depending on the model of lift truck

The transverse attitude is the transverse slope of the chassis with respect to the horizontal. Raising the jib reduces the lift truck's lateral stability. The transverse attitude must be set with the jib in down position as follows:

1 - LIFT TRUCK WITHOUT SLOPE CORRECTOR USED ON TYRES

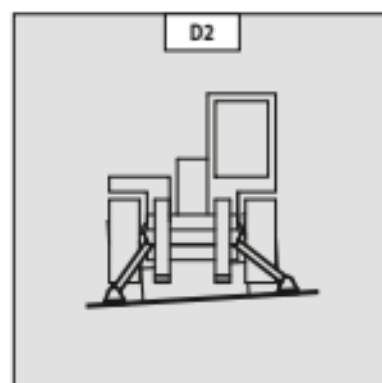
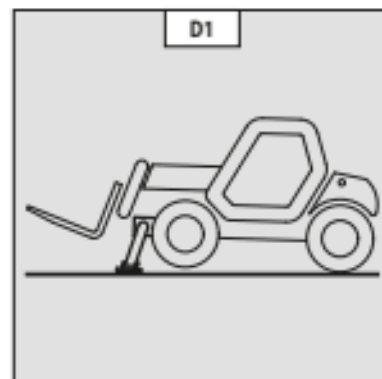
- Position the lift truck so that the bubble in the level is between the two lines (see: 2 - DESCRIPTION: INSTRUMENTS AND CONTROLS).

2 - LIFT TRUCK WITH SLOPE CORRECTOR USED ON TYRES

- Correct the slope using the hydraulic control and verify the horizontality via the level. The bubble in the level must be between the two lines (see: 2 - DESCRIPTION: INSTRUMENTS AND CONTROLS).

3 - LIFT TRUCK USED ON STABILIZERS

- Set the two stabilizers on the ground and raise the two front wheels of the lift truck (fig. D1).
- Correct the slope using the stabilizers (fig. D2) and make sure the truck is horizontal by checking the level. The bubble of the level must be between the two lines (see: 2 - DESCRIPTION: INSTRUMENTS AND CONTROLS). In this position, the two front wheels must be off the ground.

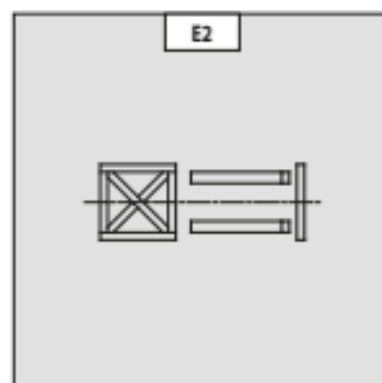
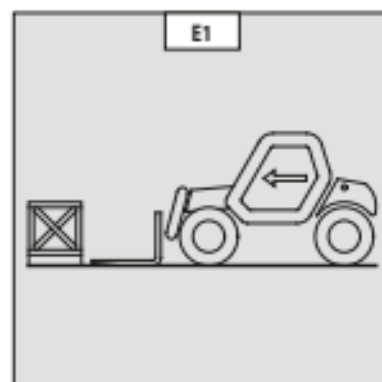


E - TAKING UP A LOAD ON THE GROUND

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

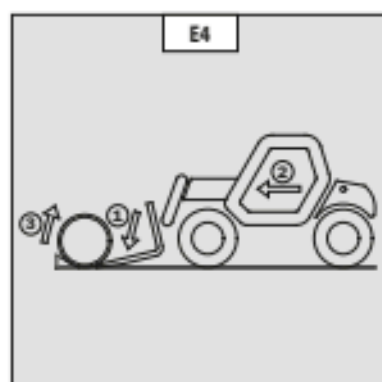
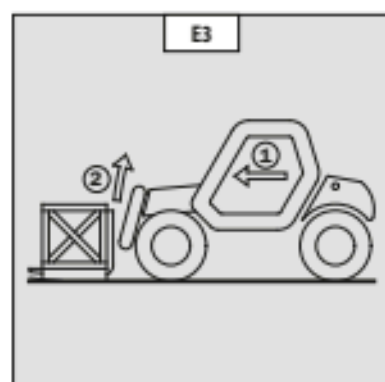
⚠ Beware of the risks of trapping or squashing limbs when manually adjusting the forks.

- Move the lift truck forward slowly (1) and bring the forks to stop in front of the load (fig. E3), if necessary, slightly lift the jib (2) while taking up the load.
- Bring the load into the transport position.
- Tilt the load far enough backwards to ensure stability (loss of load on braking or going downhill).



FOR A NON-PALLETIZED LOAD

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



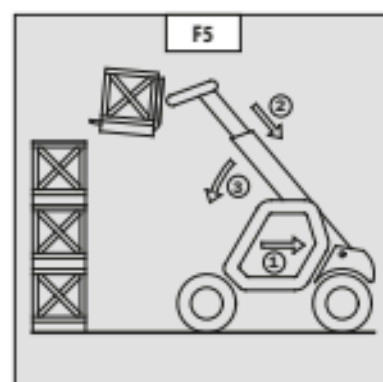
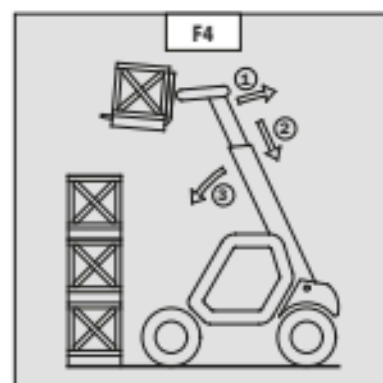
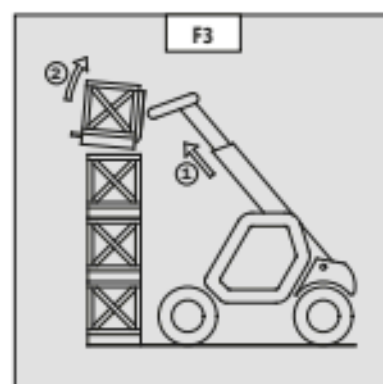
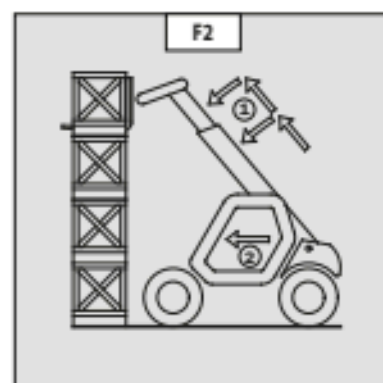
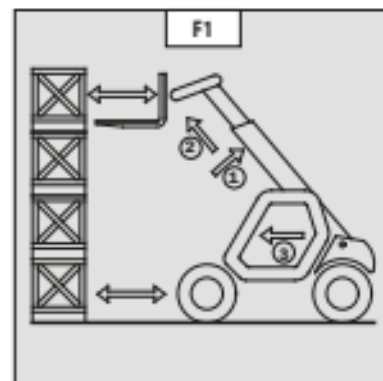
F - TAKING UP AND LAYING A HIGH LOAD ON TYRES

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

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

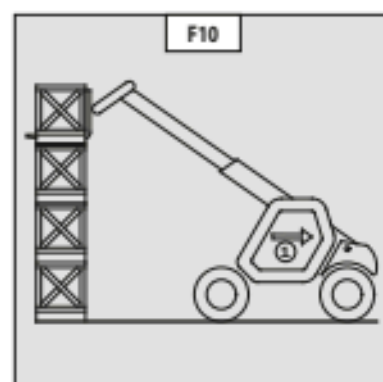
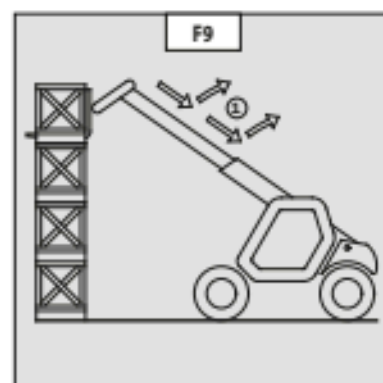
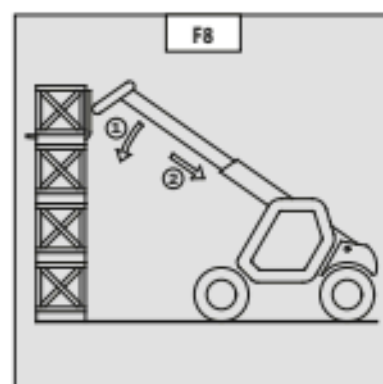
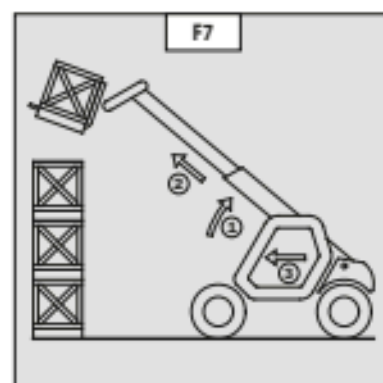
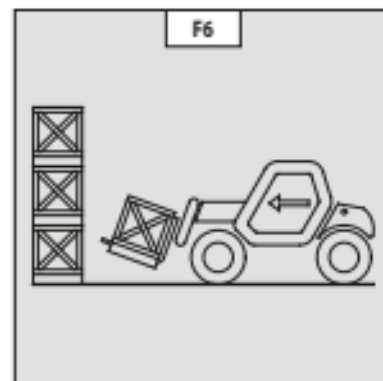
TAKING UP A HIGH LOAD ON TYRES

- Ensure that the forks will easily pass under the load.
- Lift and extend the jib (1) (2) until the forks are level with the load, moving the lift truck (3) forward if necessary (fig. F1), moving very slowly and carefully.
- Always think about keeping the distance necessary to fit the forks under the load, between the pile and the lift truck (fig. F1) and use the shortest possible length of jib.
- Stop the forks in front of the load by alternately extending and retracting the jib (1) or, if necessary, moving the lift truck forward (2) (fig. F2). Put the handbrake on and set the forward/reverse selector to neutral.
- Slightly lift the load (1) and incline the carriage (2) backwards to stabilize the load (fig. F3).
- Tilt the load sufficiently backwards to ensure its stability.
- Watch the longitudinal stability limiter and warning device (see: INSTRUCTIONS FOR HANDLING A LOAD: C - LONGITUDINAL STABILITY LIMITER AND WARNING DEVICE). If it is overloaded, replace the load in the place from which it was taken.
- If possible lower the load without shifting the lift truck. Lift the jib (1) to release the load, retract (2) and lower the jib (3) to bring the load into the transport position (fig. F4).
- If this is not possible, back up the lift truck (1), manoeuvring very gently and carefully to release the load. Retract (2) and lower the jib (3) to bring the load into the transport position (fig. F5).



LAYING A HIGH LOAD ON TYRES

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



G - TAKING UP AND LAYING A HIGH LOAD ON STABILIZERS

Depending on the model of lift truck

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

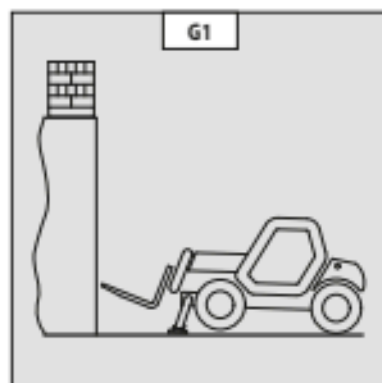
REMINDER: Make sure that the following operations can be performed with good visibility (see: OPERATIONS INSTRUCTIONS UNLADEN AND LADEN: D - VISIBILITY).

USING THE STABILIZERS

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

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

- Set the forks in transport position in front of the elevation.
- Stay far enough away to have room for the jib to be raised.
- Put the handbrake on and put the gearshift lever into neutral.
- Set the two stabilizers on the ground and lift the two front wheels of the lift truck (fig. G1), while maintaining its transverse stability.



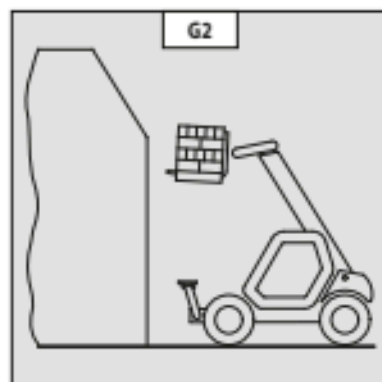
RAISE THE STABILIZERS WITH THE FORKS IN TRANSPORT POSITION (UNLADEN AND LADEN)

- Raise both stabilizers fully and at the same time.

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

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

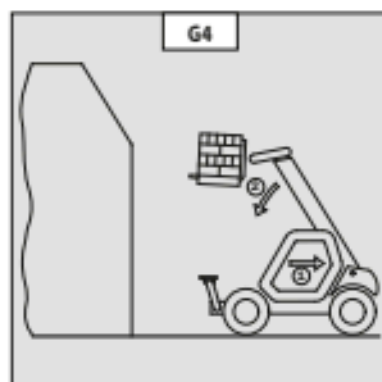
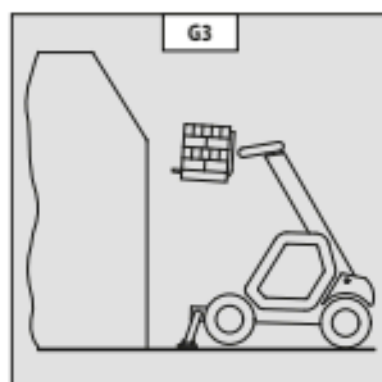
- Raise the jib and retract the telescopes completely.
- Set the lift truck in position in front of the elevation (fig. G2) moving very slowly and carefully.
- Put the handbrake on and put the gearshift lever into neutral.
- Move the stabilizers very slowly and gradually as soon as they are close to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



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

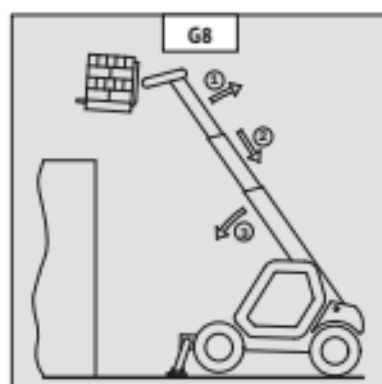
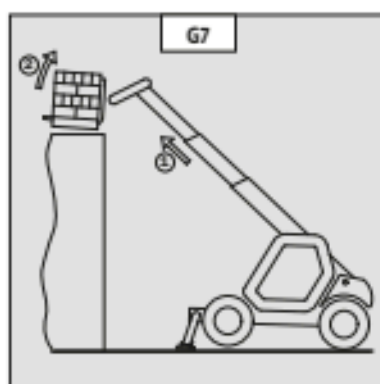
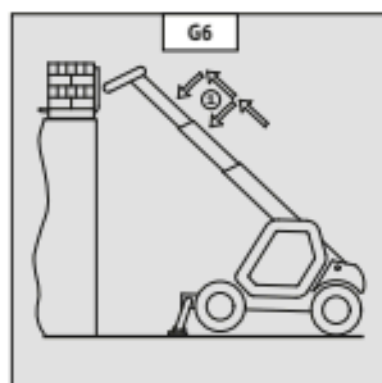
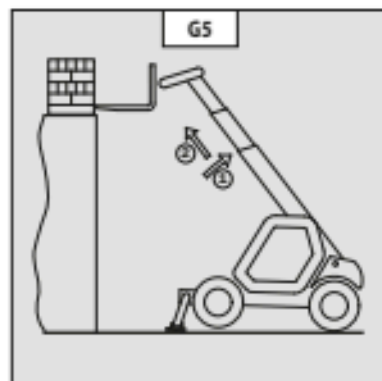
! This operation must be exceptional and performed with great care.

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



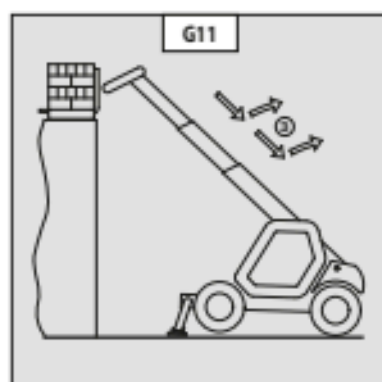
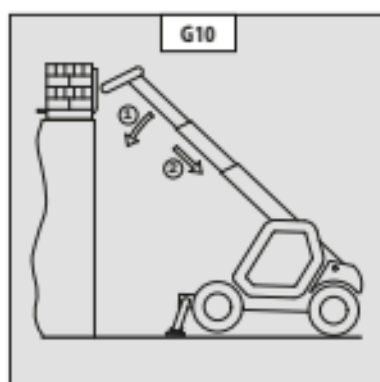
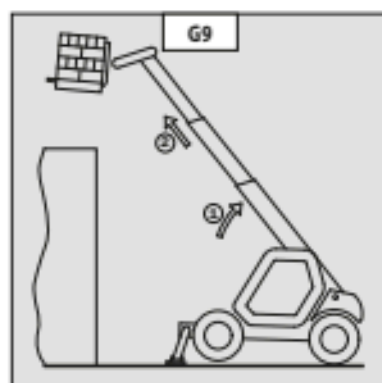
TAKING UP A HIGH LOAD ON STABILIZERS

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



LAYING A HIGH LOAD ON STABILIZERS

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



H - TAKING UP AND LAYING DOWN A SUSPENDED LOAD



WARNING: Failure to follow the above instructions may lead the lift truck to loose stability and overturn.



MUST be used with a lift truck equipped with an operational hydraulic movement cut-out device.

CONDITIONS OF USE

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

HANDLING WITHOUT MOVING THE LIFT TRUCK

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

I - TRAVELLING WITH A SUSPENDED LOAD

- Before moving, inspect the terrain in order to avoid excessive slopes and cross-falls, bumps and potholes, or soft ground.
- Ensure that the wind speed is not higher than 10 m/s.
- The lift truck must not travel at more than 0.4 m/s (1.5 km/h, i.e., one quarter walking speed).
- Drive and stop the lift truck gently and smoothly to minimise swinging of the load.
- Carry the load a few centimetres above the ground (max. 30 cm) the shortest possible jib length. Do not exceed the offset indicated on the load chart. If the load begins to swing excessively, do not hesitate to stop and lower the jib to set down the load.
- Before moving the lift truck, check the longitudinal stability limiter and warning device (see: 2 - DESCRIPTION: INSTRUMENTS AND CONTROLS), only the green LEDs and possibly the yellow LEDs should be lit.
- During transport, the lift truck operator must be assisted by a person on the ground (standing a minimum of 3 m from the load), who will limit swinging of the load using a bar or a rope. Ensure that this person is always clearly in view.
- The lateral attitude must not exceed 5%, the bubble in the level must be kept between the two "MAX." marks
- The longitudinal attitude must not exceed 15%, with the load facing uphill, and 10%, with the load facing downhill.
- The jib angle must not exceed 45°.
- If the first red LED of the longitudinal stability limiter and warning device (see: 2 - DESCRIPTION: INSTRUMENTS AND CONTROLS) comes on while travelling, gently bring the lift truck to a stop and stabilise the load. Retract the telescope to reduce the offset of the load.

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

A - AUTHORISATION FOR USE

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

B - SUITABILITY OF THE TRUCK FOR USE

- 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 1.25** and a **DYNAMIC test coefficient of 1.1**, as specified in harmonised standard **EN 280** for "mobile elevating work platforms".
- Before commissioning, the company manager must make sure that the platform is appropriate for the work to be done, and perform certain tests (in accordance with current legislation).

C - PRECAUTIONS WHEN USING THE PLATFORM

- Wear clothes suited for operating the platform, avoid loose clothes.
- Never operate the platform when hands or feet are wet or soiled with greasy substances.
- Always pay attention when using the platform. Do not listen to the radio or music using headphones or earphones.
- For increased comfort, adopt the correct position at the platform's operator station.
- The platform's guard rail exempts the operator from wearing a safety harness under normal operating conditions. As a result, you are responsible deciding whether to wear a safety harness.
- The controls must not be used for any other than their intended purpose (e.g. getting in and out of the lift truck, coat hanger etc.).
- Safety helmets must be worn.
- The operator must always be in the normal operator's position. It is prohibited to have arms or legs, or generally any part of the body, protruding from the basket.
- Ensure that any materials loaded onto the platform (pipes, cables, containers, etc.) cannot fall out. Do not pile these materials to the point where it is necessary to step over them.

D - USING THE PLATFORM

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

E - ENVIRONMENT

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

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

 **Operation of the platform is strictly forbidden in the event of wind speeds of over 45 km/h.**

- The following scale is given for an empiric evaluation of the wind speed:

BEAUFORT scale (wind speed at a height of 10 m from flat ground)						
Force	Type of wind	Speed (knots)	Speed (kph)	Speed (m/s)	Effects on Land	Sea condition
0	Calm	0 - 1	0 - 1	< 0,3	Smoke rises vertically.	Sea like a mirror.
1	Light air	1 - 3	1 - 5	0,3 - 1,5	The wind bends the smoke.	Ripples but without foam crests.
2	Light breeze	4 - 6	6 - 11	1,6 - 3,3	The wind can be felt on the face, shakes the leaves.	Small but evident wavelets.
3	Gentle breeze	7 - 10	12 - 19	3,4 - 5,4	The wind continuously shakes the leaves and twigs.	Large wavelets Perhaps scattered white horses.
4	Moderate breeze	11 - 16	20 - 28	5,5 - 7,9	The wind raises dust and scraps of paper, shakes the twigs.	Small waves. Fairly frequent white horses.
5	Fresh breeze	17 - 21	29 - 38	8 - 10,7	Leafy shrubs sway.	Small waves form on inland waters. Moderate waves, many white horses.
6	Strong breeze	22 - 27	39 - 49	10,8 - 13,8	Shakes thick branches, metal wires hum, it becomes difficult to keep an umbrella open.	Large waves begin to form, white foam crests, probably spray.
7	Near gale	28 - 33	50 - 61	13,9 - 17,1	Whole trees sway, it is difficult to walk against the wind.	Sea heaps up and white foam blown in streaks along the direction of the wind.
8	Gale	34 - 40	62 - 74	17,2 - 20,7	Breaks the branches of trees, it is almost impossible to walk against the wind.	Moderately high waves, crests begin to break into spindrift.
9	Strong gale	41 - 47	75 - 88	20,8 - 24,4	Causes slight damage to buildings (stacks, tiles, etc.).	High waves. Dense foam along the direction of the wind. Crests of waves begin to roll over. Spray may affect visibility.
10	Storm	48 - 55	89 - 102	24,5 - 28,4	Rare inland, uproots trees, causes considerable damage to buildings.	Very high waves with long overhanging crests. Visibility affected.
11	Violent storm	56 - 63	103 - 117	28,5 - 32,6	Very rare, causes extensive devastation.	Exceptionally high waves that may hide medium sized ships. Visibility affected.
12	Hurricane	64 +	118 +	32,7 +	Causes very serious catastrophes.	The air is filled with foam and spray. Sea completely white with driving spray. Visibility very seriously affected.

F - MAINTENANCE

 **Your platform must be periodically inspected to ensure its continued compliance. The inspection frequency is defined by the current legislation in the country in which the platform is used.**

INSTRUCTIONS FOR USING THE RADIO-CONTROL

For lift trucks with RC radio control

HOW TO USE THE RADIO-CONTROL

SAFETY INSTRUCTIONS

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



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

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



Everyone working with this radio-control:

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

- The system is used to control the lift truck remotely via radio waves. Commands are also transmitted if the lift truck is out of sight (behind an obstacle or a building for example), this is why:

- After stopping the truck and removing the key button (only possible when it is stationary), always place the transmitter in a safe, dry place.
- Before performing any installation, servicing or repair work, always switch off power sources (in particular, electric welding devices and electric head units on hydraulic distributors must be disconnected at each section).
- Never remove or alter the safety devices (such as the hand-guard frame, key, emergency stop button, etc.).



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

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

INSTRUCTIONS

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



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

PROTECTIVE DEVICES

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



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

MAINTENANCE INSTRUCTIONS OF THE LIFT TRUCK

GENERAL INSTRUCTIONS

- Ensure the area is sufficiently ventilated before starting the lift truck.
- Wear clothes suitable for the maintenance of the lift truck, avoid wearing jewellery and loose clothes. Tie and protect your hair, if necessary.
- Stop the engine and remove the ignition key, when an intervention is necessary.
- Read the operator's manual carefully.
- Carry out all repairs immediately, even if the repairs concerned are minor.
- Repair all leaks immediately, even if the leak concerned is minor.
- Make sure that the disposal of process materials and of spare parts is carried out in total safety and in an ecological way.
- Be careful of the risk of burning and splashing (exhaust, radiator, engine, etc.).

PLACING THE JIB SAFETY WEDGE

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

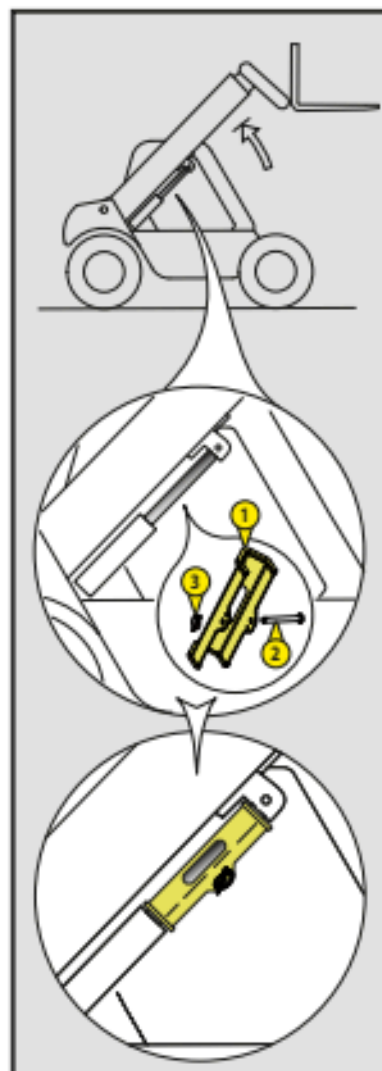
FITTING THE WEDGE

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

REMOVING THE WEDGE

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

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



MAINTENANCE

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

MAINTENANCE LOGBOOK

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

LUBRICANT AND FUEL LEVELS

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

HYDRAULIC

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

 **BALANCING VALVE:** It is dangerous to change the setting and remove the balancing valves or safety valves which may be fitted to your lift truck cylinders. These operations must only be performed by approved personnel (consult your dealer).

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

ELECTRICITY

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

WELDING

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

WASHING THE LIFT TRUCK

- 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.

