



Original instructions

Multi function vehicle

OCV 01



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first in intralogistics

Address of manufacturer and contact details ▷

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Made in China



Rules for the operating company of industrial trucks

In addition to these operating instructions, a code of practice containing additional information for the operating companies of industrial trucks is also available.

This guide provides information for handling industrial trucks:

- Information on how to select suitable industrial trucks for a particular area of application
- Prerequisites for the safe operation of industrial trucks
- Information on the use of industrial trucks
- Information on transport, initial commissioning and storage of industrial trucks

Internet address and QR code ▷

The information can be accessed at any time by pasting the address <https://m.still.de/vdma> in a web browser or by scanning the QR code.



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1

Introduction

Your industrial truck

Your industrial truck

Technical description

The truck is an electric one which is designed to transport and pick goods on level ground. Small items can be placed and carried on the storage table. The low overall height and platform height allow it to be driven through doorways. The low net weight means that it can travel on lifts.

- The rated capacity is indicated on the nameplate.
- Travel in indoors areas.
- Do not exceed the permissible surface and spot load limits on the travel paths.
- Operation only on travel paths that are visible and approved by the operating company.
- Travel with the load facing uphill.

Safety mechanisms

The truck geometry with rounded edges ensures safe handling of the truck. Pressing the Emergency stop switch disconnects all electrical functions in hazardous situations. Opening the gates will interrupt all driving and lifting / lowering operations except mechanical emergency lowering of the platform. Before the truck driving or lifting the dead man switch must be depressed. Both hands must be at the control handles for driving and lifting to prevent injury of hands sticking out.

In the raised position, pressure-sensitive switches monitors the area between the drive system and the operator platform. If the area is occupied (e.g. by an object or person), lowering is stopped.

The door always be kept closed when the work platform is raised. Only platform go back position, the door can be opened.

Drive

The entire drive unit is enclosed in the truck chassis.

The electronic traction controller ensures the smooth driving operation of the drive motor and powerful acceleration.

Brake system

The operator can brake gently and wear-free by pulling back the travel switch (service brake). The electromagnetic spring pressure brake acting on the drive motor serves as both parking and handbrake. The parking brake is electrically released and actuated through spring pressure.

Steering system

The steering controller is monitoring permanently the position of the steering wheel. In case of error the truck is stopped immediately. The maximum steering angle is $\pm 90^\circ$.

Controls and Displays

The drive functions are activated via ergonomic thumb movement to ensure fatigue-free operation without stressing the wrists; The display units show important driver information such as truck status reports (e.g. faults), battery capacity and time etc.

Hydraulic system

All hydraulic operations are controlled by a hydraulic pump. Pressing the lift button starts the pump unit, supplying hydraulic oil from the oil reservoir to the lift cylinder.

Electrical system

The electrical system is powered by a 24V battery. Electronic controllers drive the traction motor (DC), steering motor (DC), and hydraulic pump motor.

General

The industrial truck described in these operating instructions conforms with the applicable standards and safety regulations.

The industrial truck is fitted with state-of-the-art technology. Following these operating instructions will allow the industrial truck to be handled safely. By complying with the specifications in these operating instructions, the functionality and the approved features of the industrial truck will be retained.

Get to know the technology, understand it and use it safely - these operating instructions provide the necessary information and help to avoid accidents and to keep the truck ready for operation beyond the warranty period.

Therefore:

- Before commissioning the industrial truck, read the operating instructions and follow the instructions.
- Always follow all the safety information contained in the operating instructions and on the industrial truck.

Your industrial truck

Conformity marking

The manufacturer uses the conformity marking to document the conformity of the industrial truck with the relevant directives at the time of placing on the market:

- CE: in the European Union (EU)
- UKCA: in the United Kingdom (UK)
- EAC: in the Eurasian Economic Union

The conformity marking is applied to the nameplate. A declaration of conformity is issued for the EU and UK markets.

An unauthorised structural change or addition to the industrial truck can compromise safety, thus invalidating the declaration of conformity.



Declaration that reflects the content of the declaration of conformity

Declaration

STILL GmbH
Berzeliusstraße 10
22113 Hamburg Germany

We declare that the specified machine conforms to the most recent valid version of the directives specified below:

Industrial truck type	corresponding to these operating instructions
Model	corresponding to these operating instructions

- "Machinery Directive 2006/42/EC" ¹⁾
- "Supply of Machinery Safety Regulations 2008, 2008 No. 1597" ²⁾

Personnel authorised to compile the technical documents:

See declaration of conformity

STILL GmbH

¹⁾ For the markets of the European Union, the EU candidate countries, the EFTA States and Switzerland.

²⁾ For the United Kingdom market.

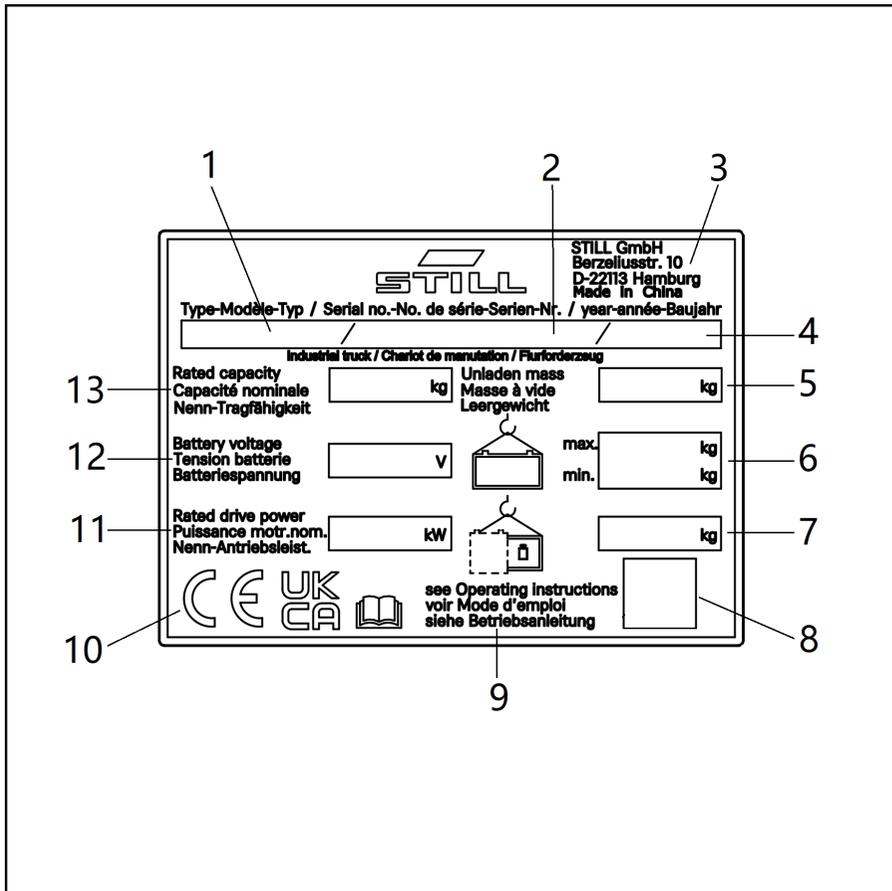
The declaration of conformity document is supplied with the industrial truck. The declaration shown explains the conformity with the provisions of the EC Machinery Directive and the Supply of Machinery Safety Regulation 2008, 2008 No. 1597.

The declaration of conformity must be carefully stored and made available to the responsible authorities if necessary. It must also be handed over to the new owner if the industrial truck is sold on.

An unauthorised structural change or addition to the industrial truck can compromise safety, thus invalidating the declaration of conformity.

Your industrial truck

Identification plate



- | | | | |
|---|---|----|--|
| 1 | Type | 10 | Conformity marking:
CE mark for the markets of the EU, the EU candidate countries, the EFTA States and Switzerland
UKCA mark for the United Kingdom market
EAC mark for the Eurasian Economic Union market |
| 2 | Serial number | 11 | Rated drive power in kW |
| 3 | Manufacturer | 12 | Battery voltage in V |
| 4 | Year of manufacture | 13 | Rated capacity |
| 5 | Unladen mass in kg | | |
| 6 | permissible battery weight in kg (for electric trucks only) Max./Min. | | |
| 7 | Own mass (self weight) in kg without battery | | |
| 8 | Data matrix code | | |
| 9 | Refer to technical data listed in this operating instructions for more detailed information | | |

**NOTE**

- *It is possible for there to be multiple conformity markings on the nameplate.*
- *The EAC mark may also be located in the immediate vicinity of the nameplate.*

Using the truck

Using the truck

Commissioning

Commissioning is the initial intended use of the truck.

The necessary steps for the commissioning vary depending on the model and equipment of the truck. These steps require preparatory work and adjustment work that cannot be performed by the operating company. See also the chapter entitled "Definition of responsible persons".

- To commission the truck, contact the authorised service centre.

Intended use

The following operations are in accordance with regulations and are permitted:

- Order picking of goods.
- Taking goods up or down from areas not comfortably reached without a ladder.
- Lifting and lowering by the operator on the operating platform.
- Transporting small items on the storage table without a pallet. The maximum load is indicated on the nameplate label and must not be exceeded.
- Travel and lift/lower simultaneously.
- Lift in indoor areas only without wind forces.
- Travel on clean, dry and even prepared (concrete, asphalt) ground (Travel on negotiating inclines up to 5% gradient is only allowed if the platform is fully lowered.)
- Light maintenance work like changing lights, hanging up banners, doing inspections and small repairs. All tools and materials must be kept on the load tray.
- Horizontal forces applied to the platform may not exceed 200 N in any direction. The center of gravity of operator and load must be inside the confines of the vehicle.
- Operation in areas open to the public like in a store, if the following regulations are observed.
- Operator must be trained.
- The truck must have a safety switch to make sure nobody is in the area between the drive unit and the platform when driving or lowering. Optionally, the warning signal can be activated by a button.
- The truck may only be used if all safety functions are working, otherwise the truck must be taken out of service.
- If the area is too crowded, the owner must instruct the public to give space or the operator must work together with a marshal to keep people away and warn the operator if there are still people in the hazardous area.

Impermissible use

The truck may not be used for.

- Pushing or pulling of loads.
- Travel on uneven ground with the platform lifted.
- Lifting outside or when wind forces are present in indoor areas.
- With more people than the operator on the platform.
- Handling of oversized loads or unevenly distributed loads.

- Climbing on side rails to gain extra picking height.
- Prohibition of use as a crane.

The operating company or driver, and not the manufacturer, is liable if the truck is used in a manner that is not permitted. One of the main causes of accidents is the driver ignoring or being unaware of the basic safe operating practices of the truck.

The following basic safe operating practices must be observed to ensure the safety of operators and others.

- Do not stack loads or turn when driving on a ramp.
- Do not operate the truck on loose or greasy surfaces.
- Do not drive on uneven or obstructed surfaces. Never park the truck in a place that

may obstruct fire extinguishers, fire escapes or aisles.

- Do not dismount from the truck while it is moving.
- Do not dismount from the truck while the platform is not fully lowered.
- Never leave the vehicle unattended on a ramp. When driving, do not place any part of your body outside the confines of the truck, lean on the edge of the truck or attempt to jump onto another truck or object.
- Do not get on and off the work platform when elevated.
- Do not use open flame to check lever, or for leakage of electrolyte and fluids or oil. Do not use open pans of fuel or flammable cleaning fluids for cleaning parts.

Precautions

- Do not drive on steep slopes, to prevent the load from slipping off.
- The truck must be switched off when left unattended. Key (or key code) must be removed when the truck is unattended to prevent unauthorised use.
- When using this truck, pay attention to the surroundings and do not become distracted.
- Please pay attention to the moving parts of the truck to prevent your hands from being crushed.

Description of use and climatic conditions

Normal use

- The truck must be parked and secured only in indoor areas.
- Ambient temperature ranging from +5°C to +40°C.
- Secure parking is only permissible at +5°C to +40°C.
- Do not charge the battery below +5°C .
- Maximum air humidity 95% non-condensing.
- The truck's maximum operation altitude is up to 2000 m.

WARNING

Operating the truck under extreme conditions can result in malfunctions and accidents. Special equipment and authorization are required if the truck is to be used in extreme conditions, especially in dust-laden or corrosive environments. Operation in explosive atmospheres is not permitted. If you want to use the truck for applications not mentioned in this manual, please first contact your authorized dealer.

WARNING

Use in a cold store is prohibited.

Information about documentation

Information about documentation

Documentation scope

- Operating instructions
- Operating instructions for attachment parts (special equipment)
- Spare parts list

These operating instructions describe all measures necessary for the safe operation and proper maintenance of the truck in all possible variants at the time of printing. Special designs to meet customer requirements are documented in separate operating instructions. If you have any questions, please contact your service centre.

Enter the production number and the year of production located on the nameplate in the field provided:

Production no.

Year of production

Please quote these numbers for all technical enquiries.

Operating instructions are provided with each truck. These instructions must be stored care-

fully and must be available to the driver and operator at all times.

If the operating instructions are lost, the operator must immediately request a replacement from the manufacturer.

The spare parts list can be reordered there as a spare part.

Personnel responsible for operating and maintaining the equipment must be familiar with these operating instructions.

The operating company (see the chapter "Definition of responsible persons") must ensure that all operators have received, read and understood these instructions.

Thank you for reading and complying with these operating instructions. If you have any questions or suggestions for improvements, or if you have found any faults, please contact your service centre.

Supplementary documentation

This industrial truck can be fitted with a **Customer Option (CO)** that deviates from the standard equipment and the variants.

This CO may consist of:

- Special sensors
- A special attachment
- A special towing device
- Customised attachments

When fitted with a CO, the industrial truck is provided with additional documentation. This may take the form of an insert or separate operating instructions.

The original operating instructions for this industrial truck are valid for the operation of standard equipment and variants without restriction. The operational and safety

information in the original operating instructions continues to be valid in its entirety unless it is countermanded in this additional documentation.

The requirements for the qualification of personnel as well as the time for maintenance may vary. This is defined in the additional documentation.

- If you have any questions, contact your authorised service centre.

Issue date and topicality of the operating instructions

The issue date and the version of these operating instructions can be found on the title page.

STILL is constantly engaged in the further development of trucks. These operating instructions are subject to change, and any claims based on the information and/or illustrations contained in them cannot be asserted.

Please contact your authorised service centre for technical support relating to your truck.

Copyright and trademark rights

These instructions must not be reproduced, translated or made accessible to third parties—including as excerpts—except with the express written approval of the manufacturer.

Information about documentation

Explanation of signal terms used

DANGER

Indicates procedures that must be strictly adhered to in order to prevent the risk of fatalities.

WARNING

Indicates procedures that must be strictly adhered to in order to prevent the risk of injuries.

CAUTION

Indicates procedures that must be strictly adhered to in order to prevent material damage and/or destruction.



NOTE

For technical requirements that require special attention.



ENVIRONMENT NOTE

To prevent environmental damage.

Date of edition and latest update of this manual

The publication date of these operating instructions is printed on the cover sheet.

The manufacturer makes continuous efforts to improve its industrial trucks, and therefore reserves the right to implement changes and to accept no claims concerning the information provided in this manual.

To receive technical assistance, please contact the service centre authorised by your closest manufacturer.

List of abbreviations

This list of abbreviations applies to all types of operating instructions. Not all of the abbreviations that are listed here will necessarily appear in these operating instructions.

