



Original instructions

Electric Pallet Stacker

ECV 10 C
ECV 10i C
ECV 10



5730 5731 5732

first in intralogistics

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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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Introduction

Your industrial truck

Your industrial truck

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
 Model

corresponding to these operating instructions
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.

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

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.

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.



General information

The truck described in these operating instructions corresponds to the applicable standards and safety regulations.

The truck has been fitted with advanced technology. Following these operating instructions will allow the truck to be handled safely. By complying with the specifications in these operating instructions, the functionality and the approved features of the truck will be retained.

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:

- Read the operating instructions before commissioning the truck and follow the instructions during operation.

- Follow all of the safety information contained in the operating instructions and on the truck.

Operating on public roads

If the truck is to be operated on public roads, the truck must conform to the national regulations for the country in which it is being used. The required operating permit must be obtained from the relevant authorities.

Insurance cover on company premises

In many cases, company premises are restricted public traffic areas.

Your industrial truck



NOTE

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

Intended use

The industrial truck may be used only for its intended purpose.

The industrial truck is intended for moving and lifting the loads specified on the capacity rating plate while observing the instructions given in these operating instructions.

Damage and faults

Damage or other faults on the industrial truck or the attachment must be immediately reported to supervisory personnel. Industrial trucks and attachments that are not operationally safe must not be used until they are properly repaired.

Do not remove or deactivate safety systems and switches. Fixed set values may only be changed with the approval of the manufacturer.

Danger area

The danger area is the area within which people may be at risk due to the movements of the industrial truck, its working equipment, its lifting accessories (e.g. attachments) or the goods that are carried. This also includes the area that can be affected by falling cargo or by lowering or falling working equipment.

People must not stand in the danger area of an industrial truck.

Working area

It is only permitted to drive on routes authorised for traffic by the operating company or its representatives. Traffic routes must be free from obstacles. Loads may only be set down and stored in the designated areas provided for this purpose.

Roadways

Roadways must be sufficiently firm, level and free from objects. Drainage channels, level crossings and similar obstacles must be evened out and, if necessary, ramps must be

provided so that trucks can drive over these obstacles with as few bumps as possible.

Industrial trucks may only be used on roadways that do not have bends that are too sharp, gradients that are too steep or entrances that are too narrow or low.

Gradients may not exceed the values given in the operating instructions and must have a sufficiently rough surface. The top and bottom of the gradient must feature smooth and gradual transitions to prevent the load from scraping the ground and the undercarriage from being damaged.

Industrial trucks must not be parked on surfaces with a gradient. If this cannot be avoided, the industrial truck must be secured using wheel chocks in addition to the activated parking brake.

Do not exceed the permitted area load and point load of the roadway. There must be sufficient distance between the highest points of the industrial truck or the load and the fixed elements of the surrounding area.

Within the EU, the current version of directive 89/654/EEC (minimum safety and health requirements for the workplace) must be observed. The respective national guidelines apply for areas outside the EU.

Hazardous areas on roadways must be safeguarded or indicated by the standard road traffic signs and, if applicable, by additional warning signs.

When driving on public roads, the national regulations pertaining to drivers and industrial trucks must be observed. Observe country-specific restrictions for winter road conditions.

Fire protection

The operating company must ensure that suitable fire protection is available for the relevant application in the surroundings of the industrial truck. Depending on the application, additional fire protection on the industrial truck may be necessary. If in doubt, the responsible fire brigade can be contacted.

Your industrial truck

Attachments

Attachments may only be used for their intended purpose. Drivers must be taught how to operate the attachments.

Attachment operating instructions are enclosed for industrial trucks that are delivered from the factory with an attachment. Before commissioning an industrial truck with an attachment, check that loads are handled safely. Depending on the type of attachment, it may be necessary to make adjustments, e.g. pressure settings or adjusting stops and operating speeds. Corresponding instructions can be found in the operating instructions for the attachment.

If attachments are not supplied with the industrial truck, the specifications of the industrial truck manufacturer and the attachment manufacturer must be observed.

Mounting the attachment and connecting the energy supply for power-driven attachments must only be performed by authorised personnel in accordance with the information provided by the manufacturers. After each installation, the attachment must be checked for correct function prior to initial commissioning.

The permissible load capacity of the attachment and the permissible load (load capacity and load moment) of the industrial truck must not be exceeded by the combination of attachment and payload, see additional capacity rating plate.

Modifications, in particular attachments or conversions, are not permitted to be made to the industrial truck without the manufacturer's approval.

Intended use of the trucks

CAUTION

This machine was designed for the transport and storage on racks (pallet stackers only) of loads packed on pallets or in industrial containers designed for this purpose.

The dimensions and capacity of the pallet or container must be adapted to the load being transported and must ensure stability.

The table of characteristics and performance attached to this user manual gives you the information you need to check that the equipment is suitable for the work being carried out.

Any specific usage must be authorised by the site manager; an analysis of the potential risks associated with this usage will enable him to put in place any necessary additional safety measures.

Intended use

Damage and defects

Any damage or other defects found on the industrial vehicle or its attachments must immediately be reported to a supervisor. Industrial vehicles and attachments that present operating hazards can only be used after proper maintenance has been carried out.

Do not remove safety devices and switches or render them unusable. Do not alter specific settings without first obtaining permission from the manufacturer.

Danger areas

Danger areas are areas that are hazardous to personnel due to the movement of the industrial truck, its operating devices, loading devices (such as attachments) or loaded cargo. They also include areas for lowering loads or lowering operating devices and equipment.

Non-work personnel must never stand in the danger areas of the industrial vehicle.

Work areas

DANGER

In operating areas with magnetic fields that have a magnetic flux density greater than 5 mT, unintentional movements of the truck or hydraulics cannot be entirely excluded under unfavourable circumstances.

For magnetic fields with magnetic flux densities greater than 5 mT, components developed especially for this purpose must be used.

Contact your local authorised dealer.

Only areas authorised by the operator or his representative can be used for transportation purposes. Loads may only be stacked or stored in the specified locations.

Travel routes

Travel routes should be well laid and remain flat and free of obstructions. Deal with drainage channels and rail track intersections, etc. by levelling them, if necessary using a ramp to cover them, so as to minimise the risk of collisions occurring when the vehicle passes over them.

The industrial vehicle can only travel along routes that are free from sharp turns, steep ramps, narrow passages and low ceilings.

The industrial vehicle must not travel on ramps that exceed the maximum gradient specified by the manufacturer, and the driving surface must be sufficiently adherent. Flat and smooth transitions at the upper and lower ends of ramps can prevent the load from contacting the ground or damage being caused to the chassis.

Do not exceed permitted zones and point loads of travel lanes or routes. Maintain a sufficient gap between the highest part of the industrial vehicle or load and fixtures in the surrounding area.

Comply with EU Directive 89/654/EEC (minimum safety and health requirements for the workplace). In non-EU countries/regions, comply with the corresponding national regulations.

If necessary, use conventional road traffic signs or other warning signs to mark danger points along travel lanes or routes.

When driving on public roads, you must comply with the relevant laws and regulations as well as country/region-specific restrictions with regard to winter road conditions.

Fire prevention measures

The operator is responsible for adopting appropriate fire prevention measures in the vicinity of the industrial truck. The operator is responsible for adopting additional fire prevention measures on the industrial truck, depending on how the industrial truck is used. If you have any questions, please contact the responsible supervisory authority.



NOTE

If the truck is equipped with a fire extinguisher, the driver must be fully aware of how to use it. Instructions for use are provided on the fire extinguisher.

Attachments

Attachments may only be used after obtaining a permit. Drivers must be instructed in the operation of the relevant attachment.

The attachment operating instructions are enclosed for trucks delivered from the factory with attachments. Before commissioning a truck with an attachment, you must check that loads are handled safely. It may be necessary to make adjustments, depending on the type of attachment, e.g. to pressure settings or adjusting stops and operating speeds. Corresponding instructions can be found in the attachment operating instructions.

If the industrial vehicle is not delivered with attachments, you must comply with the specifications of the industrial vehicle manufacturer and accessory manufacturer.

Power connection of powered attachments must only be carried out by specialists in accordance with the manufacturer's specifications. Whenever an attachment is installed, it

Your industrial truck

should be checked before first use to ensure that it is functioning normally.

Do not exceed the permissible load capacity of the attachment or the permissible load of the industrial vehicle and attachment combination (load capacity and load torque). Refer to the attached load capacity plate for attachments.

Modifications, in particular attachments or modified parts, are not permitted to be made to the industrial vehicle without the manufacturer's approval.

The fork extension should not exceed 1.5 times the length of the support fork.

Vehicle modifications

If the manufacturer is no longer in business and there is no successor to the business, the user may arrange for a modification or alteration to the truck, provided that the user:

- Arranges for the modification or alteration to be designed, tested and implemented by an engineer who is an expert in industrial trucks and the associated safety considerations
- Maintains a permanent record of the design, testing and implementation stages for the modification or alteration
- Makes appropriate changes to the designation plate, decals, tags and operation and maintenance manuals
- Attaches a permanent and easily visible label on the truck providing information about

Improper use

The operating company or driver, and not the manufacturer, is liable if the truck is used in a manner that is not permitted.

WARNING

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.

the manner in which the truck has been modified or altered together with the date of the modification or alteration, and the name of the organisation that completed this work

Removing the assemblies

It is prohibited to change or remove the assemblies of the truck, especially those for the guards and safety devices. If in doubt, contact a dealer authorised by the manufacturer.

Wind load

When lifting, lowering and transporting bulky cargos, strong winds can affect the stability of the truck.

Light cargos must be firmly fastened when it is windy, so that cargos will not be slid or fallen.

Software updates via wireless transmission

Wireless transmission of safety updates, updates to features, or enabling of new features.

Safety updates are related to the safety of the industrial truck. These operations must be executed.

Newly enabled features can only be put into use after you have downloaded and read the operating instructions for the newly enabled feature from the manufacturer portal. If you need any support, please contact your service partner.

DANGER

High risk of injury, death and property damage.

Avoid the use of prohibited substances.

The list below is merely illustrative and not exhaustive.

Never operate the truck in environments with a potentially explosive atmosphere.

Do not carry another passenger (unless a "two-person seat" is installed).

Do not overload the truck (by exceeding the rated load indicated on the load designation plate). Overloading can affect braking distances, truck stability and the strength of the lift mast.

Do not pick up an off-centre load.

Do not stand on the fork arms when they are lifting.

Do not increase the load capacity of the truck, by adding extra weight, for example.

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 leave the truck unattended when the load is raised.

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 use the forks or any other part of the truck to push, pull or support items, unless the design permits this.

Operating steps

Adjust your driving style based on the conditions of the route, especially in hazardous work areas and when transferring loads.

Always look in the direction of travel.

Look out for pedestrians, to prevent the possibility of them becoming trapped between the truck and fixed obstacles.

Always sound the horn when approaching blind spots.

The truck and attachments must only be used for authorised applications.

Follow the instructions in the user manual when transporting loads.

On a ramp: Ensure that the truck has sufficient ground clearance to avoid striking the surface of the ramp. • Fully raise the load to avoid striking the surface of the ramp.

Drive a loaded truck forward when going uphill.

Drive a loaded truck in reverse when going downhill.

When raising a spreader, ensure that there is enough clearance.

When working near overhead power lines, observe the safety distances set by the competent authorities.

Only travel on surfaces that can withstand the combined weight of the truck and load.

Before leaving the operator's driving position, turn off the ignition and make sure you have applied the parking brake.

When driving, maintain a safe stopping distance from any vehicle or pedestrians in front of you.

Drivers should move off, brake, turn and reverse smoothly. Avoid sudden stops, sharp turns and overtaking at dangerous or blind spots.

Ensure that there is adequate ventilation when using the truck in enclosed or partially enclosed areas.

Summary

A safe, competent operator is one who takes pride in the way they operate their truck, respects the goods they handle and follows the correct operating procedures. **They never take risks.**

Your industrial truck

Description of use and climatic conditions

Normal use

- The truck must be parked and secured only in indoor areas.
- The walking, lifting and lowering devices, harness and components are IP55 dust and water-resistant.
- 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 .
- The truck's maximum operation altitude is up to 2000 m.
- Trucks can only be operated in adequately illuminated working areas to avoid injuries. In case of insufficient light, an additional lighting equipment is needed to ensure that the driver can see properly.
- The truck should run on solid, flat, level and paved road surfaces (including both running and lifting).
- If you must travel on an incline, the gradients should be below A% at full load, or below B% without a load. (For the value of A and B, refer to the grade ability in technical data).
- Wind forces can affect the stability of a truck when lifting, lowering and transporting loads with large surface areas. Light loads must be especially secured when they are subjected to wind forces. This will prevent the load from sliding or falling. Stop the truck in both cases.

Information about documentation

Documentation scope

- Operating instructions
- Operating instructions for attachment parts (special equipment)
- Spare parts list
- VDMA rules for the proper use of industrial trucks (EU countries only)

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 operating instructions are included in the spare parts list and 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 [Querverweisfehler: Ziel mit ID='VerantwortlichePersonen' nicht gefunden!]) 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.

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.

Information about documentation

Copyright and trademark rights

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

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.

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

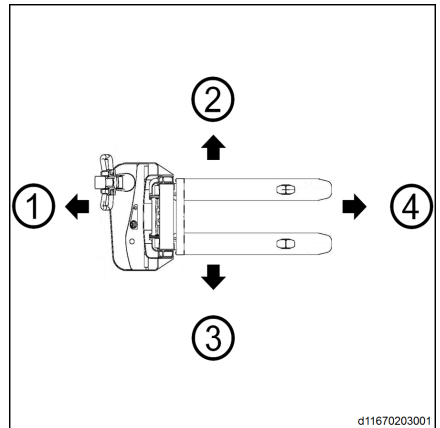
Information about documentation

Abbreviation	Meaning	Explanation
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
$F_{\max}$	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)

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

Drive directions

The drive directions of the vehicle are forward ▷ (1), reverse (4), left (2) and right (3).



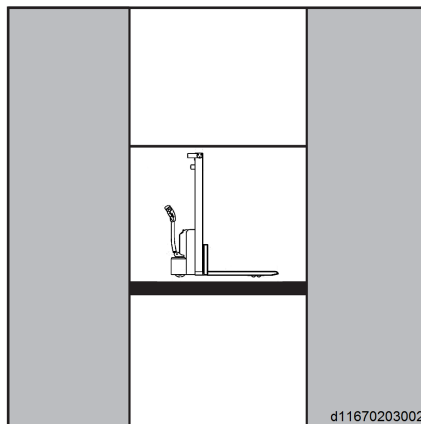
Series

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.



Series

The electric Pallet Stacker is suitable for stacking operations in narrow aisles and confined spaces.

This series of electric pallet stacker of old CE includes the following models:

- 0342_ECV 10 C: simplex narrow electric pallet truck with rated load of 1000 kg.
- 0343_ECV 10i C: simplex narrow electric pallet truck with initial lift and rated load of 1000 kg.
- 0344_ECV 10 duplex narrow electric pallet truck with rated load of 1000 kg.

This series of electric pallet stacker of new CE includes the following models:

- 5731_ECV 10 C: simplex narrow electric pallet truck with rated load of 1000 kg.
- 5732_ECV 10i C: simplex narrow electric pallet truck with initial lift and rated load of 1000 kg.
- 5730_ECV 10 duplex narrow electric pallet truck with rated load of 1000 kg.

Technical description

This product has a compact chassis, 4-point ground contact, balanced tiller and a micro-processor electronic control system. The machine is lightweight, highly efficient and easy to handle.

Design

The latest ergonomic and practical design, adaptable to all operators and working conditions.

The polyurethane cowling provides superior stability and shock resistance, and has a variety of storage spaces.

The frame is made of thick steel plate and is suitable for the harshest working conditions.

Steering system

Extremely smooth steering makes the vehicle easier to manoeuvre in tight spaces.

A gas spring enables the tiller to quickly return to the vertical position after it is released.

Tiller

The composite construction tiller head provides excellent impact resistance.

The ergonomic control layout is suitable for left-handed and right-handed operators.

The horn, lifting and lowering devices can be operated using one hand without changing grip.

The anti-crush button integrated into the tiller head protects the operator if the vehicle recoils.

Driving

The electronic control unit ensures comfortable use and lower costs.

Precise control of driving speed.

Jolt-free starting and smooth acceleration to maximum speed.

Simply release or turn the drive direction switch to brake.

Booster circuit prevents the truck rolling back when starting on a gradient.

Hydraulic system

The gear pump is driven by a fully enclosed air-cooled motor.

Safety valve and lowering brake protect the hydraulic system.

Brake system

The electromagnetic brake with dust protection function can be used as a safety brake and parking brake. Braking is controlled by the drive controller, the brake's electromagnet acts on the motor shaft and automatic braking is activated when the tiller is in the horizontal or vertical position (end stop brake).

Battery

It uses a large-capacity battery and the battery charge can be viewed on the display unit.

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.