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

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

INTRODUCTION

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

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

Instructions for using the product are given on the packaging.



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

PREPARING THE LIFT TRUCK

- Clean the lift truck thoroughly.
- Check and repair any 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 (see: OPERATING INSTRUCTIONS UNLADEN AND LADEN).
- Make sure the jib cylinder rods are all in retracted position.
- Release the pressure in the hydraulic circuits.

PROTECTING THE I.C. ENGINE

- Fill the tank with fuel (see: 3 - MAINTENANCE: A - DAILY OR EVERY 10 HOURS SERVICE).
 - Empty and replace the cooling liquid (see: 3 - MAINTENANCE: F - EVERY 2000 HOURS SERVICE).
 - Leave the I.C. engine running at idling speed for a few minutes, then switch off.
 - Replace the I.C. engine oil and oil filter (see: 3 - MAINTENANCE: D - EVERY 500 HOURS SERVICE).
 - Add the protective product to the engine oil.
 - Run the I.C. engine for a short time so that the oil and cooling liquid circulate inside.
 - Disconnect the battery and store it in a safe place away from the cold, after charging it to a maximum.
 - Remove the injectors and spray the protective product into each cylinder for two seconds with the piston in low neutral position.
 - Turn the crankshaft once slowly and refit the injectors (see I.C. engine REPAIR MANUAL).
 - Remove the intake hose from the manifold or turbocharger and spray the protective product into the manifold or turbocharger.
 - Cap the intake manifold or turbocharger hole with waterproof adhesive tape.
 - Remove the exhaust pipe and spray the protective product into the exhaust manifold or turbocharger.
 - Refit the exhaust pipe and block the outlet with waterproof adhesive tape.
- NOTE: The spray time is noted on the product packaging and must be increased by 50 % for turbo engines.
- Open the filler plug, spray the protective product around the rocker arm shaft and refit the filler plug.
 - Cap the fuel tank using waterproof adhesive tape.
 - Remove the drive belts and store them in a safe place.
 - Disconnect the engine cut-off solenoid on the injection pump and carefully insulate the connection.

PROTECTING THE LIFT TRUCK

- Set the lift truck on axle stands so that the tyres are not in contact with the ground and release the handbrake.
- Protect cylinder rods which will not be retracted, from corrosion.
- Wrap the tyres.

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

BRINGING THE LIFT TRUCK BACK INTO SERVICE

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



Make sure the area is adequately ventilated before starting up the lift truck.

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

2 - DESCRIPTION

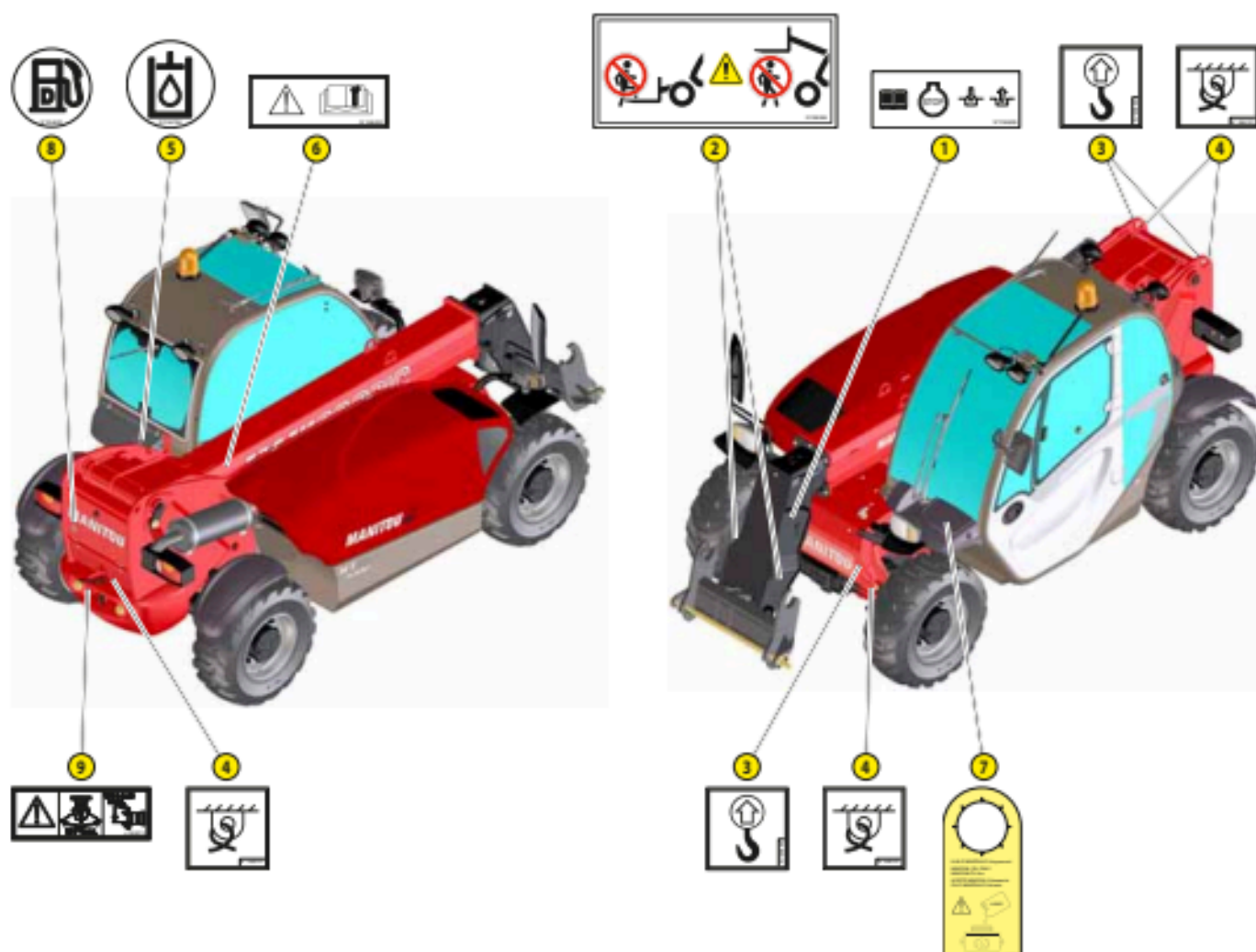
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SAFETY PLATES AND STICKERS

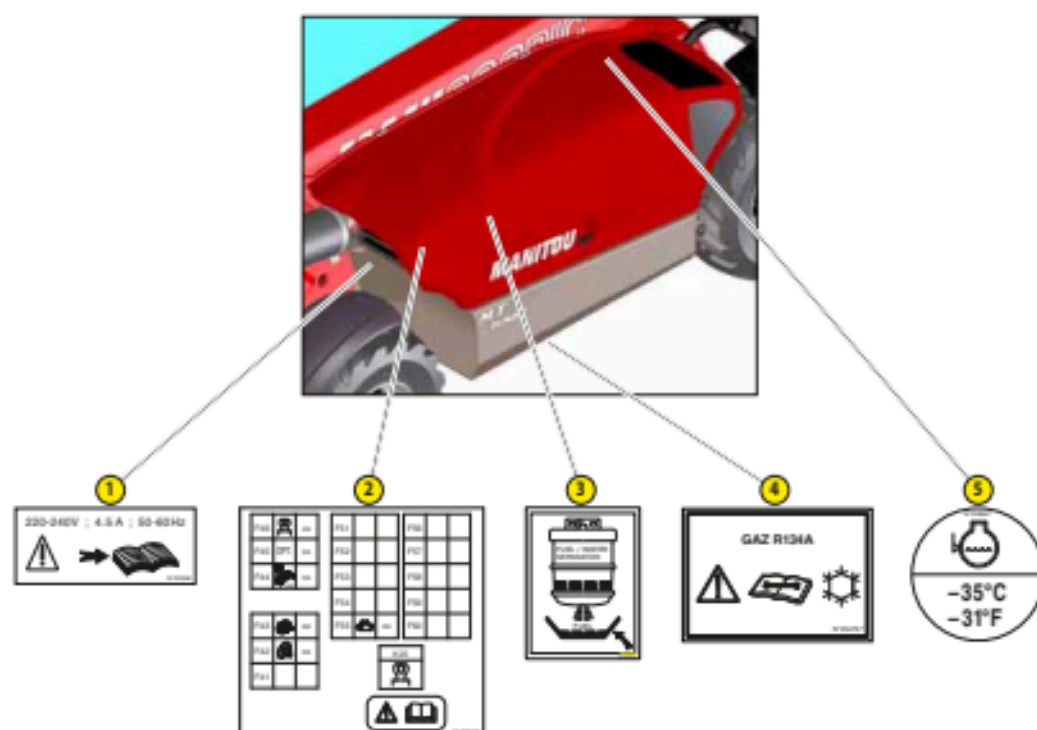
⚠ You must replace illegible or damaged plates. Contact your dealer.

1 - EXTERNAL PLATES AND STICKERS



REF	PART NUMBER	DESCRIPTION
①	234805	Hydraulic coupling instruction
②	296998	Maniscopic safety instruction
③	24653	Sliding point
④	289101	Tie-down point
⑤	234798	Hydraulic oil
⑥	288430	Repairing instructions (on lift cylinder)
⑦	268491	Break fluid instruction
⑧	234802	Diesel fuel
⑨	289013	Towing instruction (option)

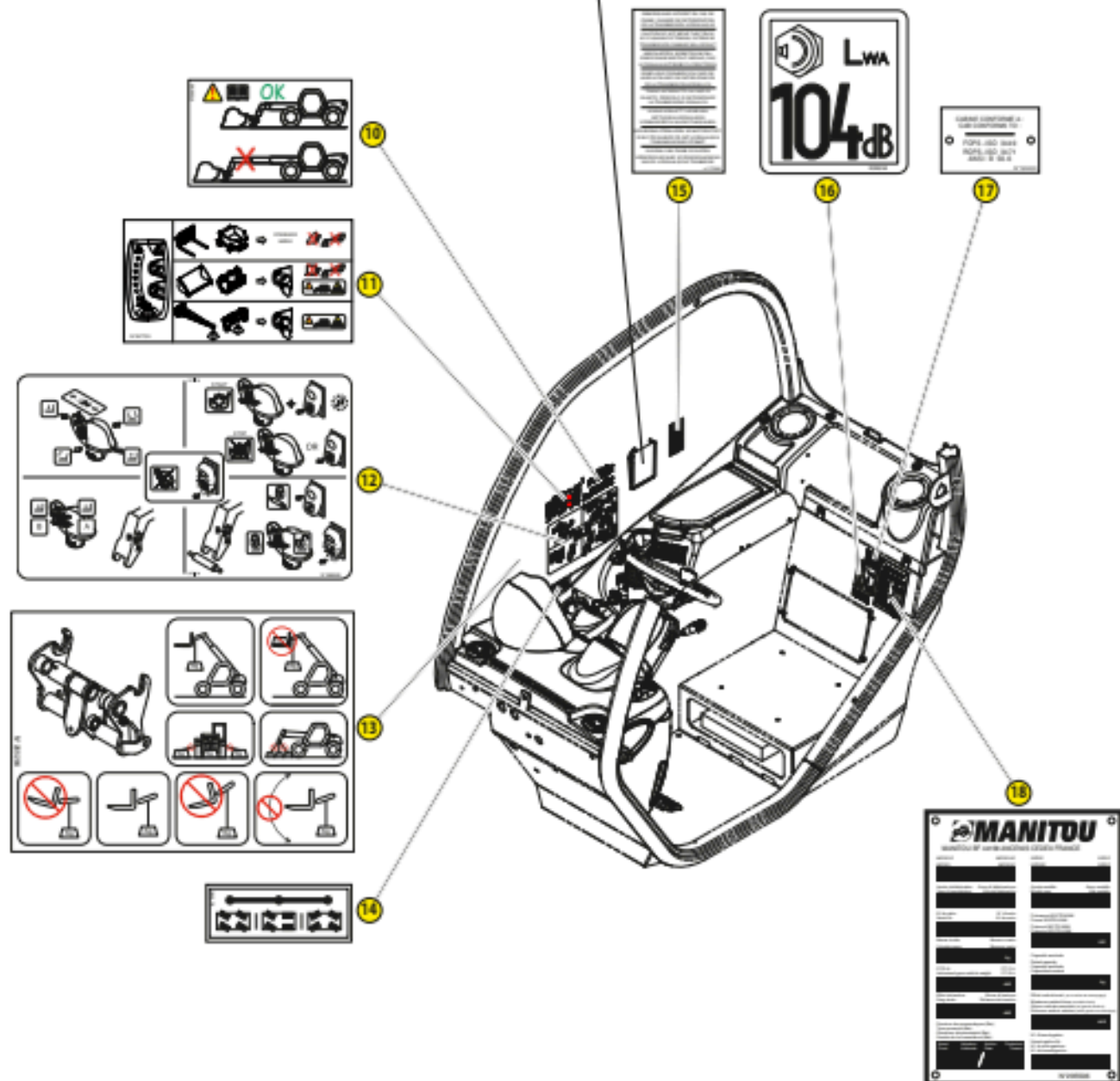
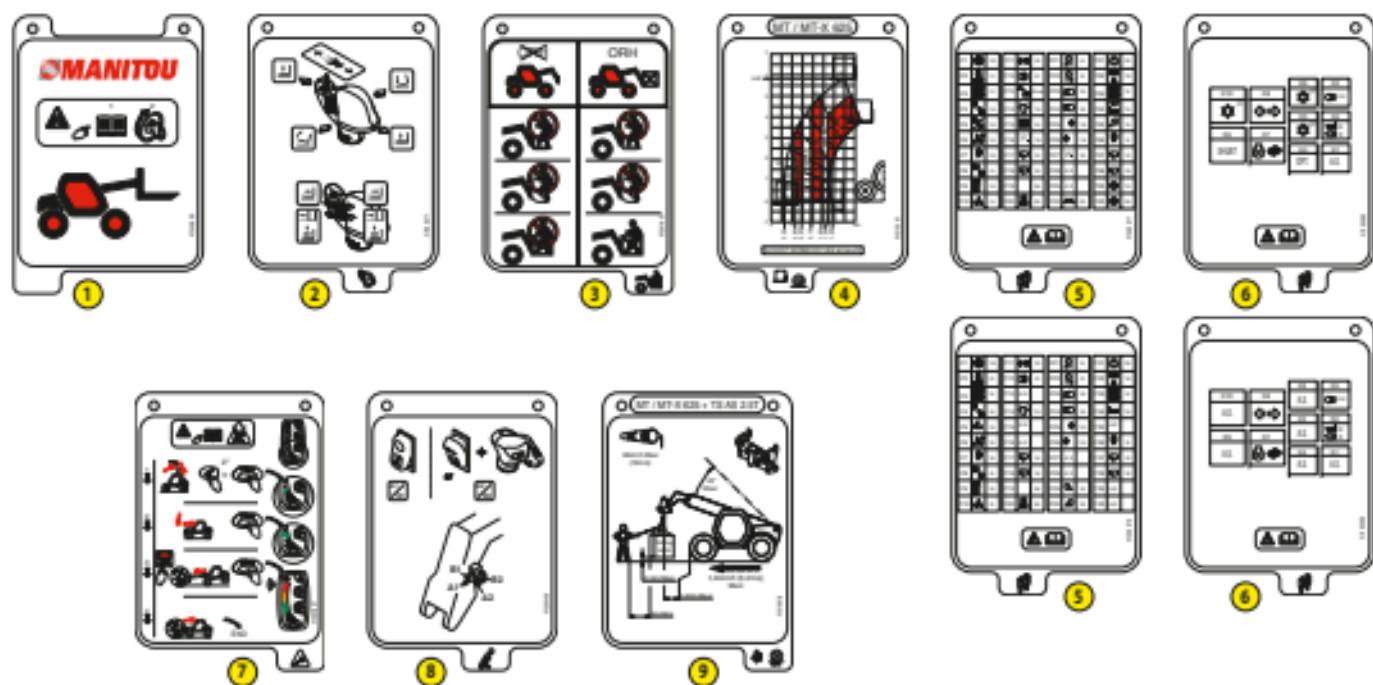
2 - STICKERS AND PLATES UNDER THE ENGINE HOOD



REF	PART NUMBER	DESCRIPTION
①	233088	Preheating element (option)
②	286287	Fuses
③	259398	Water/diesel separator
④	234797	Air conditioning (option)(MT-X 625 COMFORT)
⑤	293887	Anti-freeze

3 - STICKERS AND PLATES IN THE CAB

REF	PART NUMBER	DESCRIPTION
①	240805	Reach chart sheet
②	286277	Manipulator function sheet
③	241621	Safety instruction sheet
④	Consult your dealer	Load chart
⑤	290973	Fuse sheet (MT-X 625)
	290977	Relay sheet (MT-X 625 COMFORT)
⑥	290982	Relay sheet (MT-X 625)
	290983	Relay sheet (MT-X 625 COMFORT)
⑦	294831	Screen display function sheet
⑧	290439	Jib head electrovalve function sheet (option)
⑨	288638	Lifting ring on carriage sheet (option)
⑩	290183	Bucket instruction on telescope
⑪	297733	Operating mode management instruction
⑫	286989	Main functions
⑬	265284	Lifting ring on carriage (option)
⑭	184276	Steering selection
⑮	172385	Towing forbidden
⑯	239594	Sound power level
⑰	193032	Cab compliance
⑱	Consult your dealer	Manufacturer's plate



IDENTIFICATION OF THE LIFT TRUCK

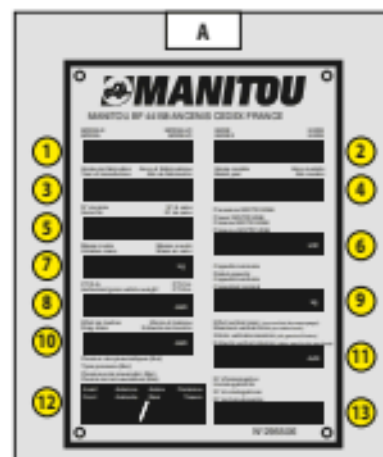
As our policy is to promote a constant improvement of our products, our range of telescopic lift trucks may undergo certain modifications, without obligation for us to advise our customers.

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

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

LIFT TRUCK MANUFACTURER'S PLATE (FIG. A)

1 - MODEL	.....
2 - SERIES	.....
3 - Year of manufacture	.....
4 - Model year	.....
5 - Serial Nr	.....
6 - Power ISO 3046	.....
7 - Unladen mass	.....
8 - Authorized gross vehicle weight	.....
9 - Rated capacity	.....
10 - Drag strain	.....
11 - Maximum vertical force (on trailer hook)	.....
12 - Tyres pressure (bar)	.....
13 - Homologation Nr	.....



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

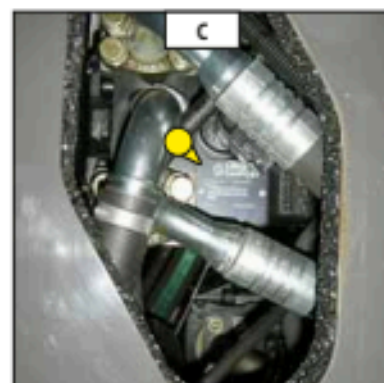
I.C. ENGINE (FIG. B)

- Model	.....
- Serial Nr	.....
- I.C. engine Nr	.....



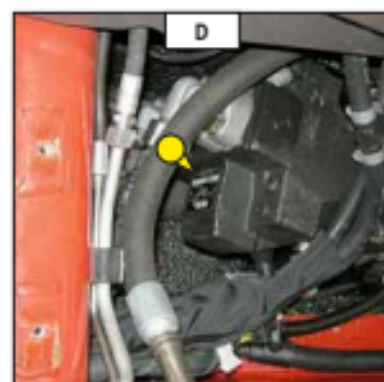
HYDROSTATIC PUMP (FIG. C)

- MANITOU reference	.....
- Type of codification	.....
- Serial Nr	.....
- Manufacturer's Nr	.....
- Year of manufacture	.....



HYDROSTATIC MOTOR (FIG. D)

- MANITOU reference	.....
- Type of codification	.....
- Serial Nr	.....
- Manufacturer's Nr	.....
- Year of manufacture	.....



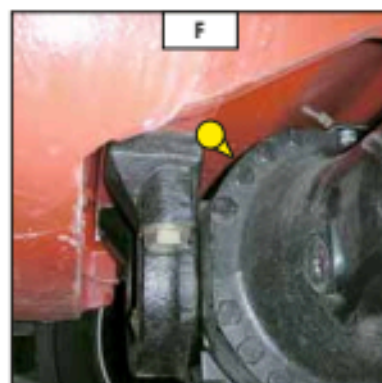
FRONT AXLE (FIG. E)

- Type
- Serial Nr
- MANITOU reference



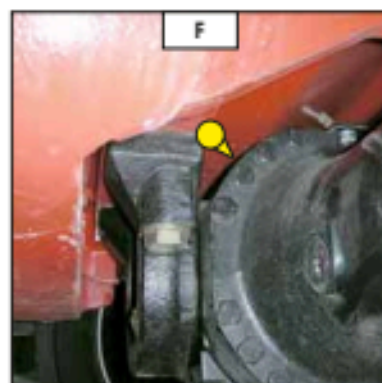
REAR AXLE (FIG. F)

- Type
- Serial Nr
- MANITOU reference



CAB (FIG. G)

- Type
- Serial Nr



JIB (FIG. H)

- MANITOU reference
- Date of manufacture

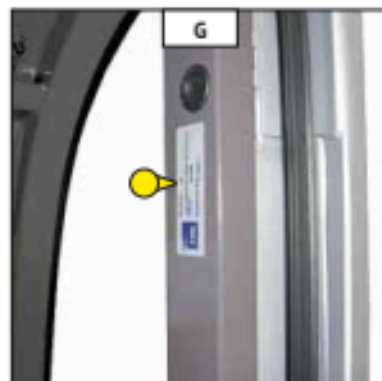
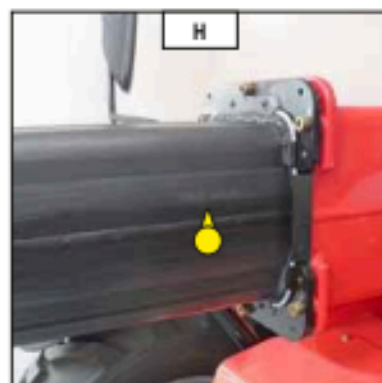


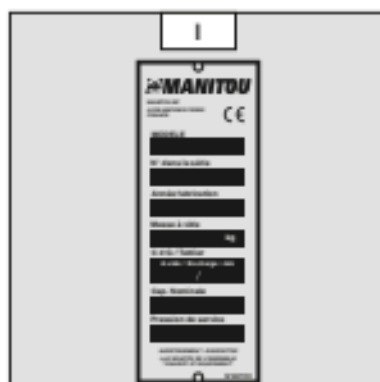
PLATE MANUFACTURER OF THE ATTACHMENT (FIG. I)

- Model
- Serial Nr
- Year of manufacture



CHASSIS (FIG. J)

- Lift truck serial Nr



CHARACTERISTICS

I.C. ENGINE		
Type		KUBOTA V3307
Fuel		Diesel
Number of cylinders		4 in line
Suction		Supercharged
Injection system		Direct
Ignition sequence		1.3.4.2
Capacity	cm ³	3331
Bore and stroke	mm	94 x 120
Compression ratio		20
Nominal rating loaded	rpm	2600
Rating slow unladen	rpm	895
Max. rating unladen	rpm	2800
Power ISO 3046-1	cv- kW	75 - 55,4
Power SAE J 1995	cv- kW	75 - 55,4
Maximum torque ISO 3046-1	N.m	265 to 1400 rpm
Air cleaner	µm	3
Type of cooling		By water
Fan		Puller

TRANSMISSION		
Hydrostatic pump		DANFOSS
Type		Variable displacement piston
Forward/reverse selector		Electro-hydraulic
Number of forward speeds		2 (1 low and 1 high)
Number of reverse speeds		2 (1 low and 1 high)
Main pump		
MAX./MIN. displacement	cm ³ /rev	0 - 53
MAX. flow rate	l/min	138
Working pressure	bar	350
Boost pump		
Capacity	cm ³ /rev	12
MAX. flow rate	l/min	31
Boost pressure MAX. R.P.M.	bar	24 (transmission in neutral)
Hydrostatic motor		DANFOSS
Type		Variable displacement piston
MAX./MIN. displacement	cm ³ /rev	30 - 110
Gear box		DANA
Front axle		DANA
Differential		45 % limited slip differential
Rear axle		DANA
Differential		Without locking
Drive wheels		4RM Permanent
Switch for 2/4 drive wheels		No
Front tyres		SOLIDEAL
Size		12-16,5 12PR SKS CL TUBELESS
Pressure	bar	5,6
Rear tyres		SOLIDEAL
Size		12-16,5 12PR SKS CL TUBELESS
Pressure	bar	5,6

ELECTRIC CIRCUIT		
Battery	Standard Option	12 V - 110 Ah - 750 A EN -----
Alternator		12 V - 80 A
Type		ASTA59 77B
Starter		12 V - 3 kW
Type		M008T50671

SOUND AND VIBRATION		
Level of sound pressure in the driver's cab LpA (according to standard NF EN 12053)	dB	75 (cab closed)
Level of sound power ensured in the LwA environment (according to directive 2000/14/EC modified by directive 2005/88/EC)	dB	104 (measured) 104 (ensured)
Average weighted acceleration on driver's body (according to standard NF EN 13059)	m/s ²	
The average weighted acceleration transmitted to the driver's hand/arm system (according to standard ISO 5349-2)	m/s ²	< 2,5

BRAKE CIRCUIT	
Service brake	Non-servo hydraulic brake
Type of brake	Multidisk brake immersed in oil
Type of control	By foot on front axle
Parking brake	Low pressure hydraulic brake
Type of brake	Multidisk brake immersed in oil
Type of control	Switch-operated electro-hydraulic

HYDRAULIC CIRCUIT	
Hydraulic pump	
Type	Gear
Capacity	cm ³
Max. rating capacity unladen	31,4
Flow rate at 1600 rpm	l/mn
	87,9
	50,2
Filtration	
Return	µm
Suction	µm
	10
	125
Maximum service pressure	bar
	235
Telescoping circuit	bar
	235 / 235
Lifting circuit	bar
	235 / 235
Tilt circuit	bar
	245 / 245
Attachment circuit	bar
	235
Steering circuit	bar
	140