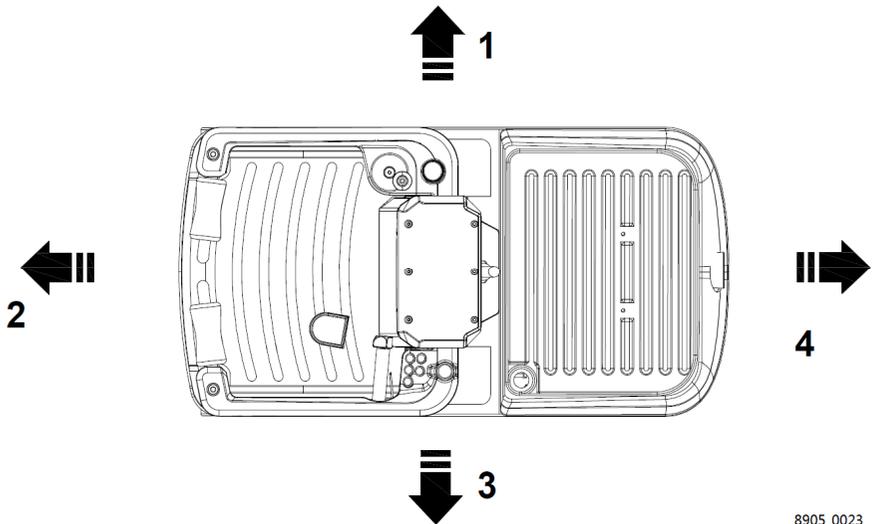
Abbreviation	Meaning	Explanation
ArbSchG	Arbeitsschutzgesetz	German implementation of EU occupational health and safety directives
Betr-SichV	Betriebssicherheitsverordnung	German implementation of the EU working equipment directive
BG	Berufsgenossenschaft	German insurance company for the company and employees
BGG	Berufsgenossenschaftlicher Grundsatz	German principles and test specifications for occupational health and safety
BGR	Berufsgenossenschaftliche Regel	German rules and recommendations for occupational health and safety
DGUV	Berufsgenossenschaftliche Vorschrift	German accident prevention regulations
CE	Communauté Européenne	Confirms conformity with product-specific European directives (CE labelling)
CEE	Commission on the Rules for the Approval of the Electrical Equipment	International commission on the rules for the approval of electrical equipment
DC	Direct Current	Direct current
DFÜ	Datenfernübertragung	Remote data transfer
DIN	Deutsches Institut für Normung	German standardisation organisation
EG	European Community	
EN	European standard	
FEM	Fédération Européenne de la Manutention	European Federation of Materials Handling and Storage Equipment

Information about documentation

Abbreviation	Meaning	Explanation
F_{\max}	maximum Force	Maximum power
GAA	Gewerbeaufsichtsamt	German authority for monitoring/issuing regulations for worker protection, environmental protection, and consumer protection
GPRS	General Packet Radio Service	Transfer of data packets in wireless networks
ID no.	Identification number	
ISO	International Organization for Standardization	International standardisation organisation
K_{pA}	Uncertainty of measurement of sound pressure levels	
LAN	Local Area Network	Local area network
LED	Light Emitting Diode	Light emitting diode
L_p	Sound pressure level at the workplace	
L_{pAZ}	Average continuous sound pressure level in the driver's compartment	
LSP	Load centre of gravity	Distance of the centre of gravity of the load from the front face of the fork backs
MAK	Maximum workplace concentration	Maximum permissible air concentrations of a substance at the workplace
Max.	Maximum	Highest value of an amount
Min.	Minimum	Lowest value of an amount
PIN	Personal Identification Number	Personal identification number
PPE	Personal protective equipment	
SE	Super-Elastic	Superelastic tyres (solid rubber tyres)
SIT	Snap-In Tyre	Tyres for simplified assembly, without loose rim parts
StVZO	Straßenverkehrs-Zulassungs-Ordnung	German regulations for approval of vehicles on public roads
TRGS	Technische Regel für Gefahrstoffe	Ordinance on hazardous materials applicable in the Federal Republic of Germany
UKCA	United Kingdom Conformity Assessed	Confirms conformity with the product-specific directives that apply in the United Kingdom (UKCA labelling)
VDE	Verband der Elektrotechnik Elektronik Informationstechnik e. V.	German technical/scientific association
VDI	Verein Deutscher Ingenieure	German technical/scientific association

Abbreviation	Meaning	Explanation
VDMA	Verband Deutscher Maschinen- und Anlagenbau e. V.	German Mechanical Engineering Industry Association
WLAN	Wireless LAN	Wireless local area network

Defining directions



8905_0023

1 Left
2 Reversing / drive direction

3 Right
4 Forward

Information about documentation

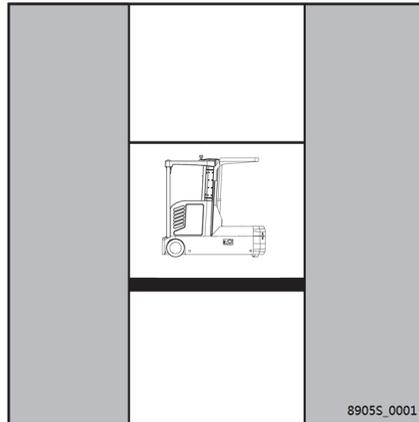
Illustrations

At many points in this documentation the (mostly sequential) operation of certain functions or operating procedures is explained. To illustrate these operations, schematic representations of a truck are used.



NOTE

These schematic representations do not represent the design state of the documented truck. They only serve to illustrate operating procedures.



Environmental considerations

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.

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.

Environmental considerations

2

Safety

Safety regulations

Safety regulations

These operating instructions, which come with the truck, must be communicated to all those concerned and in particular to personnel responsible for maintenance and driving. The employer must make sure that the truck operator has properly understood all the safety information.

Please observe the directives and safety regulations attached, in particular:

- Information concerning the use of trucks
- Regulations concerning traffic lanes and working areas
- Appropriate behaviour, rights and responsibilities of the driver
- Use in particular areas
- Information concerning starting, driving and braking
- Information concerning maintenance and repair
- Regular checks and technical inspections

- Recycling of lubricants, oils and batteries
- Residual risks.

Care is recommended both for the user and the person in charge (employer) with regard to adhering to all safety rules concerning the use of trucks.

When instructing truck operators, we recommend the following points are emphasized:

- The features of the truck
- The special accessories
- The specific features of the working environment.

Train the user in how to drive the truck, until it is under proper control.

Then, and only then, proceed to order picking of goods or other intended use operations.

Truck stability is guaranteed when the unit is used correctly.

Definition of terms used for responsible persons

Operating company

The operating company is the natural or legal person or group who operates the truck or on whose authority the truck is used.

The operating company must ensure that the truck is only used for its proper purpose and in compliance with the safety regulations set out in these operating instructions.

The operating company must ensure that all users read and understand the safety information.

The operating company is responsible for the scheduling and correct performance of regular safety checks.

We recommend that the national performance specifications are adhered to.

Specialist

A qualified person is defined as a service engineer or a person who fulfils the following requirements:

- A completed vocational qualification that demonstrably proves their professional expertise. This proof should consist of a vocational qualification or a similar document.
- Professional experience indicating that the qualified person has gained practical experience of industrial trucks over a proven period during their career. During this time, this person has become familiar with a wide range of symptoms that require checks to be carried out, such as based on the results of a hazard assessment or a daily inspection.
- Recent professional involvement in the field of the industrial truck test in question and an appropriate further qualification are essential. The qualified person must have experience of carrying out the test in question or of carrying out similar tests. Moreover, this person must be aware of the latest technological developments regarding the industrial truck to be tested and the risk being assessed.

Definition of terms used for responsible persons

Drivers

This truck may only be driven by suitable persons who are at least 18 years of age, have been trained in driving, have demonstrated their skills in driving and handling loads to the operating company or an authorised representative, and have been specifically instructed to drive the truck. Specific knowledge of the truck to be operated is also required.

Driver rights, duties and rules of behaviour

The driver must be trained in his rights and duties.

The driver must be granted the required rights.

The driver must wear protective equipment (protection suit, safety footwear, safety helmet, industrial goggles and gloves) that is appropriate for the conditions, the job and the load to be lifted. Safety shoes should be worn for safe operation (heavy loads might fall on the drivers feet from the racks above).

The driver must be familiar with the operating instructions and have access to them at all times.

The driver must:

- have read and understood the operating manual
- have familiarised himself with safe operation of the truck
- be physically and mentally able to drive the truck safely

⚠ DANGER

The use of drugs, alcohol or medications that affect reactions impair the ability to drive the truck!

Individuals under the influence of the aforementioned substances are not permitted to perform work of any kind on or with the truck.

Prohibition of use by unauthorised persons

The driver is responsible for the truck during working hours. He must not allow unauthorised persons to operate the truck.

When leaving the truck, the driver must secure it against unauthorised use, e.g. by pulling out the key.

Basic principles for safe operation

Insurance cover on company premises

The company premises are very often restricted public traffic areas.

NOTE

It is advisable to review the operational liability insurance so that insurance covers the truck with respect to third parties in the event of damage caused in restricted public traffic areas.

Modifications and retrofitting

If the industrial truck will be used for work that is not listed in the directives or in these instructions, the industrial truck must be converted or retrofitted for this purpose as required. Any structural modification can impair the handling and stability of the industrial truck, and can result in accidents.

Any modifications that adversely affect stability, load capacity and the circumferential view from the industrial truck require written approval by the manufacturer.

The following components may only be modified with prior written approval from the manufacturer:

- Brakes
- Steering
- Operating devices
- Safety systems
- Equipment variants
- Attachments

The industrial truck may be converted only with written approval by the manufacturer. If necessary, obtain approval from the relevant authorities.

- Only the authorised service centre is permitted to perform welding work on the industrial truck.

The operating company is permitted to make modifications to the industrial truck independently only if the manufacturer goes into liquidation and is not taken over by another legal person.

The operating company must also fulfil the following prerequisites:

- Design documents, test documents and assembly instructions associated with the modification must be permanently archived and remain accessible at all times.
- The capacity rating plate, the decal information, the hazard warnings and the operating instructions must be checked to ensure that they are consistent with the modifications and must be amended if required.
- Modifications must be designed, checked and implemented by a design office that specialises in industrial trucks. The design office must comply with the standards and directives valid at the time that modifications are made.

Decal information with the following data must be permanently affixed to the industrial truck so that it is clearly visible:

- Type of modification
- Date of modification
- Name and address of the company that carried out the modification

Basic principles for safe operation

Warning regarding non-original parts

Original parts, attachments and accessories are specially designed for this truck. We draw your attention to the fact that parts, attachment parts and accessories supplied by other companies have not been tested or approved by STILL.

CAUTION

The installation or use of such products may have a negative impact on the design of the truck and thus impair active or passive driving safety.

We recommend that you obtain approval from the manufacturer and, if applicable, from the relevant regulatory authorities before installing such parts. The manufacturer accepts no liability for any damage caused by the use of non-original parts and non-original accessories.

Damage, faults

Any damage or faults observed on the truck or the accessories must be reported immediately to the responsible personnel. The truck and accessories must never be used before they are correctly reconditioned as they cannot be guaranteed to be safe for operating or driving.

The safety mechanisms and switches must never be removed or disabled. The predefined setpoint values must not be modified.

Work on the electric installation (e.g. connecting a radio, additional lights or other accessories) is permitted only with the approval of the manufacturer.

Medical devices

The operation of medical devices, for example pacemakers or hearing aids, can be impaired. Check with your doctor or manufacturer if the medical devices are sufficiently protected against electromagnetic interference.

Battery connection cables

CAUTION

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

Wheels and tyres

DANGER

Risk to stability!

Failure to observe the following information and instructions can lead to a loss of stability. The truck may tip over — risk of accident!

The following factors can lead to a loss of stability and are therefore **prohibited**:

- Wheels not approved by the manufacturer
- Excessive wear to the tyres
- Tyres of inferior quality
- Changes to the wheel rims
- Combination of wheels from different manufacturers

The following rules must be observed to ensure stability:

- Only use wheels with equal and permitted levels of wear to the tyres.
- Only use tyres of the original tyre type.
- Only use wheels approved by the manufacturer.
- Only use high-quality products.

When changing wheels, always ensure that this does not cause the truck to tilt to one side (e.g. always replace right and left wheels at the same time). Changes must only be made following consultation with the manufacturer.

Wheels approved by the manufacturer can be found on the spare parts list. If other wheels are to be used, authorisation from the manufacturer must be obtained beforehand.

- Contact your authorised service centre regarding this matter.

Residual risks

Residual risks

Residual dangers, residual risks

Despite careful working and compliance with standards and regulations, the occurrence of other risks when using the truck cannot be entirely excluded.

The truck and all other system components comply with current safety requirements. Nevertheless, even when the truck is used for its proper purpose and all instructions are followed, some residual risk cannot be excluded.

Even beyond the narrow danger areas of the truck itself, a residual risk cannot be excluded. Persons in this area around the truck must exercise a heightened degree of awareness, so that they can react immediately in the event of any malfunction, incident or breakdown etc.

WARNING

All persons that are in the vicinity of the truck must be instructed regarding these risks that arise through use of the truck.

In addition, we draw attention to the safety regulations in these operating instructions.

Risks can include:

- Escape of consumables due to leakages, rupture of lines and containers etc.
- Risk of accident when driving over difficult ground such as gradients, smooth or irregular surfaces, or with poor visibility etc.
- Falling, tripping etc. when moving on the truck, especially in wet weather, with leaking consumables or on icy surfaces
- Fire and explosion risks due to batteries and electrical voltages

Special risks associated with using the truck and attachments

Approval from the manufacturer and attachment manufacturer must be obtained each time the truck is used in a manner that falls outside the scope of normal use, and in cases where the driver is not certain that he can

- Human error resulting from failure to observe the safety regulations,
- Unrepaired damage or defective and worn components,
- Insufficient maintenance and testing
- Use of incorrect consumables
- Exceeding test intervals

The manufacturer is not held responsible for accidents involving the truck caused by the failure of the operating company to comply with these regulations either intentionally or carelessly.

Stability

The operational stability of the truck has been tested according to latest technical standards. These take into account the dynamic and static tilting forces that can occur when the truck is used for its intended purpose. Among other things, the operational stability of the truck can be affected by the following components:

- Battery size and battery weight
- Wheels
- Mast
- Transported load (size, weight and load centre)
- Ground clearance (e.g. modification of the tilt safety device)
- Additional weights (e.g. in the battery compartment)
- Attachment (e.g. rail guidance)

use the truck correctly and without the risk of accidents.

Residual risks

Overview of hazards and countermeasures



NOTE

This table is intended to help evaluate the hazards in your facility and applies to all drive types. It does not claim to be complete.

- Observe the national regulations for the country in which the truck is being used.

Hazard	Course of action	Check note ✓ done - Not applicable	Notes
Truck equipment does not comply with local regulations	Testing	○	If in doubt, consult the responsible factory inspectorate or employers' liability insurance association
Driver's lack of skills or qualifications	Driver training (sit-on and stand-on)	○	
Usage by unauthorised persons	Access with key only for authorised persons	○	
Truck not safe for operation	Periodic inspection and rectification of defects	○	German Ordinance on Industrial Safety and Health (BetrSichV)
Risk of falling when using working platforms	Compliance with national regulations (different national laws)	○	German Ordinance on Industrial Safety and Health (BetrSichV) and employer's liability insurance associations
Impaired visibility due to load	Application planning	○	German Ordinance on Industrial Safety and Health (BetrSichV)
Contamination of breathable air	Assessment of diesel exhaust gases	○	Technical Regulations for Hazardous Substances (TRGS) 554 and the German Ordinance on Industrial Safety and Health (BetrSichV)
	Assessment of LPG exhaust gases	○	German threshold limit values list (MAK-Liste) and the German Ordinance on Industrial Safety and Health (BetrSichV)

Hazard	Course of action	Check note √ done - Not applicable	Notes
Impermissible usage (improper usage)	Provide operating instructions	○	German Ordinance on Industrial Safety and Health (BetrSichV) and German Health and labour protection law (ArbSchG)
	Written notice of instruction to driver	○	German Ordinance on Industrial Safety and Health (BetrSichV) and German Health and labour protection law (ArbSchG)
	German Ordinance on Industrial Safety and Health (BetrSichV), observe the operating instructions	○	
When fuelling			
a) Diesel	German Ordinance on Industrial Safety and Health (BetrSichV), observe the operating instructions	○	
b) LPG	DGUV regulation 79, observe the operating instructions	○	
When charging the drive battery	German Ordinance on Industrial Safety and Health (BetrSichV), observe the operating instructions	○	VDE 0510-47 (= DIN EN 62485-3): In particular - Ensure adequate ventilation - Insulation value within the permissible range
When using battery chargers	German Ordinance on Industrial Safety and Health (BetrSichV), DGUV rule 113-001 and observe the operating instructions	○	German Ordinance on Industrial Safety and Health (BetrSichV) and DGUV rule 113-001
When parking LPG trucks	German Ordinance on Industrial Safety and Health (BetrSichV),	○	German Ordinance on Industrial Safety and Health (BetrSichV) and DGUV rule 113-001

Residual risks

Hazard	Course of action	Check note ✓ done - Not applicable	Notes
	DGUV rule 113-001 and observe the operating instructions		
When operating driverless transport systems			
Roadway quality inadequate	Clean/clear roadways	○	German Ordinance on Industrial Safety and Health (BetrSichV)
Loading equipment incorrect/slipped	Reposition load on pallet	○	German Ordinance on Industrial Safety and Health (BetrSichV)
Unpredictable driving behaviour	Employee training	○	German Ordinance on Industrial Safety and Health (BetrSichV)
Routes blocked	Mark routes Keep roadways clear	○	German Ordinance on Industrial Safety and Health (BetrSichV)
Routes intersect	Announce right-of-way rule	○	German Ordinance on Industrial Safety and Health (BetrSichV)
No person detection when placing goods into stock and removing goods from stock	Employee training	○	German Ordinance on Industrial Safety and Health (BetrSichV)

Danger to employees

According to the German Ordinance on Industrial Safety and Health (BetrSichV) and labour protection law (ArbSchG), the operating company must determine and assess hazards during operation, and establish the labour protection measures required for employees (BetrSichVO). The operating company must therefore draw up appropriate operating instructions (§ 6 ArbSchG) and nominate a person who is responsible for these operating instructions. Drivers must be informed of the operating instructions that apply to them.



NOTE

Please note the definition of the following responsible persons: "operating company" and "driver".

The design and equipment of the truck comply with the standards and directives required for CE conformity. The design and equipment also comply with the standards and directives necessary for the UKCA compliance that is required in the United Kingdom. The design and equipment are therefore not part of the required scope of the hazard assessment. The same applies to attachments with their own CE labelling and UKCA labelling. The operating company must, however, select the type and equipment of the trucks so as to comply with the local provisions for deployment.

The result of the hazard assessment must be documented (§ 6 ArbSchG). In the case of truck applications involving similar hazard situations, the results may be summarised. Refer to the chapter entitled "Overview of hazards and countermeasures", which provides advice on complying with this regulation. The overview specifies the primary hazards that, in the event of non-compliance, are the most frequent causes of accidents. If other major hazards are present as a result of the specific operating conditions, these hazards must also be taken into consideration.

