Original instructions

Electric pallet truck with step plate

ECU-SF-20

CE

first in intralogistics

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45378043402 EN - 04/2016

1 Introduction

2 Safety

3 Knowledge of the Truck

4 Use and Operation

1

Introduction

Forklift data

We recommend that you record the principal forklift data in the following table so that they are available if required by the sales network or authorised service centre.

Type	
Serial number	
Date of delivery	

General information

- This manual contains "Original Instructions" provided by the manufacturer.
- The "operator" is defined as the person driving the forklift.
- The "user" is the physical or legal person who has the forklift truck used by the operators.
- For correct use of the forklift and in order to avoid accidents, the operator is obliged to read, understand and apply the contents of this manual, the "Rules for the use of industrial vehicles" and the labels and plates applied to the forklift.
- This manual and the attached "Rules for the use of industrial vehicles" must be kept carefully and must always be on the forklift for fast consultation.
- The manufacturer assumes no responsibility for any accidents to persons or damage to things due to the failure to observe the instructions in this manual, in the "Rules for the use of industrial vehicles" and on the labels and adhesive supplied to the forklift.
- The forklift may not be put to any use other that than indicated in this manual.
- The forklift must be used by appropriately trained operators only. For the necessary operator training, contact the authorised sales network.
- Persons working near the forklift must also be instructed in the risks associated with use of the forklift.
- In the interests of clear information, some illustrations in this manual show the forklift without the safety equipment (guards, panels, etc.). The forklift may not be used without safety equipment.

How to Consult the Manual

There is a table of contents at the beginning of the manual for ease of use. The manual is divided into chapters with specific topics. The name and title of the chapter are given at the top of each page The following is found at the bottom of each page: the type of manual, the identifying code, the language and the manual version.

Some general information is provided in this manual. Please only consider the information relevant for your specific forklift.

The following symbols have been used to highlight some parts of this manual.

⚠ DANGER

Failure to observe the instructions highlighted with this symbol may jeopardise safety.

⚠ CAUTION

Failure to observe the instructions highlighted with this symbol may cause damage to the forklift and, in some cases, result in warranty invalidity.

ENVIRONMENT NOTE

Failure to observe the instructions highlighted with this symbol may cause environmental damage.

NOTE

This symbol is used to provide additional information.

Delivery of the forklift and documentation

Ensure that the forklift has all of the options requested and that it has been delivered with the following documentation:

- Instruction and maintenance manual;
- Rules for the compliant use industrial vehicles;
- EC Declaration of Compliance;
- Spare parts catalogue CD.

If the forklift has been delivered with a traction battery and/or an external battery charger, ensure that such products conform to the order and that the relevant instructions for operation and maintenance are included, as well as the EC declaration for the external battery charger.

If applied equipment, other equipment or devices are present, ensure that they conform to the order and that the relative use and maintenance manual and of the relative EC declaration (if provided by regulations in effect) are included.

All of the above documentation must be kept for the entire operative life of the forklift. In the event that the documentation is lost or damaged, contact the authorised sales network for copies of the original documentation.

EC declaration of conformity in accordance with Machinery Directive

Declaration

STILL GmbH
Berzeliusstraße 10
D-22113 Hamburg Germany

We declare that the

Industrial truck	**according to these operating instructions**
Model	**according to these operating instructions**

conforms to the latest version of the Machinery Directive 2006/42/EC.

Personnel authorised to compile the technical documents:

See EC compliance declaration

STILL GmbH

Technical service and spare parts

For scheduled maintenance and any repairs to the forklift, contact only the authorised service network.

The authorised service network has personnel trained by the manufacturer, original spare parts and the tools necessary to carry out maintenance and repairs.

Servicing by the authorised service network and the use of original spare parts maintain the technical characteristics of the forklift over time.

Only original spare parts provided by the manufacturer may be used for forklift maintenance and repairs. The use of non-original spare parts invalidates the warranty and renders the user responsible for any accidents due to the inappropriateness of the non-original parts.

Normative References

This forklift complies with:

- The most recent version of Machine Directive 2006/42/EC in effect
- Electromagnetic Compatibility Directive 2014/30/EC and subsequent amendments, relative to forklifts for handling in accordance with the EN 12895 standard

The noise tests regarding the sound pressure level at the driver's seat were carried out in accordance with the EN 12053 standard and declared according to the EN ISO 4871 standard

The vibration tests were carried out in accordance with standard EN 13059 and declared in accordance with standard EN 12096.

The limit values for the electromagnetic emissions and immunity relative to the forklift are those set out in the EN 12895 standard.

Type of use

"Normal use conditions" of the forklift understood as:

- lifting and/or transport of loads using forks with weight and centre of gravity within the values provided (see Chapter 6 - Technical Data).
- transport and/or lifting on smooth, flat and compact surfaces;
- transport and/or lifting of stable loads uniformly distributed on the forks;
- transport and/or lifting with the load centre of gravity approximately on the forklift's median longitudinal plane.

⚠ DANGER

The forklift must not be used for other purposes.

Any other use renders the user solely responsible for injury/damage to persons and/or objects and voids the warranty.

The following scenarios are examples of improper use of the forklift truck:

- Transportation on uneven ground (irregular or non-compacted surfaces)
- loads that exceed the weight and/or centre of weight limits;
- transporting non-stable loads
- transporting loads not equally distributed on the forks;
- transporting swinging loads;
- transporting loads whose centre of gravity is considerably displaced with respect to the forklift's longitudinal median plane;
- transporting loads of dimensions such as to block the view of the operator when driving;
- transporting loads piled so high that they could fall on the operator;
- travelling with a load over 500 mm off the ground;

- transporting and/or lifting people;
- pushing or pulling loads;
- moving upwards or downwards on a slope with the load facing downwards;
- turning at high speed;
- turning and/or moving in an oblique direction on slopes (upwards or downwards);
- colliding with stationary and/or movable structures;
- inclining the lift unit forwards with the forks lifted, except during the lifting and/or depositing of the load.

⚠ DANGER

Improper use of the forklift could cause it and/or at the load to overturn.

Working conditions

The forklift has been designed and built for internal transport.

Do not use beyond the limits of the climatic conditions indicated below:

- Maximum ambient temperature: +40°C
- Minimum ambient temperature: +5°C
- Altitude up to 2000 m
- Relative humidity between 30% and 95% (without condensation).

⚠ CAUTION

Do not use the forklift in dusty areas.

Using the forklift in environments with high concentrations of salty air or water could interfere with its proper operation and cause corrosion of metallic parts.

If the forklift must be used in conditions that exceed the limits indicated or, in any case, under extreme conditions (extreme weather, cold-storage rooms, presence of strong magnetic fields etc), appropriate equipment and/or use precautions are necessary. Contact the authorised sales network for more information.

⚠ DANGER

The forklift may not be used in environments in which there is a risk of explosion. It may not be used to handle explosive loads.

For forklifts that must operate in environments in which there is a risk of explosion or must handle explosive loads, appropriate equipment is necessary and must be accompanied by a specific EC Declaration of Compliance which replaces that of the standard forklift, and by the relevant User and maintenance manual.

Contact the authorised sales network for more information.

Modifications to Forklift

No modifications may be made to the forklift, otherwise the EC certificate and the warranty will become invalid, with the exception of:

- assembly of the options provided by the manufacturer
- assembly of applied equipment

for which it is necessary to refer exclusively to the authorised sales network

⚠ DANGER

If the forklift is equipped at the factory or later with devices that emit non-ionising radiation (such as radio transmitters, RFID players, data terminals, scanners, etc), the compatibility of such devices must be verified with the presence of operators using medical devices (such as heart pacemakers).

Applied equipment

To use equipment that has not been applied, please contact the authorised sales network, in order to:

- verify feasibility
- install the equipment
- add a label with the new residual capacity is
- provide documentation on the equipment (user and maintenance manual and EC certificate).

User obligations

Users must comply with applicable local legislation governing forklift use and maintenance.

Environmental considerations

Disposal of components and batteries

The truck is composed of different materials. If components or batteries need to be replaced and disposed of, they must be:

- disposed of,
- treated or
- recycled in accordance with regional and national regulations.

NOTE

The documentation provided by the battery manufacturer must be observed when disposing of batteries.

ENVIRONMENT NOTE

We recommend working with a waste management company for disposal purposes.

Packaging

During delivery of the truck, certain parts are packaged to provide protection during transport. This packaging must be removed completely prior to initial start-up.

ENVIRONMENT NOTE

The packaging material must be disposed of properly after delivery of the truck.

2

Safety

Safety Regulations

General Precautions

NOTE

Some safety regulations to be followed when using the forklift are listed below. These regulations integrate those in the manual "**Rules for approved use of industrial vehicles**".

General Safety Rules

- Only allow qualified, trained and authorised personnel to use the forklift.
- Do not install equipment on the forklift unless supplied or indicated by the manufacturer.
- Maintain the forklift in full working efficiency in order to keep any type of risk to the minimum.
- Do not use the forklift with hoods and doors open.
- The data plates found on the forklift must be kept in good condition and replaced if damaged.
- Carefully read and follow all of the safety indications found on the forklift.
- Make sure that the forklift has sufficient overhead clearance.
- Do not park the forklift in front of fire-fighting devices or fire escapes or anywhere that it blocks traffic.
- If the forklift shows signs of failure or breakage and there is reason to consider it unsafe, stop, park it and notify the maintenance manager.
- Pay attention to the distances from high voltage overhead cables. Comply with the safety distances established by the competent authorities.
- Never raise the load using just one fork.
- Place the load on the fork carriage or in such a way that the centre of gravity of the load is as close as possible to the fork carriage.
- The load must be placed on the forks so that the centre of gravity falls on the mid point between the forks.
- Do not drive with loads decentralised laterally with respect to the forklift's median axis. Lack of compliance with this regulation can compromise forklift stability.
- Make sure that the surface on which the load rests is able to support its weight.
- Always use safety clothing that complies with the current regulations.
- Do not travel on loose or hilly ground or on steps.
- Do not turn or stack on slopes.
- Do not overload the forklift beyond the capacity limits indicated on the capacity plates.

Flooring requirements

The work floor must be even and free of holes or dips, which can be difficult to get around. Any steps must be equipped with ramps to prevent impacts with the wheels, which affect the entire structure of the truck.

⚠ CAUTION

Passing over cracks or damaged parts of the floor with the truck is prohibited. Dirt and any objects in the work path must be removed immediately.

Battery connection cables

⚠ CAUTION

Using sockets with NON-ORIGINAL battery connection cables can be dangerous (see purchase references in the parts catalogue)

Requirements for the traction-battery charging area

When the traction battery is being charged, the area must be sufficiently ventilated in order to download or eliminate the gases produced (EN 50272-3).

Safety Regulations Relative to Forklift Use

- The operator must familiarize himself with the forklift to be able to better describe any defects and assist maintenance personnel. The operator, trained and authorized to use the forklift, must be familiar with the controls and performances of the forklift.
- Any defect (squeaking, leaks, etc.) must be promptly reported because, if neglected, it could cause more serious failures/defects.
- Carry out the inspections indicated in the chapter on "Daily Inspections".

ENVIRONMENT NOTE

Report any oil and/or battery fluid leaks: they are dangerous and highly polluting.

⚠ CAUTION

If you notice a burning smell, stop the forklift and turn off the engine, then disconnect the battery.

Safety Regulations Relative to Operating Materials

Rules for handling and disposing of operating materials

ENVIRONMENT NOTE

Improper use and disposal of operating and cleaning materials can cause serious damage to the environment.

Always use and handle the operating materials in a suitable manner and follow the manufacturer's instructions for the product's use.

Keep the operating materials only in containers intended for this purpose and in a location that satisfies the requirements.

The operating materials may be flammable, so avoid contact with hot objects or open flames.

When topping up the operating materials, only clean containers should be used.

Follow the manufacturer's safety and disposal instructions regarding the operating and cleaning materials.

Do not disperse oils or other operating liquids! Any spilt liquid must be immediately collected

and neutralised with a binding material (such as an oil binder) and then disposed of in accordance with current regulations.

Always comply with anti-pollution regulations!

Before carrying out work that involves lubrication, filter replacement or hydraulic equipment interventions, the area in question must be thoroughly cleaned.