HYDRAULIC MOVEMENTS	
Longitudinal stability limiter and warning device	Electronic
Lifting motions (jib retracted)	
Unladen lifting	s - m/mn
	8 - 28,3
Laden lifting	s - m/mn
	8 - 28,3
Unladen lowering	s - m/mn
	5,4 - 41,9
Laden lowering	s - m/mn
	5,3 - 42,7
Telescoping motions (jib raised)	
Unladen extending	s - m/mn
	5,6 - 22,3
Laden extending	s - m/mn
	5,9 - 23,5
Unladen retracting	s - m/mn
	4,3 - 30,6
Laden retracting	s - m/mn
	4 - 32,9
Tilting movements	
Unladen digging	s - °/s
	3,5 - 36,7
Forward tilting unladen	s - °/s
	3,6 - 35,6

SPECIFICATIONS AND WEIGHTS	
Speed of movement for lift truck in standard configuration on flat ground (except particular conditions)	
Front unladen	1 low
	km/h
	7,2
	1 high
	km/h
	24,8
Rear unladen	1 low
	km/h
	7,2
	1 high
	km/h
	24,8
Standard attachment	PFB 25 N MT 1020
Weight of attachment (without forks)	kg
	80
Weight of forks (each one)	kg
	76
Rated capacity with standard attachment	kg
	2500
Tipping load at maximum reach on tyres	kg
Distance from the centre of gravity from the load to the lug of the forks	Mm
	500
Standard lifting height	Mm
	5820
Lift truck weight without attachment	kg
	4485
Lift truck weight with standard attachment	
Unladen	kg
	4710
At rated load	kg
	7210
Weight per axle with standard attachment (transport position)	
Front unladen	kg
	2210
Rear unladen	kg
	2500
Front rated load	kg
	6540
Rear rated load	kg
	670
Weight per axle with standard attachment (jib extended)	
Front rated load	kg
	5130
Rear rated load	kg
	380
Authorised gross vehicle weight	daN
	20000
Drag strain on the coupling hook	
Unladen (sliding)	daN
	3485
At rated load (transmission setting)	daN
	4035
Pull strain with open carrier (according to standard ISO 8313)	daN
	3427

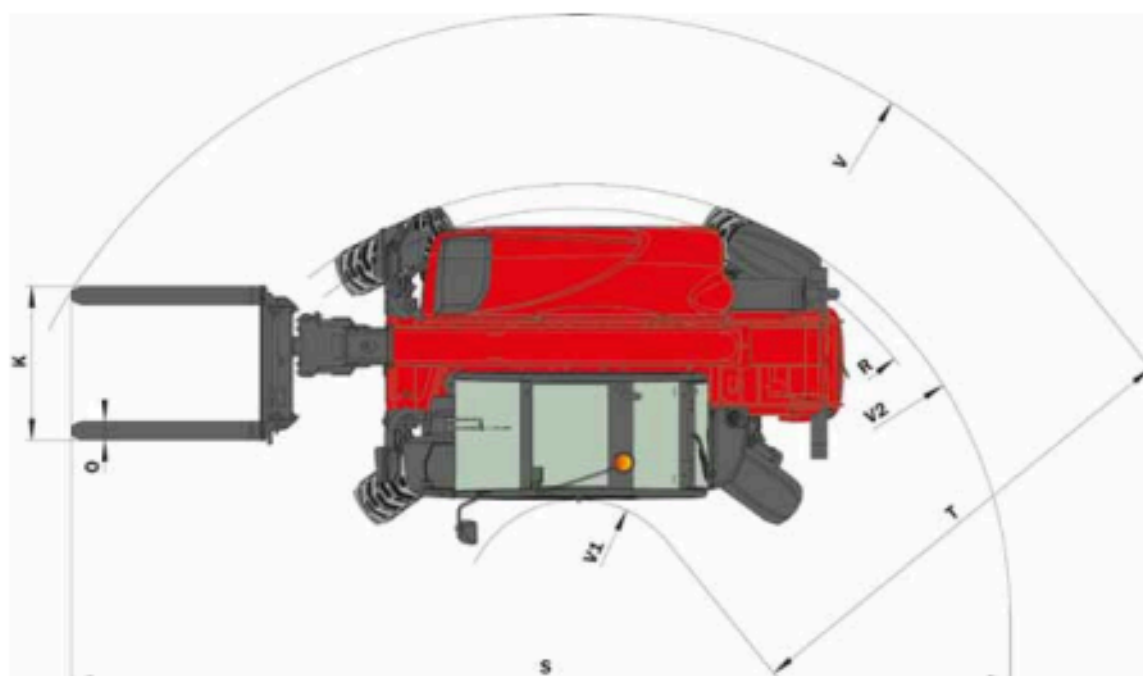
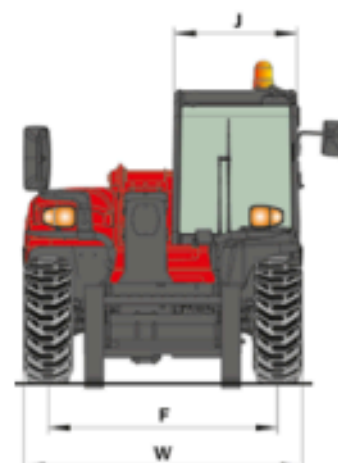
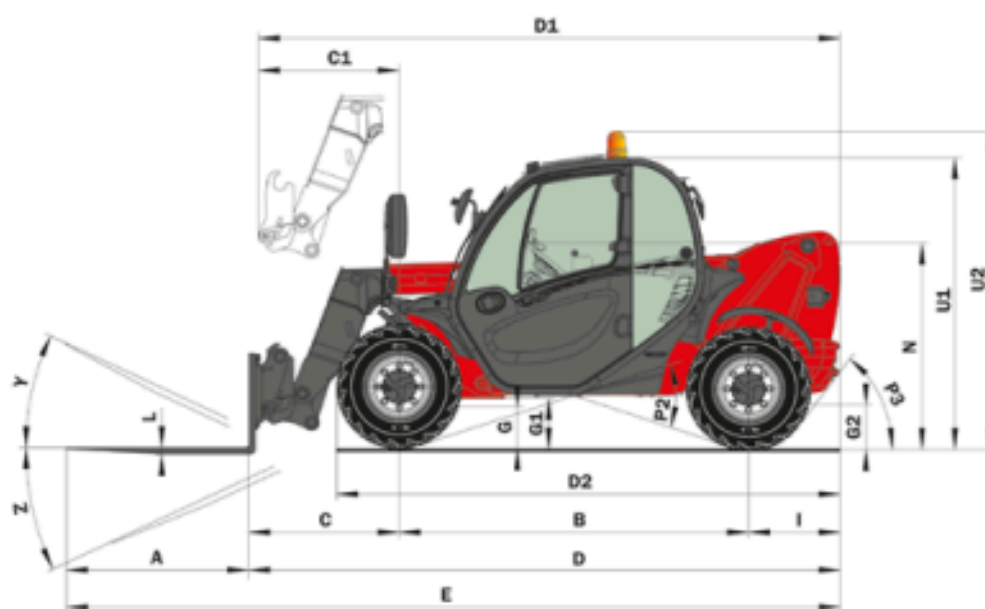
FRONT AND REAR TIRES

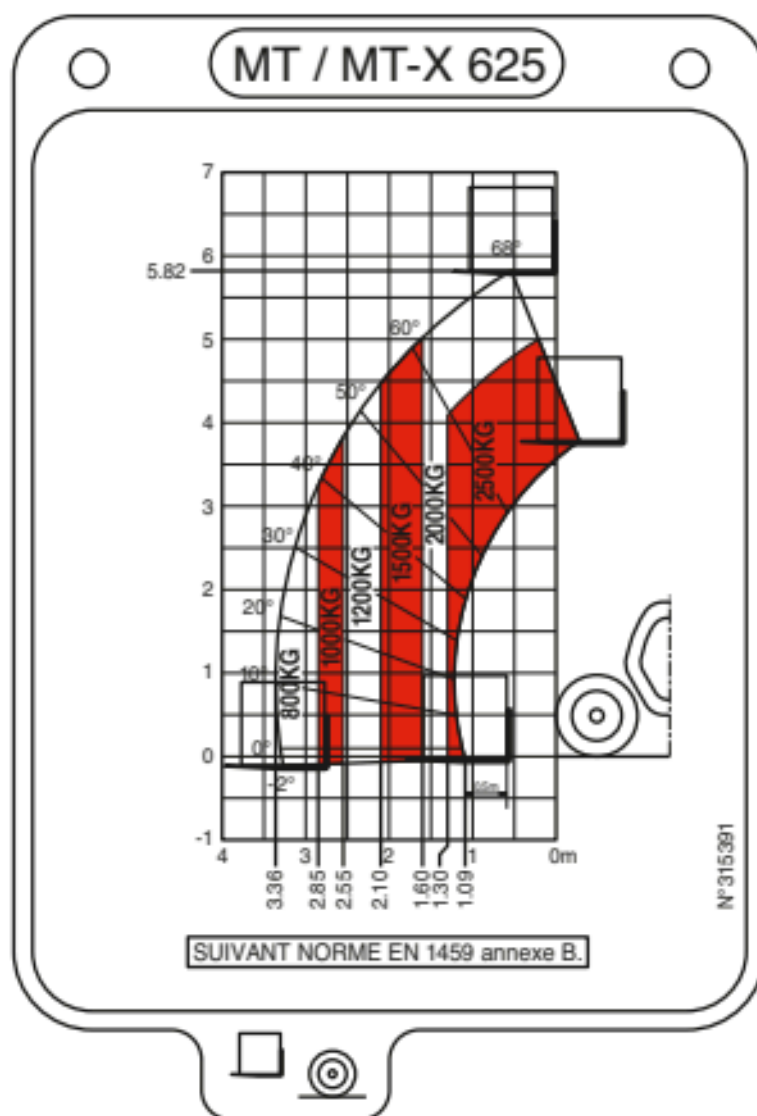
		PRESSURE (bar)	TYRE LOAD (kg)			
			FRONT UNLADEN	FRONT LADEN	REAR UNLADEN	REAR LADEN
SOLIDEAL CAMSO	XTRA-WALL 12-16,5 12PR SKS CL TUBELESS	5,6	1100	3250	1250	350
	12-16,5 12PR SKS HF-3 TUBELESS	5,6				
	HAULER 12-16,5 12PR SKS TUBELESS	5,6				
	12-16,5 10 PR SKS R1	3,4				
MICHELIN	305/70 R16,5 141A5 TL	4,8				

		PRESSURE (bar)	LOAD (kg)	PRESSURE ON THE CONTACT SURFACE (kg/cm2)		AREA OF THE CONTACT SURFACE (cm2)			
				HARD SOIL	LOOSE SOIL	HARD SOIL	LOOSE SOIL		
SOLIDEAL CAMSO	XTRA-WALL 12-16,5 12PR SKS CL TUBELESS	5,6	350	6,48	3,50	54	100		
			1100	7,97	4,00	138	275		
			1250	8,01	4,01	156	312		
			3250	10,00	5,00	325	650		
	12-16,5 12PR SKS HF-3 TUBELESS	5,6	350	8,54	2,99	41	117		
			1100	11,00	3,50	100	314		
			1250	10,96	3,50	114	357		
			3250	13,54	4,72	240	689		
	HAULER 12-16,5 12PR SKS TUBELESS	5,6	350	5,00	2,50	70	140		
			1100	7,01	3,50	157	314		
			1250	7,02	3,50	178	357		
			3250	11,02	5,51	295	590		
	12-16,5 10 PR SKS R1	3,4							
MICHELIN	305/70 R16,5 141A5 TL	4,8							

DIMENSIONS AND LOAD CHART

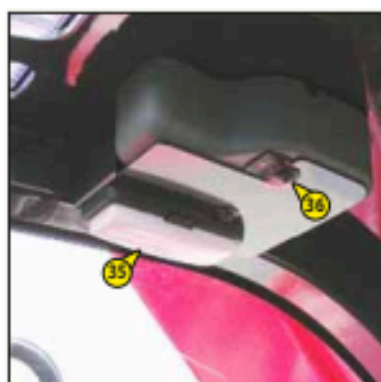
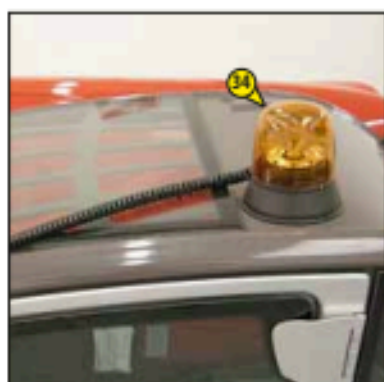
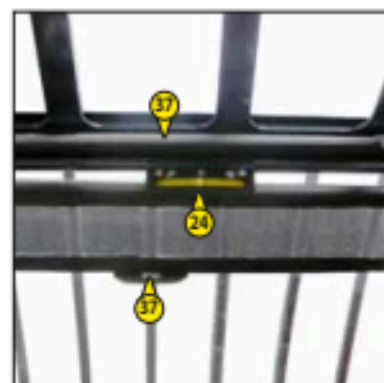
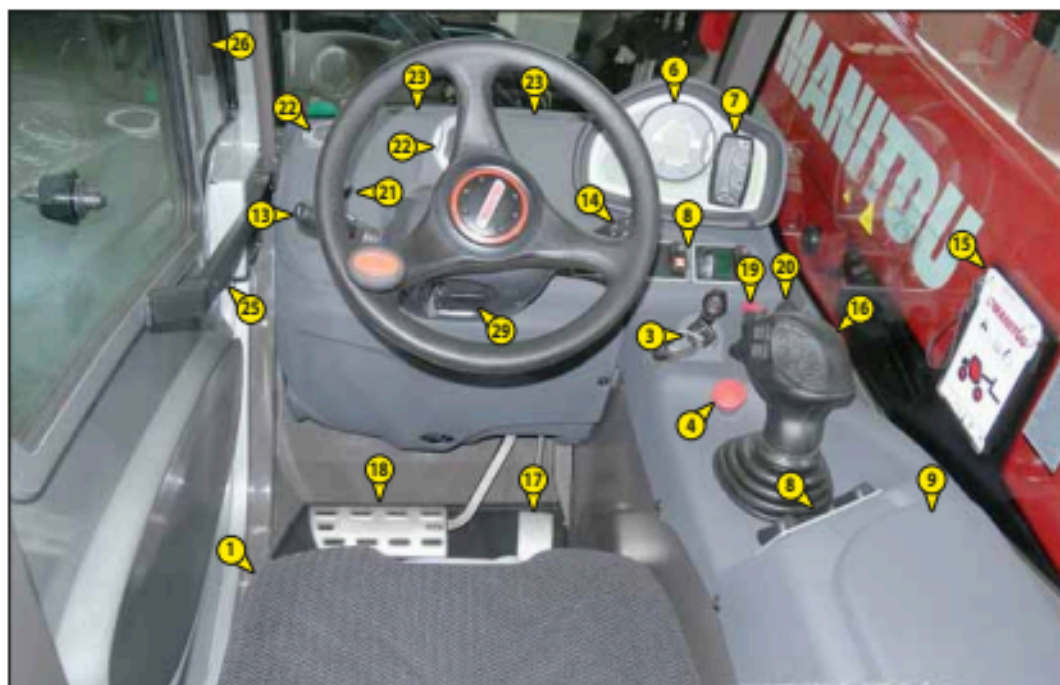
A	(mm)	1200
B	(mm)	2300
C	(mm)	991
C1	(mm)	928
D	(mm)	3894
D1	(mm)	3831
D2	(mm)	3275
E	(mm)	5094
F	(mm)	1492
F1	(mm)	1492
G	(mm)	240
G1	(mm)	330
G2	(mm)	253
I	(mm)	603
J	(mm)	797
K	(mm)	1015
L	(mm)	45
N	(mm)	1314
O	(mm)	125
P2	(°)	37
P3	(°)	52
R	(mm)	3150
S	(mm)	6651
T	(mm)	3935
U1	(mm)	1920
U2	(mm)	2054
V	(mm)	4700
V1	(mm)	765
V2	(mm)	3310
W	(mm)	1813
Y	(°)	12
Z	(°)	117





NOTE: For Australia (see: 5 - SPECIFIC AUSTRALIA)

INSTRUMENTS AND CONTROLS



DESCRIPTION

- 1 - DRIVER'S SEAT
- 2 - SAFETY BELT
- 3 - IGNITION SWITCH
- 4 - EMERGENCY STOP BUTTON
- 5 - BATTERY CUT-OFF
- 6 - MAN-MACHINE INTERFACE (MMI)
 - 6A - CONTROL PANEL
 - 6B - SCREEN DISPLAY
- 7 - LONGITUDINAL STABILITY LIMITER AND WARNING DEVICE
- 8 - SWITCHES
- 9 - ARMREST AND STORAGE
- 10 - FUSES AND RELAYS IN THE CAB
- 11 - FUSES AND RELAYS UNDER THE ENGINE HOOD
- 12 - CIGAR LIGHTER
- 13 - LIGHT SWITCH, HORN AND INDICATOR SWITCH
- 14 - FRONT AND REAR WINDSCREEN WIPER SWITCH
- 15 - FUNCTION FILES
- 16 - HYDRAULIC CONTROLS
- 17 - ACCELERATOR PEDAL
- 18 - SERVICE BRAKE PEDAL AND TRANSMISSION CUT-OFF
- 19 - FORWARD/NEUTRAL/REVERSE GEAR SELECTION
- 20 - STEERING SELECTION
- 21 - HEATER CONTROL
- 21 - AIR CONDITIONING CONTROLS (OPTION AIR CONDITIONING) (MT-X 625 COMFORT)
- 22 - HEATING VENTS
- 23 - WINDSCREEN DEMISTER VENTS
- 24 - LEVEL INDICATOR
- 25 - DOOR LOCK
- 26 - DOOR WINDOW OPENING HANDLE
- 27 - DOOR WINDOW RELEASE BUTTON
- 28 - HANDLE FOR REAR WINDOW OPENING
- 29 - STEERING WHEEL ADJUSTMENT LEVER (MT-X 625 COMFORT)
- 30 - DOCUMENT HOLDER NET
- 31 - REAR STORAGE SPACE (MT-X 625 COMFORT)
- 32 - FRONT LIGHTS (NOT ILLUSTRATED)
- 33 - REAR LIGHTS (NOT ILLUSTRATED)
- 34 - REVOLVING LIGHT (OPTION)
- 35 - ROOF LIGHT (MT-X 625 COMFORT)
- 36 - ROOF SCREENWIPER SWITCH (MT-X 625 COMFORT)
- 37 - SUN VISOR
- 38 - DIAGNOSTIC CONNECTOR
- 39 - JIB SAFETY WEDGE

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

1 - DRIVER'S SEAT

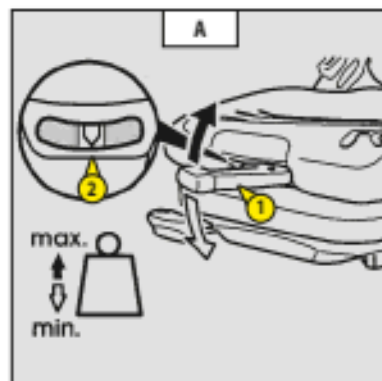
DESIGNED FOR MAXIMUM COMFORT, THIS SEAT CAN BE ADJUSTED AS FOLLOWS.

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 up to increase the weight or down to reduce it.
- There are ten possible positions between the min and max weights. Before each run, return the lever to the central position. The max. or min. position is indicated by a freely travelling lever.
- The driver's weight is correctly adjusted when the jib is in the centre of indicator 2.
- After completing weight adjustment, fully lower the lever 1.

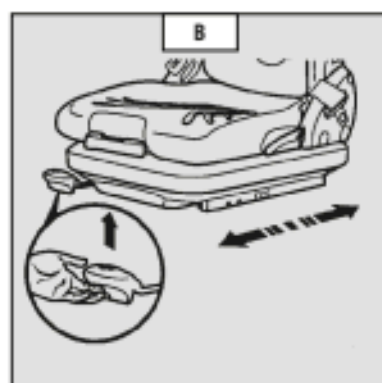
NOTE: To avoid any health problems, it is recommended that the weight should be checked and adjusted before starting up the lift truck.



LONGITUDINAL ADJUSTMENT (FIG. B)

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

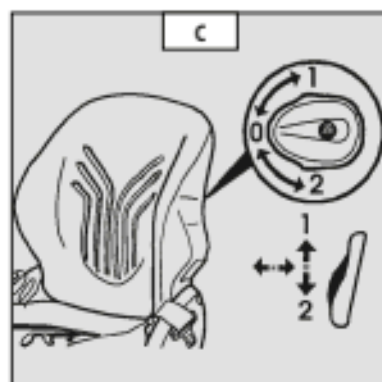
! Only operate the lever by its recessed section and do not grasp from below, at the risk of crushing the hand.



LUMBAR ADJUSTMENT (FIG. C)

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

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



ANGLE ADJUSTMENT OF THE BACK-REST (FIG. D)

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

! If you do not support the back-rest when making adjustments, it will swing forwards.

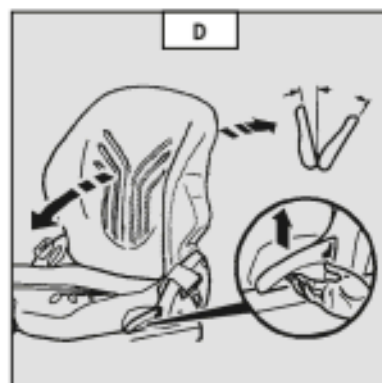
MAINTENANCE

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

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

! A rocking head-rest increases the risk of an accident!

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



2 - SAFETY BELT

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



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

3 - IGNITION SWITCH

The key switch has five positions:

- P - Ignition off, parking position.
- O - Ignition switched off and I.C. engine stopped.
- I - Ignition on.
- II - Heating.
- III - The I.C. engine starts, return to position I as soon as the key is released.

4 - EMERGENCY STOP BUTTON

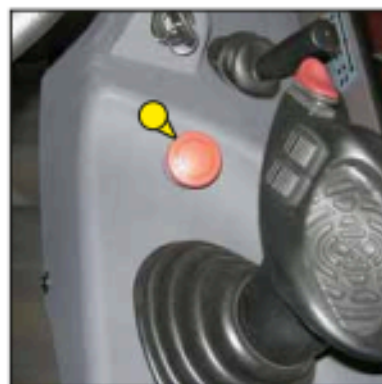
- In the event of danger, it lets you stop the I.C. Engine and thereby cut out all hydraulic movements.
- Pull the button to disable it before restarting the lift truck.



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



Warning, when driving, the lift truck will be brought to a sudden stop. If possible, stop the lift truck before using the emergency stop.



5 - BATTERY CUT-OFF

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



6 - MAN-MACHINE INTERFACE (MMI)

- 6A - CONTROL PANEL
- 6B - SCREEN DISPLAY

6A - CONTROL PANEL



A permanently lit or flashing warning lamp, with the engine running, is the sign of an operating fault. The lighting of some lamps may be accompanied by an audible signal. Do not ignore this warning, consult your dealer without delay. If one of the warning lamps comes on while the lift truck is in motion, stop the lift truck under the safest possible conditions.

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





REV COUNTER


10 level leds display from 0 to 3,000 rpm.



I.C. ENGINE WATER TEMPERATURE

Temperature zones:

- 1 led - (< 40 °C) zone. Use the lift truck with moderation, wait for temperature to increase before normal operation.
- 2 leds - (40 °C - 60 °C) zone.
- 3 leds - (60 °C - 80 °C) zone.
- 4 leds - (80 °C - 85 °C) zone.
- 5 leds - (85 °C - 90 °C) zone.
- 6 leds - (90 °C - 95 °C) zone from 40 °C to 95 °C use the lift truck normally.
- 7 leds - (95 °C - 105 °C) zone. Use the lift truck with moderation.
- 8 leds - (105 °C - 110 °C) zone. Use the lift truck with moderation, ventilation control operating at full speed.
- 9 leds - Red zone (110 °C - 115 °C).
- 10 leds - Red zone (> 115 °C) Stop the lift truck, seek the cause of overheating.

NOTE: The red lamp  and the buzzer come on (> 110 °C) when the lift truck is running, stop the I.C. engine immediately and seek the cause of the failure in the cooling system.



FUEL LEVEL

When only one led remains displayed, the orange indicator lamp  comes on, indicating that you are using the reserve fuel supply and that your operating time is limited.



FORWARD/NEUTRAL/REVERSE LIGHT

See: 2 - DESCRIPTION: 19 - FORWARD/NEUTRAL/REVERSE GEAR SELECTION.



RED PARKING BRAKE LAMP

This lamp comes on when the parking brake is applied (see: 2 - DESCRIPTION: 8 - SWITCHES).



RED BRAKING OIL LEVEL LAMP

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



RED GENERAL FAULT WARNING INDICATOR LIGHT

If the lamp and the buzzer come on when the lift truck is running, stop the I.C. engine immediately and consult your dealer.



ORANGE TRANSMISSION OIL TEMPERATURE WARNING INDICATOR LIGHT

The lamp and the buzzer come on when the transmission oil temperature is abnormally high. Stop the lift truck and look for the cause of this overheating.



ORANGE HYDRAULIC OIL FILTER CLOGGING LAMP WARNING INDICATOR LIGHT

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



RED I.C. ENGINE OIL PRESSURE WARNING INDICATOR LIGHT

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



ORANGE INDICATOR LIGHT NOT USED



ORANGE I.C. ENGINE PREHEATING INDICATOR LIGHT

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

RED BATTERY CHARGE INDICATOR LIGHT

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

GREEN DIRECTION INDICATOR LAMP

BLUE MAIN BEAM LAMP

6B - SCREEN DISPLAY



UPPER SCREEN DISPLAY

LOWER SCREEN DISPLAY



SCROLL BUTTON



VALIDATION, RESET AND ERROR CODE BUTTON




UPPER SCREEN DISPLAY

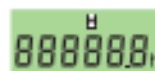
Switch on the lift truck ignition, by default, the screen will show the rev counter. Press the scroll button to switch from one screen to the other in turn.



RESETTING THE PARTIAL HOUR METER


- Display the partial hour meter screen.
- Press the button  for two seconds, resetting is confirmed by a beep.

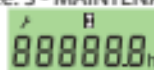
LOWER SCREEN DISPLAY





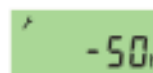
Switch on the lift truck ignition, by default, the screen will show the hour meter , i.e. the total number of hours the lift truck has been used. As soon as the engine is running, the flashing  pictogram records the hours of operation.


MAINTENANCE INTERVAL



NOTE: When the new lift truck is started, the maintenance key  will logically be displayed to provide a reminder to replace the engine oil and the oil filter after the first 50 hours of operation (see: 3 - MAINTENANCE: SERVICING SCHEDULE).