The conditions of use for trucks are broadly similar in many plants, so the hazards can be summarised in one overview. Observe the information provided by the relevant employers' liability insurance association on this subject.

Safety tests

Safety tests

Carrying out regular inspections on the truck ▷

The operating company must ensure that the truck is checked by a specialist at least once a year or after particular incidents.

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

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

- Arrange for the authorised service centre to perform regular testing on the truck.
- Observe the guidelines for tests carried out on the truck in accordance with FEM 4.004.

The operating company is responsible for ensuring that any defects are remedied without delay.

- Notify your authorised service centre.



NOTE

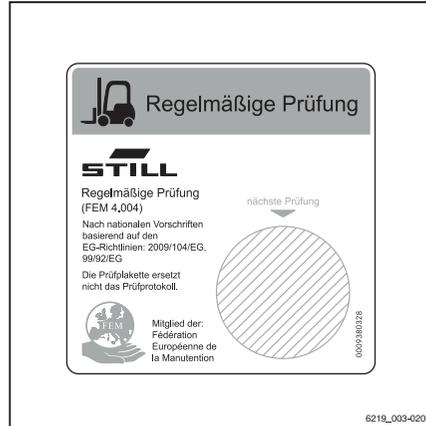
In addition, observe the national regulations for the country of use.

Insulation testing

The insulation of the truck must have sufficient insulation resistance. For this reason, insulation testing in accordance with DIN EN 1175 and DIN 43539, VDE 0117 and VDE 0510 must be conducted at least once yearly as part of the FEM testing.

The insulation testing results must be at least the test values given in the following two tables.

- For insulation testing, contact the authorised service centre.



The exact procedure for this insulation testing is described in the workshop manual for this truck.

**NOTE**

The truck's electrical system and drive batteries must be checked separately.

Test values for the drive battery

Component	Recommended test voltage	Measurements		Nominal voltage U_{Batt}	Test values
Battery	50 VDC	Batt+ Batt-	Battery tray	24 volts	> 1200 Ω
	100 VDC			48 volts	> 2400 Ω
	100 VDC			80 volts	> 4000 Ω

Test values for the entire truck

Nominal voltage	Test voltage	Test values for new trucks	Minimum values over the duration of the service life
24 volts	50 VDC	Min. 50 k Ω	> 24 k Ω
48 volts	100 VDC	Min. 100 k Ω	> 48 k Ω
80 volts	100 VDC	Min. 200 k Ω	> 80 k Ω

Safety regulations for handling consumables

Safety regulations for handling consumables

Permissible consumables

WARNING

Consumables can be dangerous.

It is necessary to follow the safety regulations when handling these substances.

Refer to the maintenance data table for the permissible substances necessary for operation.

Oils



DANGER

Oils are flammable!

- Follow the statutory regulations
- Do not allow oils to come into contact with hot motor parts.
- No smoking, fires or flames!

WARNING

There is a risk of slipping on spilled oil, particularly when combined with water!

- Collect spilled oil immediately using an oil-binding agent and dispose of it in accordance with regulations.



DANGER

Oils are toxic!

- Avoid contact and consumption
- In case of inhalation of steam or fumes, breathe fresh air immediately.
- After contact with the eyes, rinse thoroughly with water (for at least 10 minutes) and then consult an eye specialist.
- If swallowed, do not induce vomiting. Seek immediate medical attention.



ENVIRONMENT NOTE

Oils are water pollutants!

Always store oil in containers that comply with the applicable regulations.

Avoid spilling oils.

Collect spilt oil immediately using an oil binding agent and dispose of it in accordance with regulations.

Dispose of old oils according to the applicable regulations.



WARNING

Prolonged intensive contact with the skin can result in loss of skin oils and cause irritation.

- Avoid contact and consumption.
- Wear protective gloves!
- After any contact, wash the skin with soap and water and then apply a skin care product.
- Immediately change soaked clothing and shoes.

Hydraulic fluid



⚠ WARNING

During operation of the truck, hydraulic fluids are pressurised and are hazardous to your health.

- Do not spill these fluids!
- Follow the statutory regulations
- Do not allow the fluids to come into contact with hot motor parts.
- Do not allow to come into contact with the skin.
- Avoid inhaling the spray
- Penetration of pressurised fluids into the skin is particularly dangerous if these fluids escape at high pressure due to leaks in the hydraulic system. In case of such injury, seek medical advice immediately.
- To avoid injury, use appropriate personal protective equipment (e.g. protective gloves, industrial goggles, skin protection and skin care products).



♻ ENVIRONMENT NOTE

Hydraulic fluid is a water-polluting substance!

Always store hydraulic fluid in containers complying with the regulations.

Avoid spilling.

Spilt hydraulic fluid should be removed with oil-binding agents at once and disposed of according to the regulations.

Dispose of old hydraulic fluid according to regulations.

Disposal of consumables



♻ ENVIRONMENT NOTE

Materials that have to be disposed of following maintenance, repair and cleaning must be systematically collected and disposed of in accordance with regulations. Observe the national regulations for your country. Work may only be carried out in areas designated for this purpose. Take care to minimise, as far as possible, any impact on the environment.

- Any spillage of fluids such as hydraulic oil, brake fluid or gear lubricant oil must be immediately soaked up with an oil-binding agent.
- The regulations for disposal of used oil are applicable.

Safety regulations for operating mode drive

Routes and working areas

Only such lanes and routes that are specially allocated for truck traffic may be used. Unauthorized third parties must stay away from the working area. Loads may only be stored at places specially provided for this purpose. The truck must be only in work areas where there is sufficient lighting, in order to avoid danger to personnel and materials.

Driving the vehicle

The driver must choose a driving speed suitable for the local conditions. The truck must be driven at slow speed on negotiating bends or narrow passages, when passing through swing doors and at blind spots. The driver must always observe an adequate braking distance between his truck and the vehicle in front and he must be in control of his truck at all times. Sudden stopping (except in

Safety regulations for operating mode drive

emergencies), rapid U-turns and overtaking at dangerous or blind spots is not permitted.

The maximum permitted driveway incline with fully lowered platform is 5% (with load) / 8% unloaded.

Travel visibility

The operator must look in the travel direction and must always have a clear view of the route ahead. If carrying loads that affect visibility, the truck must travel against the load direction. If this is not the load direction. If this is not possible, a second person must walk alongside the truck as a marshal to observe the travel path while maintaining eye contact with the operator. Travel only at crawl speed and with particular caution. Stop the truck immediately if eye contact is lost.

Negotiating slopes and inclines

The slopes or inclines must be clean and non-slip. It should be possible to travel along them according to the technical specifications of the truck. The truck must always be driven with the load facing uphill. It is forbidden to turn, drive at an oblique angle, or park the truck on inclines or slopes.

Negotiating lifts, loading ramps and docks

Lifts may only be used if they have sufficient capacity, are suitable for driving on and authorized for truck traffic by the operating company. The driver must satisfy himself of the above before entering these areas. When entering lifts, the truck must have the load in front and must take up a position which does not allow it to come into contact with the walls of the lift shaft, Persons riding in the lift along with the truck must only enter the lift after the truck has safely stopped, and must leave the lift before the truck. The driver must ensure that the loading ramp /dock cannot move or come loose during loading or unloading.

Action to take in the event of truck tip-over

If the truck is in danger of tipping over, the operator should not jump out of the truck. He must keep his whole body within the operator platform.

The operator must:

Crouch down,

Hold onto the operator platform with both hands.

Lean against the direction of fall.

Towing trailers and other vehicles

The truck must not used to tow a trailer or to tow other trucks.

Vibration

Mobile elevating work platform: 1.74 m/s²
in accordance with EN 13059.

In accordance with standard procedures, the vibration acceleration acting on the body in the operating position is the linearly integrated, weighted acceleration in the vertical direction. It is calculated when travelling over thresholds at constant speed. The manufacturer offers a pedal service to measure these human vibrations.

Noise emission level

EN norms

Continuous sound pressure level

-Mobile elevating work platform:74 dB(A)

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.

The continuous sound pressure level is calculated according to standard procedures and takes into account the sound pressure level when driving, lifting and idling. The sound pressure level is measured at the driver's ear.

Human vibration measurement

Vibrations that affect the operator over the course of the day are known as human vibrations. Excessive human vibrations will cause

the operator long term health problems. The European 2002/44/EC/Vibration operator directive has therefore been established to protect operators.

Battery Safety

Battery Safety

WARNING

Batteries contain dissolved sulfuric acid, which is poisonous and caustic. Batteries also can produce explosive gases.

Remain aware of the following information:

- Remove any metal rings, bracelets, bands, or other jewelry before working with or near batteries or electrical components.
- Never expose batteries to open flame or sparks.
- Shorting of battery terminals can cause burns, electrical shock, or explosion. Do not allow metal parts to contact the top surface of the battery. Make sure all terminal caps are in place and in good condition.
- Batteries may only be charged, serviced, or changed by properly trained personnel.
- Always follow all instructions provided by the manufacturers of the battery, charger, and truck.

EMC-Electromagnetic compatibility

Electromagnetic compatibility (EMC) is a key quality feature of the truck.

EMC involves

- limiting the emission of electromagnetic interference to a level that ensures the trouble free operation of other equipment in the environment.
- Ensuring sufficient resistance to external electromagnetic interference so as to guarantee proper operation at the planned usage location under the electromagnetic interference conditions to be expected there. An EMC test thus firstly measures the electromagnetic interference emitted by the truck and secondly checks it for sufficient resistance to electromagnetic interference with reference to the planned usage location. A number of electrical measures are taken to ensure the electromagnetic compatibility of the truck.
- Our truck has been successfully tested according to EN12895 as well as the standardised instruction contained there in.

⚠ CAUTION

The EMC regulations for the truck must be observed.

When replacing truck components ts for repair the protective EMC components must be installed and connected again.

Platform safety

⚠ DANGER

- Climbing on the platform and stepping down from the platform.
- The truck must be at a standstill when climbing on the platform or down from the platform.
- Always use the handles for climbing up and down from the platform.
- Climb up forward and climb down backwards.

KEEP YOUR FEET ON THE FLOOR BOARD

Don't climb on any part of the vehicle or use any other item to stand on.



Platform safety

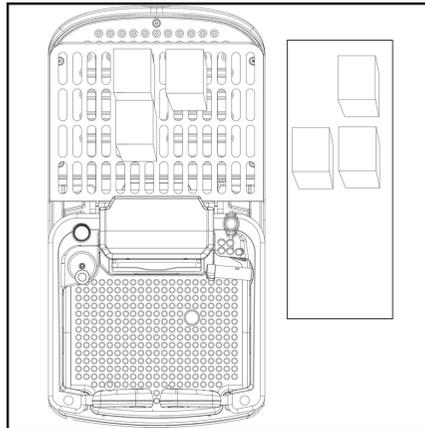
SAFETY FUNCTION OF THE GATE

The gates must be closed before you can lift or drive, the gates are kept closed while you are lifted. Don't try to force the gates to open while you are lifted.



STAY CLOSE TO YOUR WORK

Avoid long reaches. Be careful with tools or when transferring merchandise. Watch out for people below, and in the next aisle.



Be a safe operator

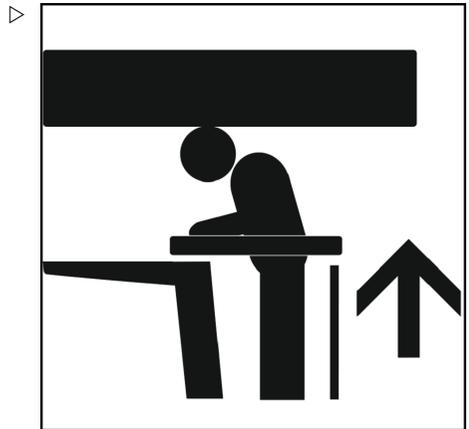
DRIVE CAUTIOUSLY, BE ALERT

Keep your entire body inside the operator area, no matter how slow the vehicle is moving. A hand or foot caught between the vehicle and a solid object will be crushed or even cut off.

AVOID HITTING

It's danger of hitting the drivers head when driving and passing doorways. Please visually the height of doorways and make sure it can through safety.

Always be alert to the area around you and watch where you are driving. You could be pinned or crushed by objects intruding or poking into the operator area. Always check that you can clear overhead objects. Check clearances before raising or lowering. Be extra careful if you must use your vehicle in an area where there is a risk of falling objects.



Be a safe operator

Make sure you have a clear view in the direction you're traveling. Look where you're going and slow down in congested areas. Slow down and be extra careful on wet or slippery floors. Look where you are going before you change direction of travel. See that you have room to drive and turn.



WATCH OUT FOR OTHER PEOPLE

Slow down. Yield or stop for pedestrians. Alert others when you approach them. Watch out for other vehicles in the area. Sound the horn when you come to across walk or intersection.



Pedestrians always have the right-of-way. They can't control your vehicle. Start out slowly and don't drive too close to them. Be careful at intersections. Check around the vehicle and under the platform before lowering or driving.



Be careful you don't pin or crush someone.

For example: Never drive your vehicle toward anyone standing in front of a fixed object. Never allow passengers anywhere on your vehicle.

Make certain the area around and under you is clear of people before lowering or traveling.



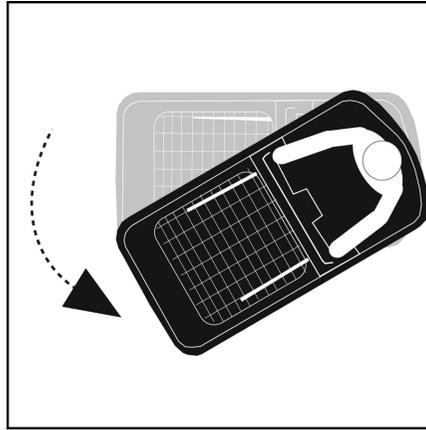
Keep others away from your vehicle while you're working. Don't ever allow anyone under the load or platform.



Be a safe operator

Watch out for front end swing while turning. ▷

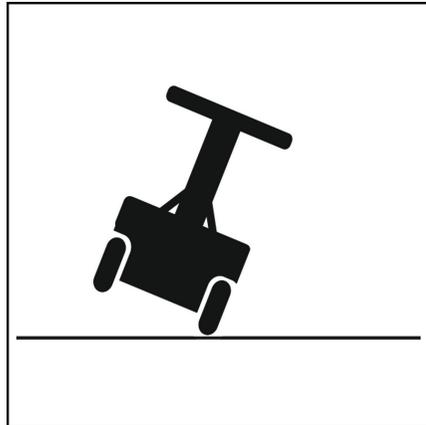
Don't let anyone drive your vehicle unless they are trained and authorized.



AVOID FALLS AND TIPOVERS

Stay away from the edge of docks and drop-offs. Don't overload your vehicle or handle unstable loads. Make sure the load weight is evenly distributed. ▷

Never overload your vehicle. Distribute loads evenly. Watch out for overhead obstructions like pipes or electrical conduits. Stay away from the drop-offs. Be sure your path is clear of debris, holes or anything that could cause a tip over.



⚠ DANGER

If the people don't operate the truck adhering to our operation manual strictly, tipovers may occur. To protect the operator to the full extent, operators must squat down and hold the rail tightly while tipping over.

Some floors and elevators have weight limits. Make certain your vehicle, including operator and load, isn't too heavy for where you're driving. Don't drive onto an elevator unless it is authorized. Check the capacity or load limit, and make sure there are no people present. Keep vehicle gates open. Enter load first.

Watch where you're going. Always check that your path is clear of debris, overhead obstructions or holes in the floor that could cause your vehicle to tip over. ▷

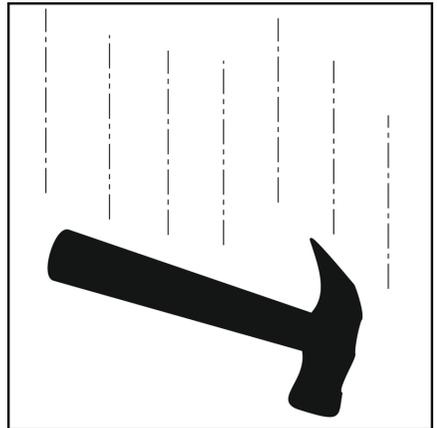
THERE IS NO SAFE PLACE FOR PASSENGERS

Never allow anyone to stand or ride anywhere on your vehicle.



FALLING OBJECTS CAN INJURE PEOPLE BELOW YOU

Be careful when handling tools or merchandise. Work close to racks or shelves when transferring loads. Make sure loads are stable. ▷



Be a safe operator

FALLS ARE VERY SERIOUS ACCIDENTS

Keep the gates closed when you are elevated. The gates are blocked when elevated. Do not try to force them to open. Don't climb on any part of the platform. Never add anything to the platform to stand or climb on. Don't climb down from an elevated platform. Have someone lower the platform using the manual lowering valve under the load deck.