Residual dangers, residual risks

Despite working with care and complying with the standards and regulations, the possibility of other dangers arising when using the truck cannot be ruled out.

The truck and all other system components comply with current safety requirements. Even when the industrial truck is used in accordance with its intended use and all instructions provided are followed, some residual risk cannot be excluded.

A residual risk cannot be excluded even beyond the narrow limits of the danger area that the truck itself represents. In order to be able to react immediately in the event of a malfunction, an incident, a breakdown etc., persons in the danger area must pay increased attention to the truck.

WARNING

All persons in the danger area of the truck must be aware of the dangers posed by the truck.

In addition, your attention is drawn to the safety regulations given 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, very smooth or uneven surfaces, or with poor visibility etc.
- Falling, tripping etc. on the truck, especially in wet weather, with leaking consumables or on icy surfaces
- Risk of fire and explosion from the batteries and electrical voltages
- Human error resulting from failure to observe the safety regulations
- Unrepaired damage or faulty and worn components
- Insufficient maintenance and testing
- Use of incorrect consumables
- Exceeding test intervals

If the operating company negligently or intentionally fails to comply with these require-

Residual dangers, residual risks

ments, this can lead to an accident. In this case, the manufacturer is exempt from liability.

Stability

The stability of the truck has been tested to the latest technological standards. If the truck is used in the proper manner and in accordance with its intended use, the stability of the truck is guaranteed. These standards only take into account the dynamic and static tipping forces that can arise when used in accordance with the specified operating rules and intended use. The danger of exceeding the moment of tilt and losing stability due to improper or incorrect operation can never be ruled out.

The loss of stability can be avoided or minimised by complying with following principles:

- Always secure the load against slipping, e.g. by lashing.
- Always transport unstable loads in suitable containers.
- Always drive slowly when cornering.
- Drive with the load lowered.
- On trucks fitted with a sideshift, align and transport loads such that the load centre of gravity is positioned centrally to the truck.
- Avoid turning and diagonally driving across slopes or gradients.
- Never have the load facing downhill when travelling on slopes or gradients.
- Always take great care when transporting suspended loads.
- Do not drive over ramp edges or steps.

Transporting suspended loads

Before transporting suspended loads, consult the national regulatory authorities (in Germany, the employer's liability insurance associations).

National regulations may place restrictions on these operations, e.g. in Italy.

- Contact the relevant authorities.
- Follow the national regulations for the country in which the truck is being used.

If there are no country-specific regulations for suspended loads in the country of use, observe the following instructions for safe handling.

DANGER

Risk of accident due to transporting suspended loads!

Suspended loads can begin to swing. Suspended loads that begin to swing can result in the following risks.

- Follow the "Instructions for transporting suspended loads".

Risks due to suspended loads

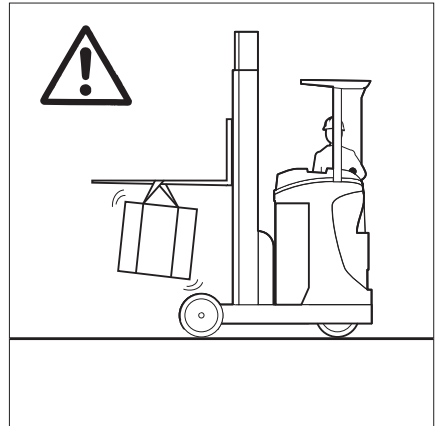
- Impaired braking characteristics and steering movement
- Tipping over the front axle
- Tipping the truck at right angles to the drive direction
- Risk of crushing of accompanying persons
- Reduced visibility

DANGER

Loss of stability!

Slipping or swinging suspended loads can lead to a loss of stability and cause the truck to tip over.

- Follow the "Instructions for transporting suspended loads".



Transporting suspended loads

Instructions for transporting suspended loads

- Swinging loads must be prevented by using the proper driving speed and driving style (careful steering, braking).
- Hanging loads must be hooked on to the truck in such a way that the harness cannot shift or release unintentionally and cannot be damaged.
- When transporting suspended loads, suitable aids (e.g. guy wires or supporting poles) must be available so that accompanying persons can guide suspended loads and prevent the loads from swinging.
- Take particular care to ensure that there is no one in the drive direction in the driving lane.
- If, despite this, the load begins to swing, ensure that no person is placed at risk.

DANGER

Risk of accident due to transporting suspended loads!

- When transporting suspended loads, never perform or end driving and load movements abruptly.
 - Never drive on slopes with a suspended load.
 - Transporting containers holding fluids as hanging loads is not permitted.
-

Transport of liquid containers

The transport of liquid containers requires special precautions and compliance with safety guidelines.

- Legal regulations for the transport and handling of liquids and liquid containers must be followed.
- Requirements of the manufacturers of liquid containers and liquids must be observed.

It is the responsibility of the operating company to ensure safety when transporting liquid containers. Suitable protective measures may include:

- Use of special containers
- Limiting transport to full containers only to prevent the liquid from rocking
- Limitations on driving speed during transport
- Limitation of the lifting height for storage and removal from storage

Liquids must be transported without excessive movement or rocking in the container. The load capacity diagram of the truck does not take into account the forces caused by liquids in motion.

Hazards when transporting liquid containers

DANGER

If the liquid in the container rocks, the truck may lose stability or tip over. Liquid containers may slip, or may leak following a fall.

- Carefully lift, lower and transport the load. Avoid rocking the liquid.
- In case of danger, stop the activity until the liquid has come to rest again.

Depending on the level and viscosity, liquid may start to move when the load is being handled. This can generate significant forces that affect the vehicle and the liquid container.

The driver must be aware of the following hazards:

- Impairment of the braking characteristics and steering movement of the vehicle
- Tilting over the front axle or laterally to the drive direction

Transport of liquid containers

- Liquid spillage in the event of damage to or fall of the container
- Risk of crushing of accompanying persons
- Reduced visibility

Picking up and setting down liquid containers

CAUTION

As the lift height increases, the forces on the truck also increase if the liquid in the container starts to move.

- Wait until the liquid has settled before picking up and setting down.
 - Do not endanger the stability of the vehicle.
-
- Take special care when picking up the liquid container and setting it down. Move the load slowly (raising/lowering, forwards/backwards) to minimise liquid movement.
 - When picking up, ensure that the liquid container is securely held on the forks.

Before transport

- Ensure that the vehicle and liquid container are suitable for transport.
- Consult the load capacity diagram.
- Check that the liquid container is undamaged and properly closed.
- If necessary, take precautions to protect against leakage.

During transport

- Make sure that the path is clear of people and obstacles.
- Lower the forks to ground clearance with the load before transporting.
- Accelerate and brake slowly.
- Adapt the vehicle speed. Reduce the speed significantly before curves or before turning.
- If the liquid in the container starts rocking, decrease the speed. Avoid jerky load changes until the load settles. Prevent danger to people.

- Take special care when climbing, descending or crossing.

Noise

The value is determined in a test cycle in accordance with Harmonised European Standard EN 12053 and declared according to EN ISO 4871. The continuous sound level is a value averaged according to standard regulations, taking the sound pressure level into account when driving, lifting and idling. The sound pressure level is measured at the ear.

Sound pressure level in driver's seat	$L_{pAZ} < 74 \text{ dB (A)}$
Uncertainty factor	$K_{pA} = 4 \text{ dB (A)}$

CAUTION

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

Vibration

Vibrations to which the hands and arms are exposed, the following value is valid for all truck models: $\dot{a}_w < 2.5 \text{ m/s}^2$

It is mandatory to specify the hand-arm vibrations, even where the values do not indicate any danger, as in this case.

The value expressed above can be used to compare forklift trucks of the same category.

It cannot be used to determine the operator's daily exposure to vibrations during real operation of the truck; these vibrations depend on the conditions of use (floor conditions, method of use etc.) and therefore daily exposure must be calculated using data from the place of use.

Carrying out regular inspections on the truck

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.

Operating company

The operating company is the natural or legal person 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 specifications for the performance of safety checks are observed.

Drivers

Trucks must be driven only by persons who:

- Are at least 18 years of age
- Have been trained in performing this task
- Have demonstrated their ability to perform this task, e.g. driver's licence

Specific knowledge of the truck to be operated is also required.

The contract for driving a truck must be provided in writing. Observe the national regulations for your country.



NOTE

A driver's licence for public roads is required in order to drive industrial trucks on public roads. Observe the national regulations for your country.

Rights, duties and rules of behaviour for the driver

The driver must:

- Be informed of his rights and duties
- Wear sturdy footwear to ensure safe driving and braking
- Wear protective equipment appropriate to the application conditions (protection suit,

safety shoes, safety helmet, protection goggles, gloves)

- Have read and understood the operating instructions
- Have familiarised themselves with safe operation of the truck
- Be physically and mentally able to drive the truck safely

DANGER

Risk of fatal injury due to impaired reactions!

Do not perform any work on or with the truck while under the influence of drugs, alcohol or medication that impair your reactions.

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 removing the key.

Competent person

A competent person is a specialist in the field of industrial trucks who has:

- Successfully completed training, as at least a service engineer for industrial trucks
- Many years of professional experience with industrial trucks
- Knowledge of the accident prevention regulations
- Knowledge of the relevant national technical regulations

The competent person is able to assess the condition of industrial trucks in terms of health and safety.

Handling consumables



ENVIRONMENT NOTE

Consumables must be handled properly and in accordance with the manufacturer's instructions.

Disposing of components and batteries

- Consumables must be stored only in containers that comply with the applicable regulations and at the locations stipulated
- Do not allow flammable consumables to come into contact with hot objects or naked flames
- When topping up consumables, use only clean containers
- Observe the manufacturer's instructions relating to safety and disposal
- Avoid spillages
- Clean up spilled liquids immediately using suitable binders; dispose of these in accordance with regulations
- Old and contaminated consumables must be disposed of in accordance with the applicable regulations
- Comply with the statutory provisions
- Before performing lubrication work, filter changes or any work on the hydraulic system, carefully clean the area around the relevant part

- Dispose of used spare parts in an environmentally responsible manner

WARNING

Pressurised hydraulic fluid penetrating the skin, e.g. due to leakage, is dangerous. If an injury of this type occurs, consult a doctor.

- Wear protective equipment.

WARNING

The improper handling of coolant and coolant additives presents a risk to health and the environment.

- Observe the manufacturer's instructions.

Disposing of components and batteries

The truck is composed of different materials. If components or batteries need to be replaced and disposed of, the national regulations must be observed with regard to:

- Disposal
- Handling
- Recycling



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 requirements.

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 refitting

If your truck is to be used in specific conditions (e.g. refrigerated warehouse or flameproof protection), it must be specially equipped and approved for this purpose, if applicable.

If your truck is used for work that is not specified in the guidelines or in these instructions, and it must be modified or refitted for this purpose, it is important to remember that any structural modification could affect truck handling while driving as well as the stability of the truck, and could lead to accidents. You should therefore contact the manufacturer before carrying out any modification. Permission from the manufacturer is required for any modification that may affect the truck's stability.

Any constructional modification or transformation of your truck is forbidden without prior written permission from the manufacturer. Authorisation from the relevant authority may also be required.

SPECIAL CASE: if the manufacturer of the truck is no longer in business and its activity is unlikely to be taken over by a successor

In this specific case, you may plan a modification or alteration to your truck provided that:

- The modification or alteration is designed, tested and implemented by one or more engineers who are experts in the field of industrial trucks and their safety
- A record is kept of the design, the different tests and the implementation of the modification or alteration
- Appropriate changes are approved and made to the capacity plate, decals, labels and operating instructions
- a permanent and clearly visible label is attached to the truck indicating the nature of the modification or alteration as well as the date of the modification or alteration, and the name and address of the company that carried out the work.

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.

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!



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.



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.

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.



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.

Safety regulations for handling consumables

Hydraulic fluid

**⚠ WARNING**

During operation of the forklift 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.

Battery acid

**⚠ WARNING**

Battery acid contains dissolved sulphuric acid. This is toxic.

- Avoid contact and consumption.
- In case of injury, seek medical advice immediately.

**ENVIRONMENT NOTE**

- Dispose of used battery acid in line with the applicable regulations.

**⚠ WARNING**

Battery acid contains dissolved sulphuric acid. This is corrosive.

- When working with battery acid, always wear protective clothing and eye protection.
- Do not allow any acid to get onto the clothing or skin or into the eyes; if this does happen, rinse immediately with plenty of clean water.
- In case of injury, seek medical advice immediately.
- Immediately rinse away spilt battery acid with plenty of water.
- Follow the statutory 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.
- Any spillage of battery acid must be neutralised immediately.

Safety devices

Safety devices

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.

Battery connection cables

CAUTION

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

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 troublefree 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 .

CAUTION

The EMC regulations for the truck must be observed.

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

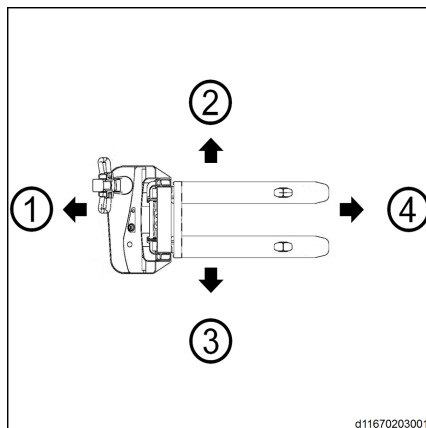
3

Views

Drive directions

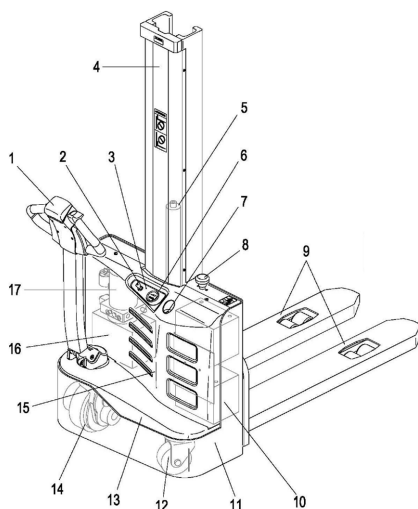
Drive directions

The drive directions of the vehicle are forward (1), reverse (4), left (2) and right (3).

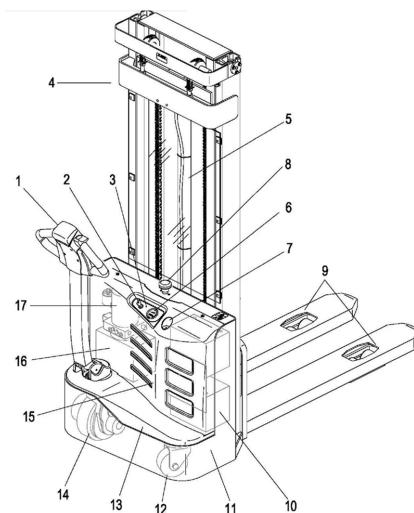


Main Components (old CE)

Truck Assemblies



- 1 Tiller
- 2 Key switch
- 3 LED Lamp
- 4 Mast cover
- 5 Lift Cylinder
- 6 Battery discharge indicator
- 7 Battery charge connector
- 8 Emergency brake switch
- 9 Lift mechanism



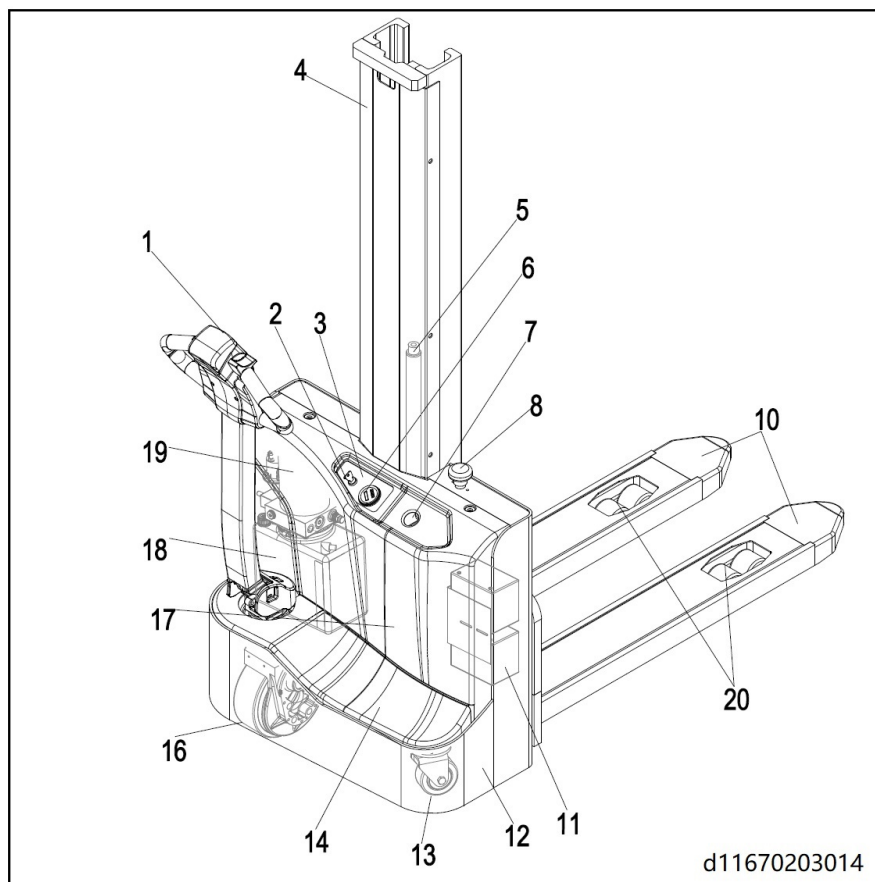
- 10 Battery
- 11 Chassis
- 12 Balance wheel
- 13 Cover (nether)
- 14 Driving wheel
- 15 Cover(upper)
- 16 Tank
- 17 Hydraulic Pump

d11670203002

Main Components (new CE)