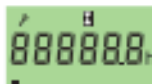
The maintenance key  appears on the hour meter screen  50 hours before the maintenance deadline and generates an audible beep.









- Press the button  to display the remaining time before maintenance . In the event that the deadline is exceeded, the hours are shown with a plus sign.

- Press once more on the button  to return to the hour meter screen. The maintenance key  will be displayed for information.
- Contact your dealer to carry out the necessary maintenance operations and reset the maintenance interval.

NOTE: The frequency interval displayed by default is 500 hours, this interval can be modified. Please contract your dealer.

The appearance of the maintenance key  on the hour meter screen  together with the sounding of an audible beep, indicate that an anomaly has been detected by one of the lift truck's Electronic Control Units (ECU).

- Press the button  to display the information  on the upper screen and error code .
- If there are several error codes, press the button  to loop through the error codes.
- Press the button  once more to return to the hour meter screen, the maintenance key  remains displayed as long the as the required repairs have not been carried out.
- Contact your dealer, stating the error code or codes.

NOTE: A faulty fuse can generate several error codes. When "error codes" and "maintenance interval" are displayed together, the maintenance reminder time will appear at the end of the list.

ERROR CODE	HYDROSTATIC TRANSMISSION	ERROR CODE	TELESCOPE/ATTACHMENT
520201	Hydraulic transmission electronic control unit voltage fault.	2662	Telescope control setting fault.
520214	Hydraulic transmission electronic control unit fault.	2663	Attachment control setting fault.
520215	Hydrostatic motor regulator control fault.	520300	Seat sensor fault.
520217	Stop light control fault.	520307	Proportional telescope control fault.
520224	Hydrostatic motor operating solenoid valve control fault.	520310	Proportional attachment control fault.
520225	Hydraulic transmission electronic control unit fault.	520315	Telescope control ON/OFF fault.
520226	Hydraulic transmission electronic control unit fault.	520318	Attachment control ON/OFF fault.
520227	Hydraulic transmission electronic control unit fault.	520336	Electronic handling controller fault.
520273	Forward/reverse selector error.	520337	Electronic handling controller fault.
520274	Inching sensor error.	520338	Electronic handling controller temperature fault.
520275	Hydrostatic pump reverse operation control fault.	520352	Attachment forced operation control fault.
520276	Hydrostatic pump forward operation control fault.	520362	Electronic handling controller 10V output fault.
520277	Hydraulic pump speed sensor fault.	520363	Attachment forced operation indicator fault.
520281	Temperature outside operating range.	520364	Attachment hydraulic control button fault.
ERROR CODE	MAN-MACHINE INTERFACE	520365	Attachment easy hydraulic connection button.
190	Engine speed data fault.	520366	Solenoid valve on jib head fault.
520400	Network link fault.	520370	Telescope retracted sensor fault (fault detected during test).
520401	Fuel gauge fault.	520371	Electronic handling controller temperature fault.
520402	Engine temperature sensor fault.	520376	Stability indicator fault.
520404	Man-Machine Interface fault.	520382	Aggravating hydraulic movement cut-off disable fault
520405	Man-Machine Interface fault.	520383	Computer earth output fault.
520406	Man-Machine Interface fault.	520384	Telescope retracted sensor fault.
520407	Man-Machine Interface fault.	520386	Jib angle sensor fault.
520408	Man-Machine Interface fault.	520387	Strain gauge fault.
520409	Man-Machine Interface fault.	520388	Network communication fault.
520410	Man-Machine Interface fault.	520391	Inclination cut-off valve fault.
520411	Man-Machine Interface fault.	520392	Angle calibration fault (fault detected during test).
520412	Hydrostatic transmission network link fault.	520393	Gauge calibration fault (fault detected during test).
520413	Electronic handling controller network connection fault.	520394	Safety valve fault.
		520395	Safety valve cut-off fault (fault detected during test).
		520396	Lowering regulating valve fault.
		520397	Regulating fault (fault detected during test).
		520398	Raising regulating valve fault.

7 - LONGITUDINAL STABILITY LIMITER AND WARNING DEVICE

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

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

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

UPDATE: In order to gain maximum advantage from the longitudinal stability limiter and warning device of your lift truck, contact your dealer to receive the latest version of software in relation with the serial number of your truck and its actual software.

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

IDENTIFICATION OF YOUR SETTINGS

CONFIGURATION 1	→ 09/2016
CONFIGURATION 2	→ 09/2016
CONFIGURATION 3	"BUCKET" mode is disabled when the lift truck is at a standstill.



"HANDLING" MODE

USE ON FORKS


CONFIGURATION 1

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

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


CONFIGURATION 2

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

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

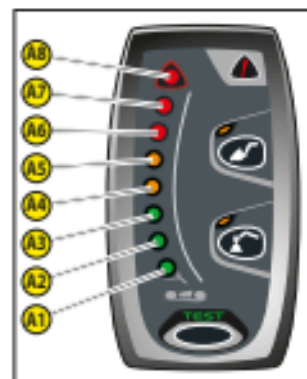
CONFIGURATION 3

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

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

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

NOTE: Only in configuration 2 and 3, when A9 is ON, it warns operator that the cut-off movement function is disabled (overridden).






"BUCKET" MODE


USE WITH BUCKET


CONFIGURATION 1

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


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


CONFIGURATION 2

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

DEVICE STATUS	
HALTED	TELESCOPE(S) IN RETRACTED POSITION (★)
A6: An audible signal on passing into the red zone.	- No sound alarm.  - Warning light A9 lit.

CONFIGURATION 3

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

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

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

NOTE: Only in configuration 2 and 3, when A9 is ON, it warns operator that the cut-off movement function is disabled (overridden).



"SUSPENDED LOAD" MODE

USE WITH JIB (offering a higher safety margin)

- Place the lift truck in the transport position.




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

CONFIGURATION 1

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

CONFIGURATION 2 and 3

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

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

NOTE: Only in configuration 2 and 3, when A9 is ON, it warns operator that the cut-off movement function is disabled (overridden).

A - VISUAL ALARMS

- A1 - A2 - A3: There is a significant reserve of longitudinal stability.
- A4 - A5: The lift truck is approaching the limit of longitudinal stability, move with care.
- A6: The lift truck is close to the limit for longitudinal stability. Drive carefully.
- A7: The lift truck is very close to the limit of longitudinal stability. Manoeuvre with extreme caution.
- A8: The lift truck is at the authorised limit of longitudinal stability.

B - HYDRAULIC MOVEMENT CUT-OFF

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

NOTE: Only in configuration 2 and 3, when A9 is ON, it warns operator that the cut-off movement function is disabled (overridden).

"HANDLING" MODE

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

"BUCKET" MODE

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

"SUSPENDED LOAD" MODE

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


C - DISABLING "AGGRAVATING" HYDRAULIC MOVEMENT CUT-OFF

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

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

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



D - TESTING THE LONGITUDINAL STABILITY LIMITER AND WARNING DEVICE

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

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

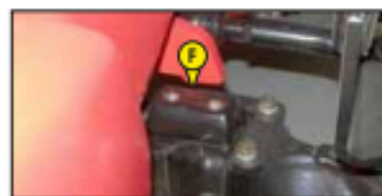
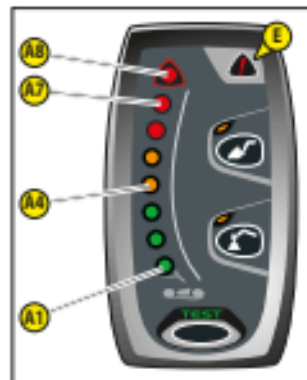
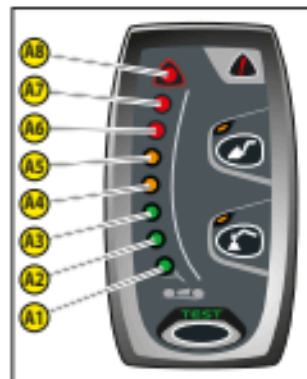
E - FAULT INDICATOR LAMP

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

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

F - STRAIN GAUGE

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



8 - SWITCHES

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

A - WARNING LIGHTS

B - REAR FOG LIGHTS

C - OPTION REVOLVING LIGHT

D - OPTION FRONT AND REAR WORKING LIGHTS (MT-X 625)

D - FRONT AND REAR WORKING LIGHTS OPTION JIB HEAD LIGHTS (MT-X 625 COMFORT)

E - OPTION (MT-X 625)

E - OPTION REAR WINDOW DE-ICING (MT-X 625 COMFORT)

F - NEUTRALISATION OF HYDRAULIC MOVEMENTS

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

G - GEAR SELECTION

Gears can be selected while driving.

SLOW SPEED: Use for handling, switch in the up position, the indicator lamp is off.

HIGH SPEED: Use on the road, switch in down position, the high speed indicator lamp comes on.

H - REAR WHEEL ALIGNMENT INDICATOR LAMP

See: 2 - DESCRIPTION: 20 - STEERING SELECTION.

I - PARKING BRAKE

To connect the parking brake, press the bottom of the switch. The indicator lamp shows when it is in use. To disconnect the parking brake, press the top of the switch.

J - DISABLING THE "AGGRAVATING" HYDRAULIC MOVEMENT CUT-OFF

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

K - OPTIONAL ATTACHMENT HYDRAULIC LOCKING DEVICE

OR

OPTIONAL ELECTROVALVE ON JIB HEAD (MT-X 625 COMFORT)

OR

OPTIONAL ELECTROVALVE ON JIB HEAD + ATTACHMENT HYDRAULIC LOCKING DEVICE (MT-X 625 COMFORT)

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

L - OPTION (MT-X 625)

L - OPTIONAL ATTACHMENT HYDRAULIC CONTROL FORCED OPERATION (MT-X 625 COMFORT)

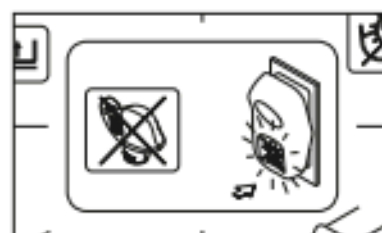
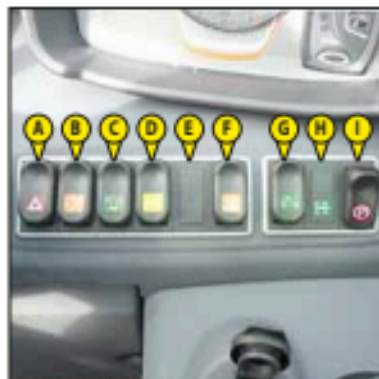
See: 2 - DESCRIPTION: DESCRIPTION AND USE OF THE OPTIONS.

M - OPTION (MT-X 625)

M - OPTIONAL ELECTRICAL JIB PROVISION (MT-X 625 COMFORT)

N - INCLINATION MOVEMENT NEUTRALISATION

Cuts carriage reverse and forward tilt movements. The indicator lamp shows when it is in use.



9 - ARMREST AND STORAGE

- Lift the armrest 1 to access the storage.



10 - FUSES AND RELAYS IN THE CAB

(MT-X 625)

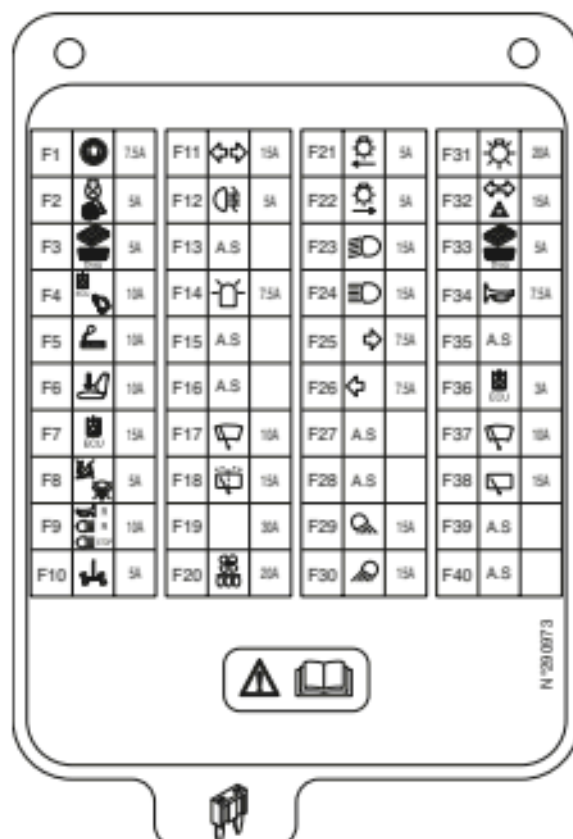
A fuse function file and a relay function file give a quick indication of the use of the panel's components described below.

- Lift the armrest.
- Remove the access panel 1 to access the fuses and relays.

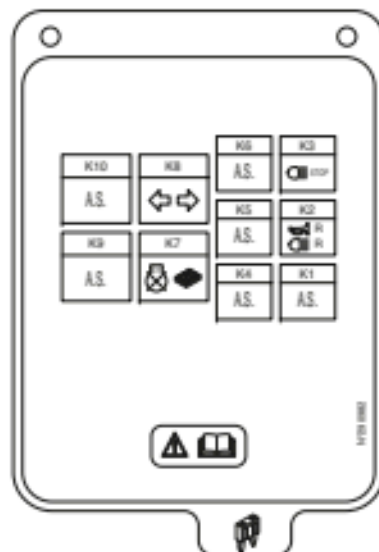
! Always replace a faulty fuse with another of equivalent rating. Never use a fuse that has been repaired.



- F1 - Control instrument module (7,5A).
- F2 - Stop I.C. engine solenoid valve (5A).
 - Alternator charge (5A).
 - Longitudinal stability limiter and warning device (5A).
- F3 - Diagnostic socket (5A).
- F4 - Transmission electronic control unit (10A).
 - Telescoping and attachment movement control (10A).
 - Negative parking brake solenoid valve (10A).
 - Gear selection (10A).
- F5 - Cigarette lighter (10A).
- F6 - Driver present on seat (10A).
 - Jib retracted and angle sensors (10A).
- F7 - Hydraulic electronic control unit power supply (15A).
- F8 - Inclination movement neutralization system supply (5A).
 - "Aggravating" hydraulic movement cut-off deactivation (5A).
- F9 - Stop light relay supply (5A).
 - Reversing light relay supply (5A).
 - Reverse buzzer alarm relay supply (5A).
- F10 - Wheel alignment (5A).
- F11 - Flashing unit (15A).
- F12 - Rear fog lights (5A).
- F13 - Not used.
- F14 - OPTION Revolving light (7,5A).
- F15 - Not used.
- F16 - Not used.
- F17 - Rear windscreen wiper (10A).
- F18 - Front windscreen wiper and windscreen washer (15A).
- F19 - Power supply F27-F28-F29-F30 (30A).
- F20 - Heating (20A).
- F21 - Left sidelights (5A).
 - Cigarette lighter light power supply (5A).
- F22 - Right sidelights (5A).
 - Control panel lighting (5A).
- F23 - Low beam (15A).
- F24 - Main beam (15A).
- F25 - Right indicators (7,5A).
- F26 - Left indicators (7,5A).
- F27 - Not used.
- F28 - Not used.
- F29 - OPTION Rear working lights (15A).
- F30 - OPTION Front working lights + sidelights (15A).
- F31 - Lights, horn and indicator switch (20A).
- F32 - Warning lights (15A).
- F33 - Diagnostic socket (+) permanent (5A).
 - Anti-theft device provision (+) permanent (5A).
- F34 - Alarm (7,5A).
- F35 - Not used.
- F36 - Hydraulic electronic control unit power supply (3A).
- F37 - Rear windscreen wiper (+) permanent (10A).
- F38 - Front windscreen wiper (+) permanent (15A).
- F39 - Not used.
- F40 - Not used.



- K1 - Not used.
- K2 - Reversing light relay.
- Reverse sound alarm relay.
- K3 - Stop light relay.
- K4 - Not used.
- K5 - Not used.
- K6 - Not used.
- K7 - Starting system safety relay.
- K8 - Flashing unit.
- K9 - Not used.
- K10 - Not used.



11 - FUSES AND RELAYS UNDER THE ENGINE HOOD

(MT-X 625)

Open the engine bonnet, remove the cover 1 to access fuses and relays.

A sticker on the inside of the cover gives a quick indication of the use of the panel's components described below.

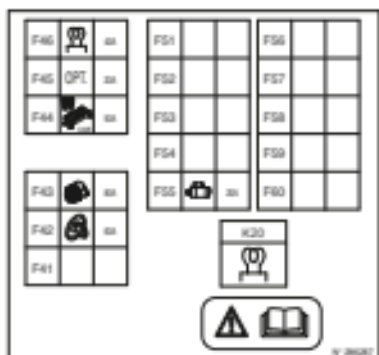
! Always replace a faulty fuse with another of equivalent rating. Never use a fuse that has been repaired.



- F41 - Not used.
- F42 - Ignition switch (60A).
- F43 - Alternator (80A).
- F44 - Power supply for fuses in the cab (50A).
- F45 - Not used.
- F46 - Preheating I.C. engine (40A).

- F51 - Not used.
- F52 - Not used.
- F53 - Not used.
- F54 - Not used.
- F55 - Starter solenoid (20A).
- F56 - Not used.
- F57 - Not used.
- F58 - Not used.
- F59 - Not used.
- F60 - Not used.

- K20 - Engine preheating relay.



10 - FUSES AND RELAYS IN THE CAB

(MT-X 625 COMFORT)

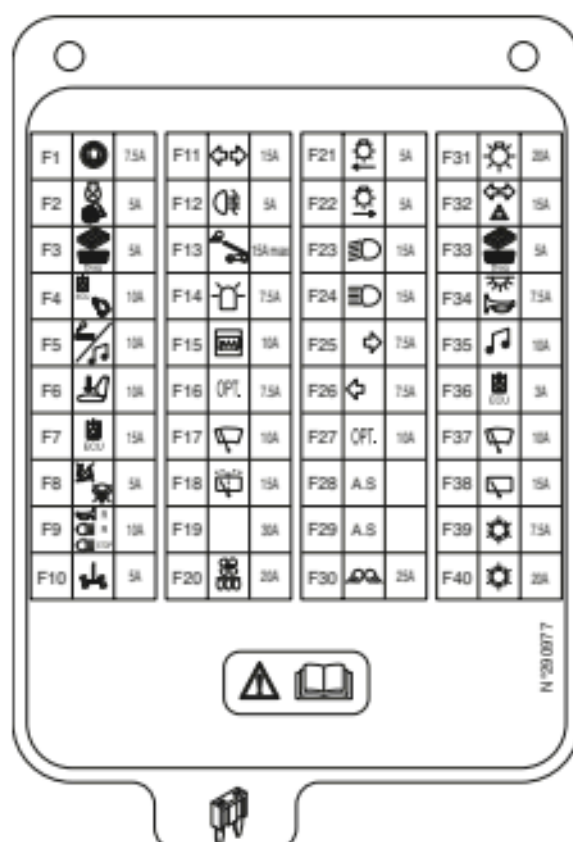
A fuse function file and a relay function file give a quick indication of the use of the panel's components described below.

- Lift the armrest.
- Remove the access panel 1 to access the fuses and relays.

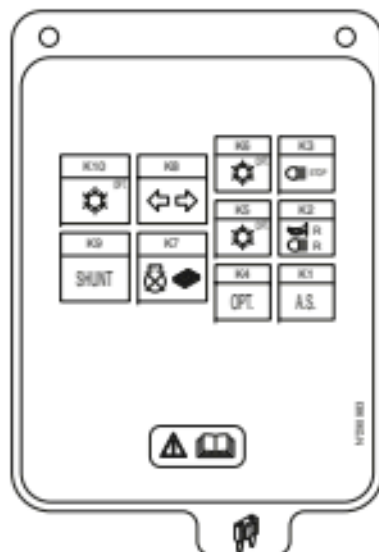
! Always replace a faulty fuse with another of equivalent rating. Never use a fuse that has been repaired.



- F1 - Control instrument module (7,5A).
- F2 - Stop I.C. engine solenoid valve (5A).
 - Alternator charge (5A).
 - Longitudinal stability limiter and warning device (5A).
- F3 - Diagnostic socket (5A).
- F4 - Transmission electronic control unit (10A).
 - Telescoping and attachment movement control (10A).
 - Negative parking brake solenoid valve (10A).
 - Gear selection (10A).
- F5 - Cigarette lighter (10A).
 - OPTION Car radio (10A).
- F6 - Driver present on seat (10A).
 - Jib retracted and angle sensors (10A).
- F7 - Hydraulic electronic control unit power supply (15A).
- F8 - Inclination movement neutralization system supply (5A).
 - "Aggravating" hydraulic movement cut-off deactivation (5A).
- F9 - Stop light relay supply (15A).
 - Reversing light relay supply (15A).
 - Reverse buzzer alarm relay supply (15A).
- F10 - Wheel alignment (5A).
- F11 - Flashing unit (15A).
- F12 - Rear fog lights (5A).
- F13 - OPTION Working lights on jib (15A).
- F14 - OPTION Revolving light (7,5A).
- F15 - OPTION Rear window defrosting (10A).
- F16 - OPTION Jib head solenoid valve (7,5A).
 - OPTION Jib head solenoid valve + attachment hydraulic locking device (7,5A).
- F17 - Rear windscreen wiper and washer + Roof windscreen wiper (15A).
- F18 - Front windscreen wiper and windscreen washer (15A).
- F19 - Power supply F27-F28-F29-F30 (30A).
- F20 - Heating (20A).
- F21 - Left sidelights (5A).
 - Cigarette lighter light power supply (5A).
- F22 - Right sidelights (5A).
 - Control panel lighting (5A).
- F23 - Low beam (15A).
- F24 - Main beam (15A).
- F25 - Right indicators (7,5A).
- F26 - Left indicators (7,5A).
- F27 - OPTION Jib base electrical provision (10A).
- F28 - Not used.
- F29 - Not used.
- F30 - Front and rear working lights (25A).
- F31 - Lights, horn and indicator switch (20A).
- F32 - Warning lights (15A).
- F33 - Diagnostic socket (+) permanent (5A).
 - Anti-theft device provision (+) permanent (5A).
- F34 - Alarm (7,5A).
 - Roof light (7,5A).
- F35 - OPTION Car radio (+) permanent (10A).
- F36 - Hydraulic electronic control unit power supply (3A).
- F37 - Rear windscreen wiper (+) permanent (10A).
- F38 - Front windscreen wiper (+) permanent (15A).
- F39 - OPTION Air conditioning compressor relay power supply (7,5A).
- F40 - OPTION Air conditioning fan motor relay power supply (20A).



- K1 - Not used.
- K2 - Reversing light relay.
 - Reverse sound alarm relay.
- K3 - Stop light relay.
- K4 - OPTION Jib-mounted working light relay
- K5 - OPTION Air conditioning fan motor relay.
- K6 - OPTION Air conditioning compressor relay.
- K7 - Starting system safety relay.
- K8 - Flashing unit.
- K9 - Shunt.
- K10 - OPTION Air conditioning relay.



11 - FUSES AND RELAYS UNDER THE ENGINE HOOD

(MT-X 625 COMFORT)

Open the engine bonnet, remove the cover 1 to access fuses and relays.

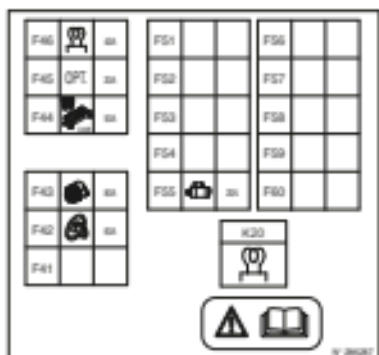
A sticker on the inside of the cover gives a quick indication of the use of the panel's components described below.

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- F41 - Not used.
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- F45 - Not used.
- F46 - Preheating I.C. engine (40A).

- F51 - Not used.
- F52 - Not used.
- F53 - Not used.
- F54 - Not used.
- F55 - Starter solenoid (20A).
- F56 - Not used.
- F57 - Not used.
- F58 - Not used.
- F59 - Not used.
- F60 - Not used.



- K20 - Engine preheating relay.

12 - LIGHTER

For 12 V appliance and max. amperage 10A.

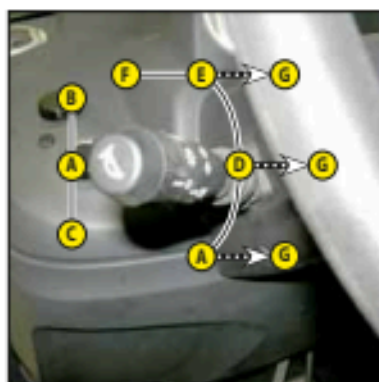
13 - LIGHTING, HORN AND INDICATOR SWITCH

The switch controls the visual and sound alarms.

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

Pressing the switch sounds the horn.

NOTE: The positions D - E - F - G can be carried out without the ignition being on.



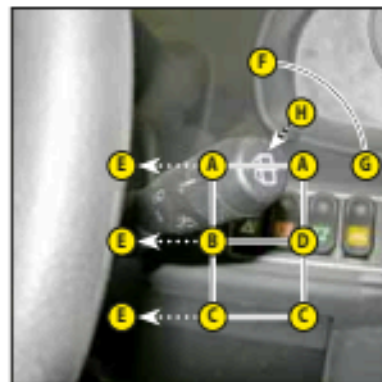
14 - FRONT AND REAR WINDSCREEN WIPER SWITCH

FRONT WINDSCREEN WIPER

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

REAR WINDSCREEN WIPER

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



15 - FUNCTION FILES

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

16 - HYDRAULIC CONTROLS

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

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

NOTE: When driving on the road, it is highly recommended (mandatory in Germany) that you cut-off all the hydraulic movements (see: 2 - DESCRIPTION: 8 - SWITCHES).

- A - Lifting and tilting control lever.
- B - Telescoping control button.
- C - Attachment control button.



LIFTING THE LOAD

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

TILT OF CARRIAGE

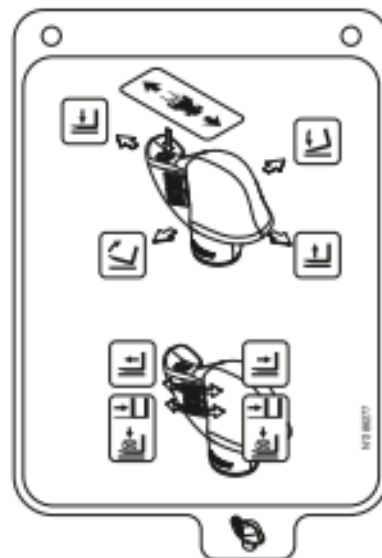
- The lever A to the left for reverse tilt.
- The lever A to the right for forward tilt.