HANDS AND FEET CAN BE PINNED OR CRUSHED

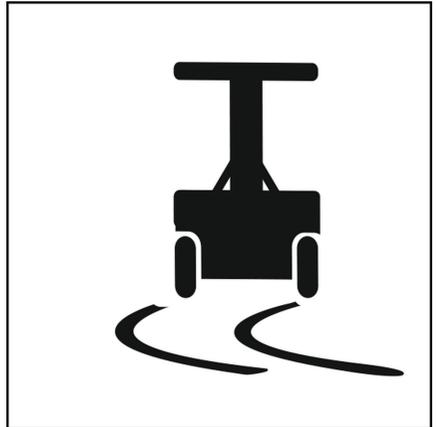
Come to a complete stop before leaving your vehicle. While the vehicle is moving, keep your hands on the controls and your heels on the pedals. Any part of your body could be crushed or even cut off. If you must use a hand to stabilize a load, make certain you will not be pinned or crushed.

Pay also attention to people from the surrounding who might come near the truck.



KEEP YOUR VEHICLE UNDER CONTROL

Do not drive on ramps and grades if the platform is not fully lowered. The maximum permitted slope with fully lowered platform is 5% (with load) / 8% unloaded.



THIS PLATFORM IS NOT INSULATED

You could be burned or even killed if you or your vehicle comes too close to electrical devices or wires. Know what voltages you may be exposed to, and what the safe working distance is.



Wind

Wind forces affect the operational stability of the truck.

The truck is intended only for indoor applications. If wind forces occur during an indoor application (e.g. if warehouse gates are opened), operation should be suspended until the wind forces have subsided.

WARNING

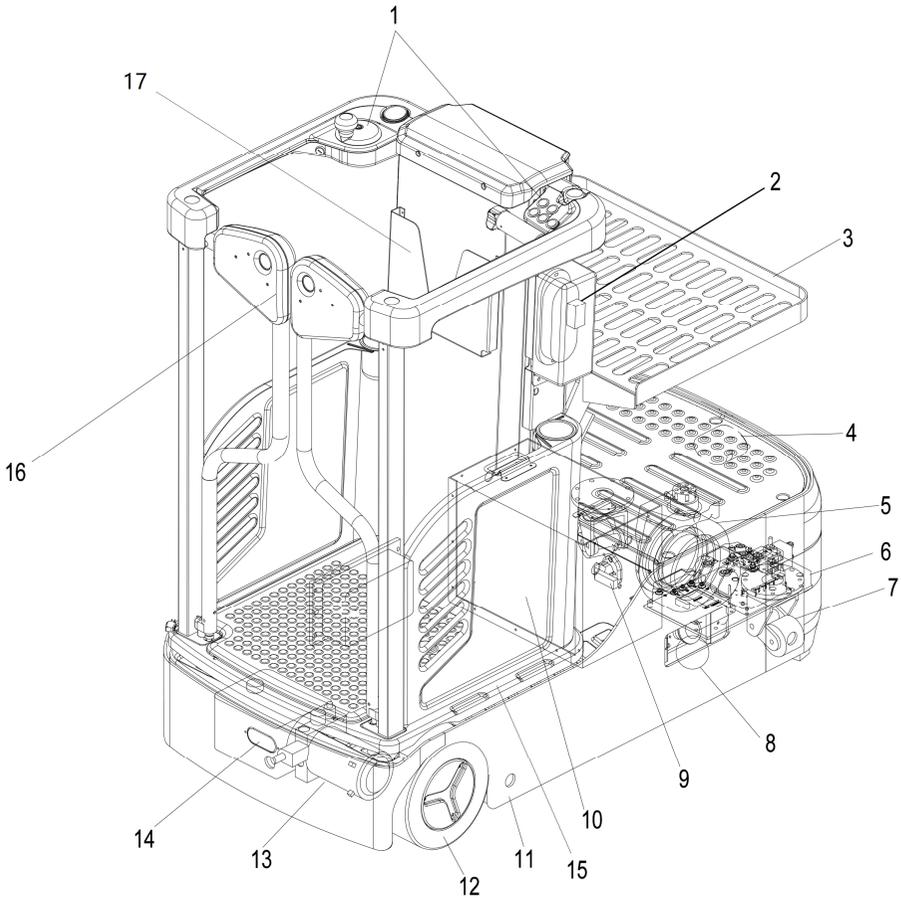
Prohibition of any addition that would increase the wind loading on the truck e.g. notice boards.

3

Overview

General view

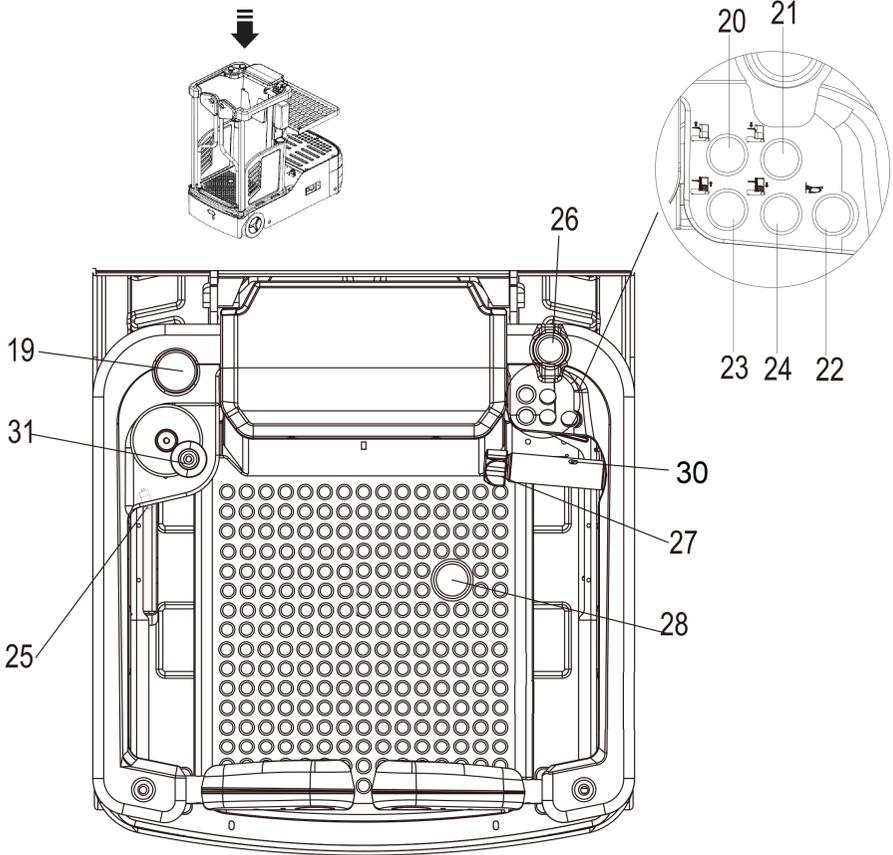
General view



- | | | | |
|---|--------------------------|----|----------------|
| 1 | Control panel | 10 | Battery |
| 2 | Controller | 11 | Chassis |
| 3 | Storage table | 12 | Load wheels |
| 4 | Blue lamp | 13 | Hydraulic pump |
| 5 | Drive wheel | 14 | Driving lamp |
| 6 | Controller assembly | 15 | Lift platform |
| 7 | Caster | 16 | Safety Gates |
| 8 | Emergency operation area | 17 | Load tray |
| 9 | Charger socket | | |

Control elements

Control panel

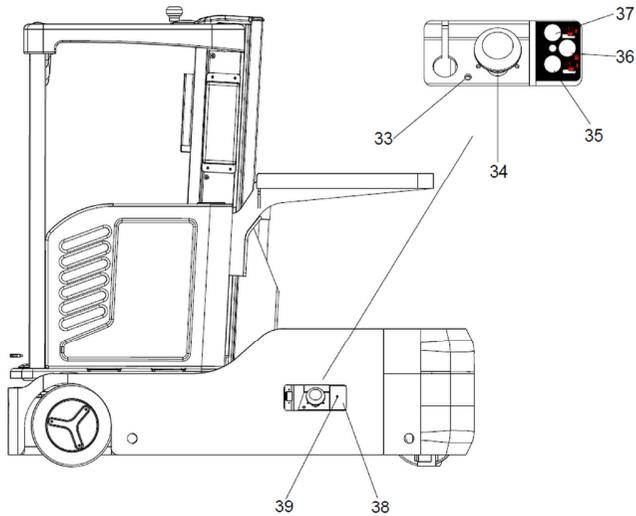


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|----|-------------------|----|-----------------------|
| 19 | Display unit | 25 | Key switch |
| 20 | "Lifting" button | 26 | Emergency stop switch |
| 21 | "Lowering" button | 27 | Travel switch |
| 22 | "Horn" button | 28 | Right dead man switch |
| 23 | "Lifting" button | 30 | Sensor switch |
| 24 | "Lowering" button | 31 | Steering wheel |

Control elements

Item	Control / Display	Function
19	Display unit	Operating information and warning message display.
20	"Lifting" button	Lift the storage table.
21	"Lowering" button	Lower the storage table.
22	"Horn" button	Activates the horn.
23	"Lifting" button	Lift the lift platform.
24	"Lowering" button	Lower the lift platform.
25	Key switch	Switches control current on and off. Removing the key prevents the truck from being switched on by unauthorized personnel.
26	Emergency stop switch	Disconnects the supply current, deactivates all electrical functions, causing the truck to brake automatically.
27	Travel switch	Select the required driving direction and speed.
28	Right dead man switch	Apply the right drive pedal to start up the truck.
30	Sensor switch	The right hand must be placed in the position of the sensor switch to control the truck to move (eg. driving, raising, lowering).
31	Steering wheel	Steers the truck in the required direction.

Emergency operation area



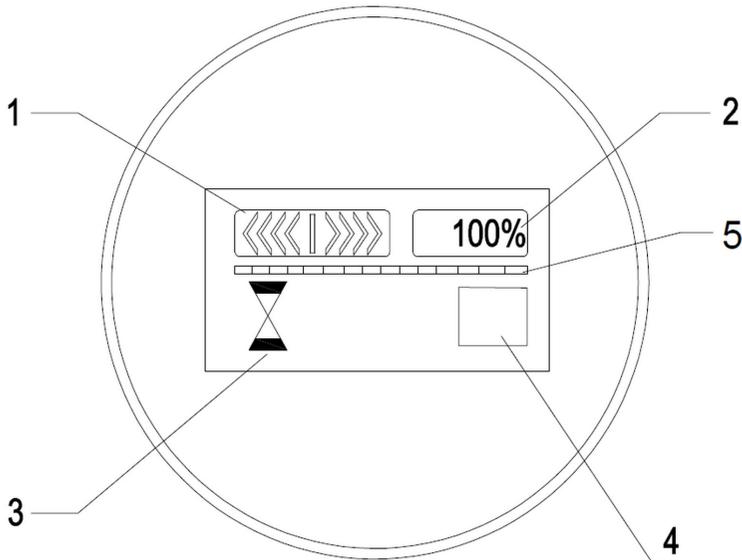
- | | | | |
|----|-----------------------|----|------------------|
| 33 | LED Lamp | 37 | "Lifting" button |
| 34 | Emergency stop switch | 38 | cover |
| 35 | "Lowering" button | 39 | screw |
| 36 | Low control | | |

i NOTE

Unscrew the screw (39), remove the cover (38). "Lowering" button, "Lower" and "Lifting" button will show up. These controls are not for the operator but only for trained and authorized service technicians. After every maintenance or repair work the cover must be screwed on again.

Display unit

Display unit



Item	Component	Function
1	Steering signal	The position of the drive wheel is shown here.
2	Battery discharge indicator	When the electricity is less than 10%, the lamp will illuminate. Must prevent the battery from over discharging, please charge.

3	Working status signal	Always on, dead man switch opened. Flashing, dead man switch closed, start timing.
4	Information display area	Normally displays the total working hours. If fault, displays the error code.
5	See the following image and table:	

Error code

1 Controller number:

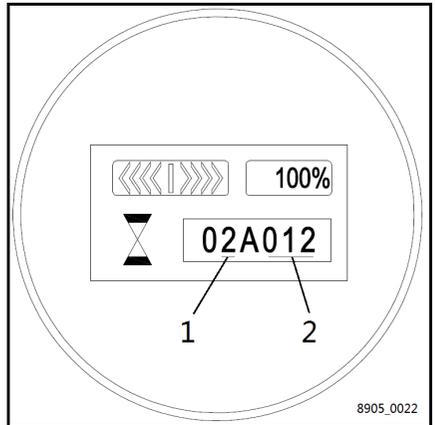
- 2 = Traction controller
- 6 = Steering controller

2 Error code



NOTE

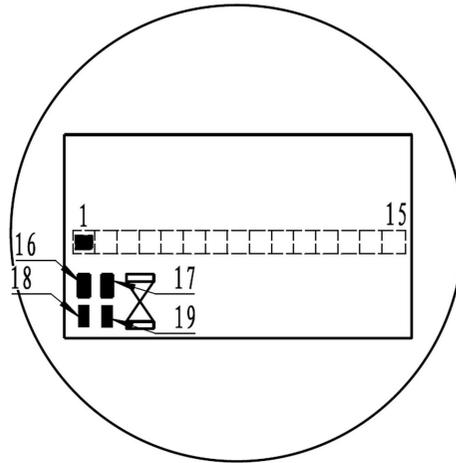
Error code consult the service manual.



Display unit

Light indicators

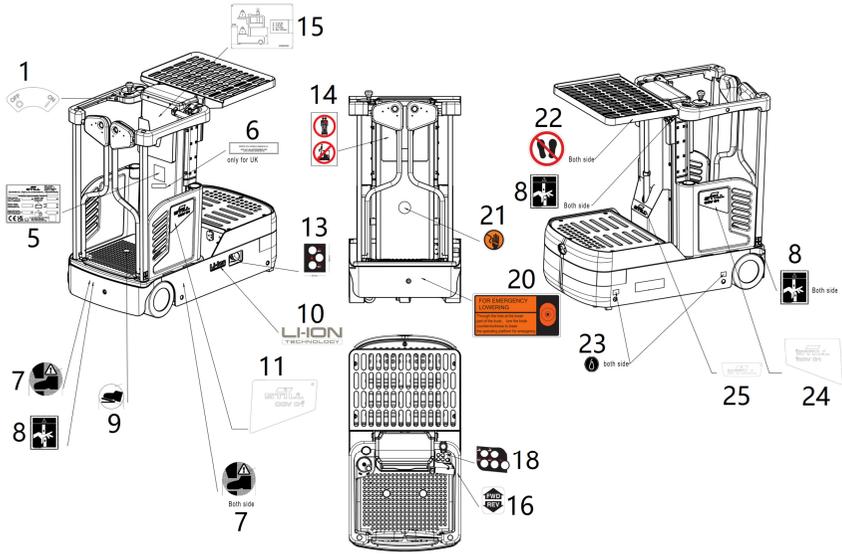
OR : ON
 : OFF



Each light indicates the status of its corresponding switch, whether the switches are working normally can be judged from the status of the lights. For details, refer to the table below.

Item	Component	Item	Component
1	Dead man switch and sensor switch	11	right hand enable switch
2	inclination sensor switch	12	aux lift switch
3	traction cutback switch 3	13	aux lower switch
4	traction cutback switch 2	14	horn
5	lift stop switch	15	/
6	slack chains(NC) switch	16	main lift switch
7	side gate switch	17	forward switch
8	traction cutback switch 1	18	main lower switch
9	slack chains switch	19	Reverse switch

Data plates and safety labels



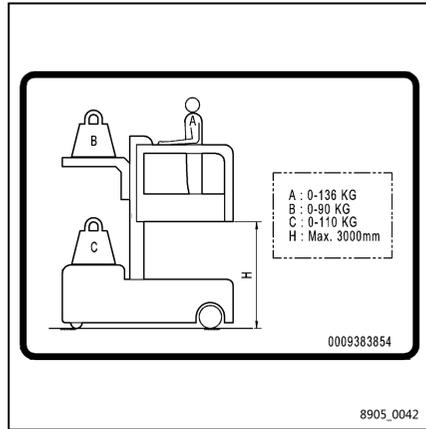
- | | | | |
|----|---|----|---|
| 1 | Key switch label | 15 | Capacity rating plate |
| 5 | Nameplate | 16 | Direction instruction label |
| 6 | Importer label (only for UK) | 18 | Control buttons instruction label |
| 7 | Anti-pinch foot label | 20 | Emergency lowering button label |
| 8 | Anti-pinch hand label | 21 | Information sign "This platform is not insulated" |
| 9 | Stand plate switch label | 22 | Information sign "Never standing" |
| 10 | Lithium battery label | 23 | Sling label |
| 11 | Brand logo | 24 | Brand logo |
| 13 | Emergency operation area label | 25 | Brand logo |
| 14 | Warning label (only one person allowed on the platform of operator) | | |

Capacity rating plate

Capacity rating plate

- A: Driver's weight
- B: Capacity of Storage table
- C: Capacity of additional storage table
- H: Maximum stand height

Before loading, check that the loads are within the range permitted by the bearing capacity.



4

Operation

Safety Regulations for the Operation of truck

Safety Regulations for the Operation of truck

Driving permission

The truck must only be operated by persons who have been trained in the operation of trucks, who have demonstrated to the owner or his representative their capability of moving and handling loads, and who have expressly been charged by the user or his representative with the operation of the truck.

Rights, duties and conduct of the driver

The driver must be: informed of his rights and duties; trained in the operation of the truck; and familiar with the contents of these operation manual. All necessary rights must be granted to him.