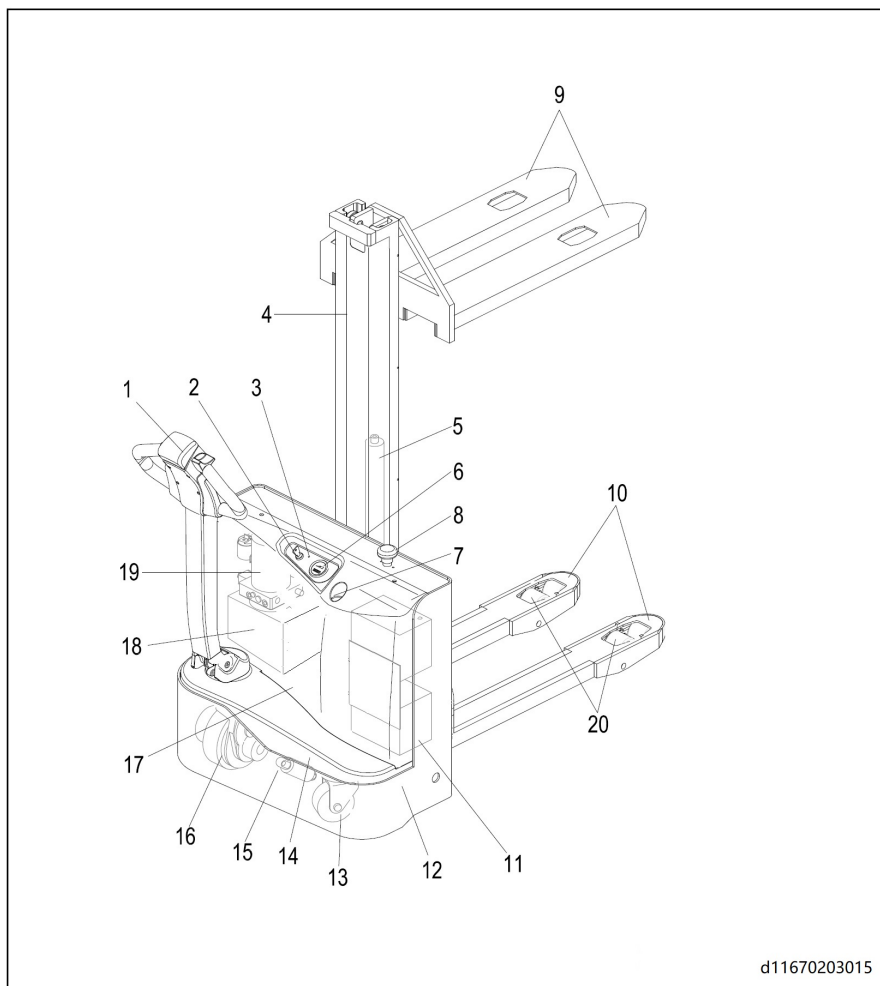
Main Components (new CE)

Truck Assemblies ECV10C



- | | | | |
|----|-----------------------------|----|----------------|
| 1 | Tiller | 11 | Battery |
| 2 | Key switch | 12 | Chassis |
| 3 | LED lamp | 13 | Caster |
| 4 | Mast cover | 14 | Cover |
| 5 | Lift cylinder | 16 | Driving wheel |
| 6 | Battery discharge indicator | 17 | Upper cover |
| 7 | Battery charge connector | 18 | Tank |
| 8 | Emergency stop switch | 19 | Hydraulic Pump |
| 10 | Fork | 20 | Load Wheels |

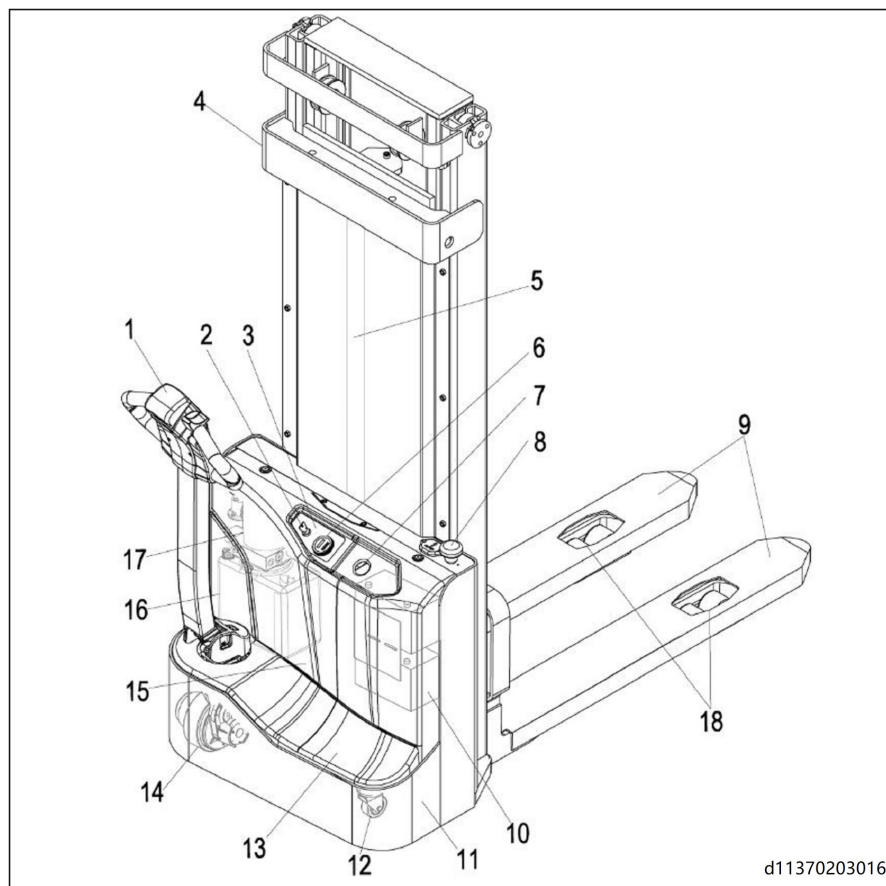
Truck Assemblies ECV10iC



- | | | | |
|----|-----------------------------|----|----------------|
| 1 | Tiller | 11 | Battery |
| 2 | Key switch | 12 | Chassis |
| 3 | LED lamp | 13 | Caster |
| 4 | Mast cover | 14 | Cover |
| 5 | Lift cylinder | 15 | Cylinder |
| 6 | Battery discharge indicator | 16 | Driving wheel |
| 7 | Battery charge connector | 17 | Upper cover |
| 8 | Emergency stop switch | 18 | Tank |
| 9 | Fork | 19 | Hydraulic pump |
| 10 | Chassis fork arm | 20 | Load wheels |

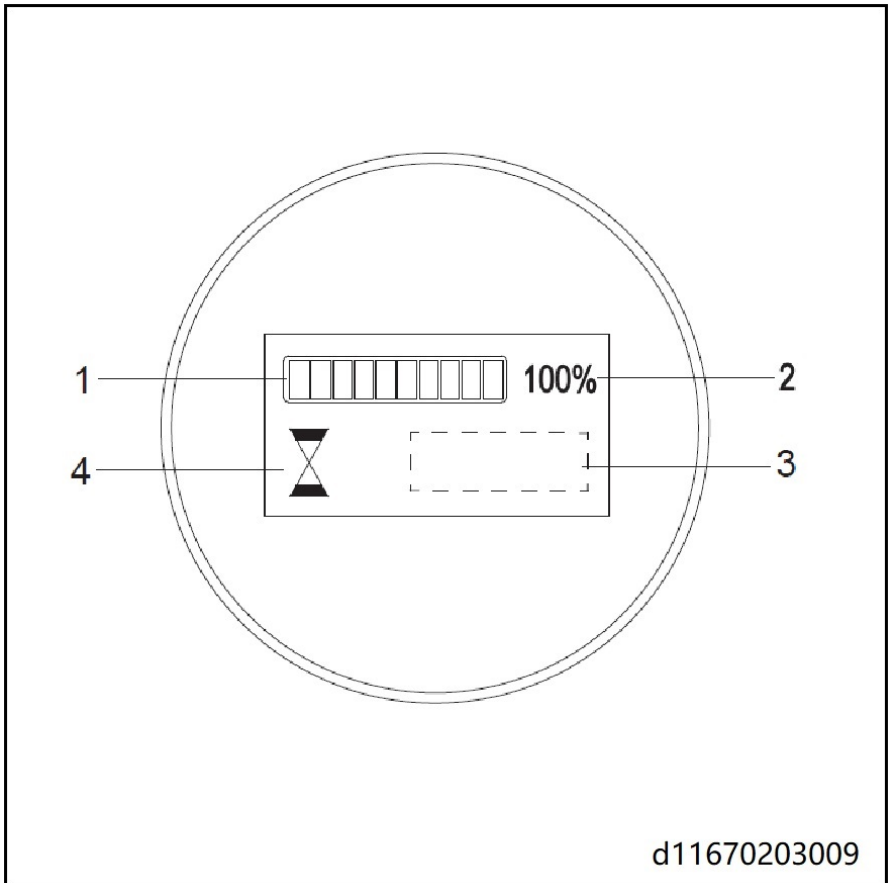
Main Components (new CE)

Truck Assemblies ECV10



- | | | | |
|---|-----------------------------|----|----------------|
| 1 | Tiller | 10 | Battery |
| 2 | Key switch | 11 | Chassis |
| 3 | LED lamp | 12 | Caster |
| 4 | Mast cover | 13 | Cover |
| 5 | Lift cylinder | 14 | Driving wheel |
| 6 | Battery discharge indicator | 15 | Upper cover |
| 7 | Battery charge connector | 16 | Tank |
| 8 | Emergency stop switch | 17 | Hydraulic pump |
| 9 | Fork | 18 | Load wheels |

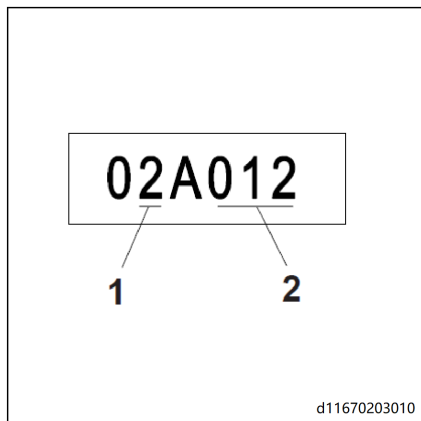
Display instrument



- | | |
|--|--|
| <p>1 The LED(1) displays the remaining capacity. Ten blocks are on indicates full of power. When 1st block and 2nd block blinks alternatively, it indicates low power needs to be charged.</p> <p>2 The LED(2) displays remaining charge percentage;</p> | <p>3 The LED(3) normally displays the total running time. If fault, displays the fault code.</p> <p>4 The LED(4) is always on, it indicates interlock switch opened. If the LED(4) is flashing, it indicates interlock switch closed, the display starts timing.</p> |
|--|--|

Key switch

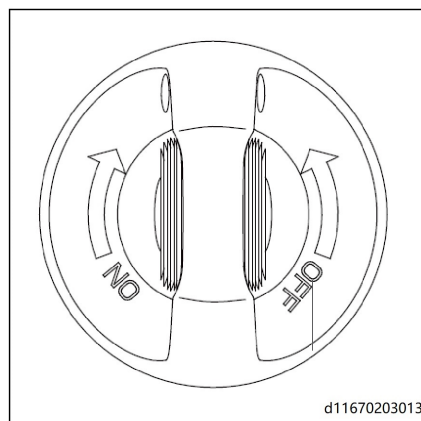
Error Code		
1	Controller number	2 :Traction controller
2	Error code	Consult the service engineer



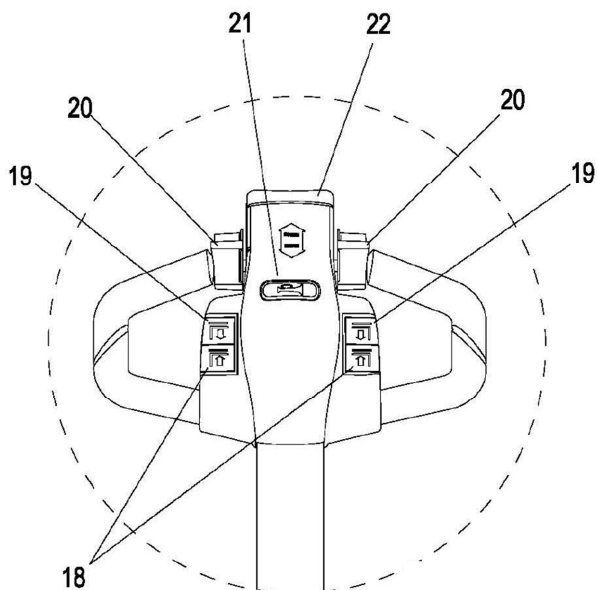
Key switch

Connect and interrupt control current.

- When the key rotates to gearOFF, the control current of the truck will be interrupted.
- When the key rotates to gearON, the control current of the truck will be connected.



Tiller (ECV10 ECV10C)



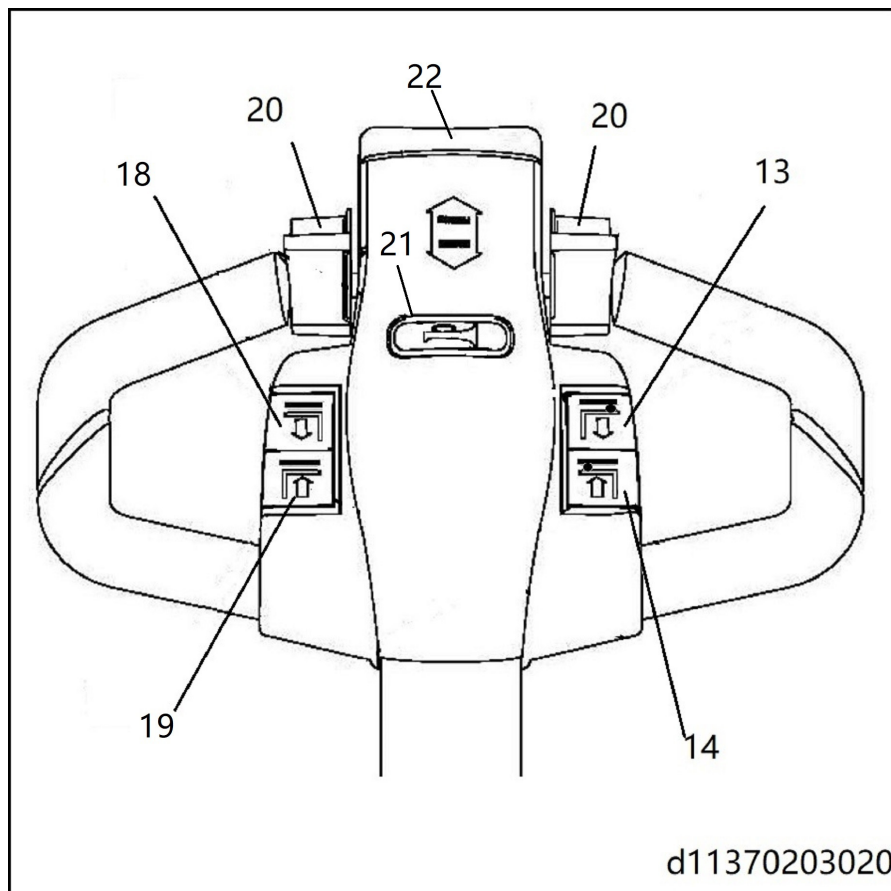
d11670203003

- 18 Fork lowering button
- 19 Fork lifting button
- 20 Travel switch

- 21 Horn switch
- 22 Collision safety switch

Tiller (ECV10 ECV10C)

Tiller (only for ECV10iC)