TELESCOPING

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

ATTACHMENT

- Button C forwards or backwards.



17 - ACCELERATOR PEDAL

18 - SERVICE BRAKE PEDAL AND TRANSMISSION CUT-OFF





The pedal acts on the front wheels by means of a hydraulic brake system enabling the slowing down and stopping of the lift truck. During clearance travel it enables the transmission to be cut off progressively thus allowing a gradual approach (delicate handling) with all the I.C. engine power.

19 - FORWARD/NEUTRAL/REVERSE GEAR SELECTION

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

FORWARD: Push the knob forward (position A).

REVERSE: Pull the knob backward (position B). A reversing light and audible reversing alarm indicate that the lift truck is travelling in reverse.

NEUTRAL: If indicators   or   are flashing, pass the forward/reverse selector back through neutral (position C).

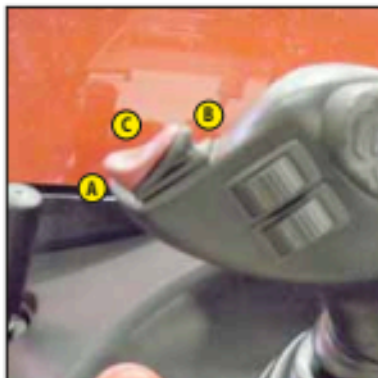
SAFETY FOR MOVING THE LIFT TRUCK






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

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

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

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



- If the operator leaves the driving cab with forward or reverse engaged, the screen  will appear and beep will sound for two seconds. During this time, the operator can sit back down in the seat and continue advancing or reversing. When this time is exceeded, the forward/reverse selector will switch to neutral and the indicators   or   will flash. The operator must sit back down and pass the forward/reverse selector back through neutral.

20 - STEERING SELECTION

A - GREEN REAR WHEEL ALIGNMENT LAMP

This green lamp comes on to indicate the alignment of the rear wheels relative to the lift truck.

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

B - STEERING SELECTION LEVER

B1 - Front drive wheels (highway traffic).



B2 - Front and rear drive wheels in opposite direction (short steering lock).




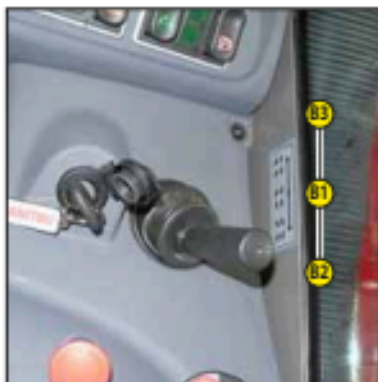
B3 - Front and rear drive wheels in the same direction (crab steering).



CONTROL FOR ALIGNMENT OF THE WHEELS

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

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



21 - HEATER CONTROL

A - FAN CONTROL

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

B - TEMPERATURE CONTROL

Allows the temperature inside the cab to be adjusted.

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

B2 - The fan pumps in warm air.

The intermediate positions allow the temperature to be adjusted.



21 - AIR CONDITIONING CONTROLS (OPTION AIR CONDITIONING)

(MT-X 625 COMFORT)

! The air conditioning only works if the lift truck has been started up. When using your air conditioning unit you must work with the cab closed off.

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

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

! If your air conditioning does not seem to be working correctly, have it examined by your dealer (see: 3 - MAINTENANCE: F - EVERY 2000 HOURS OF SERVICE). Never try to repair any faults yourself.



A - FAN CONTROL

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

B - TEMPERATURE CONTROL

Allows the temperature inside the cab to be adjusted.

B1 - The fan pumps in cold air.

B2 - The fan pumps in warm air.

The intermediate positions allow the temperature to be adjusted.

C - AIR CONDITIONING CONTROL

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

HEATING MODE

The controls must be adjusted in the following way:

C - Control with pilot light off.

B - At the required temperature.

A - At the desired speed: 1, 2 or 3.

CONDITIONED AIR MODE

The controls must be adjusted in the following way:

C - Control with pilot light on.

B - At the required temperature.

A - At the desired speed: 1, 2 or 3.

DEMISTING MODE

The controls must be adjusted in the following way:

C - Control with pilot light on.

B - At the required temperature.

A - At speed 3.

For optimum effectiveness, close the heating ventilators.

22 - HEATING VENTS

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

23 - DEMIST VENTS

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

24 - LEVEL INDICATOR

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



25 - DOOR LOCK

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

26 - DOOR WINDOW OPENING HANDLE

27 - DOOR WINDOW RELEASE BUTTON

28 - HANDLE FOR REAR WINDOW OPENING

EMERGENCY EXIT

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

29 - STEERING WHEEL ADJUSTMENT LEVER

(MT-X 625 COMFORT)

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

- Pull the knob 1 backwards.
- Adjust the steering wheel to the desired position.
- Push the knob back to lock the steering wheel in position.



30 - DOCUMENT HOLDER NET

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

NOTE: An OPTION waterproof document-holder exists.

31 - REAR STORAGE SPACE

(MT-X 625 COMFORT)

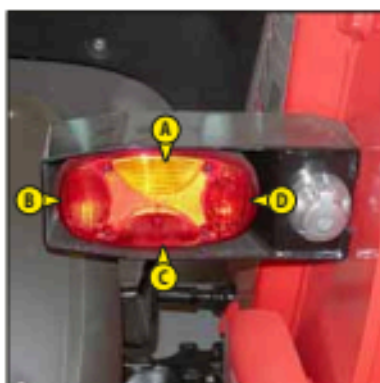
32 - FRONT LIGHTS

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



33 - REAR LIGHTS

- A - Left rear indicator.
- B - Left rear stoplight.
- C - Left tail light.
- D - Rear fog light
- E - Reversing light.
- F - Right tail light.
- G - Right rear stoplight.
- H - Right rear indicator.



34 - REVOLVING LIGHT (OPTION)

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

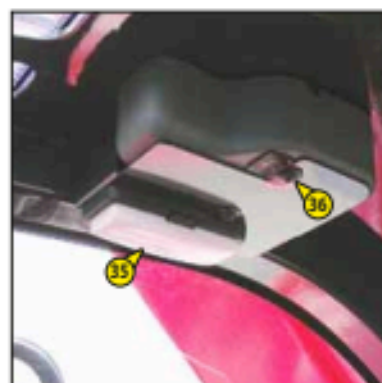


35 - ROOF LIGHT

(MT-X 625 COMFORT)

36 - ROOF SCREENWIPER SWITCH

(MT-X 625 COMFORT)



37 - SUN VISOR

38 - DIAGNOSTIC CONNECTOR



TOWING PIN AND HOOK

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

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

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

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

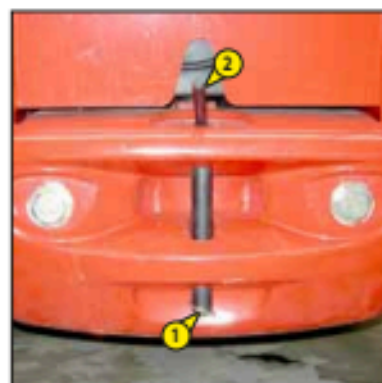
NOTE: There is an OPTIONAL rear-view mirror which allows the lift truck to be approached more closely to the trailer ring.

A - TOWING PIN

COUPLING AND UNCOUPLING THE TRAILER

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

⚠ Be careful not to get your fingers caught or crushed during this operation. Do not forget to put clip 1 back in place. When uncoupling, make sure that the trailer is supported independently.

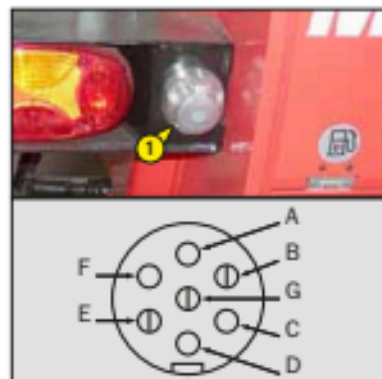


B - REAR ELECTRIC SOCKET

(MT-X 625 COMFORT)

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

- A - Left rear indicator.
- B - Rear fog lights.
- C - Earth.
- D - Right rear indicator.
- E - Right tail light.
- F - Rear stop light.
- G - Left rear light and number plate.

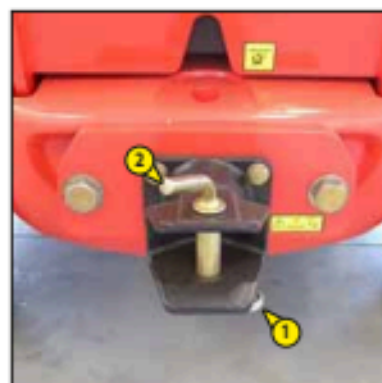


C - COUPLING FITTING (OPTION)

COUPLING AND UNCOUPLING THE TRAILER

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

⚠ Be careful not to get your fingers caught or crushed during this operation. Do not forget to put clip 1 back in place. When uncoupling, make sure that the trailer is supported independently.



DESCRIPTION AND USE OF THE OPTIONS

1 - PREHEATING ELEMENT

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

SUPPLY CHARACTERISTICS OF PREHEATING SYSTEM:

- Rated range of power: 220-240V ; 50-60Hz
- Current consumption: 4,5A
- Class 1 equipment
- Equipment connectable only to Earth-Earth (TT) or Earth-Neutral (TN) circuits
- Installation category 2

ENVIRONMENTAL CONDITIONS FOR USE:

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

CONDITIONS FOR CONNECTION AND USE OF PREHEATING:

- The preheating system should not be used for an external ambient temperature higher than + 25°C.
- It is essential that the power supply to the preheating system is:
 - Effected with a cable that conforms to the installation standards in force and contains a protective earth conductor.
 - Contains an appropriate isolation system.
 - Incorporate 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 off and the I.C. engine is stopped.



2 - NUMBER PLATE LIGHTING



3 - MODCOD ANTI-THEFT SYSTEM

OPERATION

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

NOTE: If you make a mistake when entering the code, press key "A" to cancel and re-enter the code in full. If you wait more than 5 seconds between key presses, the code entry procedure will be aborted, the anti-theft system will be reactivated and the red LED will flash.



4 - FINTRONIC ANTI-START SYSTEM

OPERATION

- Switch on the lift truck and set the black key A next to the antenna B (maximum 80 mm).
- Wait a few seconds for red LED C to go out before starting the lift truck.

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



5 - MODCLE ANTI-START SYSTEM

OPERATION

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

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



6 - ANGULAR SECTOR ON JIB

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



7 - ELECTRICAL PROVISION ON JIB

(MT-X 625 COMFORT)

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

OPERATION

- Set switch 1 to position A to enable the electrical provision. The indicator light will come on when it is enabled.



8 - EXTERIOR DRAIN BACK

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



9 - HYDRAULIC ATTACHMENT LOCKING

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

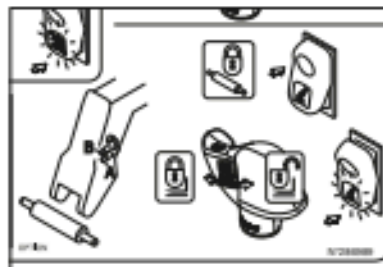
ATTACHMENT LOCKING CONTROL

- Set valve 1 to position A and place switch 2 in position B (indicator light on).
- Push button 3 forward to lock the attachment and backward to release it.

! Once the attachment is locked, return switch 2 to position A to prevent accidental release of the attachment.

ATTACHMENT OPERATION CONTROL

- Set the valve to position B.
- Push button 3 forward or backward.



10 - JIB HEAD SOLENOID VALVE

(MT-X 625 COMFORT)

Enables use of two hydraulic functions on the attachment circuit.

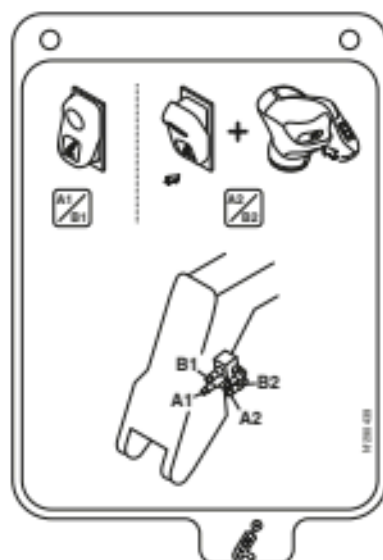
! To make connection of the rapid connectors easier, decompress the hydraulic circuit by pressing button 1 on the solenoid valve.

ATTACHMENT LINE A1/B1 CONTROL

- Set switch 1 to position A (indicator light off).
- Push button 2 forward or backward.

ATTACHMENT LINE A2/B2 CONTROL

- Set switch 1 to position B (indicator light on) and hold down button 3.
- Push button 2 forward or backward.



11 - JIB HEAD SOLENOID VALVE + HYDRAULIC ATTACHMENT LOCKING

(MT-X 625 COMFORT)

Enables the use of a hydraulic function and hydraulic locking of the attachment on the attachment circuit.

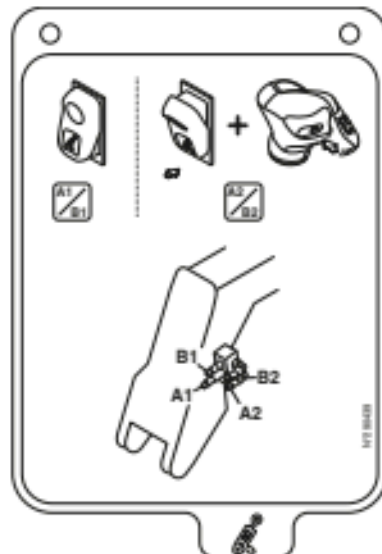
! To make connection of the rapid connectors easier, decompress the hydraulic circuit by pressing button 1 on the solenoid valve.

ATTACHMENT LINE A1/B1 CONTROL

- Set switch 1 to position A (indicator light off).
- Push button 2 forward or backward.

ATTACHMENT A2/B2 LOCKING CONTROL

- Set switch 1 to position B (indicator light on) and hold down button 3.
- Push button 2 forward to lock the attachment and backward to release it.



12 - ATTACHMENT HYDRAULIC CONTROL FORCED OPERATION

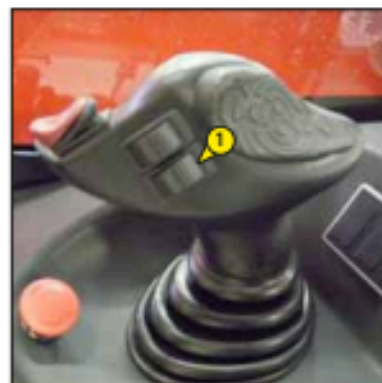
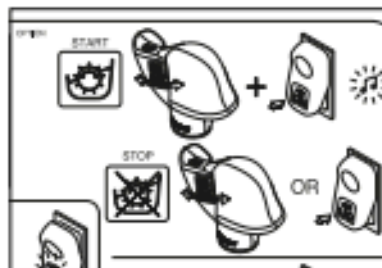
(MT-X 625 COMFORT)

! This OPTION must only be used with an attachment requiring continuous hydraulic movement of type: brush, supply bucket, mixer, spray... It is strictly forbidden in handling operations and at all other events (winch, crane jib, crane jib with winch, hook, etc.).

CONTINUOUS HYDRAULIC MOVEMENT OF THE ATTACHMENT

- Simultaneously hold button 1 in the forward or backward position (according to the type of attachment) and switch 2 in position B (indicator light on). An audible beep will sound when activated. Release button 1 and switch 2.
- To stop the movement, push again on the bottom of switch 1, or press pushbutton 2.

NOTE: If the operator leaves the driver's cab, the continuous hydraulic movement will automatically stop and must be restarted.



13 - HAND-OPERATED ACCELERATOR

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

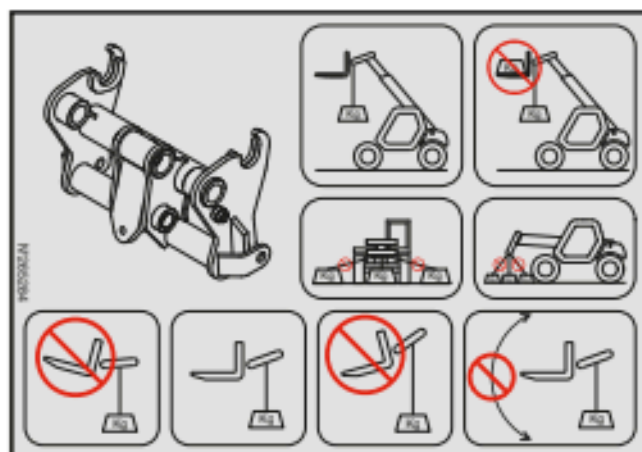


14 - LIFTING RING ON SINGLE CARRIAGE

CONDITIONS OF USE

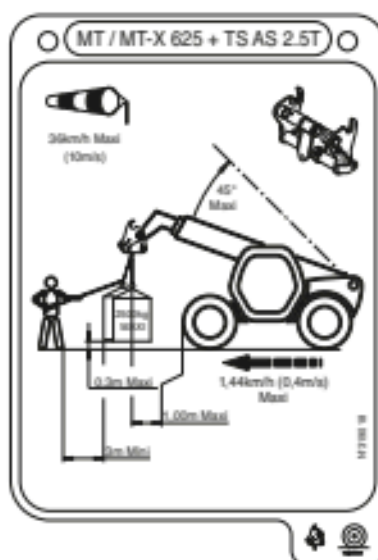
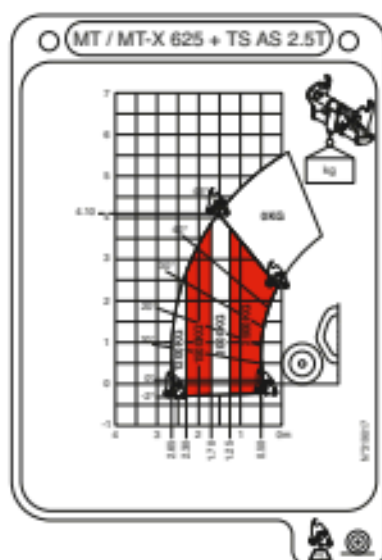
! Follow the instructions given in your lift truck's instruction manual (see: 1 - OPERATING AND SAFETY INSTRUCTIONS ON HANDLING LOADS), in addition to those given below.

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



LOAD CHARTS AND FUNCTION SHEETS

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



3 - MAINTENANCE

TABLE OF CONTENTS

MANITOU ORIGINAL SPARE PARTS AND EQUIPMENT	3-4
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MANITOU ORIGINAL SPARE PARTS AND EQUIPMENT

OUR LIFT TRUCKS MUST BE SERVICED USING ORIGINAL MANITOU PARTS.

IF YOU USE PARTS WHICH ARE NOT ORIGINAL MANITOU PARTS,

YOU RISK

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

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

BY USING ORIGINAL MANITOU PARTS FOR MAINTENANCE OPERATIONS,

YOU BENEFIT EXPERTISE

- Through its network, MANITOU provides the user with
- Know-how and competence.
 - The guarantee of high-quality work.
 - Original replacement components.
 - Help with preventive maintenance.
 - Efficient help with diagnosis.
 - Improvements due to experience feedback.
 - Operator training.
 - Only the MANITOU network has detailed knowledge of the design of the lift truck and therefore the best technical ability to provide maintenance.

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

START-UP CHECKLIST









0 = OK 1 = Missing 2 = Incorrect

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

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

FILTERS CARTRIDGES AND BELTS

L.C. ENGINE


	L.C. ENGINE OIL FILTER Part number: 279809 Change: 500 H		ALTERNATOR BELT Part number: 749473 Change: 500 H
	DRY AIR FILTER CARTRIDGE Part number: 563416 Clean: 50 H* Change: 1000 H*		CYCLONIC PRE-FILTER (OPTION) Part number: 224713 Clean: 10 H
	SAFETY DRY AIR FILTER CARTRIDGE Part number: 563415 Change: 2000 H*		COMPRESSOR BELT (OPTION AIR CONDITIONING) (MT-X 625 COMFORT) Part number: 281458
	FUEL FILTER Part number: 746364 Change: 500 H		
	FUEL PRE-FILTER Part number: 52504757 Change: 500 H		

*: This frequency is given for information only (see: 3 - MAINTENANCE: SERVICING SCHEDULE) for cleaning and changing.

HYDRAULIC

	HYDRAULIC RETURN OIL FILTER CARTRIDGE Part number: 686236 Change: 500 H		BRAKE ACCUMULATOR UNIT FILTER Part number: 746308 Change: 2000 H
--	---	---	--

CAB

	CAB VENTILATION FILTERS Part number: 750306 Clean: 50 H Change: 250 H
---	--

LUBRICANTS AND FUEL



USE THE RECOMMENDED LUBRICANTS AND FUEL:

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

DIAGNOSTIC ANALYSIS OF OILS

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

(*) RECOMMENDED FUEL SPECIFICATION

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

- EN590 diesel fuel type - Auto/C0/C1/C2/C3/C4
- BS2869 Class A2
- ASTM D975-91 Class 2-2DA, US DF1, US DF2, US DFA
- JIS K2204 (1992) Grades 1, 2, 3 and Special Grade 3.

I.C. ENGINE				
ORGANS TO BE LUBRICATED	CAPACITY	RECOMMENDATION	PACKAGING	PART NUMBER
I.C. ENGINE	11,2 Liters	SHELL OIL RIMULA R4L 15W40 CI4	5 l	786744
			20 l	786745
COOLING CIRCUIT	12 Liters	Cooling liquid (protection - 25°)	2 l	788245
			5 l	788246
			20 l	788247
			210 l	788248
		Cooling liquid (protection - 35°)	20 l	788249
			210 l	788250
			1000 l	788251
FUEL TANK	63 Liters	Diesel fuel (*)		

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

HYDRAULIC				
ORGANS TO BE LUBRICATED	CAPACITY	RECOMMENDATION	PACKAGING	PART NUMBER
HYDRAULIC OIL TANK	85 Liters	MANITOU Oil Hydraulic ISO VG 46	5 l	545500
			20 l	582297
			55 l	546108
			209 l	546109

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

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

FRONT AXLE				
ORGANS TO BE LUBRICATED	CAPACITY	RECOMMENDATION	PACKAGING	PART NUMBER
FRONT AXLE DIFFERENTIAL	4 Liters	MANITOU Oil Special immersed brakes	5 l	545976
			20 l	582391
			209 l	546222
			1 000 l	720149
TRANSFER BOX	0,75 Litre	MANITOU Oil	2 l	499237
FRONT WHEELS REDUCERS	0,8 Liter	SAE80W90 Mechanical transmission	5 l	720184
			20 l	546330
			55 l	546221
			209 l	546220
FRONT WHEELS REDUCERS PIVOTS		MANITOU Grease BLUE multi-purpose	400 g	161589
			1 kg	720683
			5 kg	554974
			20 kg	499233
			50 kg	489670

REAR AXLE				
ORGANS TO BE LUBRICATED	CAPACITY	RECOMMENDATION	PACKAGING	PART NUMBER
REAR AXLE DIFFERENTIAL	3,8 Liters	MANITOU Oil Special immersed brakes	5 l	545976
			20 l	582391
			209 l	546222
			1 000 l	720149
REAR WHEELS REDUCERS	0,9 Liter	MANITOU Oil SAE80W90 Mechanical transmission	2 l	499237
			5 l	720184
			20 l	546330
			55 l	546221
			209 l	546220
REAR WHEELS REDUCERS PIVOTS REAR AXLE OSCILLATION		MANITOU Grease BLUE multi-purpose	400 g	161589
			1 kg	720683
			5 kg	554974
			20 kg	499233
			50 kg	489670


SERVICING SCHEDULE

(1): MANDATORY 500 HOUR OR 6 MONTH SERVICE


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

(2): The I.C engine oil and oil filter must be replaced after the first 50 hours of service, then every 500 hours of service.