The replaced parts must always be disposed of in accordance with the anti-pollution laws.

ENVIRONMENT NOTE

The incorrect or unlawful use of brake fluid is harmful to people's health and the environment.

Oils

- Do not allow to come into contact with the skin.
- Do not inhale oil vapors.
- Wear appropriate means of individual protection during forklift maintenance operations (gloves, goggles, etc.) to prevent the oil from coming into contact with your skin.

ENVIRONMENT NOTE

The used oils and relative filters contain substances that are hazardous to the environment and must be disposed of according to current regulations. We advise you to contact the authorised service network.

DANGER

The penetration in the skin of hydraulic oil that has leaked under pressure from the forklift's hydraulic system is dangerous. If this type of lesion should occur, contact a doctor immediately.

DANGER

Small high pressure jets of oil can penetrate the skin. Look for any leaks using a piece of cardboard.

Battery Acid

- Do not inhale the vapor: it is poisonous.
- Use adequate means of individual protection to prevent contact with the skin.
- Battery acid is corrosive: if it should come into contact with your skin, rinse abundantly with water.
- Explosive gas mixtures can form when charging the battery; therefore, the rooms in which the battery is charged must be in compliance with the specific regulations on the subject (e.g. EN 50272-3 etc.).
- DO NOT smoke or use open flames and lights within a 2 m radius from the charged battery and in the battery charging area.

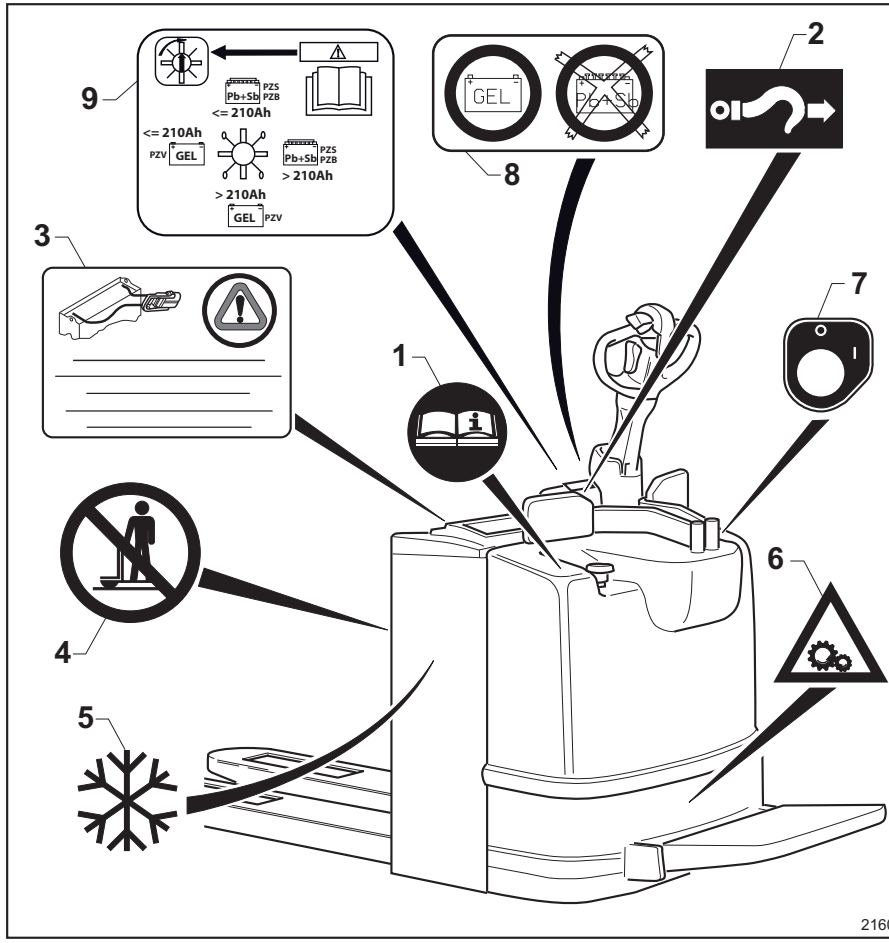
NOTE

For greater information, consult the specific battery manual that comes with the battery.

ENVIRONMENT NOTE

The batteries contain substances that are hazardous to the environment. The replacement and disposal of the life-expired battery must be carried out as required by law. We advise you to contact the authorised service network that is equipped for eco-friendly disposal in accordance with current regulations.

Location of labels



1	Read the user and maintenance manual	6	Danger of moving parts
2	Truck lifting point	7	Ignition key
3	Battery warning	8	Version set up for gel batteries
4	Prohibition against carrying people	9	Version with on-board battery charger
5	Cold store version (optional)		

Description of labels

(1) This label indicates you should consult the use and maintenance manual before using the truck and prior to carrying out any maintenance work.

(2) This label indicates where to attach the truck's lifting hook.

(3) This plate indicates that only the on-board battery should be connected.

(4) This label indicates that it is prohibited to carry people on the truck.

(5) This symbol, where present, indicates that the truck is set up for "cold store" use (optional).

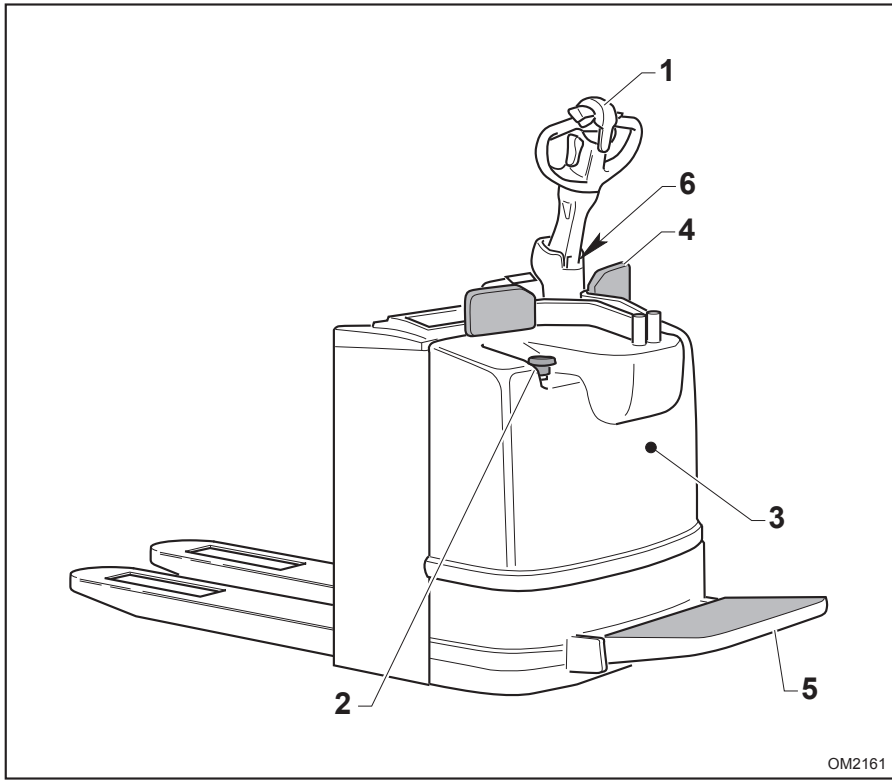
(6) The symbol appears on the motor compartment and indicates danger due to unprotected moving parts.

(7) This label indicates the positions of the truck's start/stop key.

(8) This symbol, where present, indicates that the truck is set up for the gel battery version. Do not use other types of battery

(9) This symbol, where present, indicates that the truck is set up for the version with on-board battery charger.

Safety devices



The operator must be aware of the presence of the following safety devices:

- Anti-crush safety button (1).
- Emergency stop button (2).
- Protective casing fastened with screws (3).
- Operator safety side panels (if fitted) (4).
- Driver on the step plate sensors (5).
- Tiller position sensor (6).

NOTE

These devices must be checked daily, as described in Chapter 4.

Electromagnetic radiation

The limit values for electromagnetic emissions and for immunity relative to the forklift are those provided by the EN 12895 standard.

Non-ionised radiation

If the forklift is equipped at the factory or later with devices that emit non-ionising radiation (such as radio transmitters, RFID players, data terminals, scanners, etc), the compatibility of such devices must be verified with the presence of operators using medical devices (such as heart pacemakers).

Safety tests

Regular safety inspection of the truck ▷

Safety inspection based on time and extraordinary incidents

The operating company must ensure that the truck is checked at least once a year, or following noteworthy incidents.

As part of this inspection, a complete check of the technical condition of the truck must be performed with regard to accident safety. In addition, the truck must be thoroughly checked for damage that could potentially have been caused by improper use. A test log must be created. The results from the inspection must be retained until a further two inspections have been carried out.

The inspection date is indicated by an adhesive label on the truck.

– Arrange for the service centre to perform periodic safety inspections on the truck.

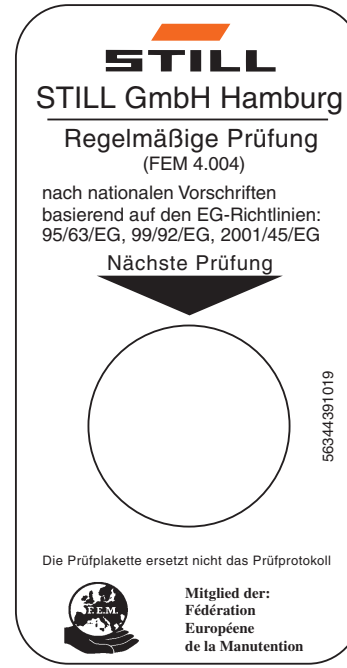
– Observe guidelines for checks carried out on the truck in accordance with FEM 4.004.

The operator is responsible for ensuring any defects are remedied without delay.

– Contact your service centre.

NOTE

Observe the national regulations for your country!



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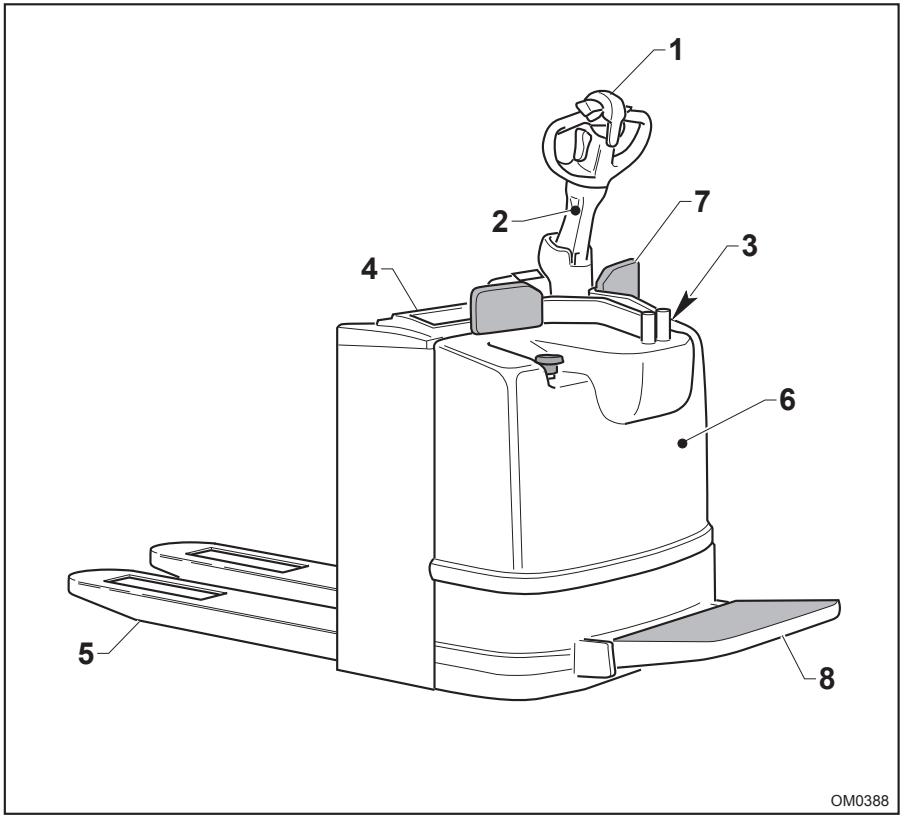
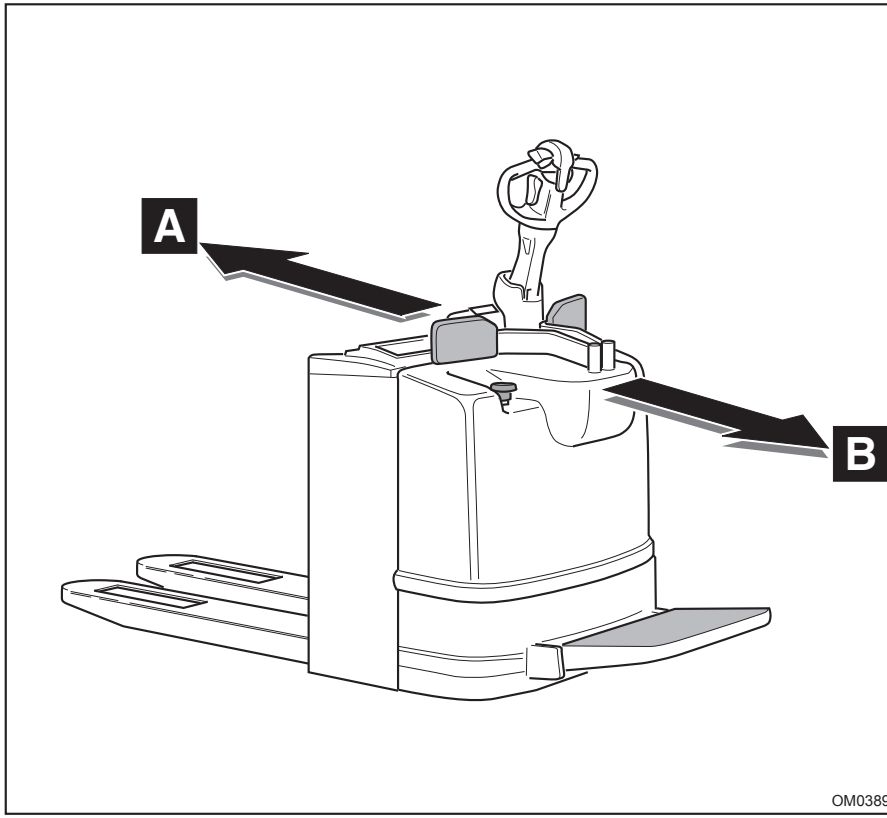
Knowledge of the Truck