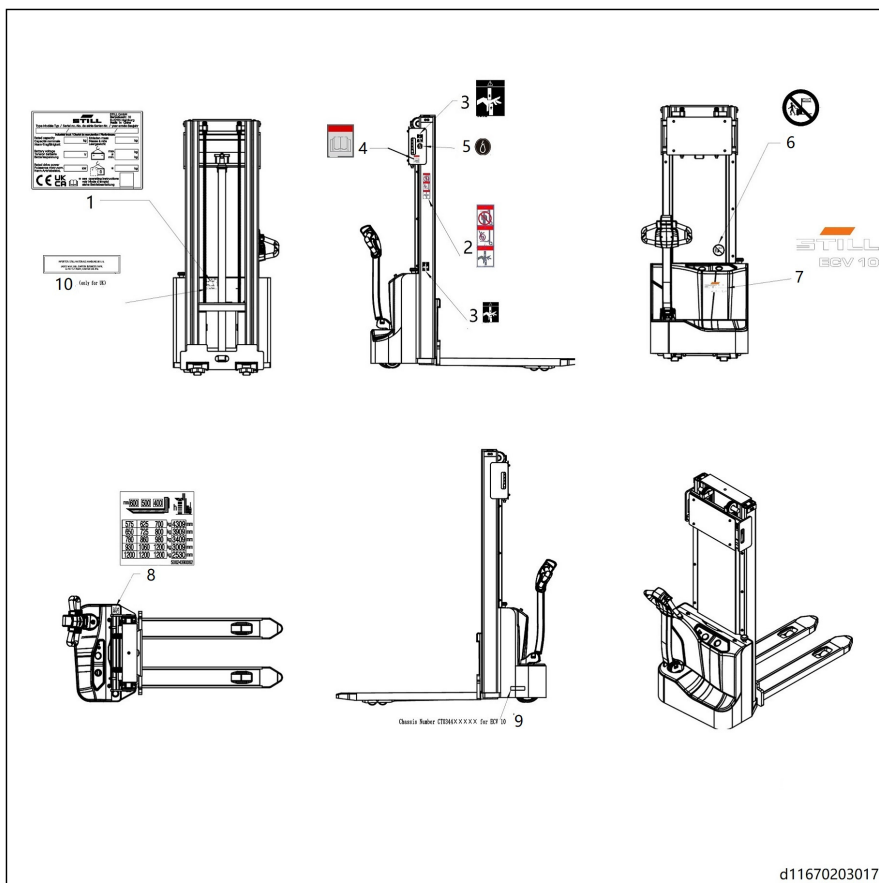


- 13 Chassis fork arm lifting button
- 14 Chassis fork arm lowering button
- 18 Fork lifting button
- 19 Fork lowering button

- 20 Travel switch
- 21 Horn switch
- 22 Collision safety switch

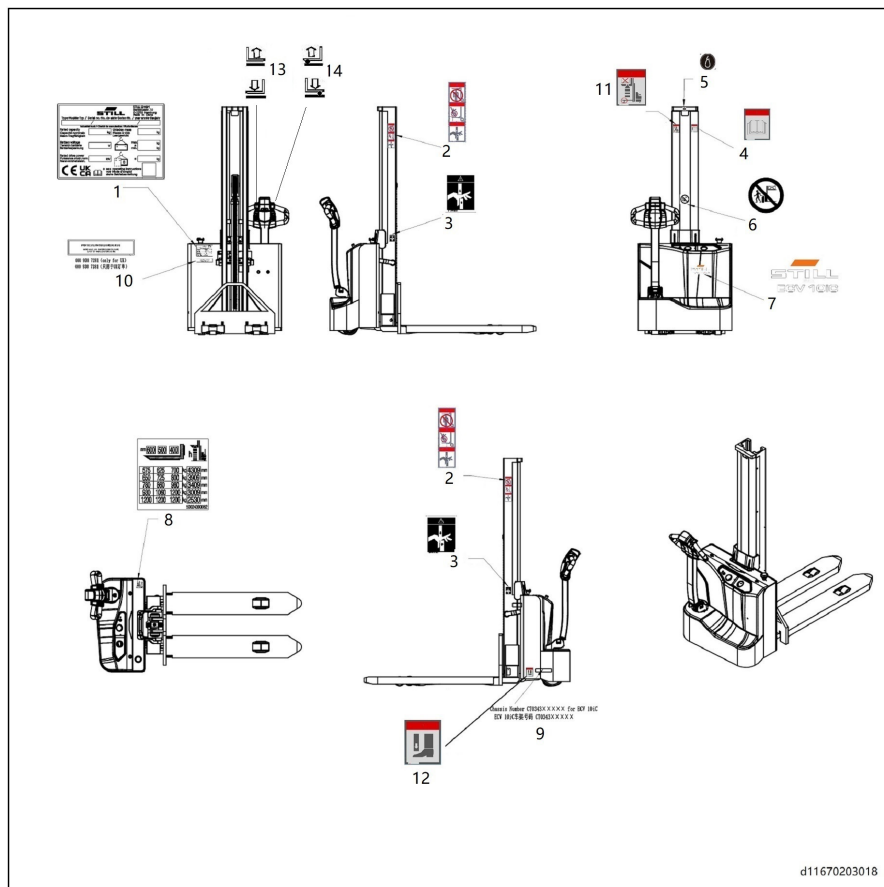
Dataplate and safety labels

ECV10



Dataplate and safety labels

ECV10C \ ECV10iC



- | | | | |
|---|--|----|--|
| 1 | Truck nameplate | 9 | Vehicle body number |
| 2 | Lift mast safety label-Do not stand on or under the fork arms/Anti-pinch label | 10 | "Importer" label (only for UK) |
| 3 | Anti-pinch label | 11 | Warning label-Do not lift the load to the top while lift the chassis support leg to the top(only for ECV10iC) |
| 4 | Read the instruction label | 12 | Safety label for preventing foot injury |
| 5 | Truck slinging label | 13 | Fork lifting and lowering label(only for ECV10iC) |
| 6 | Driving safety label-Do not drive while the load is being lifted | 14 | Chassis fork arm lifting and lowering label(only for ECV10iC) |
| 7 | Product model | | |
| 8 | Load rating plate | | |

How to distinguish old CE truck and new CE truck

- The Vehicle body No. which is shown in the "Data plates and safety labels" can help to distinguish old truck and new truck.

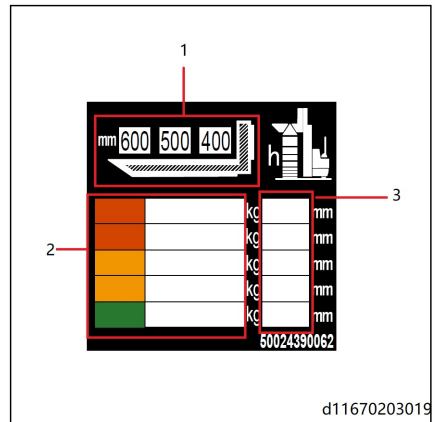
Vehicle body number difference between old CE and new CE

Truck model	Vehicle body No.(Old CE)	New CE Vehicle body No.(New CE)	Remark
ECV10C	CT0342M0××××	CT5731M0××××	Old CE or new CE truck can be justified by the vehicle body number. (M is the year code. Different year has different year code.)
ECV10i C	CT0343M0××××	CT5732M0××××	
ECV10	CT0344M0××××	CT5730M0××××	

Load label

This label shows the relationship between the position of the load centre and the maximum load.

Before loading, check that the load and load centre distance are within the range permitted by the bearing capacity icons.



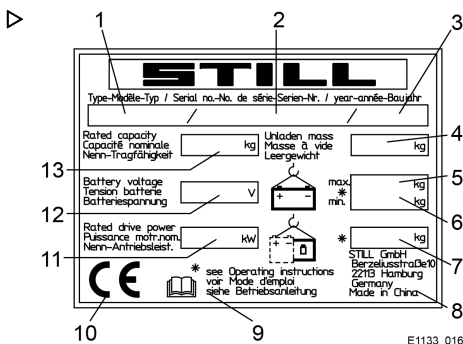
- 1 Load center
- 2 Maximum load weight
- 3 Lifting height

Nameplate

Nameplate

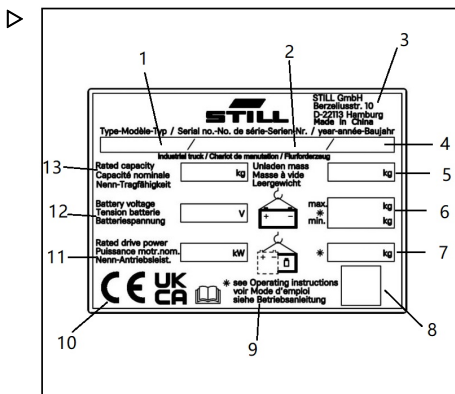
Nameplate, variant 1

- 1 Type
- 2 Serial number
- 3 Year of manufacture
- 4 Unladen mass in kg
- 5 Max. permissible battery weight in kg (for electric trucks only)
- 6 Min. permissible battery weight in kg (for electric trucks only)
- 7 Own mass (self weight) in kg without battery
- 8 Manufacturer
- 9 Refer to technical data listed in this operating instructions for more detailed information
- 10 CE label
- 11 Rated drive power in kW
- 12 Battery voltage in V
- 13 Rated capacity



Nameplate, variant 2

- 1 Type
- 2 Serial number
- 3 Manufacturer
- 4 Year of manufacture
- 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
- 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
- 11 Rated drive power in kW



- 12 Battery voltage in V
- 13 Rated capacity

**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.*

**NOTE**

Nameplate provided according to collocation requirements.

Nameplate

4

Operation

Commissioning

Commissioning

The truck must only be operated on battery current ! To prepare the truck for operation after delivery or transportation, the "Check before first use" operations must be performed:



NOTE

If the truck is delivered in multiple parts, setup and commissioning must only be performed by trained, authorised personnel.

Wheel flattening

If the truck has been parked for a long period, the wheel surfaces may tend to flatten. Once the truck has covered a certain distance, the flattening will disappear.

First use

	Carried out	
	✓	✗
Check the equipment for completeness.		
If necessary, install the battery. Make sure that the battery cable is not damaged.		
Check battery status. Fully charge the battery.		
Check for fluid leakage.		
Check the driving control functions.		
Check lifting and lowering control functions.		
Check meter status.		
Check brake system function.		
Check the emergency off switch.		
Check horn.		
Check safety reverser function.		
Check steering function.		
Check whether wheels are tightened.		

Daily checks before use

	Carried out	
	✓	✗
Check operation switch, display equipment and component functions.		
Check the lifting and lowering functions by operating the buttons.		
Check function of lift limit switch settings.		
Check the function of the interlock switch.		
Check if all bolts and nuts are tightened firmly.		
Check brake system function.		
Check the hydraulic functions.		
Check if there is any oil leakage from the cylinder.		
Inspect whether there is any abrasion or damage in the oil pipes.		
Inspect where is any leakage in the hydraulic oil.		
Check the function of the steering system.		
Check the emergency off switch.		
Check horn.		
Check safety reverser function.		
Check the battery installation, make sure no damage to the battery cables.		
Check the battery charging connector.		
Check the drive wheels and rollers for wear and damage.		
Check for scratches, deformation or cracks.		
Visual check if there are any broken hoses or broken electric wires.		
Check whether optional functions are operating normally.		

Checking the working environment

Remember to check the working environment carefully before use.

There must not be any trace of leakage of consumables under the equipment.

The work area must be kept clear. There must not be any obstacles or people on the driving route.

The driver must be vigilant about anything that could hinder safe operation:

- There must not be any people in the vicinity of the vehicle
- There must not be any people under the forks after they have been lifted
- The driver must not use a media player or any other electronic device that may affect their peripheral awareness
- There must be no trace of grease on the floor

Checking the working environment

The driver must be particularly careful when transporting goods. The size of the goods may affect vehicle handling and obstruct visibility. The driver must slow down when turning, because the truck may tip over.

The driver must slow down when passing obstacles, to prevent the truck from losing balance and driver hand-arm vibration.

Drive operations

Description

This device is designed for non-hazardous indoor environments. Its working temperature should be within the specified range.

These models comply with the EN 12895 standard on electromagnetic compatibility. Correct operation can no longer be guaranteed in areas where the electromagnetic fields could exceed the thresholds specified by the standard.

The trucks must be used on dry, clean, flat ground.

Low-lift stackers without initial lift can go over ramps and gentle slopes. Low-lift stackers with initial lift can go over larger obstacles.

Loads must be homogenous, with a maximum recommended height of 2 m.

CAUTION

Always adapt your driving to the ground conditions (uneven surfaces, etc.), particularly hazardous working areas and the load.

CAUTION

- To prevent the bottom of the lifting system from scraping the ground, always raise the forks above the ground around 150–200 mm.
- Remember to turn off the power supply before leaving the equipment.
- For effective protection, wearing safety footwear is compulsory.
- When travelling, the load must be in the lowered position.

CAUTION

Driving safety instructions

- The driver must drive slowly around corners and when entering narrow passageways.
- The driver must always maintain a safe braking distance from vehicles or persons in front of him.
- The driver must avoid braking suddenly, making U-turns too quickly and overtaking in areas with poor visibility.

CAUTION

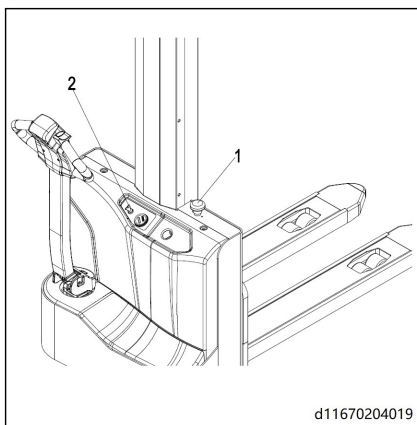
The working area of the truck must be adequately lit.

If the working area is not sufficiently illuminated, working spotlights must be installed to ensure that the driver can see properly.

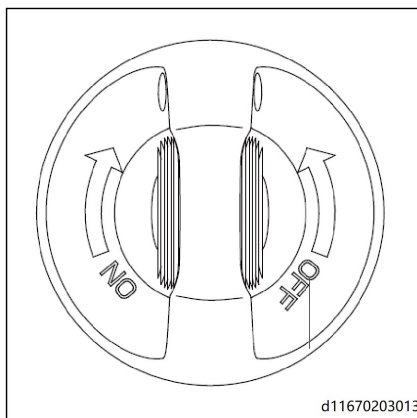
Drive operations

Truck starting(new CE)

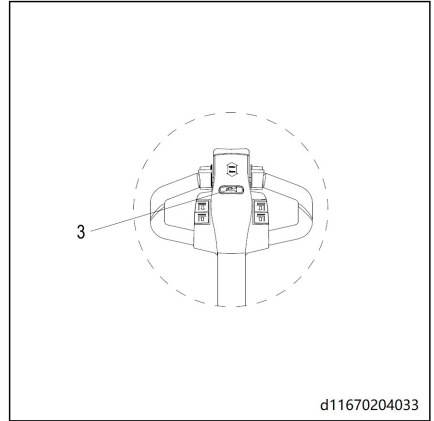
- Release the emergency stop switch(1).



- Turn the key switch(2) to the ON position, the battery indicator will come on.



- Test the horn button(3).



- Put the tiller in the drive position(M) and use ▷ the drive switch (1) to control direction and speed.



NOTE

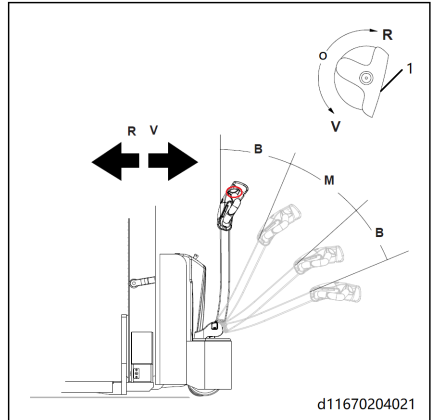
When the tiller is in the brake position(M), the electromagnetic brake is locked and the truck cannot be driven.

V is forwards.

R is reverse.

B is brake.

M is running area.



Drive operations

Forward travel/reverse travel



Forward travel

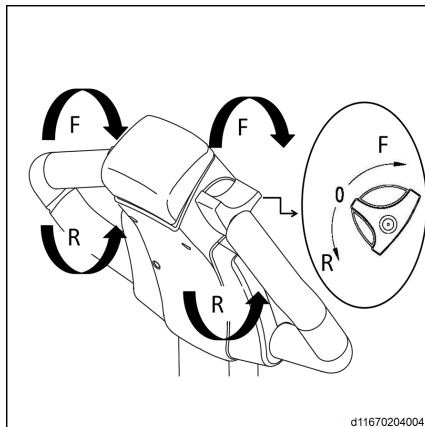
- Use your thumb to press the drive switch, gently and gradually increasing the force in the (F) direction.

The vehicle will accelerate and move forwards according to the pressure applied to the drive switch.

Reverse drive

- Use your thumb to press the drive switch, gently and gradually increasing the force in the (R) direction.

The vehicle will accelerate and move backwards according to the pressure applied to the drive switch.



Brake



NOTE

The braking performance of the equipment depends very much on the condition of the floor surface. This should be taken into consideration when driving.