Unauthorized use of truck

The driver is responsible for the truck during the time it is in use. He shall prevent unauthorized persons from driving or operating the truck. It is forbidden to carry passengers or lift personnel.

WARNING

No more than one person shall occupy this platform!

Repairs

Without specific training and expressed authorization, the driver is not allowed to perform

any repairs or modifications on the truck. Under no circumstances must the driver change the setting of switches or safety installations or render them ineffective.

Safety devices and warning labels

The safety devices, warning signs and warning instructions in the present operating instructions must be strictly observed.

Hazardous area: A hazardous area is defined as the area in which a person is at risk due to truck movement, lifting operations, the storage table (attachments) or the load itself. This also includes areas which can be reached by falling loads or lowering operating equipment. The driver must give a warning signal whenever a situation presenting danger to persons might develop.

- Unauthorized persons must be kept away from the hazardous area.
- Where there is danger to personnel, a warning must be sounded with sufficient notice.
- If unauthorized personnel are still within the hazardous area the truck shall be brought to a halt immediately.

Don't use the truck for towing , pushing or other abnormal uses.

Checks before first use

	Carried out	
	✓	✘
Check whether the truck is complete.		
Install the battery if necessary, do not damage battery cable.		
Charge the battery.		
Check the hydraulic oil level.		
Check for fluid leakage.		
Check battery connector.		
Check decal condition.		
Check operating controls.		
Visually inspect the entire truck (in particular wheels and storage table) for obvious damage.		
Visually inspect the battery attachment and cable connections.		
Check the storage table for visible damage such as cracks.		
Check wheels for wear and damage.		
Test the warning device.		
Make sure the load chains are evenly tensioned.		
Check whether the normal function of all safety devices.		

Break-in period precautions

Fasten wheel screws again at 50 hours of operation.

NOTE

Tightening torque please see section: "Wheel bolts tightening torque".

We recommended operating the machine under light load conditions for the first stage of operation to get the most from it. Especially the requirements given below should be observed while the machine is in a stage of 100 hours of operation.

- Must prevent the new battery from over discharging when early used. Please charge when remain power is less than 20%.
- Perform specified preventive maintenance services carefully and completely.
- Avoid sudden stop, starts or turns.
- Oil changes and lubrication are recommended to do earlier than specified.
- Carry only 70-80% of the rated load.

Daily checks before use

Daily checks before use

- Visually inspect the entire truck (in particular wheels and storage table) for obvious damage.
- Visually inspect the battery attachment and cable connections.
- Check the storage table for visible damage such as cracks.
- Make sure the load chains are evenly tensioned.
- Check the entire truck as well as the surface beneath it for signs of fluid leakage.
- Check drive wheels and load wheels for damage.
- Inspect all decals and the data/capacity plate for condition and legibility.
- Inspect the battery connector and its cables for damage.
- Test the safety gates.
- Test the service and parking brake.
- Check the operation of the brake.
- Test the steering.
- Test the hydraulic function.
- Test the travel function.
- Test the lighting(work light, etc).
- Test the control and display and check for damage.
- Test micro switch setting

Perform operational check

- Close the safety gates.
- Insert the key in the key switch and turn it to the "ON" position .
- Pull up the emergency brake switch.
- Test the emergency stop switch.
- Test the horn by pressing the "warning signal" button.

WARNING

Before the multi function vehicle can be commissioned, operated or a load unit lifted, the driver must ensure that there is nobody within the hazardous area.

CAUTION

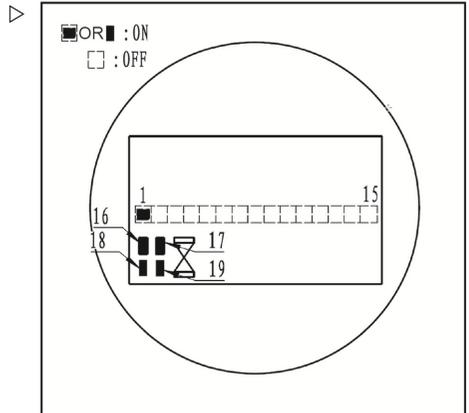
If damage or other defects are identified on the truck during the following inspections, the truck must not be used until it has been properly repaired.

Defects must be reported to the supervisor or the responsible fleet manager immediately so that repairs by the authorised service can be arranged.

Daily check of the micro switch setting

- Turn on the key switch.
- Without operation the light indicators 1, 7, 10 must be on.
- Operate the lifting switch, with the storage table lifted to the top position.
- The light indicators 3, 4, 5, 8 must be on.

Only when all of light indicators are on can the truck be operated after the inspection.



Drive operations

Drive operations

Instructions

Travel routes and work areas

Only use lanes and routes specifically designated for multi function vehicle traffic. Unauthorized third parties must stay away from work areas. Loads must only be stored in places specially designated for this purpose.

Driving conduct

The driver must adapt the travel speed to local conditions. The multi function vehicle must be driven at slow speed when negotiating bends or narrow passageways, when passing through swing doors and at blind spots. The driver must always observe an adequate braking distance between the multi function vehicle

and the vehicle in front and must be in control of the multi function vehicle at all times. Abrupt stopping (except in emergencies), rapid U turns and overtaking at dangerous or blind spots are not permitted. It is forbidden to lean out of or reach beyond the working and operating area.

Nature of loads to be carried

The operator must make sure that the load is in a satisfactory condition. Only carry loads that are positioned safely and carefully. Use suitable precautions, e.g. a load guard, to prevent parts of the load from tipping or falling down.

To prepare the multi function vehicle for operation

- Close the safety gates.
- Insert the key in the key switch and turn it to the "ON" position .
- Pull up the emergency brake switch.
- Test horn.
- Check the operation of the brake.

WARNING

Before the multi function vehicle can be commissioned, operated or a load unit lifted, the driver must ensure that there is nobody within the hazardous area.

Entry and exit

DANGER

Crushing by the operator platform safety gates.

There is a risk of hands or feet being crushed when the safety gates are opened and closed.

CAUTION

Do not place any part of your body between the safety gates and the frame of the operator platform when opening the safety gates.

⚠ CAUTION

It is forbidden to operate the truck with more than one person on the operator platform.

Requirements

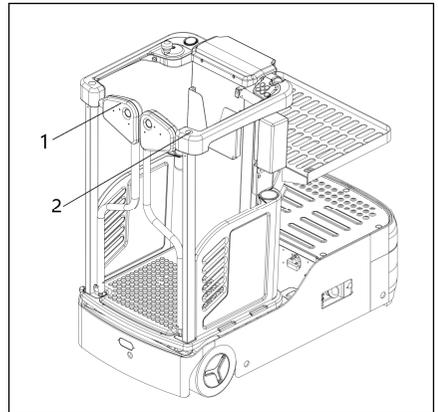
- Operator platform is fully lowered.
- The truck braked to a halt.

Procedure

- Open the operator platform safety gates (1) ▷ inwards. You must face the truck upon entry and exit. To enter and exit, hold onto the frame (2) of the truck.
- The safety gates (1) close automatically behind the driver.

i NOTE

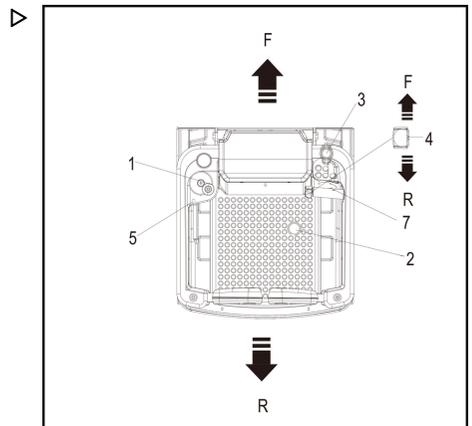
The mechanical safety gates lock is fitted, the truck safety gates will not open when the operator platform is raised.



Driving, Steering

Driving

- Close the safety gates.
- Insert the key in the key switch(5) and turn it to the "ON" position .
- The blue lamp on the front of truck is lit, and the rear driving lamp flashes red.
- Pull up the emergency stop switch(3) .
- Apply the drive deadman switch(2).
- Right hand in sensor switch(7) position.
- Use the travel switch(4) to select the required driving direction.
- Forward = F
- Reverse = R



Drive operations

The travel speed is governed by the speed mode.



NOTE

If you wear very black jacket or gloves, the sensor switch may not recognize the arm and stop driving. Please use slightly lighter clothes and try again.



NOTE

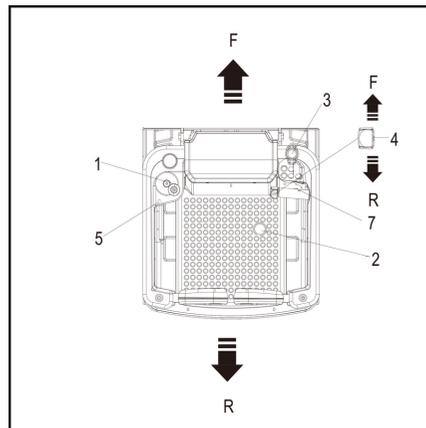
The trucks must be started up in sequence, otherwise the trucks can not run normally.

⚠ WARNING

When the truck is switched on, the controller will do a self-test. Make sure the lamps on the display unit stop flashing before operation.

Steering

Use steering wheel (1) to steer the multi function vehicle in the required direction. ▷



Braking

The brake performance of the vehicle depends largely on the ground conditions. The driver must take this into account when operating the vehicle. The driver must be looking ahead when travelling. If there is no hazard,

brake moderately to avoid moving the load. The vehicle can brake in three different ways:

- with the reversing brake
- with the coasting brake
- with the emergency brake

Reverse braking

- While the vehicle is travelling, press the travel switch into the opposite travel direction and the vehicle decelerates.
- Turn to stop before the truck starts to travel in the opposite direction.

With the coasting brake

- Let the travel switch return to zero position, the truck is braked.

Releasing the dead man switch has same effect.

⚠ WARNING

This method of braking should be only used as a parking brake, not as service brake.

Lifting, Lowering

- Close the safety gates(3).
- Insert the key in the key switch(8) and turn it to the "ON" position.
- Pull up the emergency stop switch (5).
- Right hand in sensor switch position(6).
- Apply the drive deadman switch(7).
- Drive the truck carefully up to the storage location(4).

Lifting

With the emergency brake

- Press the emergency stop switch.

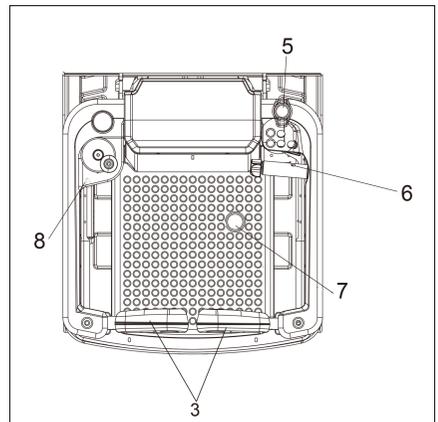
The vehicle brakes until it comes to a halt.

⚠ WARNING

The emergency stop switch must only be used in dangerous situations.

Parking brake

The mechanical brake applies automatically when the truck comes to a halt.



Drive operations

- Press the "Lifting" button(1), The platform is raised. ▷

Lowering

- Press the "Lowering" button(2), The platform is lowered.

⚠ CAUTION

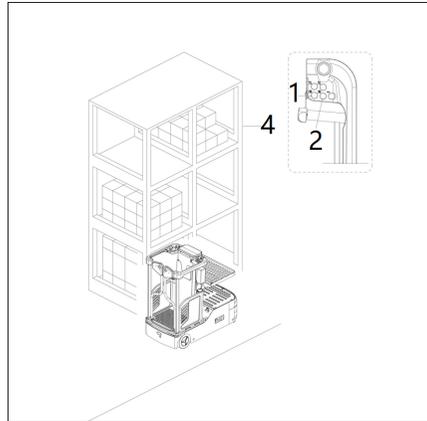
Before a load can be placed, the driver must ensure that the picking location is suitable for storing the load (size and capacity).

⚠ WARNING

When the lift platform lifted, please try to avoid sudden steering and emergency stop operation.

⚠ CAUTION

While lowering the lift platform, the truck sounds an intermittent alarm beeper.



Emergency Lowering

Emergency Lowering

The lift platform can be lowered using the emergency lowering function even if the electronics has failed or the power is off.

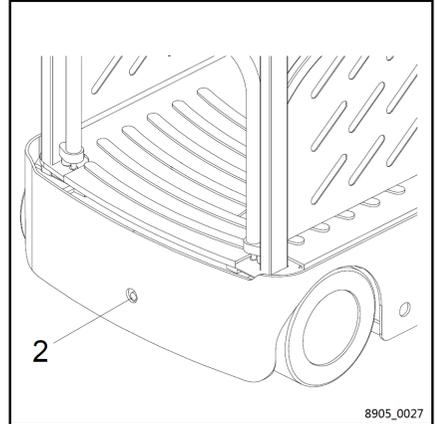
- The truck is parked securely. (See Parking the truck securely). ▷
- Through the hole at the lower part of the truck, turn the knob (2) counterclockwise to lower the operating platform for emergency.
- Turn the knob (2) clockwise rotation, emergency lowering valve reposition.

⚠ WARNING

You could be struck or crushed by the lowering platform, keep your entire body and head away from area under platform.

⚠ WARNING

Can not climb out while the lift platform is elevated. The lift mast cannot be climbed safely. An elevated lift platform has a high center of gravity and can be tipped easily. Standing on or leaning out from the outside of a cage rail may cause the lift vehicle to tip over. Tipping the lift vehicle over can cause severe injury or death and equipment damage.

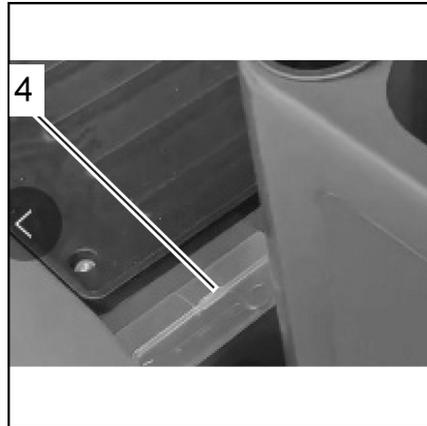


Emergency Lowering (Truck numbers CT9203Y00001 - CT9203Y00007)

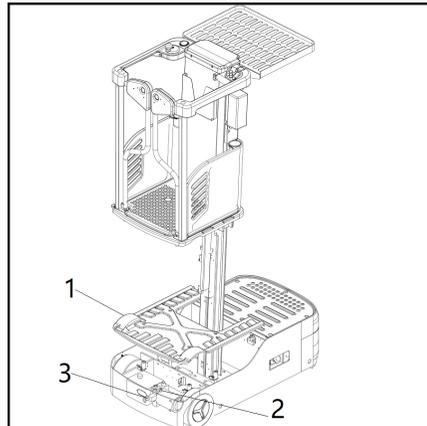
The lift platform can be lowered using the emergency lowering function even if the electronics has failed or the power is off.

Emergency Lowering

- Pull out the wrench (4) on the frame;



- Remove the plate (1).
- Release the button(2) on the head of valve.
- Press the emergency lowering switch(3), anticlockwise rotation of valve. Release emergency lowering valve. The lift platform is lowered slowly.
- Press the emergency lowering switch(3) clockwise rotation of valve, release emergency lowering valve, emergency lowering valve reposition.



⚠ WARNING

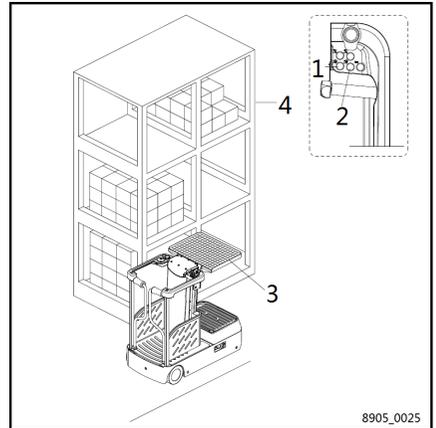
You could be struck or crushed by the lowering platform, keep your entire body and head away from area under platform.

⚠ WARNING

Do not climb out while the lift platform is elevated. The lift mast cannot be climbed safely. An elevated lift platform has a high center of gravity and can be tipped easily. Standing on or leaning out from the outside of a cage rail may cause the lift vehicle to tip over. Tipping the lift vehicle over can cause severe injury or death and equipment damage.

Picking up a load

- Open the safety gates.
- Go onto the operator platform.
- Close the safety gates.
- Turn the emergency stop switch to unlock it.
- Insert the key in the key switch and turn it to the right. The truck is ready to operate.
- Drive the multi function vehicle carefully up to the storage location(4).
- Press the "Lifting" button(1), lift the storage table load handler reach the desired height.
- Pick the load to the storage table(3) on the goods shelves.



⚠ CAUTION

Before a load can be placed, the driver must ensure that the picking location is suitable for storing the load (size and capacity).

⚠ WARNING

When the lift platform lifted, please try to avoid sudden steering and emergency stop operation.

Transporting loads

- Always transport loads with storage table.
- Gradually accelerate the vehicle.
- Travel at a constant speed.
- Always be prepared to brake. Only stop suddenly in dangerous situations.
- Reduce speed accordingly on narrow bends.