General Truck View



1	Tiller head	5	Forks
2	Tiller	6	Removable casing
3	Control panel	7	Side panels (if fitted)
4	Battery compartment cover plate	8	Movable step plate

Definition of direction of travel



The direction of travel is defined in the following manner:
A = Direction of travel towards forks
B = Direction of travel towards the driver

Instrumentation and Controls

Start/stop key

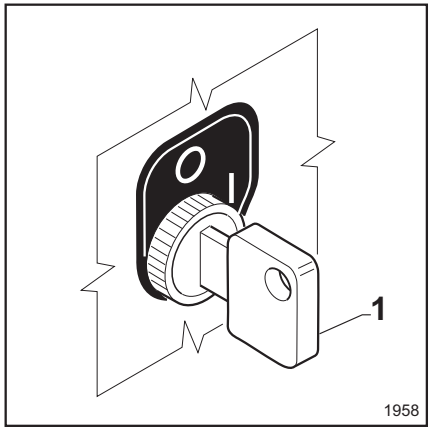
Key **1** has two positions:

0 =No circuit powered (key removal position);

I =Circuit powered.

NOTE

All of the controls described on the following pages work with the key in position "I"



Tiller controls

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NOTE

All drive and lifting controls can be activated with the tiller in working position.

Anti-crush button (1)

- By pressing the button (1) while the truck is travelling towards the operator, the truck will stop.

Drive control throttle (2)

- When the throttle (2) is turned towards "A", the truck starts moving in the direction of the fork arms.
- When the throttle (2) is turned towards "B", the truck starts moving in the direction of the operator.
- The truck speed increases according to the angular position of the throttle.
- Releasing the throttle causes braking and subsequently the stopping of the truck.

Fork lowering button (3)

- Press button (3) to lower the forks; when the button is released, the forks will stop in the position attained.

Fork lifting button (4)

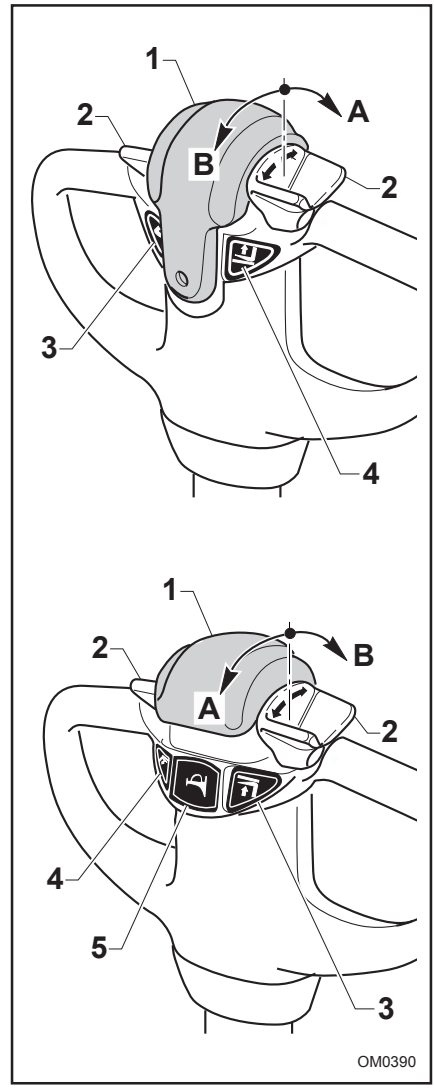
- Press button (4) to lift the forks; when the button is released, the forks will stop in the position attained.

Horn button (5)

- Press the button (5) to operate the horn. This device allows the driver to signal his presence when necessary.

⚠ CAUTION

Press the button (1) with the truck stationary and the tiller in working position to move the truck in direction "A" (fork side).

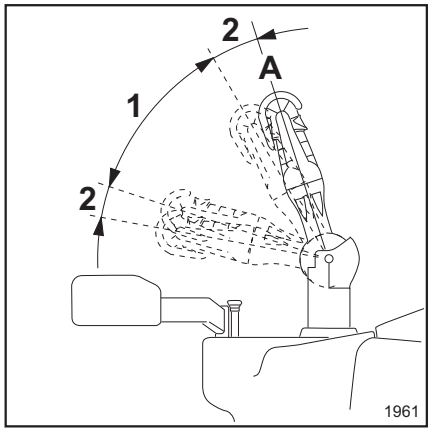


⚠ CAUTION

The forks can also be lifted and lowered when the truck is moving (with the traction command activated).

Tiller positions

Position the tiller in accordance with the truck functions ▷



In this case the tiller has two positions:

- **Position (1) = working position.**
  In this position the driver can begin travel using the throttle.
  In this position, the driver can begin lifting or lowering the forks using the appropriate buttons.
- **Position (2) = braking position.**
  In this position the drive is locked and the parking brake is engaged.

NOTE

- *In this position, lifting the forks is blocked.*

NOTE

When the tiller is released, it automatically returns to position (A), the braking position.

⚠ CAUTION

Do not use this type of braking as service braking.

Battery status indicator and hour meter

The instrument is subdivided into two zones as follows:

Zone A

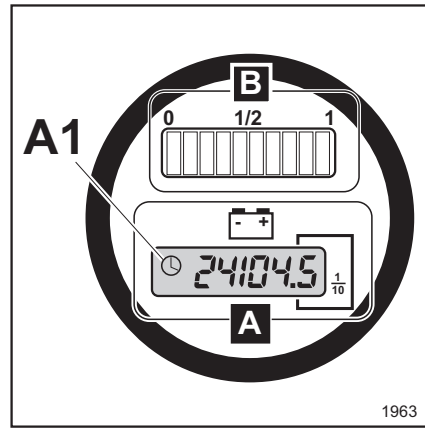
- Indicates the actual truck operation time, expressed in hours.
- When the counter is working, clock "**A1**" blinks; five numbers plus one decimal digit are displayed. The hour meter is progressive and starts at zero.

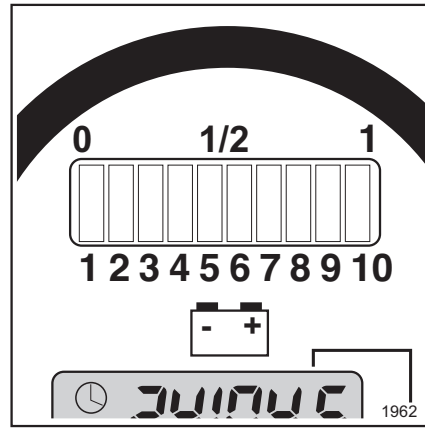
Zone B

- Indicates the battery charge level; it is subdivided into ten sectors with respective coloured LEDs.
- When the battery is 100% charged, LED **10** remains lit up.
- As the battery discharges, the LEDS light up one at a time, from right to left, starting from LED **10**, which indicates that the battery is completely charged.
- When 70% of the battery's power has been used up, LED **2** blinks, indicating that the battery is going flat and must be charged. **Bring the truck to the charging area and charge the battery.**
- When the battery is 80% discharged, LEDS **1 e 2** blink alternately. **At this discharge level, lifting is blocked.**

⚠ CAUTION

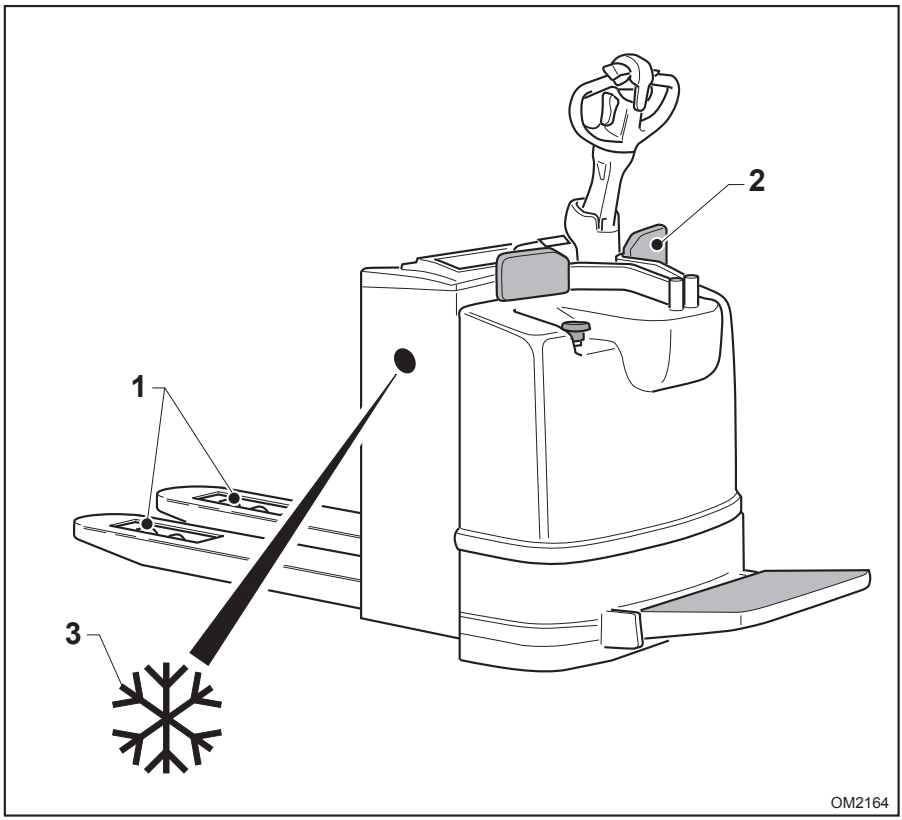
Recharge the battery at the latest before 70% of its power has been used (LED **2** blinking); the truck does not lift below this threshold.