A = ADJUST, C = CHECK, G = GREASE, N = CLEAN,
P = BLEED, R = REPLACE, V = DRAIN

	PAGE		DAILY/EVERY 10 HOURS OF SERVICE	EVERY 100 HOURS OF SERVICE	EVERY 250 HOURS OF SERVICE	EVERY 500 HOURS OF SERVICE OR EVERY 6 MONTHS	EVERY 1000 HOURS OF SERVICE OR EVERY YEAR	EVERY 2000 HOURS OF SERVICE OR EVERY TWO YEARS	EVERY 4000 HOURS OF SERVICE	OCCASIONALLY
I.C. ENGINE										
I.C. engine oil level	3-12	C	C	<<<	<<<	<<<	<<<	<<<	<<<	
Cooling liquid level	3-12	C	C	<<<	<<<	<<<	<<<	<<<	<<<	
Fuel level	3-12	C	C	<<<	<<<	<<<	<<<	<<<	<<<	
Cyclonic pre-filter	3-13	N	N	<<<	<<<	<<<	<<<	<<<	<<<	
Dry air filter cartridge	3-16/26	R		N	<<<	<<<	R	<<<	<<<	
Radiator cores	3-16	N		N	<<<	<<<	<<<	<<<	<<<	
Condenser core (OPTION Air conditioning) (MT-X 625 COMFORT)	3-16	C/N		C/N	<<<	<<<	<<<	<<<	<<<	
Alternator/fan/crankshaft belt tension	3-20	C/A			C/A	<<<	<<<	<<<	<<<	
Compressor belt tension (OPTION Air conditioning) (MT-X 625 COMFORT)	3-20	C/A			C/A	<<<	<<<	<<<	<<<	
Fuel water trap	3-20	V			V	<<<	<<<	<<<	<<<	
I.C. engine oil (2)	3-22	V			V	<<<	<<<	<<<	<<<	
I.C. engine oil filter (2)	3-22	R			R	<<<	<<<	<<<	<<<	
Fuel filter	3-23	R			R	<<<	<<<	<<<	<<<	
Fuel pre-filter	3-25	R			R	<<<	<<<	<<<	<<<	
Alternator/fan/crankshaft belt	3-23	R			R	<<<	<<<	<<<	<<<	
Fuel tank	3-26						N	<<<	<<<	
I.C. engine silent blocks							C**	<<<	<<<	
I.C. engine rates							C**	<<<	<<<	
Valves clearances		C**					C**	<<<	<<<	
Safety dry air filter cartridge	3-28							R	<<<	
Cooling liquid	3-28							V	<<<	
Injection pump								C**	<<<	
Injectors								C**	<<<	
Radiator								C**	<<<	
Water pump and the thermostat								C**	<<<	
Alternator and the starter motor								C**	<<<	
Turbocompressor								C**	<<<	
Fuel circuit	3-32									P
TRANSMISSION										
Hydrostatic transmission circuit pressures								C**	<<<	
Governing start of the hydrostatic transmission								C**	<<<	
Hydrostatic transmission cut-off operation								C**	<<<	
TYRES										
Tyres pressure	3-13	C	C	<<<	<<<	<<<	<<<	<<<	<<<	
Wheel nuts torque	3-13	C	C	<<<	<<<	<<<	<<<	<<<	<<<	
Condition of wheels and tyres							C**	<<<	<<<	
Wheel	3-32									R
JIB										
Jib pads	3-13		G*	<<<	<<<					
Jib	3-17	G		G	<<<	<<<	<<<	<<<	<<<	
Jib pads wear							C**	<<<	<<<	
Condition of jib unit								C**	<<<	
Bearings and articulation rings								C**	<<<	
HYDRAULIC										
Hydraulic oil level	3-18	C		C	<<<	<<<	<<<	<<<	<<<	
Hydraulic return oil filter cartridge	3-24	R				R	<<<	<<<	<<<	
Hydraulic oil	3-24/29					C		V	<<<	
Brake accumulator unit filter	3-29							R	<<<	
Speeds of hydraulic movements								C**	<<<	
Hydraulic pump tubular filter								N**	<<<	
Condition of hoses and flexible pipes								C**	<<<	
Condition of cylinders (leakage, shafts)								C**	<<<	
Hydraulic circuit pressures								C**	<<<	
Hydraulic circuit outputs								C**	<<<	

A = ADJUST, C = CHECK, G = GREASE, N = CLEAN,
P = BLEED, R = REPLACE, V = DRAIN

	PAGE		DAILY/EVERY 10 HOURS OF SERVICE	EVERY 10 HOURS OF SERVICE	EVERY 25 HOURS OF SERVICE	EVERY 100 HOURS OF SERVICE OR EVERY 6 MONTHS	EVERY 100 HOURS OF SERVICE OR EVERY YEAR	EVERY 200 HOURS OF SERVICE OR EVERY TWO YEARS	EVERY 400 HOURS OF SERVICE	OCCASIONALLY
BRAKE										
Brake oil level	3-18	C		C	<<<	<<<	<<<	<<<	<<<	
Brake oil							V**	<<<	<<<	
Brake system							P**	<<<	<<<	
Brake system pressure							C**	<<<	<<<	
Brake							A**	<<<	<<<	
STEERING										
Steering								C**	<<<	
Steering swivel joints									C**	
CAB										
Windscreen washer liquid level	3-18	C		C	<<<	<<<	<<<	<<<	<<<	
Cab ventilation filters	3-18/20	R		N	R	<<<	<<<	<<<	<<<	
Seat belt	3-27						C	<<<	<<<	
Condition of the rear view mirrors							C**	<<<	<<<	
Structure							C**	<<<	<<<	
Air conditioning (OPTION) (MT-X 635 COMFORT)	3-30							N/C	<<<	
ELECTRICITY										
Longitudinal stability and limiter warning device	3-14/37	C	C	<<<	<<<	<<<	<<<	<<<	<<<	XXX
Condition of wiring harness and cables							C**	<<<	<<<	
Lights and signals							C**	<<<	<<<	
Warning indicators							C**	<<<	<<<	
Front headlights	3-33									A
Battery failure	3-33									R
FRONT AXLE										
Front wheels reducers pivots	3-17	G		G	<<<	<<<	<<<	<<<	G/C**	
Transfer box oil level	3-21	C			C	<<<	<<<	<<<	<<<	
Front axle differential oil level	3-21	C			C	<<<	<<<	<<<	<<<	
Front wheels reducers oil level	3-21	C			C	<<<	<<<	<<<	<<<	
Transfer box oil	3-25	V				V	<<<	<<<	<<<	
Front axle differential oil	3-25	V				V	<<<	<<<	<<<	
Front wheels reducers oil	3-27	V				V	<<<	<<<	<<<	
Wear of front axle brake discs									C**	
Front wheels reducers universal joint									C**	
Front wheels reducers clearance									C**	
Set of transfer box rolling bearings									C**	
REAR AXLE										
Rear wheels reducers pivots	3-17	G		G	<<<	<<<	<<<	<<<	G/C**	
Rear axle oscillation	3-17	G		G	<<<	<<<	<<<	G/C**	<<<	
Rear axle differential oil level	3-21	C			C	<<<	<<<	<<<	<<<	
Rear wheels reducers oil level	3-21	C			C	<<<	<<<	<<<	<<<	
Rear axle differential oil	3-27	V				V	<<<	<<<	<<<	
Rear wheels reducers oil	3-27	V				V	<<<	<<<	<<<	
Rear wheels reducers universal joint/differential									C**	
Rear wheels reducers clearance									C**	
CHASSIS										
Structure							C**	<<<	<<<	
Bearings and articulation rings								C**	<<<	
ATTACHMENTS										
Forks wear		C**				C**	<<<	<<<	<<<	
Attachment carriage							C**	<<<	<<<	
Condition of attachments							C**	<<<	<<<	
LIFT TRUCK										
Tow the lift truck	3-34									XXX
Sling the lift truck	3-34									XXX
Transport the lift truck on a platform	3-35									XXX

(*) : Every 10 hours of service during the first 50 hours of service, then one last time at 250 hours of service.

(**) : Consult your dealer.

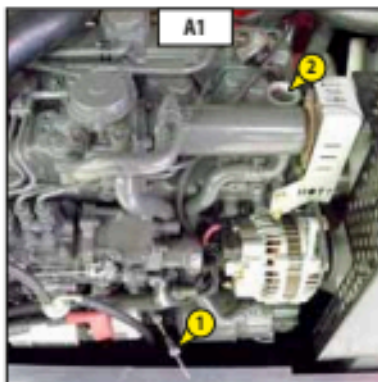
A - DAILY OR EVERY 10 HOURS SERVICE

A1 - I.C. ENGINE OIL LEVEL

CHECK

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

- Open the I.C. engine bonnet.
- Remove the dipstick 1 (fig. A1).
- Clean the dipstick and check the correct level between the two notches.
- If necessary, add oil (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL) by the filler port 2 (fig. A1).
- Check visually that there is no leakage or seepage of oil in the I.C. engine.



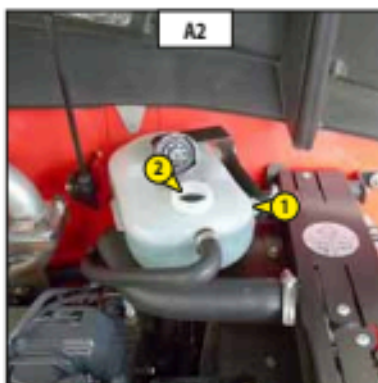
A2 - COOLING LIQUID LEVEL

CHECK

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

- Open the I.C. engine bonnet.
- The liquid must be at mid-height on the expansion pan 1 (fig. A2).
- If necessary, add cooling liquid (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL) through the filler port 2 (fig. A2).
- Check visually that there is no leakage in the radiator and pipes.

! To avoid any risk of spraying or burning, wait until the I.C. engine has cooled down before removing the cooling circuit filler plug. If the cooling liquid is very hot, add only hot cooling liquid (80 °C). In an emergency, you can use water as a cooling liquid, then change the cooling circuit liquid as soon as possible (see: 3 - MAINTENANCE: F1 - COOLING LIQUID).



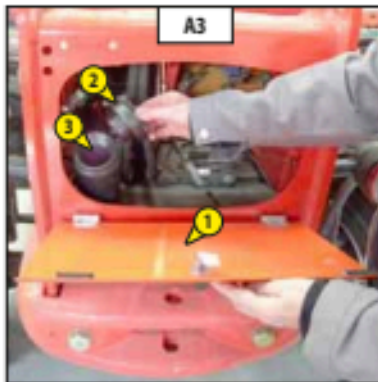
A3 - FUEL LEVEL

CHECK

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

- Open access panel 1 (fig. A3).
- Remove cap 2 (fig. A3).
- Fill the fuel tank with clean fuel (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL), filtered through a strainer or a clean, lint free cloth, through filler port 3 (fig. A3).
- Put the cap back 2 (fig. A3).
- Check visually that there is no leakage in the tank and pipes.
- Close the access panel.

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



A4 - CYCLONIC PRE-FILTER (OPTION)

CLEAN

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

- Loosen nut 1 (fig. A4), remove cover 2 (fig. A4) and empty the tank.
- Clean the pre-filter unit with a clean dry cloth and reassemble the unit.

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



A5 - TYRES PRESSURE AND WHEEL NUTS TORQUE

CHECK

- Check the condition of the tyres, to detect cuts, protuberances, wear, etc.
- Check the torque load of the wheel nuts. Non compliance with this instruction can cause damage and rupture to the wheel bolts and distortion to the wheels.
 - Wheel nuts tightening torque
 - Front tyres: 630 N.m \pm 15%
 - Rear tyres: 630 N.m \pm 15%
- Check and adjust the tyre pressures if necessary (see: 2 - DESCRIPTION: FRONT AND REAR TYRES).

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

NOTE: There is an OPTIONAL wheel toolkit.

A6 - JIB PADS

CLEAN - GREASE

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

- Extend the jib completely.
- With a brush, apply a coat of grease (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL) on the 4 sides of the telescope(s) (fig. A6).
- Telescope the jib several times in order to spread the coat of grease evenly.
- Remove the surplus of grease.










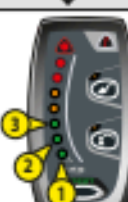
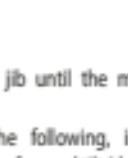



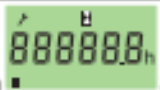

! If the lift truck is used in an abrasive environment (dust, sand, coal...) Use lubricating varnish (MANITOU reference: 483536). In this respect, consult your dealer.

NOTE: A jib sealing kit is available as an OPTION.



- These tests are essential for checking the correct operation and adjustment of the different components of the device.
- Place the lift truck on flat, level ground with the wheels straight.

! Use the test button  only when requested to do so, performing short presses (less than 1 second) and long presses (5 seconds) as instructed. If in doubt during the test procedure, exit cleanly by short pressing the "BUCKET" MODE  or "SUSPENDED LOAD" MODE button .

Long press the test button  .			
STAGE 1			
	<ul style="list-style-type: none">- An audible beep.- First green led flashing.- Test button lit.	<p>→</p> <ul style="list-style-type: none">- Place the lift truck without any attachment, with the jib fully retracted and raised.	<p>→</p> <p>Short press the test button.</p> <p>→</p> <ul style="list-style-type: none">- One audible beep and progresses to stage 2.TEST NOT OK- Two audible beeps and lighting of the fault warning light .- Exit test mode.- Go to stage 4.
STAGE 2			
	<ul style="list-style-type: none">- First green led continuously lit.- Second green led flashing.- Test button lit.	<p>→</p> <ul style="list-style-type: none">- Lower the jib with the engine running at full revs and the hydraulic control at the maximum setting. Lowering slows until movement is cut-off.	<p>→</p> <p>Short press the test button.</p> <p>→</p> <ul style="list-style-type: none">- One audible beep and progresses to stage 3.TEST NOT OK- Two audible beeps and lighting of the fault warning light .- Exit test mode.- Go to stage 4.
STAGE 3			
	<ul style="list-style-type: none">- First and second green leds continuously lit.- Third green led flashing.- Test button lit.	<p>→</p> <ul style="list-style-type: none">- Lower the jib until the movement is cut-off.- Request the following, in order: A reverse tilt, a forward tilt (dumping) and a telescope extension. None of these 3 movements should be feasible.	<p>→</p> <p>Short press the test button.</p> <p>→</p> <ul style="list-style-type: none">- Conformity of aggravating movement cut-off.- Exit test mode. All the leds will light for 2 seconds and an audible beep will be sounded.TEST NOT OK- Fault warning light comes on .- Exit test mode.- Go to stage 4.
STAGE 4			
	<ul style="list-style-type: none">- The fault warning light goes out.	<p>→</p> <ul style="list-style-type: none">- Maintenance key  appears on the hour meter screen and an audible beep is sounded.- Scroll through the error codes (see: 2 - DESCRIPTION: 6B - SCREEN DISPLAYS: ERROR CODES).- If error code "520393 is displayed", the problem may be resolved by resetting the longitudinal stability limiter and warning device (see: 3 - MAINTENANCE: G - OCCASIONAL MAINTENANCE). Otherwise consult your dealer and provide the error code numbers. <p>NOTE: For the stage 3 test, specify the non-conforming aggravating hydraulic movements, if necessary.</p>	

B - EVERY 50 HOURS SERVICE

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

B1 - DRY AIR FILTER CARTRIDGE

CHECK - CLEAN

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

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

- For the disassembly and reassembly of the cartridge, see: 3 - MAINTENANCE: D3 - DRY AIR FILTER CARTRIDGE.
- Clean the filter cartridge using a compressed air jet (max. pressure 3 bar) directed from the top to the bottom and from the inside towards the outside at a minimum distance of 30 mm from the cartridge wall.
- Cleaning is completed when there is no more dust on the cartridge.

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

- Clean the cartridge seal surfaces with a damp, clean lint-free cloth and grease with a silicone lubricant (MANITOU reference: 479292).
- Check visually the outer condition of the air filter and its mounts. Verify the condition of the hoses and their mounts also.

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

B2 - RADIATOR CORES

CLEAN

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

- Open the I.C. engine bonnet.
- If necessary, clean the suction grid on the engine hood.
- Using a soft cloth, clean the radiator cores in order to remove as much dirt as possible.
- Clean the cores using a compressed air jet aimed in the same direction as the cooling air flow (fig. B2).
- Clean with the fan running for best results.



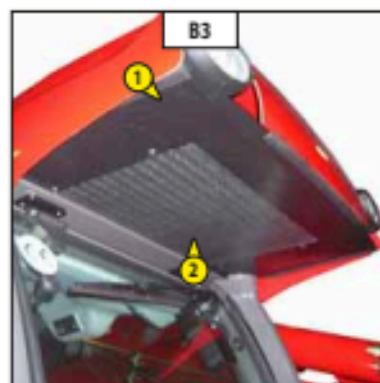
B3 - CONDENSER CORE (OPTION AIR CONDITIONING)

CHECK - CLEAN

(MT-X 625 COMFORT)

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

- Remove the protective grid 1 (fig. B3) and clean it if necessary.
- Visually check whether the condenser 2 (fig. B3) is clean and clean it if necessary.
- Clean the condenser using a compressed air jet aimed in the same direction as the air flow (fig. B3).
- Clean with the fan running for best results.



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

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

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

JIB

- 1 - Lubricators of the jib axle (2 lubricators).
- 2 - Lubricator of the carriage axle (1 lubricator).
- 3 - Lubricator of the tilt cylinder head axle (1 lubricator).
- 4 - Lubricator of the tilt cylinder foot axle (1 lubricator).
- 5 - Lubricator of the lifting cylinder foot axle (1 lubricator).
- 6 - Lubricator of the lifting cylinder head axle (1 lubricator).
- 7 - Lubricator of the compensation cylinder foot axle (1 lubricator).

* 1st Assembly

** 2nd Assembly

- 8 - Lubricator of the compensation cylinder head axle (1 lubricator).

FRONT AND REAR WHEELS REDUCER PIVOTS

- 9 - Lubricators of the wheel reduction gear pivots (8 lubricators).

REAR AXLE OSCILLATION

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



B5 - HYDRAULIC OIL LEVEL

CHECK

If necessary, remove and reconnect the hydraulic attachment (see: 4 - OPTIONAL ATTACHMENTS FOR USE WITH THE RANGE: PICKING UP THE ATTACHMENTS). Place the lift truck on level ground with the engine stopped and the jib retracted and lowered to its maximum extent.

- Refer to gauge 1 (fig. B5/1).
- The oil level is correct when it is at the level of the red point.
- If necessary, add oil (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL).
- Remove cap 2 (fig. B5/2).
- Add oil through filler port 3 (fig. B5/2).

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

- Replace the cap.
- Check visually that there is no leakage in the tank and pipes.

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



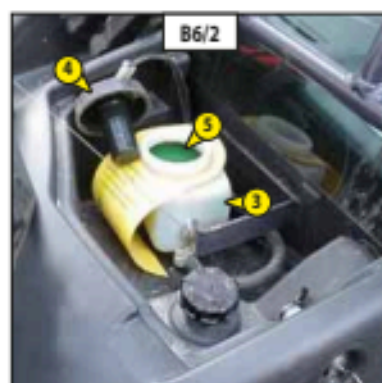
B6 - BRAKE OIL LEVEL

CHECK

Place the lift truck on level ground.

- Remove protective casing 1 (fig. B6/1) using key 2 (fig. B6/1).
- Check tank 3 (fig. B6/2). The correct level must stand at the MAX level in the tank.
- If necessary, add oil (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL).
- Remove cap 4 (fig. B6/2).
- Add oil through filler port 5 (fig. B6/2).
- Put the cap back.
- Check visually that there is no leakage in the tank and pipes.

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



B7 - WINDSCREEN WASHER LIQUID LEVEL

CHECK

- Remove cap 1 (fig. B7).
- Visually check the level in tank 2 (fig. B7).
- If necessary add windscreen washer liquid (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL) through filler port 3 (fig. B7).
- Put the cap back.



B8 - CAB VENTILATION FILTER

CLEAN

- Lift out cabin ventilation filter 1 (fig. B8).
- Clean the filter with a compressed air jet.
- Check its condition and change if necessary (see: 3 - MAINTENANCE: FILTERS CARTRIDGES AND BELTS).
- Put the filter back into place.



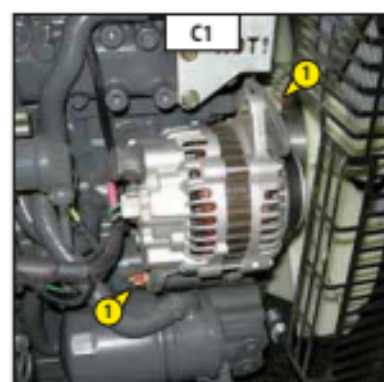
C - EVERY 250 HOURS OF SERVICE

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

C1 - ALTERNATOR/FAN/CRANKSHAFT BELT TENSION

CHECK - ADJUST

- Open the I.C. engine bonnet.
- Check the belt for signs of wear and cracks and change if necessary (see: 3 - MAINTENANCE: FILTERS CARTRIDGES AND BELTS).
- Check the belt tension between the pulleys of the crankshaft and of the alternator.
- Under a normal pressure exerted with the thumb (45 N), the belt should move approximately 10 mm.
- Carry out adjustments if necessary.
- Untighten screws 1 (fig. C1) by two to three thread turns.
- Swivel the alternator assembly so as to obtain the belt tension required.
- Retighten screws 1 (fig. C1) (tightening torque 22 N.m).

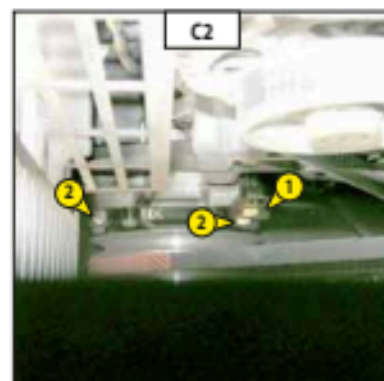


! If the compressor belt has to be changed, check the tension again after the first 20 hours of operation.

C2 - COMPRESSOR BELT TENSION (OPTION AIR CONDITIONING)

CHECK - ADJUST

- Open the I.C. engine bonnet.
- Check the belt for signs of wear and cracks and change if necessary (see: 3 - MAINTENANCE: FILTERS CARTRIDGES AND BELTS).
- Check the belt tension between the pulley of the crankshaft and of the compressor.
- Under a normal pressure exerted with the thumb (45 N), the belt should move approximately 10 mm.
- Carry out adjustments if necessary.
- Untighten screw 1 and nuts 2 (fig. C2) by two to three thread turns.
- Swivel the alternator assembly so as to obtain the belt tension required.
- Retighten screw 1 and nuts 2 (fig. C2) (tightening torque 22 N.m).



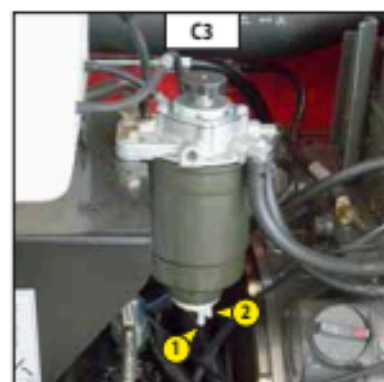
! If the compressor belt has to be changed, check the tension again after the first 20 hours of operation.

C3 - FUEL WATER TRAP

DRAIN

The water trap serves to stop the water contained in the fuel, it is incorporated within the fuel filter.

- Open the I.C. engine bonnet.
- Place a receptacle under drain port 1 (fig. C3).
- Unscrew ring 2 (fig. C3) by two or three thread turns to drain the water from the water trap.
- Retighten ring 2 (fig. C3).



C4 - CAB VENTILATION FILTER

CHANGE

- Lift out cab ventilation filter 1 (fig. C4) and replace it with a new one (see: 3 - MAINTENANCE: FILTERS AND BELTS).



C5 - TRANSFER BOX OIL LEVEL

CHECK

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

- Remove the access panel 1 (fig. C5/1).
- Remove level plug 2 (fig. C5/2). The oil should be flush with the edge of the hole.
- If necessary, add oil (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL) by the same hole.
- Replace and tighten the level plug 2 (fig. C5/2) (tightening torque 34 to 49 N.m).
- Refit access panel 1 (fig. C5/1).

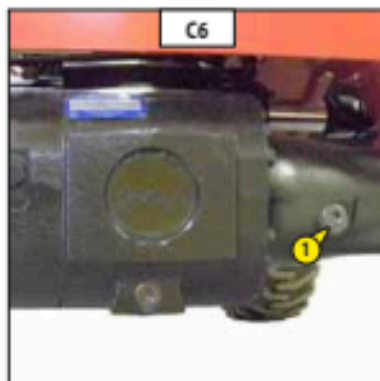


C6 - FRONT AXLE DIFFERENTIAL OIL LEVEL

CHECK

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

- Remove level plug 1 (fig. C6). The oil should be flush with the edge of the hole.
- If necessary, add oil (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL) by the same hole.
- Replace and tighten the level plug 1 (fig. C6) (tightening torque 34 to 49 N.m).

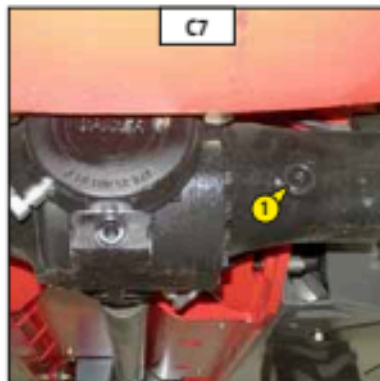


C7 - REAR AXLE DIFFERENTIAL OIL LEVEL

CHECK

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

- Remove level plug 1 (fig. C7). The oil should be flush with the edge of the hole.
- If necessary, add oil (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL) by the same hole.
- Replace and tighten the level plug 1 (fig. C7) (tightening torque 34 to 49 N.m).

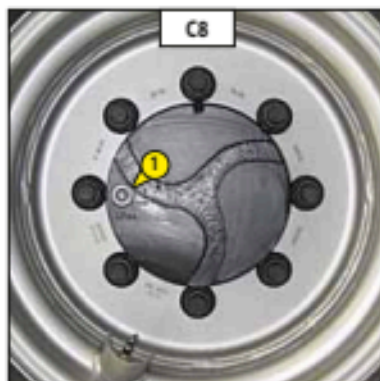


C8 - FRONT AND REAR WHEELS REDUCERS OIL LEVEL

CHECK

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

- Check the level on each wheel reducer.
- Place level plug 1 (fig. C8) in the horizontal position.
- Remove the level plug ; the oil should be flush with the edge of the hole.
- If necessary, add oil (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL) by the same hole.
- Refit and tighten the level plug (tightening torque 34 to 49 N.m).



D - EVERY 500 HOURS SERVICE

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

D1 - I.C. ENGINE OIL

DRAIN

D2 - I.C. ENGINE OIL FILTER

CHANGE

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

DRAINING THE OIL

- Open the engine cover.
- Remove access panel 1 (fig. D1/1).
- Place a container under the drain plug and unscrew the drain plug 2 (fig. D1/2).
- Remove filler cap 3 (fig. D1/3) in order to ensure that the oil is drained properly.

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

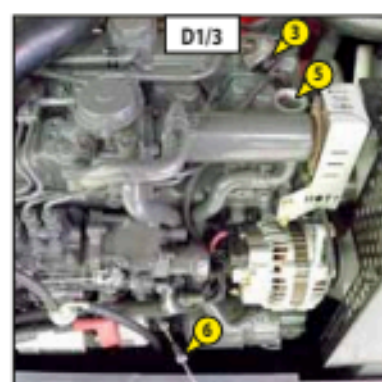
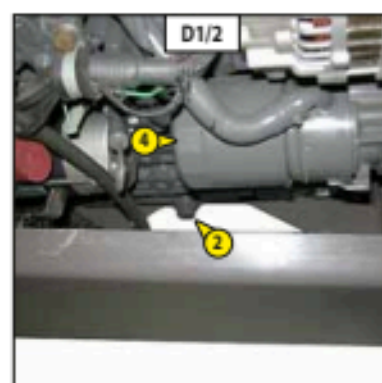
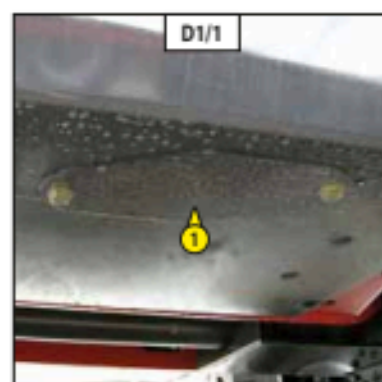
REPLACEMENT OF THE FILTER

- Unscrew and discard the I.C. engine oil filter 4 (fig. D1/2) as well as its seal.
- Clean the filter bracket with a clean, lint-free cloth.
- Lightly grease the new seal before refitting the new oil filter (see: 3 - MAINTENANCE: FILTERS AND BELTS) on its bracket.