⚠ CAUTION

Avoid placing the load down suddenly to avoid damaging the load and the storage table.

Parking the multi function vehicle securely

When you leave the multi function vehicle it must be securely parked even if you only intend to leave it for a short time.

- Lower the load completely and position it horizontally.

- Set the emergency brake switch "OFF".
- Turn off the key switch and remove the key.

Transporting the truck

⚠ WARNING

Do not park the multi function vehicle on a slope. The lift platform must always be lowered to the ground.

Transporting the truck

⚠ WARNING

Accidental movement during transport.

Improper fastening of the truck during transport can result in serious accidents.

- Loading must only be performed by special personnel trained for this purpose. The specialist personnel must be instructed in securing loads on roads on road vehicles and handling load securing devices. In each case, correct measurements must be taken and appropriate safety measures applied.
- The truck must be correctly lashed down when transported on a lorry or trailer.
- The lorry or trailer must be equipped with tie-down rings.
- Secure the truck with chocks to prevent accidental movements.
- Use only lashing straps with sufficient rated strength.
- Use non-slip materials to secure the transport aids (pallet, wedges,....), e.g. non-slip mats

Determining the total actual weight

⚠ DANGER

Danger due to overloading of the means of transport!

The load capacity/lifting capacity of the means of transport, the ramps and the loading bridges must be greater than the total actual weight of the industrial truck. Components can be permanently deformed or damaged due to overloading.

- Determine the total actual weight of the industrial truck.
- Load the industrial truck only if the load capacity/lifting capacity of the means of transport, ramps and loading bridges is greater than the total actual weight of the industrial truck.

Before transport, the total actual weight of the industrial truck must be determined:



Type-Modell-Typ / Serial no.-No. de série-Serien-Nr. / year-année-Baujahr			
Industrial truck / Charriot de manutention / Flurförderzeug			
Rated capacity Capacité nominale Nenn-Tragfähigkeit:	kg	Unladen mass Masse à vide Leergewicht:	kg
Battery voltage Tension batterie Batteriespannung:	V	max. min.	kg
Rated drive power Puissance motor nom. Nenn-Antriebsleistung:	kW		kg
		see Operating Instructions voir Mode d'emploi siehe Betriebsanleitung	

- Determine individual weights by reading the nameplate of the industrial truck.
- The unit weights are added to give the total actual weight of the industrial truck.

- Net weight (1)
- + Max. permissible battery weight (2)
- + Ballast weight (variant) (3)
- + Net weight of attachment (variant)
- + 100 kg allowance for driver
- = Total actual weight

Attaching hoists and harnesses

A - Lifting point (drive side)

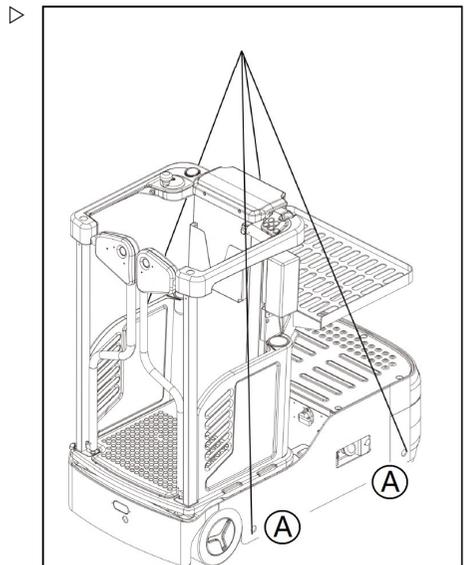
⚠ DANGER

There is a risk of fatal injury from being hit by the industrial truck if the hoists and harnesses fail and cause the truck to fall!

- Use only hoists and harnesses with sufficient load capacity for the loading weight of the industrial truck.
- Use only the industrial truck's designated lifting points.
- Make sure that harness parts (hooks, shackles, straps and similar items) are used only in the indicated load direction.
- The harnesses must not be damaged by parts of the industrial truck. Use suitable edge protection.

Requirements

- The truck loaded on from vehicle.
- Work platform is parked securely.
- Tools and Material Required Lashing straps.
- Park the industrial truck securely; refer to the chapter entitled "Parking the multi function vehicle securely".
- Ensure that the key switch is switched off.



Transporting the truck

⚠ CAUTION

Risk of damage to the battery male connector!

If the battery male connector is disconnected while the key switch is switched on (under load), an arc will be produced. This can lead to erosion at the contacts, which considerably shortens the service life of the contacts.

- Switch off the key switch before disconnecting the battery male connector.
 - Do not disconnect the battery male connector while the key switch is switched on, except in an emergency.
-
- Disconnect the battery male connector.

⚠ CAUTION

Harnesses may damage the paintwork on the industrial truck!

Harnesses may damage paintwork by pressing and chafing on the surface of the industrial truck. Hard or sharp-edged harnesses, such as wire ropes or chains, can quickly damage the surface.

- Use edge protectors or similar protective devices.

Hooking on the lifting straps:

- The lifting points on the industrial truck are marked with corresponding adhesive labels.
- Attach the harnesses to the crane lifting eyes. Insert the safety devices for the lifting eyes (1).

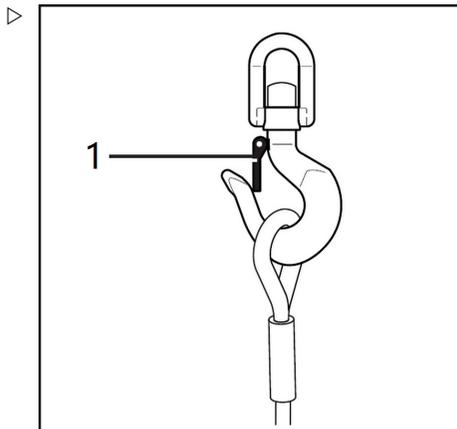
Adjust the length of the harnesses so that the truck remains level and does not start swinging when it is being lifted.

⚠ CAUTION

Incorrectly fitted harnesses may damage attachment parts!

Pressure from the harnesses can damage or destroy attachment parts when the industrial truck is lifted. If attachment parts (lighting etc.) constitute an obstruction, they must be removed before loading. If you have any questions about this, please contact your authorised service centre.

- Secure harnesses in such a way that they do not touch any attachment parts.



⚠ CAUTION

Both the attachment of lifting equipment to the truck and the hoisting operation itself must be performed by personnel experienced in hoisting.

Lifting and transporting the industrial truck

⚠ DANGER

If the raised industrial truck swings in an uncontrolled manner, it may crush people. There is a risk of fatal injury!

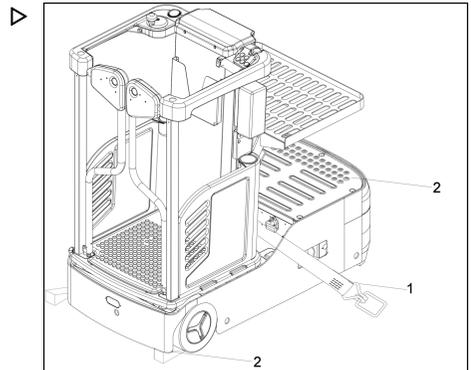
- Never walk or stand underneath suspended loads.
 - Do not allow the industrial truck to bump into anything while it is being lifted, or allow it to move in an uncontrolled manner.
 - If necessary, restrain the industrial truck using guide ropes.
-
- Carefully lift the industrial truck and take care when setting it down at the intended location.

Transporting the truck

Procedure

- Lay the lashing strap(1) over the chassis
- Attach to the transport vehicle, and tension it sufficiently.
- Secure the wheels(2) with chocks to prevent slipping.

The truck can now be transported.



Operating the multi function vehicle without its own drive system

Operating the multi function vehicle without its own drive system

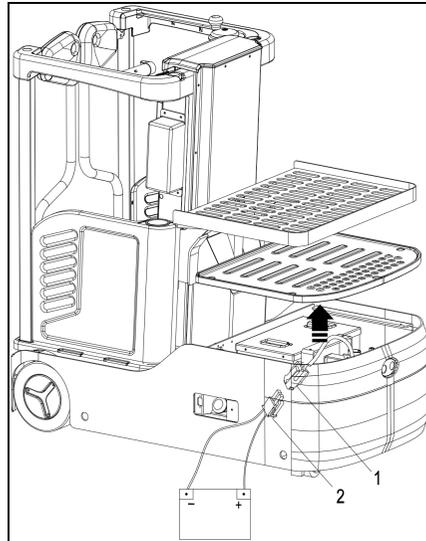
This operating mode is not permitted when negotiating inclines and gradients. If the multi function vehicle has to be moved after a failure has rendered it immobile, proceed as follows:

- Set the emergency stop switch “OFF”.
- Set the key switch “OFF” and remove the key.
- Prevent the truck from rolling away.
- Remove the cover.
- Connect wiring harness(1) to wiring harness(2).
- Connect wiring harness(2) to positive and negative pole of battery.

The brake is now released and the multi function vehicle can be pushed.

- Disconnect the harness(1) and harness(2).

The brake is now applied again.



Lithium battery

Safety regulations for handling lithium batteries

The truck must be parked and kept safe before any operations on batteries are undertaken. Only trained and authorized personnel are permitted to charge, service and replace the batteries. Always wear protective clothing (e.g. safety goggles and safety gloves) when working on cells.

Fire protection measures: Smoking and naked flames are not permitted when handling batteries. No inflammable substances or spark-generating materials must be present or stored within a distance of 2 meters of the truck parked for battery re-charging. The location must be well ventilated and fire fighting equipment must be kept ready.

Battery type & dimension

Battery type	voltage/ rated capacity	Dimension(mm)	Charger	Charging time (h)	Cell material
Lithium-ion battery	24/135AH or 24/120AH	465×259×335	30A	4.5 or 4	LFP

Charging the battery

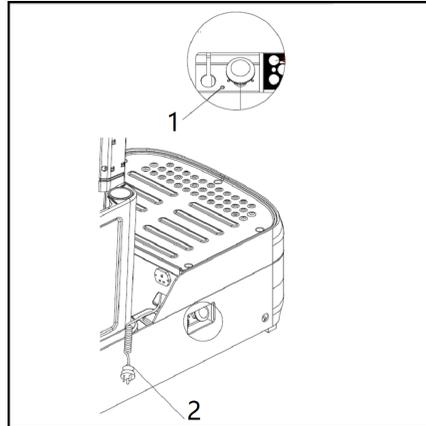
Safety regulations for Charging the battery

- Before charging, check all cables and plug connections for visible signs of damage.
- Before start and finish charging make sure power is turn OFF.
- There must be no inflammable material or operating equipment that causes sparks within a distance of at least 2,5 m in the surrounding area.
- The room must be ventilated. Fire protection equipment must be available.

Lithium battery

Charging Procedure

- The battery is charged with an internal charger.
- Park the truck in the designated charging area.
- Pull the charger cord (2) from the charger socket of truck and examine it for damage. If undamaged, plug the charger into a standard 100V ~ 240V, 3-phase, 50/60Hz wall outlet. As long as the built-in charger is connected to the outlet, the truck will not move.



⚠ WARNING

Can not climb out while the lift platform is elevated. The lift mast cannot be climbed safely. An elevated lift platform has a high center of gravity and can be tipped easily. Standing on or leaning out from the outside of a cage rail may cause the lift vehicle to tip over. Tipping the lift vehicle over can cause severe injury or death and equipment damage.

Charging indicator

Charging indicator(1)

NO.	LED status	Phenomenon	Cause	Remedy	Description
1	Red light is on		Trouble free	/	Charging
2	Green light is on		Trouble free	/	End of charging
3	Yellow light flash		Charger Errors	Eliminate Charger failure or replace	
4	Solid yellow light		Battery Errors	Eliminate bat- tery failure	

Storage

If batteries are taken out of service for a lengthy period they should be stored in the fully charged condition in a dry, frost-free room.

If the battery is not used for an extended period, it must receive a supplementary charge every two months to prevent permanent damage to the battery.

Battery removal and installation

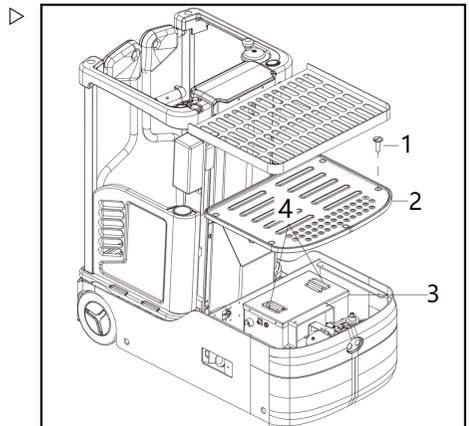
Park the truck securely and turn off the power before removal and installation of the battery.

⚠ WARNING

- 1. The truck must be parked on level ground. To prevent short circuits, batteries with exposed terminals or connectors must be covered with a rubber mat. Place the battery connector or the battery cable in such a way that they will not get caught on the tractor when the battery is withdrawn.
- 2. When transporting batteries with the aid of a crane, ensure that the crane is of adequate capacity (the battery weight is indicated on the battery identification plate at the battery trough). The lifting gear must exert a vertical pull so that the battery container is not compressed. Attach the hooks to the battery hand(or battery strap) in such a way that the lifting gear, when slack, cannot collapse on the battery cells.
- 3. When removing the battery make sure it does not get caught on the battery panel, causing the tractor to tip over.
- 4. After installing the battery, check all cables and plug connections for visible signs of damage. Ensure that the battery is firmly secured in the tractor to prevent any damage caused by sudden movements of the tractor. Whenever you replace the battery make sure it cannot slide. The battery cover must be securely closed and locked.

Battery removal:

- Take off the five screws(1) and the front cover (2).
- Expose the battery(3), disconnect the harness wire. Attach the hooks to the battery hand(or battery strap).
- Attach the hooks to the battery handle(lifting points)(4).
- Carefully lift the battery out of the truck. Install according to the reverse order of removal.



Lithium battery

Battery maintenance

Do not deep charge battery:

- If you discharge the energy of battery completely till the trucks do not move any more, you will shorten the life time of the battery.
- As soon as the signal for charging appears that is no more lifting or reduced travelling speed, please charge it immediately.

Battery Disposal

Batteries must only be disposed of as stipulated in the national environmental protection regulations or waste disposal provisions. The battery manufacture's specifications for the disposal must be followed.

Cleaning the battery

- Do not use dry cloth or fire cloth to clean the battery to prevent static charging and prevent explosion.

Battery maintenance:

The battery cell covers must be kept dry and clean. The terminals and cable shoes must be clean, secure this with a light coating of dielectric grease. Batteries with non insulated terminals must be covered with a non slip insulation mat.

- Unfix battery plug.
- Clean with wet cloth.
- Wear glasses to protect eyes, wear rubber overshoes and rubber gloves.

Lithium battery appendix

Information on the conformity of lithium-ion batteries

The manufacturer of the lithium-ion battery declares that: the lithium-ion battery conforms with the provisions of the following EU directive 2014/30/EU in accordance with EN12895.

These batteries has been certified according to EN 62619:2017 for safe use and according to UN38.3 for safe transport.

It is necessary to respect the following guidelines

- Read the documents provided with the battery carefully.
- Only persons who have been trained to work with lithium-ion technology are permitted to work on the batteries (for example After-Sales Service Centre technicians).
- The truck can only be used with 135Ah batteries.
- The batteries can only be used with Mobile elevating work platforms.
- Do not drop it or allow anything to fall on it.
- Do not expose the battery unit to humidity or water (> 80%).
- Protect the battery from solar irradiation.
- Do not physically machine or modify the battery.
- Only trained and authorized personnel are permitted to charge, service and replace the batteries.
- Do not place lithium-ion batteries on or near flames or hot heat sources (> 65°C). This may cause the batteries to overheat or burst into flames. This type of use also impairs the performance of the batteries and reduces their service life.
- It is forbidden to take out the battery in the charging state.
- It is forbidden to use and store the battery at low power (the use and storage of power loss will cause the early loss of battery system capacity and accelerate the service life of the battery pack).
- It is forbidden for unqualified personnel to dismantle and overhaul the battery system and supporting charger and other devices; the battery system is a dangerous product, and maintenance and replacement can only be performed by professionals.
- Before the vehicle is started, power on through the button switch. After the vehicle is stopped, the battery system must be powered off and stopped through the button switch, which can be judged by the state of the display screen. If the time is too long, the battery will be over-discharged. In severe cases, it will affect the battery performance).
- The battery should be fully charged for the first time.
- After each use, it should be charged in time (the initial state of charging should keep the battery system temperature below 40° C to ensure the smoothness of charging).
- Do only use in trucks manufactured by supplier and if the battery type is released for that truck.

Lithium battery appendix

Intended use

- Operational application temperature 0° C-40° C, humidity < 80%.
- Charging application temperature 5° C-40° C.
- The battery's maximum operation altitude is up to 2000m.
- Do not pull out the battery for emergency stopping, use instead the emergency switch.
- The truck shall not be used in a potentially explosive atmosphere or in an especially dusty environment.

Reasonably foreseeable misuse

- Never short circuit the battery terminals.
- Do not reverse the battery polarity.
- Do not overcharge.

DANGER

Failure to comply with these safety instructions can result in fire and explosion or the leakage of harmful materials.