LED colours:
1 - 2 Red LEDS
3 - 4 - 5 Orange LEDS
6 - 7 - 8 - 9 - 10 Green LEDS

List of available options



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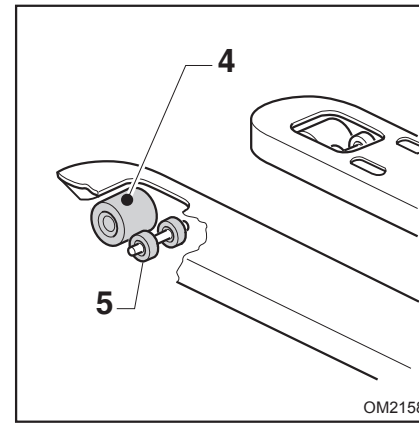
- Tandem load castors **(1)**.
- Pallet guide rollers **(5)** with single roller**(4)**.
- Equipment for cold climates **(3)**. Refer to Chapter 4 for additional information on the use of this version of the truck.
- Reinforced side panels **(2)**.
- Smooth rubber drive wheel.
- On-board battery charger
- Cables for 2nd-shift battery

⚠ CAUTION

Contact the technical service network authorised by the manufacturer for information on the assembly of the options.

NOTE

Contact the authorised sales network for more information.



Charging curve selector of the on-board battery charger

The curve is selected using the selector located on the front face of the charger. The curve selector is protected by a cap.

⚠ CAUTION

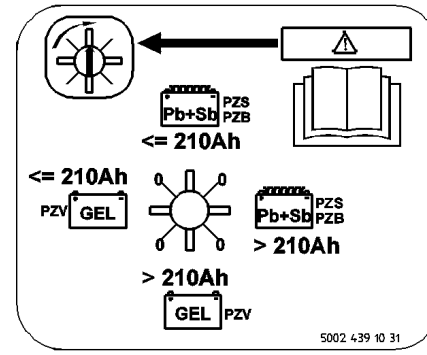
Risk of premature damage to the battery!

It is essential to select the correct type of battery on the selector.

The four thin lines indicate neutral positions. The charger does not flow and the two LEDs flash simultaneously to indicate that no curve has been selected.

The four thick lines indicate the four charging curves:

- open lead-acid battery with a capacity below 210 Ah,
- open lead-acid battery with a capacity greater than 210 Ah,

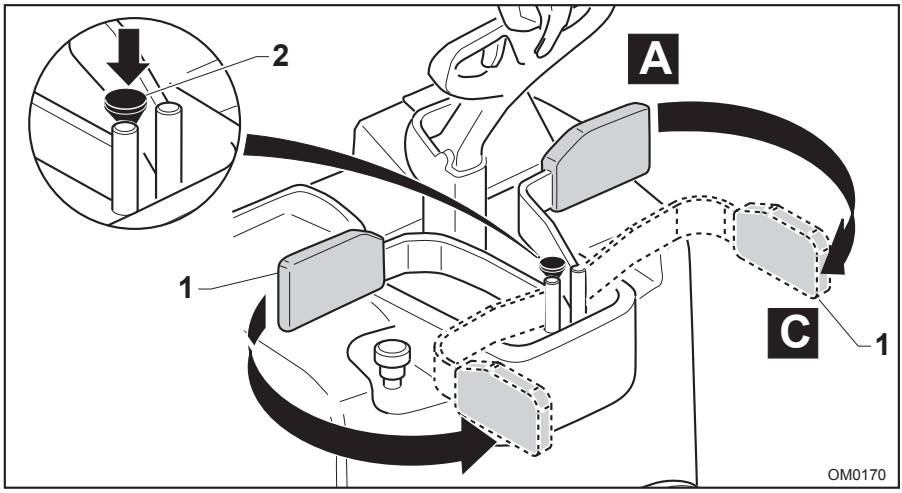


- gel battery with a capacity below 210 Ah,
- gel battery with a capacity greater than 210 Ah.

⚠ CAUTION

The charger is supplied in the NEUTRAL position.

Operator side panels



The side panels (1) are designed to keep driver securely on board and have two positions:

Position "C" = side panels closed

This position is used when the truck is operated with the driver standing on the step plate.

Position "A" = side panels open

This position is used when the truck is operated with the driver on the ground and the step plate is raised, or with the driver standing on the step plate with automatic speed reduction.

Opening the side panels

To open the side panels (1) and pass from position **"C"** to position **"A"** proceed as follows:

- Press the lock pin (2) until it reaches the stopper and at the same time gently push one of the side panels (1), turning it to position **"A"**.

NOTE

*When in position **"A"**, the side panels are automatically locked by the lock cylinder in order to prevent them from accidentally closing.*

Closing the side panels

To close the side panels (1) and pass from position **"A"** to position **"C"** proceed as follows:

Press the lock pin (2) until it reaches the stopper and at the same time gently push one of the side panels (1), turning it to position **"C"**.

NOTE

*Traction of the truck is enabled when side panels **"C"** are closed and side panels **"A"** are open and properly locked with the lock pin (2). If the side panels are not properly locked by the lock pin (2), any movement of the truck will be blocked. The position of the side panels should be changed when the truck is stationary.*

DANGER

Do not press the lock pin (2) when the truck is moving.

Do not sit on the side panels.

Operator step plate

The operator step plate (1) has three positions;

Position "A" = step plate raised

This position is used when the truck is operated with the driver on the ground and the side panels are open; the truck can move in this position, while its drive speed is electronically limited to approximately 6 km/h.

NOTE

Traction is blocked when the side panels are closed.

Position "B" = step plate on stand-by

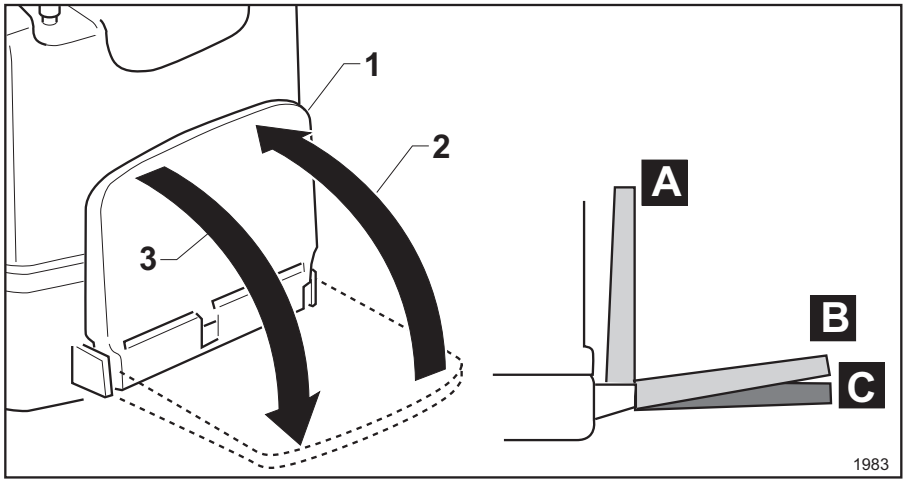
Traction is constantly blocked in this position.

Position "C" = step plate in working position with the operator on board

This position is automatic when the operator steps onto the step plate (1). Truck traction is constantly enabled in this position and the speed of the truck varies in relation to the position of the side panels:

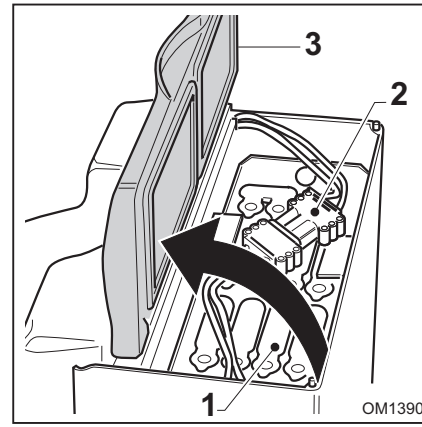
- With the side panels closed, the truck can reach its maximum speed.
- With the side panels open, the truck's speed is electronically limited to ~ 6 km/h.

Moving the step plate



To raise or lower the step plate, manually move the plate in the direction of the (2) arrow to raise it and in the direction of the (3) arrow to lower it.

Internal accessibility



⚠ DANGER

It is prohibited to use the truck with the covers open.

In order to use the truck, the covers for access to the inner parts must be closed and secured properly.

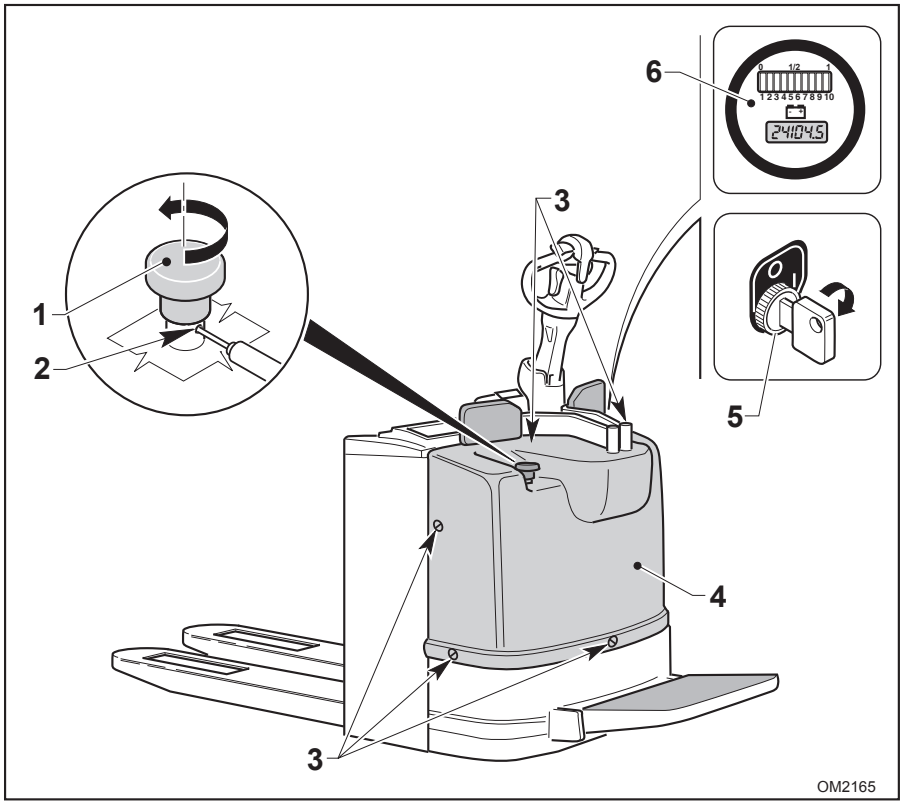
⚠ DANGER

Before accessing the inner parts of the truck, carefully follow the instructions given in Chapter 5, entitled "Maintenance".

Battery compartment

– To access the battery (1) and respective plug/outlet (2), raise the battery compartment cover (3).

Removing the covers



⚠ DANGER

For models with an optional cooling fan (SERVICE KIT), the fans may move even when the key is in the OFF position.

Risk of cutting!

⚠ DANGER

Protective covers must only be disassembled by specially trained personnel.

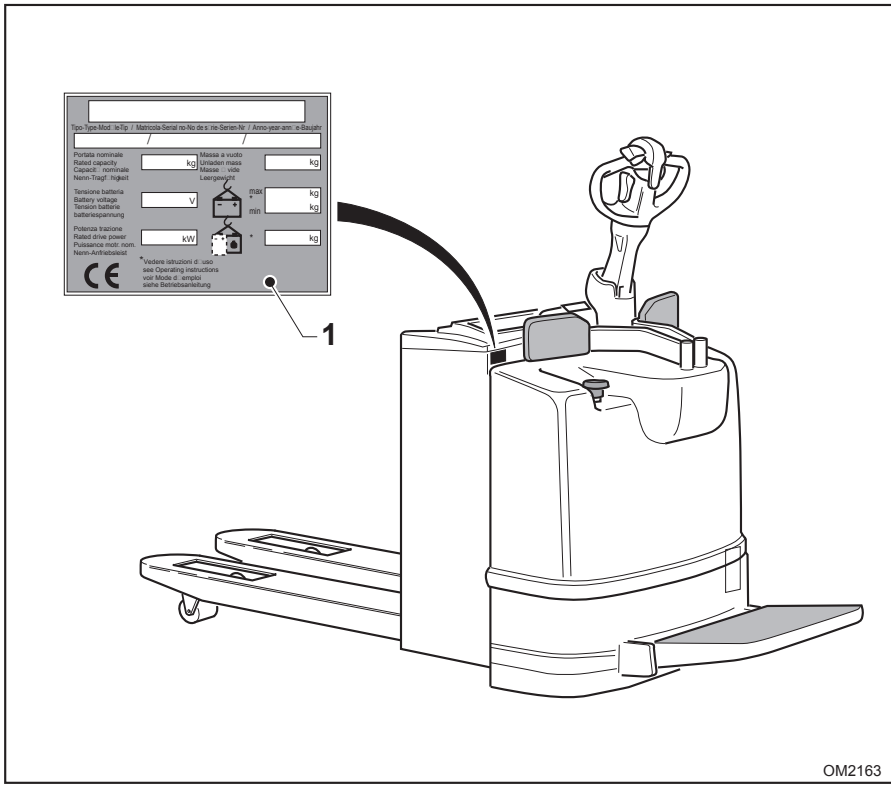
- Turn off the truck and perform the preliminary maintenance operations.
- Remove the head of the emergency stop button (1) by inserting a screwdriver in the hole (2); then, while keeping the button's

stem still, using a screwdriver, rotate the button's head anticlockwise until it is completely unscrewed.