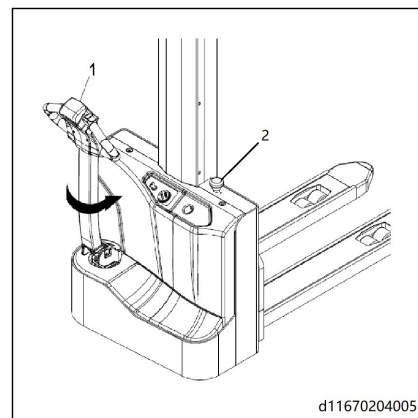


NOTE

The driver must drive carefully and cautiously. When there is no danger, the driver must use moderate braking to avoid the load moving or the trailer becoming detached.

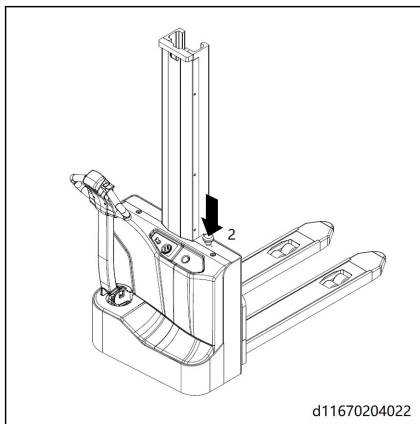
Braking can be done in the following ways:

- Emergency stop brake
- Automatic braking
- Regenerative braking
- Reverse braking



Emergency stop brake

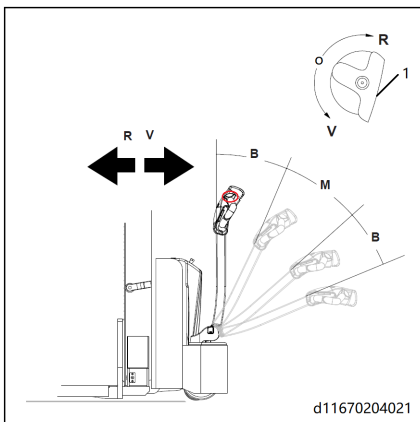
- Press the emergency off switch (2); the equipment power supply will be cut off.



Automatic braking

- Releasing the tiller (1) will initiate forced braking.

Slackening the tiller (1) will cause it to move to the braking area (B). Alternatively, lowering the tiller to the brake area (B) at the bottom will also initiate forced braking.



⚠ CAUTION

If the tiller moves slowly into the brake position, identify the cause and rectify the fault.

If necessary, replace the gas spring!

Regenerative braking

- Release the drive switch. The drive switch will automatically return to the initial position and the vehicle will begin to enter the regenerative braking state. When it decelerates to <1 km/h, the electromagnetic brake will bring the motor to a stop.

⚠ CAUTION

Open the drive switch; if the drive switch cannot quickly return to the initial position or resets very slowly, identify the cause and rectify the fault.

Drive operations

Reverse braking

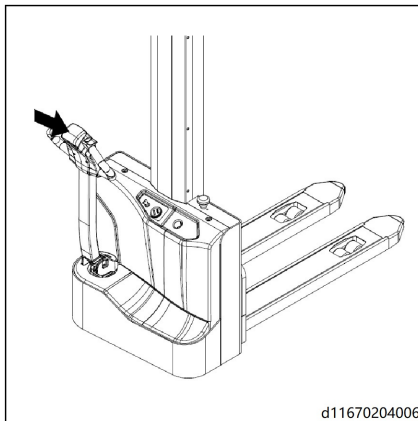
Braking can be accomplished by changing the direction of travel.

- Switching the drive switch to the opposite direction until the truck comes to a stop, then release the drive switch.

Emergency reverse button

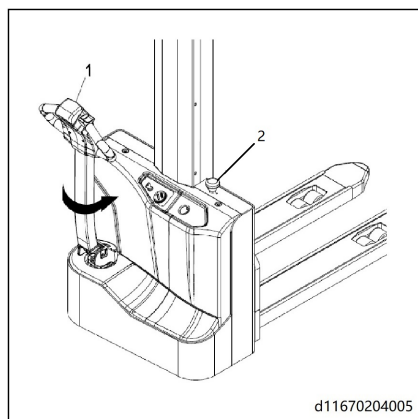
To protect the driver from any risk of being trapped between an obstacle and the machine, the end of the tiller is fitted with an emergency reverse button.

Once the emergency reverse button is triggered(1), the equipment will stop immediately, then slowly move back in the direction of the fork.



Steering

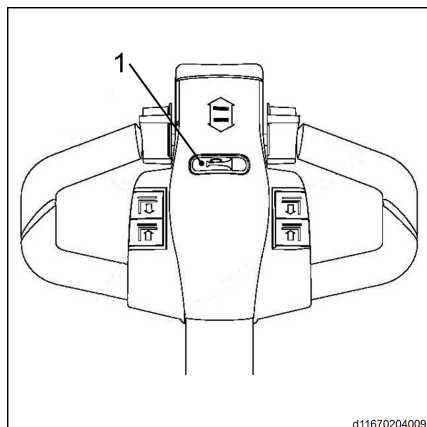
- Turn the tiller (1) left or right according to the desired direction.



Horn operation

The horn must be used on routes with poor visibility and at junctions.

- Press the horn button (1) located on the tiller arm.



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Drive operations

Using the truck on a slope



NOTE

Incorrect use of the truck on slopes is not recommended. It places particular stress on the traction motor, brakes and battery.

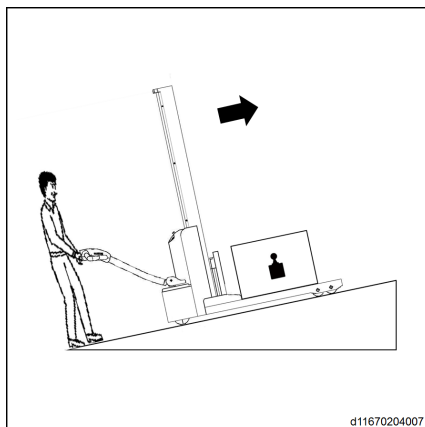
Ramps must always be approached with great caution:

- Never attempt a slope with a gradient greater than that specified in the truck's data-sheet
- Make sure that the ground is dry with a non-slip surface, and that the route is clear

Ascending slopes

Travel up slopes must always be in reverse, with the load uphill.

Without a load, we recommend that you ascend slopes forwards.



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Descending slopes

Travel down slopes must always be forwards, with the load uphill.

Without a load, it is recommended that slopes are descended backwards.

In all cases, you must travel at a very low speed and brake very gradually.

⚠ DANGER

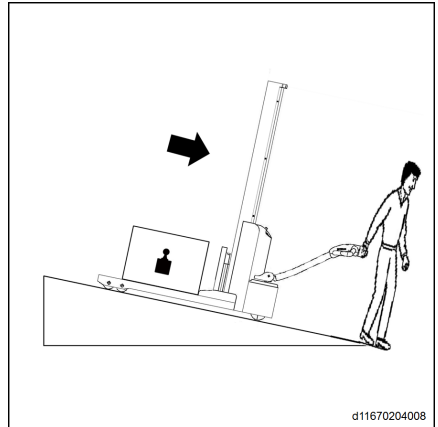
Risk to life and/or risk of serious damage to equipment.

Never park the truck on a slope. Never make a U-turn or take shortcuts on a slope. The driver must drive very slowly on slopes.

⚠ CAUTION

Risk of serious injury and/or serious damage to equipment.

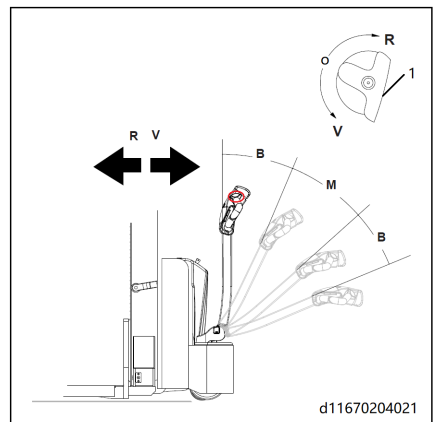
Driving on a slope that exceeds the specified gradient is prohibited due to limited braking capacity.



Starting on a slope

If you have to stop and then start on slope, proceed as follows:

- Stop on the slope by pressing the accelerator in the opposite direction until the machine comes to a standstill.
- Return the accelerator to the neutral position, then release the accelerator control button to apply the parking brake. Make the control shaft into the braking area(B).
- To restart, activate the direction control button in the required direction.
- Put the tiller in drive mode.
- The truck will move.



Hydraulic operations

Hydraulic operations

Use of the mast

⚠ CAUTION

Only the specified lifting device can be used. The driver must receive guidance related to the operational aspects of the lifting device.

⚠ CAUTION

Never put your hands near the lifting mechanism.

⚠ CAUTION

The mast protective screen must always be in place, correctly fixed and clean to provide good visibility.

⚠ DANGER

Loads that are not positioned and secured in accordance with the regulations pose an accident risk.

- Instruct all personnel to vacate the hazard area. If any person is located in the hazard area, stop the equipment immediately.
- Only transport loads that have been positioned and secured in accordance with regulations. Adopt appropriate protective measures if the load is at risk of tipping over or falling during transport.
- Do not use damaged handling tools to handle a load.
- Never stay under raised load components.
- Personnel are prohibited from entering load components.
- This equipment must not be used to lift people.
- Try to move the forks until they are under the goods.

⚠ CAUTION

Before picking up the goods, the driver must ensure that the goods have been coded correctly and stacked up well.

The weight must not exceed the rated load of this equipment.

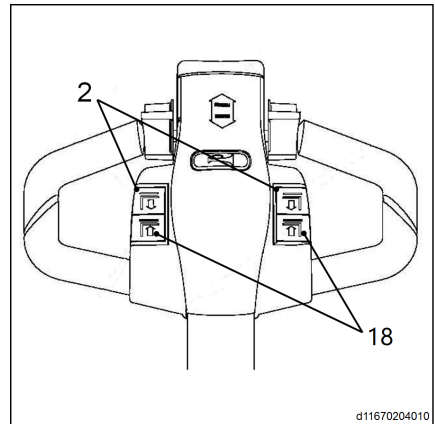
Do not place long loads sideways across the forks.

Mast lifting and lowering (ECV10C ECV10)

- Press the fork lifting button(2) until the goods reach the required height, then release the button.
- Press the fork lowering button(18) until the goods are lowered to the required height, then release the button.

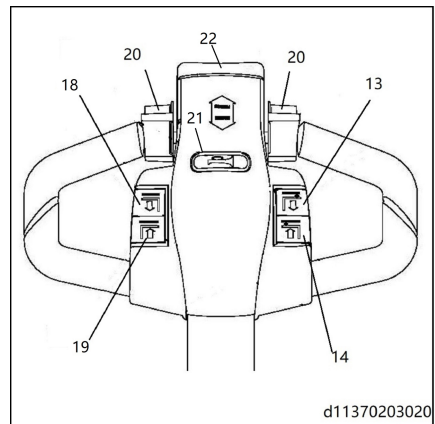
⚠ CAUTION

To avoid shortening the service life of the cylinder, try to avoid raising the forks to maximum height when lifting.



Lifting and lowering (ECV10iC)

- Press the fork lifting button(18) until the goods reach the required height, then release the button.
- Press the fork lowering button(19) until the goods are lowered to the required height, then release the button.
- Press the chassis fork arm lifting button(13) until the chassis fork arm is lifted to the required height for entering into the pallet and release the button. (the chassis fork arm's maximum lifting height is 115mm).
- Press the chassis fork arm lowering button(14) until the chassis fork arm is lowered to the bottom and release the button.



Working with loads

- Before picking up a load

Ensure that its weight does not exceed the equipment's lift capacity.

- Refer to the nominal capacity specified on the equipment's capacity rating plate.
- Also make sure that the load is stable, well-balanced and centred between the forks to avoid dropping any part of the load.

Hydraulic operations

- Check that the width of the load is compatible with the width of the forks.

CAUTION

Safety footwear must be worn.

CAUTION

Transporting people is strictly prohibited.

DANGER

It is essential to slow down when approaching a corner or on wet floors.

CAUTION

Do not touch nearby loads or loads positioned at the side or in front of the load being handled.

Arrange the loads with a small space between them to prevent them coming into contact with one another.

Picking up a load from the ground

- Approach goods carefully when driving the vehicle.
- Lower the forks so that they can easily be inserted into the pallet.
- Insert the forks below the pallet.
- If the goods are shorter than the forks, move the goods a few centimetres from the end of the forks so as not to scratch the goods in front.
- Lift the goods a few centimetres.

Carrying a load

⚠ DANGER

Personnel must not stand under or near the truck when the load is in the raised position.

⚠ DANGER

Never transport a load with the forks in the raised position as the equipment may become unstable.

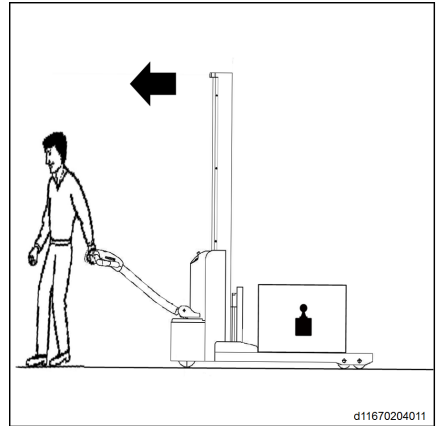
- Always drive forwards for optimum visibility.
- When carrying a load on a slope, always climb and descend with the load uphill. Never travel diagonally across the slope or make a U-turn.
- Reverse gear must only be used for depositing a load. Since visibility in this direction is restricted, you should only travel at very low speed.
- Never drive with an unstable load.
- If visibility is poor, let someone guide you.
- Be careful of low passageways, low doorways, scaffolding, pipes etc.
- To facilitate movement over obstacles, increase the ground clearance.
- Check that the width of the load is compatible with the width of the aisle.

Setting a load down on the ground

- Carefully move the load into the deposit area.
- Lower the load until the fork arms are free.
- Move the forks straight back.
- Lift the forks a few centimetres again.

⚠ CAUTION

Be careful not to touch nearby loads or those behind the equipment.



Hydraulic operations

⚠ CAUTION

Do not touch nearby loads or loads positioned behind the equipment.

⚠ CAUTION

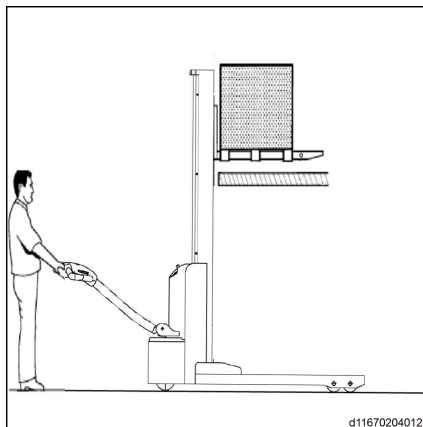
Before you remove the load, ensure that there are no people in the vicinity.

Stacking a load

- Carefully drive the machine to the required location.
- Raise the forks clearly above the level where the load is to be placed.
- Drive the truck into the racking.
- Lower the load until the fork arms are free.
- Move the forks straight back.
- Lower the forks again until they are a few centimetres away from the ground.

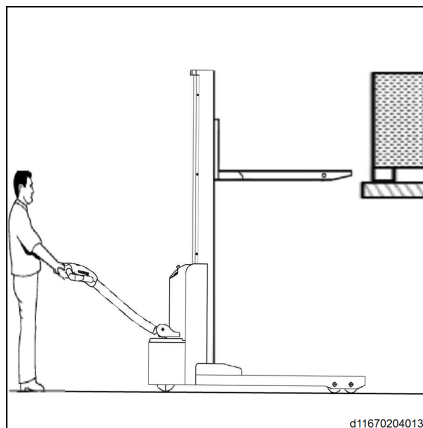
⚠ DANGER

Personnel must not stand under or near the truck when the load is in the raised position.



Picking up a load at height

- Carefully drive the machine to the required location.
- Raise the forks to the height of the pallet.
- Carefully move the forks forward under the pallet.
- Lift the forks until the pallet moves away from the racking.
- Reverse the truck to free the pallet.
- Lower the goods again until they are a few centimetres away from the ground.



⚠ CAUTION

If the equipment has an initial lift control, separate the goods from the racking. To maintain maximum stability, never use the initial lift control, to avoid overloading the equipment.

Emergency lowering

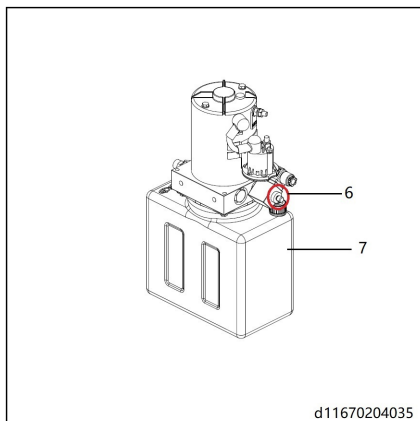
The solenoid valve is equipped with an emergency lowering screw for manual emergency lowering. This operation can be executed if the hydraulic system develops a fault. The solenoid valve with the emergency lowering screw is located on the valve body of the hydraulic pump.