Accessories

Do not use a charger that is not released by supplier for lithium-ion battery.

These batteries can only be used with the internal charger.

WARNING

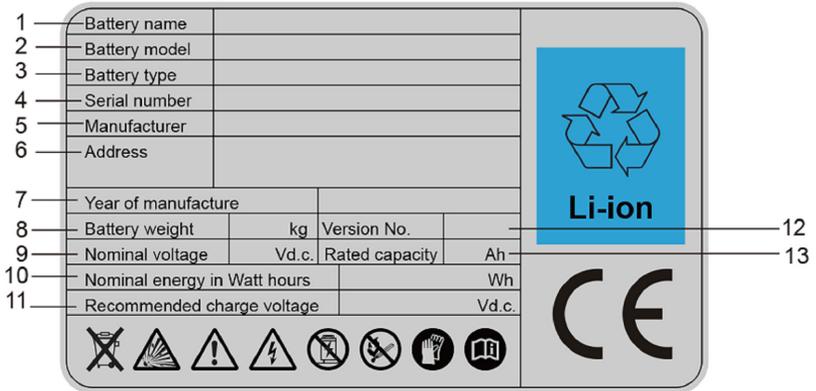
Should such issues as failing to abide by the operation manual, failing to use the original parts for maintenance or damaging caused by users themselves occur, the quality guarantee will be invalid automatically!

BMS (Battery Management System)

- The battery is permanently monitored by the BMS (Battery Management System).
- This provides the communication with the truck.
- The BMS continually monitors items such as the cell temperature, the voltage and the charge status of the cells.

Identification plates

Nameplate



- 1 Battery name
- 2 Battery model
- 3 Battery type
- 4 Serial number
- 5 Manufacturer
- 6 Address
- 7 Year of manufacture

- 8 Battery weight
- 9 Nominal voltage
- 10 Nominal energy in watt hours
- 11 Recommended charge voltage
- 12 Version No.
- 13 Rated capacity

Lithium battery appendix

Warning Label



1



2



3



4



5



6



7



8

Label 1

- Abide by the operation manual!
- All the operations related to the storage battery must be implemented under the instruction of professionals!

Label 2

- Always wear protective clothing (e.g. safety goggles and safety gloves) when working on cells and batteries.

Label 3

- No smoke and fire!
- Avoid the existence of open fire, fiery metal wire or sparks around the storage battery, otherwise explosion or fire disaster may occur!

Label 4

- Explosion or fire disaster is likely to occur; avoid short circuit!
- Keep the battery away from all fire sources, heat sources and flammable or explosive materials.

Label 5

- Don't knock over the storage battery!
- Using lifting and delivery devices as specified. Prevent the storage battery cell, interface and connection cable from being damaged by the lifting hook!
- If the materials leak out, do not inhale the fumes. Wear safety gloves.

Label 6

- Dangerous voltage!
- Avoid hot plugging!
- Notice: the metal part of the storage battery cell is electrified, so don't place any external object or tool on the battery cell!

Label 7

- Do not place the battery on top of conductive objects.

Label 8

- Don't trample on the battery to prevent it from fierce shaking or shacking!

Dangers of faulty or scrapped batteries

Please keep a close eye on the battery condition when using or storing batteries. If you notice any broken batteries, electrolyte leakage, abnormal swelling or pungent smells caused by transportation or vibration, please stop using the battery immediately and keep a distance of at least 5 metres from the relevant batteries. Please dispose of damaged batteries properly and contact the authorised service to recycle it.

For large batteries with an inner/outer casing structure, please put the battery in an outdoor

environment for at least 5 days. Contact the authorised service to recycle it.

WARNING

1. Do not store batteries for long periods of time.
2. Batteries in storage must not bear any loads, be crushed or in contact with each other.
3. Do not put batteries in warehouses for goods or near inflammable or explosive items.
4. Do not pile up faulty or old batteries.

Transportation

Before transporting any lithium-ion battery, check the current regulations on the transport of dangerous goods. Comply with these when preparing the packaging and transport. Train authorised staff to dispatch lithium-ion batteries.

**NOTE**

It is recommended that the original packaging is kept for any subsequent dispatch. A lithium-ion battery is a special product.

Special precautions should be taken when:

- Transporting a truck equipped with alithium-ion battery.

- Transporting only the lithium battery.

A class 9 danger label must be affixed to the packaging for transport.

It is different if the battery is transported on its own or in a truck. An example of a label appears in this supplement(see figure below). Refer to the latest current regulations before dispatch as the information might have changed since this supplement was written.

Special documents must be sent with the battery. Refer to the applicable standards or regulations.

Lithium battery appendix



For UN3480	Lithium Ion Batteries.
For UN3481	Lithium Ion Batteries packed with Equipment or Lithium batteries built into Equipment.

⚠ WARNING

Do not pack higher than 1.2 m above the floor of the container and secure properly.

i NOTE

"Overpack" is the name for the outer packaging of the dangerous goods.

i NOTE

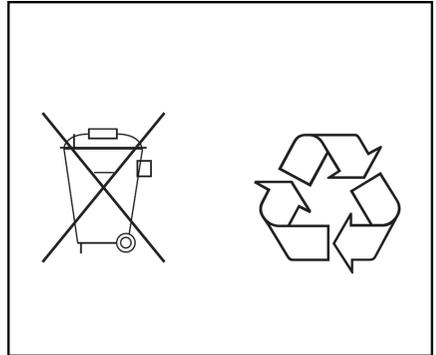
Recharge the lithium-ion battery before transporting it taking account of the transport mode (boat, road). Excessive discharge on arrival could damage the performance of the battery.

Shipping faulty batteries

To transport these faulty lithium-ion batteries, contact the manufacturer's customer service department. Faulty lithium-ion batteries must not be transported independently.

Instructions for disposal

- Lithium ion batteries must be disposed of in accordance with the relevant environmental protection regulations.
- Used cells and batteries are recyclable economic goods. In accordance with the mark showing a crossed rubbish bin, these batteries may not be disposed of as domestic waste. Return and / or recycling must be ensured as required by the Batteries Legislation.
- The method of battery recovery and reuse can be discussed with our company. We reserve the right to change the technology.



NOTE

The requirements of recycling

- *Only authorized dealers who have attended the after sales training, are authorized to do repairs on batteries.*
- *All Li-ion battery should be placed in safe place according to this manual.*
- *The transport of Li-ion battery must meet UN, ADR and local regulations.*
- *The package of Li-ion battery before delivery must meet the UN 3480 or local carrier regulation.*

Storage

Before a long period of inactivity, the battery must be fully charged.

We recommend that batteries are stored at a height between 60 and 120 cm.

- Store the battery in a dry place at a temperature between 0 and 40° to preserve its service life. This area must not be hermetically sealed to allow air renewal.

- If the battery system needs to be placed on hold for a long time, it would better keep the battery in the semi-electric state and charge the battery every 2 months to ensure that the battery system is in the semi-electric state.
- The positive and negative terminals of the battery system are prohibited from contacting with metal objects during storage.

Common Problems and Solutions

During the use and maintenance of the lithium-ion battery, the battery or battery system may have one or more of the following abnormal conditions, please organize the profes-

sional engineers and technicians to perform the necessary processing according to the instructions in this manual; if you have any questions about the status or solutions, please contact

Lithium battery appendix

dealer or after-sales service department of the company to obtain professional technical support.

- If the battery is found to have abnormal mechanical characteristics such as swelling, cracked casing, melted casing, and distortion of the casing before and during installation, stop using the battery immediately, place it in open and well-ventilated space, and contact the after-sales service.
- If abnormalities such as looseness, cracks, cracks in the insulation layer, burn marks, etc. of the battery's pole pressing bolts, conductive strips, main circuit wires and connectors are found before and during the installation, stop using the battery immediately, contact the after-sales service.
- If the polarity of the positive and negative terminals of the battery is found not match

the polarity identification before installation, please stop using the battery immediately and contact the aftersales service department to replace the battery or obtain other solutions.

- If there is fire or smoke happens to the battery, move it to the open air immediately, evacuate people in time, and pour a large amount of cold water onto the battery to cool it down and put out the fire.
- If the battery is found to emit smoke before and during installation, immediately stop using the battery and bury it with sand, and notify the after-sales service department of the company for record and obtain technical support.

Maintenance

Daily Maintenance

- It is necessary to arrange professionals for care during the charging operation, especially when the battery is almost fully charged; make sure that the plug and the socket are in good contact during the charging process to ensure the normal work of the charging device and good contact of the connection points of the battery pack. If an abnormality occurs, the battery needs to be repaired before charging.
- Check the battery voltage, temperature, voltage difference, etc. displayed on the circular display meter before charging and discharging to ensure that all values are within the normal range.
- If there is a large amount of dust, metal shavings or other debris on the upper cover and poles of the battery pack, use compressed air or wet cloth to clean it in time, avoid cleaning with water or water-soaked objects.
- When charging and discharging, try to avoid water or other conductive liquids splashing

on the top cover and poles of the battery, such as rainwater.

- Estimate the charging time and discharging time of the battery according to the actual status of use of the battery or battery pack, observe whether there is any abnormality in the battery or battery pack at the end of charging and the end of discharging, such as the voltage difference of the battery.

Regular Maintenance

- Check the nodes such as the conductive strips and voltage collection terminals for looseness, shedding, rusting or deformation, etc., to ensure that the series-parallel harness used in the battery pack is firm and reliable (once a month).
- Check the battery casing for cracks, deformation, loose poles, bulging and other abnormal conditions (once a month).
- Check the reliability of the charging device to ensure that the charging device performs the charging action in accordance with the voltage and current adjustment signals sent

- by the BMS and to ensure that the battery will not be overcharged (once a month).
- Check discharge protection equipment, such as fast-acting fuses, AC contactors, relays, etc., to ensure that the battery pack can be quickly disconnected from the main circuit in the event of a dangerous situation such as short circuit or over current (once a month).
- Check the insulation resistance between the battery pack and the vehicle body to ensure that the resistance value meets the Chinese national standard ($\geq 500\Omega/V$) and to ensure that there is no electric leakage with the battery (once a month).

5

Maintenance

Operational safety and environmental protection

Operational safety and environmental protection

- The servicing and inspection operations contained in this chapter must be performed in accordance with the intervals indicated in the service checklists.
- Only use original spare parts that have been certified by our quality assurance. Used parts, oils and fuels must be disposed of in accordance with the applicable environmental protection regulations. For oil changes, the oil service of the manufacturer is available to you.
- Upon completion of inspection and servicing, carry out the activities listed in the "Re-commissioning" section.

Maintenance Safety Regulation

Servicing and maintenance personnel

Only qualified and authorised personnel are allowed to perform maintenance work. Regular safety checks and checks after unusual incidents must be performed by a competent person. The competent person must conduct their evaluation and assessment from a safety standpoint, unaffected by operational and economic conditions. The competent person must have sufficient knowledge and experience to be able to assess the condition of a truck

and the effectiveness of the protective devices in accordance with technical conventions and the principles for testing trucks.

Daily inspection procedures and simple maintenance checks, e.g. checking the hydraulic oil level or checking the fluid level in the battery, may be performed by operators. This does not require training as described above.

Lifting and jacking up

⚠ DANGER

There is a risk to life if the truck tips over!

If not raised and jacked up properly, the truck may tip over and fall off. Only the hoists specified in the workshop manual for this truck are allowed and are tested for the necessary safety and load capacity.

- Only have the truck raised and jacked up by the authorised service centre.
- Only jack the truck up at the points specified in the workshop manual.

The truck must be raised and jacked up for various types of maintenance work. The authorised service centre must be informed that this is to take place. Safe handling of the truck and the corresponding hoists is described in the truck's workshop manual.

Cleaning operations

No inflammable liquids must be used when cleaning the truck. Prior to commencing cleaning operations, all safety measures that are required to prevent sparking (e.g. by short circuits) have to be taken. For battery operated

trucks, the battery plug must be removed. Only weak pressure, weak compressed air and non-conducting, antistatic brushes must be used for the cleaning of electric or electronic assemblies.

Work on the electric system

Work on the electric system of the truck must only be performed by personnel specially trained for such operations. Before commencing

any work on the electric system, all measures required to prevent electric shocks have to be taken. For battery-operated trucks, the

Servicing and inspection

truck must also be powered down by removing the battery plug.

Settings

When repairing or replacing hydraulic, electric or electronic components or assemblies, always note the truck specific settings.

Hydraulic hoses

The hoses must be replaced every six years. When replacing hydraulic components, also replace the hoses in the hydraulic system.

Servicing and inspection

Thorough and expert servicing is one of the most important requirements for the safe operation of the industrial truck. Failure to perform regular servicing can lead to truck failure and poses a potential hazard to personnel and equipment.

The service intervals stated are based on single shift operation under normal operating conditions. They must be reduced accordingly if the truck is to be used in conditions of extreme dust, temperature fluctuations or multiple shifts.

The following maintenance checklist states the tasks and intervals after which they should be carried out. Maintenance intervals are defined as:

- Every 1000 operating hours, or at least every six months.
- Every 2000 operating hours, or at least annually

In the run-in period - after approx. 100 service hours - or after repair work, the owner must check the wheel bolts and re-tighten if necessary.

NOTE

Wheel bolts tightening torque please see section: "Wheel bolts tightening torque".

1000-hour service plan

At operating hours								Carried out			
1000		3000		5000		7000		9000		✓	*
11000		13000		15000		17000		19000			
Maintenance precautions											
Specific maintenance intervals depend on the consumables used, driving habits and the work environment, but servicing should be carried out at least every 1000 hours or every 6 months. Maintenance requires specialised knowledge and special tools. Please also refer to the information regarding consumables.											
Running gear and drive train											
Grease the vehicle in accordance with the lubrication schedule.											
Test electric steering.											
Check steering toothing for wear and lubricate.											
Check the transmission for noise and leakage.											
Check travel mechanism, adjust and lubricate if necessary.											
Check wheels for wear and damage.											
Check wheel suspension and attachments.											
Add transmission oil.											
Check magnetic brake air gap.											
Chassis and bodywork											
Check chassis for damage.											
Check labels.											
Check screw connections.											
Check drive support plate.											
Check gates and panels are secure and free of damage.											
Driver's compartment											
Test instruments, displays and control switches.											
Electrical system											
Test warning and safety device.											
Make sure wire connections are secure and check for damage.											
Test micro switch setting.											
Check contactors and relays.											
Fix the motor and cable.											
Visually inspect battery.											

1000-hour service plan

At operating hours								Carried out			
1000		3000		5000		7000		9000		✓	✘
11000		13000		15000		17000		19000			
Visually inspect battery plug.											
Check battery cable connections are secure, grease terminals if necessary.											
Hydraulics											
Test hydraulic system.											
Check that hose and pipe lines and their connections are secure, check for leaks and damage.											
Check cylinders and piston rods for damage and leaks, and make sure they are secure.											
Check hydraulic oil level.											
Lifting system											
Check lifting chains and chain guides for wear, adjust and lubricate.											
Check Storage table and Pallet for wear and damage.											
Check mast attachment.											
Perform sight check of rollers, sliding elements, and stops.											
Subsequent tasks											
Check and adjust the date and time of the display unit.											
Carry out a functional test and test drive.											
Attach a maintenance sticker.											

2000-hour service plan

At operating hours								Carried out		
2000		4000		6000		8000		10000		
12000		14000		16000		18000		20000	✓	*
Maintenance precautions										
Specific maintenance intervals depend on the consumables used, driving habits and the work environment, but servicing should be carried out at least every 2000 hours or every 12 months. Maintenance requires specialised knowledge and special tools. Please also refer to the information regarding consumables.										
Perform all 1000-hour service checks.										
Hydraulics										
Replace hydraulic oil										
Check and clean hydraulic oil filter. Replace it if necessary										
Subsequent tasks										
Check and adjust the date and time of the display unit.										
Carry out a functional test and test drive.										
Attach a maintenance sticker.										

Ordering spare parts and wearing parts

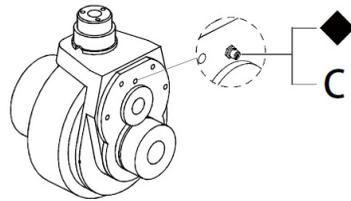
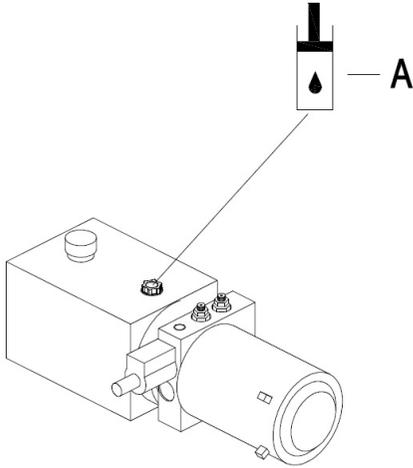
Spare parts are provided by our spare parts service department. The information required for ordering parts can be found in the spare parts list.

Only use spare parts as per the manufacturer's instructions. The use of unapproved spare parts can result in an increased risk of accidents due to insufficient quality or incorrect assignment. Anyone using unapproved spare parts shall assume unlimited liability in the event of damage or harm.

Maintenance work

Maintenance work

Lubrication points



8905_0037

Lubricant

Improper operations may constitute hazards to the operator's health and life, as well as to the surrounding environment.