- Loosen the screws (3) and remove the cover (4), taking care not to damage the electrical connection wires of the start key (5) and the battery status indicator instrument (6).
- To refit the cover (4), follow the removal operations in reverse order, making sure that the emergency stop button (1) functions correctly.

Truck Identification

Location of Data Plates



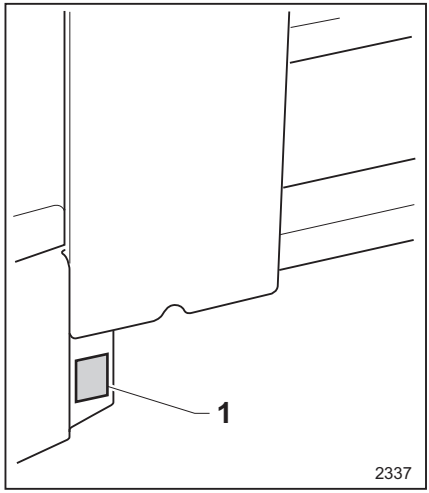
1 Truck identification plate

Frame labelling

The truck's serial number is marked on the chassis frame (1).

The serial number is not visible when the truck forks are lowered.

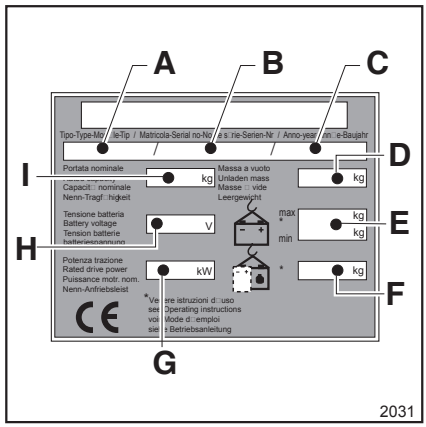
To view the serial number, raise the forks, as the truck serial number (1) is positioned in the lower part of the fixed chassis in an area specifically protected from damage during use.



Forklift Identification Plate

– The identification plate indicates the following data:

- **A** = Type of forklift
- **B** = Serial number
- **C** = Year of manufacture
- **D** = Empty mass without traction battery
- **E** = Min - Max mass - traction battery
- **F** = Indication of added weight only in the case of traction batteries that are too lightweight to guarantee stability.
- **G** =Traction motor power
- **H** = Traction battery voltage
- **I** = Nominal capacity



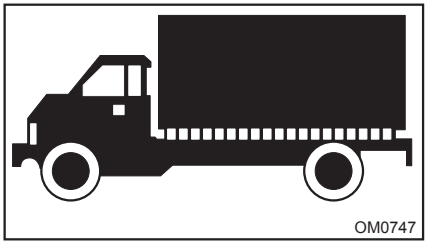
4

Use and Operation

Truck Transport and Lifting

Transporting the truck

▷

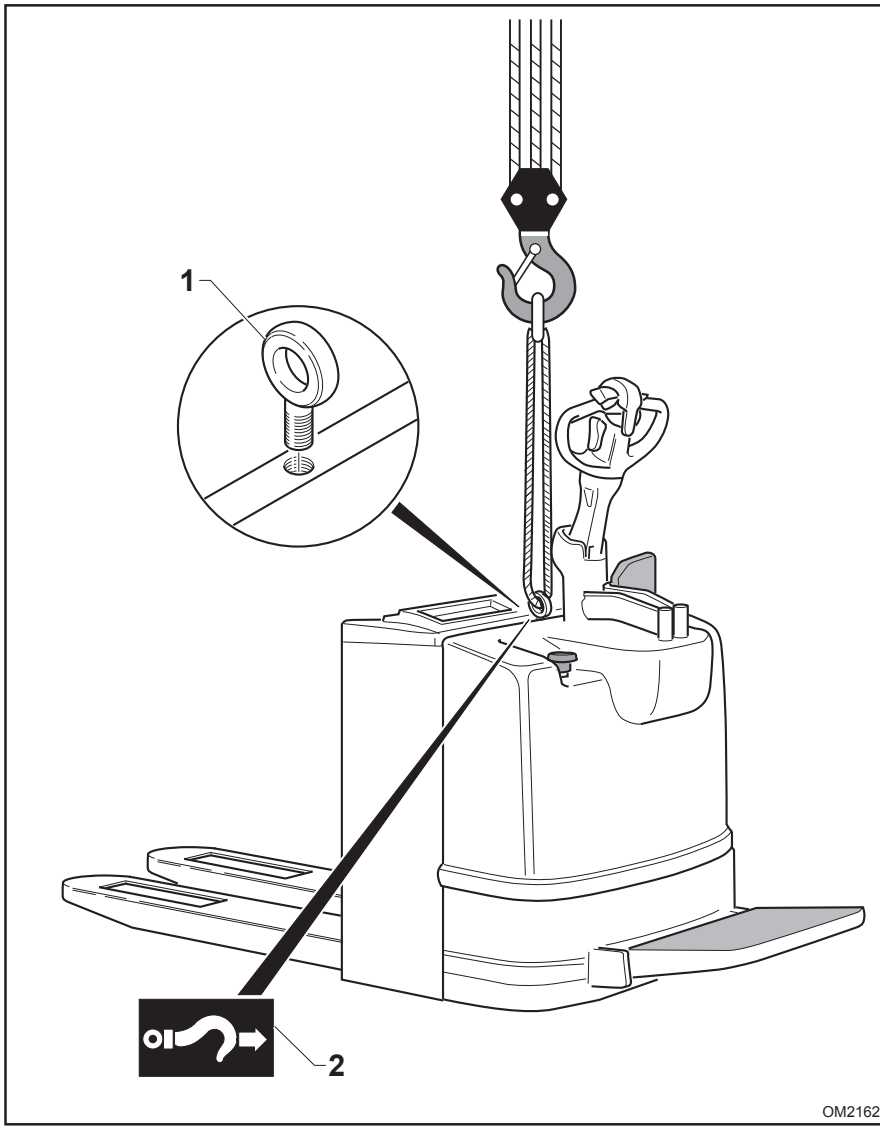


The forklift is normally transported by road and rail. If the forklift's dimensions exceed the max. clearance size allowed, it is transported disassembled. The sales network is in charge of the disassembly and reassembly operations. The forklift must be secured to the transport means during transport using appropriate restraint systems. Block the wheels with wedges to prevent even the slightest movement.

Climatic Conditions for Transport and Storage

The forklift must be protected from atmospheric agents during transport and storage.

Loading and unloading the truck



Use a lifting crane to load and unload the truck, or use an inclined plane or a movable platform (with a slope and structural strength compatible with the specifications stated by the manufacturer, which must be suitably positioned and anchored).

⚠ DANGER

Use a crane with a suitable lifting capacity for the weight of the truck, indicated on its data plate. Also take into account the weight of the battery fitted (if applicable), referring to the relevant identification plate. The lifting operations must be performed by qualified personnel. DO NOT stand within the crane's radius of action or near the truck. Use NON METALLIC slings. Make sure that the lifting capacity of the slings is suitable for the weight of the truck.

- Screw the eyebolt (1), suitably sized, into the appropriate seat indicated by the plate (2).

– Feed a sling of sufficient capacity for the weight of the truck through the eyebolt (2) and hook it up to the crane hook.

⚠ DANGER

The slings should have a suitable length so as to not graze the casing or any additional equipment during lifting. Use a lifting beam if necessary. The slings must be pulled vertically.

⚠ DANGER

It is prohibited to use any other method for lifting and transporting the truck.

Do not stand in the danger area beneath suspended loads.

Breaking-In

This type of forklift does not require special breaking-in operations.

Checks and Inspections

Daily checks before use

The following checks must be performed on a daily basis in order to keep your truck in good condition and to operate safely. These checks supplement and do not replace the scheduled maintenance operations.

- Visually check that the various parts of the truck are in good condition and correctly positioned;
- Check that the fork arms are in good condition;
- Make sure that the anti-crush safety push-button works correctly;
- Check that the buttons and throttle/s on the tiller are working correctly;
- Make sure that the buttons and throttle automatically return to their correct position after release;
- Check that the battery plug/outlet is positioned correctly and intact;
- Check that the wheels (traction, load) are in good condition;
- Make sure that the warning horn works correctly;
- Make sure that the start/stop key works correctly;
- Check that the truck brakes and stops when the throttle is released;
- Check that the truck brakes and stops when the tiller is released;
- Make sure that the electromagnetic brake works effectively;
- Check that the covers are fastened correctly;
- Check the automatic return of the tiller to the vertical position with relative emergency braking;
- Check that the emergency stop button works correctly;

- Check the battery electrolyte level and density as indicated in the battery instructions;
- Check that battery's wiring is intact;
- Make sure that step plate switch operates correctly;
- Make sure that the side panels work correctly and are in good condition;

DANGER

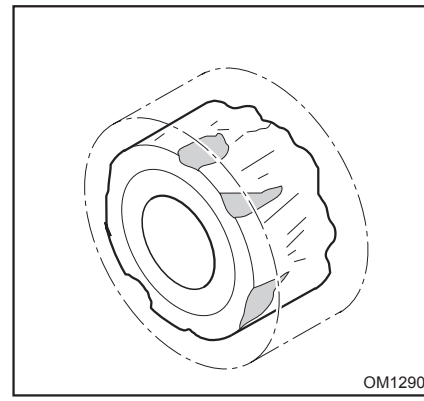
DO NOT use the truck, but call the manufacturer's authorised service network, if you notice any malfunctions or if you have any doubts about its correct operation.

Wheel Wear Check

The forklift's wheels and rollers should be replaced when there are signs of wear.

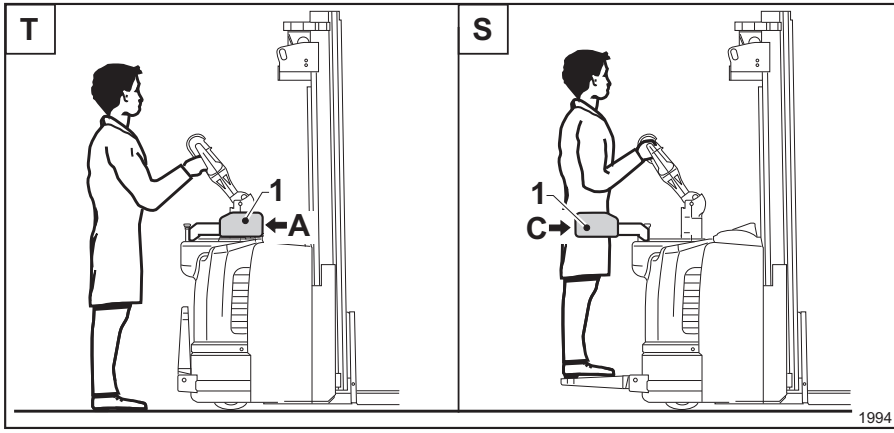
NOTE

Contact the service network authorised by the manufacturer for replacement of the wheels and rollers.



Use of the Truck

Operator position



Two types of driving are possible with the operator in different positions:

- Driving position with the operator on the ground.
- Driving position with the operator standing on the step plate.