Emergency lowering screw (6) (ECV10 ECV10C)

⚠ CAUTION

Do not stand in the vicinity of the forks when the fork arms are being lowered.

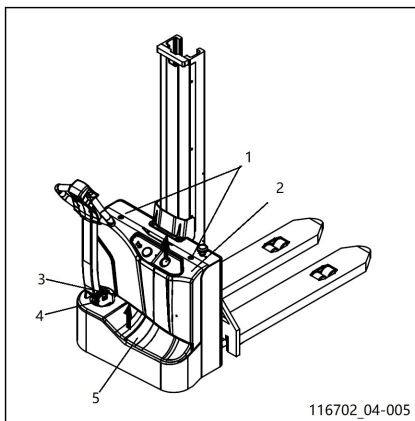
Always keep your hands on the screw during lowering, so you can stop the lowering operation at any time.



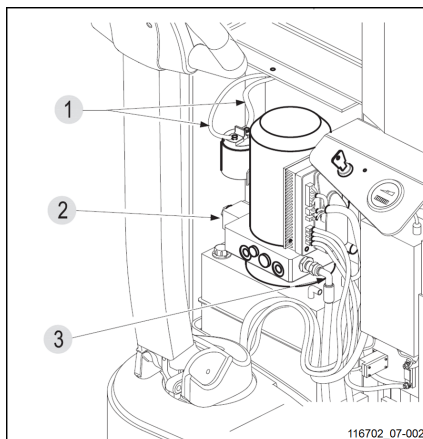
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Hydraulic operations

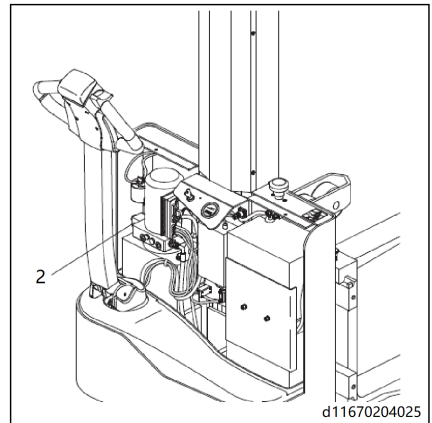
- Unscrew the two large flat-head screws(1) and pull out the cover(2).



- The emergency lowering screw is located on the solenoid valve(2)(Fig. 116702_07-002 for old CE).



- The emergency lowering screw is located on the solenoid valve(2). (Fig. d11670204025 for New CE)



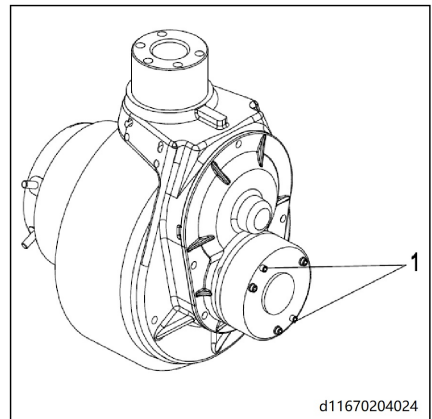
Operating the truck without its own driving system

If the truck 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.
- Lift the truck carefully with lifting equipment.
- Screw in two screws(1), M4*35mm , tighten two screws until the truck can be moved (no braking action). 
- After setting down the truck at the destination, unscrew two screws(1). Braking action is restored!

WARNING

This operating mode is not permitted to operate on any gradient.



Before leaving the equipment

Before leaving the equipment ▸

⚠ CAUTION

Always stop the machine on level ground away from traffic routes.

- Lower the fork arms to the lowest position.
- Turn off the key switch (1).
- Press the emergency off switch (2).
- If the machine is to be taken out of service for an extended period, disconnect the battery connections.

**NOTE**

If the truck is to be decommissioned for more than two months, it must be parked in a dry, frost-free location.

**NOTE**

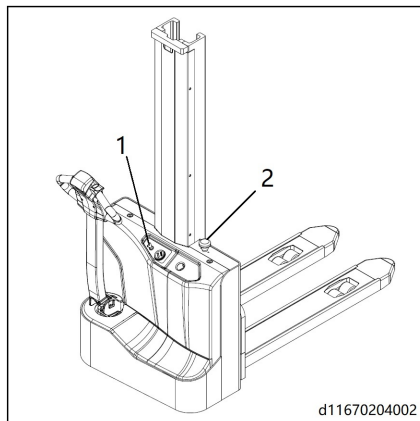
Have the truck raised and jacked up by the authorised service centre so that all wheels are off the ground. This prevents permanent deformation of the tyres.

- *Only have the truck raised and jacked up by the authorised service centre.*

**NOTE**

Precautions prior to decommissioning

- *Thoroughly clean the truck.*
- *Check the brakes.*
- *Check the hydraulic oil level. Top up if required.*
- *Apply a thin layer of oil or grease to all unpainted mechanical components.*
- *Lubricate the truck in accordance with the lubrication schedule.*
- *Disconnect the battery plugs, clean the battery and apply specialised grease to the terminals.*
- *Spray all exposed electrical contacts with a suitable contact spray.*



**NOTE**

The battery must be charged every month to avoid depletion of the battery through self-discharge, as the sulfation would destroy the battery. For further information, please contact the authorised service centre.

Putting the equipment back into operation

- Thoroughly clean the truck.
- Lubricate the equipment according to the lubrication and servicing requirements.
- Clean the battery, apply specialised grease to the electrode studs, and install and fix the terminals on the battery.
- Charge the battery.
- Check whether the hydraulic oil contains condensation water. Change the hydraulic oil according to requirements.
- Put the equipment back into use.

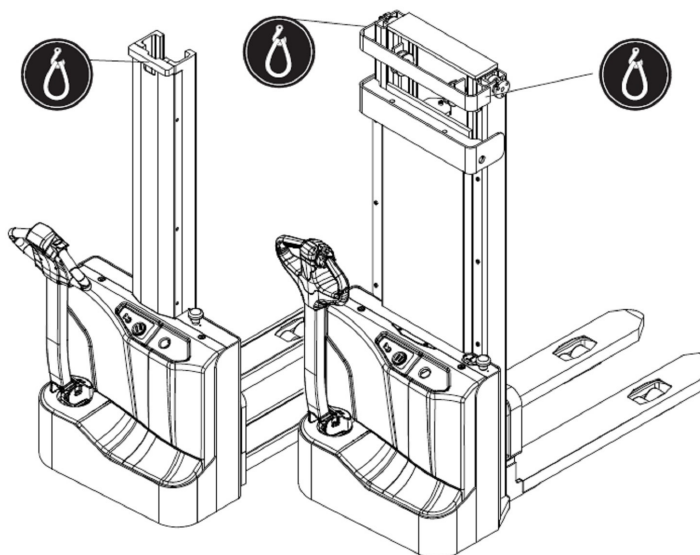
If there are difficulties with operating electrical system switches, you should apply contact spray to the exposed contact surfaces and remove the oxide layers on the surfaces of the operating component contacts by performing repeated switch operations. After putting the equipment into operation, the driver should immediately perform repeated brake performance tests.

**NOTE**

For further information, please contact the authorised service centre.

Slinging

Slinging



d11670204016

⚠ CAUTION

Only use slings and a hoist of sufficient capacity.
Protect all parts in contact with the lifting device.
Correctly install the hook according to the lifting label
shown in the figure.

Machine weight (with battery): See Technical Data-
sheet.

⚠ DANGER

Personnel must not stand under or next to the truck when it is being lifted.

Do not sling the truck by the tiller.

Transporting the truck

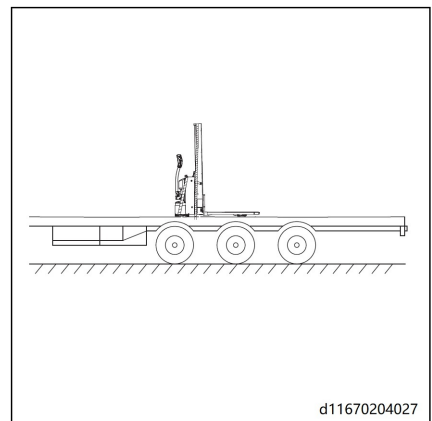
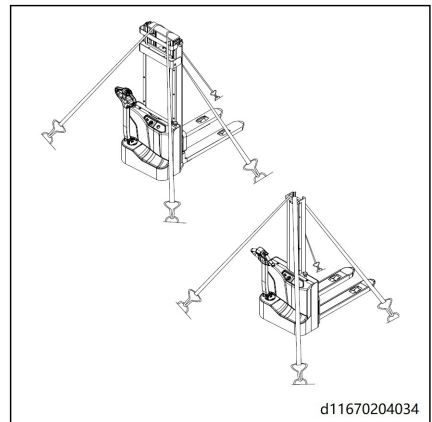
Correctly fix the forklift truck to avoid move when using truck or trailer.

Tie points and position

- Park the truck securely.
- Pass the tensioner through the inner and outer masts and secure the masts to the upper fixing points of the vehicle, as indicated by position in the right figure and tighten the tensioning belt with a tensioner.

**NOTE**

- Use appropriate wooden chocks to secure the front and rear of the vehicle.

**NOTE**

- *Truck or the trailer must equip with fixing ring.*
- *Use wooden chocks to secure the vehicle.*
- *Only use tension belt or fastening belt of good nominal strength.*

Parking the vehicle safely

Parking the vehicle safely

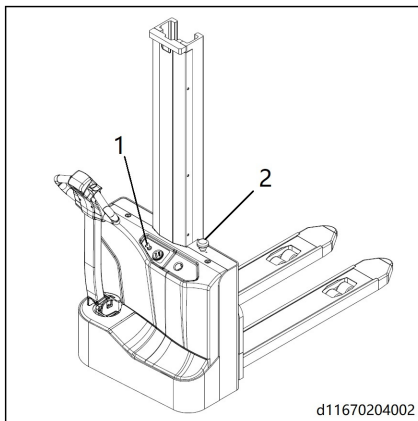
Whenever you leave the truck, it must be parked correctly, even if you only intend to leave it for a short time.

- Lower the fork arms to the lowest position.
- Turn off the key switch (1).
- Press the emergency off switch (2).
- If the machine is to be taken out of service for an extended period, disconnect the battery connections.

WARNING

You must always park the truck according to regulations.

Never park the truck on an incline. If unavoidable, secure the truck with chocks. Always park the truck on a level surface that does not interfere with traffic.



Cleaning the Forklift

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

CAUTION

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

Battery use and maintenance

Battery use and maintenance

General information on batteries

You can choose different types of batteries. These must strictly comply with manufacturer instructions.

Please comply with the details and properties indicated on the battery type label.



NOTE

- *Battery maintenance or charging can only be performed by qualified personnel in accordance with these instructions and the battery manufacturer's instructions.*
- *Refilling batteries with an electrolyte solution is prohibited if they are a type that does not require maintenance.*
- *Batteries are recycled in accordance with national regulations; please comply with the relevant regulations.*
- *Open flames are prohibited when handling batteries, as the gas may cause an explosion.*
- *Non-flammable materials or liquids may be stored in locations where batteries are charged. Smoking is prohibited in these locations, which must also be kept ventilated.*
- *Please stop the vehicle before starting to charge or install/replace batteries.*
- *Before completing maintenance work, please ensure that all cables are connected correctly and do not interfere with other parts of the vehicle.*
- *Fire-fighting equipment must be prepared.*



NOTE

The truck must be parked in a suitable and safe place when batteries are being handled.



CAUTION

Metal or conductive objects must not be placed on top of the battery in order to prevent the battery from short circuiting.

Safety regulations for handling lead-acid batteries

The truck must be parked and rendered safe before any operations on batteries are under taken.

These trucks are equipped with maintenance-free batteries. No distilled water can be added to this battery type. The cell covers are fixed tight and must not be opened. Opening the covers will damage the battery.

Smoking and naked flames are not permitted when handling batteries. No inflammable sub-

stances or spark-generating materials must be present or stored within a distance of 2 meters of the truck parked for battery recharging. The location must be well ventilated and fire fighting equipment must be kept ready.

Refilling batteries with an electrolyte solution is prohibited if they are a type that does not require maintenance.

Battery maintenance or charging can only be performed by qualified personnel in

accordance with these instructions and the battery manufacturer's instructions.

Batteries are recycled in accordance with national regulations; please comply with the relevant regulations.

Battery use and maintenance

Safety and warning

Battery safety and warning



Abide by the operation manual!

All the operations related to the storage battery must be implemented under the instruction of professionals!



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



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!



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.



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.



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!



Do not place the battery on top of conductive objects.



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



Keep the battery away from all fire sources, heat sources and flammable or explosive materials.



Avoid the battery becoming corroded by water or corrosive liquid.

Accidental contact, "first aid"

Acid and alkaline electrolytes create burns in eyes and on the skin.

A source of clean water, from tap or a dedicated sterile reservoir, shall be provided in the vicinity of the battery under charging or maintenance for removing electrolyte splashed from body parts.

WARNING

In the event of accidental contact with electrolyte, the eyes shall be immediately flooded with large quantities of water for an extended period of time, and go to the hospital immediately.

WARNING

In the event of accidental skin contact with electrolyte, the affected parts shall be washed with large quantities of water or with adequate neutralizing solutions. If irritation of skin persists, go to the hospital immediately.

Battery use and maintenance

Battery charging precautions

- The vehicle must be parked in a well ventilated room.
- There must be no metal parts on the surface of the battery.
- Before charging, check all cables and plug connections for visible damage.
- Before and after charging, make sure the truck's key switch is turned OFF.
- It is essential to follow the safety regulations of the battery charging provided by their manufacturers.
- Charging in non-charging area is prohibited.
- No modification of trucks.
- Do not use irregular charging sockets.
- The net height of the charging area shall be higher than 5 m, and the safe distance from other areas shall be farther than 5 m.

Charging the battery

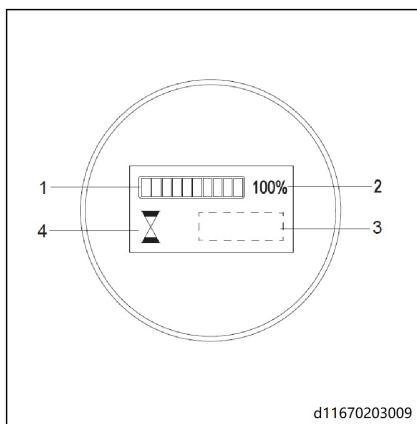
Display instrument

The LED (1) can display the remaining capacity. All blocks on indicates full of power. When first block and second block blinks alternatively, it indicates low power needs to be charged.



NOTE

This vehicle has a low-voltage protection function. When the truck slows down but the fork is still able to lift, the vehicle will indicate that the battery voltage is insufficient and the controller will activate the low-voltage protection function. The battery now needs to be charged.



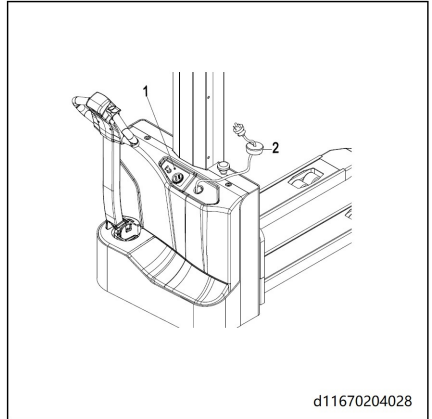
- 1 The LED (1) displays the remaining capacity;
- 2 The LED (2) displays remaining charge percentage;
- 3 The LED (3) normally displays the total running time. If fault, displays the fault code.
- 4 The LED (4) is always on, it indicates interlock switch opened. If the LED (4) is flashing, it indicates interlock switch closed, the display starts timing.

Charging the battery with internal charger ▸ er

- Park the truck in the designated charging area.
- Pull the charger cord (2) from the truck and examine it for damage. If undamaged, plug the charger into voltage range 100- 240V, 50/60Hz wall outlet.
- As long as the built-in charger is connected to the outlet, the truck should not be moved.

⚠ WARNING

Charger maximum input power 333W. Please strictly implement the above data to prevent equipment damage and accidental risks such as fire.



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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	No indicator light	Current/ voltage changes	Indicator failure	Please contact your authorised service centre	Charger failure
4	No indicator light	No change in current/voltage	The power input line is in good contact with the socket and the charger	Charger failure, contact your authorised service centre	Charger failure
5	Red light flashes		The power input cable is not in good contact with the socket	Check if the input power line is in good contact	
6	Yellow light is on		Battery failure. (battery reverse connection)	Contact your authorised service centre	

Battery use and maintenance

7	Yellow light is on	Battery failure. (battery is not connected)	Contact your authorised service centre	
8	Yellow light flashes	Ambient temperature is too high	Ambient temperature drops to normal	
9	Yellow light flashes	Battery voltage exceeds 32.5 V	Contact your authorised service centre	
10	Yellow light flashes	Charger failure	Contact your authorised service centre	

WARNING

Recharge the battery according to the instructions provided by the battery supplier and the battery charger supplier.