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

FILLING UP THE OIL

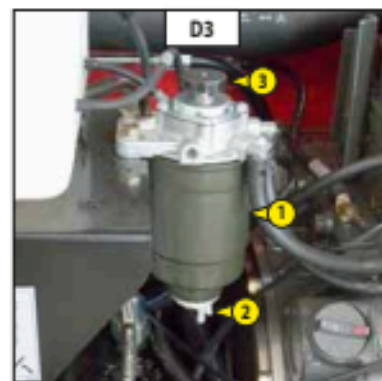
- Refit and tighten drain plug 2 (fig. D1/2).
- Fill up with oil (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL) through filler port 5 (fig. D1/3).
- Wait a few minutes to allow the oil to flow into the sump.
- Start the I.C. engine and let it run for a few minutes.
- Check for possible leaks from the drain plug and the oil filter.
- Stop the I.C. engine, wait a few minutes and check the correct level on the dipstick 6 (fig. D1/3) between the two level marks.
- Top up the level if necessary.
- Refit access panel 1 (fig. D1/1).



D3 - FUEL FILTER

CHANGE

- Open the I.C. engine bonnet.
- Carefully clean the outside of the filter and its holder, to prevent dust from getting into the system.
- Unscrew filter 1 (fig. D3) and discard it after having recovered part 2 (fig. D3).
- Refit the assembly with a new filter (see: 3 - MAINTENANCE: FILTERS CARTRIDGES AND BELTS).
- Pressurise the circuit by means of the hand pump 3 (fig. D3).

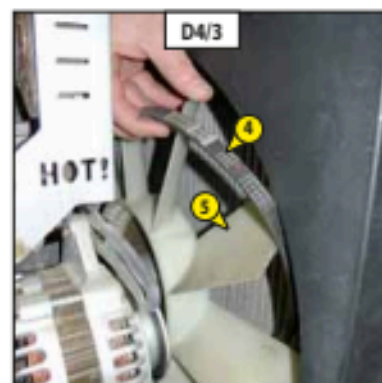
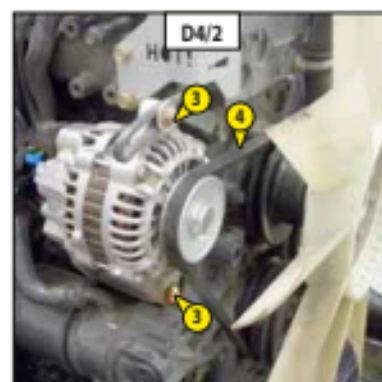
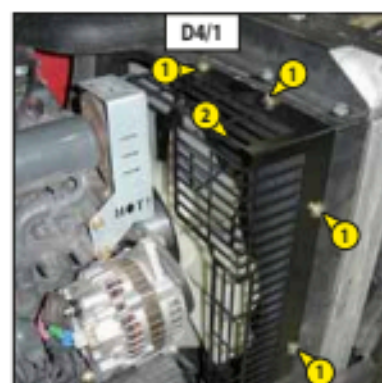


D4 - ALTERNATOR/FAN/CRANKSHAFT BELT

CHANGE

- Open the I.C. engine bonnet.
- Remove screws 1 (fig. D4/1) and take off radiator protection grill 2 (fig. D4/1).
- Untighten screws 3 (fig. D4/2) by two to three thread turns.
- Swivel the alternator assembly so as to free belt 4 (fig. D4/2).
- Pass belt 4 (fig. D4/3) behind radiator propeller 5 (fig. D4/3) to remove it and replace with a new one (see: 3 - MAINTENANCE: FILTERS CARTRIDGES AND BELTS).
- Adjust the belt tension between the crankshaft and alternator pulleys.
- Under pressure applied by the thumb (98 N), the tension should be between 7 and 9 mm.
- Swivel the alternator assembly so as to obtain the belt tension required.
- Retighten screws 1 (fig. D4) (tightening torque 22 N.m).
- Refit radiator protection grill 2 (fig. D4/1).

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



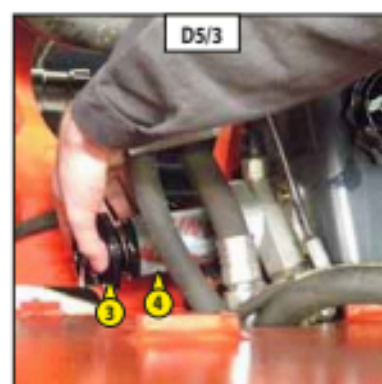
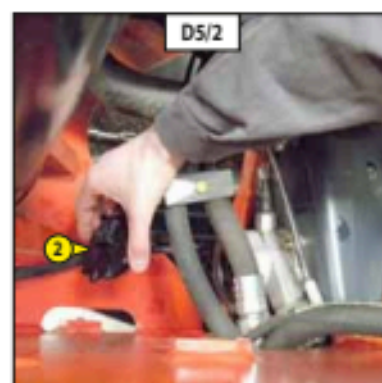
D5 - HYDRAULIC RETURN OIL FILTER CARTRIDGE

CHANGE

Stop the I.C. engine on level ground, with the jib raised and remove the pressure from the circuits by acting on the hydraulic controls.

⚠ Before carrying out any work, thoroughly clean the areas concerned by these maintenance operations.

- Remove plug 1 (fig. D5/1);
- Place a container under hydraulic return oil filter.
- Unscrew cover 2 (fig. D5/2).
- Wait a few seconds for the oil to flow into the container.
- Slowly take out filter cartridge assembly 3 and 4 (fig. D5/3).
- Separate the head 3 from the filter cartridge 4 (fig. D5/4) with a twisting motion.
- Refit the head onto a new cartridge (see: 3 - MAINTENANCE: FILTERS CARTRIDGES AND BELTS).
- Refit the assembly in place and retighten cover 2 (fig. D5/2).
- Put back cap 1 (fig. D5/1).



D6 - HYDRAULIC OIL

CHECK

- MANITOU recommends analyzing the hydraulic oil after the first 500 hours of lift truck operation. Following that, MANITOU requests that the oil is analyzed every 500 hours of operation. The results will determine whether or not the hydraulic oil is changed (contact your dealer).

MANITOU oil analysis kit Part No. 958162.



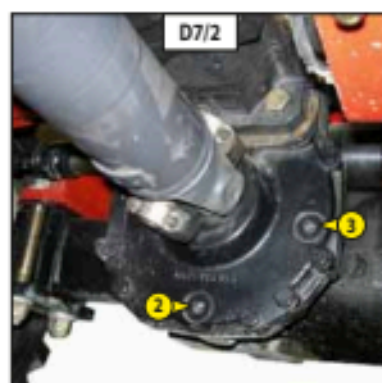
D7 - TRANSFER BOX OIL

DRAIN

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

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

- Remove access panel 1 (fig. D7/1).
- Place a container under drain plug 2 (fig. D7/2) and unscrew the plug.
- Remove level and filling plug 3 (fig. D7/2) in order to ensure that the oil is drained properly.
- Refit and tighten drain plug 2 (fig. D7/2) (Tightening torque 34 to 49 N.m).
- Fill up with oil (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL) through filler port 3 (fig. D7/2).
- The level is correct when the oil level is flush with the edge of the hole.
- Check for any possible leaks at the drain plug.
- Refit and tighten the level and filling plug 3 (fig. D7/2) (tightening torque 34 to 49 N.m).



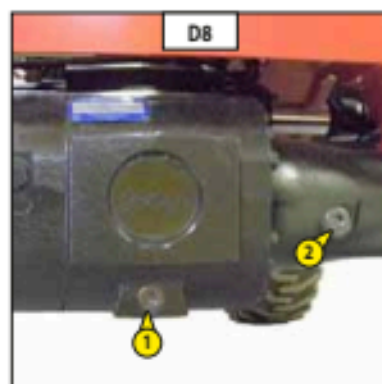
D8 - FRONT AXLE DIFFERENTIAL OIL

DRAIN

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

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

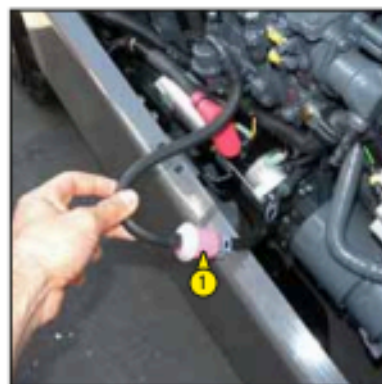
- Place a container under drain plug 1 (fig. D8) and unscrew the plug.
- Remove level and filling plug 2 (fig. D8) in order to ensure that the oil is drained properly.
- Refit and tighten drain plug 1 (fig. D8) (tightening torque 34 to 49 N.m).
- Fill up with oil (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL) through filler port 2 (fig. D8).
- The level is correct when the oil level is flush with the edge of the hole.
- Check for any possible leaks at the drain plug.
- Refit and tighten the level and filling plug 2 (fig. D8) (tightening torque 34 to 49 N.m).



D9 - FUEL PRE-FILTER

CHANGE

- To replace the prefilter 1 by a new (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL).



E - EVERY 1000 HOURS OF SERVICE

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

E1 - FUEL TANK

CLEAN

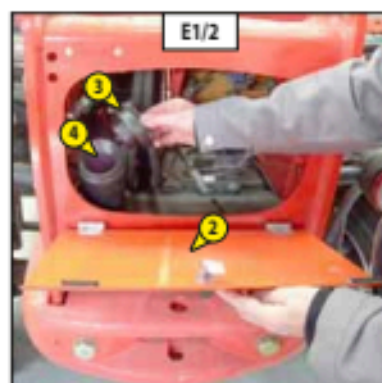
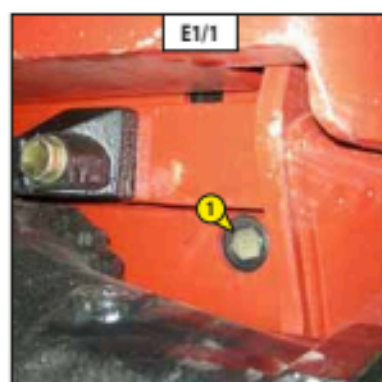
! While carrying out these operations, do not smoke or work near a flame.

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

- Inspect the parts susceptible to leaks in the fuel circuit and in the tank.
- In the event of a leak, contact your dealer.

! Never try to carry out a weld or any other operation by yourself, this could provoke an explosion or a fire.

- Place a container under drain plug 1 (fig. E1/1) and unscrew the plug.
- Open access panel 2 (fig. E1/2).
- Remove filler plug 3 (fig. E1/2) in order to ensure that the oil is drained properly.
- Rinse out with ten litres of clean diesel through filler port 4 (fig. E1/2).
- Refit and tighten the drain plug (tightening torque 29 to 39 N.m).
- Fill the fuel tank with clean diesel filtered through the filler port.
- Refit the filler plug.
- Close the access panel.
- If necessary, bleed the fuel circuit (see: 3 - MAINTENANCE: G1 - FUEL SYSTEM).



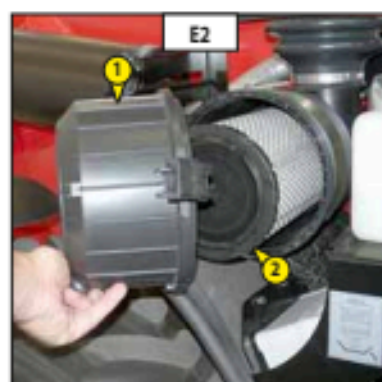
E2 - DRY AIR FILTER CARTRIDGE

CHANGE

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

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

- Open the I.C. engine bonnet.
- Loosen the bolts and remove cover 1 (fig. E2).
- Gently remove the cartridge 2 (fig. E2), taking care to avoid spilling the dust.
- Leave the safety cartridge in place.
- The following parts must be cleaned with a damp, clean lint-free cloth.
 - The inside of the filter and cover.
 - The inside of the filter inlet hose.
 - The gasket surfaces in the filter and in the cover.
- Check pipes and connections between the air filter and the I.C. engine and the connection and state of the clogging indicator on the filter.
- Before mounting check the condition of the new cartridge (see: 3 - MAINTENANCE: FILTERS CARTRIDGES AND BELTS).
- Introduce the cartridge into the filter axis and push it in, pressing the edges and not the middle.
- Reassemble the cover, guiding the valve downwards.



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.

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

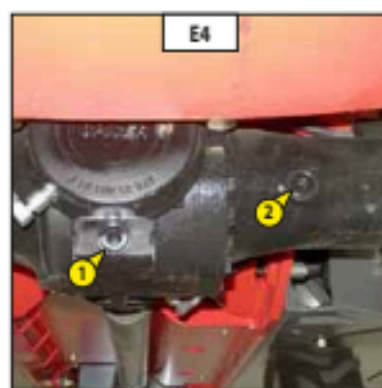
E4 - REAR AXLE DIFFERENTIAL OIL

DRAIN

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

! Dispose of the drain oil in an ecological manner.

- Place a container under drain plug 1 (fig. E4) and unscrew them.
- Remove level and filling plug 2 (fig. E4) to ensure that the oil is drained properly.
- Refit and tighten drain plug 1 (fig. E4) (tightening torque 34 to 49 N.m).
- Fill up with oil (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL) through filler port 2 (fig. E4).
- The level is correct when the oil level is flush with the edge of the hole.
- Check for any possible leaks at the drain plug.
- Refit and tighten level and filling plug 2 (fig. E4) (tightening torque 34 to 49 N.m).



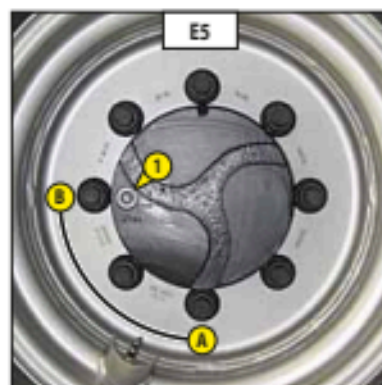
E5 - FRONT AND REAR WHEELS REDUCERS OIL

DRAIN

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

! Dispose of the drain oil in an ecological manner.

- Drain and change the oil of each wheel reducer.
- Place drain plug 1 (fig. E5) in position A.
- Place a container under the drain plug and unscrew the plug.
- Let the oil drain fully.
- Place the drain port in position B, i.e. in a level port.
- Fill up with oil (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL) through level port 1 (fig. E5).
- The level is correct when the oil level is flush with the edge of the hole.
- Refit and tighten the drain plug (tightening torque 34 to 49 N.m).



F - EVERY 2000 HOURS OF SERVICE

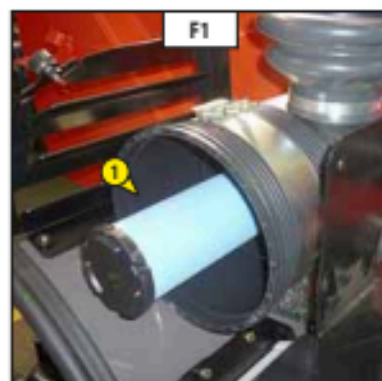
Carry out the operations described previously as well as the following operations.

F1 - SAFETY DRY AIR FILTER CARTRIDGE

CHANGE

- For the disassembly and reassembly of the dry air filter cartridge, see: 3 - MAINTENANCE: D3 - AIR FILTER CARTRIDGE.
- Gently remove the dry air filter safety cartridge 1 (fig. F1), taking care to avoid spilling the dust.
- Clean the gasket surface on the filter with a damp, clean lint-free cloth.
- Check the condition of the new safety cartridge before fitting (see: 3 - MAINTENANCE: FILTERS AND BELTS).
- Insert the cartridge within the axis of the filter and push it home, pressing against the outer edge and not the centre.

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



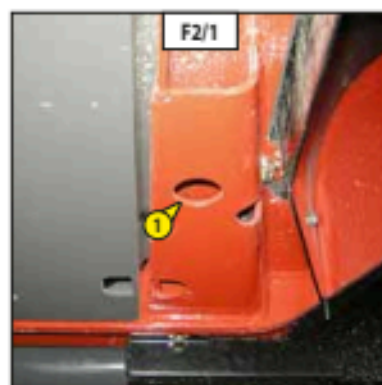
F2 - COOLING LIQUID

DRAIN

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

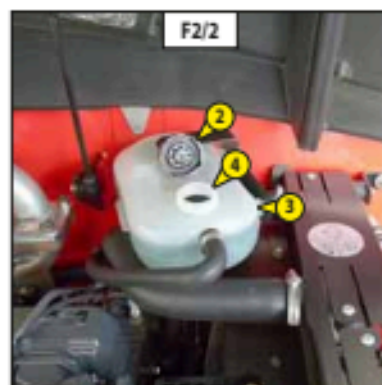
DRAINING THE LIQUID

- Place a container under drain plug 1 (fig. F2/1) and unscrew the plug.
- Open the I.C. engine bonnet.
- Remove expansion pan filler plug 2 (fig. F2/2).
- Let the cooling circuit drain entirely while ensuring that the ports do not get clogged.
- Check the condition of the hoses as well as the fastening devices and change the hoses if necessary.
- Rinse the circuit with clean water and use a cleaning agent if necessary.



FILLING THE LIQUID

- Retighten drain plug 1 (fig. F2/1) (tightening torque 20 N.m).
- Slowly fill up the circuit with cooling liquid (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL) to mid-height on expansion pan 3 (fig. F1/2) through filler port 4 (fig. F2/2).
- Put back filler plug 2 (fig. F2/2).
- Run the I.C. engine at idle for a few minutes.
- Check for any possible leaks.
- Check the level and refill if necessary.



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

F3 - HYDRAULIC OIL

DRAIN

F4 - BRAKE ACCUMULATOR UNIT FILTER

CHANGE

Stop the I.C. engine on level ground, with the jib raised and remove the pressure from the circuits by acting on the hydraulic controls.

! Before carrying out any work, thoroughly clean the areas concerned by these maintenance operations.

DRAINING THE OIL

- Place a container under drain plugs 1 (fig. F3/1) and unscrew them.
- Remove filler plug 2 (fig. F3/2) in order to ensure that the oil is drained properly.

! Dispose of the drain oil in an ecological manner.

REPLACING THE BRAKE ACCUMULATOR UNIT FILTER

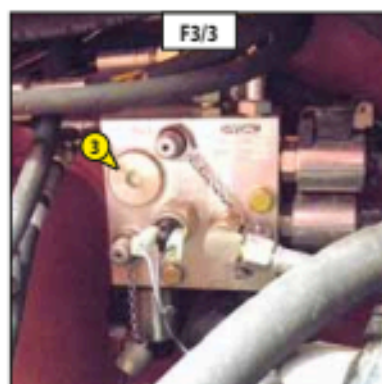
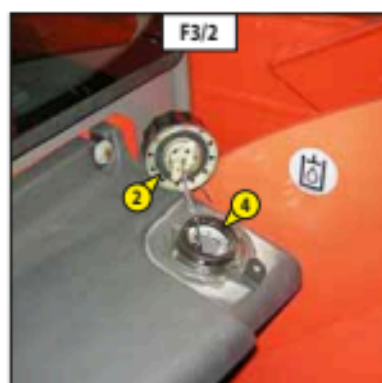
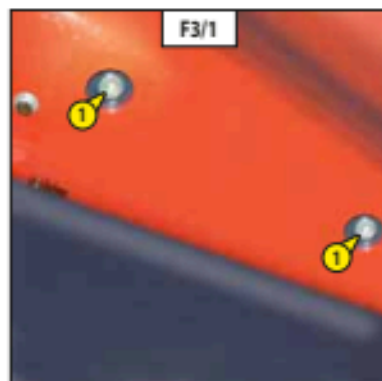
- Unscrew plug 3 (fig. F3/3), lift out the filter and fit a new one (see: 3 - MAINTENANCE: FILTERS CARTRIDGES AND BELTS).
- Refit and tighten plug 3 (fig. F3/3) (tightening torque 70 to 80 N.m).

FILLING UP THE OIL

- Refit and tighten drain plugs 1 (fig. F3/1) (tightening torque 29 to 39 N.m).
- Fill up with oil (see: 3 - MAINTENANCE: LUBRICANTS AND FUEL) through filler port 4 (fig. F3/2).

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

- Observe the oil level on dipstick 5 (fig. F3/4), the oil level should be at the level of the red point.
- Check for any possible leaks at the drain plugs.
- Refit filler plug 2 (fig. F3/2).



(MT-X 625 COMFORT)

CLEANING CONDENSER AND EVAPORATOR COILS (*)

CLEANING CONDENSATE TRAY AND RELIEF VALVE (*)

COLLECTING COOLANT TO REPLACE FILTER-DRIER (*)

REFILLING WITH COOLANT AND CHECKING THE THERMOSTATIC CONTROL AND PRESSURE SWITCHES (*)

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

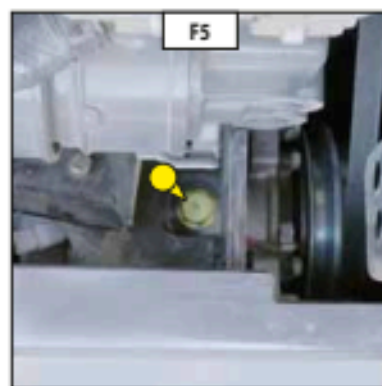
(*): (CONSULT YOUR DEALER).

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

- Do not open the circuit under any circumstances as this would cause the coolant to be lost.
- The cooling circuit contains a gas which can be dangerous under certain conditions. This gas, coolant R 134a, is colourless, odourless and heavier than air.

- !**
- If this gas is inhaled, take the victim into fresh air, give oxygen or artificial respiration if necessary and call a doctor.
 - If the gas is in contact with the skin, wash it immediately under running water and remove any contaminated garments.
 - If the gas is in contact with the eyes, rinse them in clear water for 15 minutes and call a doctor.

- The compressor has an oil level gauge (fig. F2). Never unscrew this gauge because it would depressurizes the installation. The oil level is only checked when changing the oil in the circuit.



G - OCCASIONAL MAINTENANCE

G1 - FUEL SYSTEM

BLEEDING

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

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

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

BLEEDING THE FUEL FILTER

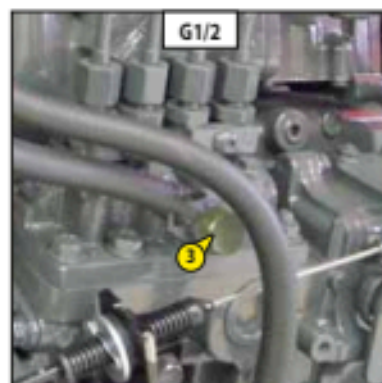
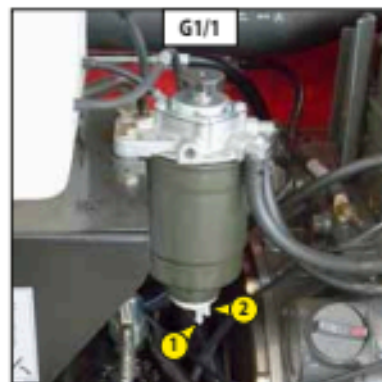
- Open the I.C. engine bonnet.
- Place a receptacle under drain port 1 (fig. G1/1).
- Unscrew ring 2 (fig. G1/1) by two or three thread turns to drain the water from the water trap.
- Retighten ring 2 (fig. G1/1).

BLEEDING THE INJECTION PUMP

- Untighten bleeder screw 3 (fig. G1/2) by two to three thread turns.
- Switch on the lift truck ignition until the diesel oil flows from the bleeder screw free of any air.
- Tighten the bleed screw while the diesel fuel is flowing out.

The I.C. engine is ready to be started up.

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



G2 - WHEEL

CHANGE

⚠ In the event of a wheel being changed on the public highway, ensure the following:

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

- Stop the lift truck, if possible on even and hard ground.
- Stop the lift truck (see: 1 - OPERATING AND SAFETY INSTRUCTIONS: DRIVING INSTRUCTIONS UNLADEN AND LADEN).
- Put the warning lights on.
- 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.
- Place the jack under the flared axle tube, as near as possible to the wheel and adjust the jack (fig. G2/1).
- Lift the wheel until it comes off the ground and put in place the safety support under the axle (fig. G2/2).
- 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.
- Refit the nuts by hand, if necessary grease them.
- Remove the safety support and lower the lift truck with the jack.
- Tighten the wheel nuts with a torque wrench (see: 3 - MAINTENANCE: A - DAILY OR EVERY 10 HOURS OF SERVICE for tightening torque).



G3 - FRONT HEADLAMPS

ADJUSTING

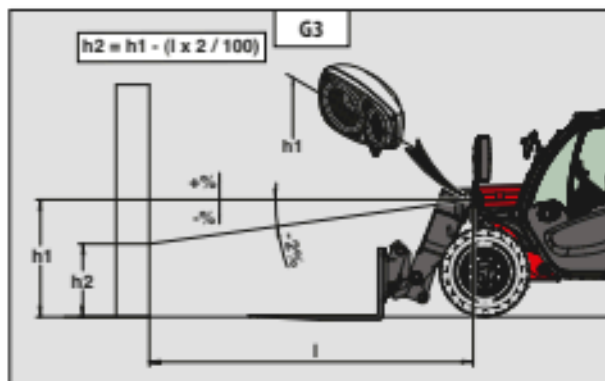
RECOMMENDED SETTING

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

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

ADJUSTING PROCEDURE

- Place the lift truck unloaded and in the transport position and perpendicular to a white wall on flat, level ground (fig. G3).
- Check the tyre pressures (see: 2 - DESCRIPTION: CHARACTERISTICS).
- Place the forward/reverse selector in neutral and release the parking brake.



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.

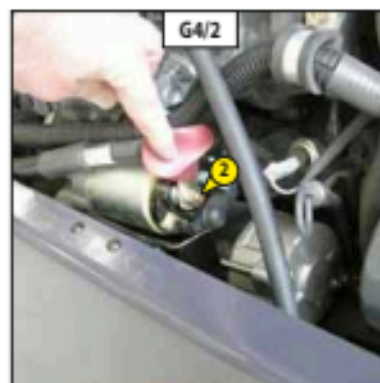
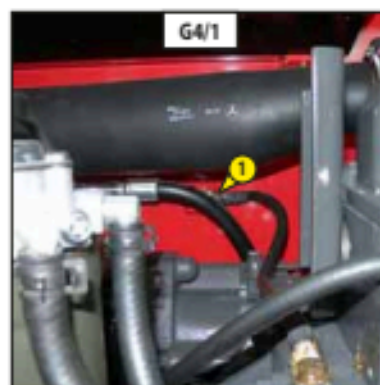
G4 - BREAKDOWN OF BATTERY

CHANGE

- Open the I.C. engine bonnet.
- Bring a floating battery of the same type as the one used for the lift truck and battery cables.
- Connect the floating battery according to the correct polarity with the (-) on the engine earth 1 (fig. G4/1) and the (+) on the (+) of starter 2 (fig. G4/2).
- Start the lift truck and remove the cables as soon as the I.C. engine is running.
- Raise the jib.
- Lift out protective casing 3 (fig. G4/3).
- Replace battery 4 (fig. G4/4).