Driving position with the operator on the ground (Fig. T)

⚠ CAUTION

Risk of crushing your feet in pedestrian mode.

Check that your feet are well away from the truck's chassis.

– The operator should drive the truck using the driving and lifting controls located on the tiller head.

NOTE

*Operation of the truck with the operator on the ground is activated when the side panels (1) are open in position "**A**".*

⚠ WARNING

Operation of the truck with the operator on the ground is disabled when the side panels (1) are closed in position "**C**".

Driving position with the operator on board (Fig. S)

⚠ DANGER

Risk of falling from the step plate.

Correctly position yourself on the step plate between the two side protection bars.

Travel round corners at low speed.

– The operator should drive the truck standing on the step plate using the driving and lifting controls located on the tiller head.

NOTE

*Operation of the truck with the operator standing on the step plate is activated both when the side panels (1) are open in position "**A**" and when they are closed in position "**C**".*

⚠ WARNING

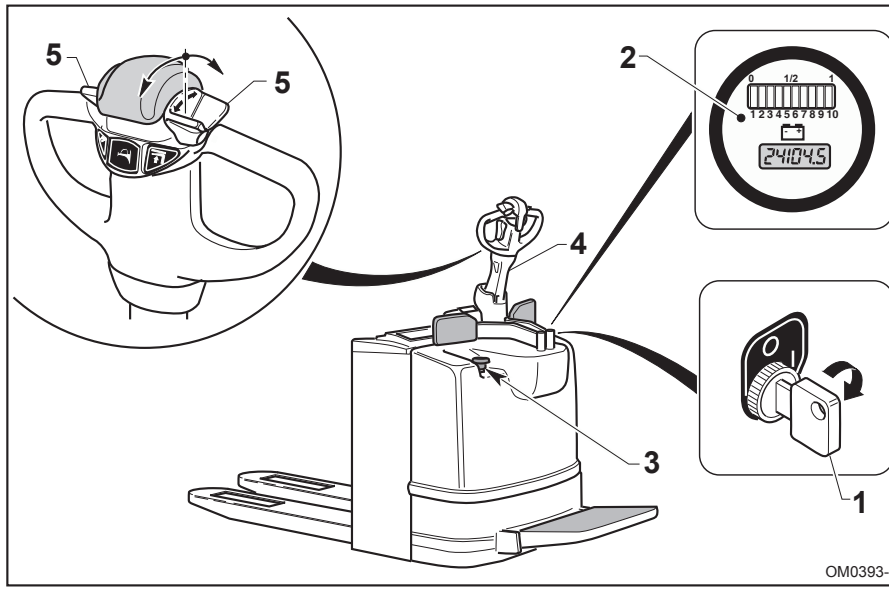
If the operator is standing on the step plate, the truck will operate at low speed when the side panels (1) have been removed or are open in position "**A**".

⚠ DANGER

Do not sit on the side protection bars.

⚠ DANGER

Do not climb on the side protection bars.



Start-up

After having performed the daily checks, carry out the following operations to use the truck:

– Insert the key (1) and turn it to **"I"**; the device (2) will light up indicating the number of operating hours and battery status.

– Check that the emergency stop button (3) is not pressed.

Drive

– Tilt the tiller (4) to the working position.

– Turn the throttle (5) to the desired direction to start moving the truck and the speed will increase according to the angular position of the throttle.

⚠ CAUTION

If there are difficulties starting the truck, do not persist but look for the cause.

NOTE

During truck operation, releasing the tiller will cause the truck to brake and slow down until it stops.

Reverse drive

Reverse of direction without load on forks

- To reverse direction when travelling without a load on the fork arms, turn the traction control throttle in the opposite direction of travel. The truck will stop with energetic but gradual braking and will start to move again in the opposite direction.

Reverse of direction with load on forks

- To reverse direction with a load on the fork arms, release the traction control throttle and wait for the truck to come to a stop.
- Reverse direction using the traction control throttle.

⚠ DANGER

Brake by releasing the traction control throttle, adapting deceleration to the type of load you are carrying to avoid losing the load itself.

Truck braking/stopping

The truck can be braked by:

- Releasing the tiller.
- Reversing the direction of travel using the traction control throttle.

NOTE

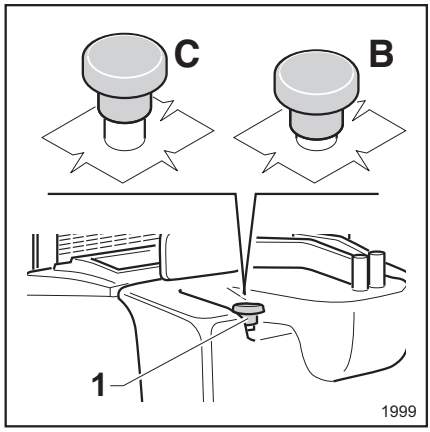
Rotating the traction control throttle in the opposite direction activates counter-current braking.

⚠ WARNING

When the truck is stationary, the parking brake takes over through the electromagnetic brake.

Stopping the truck in an emergency

– In case of emergency, press the emergency stop button (1) (position **B**); all of the truck's functions will be blocked. ▷



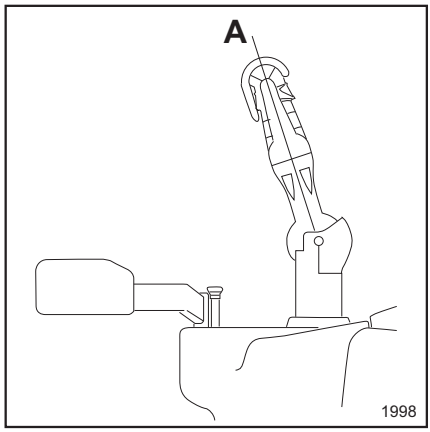
– To restore operating conditions, eliminate the causes of the emergency, then proceed as follows: ▷

– Release the tiller to the rest position **A**.

– Unblock the emergency stop button (1) (position **C**) by lifting it.

⚠ CAUTION

This button must only be used in emergencies; repeated use of this device may cause the electronic equipment to malfunction.



Parking and stopping the truck

- Park in pre-arranged and designated areas
- Lower the fork arms to the ground.
- Release the tiller to activate the parking brake
- Switch off the truck: turn the key to position "0" and remove the key from the panel, or alternatively switch off the truck by means of the numeric keypad (Digicode) if available

⚠ DANGER

Park the truck in such a way that it does not obstruct passageways and/or render unusable emergency equipment (e.g. fire extinguishers and fire hydrants).

⚠ DANGER

Parking on ramps is strictly prohibited! Park on flat surfaces only.

Using the truck on inclines, loading bridges and lifts.

Driving on inclines

When driving the truck up or down inclines, you must not exceed the values for inclines indicated in the chapter "Technical data".

The operator must check that the ground is clear with a good grip.

⚠ WARNING

When driving up or down inclines, the speed of travel must be reduced.

⚠ DANGER

Risk of tipping!

When driving up or down inclines, do not turn, reverse and/or travel diagonally.

⚠ WARNING

When driving on an incline with a load, you must keep the load facing upwards.

⚠ DANGER

Risk of accident

Keep the truck at a safe distance from the edges of ramps, tailboards etc.

⚠ CAUTION

In certain cases, it is permitted to drive with the forks pointing towards the top of the incline even if the truck is not loaded.

In these cases, drive with the utmost care and avoid turning until all the wheels are on a flat surface.

⚠ DANGER

Risk of accident

Do not park on an incline: if, in the event of an emergency, you have to do so, apply the parking brake and block the wheels with chocks.

Using the truck on a lift

Using the truck on lifts is only allowed if the lift has sufficient load capacity (check the maximum weight of the truck including the traction battery) and only with appropriate authorisation.

Slowly drive the truck onto the lift load-first.

Secure the truck in the lift so that no part comes into contact with the walls of the lift. A minimum distance of 100 mm from the walls of the lift must always be observed.

⚠ WARNING

The truck must be correctly immobilised so that it cannot move inadvertently.

⚠ CAUTION

Personnel accompanying the truck onto the lift may only enter the lift once the truck is secure and must exit the lift first after transit.

Using the truck on loading bridges

⚠ DANGER

Risk of accident

Before driving on to a loading bridge, the operator must check that it has been properly fitted and secured and has sufficient load capacity.

You must drive onto the loading bridge slowly and carefully.

The operator must check that the vehicle to be loaded or unloaded is sufficiently secure so that it will not move and that it is suitable to support the strain of the truck.

The lorry driver and the forklift truck operator must agree on the time of departure of the lorry.

Forklift Use in Cold-Storage Rooms.

A truck specifically equipped for cold-storage rooms must be used when working at temperatures below +5°C.

Forklifts equipped for working in cold climates and cold-storage rooms may be used at a minimum temperature of -5°C for continuous service in cold-storage rooms and at -32°C for non-continuous service in cold-storage rooms.

⚠ CAUTION

The forklift must always be turned off and parked outside the cold area/cold-storage room.

⚠ CAUTION

If the truck has been working in environments at temperatures below -5°C and it is taken outside the cold-storage room, let it stand either for a sufficiently long time to allow evaporation of any condensation (at least 30 minutes) or a sufficiently short time to prevent the formation of any condensation (less than 10 minutes).

Avoid the formation of ice on the forklift.

⚠ CAUTION

NEVER drive the truck into the cold-storage room when condensation has formed on it

Using the truck with extension leads

⚠ DANGER

Use of the truck with extensions is only permitted with a maximum extension length of 3 m.

Load Placement

Taking up load

– Approach the load with caution and with as much precision as possible.

– Lower the fork arms so that they can easily be inserted into the pallet.

– Slowly insert the forks at the centre of the load to be lifted.

⚠ CAUTION

Insert the fork without bumping into either the shelving or the load.

– Insert the forks as far as possible below the load. If possible, the forks should be inserted far enough in that the load is resting against the fork carriage. The load centre of gravity must be centred between the forks.

⚠ DANGER

Pay attention to the part of the forks protruding from the load to be lifted.

Do not strike the wall, the shelving or other loads and/or objects behind the load to be picked up.

– Lift the load a few centimetres from the ground and read the "Transporting loads" section.

Transporting loads

– Always drive forwards for optimum visibility.

– When carrying a load on a slope, always climb and descend with the load uphill. Never travel diagonally across the slope or make a U-turn.

– Reverse gear must only be used for depositing a load. Since visibility in this direction is restricted, you should only travel at very low speed.

– To move past obstacles more easily, increase the ground clearance by raising the fork arms.

Transporting pallets or other containers

As a general rule loading units must be transported one by one (e.g. pallets). Transporting several loading units at once is only authorised if:

- the safety preconditions are fulfilled
- by order of the user

The operator must ensure that the load is properly packaged. He must only move load-

ing units that have been carefully prepared and are safe.

Deposit the load.

- Approach the load deposit area.
- Lower the fork arms until the load is deposited in the desired area and release the fork arms from the load.
- Back up with the forklift.

⚠ DANGER

Never leave the forklift with the forks raised whether loaded or not.

NOTE

Further information on the general rules of forklift use is provided in the Rules for the Use of Industrial Vehicles Manual enclosed with this manual.

Towing trailers

The forklift is not qualified to tow trailers.

Forklift Towing

The forklift may not be towed in the case of breakdown.

The forklift must be lifted with due caution, as described on the preceding pages.

Battery Recharging

⚠ CAUTION

The battery is recharged with the forklift off.

⚠ DANGER

The battery must be charged in rooms that comply with the specific regulations on the subject. Refer to the battery and battery charger manual for the charging procedures, level checks etc., checking the type of battery (gel, lead etc.) and the voltage and current delivered. Excessive currents can damage batteries and cause dangerous situations. As far as the safety precautions are concerned, follow the instructions given in the battery manual and those included in "Safety regulations "of this manual.

- Access the upper part of the battery as described in the "Internal accessibility" paragraph.
- Remove the battery caps (if indicated in the battery maintenance booklet).
- Turn on the external battery charger.
- Connect plug the battery charger in to begin charging.
- After the battery charging operation is completed, turn off the battery charger.
- Unplug the battery charger.
- Replace the battery caps (if removed previously).
- Plug the battery in again.
- Lower the battery compartment cover.

NOTE

Refer to the battery charger manual for more information.