When storing or adding lubricant, use clean containers. It is strictly forbidden to mix different types and specifications of lubricants with each other (except for those that can be mixed under clear statement).



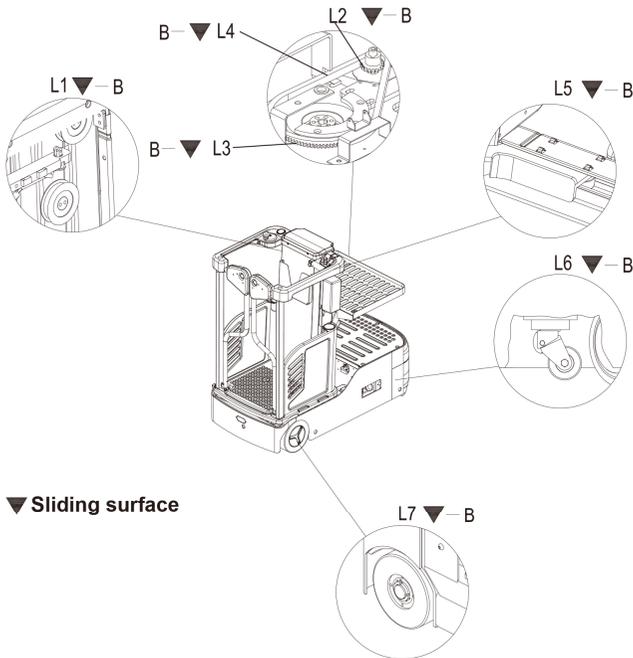
ENVIRONMENT NOTE

The use and disposal of lubricants must be carried out in strict accordance with the manufacturer's regulations.

Table 1 Lubricants:

Code	Type	Specification	Amount	Position
A	Anti-wear hydraulic oil	L-HM32	4L (Max height 2950mm)	Hydraulic System
	Low temperature anti-wear System hydraulic oil (cold storage)	L-HV32		
C	Grease	Grease (MoS2)	100g	Gearbox

Sliding surface



▼ Sliding surface

Maintenance work

Table 2 Sliding surface Lubrication Table:

Code	Position
L1	Steel channel and rollers
L2	Steering gear
L3	Large chain gear
L4	Chains
L5	Storage table rollers
L6	Caster
L7	Load wheels

Prepare the truck for maintenance and repairs

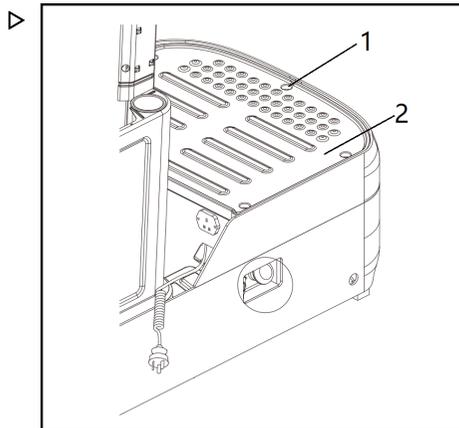
All necessary safety measures must be taken to avoid accidents when carrying out maintenance and repairs. The following preparations must be made:

- All necessary safety measures must be taken to avoid accidents when carrying out maintenance and repairs.
- The following preparations must be made: Park the truck securely (Parking the truck securely).

- Remove the key to prevent the truck from accidentally starting.
- When working under a raised lift truck, secure it to prevent it from tipping or sliding away.

Open the cover

- Remove the five screws (1).
- Carefully open the cover (2) up.



Replacing the drive wheel

The wheel bolts must be tightened in a diagonal sequence.

CAUTION

The drive wheel must only be replaced by authorized service personnel.

Wheel bolts tightening torque

NOTE

The owner must check the wheel bolts and re-tighten if necessary.

	Bolts specification	Tightening torque (N·m)
Drive wheel	M6X20	10~12
Load wheels	M8X16	34~41

Check the hydraulic oil level

WARNING

It is forbidden to add hydraulic oil with impurity.

Do not add hydraulic oil that contains impurities.

- Lift the platform to the top.
- Press the emergency stop switch.
- Unscrew the oil cap.
- Use a clean cloth to dry the dipstick.
- This oil cap has a dipstick.

Maintenance work

- Reinstall the oil cap, then remove it again and check whether the traces of oil on the dipstick are between the maximum and minimum marks.



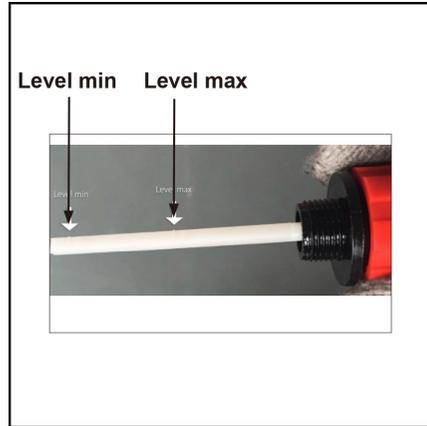
NOTE

You can lift again after you have finished adding the oil. You must continue checking the hydraulic oil level if there is still a banging noise.



NOTE

Only use hydraulic oil that meets the specifications. Refer to "Lubricants Points".



How to add grease



NOTE

See Lubrication Points.

- Prepare the truck for maintenance and repairs (Maintenance Instructions).
- Add grease of the correct grade to oil cup (Lubrication Schedule).
- Add transmission oil according to service plan.

Re-installation in the reverse order.

⚠ WARNING

It is forbidden to add transmission oil with impurity.

Changing electrical fuses

- Prepare the truck for maintenance and repairs.

i NOTE

Please see section: "Parking the multi function vehicle securely".

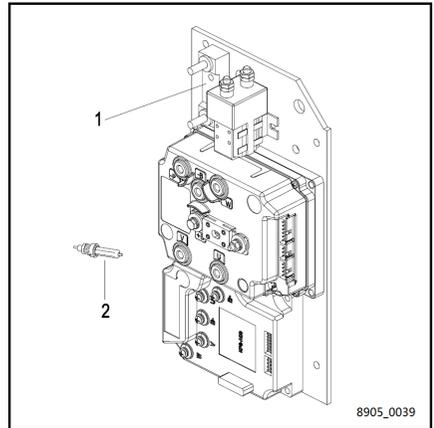
i NOTE

Please see section: "Prepare the truck for maintenance and repairs".

- Open the cover.
- Check rating of all fuses in accordance with table, replace if necessary.

Fuse 10A installed on main harness.

Item	Fuse type	Rating
1	Traction / Lift / Steer motor Fuse	200A
2	Controller	10A



Recommissioning

The truck may only be recommissioned after cleaning or repair work, once the following operations have been performed.

- Test horn.
- Test Emergency stop switch.
- Test brake.
- Lubricate the truck in accordance with the maintenance point.
- Do follow the daily checklist.

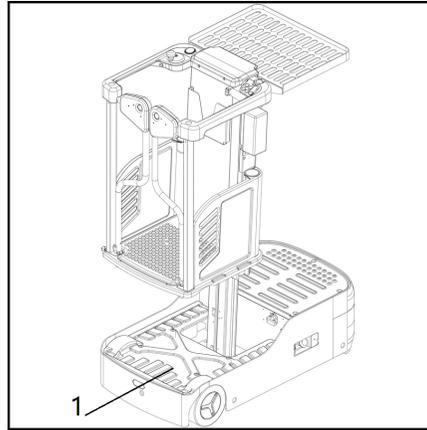
Check lowering cut-off

procedure:

- Open the emergency operation area;
- Press the "Lifting" button to raise the platform;
- Place the object on the lower cut-off;
- Try to lower the operator platform;
- Press the "Lowering" button".

Decommissioning the truck

- The operator platform should not lower due to the loaded lower cut-off (1). If the lower cut-off is defective, decommission the truck and inform the supervisor immediately.



Decommissioning the truck

If the truck is to be decommissioned for a long period, it must be parked in a frost-free and dry location.

On decommissioning the truck must be jacked up so that all the wheels are clear of the ground. This is the only way of ensuring that the wheels and wheel bearings are not damaged.

If the truck is to be out of service for more than 6 months, further measures must be taken in consultation with the manufacturer's service department.

Prior to decommissioning

- Clean the multi function vehicle thoroughly.
- Check the brakes.
- Check the hydraulic oil level and top up if required.

- Apply a thin layer of lubricating oil or grease to all non-painted mechanical components.
- Lubricate the multi function vehicle in accordance with the lubrication schedule.
- Remove the battery and recharge it at least once per month.
- Clean the battery and apply specialised grease to the terminals.
- Spray all exposed electrical contacts with a suitable contact spray.

⚠ WARNING

Charge the battery every months to avoid depletion of the battery through self-discharger.

Restoring the truck to operation after decommissioning

- Thoroughly clean the truck.
- Recharge the battery.
- Clean the battery. Grease the pole screws using pole grease and reconnect the battery.
- Check if the hydraulic oil contains condensed water and change if required.

Safety checks to be performed at regular intervals and following any unusual incidents

- Follow the daily checklist.

If there are switching problems in the electrical system, apply contact spray to the exposed contacts and remove any oxide layers on the

contacts of the operating controls by applying contact spray repeatedly.

Perform several brake tests immediately after recommissioning the truck.

Safety checks to be performed at regular intervals and following any unusual incidents

The truck must be inspected at least annually (refer to national regulations) or after any unusual event by a qualified inspector.

A full inspection of technical condition of the truck must be carried out regarding accident safety. The truck must also be examined thoroughly for damage.

The operating company is responsible for ensuring that faults are rectified immediately.

Final decommissioning, disposal

Final, proper decommissioning or disposal of the truck must be performed in accordance with the regulations of the country of application. In particular, regulations governing the disposal of batteries, fuels, Hydraulic oil, plastic and electronic and electrical systems must be observed.



NOTE

Any repairs or maintenance to the truck must be performed only by trained and authorized technicians.

Tire replacement

The quality of tyres affects the stability and performance of the truck. When replacing tyres fitted at the factory, only use the manufacturer's original spare parts. Otherwise the data sheet specifications of the truck cannot be guaranteed. When changing wheels and tyres, ensure that the truck does not slew (e.g. when replacing wheels always left and right simultaneously).

WARNING

Only original tires have been certified by our quality assurance service. To ensure safe and reliable operation of the truck, only tires of the manufacturer must be used.

Troubleshooting

Troubleshooting

This chapter is designed to help the user identify and rectify basic faults or the results of incorrect operation. When locating a fault, proceed in the order shown in the table.

If the fault cannot be rectified after carrying out the remedial procedure, notify the manufacturer's service department, as any further troubleshooting can only be performed by specially trained and qualified service personnel. The manufacturer has a customer service department specially trained for these tasks.

Fault	Probable Cause	Action
The vehicle does not start	<ul style="list-style-type: none"> • Battery connector not connected. • Key switch in "OFF" position • Safety gates open • EMERGENCY DISCONNECT switch pressed • Foot switch not pressed • Battery charge too low • Faulty fuse • The vehicle in charge mod 	<ul style="list-style-type: none"> • Check the battery connector and connect if necessary. • Set key switch to "ON" • Close the safety gates • Unlatch EMERGENCY DISCONNECT switch • Press foot switch • Check battery charge, charge battery if Necessary • Test fuses • Interrupt charging
Load cannot be lifted	<ul style="list-style-type: none"> • Hydraulic oil level too low • Excessive load • Fuse blown 	<ul style="list-style-type: none"> • Check the hydraulic oil level • Note maximum capacity (see data plate) • Check fuses

To provide targeted and rapid response to faults, the following details are useful and important to provide for the customer service department:

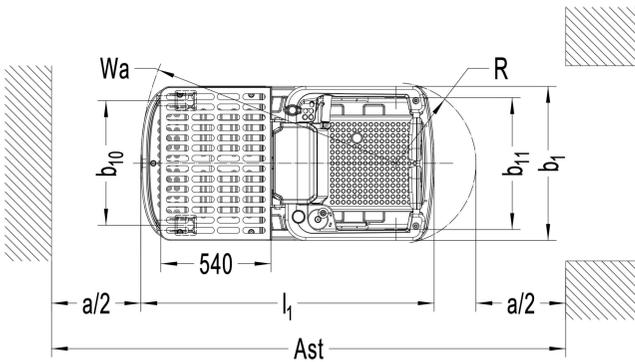
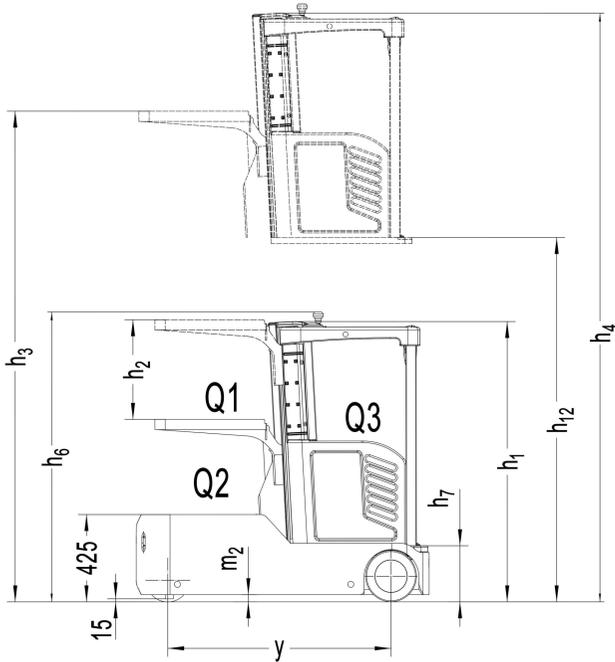
- Truck serial number
- Display unit error number (if present)
- Error description
- Current location of the vehicle.

6

Technical data

Technical datasheet

Technical datasheet



Characteristics			
1.1	Manufacturer		STILL
1.2	Model designation		OCV 01
1.3	Power unit: Battery, diesel, gasoline, LPG		Battery
1.4	Operation		Order Picker
1.5	Nominal loading capacity	Q1 (kg)	90
		Q2 (kg)	110
		Q3 (kg)	136
1.9	Wheelbase	y (mm)	1095

Weight			
2.1	Service weight (with battery)	kg	800
2.2	Axle load with load, front/rear	kg	590/410
2.3	Axle loading, unladen driving side/loading side	kg	380/420

Wheels			
3.1	Tyres, drive side/load side: R=solid rubber, P=polyurethane		PU+PU/R
3.2	Tyre size, drive side	(mm)	Ø210 X 70
3.3	Tyre size, load side	(mm)	Ø250 X 100
3.4	Auxiliary wheel, size	(mm)	Φ74×48
3.5	Number of wheels, front/rear (X = drive)		1x+2/2
3.6	Track width, front, driving side	b10(mm)	545
3.7	Track width, rear, loading side	b11(mm)	640

Dimensions			
4.2	Height of mast, lowered	h1[mm]	1375
4.3	Free lift	h2[mm]	485
4.4	Lift	h3 [mm]	3620
4.5	Height of mast, extended	h4[mm]	4100
4.7	Height of overhead guard (cabin)	h6[mm]	1425
4.8	Seat height/standing height)	h7[mm]	285
4.14	Stand height, elevated	h12 [mm]	3000
4.19	Overall length	l1 [mm]	1440

Eco-design requirements for electric motors and variable speed drives

4.21	Overall width	b1 / b2 [mm]	750
4.32	Ground clearance with load, center of wheelbase	m2 [mm]	35
4.35	Turning radius	Wa [mm]	1260

Performance			
5.1	Travel speed, with/without load(H:0-500mm)	[km/h]	6/6.5
	Travel speed,with/without load(H:500-1000mm)	[km/h]	3
	Travel speed, with/without load(H:1000-2000mm)	[km/h]	2
	Travel speed,with/without load(H:2000-3000mm)	[km/h]	1
5.2	Lifting speed, with/without load (Q3)	[m/s]	0.22/0.27
	Lifting speed, with/without load (Q1)	[m/s]	0.038/0.040
5.3	Lowering speed, with/without load (Q3)	[m/s]	0.31/0.25
	Lowering speed, with/without load (Q1)	[m/s]	0.040/0.038
5.8	Max. gradeability, laden/ unladen	%	1.8/1.8
5.10	Service brake		Electro-magnetic

Drive			
6.1	Drive motor rating S2 60min	[kW]	0.65
6.2	Lift motor rating at S3 15%	[kW]	2.2
6.4	Battery voltage, nominal capacity K5	[V/ Ah]	24/135
6.5	Battery weight	kg	50
6.6	Energy consumption acc. to VDI cycle	[kWh/h]	0.387

Other			
8.1	Type of drive unit		DC
10.7	Noise level	[dB (A)]	74

Eco-design requirements for electric motors and variable speed drives

All motors in this industrial truck are exempt from Regulation (EU) 2019/1781 because these motors do not meet the description given in Article 2 "Scope", Item (1) (a) and because of the provisions in Article 2 (2) (h) "Motors in cordless or battery-operated equipment" and Article 2 (2) (o) "Motors designed specifically for the traction of electric vehicles".

Eco-design requirements for electric motors and variable speed drives

All variable speed drives in this industrial truck are exempt from Regulation (EU) 2019/1781 because these variable speed drives do not meet the description given in Article 2 "Scope", Item (1) (b).

Eco-design requirements for electric motors and variable speed drives

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