Battery type & dimension & charging time

All the batteries are maintenance free. Battery types & dimensions are as follows:

Tuck type	voltage/ rated capacity	Dimension	Charger	Charging time
ECV10	2x12 V / 125 Ah	325x180x230 mm	10 A	14h
ECV10C	2x12 V / 85 Ah	270x180x230 mm	10 A	9h
ECV10ic	2x12 V / 85 Ah	300x180x230 mm	10 A	9h

Handling of the battery

- Do not deep discharge battery.

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

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.

Cleaning the battery

- Do not use dry cloth or fibre cloth to clean the battery to prevent static charging and explosion.
- Unplug battery plug.
- Clean with a damp cloth.
- Wear glasses to protect eyes, wear rubber overshoes and rubber gloves.

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.

Battery use and maintenance

5

Maintenance

General maintenance information

General maintenance information

General

The following instructions contain all the information required for servicing your truck. Carry out the various maintenance work in compliance with the maintenance plan. This will ensure that your truck is reliable and in good working order and that the warranty remains valid.

Maintenance should only be carried out by authorised technicians, or by authorised dealers in accordance with a signed maintenance contract.

Modifying or installing additional equipment on the forklift truck is prohibited without the agreement of the manufacturer.



NOTE

If the data plates or affixed labels are incomplete or damaged, they must be replaced with new ones. For locations and reference numbers, please see the spare parts catalogue.

CAUTION

If the forklift truck is used in an extreme environment (such as excessive heat, excessive cold or areas with high dust concentrations), the time intervals given in the maintenance tables should be reduced accordingly.



ENVIRONMENT NOTE

Please comply with regulations regarding the use, handling and disposal of fuel and lubricating oil.

The forklift must undergo functional testing and a trial run after each inspection.

Service plan

Maintenance work must be carried out according to the maintenance checklist.

The service plan is followed by advice to facilitate work.

Maintenance intervals must be reduced if the truck is used under harsh conditions (extreme heat or extreme cold, large quantities of dust).

Grade and quantity of lubricants and other consumables

Only lubricants and other consumables specified in these operating instructions are authorised for use during maintenance work.

Lubricants and other consumables required for truck maintenance are listed in the maintenance specifications table.

Never mix different qualities of grease or oil. If it is absolutely necessary to change brands, make sure to flush thoroughly beforehand.

Before changing any filters or working on the hydraulic system, thoroughly clean the surface and the areas around the part.

All containers used to pour oil must be clean.

Servicing and maintenance personnel training and qualification

Truck maintenance must only be carried out by qualified and authorised personnel.

The annual inspection for prevention of accidents at work must be carried out by a person qualified to do so. The person carrying out this inspection must provide their expertise and opinion without being influenced by economic

factors or company internal issues. Safety is the only critical deciding factor.

The person responsible for carrying out the inspection must have sufficient knowledge and experience to be able to assess the condition of the truck and the efficiency of the protective installations in accordance with the

technical regulations and principles established for checking industrial trucks.

Battery maintenance staff

Batteries must only be maintained and changed by specially trained personnel.

Personnel must follow the manufacturer's instructions of the battery, the battery charger and the truck.

It is essential to follow the battery maintenance instructions and the battery charger operating instructions.

Maintenance operations that do not require special training

Simple maintenance operations such as checking the hydraulic fluid level or checking the battery electrolyte level can be carried out by persons with no special training.

A specific qualification is not necessary.

Complicated maintenance operations such as replacing the battery, replacing the wheels

and so on should be carried out by the authorised service centre.

Refer to the maintenance section of this manual for further information.

500-hour service plan

Technical inspection and maintenance data

Assembly	Item/oil	Capacity/standard value
Main hydraulic circuit	Hydraulic oil	3.8L to 4.8L
	Pressure max.	150 bar
Brake system	Electromagnetic brake air gap	0.2 mm to 0.4 mm
Fuses	FU01	150 A
	FU02	5 A

500-hour service plan

At operating hours										Carried out	
500		1500		2500		3500		4500			
5500										✓	✗
Servicing work to be performed every 1000 hours or every 12 months.											
Electrical system											
Check that cables are free from damage and that the terminals are firmly attached.											
Check and fasten the control unit and contactor.											
Check the fastening of the cables and motor.											
Check if the appearance of charger and its wiring harness are in good condition, and if the connectors are connected securely.											
Power supply											
Check whether the battery is secured.											
Check whether battery cables are damaged and replace if necessary.											
Drive system											
Check and lubricate the bearings between the drive motor and gearbox.											
Check the gearbox for abnormal sound and leakage.											
Check the wheels for wear and damage.											
Check the wheel bearings and their mounting.											
Clean and add gearbox grease.											
Check drive axle for damage or breakage.											
Check bearing positions for noise.											
Overall structure											
Check chassis for cracks or damage.											

At operating hours										Carried out	
500		1500		2500		3500		4500			
5500										✓	✗
Check cover for cracks.											
Check connections between nuts and bolts.											
Check that all support components are intact.											
Check that labels are clear and complete.											
Check caster for wear and tear.											
Hydraulic system											
Check cylinders for damage and leakage and ensure that they are properly secured.											
Check that the oil tank is fixed and check it for leaks.											
Check the hydraulic oil level.											
Check hoses, pipes and interfaces for damage and ensure their tightness and sealing.											

1000-hour service plan

1000-hour service plan

At operating hours									Carried out		
1000		3000		5000		7000		9000			
11000		13000								✓	✗
Servicing work to be performed every 1000 hours or every 12 months.											
Electrical system											
Check that cables are free from damage and that the terminals are firmly attached.											
Check and fasten the control unit and contactor.											
Check the fastening of the cables and motor.											
Check if the appearance of charger and its wiring harness are in good condition, and if the connectors are connected securely.											
Power supply											
Check whether the battery is secured.											
Check whether battery cables are damaged and replace if necessary.											
Drive system											
Check driving speeds.											
Check and lubricate the bearings between the drive motor and gearbox.											
Check the gearbox for abnormal sound and leakage.											
Check the wheels for wear and damage.											
Check the wheel bearings and their mounting.											
Clean or add gearbox grease.											
Check drive axle for damage or breakage.											
Check bearing positions for noise.											
Overall structure											
Check chassis for cracks or damage.											
Check cover for cracks.											
Check connections between nuts and bolts.											
Check that all support components are intact.											
Check that labels are clear and complete.											
Check caster for wear and tear.											
Hydraulic system											
Check cylinders for damage and leakage and ensure that they are properly secured.											
Check that the oil tank is fixed and check it for leaks.											

At operating hours										Carried out	
1000		3000		5000		7000		9000			
11000		13000								✓	✗
Check the hydraulic oil level.											
Check hoses, pipes and interfaces for damage and ensure their tightness and sealing.											
Check overflow pressure.											
Brake system											
Check that electromagnetic brakes are installed and connected.											
Check braking distance of electromagnetic brakes.											
Check the electromagnetic brake air gap.											
Lifting system											
Check whether mast is damaged.											
Check lifting and lowering speeds.											
Clean and lubricate the rolling surface on the lift mast.											
Check and lubricate the rollers on the mast and fork carriage.											
Check whether the hose connections are intact and whether there is oil leakage.											
Check and lubricate chains.											
Check that the lift mast is properly secured.											
Check the lifting chain and chain guide piece for wear. Adjust and apply grease.											
Check the load backrest for damage and ensure that it is properly secured.											
Check fork arms for wear and damage.											
Visually inspect the rollers, wear strips and stoppers.											

2000-hour service plan

At operating hours										Carried out	
2000		4000		6000		8000		10000			
12000		14000								✓	✗
Servicing work to be performed every 2000 hours or every 2 years.											
The lubricating intervals should be halved if working under harsh conditions.											
Hydraulic system											
Change the hydraulic oil.											
Check and clean the hydraulic oil filter. Change when necessary.											

Maintenance work

Maintenance work

Safety announcement

- Ensure that the power supply has been completely disconnected before actual maintenance operation.
- Use only approved spare parts.

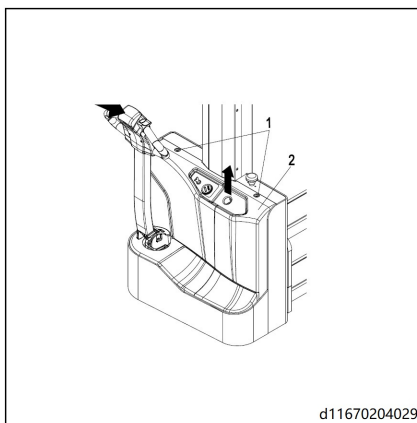
Restoring the truck to operation

- Thoroughly clean the truck.
- Clean the battery. Grease the pole screws using pole grease and reconnect the battery.
- Recharge the battery.
- Check if the hydraulic oil contains condensed water and change if necessary.
- Follow the daily checklist in "Daily check before use"

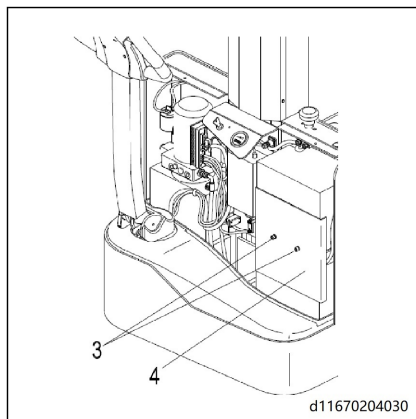
Battery removal and installation ▷

Removing and installing from the top

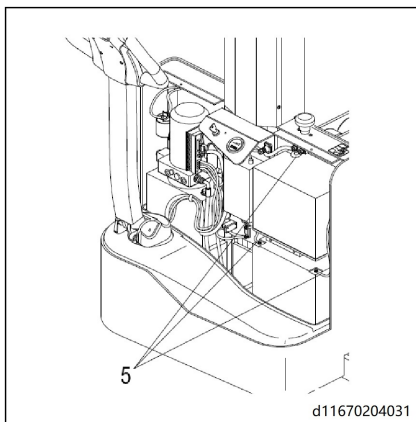
- Park the truck securely and turn off the power before removal and installation of the battery.
- Unscrew the 2 screws(1) and remove the cover(2).



- Unscrew the 2 screws(3) and remove the battery cover(4).



- Remove the three battery cables (5) shown in the picture.



Maintenance work

- Remove the battery(6).



NOTE

Pay attention to the operation of the battery to avoid short circuits.

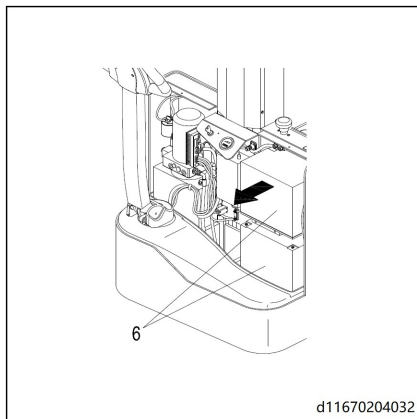


NOTE

Route the battery cable so that it is not trapped when the battery is inserted.

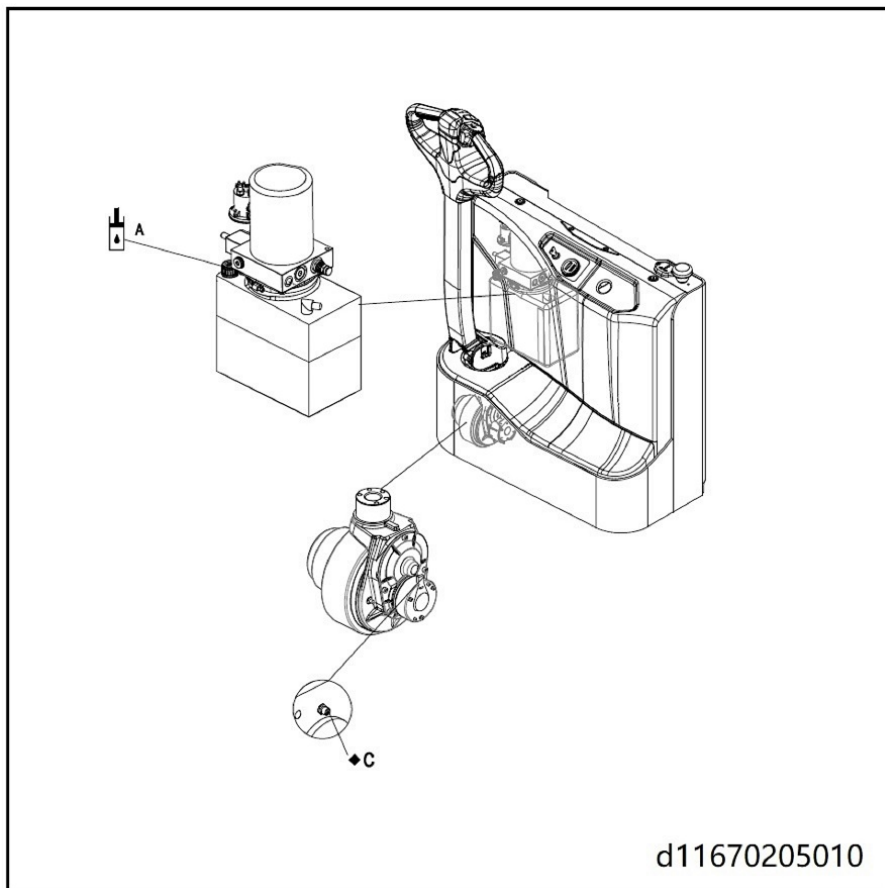
Installing the battery

Installation is in the reverse order, pay attention on battery installation position and cable connection. Make sure to protect the cables to avoid damage when you install the battery. Well place cables to avoid being damaged when you remove and install battery.



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Lubrication point



Maintenance work

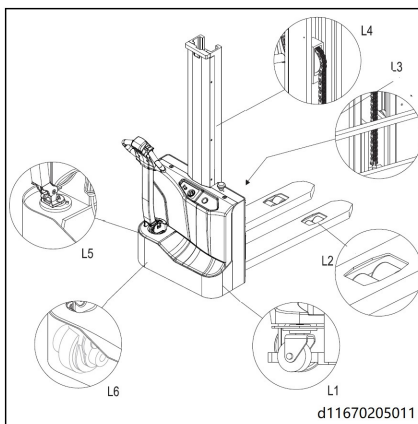
Lubricant

Location code	Oil name	Model no.	Amount added	Comment
A	Antifriction hydraulic oil	L-HM32	Simplex Mast Lift height 1600 mm: 3.8 L	Hydraulic system
	Antifriction hydraulic oil (cold stores)	L-HV32	Simplex Mast Lift height 2000 mm: 3.8L Duplex Mast Lift height 2300 mm: 4.0L Duplex Mast Lift height 2500 mm: 4.2L Duplex Mast Lift height 2700 mm: 4.2L Duplex Mast Lift height 3000 mm: 4.5L Duplex Mast Lift height 3300 mm: 4.8L Duplex Mast Lift height 3600 mm: 4.8L	
B	Multi-purpose grease	Polylub GA352P	As appropriate	Sliding surface
C	Moly lithium grease no. 3	-	100 g	Gearbox

– Sliding surface

Sliding surface

Code	Position
L1	Caster
L2	Load wheel
L3	Steel channel and rollers
L4	Chains
L5	Steering bearing
L6	Driving wheel



Check the hydraulic oil level



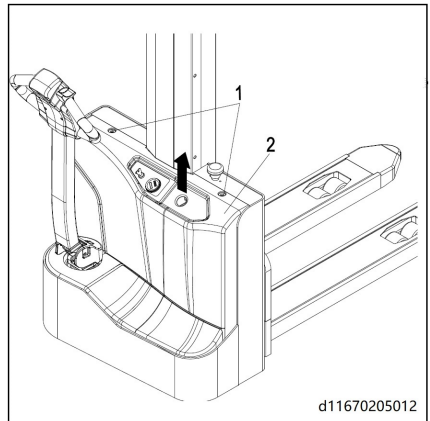
NOTE

If there are popping noises coming from the tubing when lifting, this indicates that the hydraulic oil is insufficient and should be promptly replenished.

⚠ CAUTION

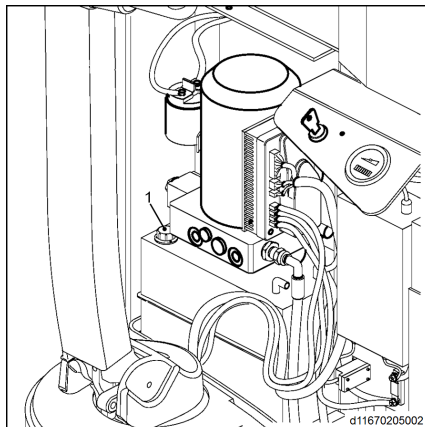
Do not add hydraulic oil that contains impurities

- Fully lower the mast.
- Press the emergency off switch.
- Unscrew two screws(1).
- Remove the front hood(2).