Recharging the battery using the on-board battery charger (optional)

⚠ CAUTION

Charge the battery with the truck turned off and the start key removed.

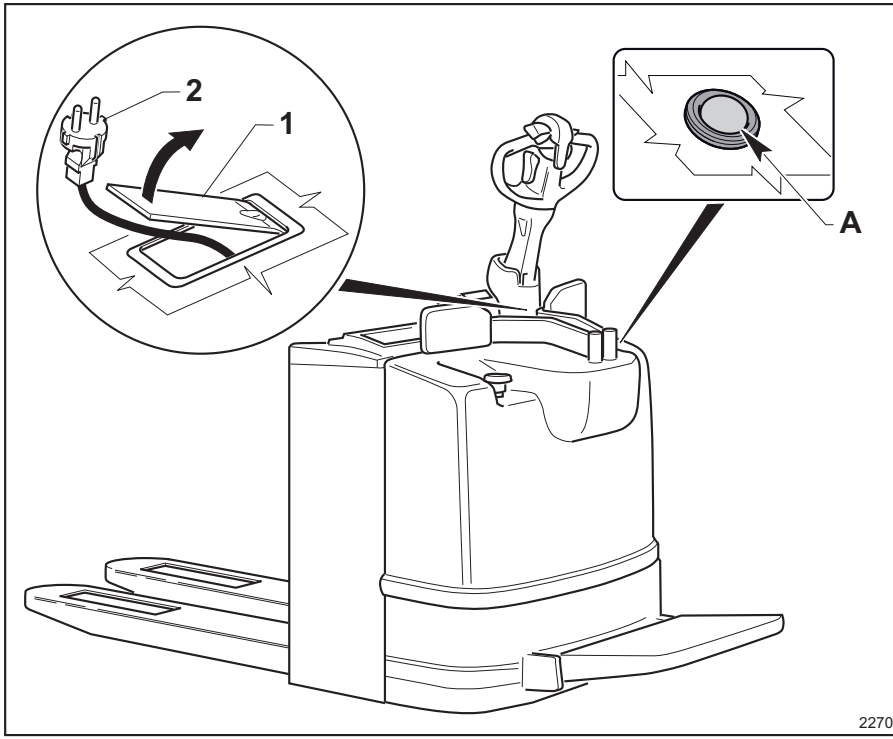
⚠ DANGER

The battery must be charged in rooms that comply with the specific regulations on the subject. Refer to the battery and battery charger manual for the charging procedures, level checks etc., checking the type of battery (gel, lead etc.) and the voltage and current delivered. Excessive currents can damage batteries and cause dangerous situations. As far as the safety precautions are concerned, follow the instructions given in the battery manual and those included in "Safety regulations "of this manual.

⚠ DANGER

If the truck is fitted with an on-board battery charger, it is strictly prohibited to connect the battery to an external battery charger.

Instructions for recharging



⚠ CAUTION

Make sure that the mains supply voltage complies with the battery charger's operating voltage.

Follow the instructions below:

- Raise the flap (1).
- Take the plug (2) of the on-board battery charger and connect it to the socket.
- The battery charger will stop automatically when charging is finished.
- Replace the plug in its housing.
- Close the battery charger flap

Indicator light (Led) (A):

- A flashing green LED indicates that the battery charger is charging.
- A steady green LED indicates that the battery charger has finished charging.
- When the LED is off, this indicates that the battery charger is not connected to the network.

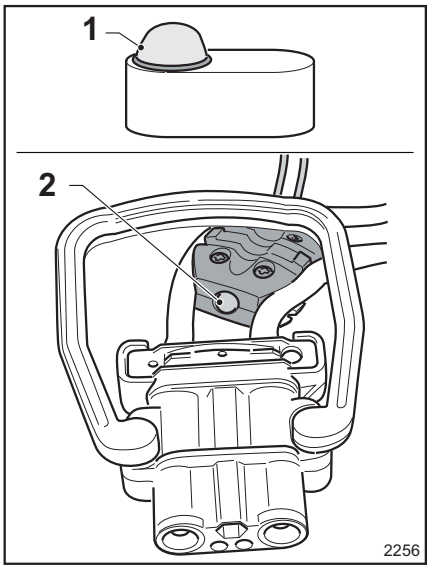
⚠ CAUTION

If there are any problems while the battery is being charged, the red LED flashes. Contact the Technical Service Department authorised by the manufacturer.

⚠ DANGER

The rectifier plug must only be connected to electrical distribution systems equipped with an automatic circuit breaker (according to standard EN 60204-1 section 6.3 "Protection against indirect contacts").

Battery electrolyte level indicator LED (optional)



There are two versions of the LED:

- 1) Located on the battery
- 2) Located next to the battery plug.

The LED indicates whether it is necessary to top up the distilled water in the battery.

Operation:

- If the LED (1) or (2) is green, there is a sufficient level of electrolyte in the battery. The battery must not be topped up with distilled water.
- If the LED (1) or (2) is red, there is an insufficient level of electrolyte in the battery. The battery must be topped up with distilled water.

5

Maintenance

General Information

To keep your forklift in good condition, carry out the servicing indicated regularly, within the times indicated and using the consumption materials provided for that purpose, as specified on the following pages. Please make sure that you keep a record of work done; this is the only way for the guarantee to remain valid.

Maintenance is divided into:

- scheduled (to be done by the service network authorised by the manufacturer)
- as required (done by the user)

DANGER

Scheduled maintenance and repairs must be done by the service network authorised by the manufacturer in order to maintain the machine in perfect condition and compliant with technical specifications.

NOTE

Contact the authorised service network for a maintenance contract appropriate to your forklift.

CAUTION

Maintenance intervals are defined for standard use. In the following cases, it is necessary to reduce the interval between the various scheduled maintenance operations: in the event of use in dusty of salty environments, extremely high or low ambient temperatures, high levels of air humidity, particularly intense and heavy uses, specific national regulations for trucks or individual components.

Operations Preliminary to Maintenance

Do the following before performing maintenance operations:

- Place the truck on a flat surface and make sure that it cannot move accidentally.
- Lower the forks fully.
- Switch off the vehicle.
- Press the emergency stop button.

DANGER

Before performing any intervention on the electric system, disconnect the battery outlet from the relative plug.

Scheduled Maintenance

Synoptic Table of Maintenance Operations

Operations	Intervals in hours		Completed
	1000	3000	v
Clean the electric motors	•		
Check motor commutators	•		
Check the condition of the piping	•		
Check hydraulic system oil level	•		
Check reducer oil level	•		

Change bushes, rollers and levers	•		
Check electromagnetic brake	•		
Check wheel tightness	•		
Check the condition of battery and truck wiring	•		
Check insulation between chassis and any electric motors	•		
Check insulation between chassis and electric/electronic components	•		
Greasing: bearings, tie rods and levers	•		
Change hydraulic system oil		•	

ENVIRONMENT NOTE

During maintenance operations, follow the instructions provided in the section "Safety regulations relative to operating materials" in "Chapter 2".

Maintenance as required

Cleaning the Forklift

Cleaning depends on the type of use and the workplace. Should the truck come into contact with highly aggressive elements such as salt water, fertilizers, chemical products, cement, etc., it should be cleaned as carefully as possible after every work cycle. It is preferable to use cold compressed air and detergents.

Use water-dampened rags to clean the parts of the body.

⚠ CAUTION

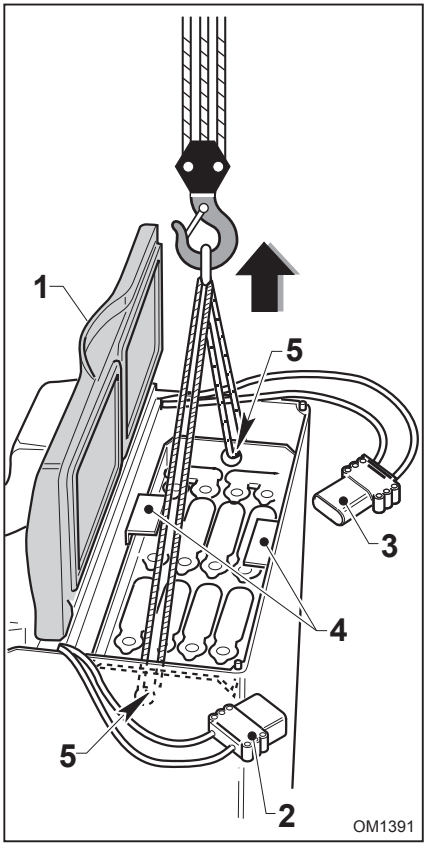
Do not clean the truck with direct jets of water; DO NOT use solvents and petrols that could damage parts of the truck.

Changing the battery ▷

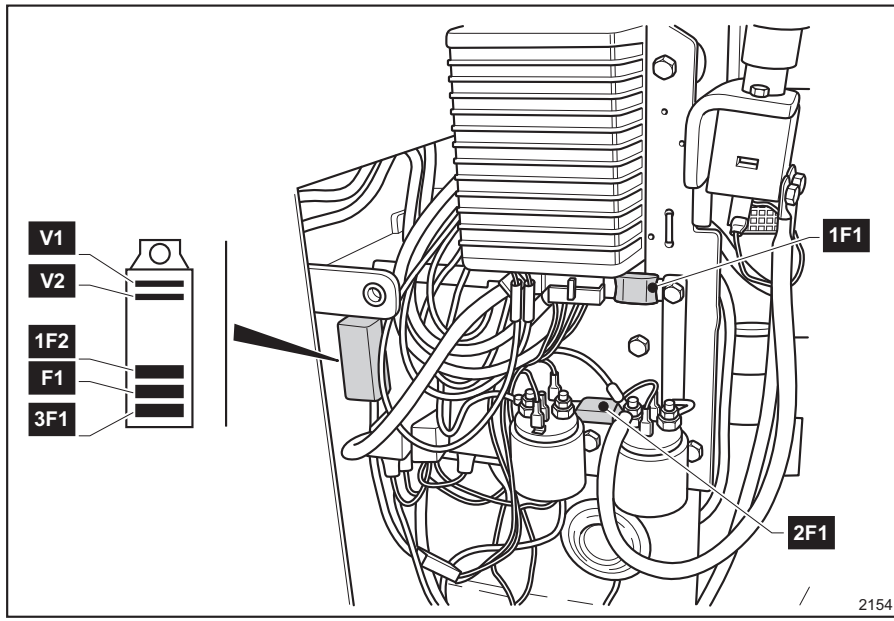
- Turn off the truck and perform the preliminary maintenance operations.
- Raise the battery compartment cover (1).
- Disconnect the plug (3) from the outlet (2).
- Remove the battery holddowns (4).
- Attach hooks to the battery at the two points (5) using a sling which is suitably sized for the weight of the battery.
- Lift the battery using a hoist suitably sized for the weight of the battery.
- Change the battery and refit it by following the above steps in the reverse order.

⚠ CAUTION

To decide which type of battery to use, check the battery characteristics provided in the "TECHNICAL DATA" chapter.



Fuse replacement



- Turn off the truck and perform the preliminary maintenance operations.

⚠ DANGER

For models with an optional cooling fan (SERVICE KIT), the fans may move even when the key is in the OFF position.

Risk of cutting!

⚠ CAUTION

Before replacing the fuse, eliminate the cause that led to its blowing. The blown fuse must only be replaced with a fuse of the same amperage. Do not tamper with the truck's electrical system.

– Raise the battery cover as indicated in the relative section.

Fuse values

Power Fuses

– Unscrew the nut, change the fuse and tighten the nut again.

Fuse values

- **1F1 = 150 A** traction motor safety fuse
- **2F1 = 80 A** pump motor safety fuse

Service fuses

– Remove the cover and replace the blown fuse, then replace the cover.

Fuse values

- **V2 = 8 A** step plate sensor protection diode
- **V1 = 8 A** power supply polarity protection diode
- **1F2 = 5 A** electromagnetic brake safety fuse
- **F1 = 10 A** safety fuse
- **3F1 = 30 A** steering motor safety fuse

Optional fuses

Fuse values

9F1 = 2 A fan safety fuse

9F3 = 2 A cold store safety fuse

Decommissioning

General Information

The operations to be performed for "**Temporary decommissioning**" and "**Permanent decommissioning**" are listed in this chapter.