! 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.



If the lift truck is not on horizontal ground, chock its wheels to prevent it rolling down the slope.

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

For towing a lift truck, the high pressure limiters must be unlocked to avoid damaging the hydrostatic transmission, and the parking brake on the front axle must be released.

- Switch on lift truck ignition.
- Set the forward/reverse selector to neutral.
- Release the parking brake.

UNLOCKING THE HIGH PRESSURE LIMITERS

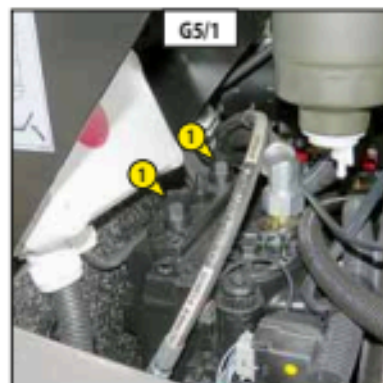
- Open the I.C. engine bonnet.
- Loosen nuts 1 (fig. G5/1) on the hydrostatic pump by no more than three turns.

RELEASING THE PARKING BRAKE ON THE FRONT AXLE

- Unscrew the screws 2 (fig. G5/2) on the front axle, remove the shims 3 (fig. G5/2) and fully retighten the screws 2 (fig. G5/2).

TOWING

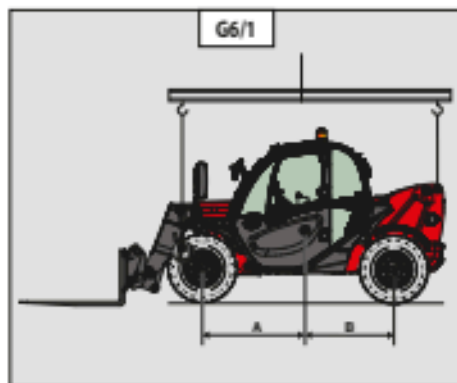
- Switch on the warning lights.
- If the I.C. engine is not running there will be no steering or braking assistance. Operate the steering and pedal slowly avoiding sudden jerky movements.
- After towing, retighten screws 1 (fig. G5/1) (tightening torque 70 N.m).
- Unscrew the screws 2 (fig. G5/2), refit the 3 shims (fig. G5/2) and retighten the screws 2 (fig. G5/2) (tightening torque 95 - 115 N.m).



G6 - LIFT TRUCK

SLINGING

- Take into account the position of the lift truck centre of gravity for lifting (fig. G6/1).
- Place the hooks in the fastening points provided (fig. G6/2 and G6/3).



⚠ Ensure that the safety instructions associated with the platform are complied with before loading the lift truck and that the driver of the carrier vehicle is informed of the dimensions and the weight of the lift truck (see: 2 - DESCRIPTION: CHARACTERISTICS).

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

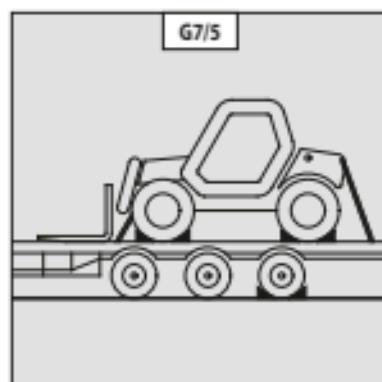
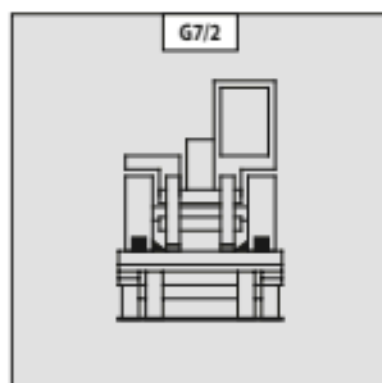
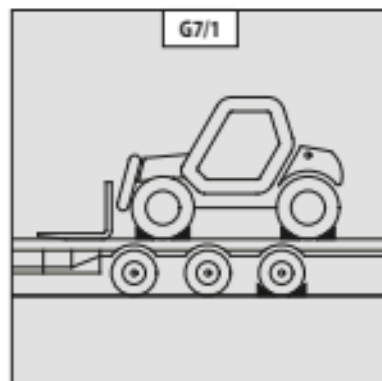
⚠ For lift trucks equipped with a turbo-charged I.C. engine, block off the exhaust outlet to avoid rotation of the turbo shaft without lubrication when transporting the vehicle.

LOADING THE LIFT TRUCK

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

STOWING THE LIFT TRUCK

- Fix the chocks to the platform at the front and at the rear of each tyre (fig. G7/1).
- Also fix the chocks to the platform on the inside of each tyre (fig. G7/2).
- Secure the lift truck to the platform at the anchoring points provided (fig. G7/3 and G7/4) with sufficiently strong ropes.
- Tighten the ropes (fig. G7/5).

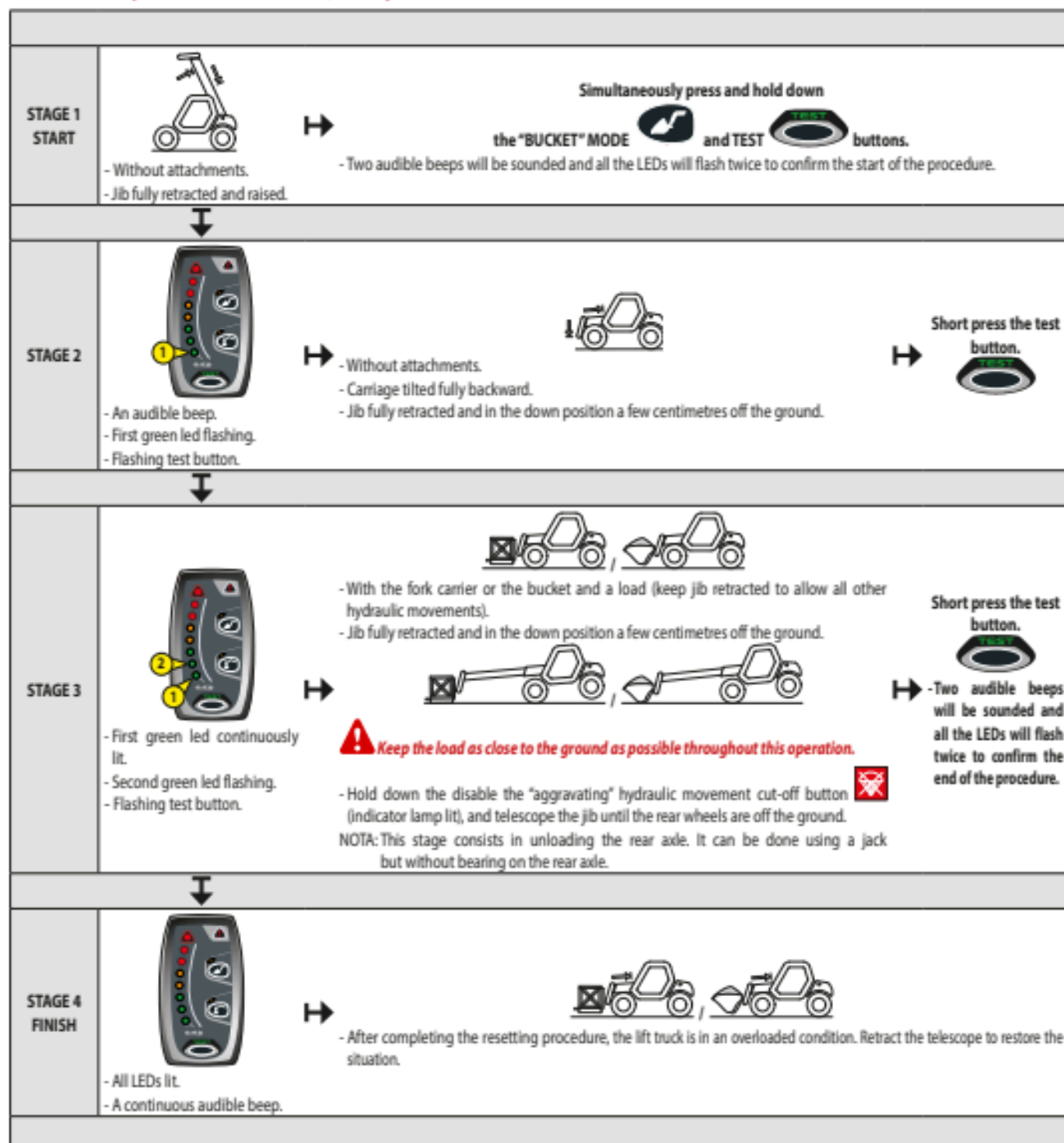


According to the use of the lift truck, the device may require to be periodically reset.

This operation can be easily performed by means of the following procedure.

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

! *Scrupulously follow the jib positioning instructions. Should you fail to follow these instructions, two audible beeps will be sounded and the fault indicator lamp **!** will come on. If in doubt, consult your dealer.*



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

4 - OPTIONAL ATTACHMENTS FOR USE WITH THE RANGE

TABLE OF CONTENTS

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TECHNICAL SPECIFICATIONS OF ATTACHMENTS	4-8
ATTACHMENT SHIELDS	4-14

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.
- The attachments are delivered with a load chart concerning your lift truck. The operator's manual and the load chart should be kept in the places provided in the lift truck. For standard attachments, their use is governed by the instructions contained on this notice.
- Some particular uses require the adaptation of the attachment which is not provided in the price-listed options. Optional solutions exist, consult your dealer.

 **Suspended loads MUST be handled with a lift truck designed for that purpose (see: 1 - OPERATING AND SAFETY INSTRUCTIONS: LOAD HANDLING INSTRUCTIONS: H - TAKING-UP AND SETTING-DOWN A SUSPENDED LOAD).**

 **Only attachments approved by MANITOU are to be used on our lift trucks (see: 4 - ADAPTABLE ATTACHMENTS IN OPTION ON THE RANGE: TECHNICAL SPECIFICATIONS OF ATTACHMENTS). The manufacturer shall not be liable for any modification or adaptation of an attachment made without its knowledge.**

 **Depending on their size, certain attachments may, when the jib is lowered and retracted, come into contact with the front tyres and cause damage to them, if reverse tilt is activated in the forward tilt direction. TO PREVENT THIS RISK, EXTEND THE TELESCOPE TO A SUFFICIENT EXTENT FOR THE PARTICULAR LIFT TRUCK AND ATTACHMENT SO THAT THIS CONTACT IS NOT POSSIBLE.**

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

PICKING UP THE ATTACHMENTS

A - ATTACHMENT WITHOUT HYDRAULICS AND HAND LOCKING DEVICE

TAKING UP AN ATTACHMENT

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

HAND LOCKING

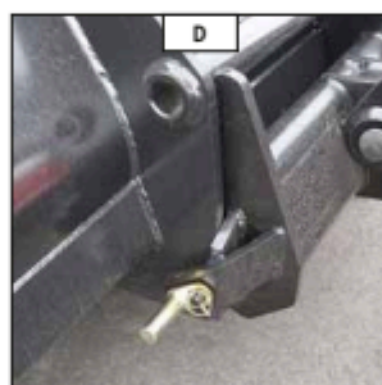
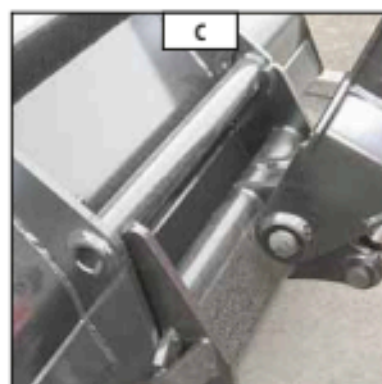
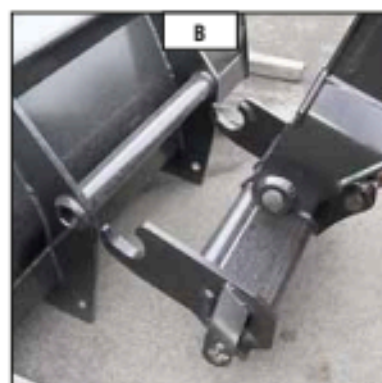
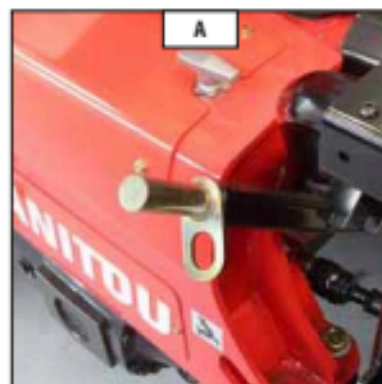
- Take the locking pin and the clip on the bracket (fig. A) and lock the attachment (fig. D). Do not forget to refit the clip.

HAND RELEASING

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

LAYING AN ATTACHMENT

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



B - HYDRAULIC ATTACHMENT AND MANUAL LOCKING DEVICE

TAKING UP AN ATTACHMENT

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

MANUAL LOCKING AND CONNECTION OF THE ATTACHMENT

- Take the locking pin and the clip on the bracket (fig. A) and lock the attachment (fig. D). Do not forget to refit the clip.
- Stop the I.C. engine and keep the ignition on the lift truck.
- Release the pressure from the hydraulic circuit by pressing button 1 (fig. E) downwards 4 or 5 times.
- Connect the rapid connectors according to the logic of the attachment's hydraulic movements.

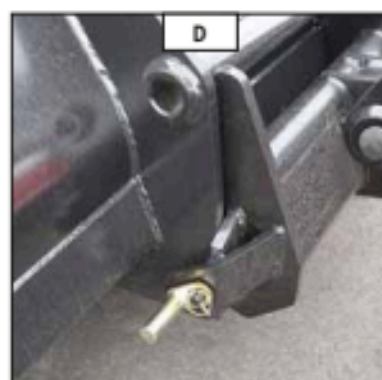
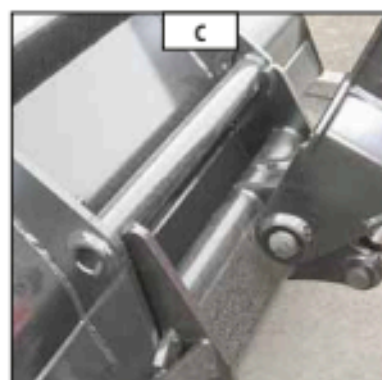
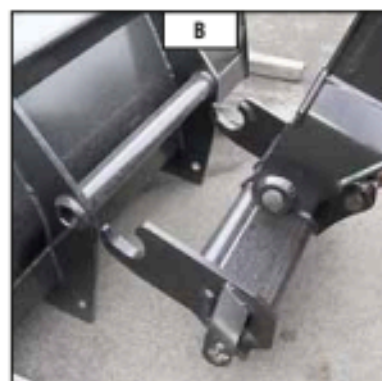
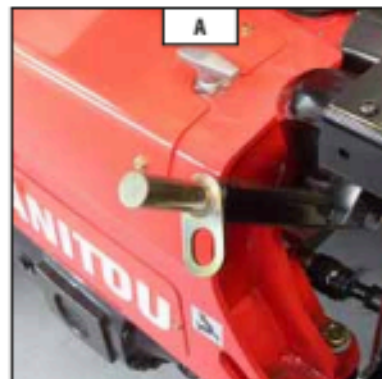
⚠ Make sure that the rapid connectors are clean and protect the holes which are not used, with the caps provided.

HAND RELEASING AND DISCONNECTING THE ATTACHMENT

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

LAYING AN ATTACHMENT

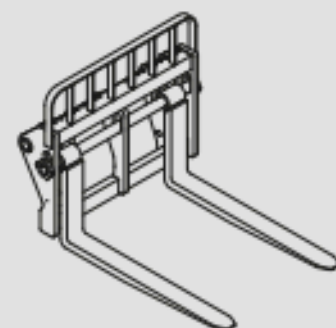
- Proceed in the reverse order of paragraph TAKING UP AN ATTACHMENT while making sure you place the attachment flat on the ground and in closed position.



TECHNICAL SPECIFICATIONS OF ATTACHMENTS

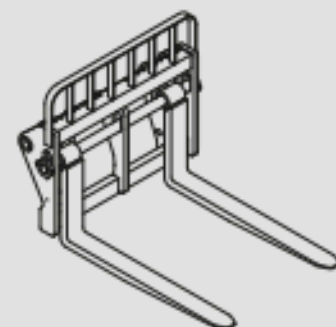
FLOATING FORK CARRIAGE

	TFF 29 MT-1040		
PART NUMBER	653340		
Rated capacity	2900 kg		
Width	1040 mm		
Weight	285 kg		



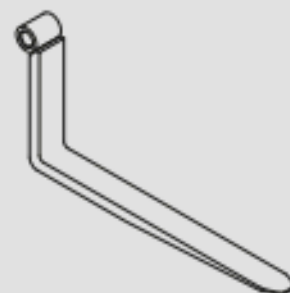
FLOATING FORK SIDE-SHIFT CARRIAGE

	TFF 29 MT-1040 DL		
PART NUMBER	751378		
Rated capacity	2900 kg		
Side-shift	2x100 mm		
Width	1040 mm		
Weight	335 kg		

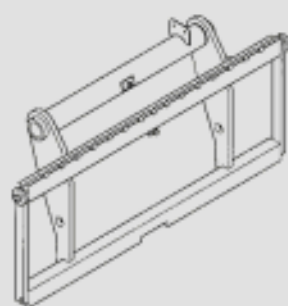


FLOATING FORK

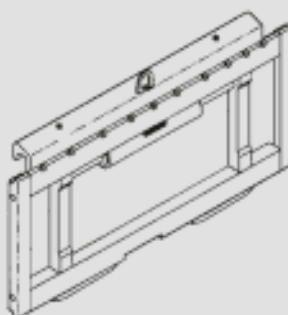
PART NUMBER	211919		
Section	125x40x1200 mm		
Weight	62 kg		



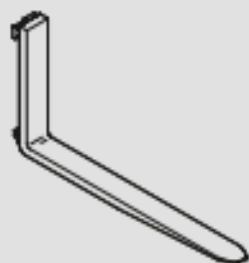
STANDARDISED TILTING FORK CARRIAGE			
	PFB 25 N MT-1020 S2		
PART NUMBER	571958		
Rated capacity	2300 kg		
Width	1020 mm		
Weight	80 kg		



STANDARDISED SIDE-SHIFT CARRIAGE			
	TDL 2T5 L1020 FEM2	TDL 2T5 L1260 FEM2	
PART NUMBER	751370	751371	
Rated capacity	2300 kg	2300 kg	
Side-shift	2x100 mm	2x100 mm	
Width	1020 mm	1260 mm	
Weight	54 kg	67 kg	



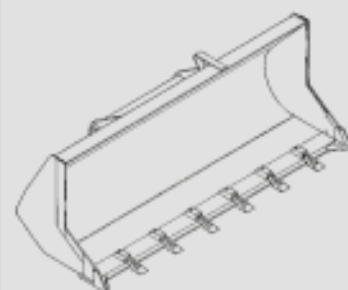
STANDARDISED FORK			
PART NUMBER	415835		
Section	125x45x1200 mm		
Weight	76 kg		



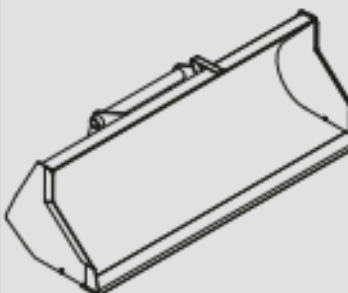
LOAD BACK REST			
PART NUMBER	555320	570518	
Width	1020 mm	1260 mm	
Weight	31 kg	35 kg	



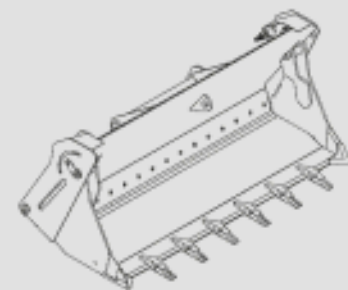
BUILDING BUCKET			
	CBC 650 L1850 S2		
PART NUMBER	654473		
Rated capacity	768 l		
Width	1850 mm		
Weight	320 kg		



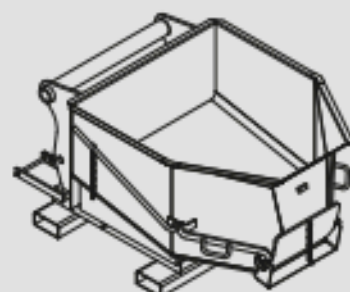
LOADING BUCKET			
	CBR 730 L1850		
PART NUMBER	571831		
Rated capacity	735 l		
Width	1850 mm		
Weight	330 kg		



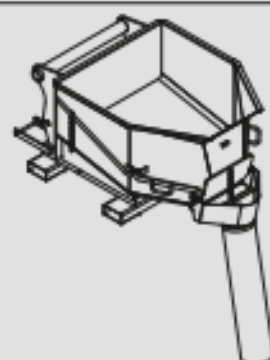
BUCKET 4X1			
	CB4x1-700 L1950		
PART NUMBER	751402		
Rated capacity	700 l		
Width	1950 mm		
Weight	640 kg		



CONCRETE BUCKET (ADAPTABLE ON FORKS)			
	BB 500 S4	BBH 500 S4	
PART NUMBER	654409	751462	
Rated capacity	500 l/1300 kg	500 l/1300 kg	
Width	1100 mm	1100 mm	
Weight	205 kg	220 kg	



CONCRETE BUCKET WITH SPOUT (ADAPTABLE ON FORKS)			
	BBG 500 S4	BBHG 500 S4	
PART NUMBER	654411	751464	
Rated capacity	500 l/1300 kg	500 l/1300 kg	
Width	1100 mm	1100 mm	
Weight	220 kg	235 kg	



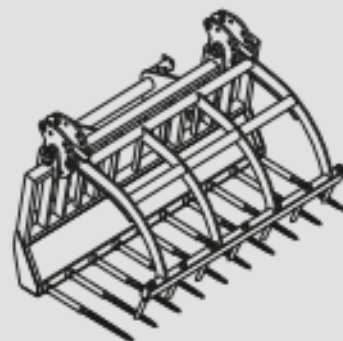
SPOUT BUCKET (ADAPTABLE ON FORKS)			
	GL 300 S2	GL 400 S2	
PART NUMBER	174371	174372	
Rated capacity	300 l/725 kg	400 l/969 kg	
Weight	150 kg	166 kg	
HYDRAULIC KIT TO OPEN THE SPOUT			
PART NUMBER	653750		



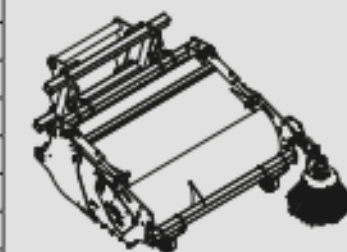
SPOUT BUCKET (ADAPTABLE ON FORKS)			
	GL 600 S2		
PART NUMBER	174373		
Rated capacity	600 l/1440 kg		
Weight	290 kg		
HYDRAULIC KIT TO OPEN THE SPOUT			
PART NUMBER	653750		



MANURE FORK WITH GRAB			
	FFGR 1700	FFGR 1950 DA	
PART NUMBER	653012	653048	
Rated capacity	2,5 m3	2,9 m3	
Width	1700 mm	1950 mm	
Finger	8	9	
Grab	7	7	
Weight	505 kg	530 kg	



SWEEPER COLLECTOR WITH BRUSH			
	BRB 1600		
PART NUMBER	790313		
Rated capacity	380 l		
Width	2000 mm		
Weight	775 kg		

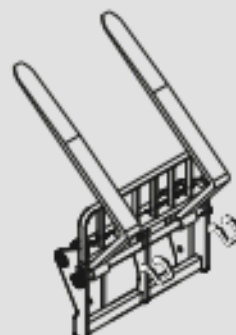


ATTACHMENT SHIELDS

FORK PROTECTOR			
PART NUMBER	227801		



FORK BLOCK FOR FLOATING FORK CARRIAGE			
PART NUMBER	261210		



BUCKET PROTECTOR				
NOTE: Always ensure that the width of the protector you choose is less than or equal to the width of the bucket.				
PART NUMBER	206734	206732	206730	
Width	1375 mm	1500 mm	1650 mm	
PART NUMBER	235854	206728	206726	
Width	1850 mm	1950 mm	2000 mm	
PART NUMBER	223771	223773	206724	
Width	2050 mm	2100 mm	2150 mm	
PART NUMBER	206099	206722	223775	
Width	2250 mm	2450 mm	2500 mm	

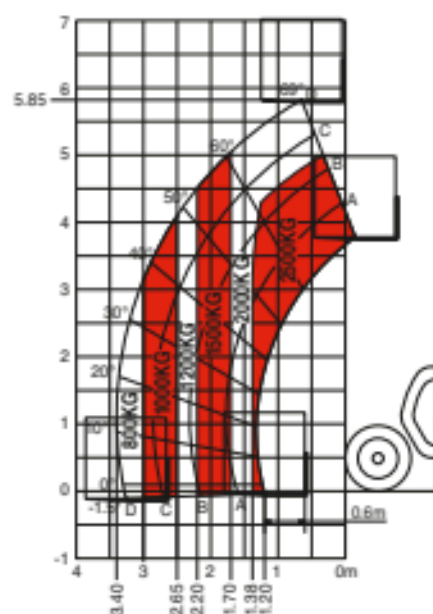


5 - SPECIFIC AUSTRALIA

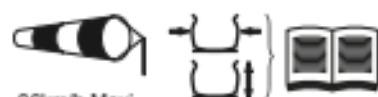
See also the operator's manual supplement: 647065 AU

LOAD CHART

MT / MT-X 625-AUS-

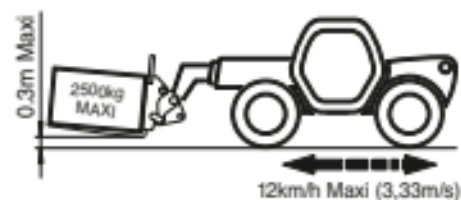


Standard used AS 1418-19



36km/h Maxi
(10m/s)

Ground conditions:
solid surface



15% maxi

10% maxi



5% maxi



5% maxi

Standard used AS 1418-19

N°287872