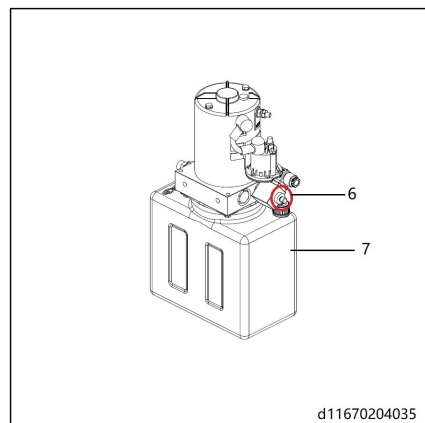


Maintenance work

- Unscrew the oil cap(1).



- Check the hydraulic oil quantity on the hydraulic tank (7) according to "Lubrication point".
- Reinstall the oil cap, make sure the hydraulic oil quantity is filled according to "Lubrication point".



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.

Reinstall the disassembled parts in reverse order.



NOTE

Only use hydraulic oil that meets the specifications in "Lubrication point".

How to add oil

It is necessary to add hydraulic oil when you heard explosion sound from pipe during lifting.

- Prepare the truck for maintenance and repairs.
- Open the front panel.
- Add hydraulic oil of the correct grade as given in the chapter "Lubrication point".

- Add hydraulic oil till you can't hear explosion sound during lifting any more.

Re-install in the reverse order.

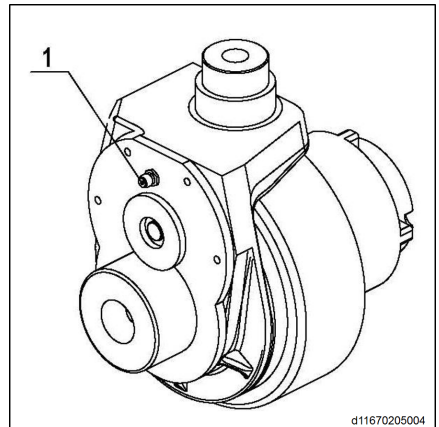
How to add grease or grease oil

- Prepare the truck for maintenance and repairs.
- Remove the front panel.
- Add grease of the correct grade as given in the chapter "Lubrication point".
- Add gearbox grease into the grease fitting (1) every 500 operating hours or at least annually.

Install following the above steps in reverse order.

WARNING

Don't not add gear oil that contains impurities. If the working conditions and usage environment are good, it can be delayed appropriately, but it is recommended to add it as early as possible. If the gearbox lubricating grease dries, it is easy to cause gear wear.



Malfunction analysis

Malfunction analysis

Symptoms	Possible reason	Solution
Unable to start	Battery connector not plugged in	Check the battery connector and connect if necessary.
	The key switch lock is in the OFF position	Put the key switch in the ON position
	Battery power is too low	Check the battery charge status and charge the battery according to requirements
	Blown fuse	Check the fuse device
	Truck is in charge mode	Stop charge mode
Unable to lift	Charging capacity is too low	Charging the battery
	The hydraulic oil level is too low	Check the hydraulic oil level
	The load is overweight	Pay attention to the rated load (refer to the model identification plate)
	Truck is not operational	Carry out all measures listed under "unable to start"

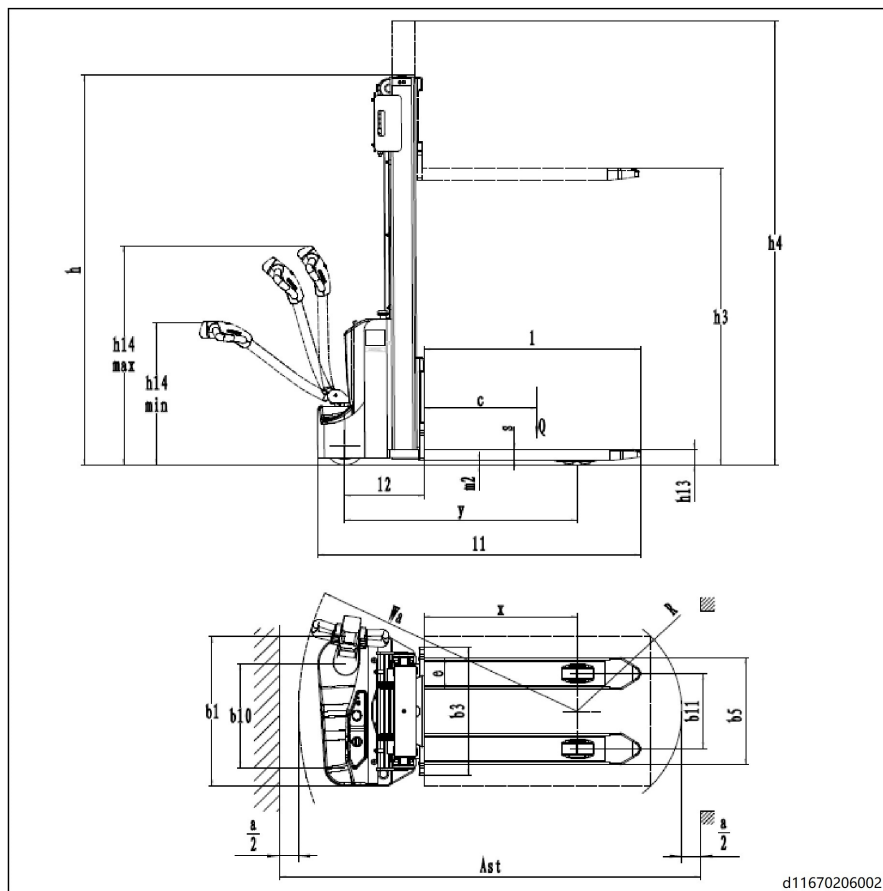
**NOTE**

Please contact an authorised dealer if you have performed all of the steps listed in the table above but are still unable to eliminate the fault. Further fault identification and elimination operations must be performed by after-sales service personnel who have undergone special training.

Technical data

ECV 10 Technical Datasheet

ECV 10 Technical Datasheet



Characteristics		ECV 10
1.1	Manufacturer	Still
1.2	Model no.	ECV 10
1.3	Drive: electric, diesel, petrol, LPG, mains electric	Electric
1.4	Operation	Pedestrian

Characteristics			ECV 10
1.5	Nominal loading capacity	Q (kg)	1000
1.6	Load centre of gravity distance	c (mm)	600
1.8	Front overhang, distance from the vertical surface of the forks to the centre of the front axle	x (mm)	795
1.9	Wheelbase	y (mm)	1240

Weight			ECV 10
2.1	Service weight (with battery)	kg	540
2.2	Axle load when fully loaded, drive side, load side	kg	640 / 852
2.3	Axle load when unloaded, drive side, load side	kg	419 / 121

Wheels			ECV 10
3.1	Tyres, drive side/load side:C=solid rubber, P=polyurethane		PU/PU
3.2	Tyre size, drive side	(mm)	Ø210 X 70
3.3	Tyre size, load side	(mm)	Ø80 X 60
3.4	Tyre size, caster wheels(diameter×width)	(mm)	Φ130x55
3.5	Number of wheels, front/rear (X = drive)		1x + 1/4
3.6	Track width, front, driving side	b10(mm)	533
3.7	Track width, rear, loading side	b11(mm)	400

Dimensions			ECV 10
4.2	Lowered mast height	h1 (mm)	2026
4.3	Free lift height	h2 (mm)	/
4.4	Lift height	h3 (mm)	2930
4.5	Maximum mast height when in operation	h4 (mm)	3487
4.9	Tiller height when driving (minimum/maximum)	h14 (mm)	860 / 1200
4.15	Lowered fork height	h13 (mm)	88
4.19	Overall length	l1 (mm)	1740
4.20	Head length (without forks)	l2 (mm)	590
4.21	Body width	b1/b2 (mm)	800
4.22	Dimensions of forks	s/e/l (mm)	55 / 160 / 1150
4.24	Width of the fork carriage	b3 (mm)	600

ECV 10 Technical Datasheet

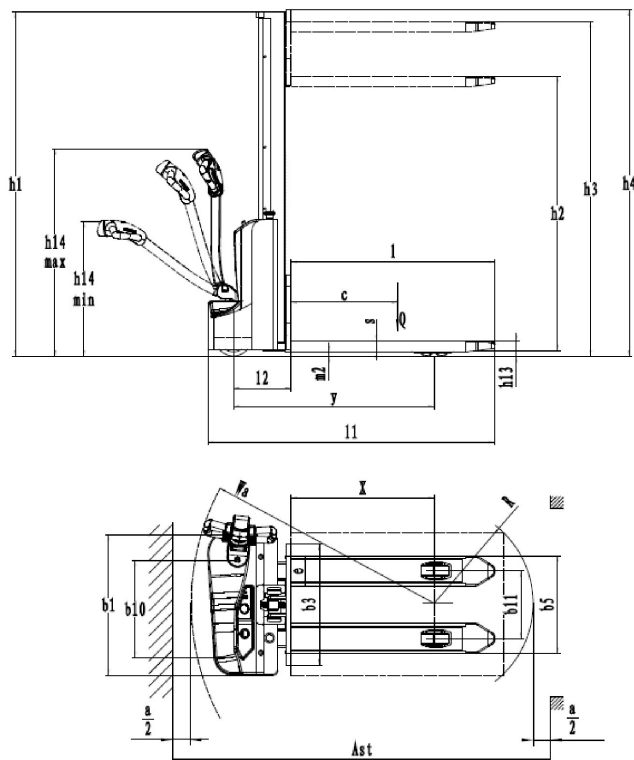
Dimensions			ECV 10
4.25	Width across forks	b5 (mm)	560
4.32	Ground clearance, centre of wheelbase, min./max.	m2 (mm)	30
4.34 .1	Aisle width for pallets 1000 x 1200 crossways	Ast (mm)	2225
4.34 .2	Aisle width, 800 x 1200 pallet, lengthwise	Ast (mm)	2150
4.35	Turning radius	Wa (mm)	1408

Performance			ECV 10
5.1	Travel speed, with/without load	km/h	4 / 4.5
5.2	Lifting speed, with/without load	m/s	0.12 / 0.22
5.3	Lowering speed, with/without load	m/s	0.12 / 0.11
5.8	Climbing ability, with/without load	%	3 / 10
5.1 0	Brake type		Electromagnetic brake

Drive			ECV 10
6.1	Drive motor (60 minutes)	kW	0.65
6.2	Lift motor 10% power	kW	2.2
6.3	The maximum allowed size battery	mm	325X180 X230
6.4	Battery voltage/capacity (5-hour discharge)	V/Ah	2 x 12 / 105
6.5	Battery weight	kg	2 x 30

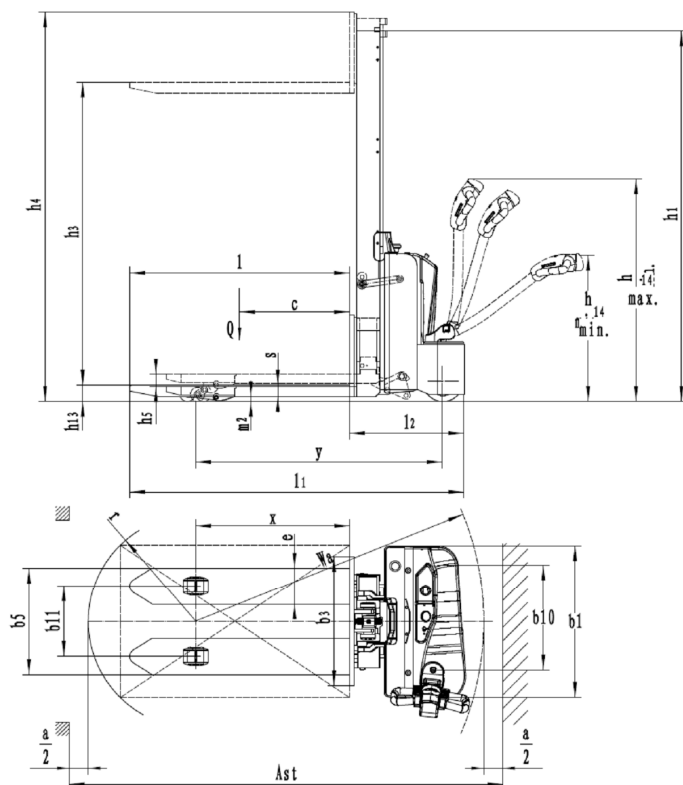
Other			ECV 10
8.1	Control method		DC
8.4	Noise level at driver's ear	dB(A)	74

ECV 10i C / ECV 10 C Technical Datasheet



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ECV 10i C / ECV 10 C Technical Datasheet



d11670206003

Characteristics		ECV 10 C	ECV 10i C
1.1	Manufacturer	Still	Still
1.2	Model no.	ECV 10C	ECV 10 iC

Characteristics			ECV 10 C	ECV 10i C
1.3	Drive: electric, diesel, petrol, LPG, mains electric		Electric	Electric
1.4	Operation		Pedestrian	Pedestrian
1.5	Nominal loading capacity	Q (kg)	1000	1000
1.6	Load centre of gravity distance	c (mm)	600	600
1.8	Front overhang, distance from the vertical surface of the forks to the centre of the front axle	x (mm)	805	805
1.9	Wheelbase	y (mm)	1126	1260

Weight			ECV 10 C	ECV 10i C
2.1	Service weight (with battery)	kg	462	520
2.2	Axel load when fully loaded, drive side, load side	kg	641 / 821	560 / 1160
2.3	Axel load when unloaded, drive side, load side	kg	343 / 119	350 / 170

Wheels			ECV 10 C	ECV 10i C
3.1	Tyres, drive side/load side:C=solid rubber, P=polyurethane		PU/PU	PU/PU
3.2	Tyre size, drive side	(mm)	Ø210 X 70	Ø210 X 70
3.3	Tyre size, load side	(mm)	Ø80 X 60	Ø80 X 60
3.4	Tyre size, caster wheels(diameter×width)	(mm)	Φ130x55	Φ130x55
3.5	Number of wheels, front/rear (X = drive)		1x + 1/4	1x + 1/4
3.6	Track width, front, driving side	b10(mm)	533	533
3.7	Track width, rear, loading side	b11(mm)	380	370

Dimensions			ECV 10 C	ECV 10i C
4.2	Lowered mast height	h1 (mm)	1940	1940
4.3	Free lift height	h2 (mm)	1505	1480
4.4	Lift height	h3 (mm)	1520	1520
4.5	Height, mast extended	h4 (mm)	1971	2090
4.6	Initial lift	h5 (mm)	-	115
4.9	Tiller height when driving (minimum/maximum)	h14 (mm)	860 / 1200	860 / 1200
4.15	Lowered fork height	h13 (mm)	88	95

ECV 10i C / ECV 10 C Technical Datasheet

Dimensions			ECV 10 C	ECV 10i C
4.19	Overall length	l1 (mm)	1615	1750
4.20	Head length (without forks)	l2 (mm)	465	600
4.21	Body width	b1/b2 (mm)	800	796
4.22	Dimensions of forks	s/e/l (mm)	60 / 170 / 1150	60 / 190 / 1150
4.24	Width of the fork carriage	b3 (mm)	680	680
4.25	Width across forks	b5 (mm)	550	560
4.32	Ground clearance, centre of wheel-base, min./max.	m2 (mm)	30	26
4.34. 1	Aisle width for pallets 1000 × 1200 crossways	Ast (mm)	2137	2340
4.34. 2	Aisle width, 800 x 1200 pallet, length-wise	Ast (mm)	2062	2260
4.35	Turning radius	Wa (mm)	1295	1500

Performance			ECV 10 C	ECV 10i C
5.1	Travel speed, with/without load	km/h	4 / 4.5	4 / 4.5
5.2	Lifting speed, with/without load	m/s	0.12 / 0.22	0.10 / 0.14
5.3	Lowering speed, with/without load	m/s	0.12 / 0.11	0.10 / 0.07
5.8	Climbing ability, with/without load	%	3 / 10	3 / 10
5.10	Brake type		Electromagnetic brake	Electromagnetic brake

Drive			ECV 10 C	ECV 10i C
6. 1	Drive motor (60 minutes)	kW	0.65	0.65
6. 2	Lift motor 10% power	kW	2.2	2.2
6. 3	The maximum allowed size battery	mm	270X180X230	300×180 ×230
6. 4	Battery voltage/capacity (5-hour discharge)	V/Ah	2 x 12 / 85	2 x 12 / 85
6. 5	Battery weight	kg	2 x 25	2 x 25

Eco-design requirements for electric motors and variable speed drives

Other			ECV 10 C	ECV 10i C
8.1	Control method		DC	DC
8.4	Noise level at driver's ear	dB(A))	74	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".

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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