Temporary Putting Out of Commission

The following operations must be performed when the forklift is not going to be used for a long time:

- Clean the forklift as indicated in the "**Maintenance**" chapter and put it in a dust-free and dry room. -
- Lower the forks.
- Lightly grease all of the unpainted parts with oil or grease.
- Perform the lubrication operations indicated in the maintenance chapter.
- Remove the battery and put it in a room where there is no danger of freezing. Charge the battery at least once a month.
- Raise the forklift so that the wheels do not touch the ground; otherwise, the wheels will become flat at the point of contact with the floor.
- Cover the forklift with a **NON**-plastic sheet.

Checks and Inspections After a Long Period of Inactivity

⚠ DANGER

Perform the following operations before using the forklift:

- Clean forklift truck thoroughly.
- Check the battery charge level and re-assemble it in the forklift, making sure to spread Vaseline on the terminals.
- Lubricate all of the parts provided with lubricating nipples and the chains.
- Carry out the fluid level checks.
- Perform all of the functional maneuvers of the forklift and of its safety devices both loaded and unloaded.

⚠ DANGER

Follow the instructions provided in the maintenance chapter for the operations indicated previously.

Permanent Putting Out of Commission (Demolition)

The forklift must be demolished in compliance with local legislation. Contact the authorised service network or authorised companies to scrap the forklift according to local legislation.

ENVIRONMENT NOTE

In particular, batteries, fluids (oils, fuels, lubricants, etc, electrical and electronic components and rubber components must be disposed of in compliance with specific local legislation for each type of material.

⚠ DANGER

Disassembly of the forklift for scrapping is extremely hazardous.

Supply Table

Supply table for standard trucks

Element to be supplied	Lubricants
Hydraulic system	HLF 32
Reduction gear unit	Tutela MATRIX
General lubrication	Tutela MP02

Supply table for cold-storage trucks

Element to be supplied	Lubricants
Hydraulic system	Tutela GI/M
Reduction gear unit	Tutela MATRIX
General lubrication	Tutela Jota

Resolution of Operating Defects

The operating defects which can occur during truck use are indicated in this section, with relative causes and solutions. If the defects should persist even after having carried out all of the checks indicated, contact the manufacturer's authorised service network.

Defect: THE TRUCK DOES NOT START OR MOVE.	
POSSIBLE CAUSES	SOLUTIONS
Battery socket not connected or connected incorrectly.	Check the battery socket and, if necessary, connect it correctly.
The emergency stop button is pressed.	Release the emergency stop button and then turn the truck off and on again in sequence using the start/stop key.
Low battery charge.	Check the battery charge level and, if necessary, charge it.

Incorrect command sequence when switching on the truck.	Repeat the sequence of commands correctly.
The drive control throttle is not turned.	Turn the drive control throttle in the desired direction of travel.
The key ignition switch is set to position "**0**" (truck off).	Turn the switch to "**I**" (truck on).
Tiller in rest position	Position the tiller in the working position
The operator side panels are open when the truck is operated from the ground.	Close the side panels.

Defect: THE TRUCK IS NOT ABLE TO LIFT THE LOAD.	
POSSIBLE CAUSES	**SOLUTIONS**
Load too heavy!	Make sure the weight of the load to be lifted does not exceed the truck's maximum capacity.
The truck is not ready for service.	Perform all of the checks indicated for ""The truck does not start or move"".
The hydraulic oil level is too low.	Restore the level as indicated in the Maintenance chapter.
Low battery charge.	Check the battery charge level and, if necessary, charge it.

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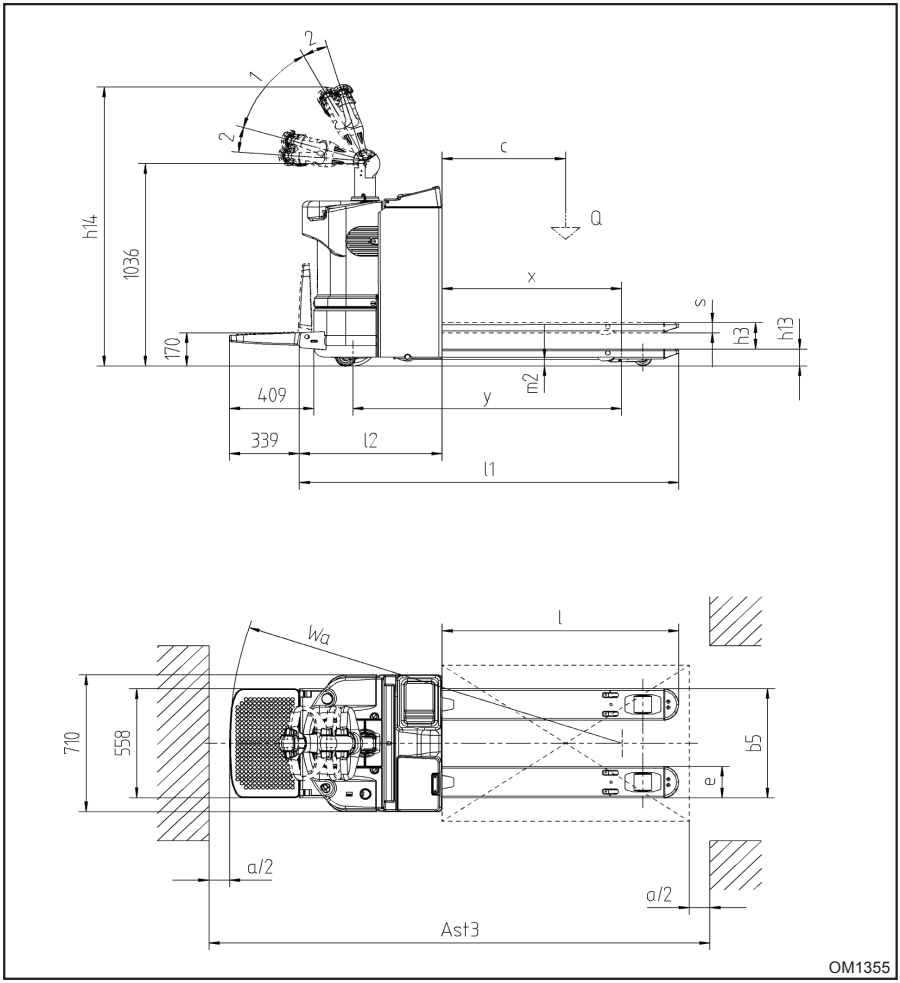
Technical data

Overall dimensions



Forks				Step plate up		Step plate down	
l mm	c mm	x mm	y mm	l_1 mm	W_a* mm	l_1 mm	W_a* mm
800	400	522	954	1504	1247	1830	1554
980	500	702	1134	1684	1427	2010	1734
1150	600	872	1304	1854	1597	2180	1904
1450	715	1172	1604	2154	1897	2480	2204
1600	800	1322	1754	2304	2047	2630	2354

Technical data

Characteristics			
1.3	Power unit type		Electric
1.4	Drive type		Tiller (pedestrian / standing)
1.5	Load capacity / Load	Q (t)	2
1.6	Centre of gravity	c (mm)	600 (1)
1.8	Load distance from load wheel axle with forks raised	x (mm)	872
1.9	Wheelbase	y (mm)	1302
Weights			
2.1	Tare weight (without battery)	kg	562 (1)
2.2	Load per axle when loaded (front / rear)	kg	1661 / 991
2.3	Load per axle when empty (front / rear)	kg	77 / 575
Wheels, Chassis			
3.1	Tyre		Polyurethane
3.2	Front wheel dimensions	mm	85 x 90
3.3	Rear wheel dimensions	mm	230 x 75
3.5	Wheels: front / rear number (x=drive wheel)		2 / 1x-2
3.6	Front track width	b_{10} (mm)	358 / 398 / 488
3.7	Rear track width	b_{11} (mm)	/

Dimensions			
4.4	Lifting	h_3 (mm)	135
4.9	Tiller height in operating position (min / max)	h_{14} (mm)	1145 / 1342
4.15	Lowered fork arms height	h_{13} (mm)	85
4.19	Total length (step plate up / down)	l_1 (mm)	1854 / 2180 (1)
4.20	Length including shoulder of forks (step plate up / down)	l_2 (mm)	704 / 1030
4.21	Total width	b_1 (mm)	710
4.22	Fork arm dimensions	s/e/l (mm)	50 / 162 / 1150 (2)
4.25	External fork arm gauge	b_5 (mm)	520 / 560 / 650
4.32	Clear span at mid wheel-base with load	m_2 (mm)	33
4.33	Working aisle with pallet 1000 x 1200 fork insertion 1200 (step plate up / down)	Ast3 (mm)	1925 (3) (4) / 2718 (3) (5)
4.34	Working aisle with pallet 800 x 1200 fork insertion 800 (step plate up / down)	Ast3 (mm)	2125 (4) / 2621 (5)
4.35	Turning radius (step plate up / down)	Wa (mm)	1597 / 1904
Performance			
5.1	Drive speed (loaded/empty)	km/h	6 / 6 / (7.5 (6))
5.2	Lifting speed (loaded/empty)	m/s	0,034 / 0,045
5.3	Lowering speed (loaded/empty)	m/s	0,045 / 0,045
5.7	Surmountable gradient KB 30^{I} (loaded/empty)	%	0.7 (1) (7) / 10.2 (1) (7)
5.8	Max. surmountable gradient KB 5^{I} (loaded / empty)	%	4.7 (1) (7) / 21.3 (1) (7)
5.10	Service brake		Electric
Electric motor			
6.1	Traction motor, performance KB 60^{I}	kW	1.2

6.2	Lifting motor, performance 15% ED	kW	1.2
6.3	Battery according to British Standard / DIN 43531/ 35 / 36 A, B, C		DIN 43535 B / (British Standard)
6.4	Battery voltage / rated capacity	V / Ah	24 / 250 (300)
6.5	Battery weight (+/- 5%)	kg	212 (245)
Other			
8.1	Control type		Electronic
8.4	Operating noise in driver's ear	dB(A)	<70

NOTE

- *(1) The values in the table, unless indicated otherwise, are for fork with length l = 1150 mm*
- *(2) For different lengths, refer to the table in the section "Overall dimensions"*
- *(3) With forks l = 980 mm*
- *(4) Calculated using the formula for pedestrian pallet trucks*
- *(5) Calculated using the formula for ride-on trucks or forklifts with tiller*
- *(6) With compulsory side guards to protect the operator*
- *(7) Calculated with the step plate down*
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Battery dimensions and weights

General battery characteristics			
Voltage **V**	Trog **mm**	Capacity **Ah**±5%	Weight **kg**±5%
24	74	255	270
24	74	243	265
24	74	300	245
24	112	200	200
24	112	220	220
24	112	230	230
24	112	250	250

Noise

Sound pressure level in driver's seat	L_{pAZ} < 70 dB (A)
Uncertainty factor	K_{pA}=4 dB (A)

The value is determined in a test cycle in accordance with Harmonised European Standard EN 12053 and declared according to EN ISO 4871 with weighted time percentages of the Transport, Lifting and Idling modes.

⚠ CAUTION

The value expressed above can be used to compare forklift trucks of the same category. This cannot be used to determine the noise level in workplaces (daily personal noise exposure). Noise values that are lower or higher than those indicated above can occur during actual truck use, for example following different operating modes, different environmental conditions and additional noise sources.

Vibrations

- Vibrations to which **hands and arms** are exposed: a_w < **2.5** m/s^2
- Vibrations to which the **body** is exposed: a_w,z = **1.1** m/s^2, with an uncertainty factor k = **0.3**m/s^2

The value for the body has been calculated and declared in conformity with the Harmonized European Standards EN13059 and EN12096 and is based on the transport mode, the only mode that exposes the driver to significant vibrations. The aforesaid standard is not applicable to the vibration measurement "for hands and arms"; in fact it has been shown that the relevant value is generally less than 2.5m/s^2.

NOTE

The value expressed above can be used to compare trucks of the same category. It cannot be assumed for the determination of the daily vibration exposure of the operator

during actual operation of the truck; these vibrations depend on the conditions of use (floor conditions, method of use, etc.) and thus the daily exposure must be calculated using the relative workplace data.

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