



Original instructions

Double pallet stacker

EXD-18



0285 0286 0294 0295

1160 801 15 51 EN - 02/2021 - 11

first in intralogistics

Address of manufacturer and contact details ▷

STILL GmbH
Berzeliusstraße 10
22113 Hamburg, Germany
Tel. +49 (0) 40 7339-0
Fax: +49 (0) 40 7339-1622
Email: info@still.de
Website: <http://www.still.de>



1 Introduction

Your industrial truck	2
General	2
CE labelling	3
Copyright and property rights	3
EC declaration of conformity	4
Identification label	5
Rules for the operating company of industrial trucks	5
Eco-design requirements for electric motors and variable speed drives	6
Spare parts list	7
Proper usage	8
Description of use and climatic conditions	8
Unauthorised use	9
Explanation of symbols used	9
Disposing of components and batteries	9

2 Safety

Safety regulations	12
Safety regulations for handling consumables	13
Permissible consumables	13
Oils	13
Hydraulic fluid	14
Battery acid	14
Disposal of consumables	15
Emissions	16
Noise emission values	16
Vibration characteristics for vibrations to which the body is exposed	16
Residual dangers, residual risks	17
Stability	17
Definition of responsible persons	18
Operating company	18
Specialist	18
Drivers	18
Safety tests	20
Regular safety inspection of the truck	20

3 Overviews

Overview	22
Overview	22
Operating and display devices	23
Tiller	23
Digicode (optional)	24
Battery charging indicator	26
Markings	28
Location of markings	28
Serial number	29

4 Use

Technical description	32
List of checks prior to start-up	34
Checks and actions prior to commissioning	35
Start-up	35
Checking the brake	36
Check emergency shutdown	36
Checking the anti-crush safety device	37
Checking the horn	38
Truck operating instructions	39
Driving	41
Driving safety instructions	41
Driving	42
Optispeed	43
Braking	44
Parking brake	44
Creep Speed function	45
Standby (optional)	45
Driving on upward and downward slopes	46
Operating the FleetManager™ option	47
Description of the FleetManager option	47
Commissioning a truck equipped with the FleetManager™ option	48
FleetManager™ option: Colour code for the LEDs	49
Disconnecting a truck equipped with the FleetManager™ option	51
Transporting loads	53
Load handling safety rules	53
Grabbing a loading unit	53

Transporting pallets or other containers	54
Lift control elements	55
Reading the capacity label	57
Load handling	58
Handling two stacked pallets	62
Option Autolift	65
Cold store usage (optional)	68
Stopping the truck	70
Handling the battery.	71
Battery type	71
Order picking	71
Opening/closing the battery cover	72
Battery charging using an external charger	74
On-board charger	76
Using the on-board charger	77
Adjusting the on-board charger	79
Replacing the vertical access battery	80
Replacing a vertical access battery with the Autolift option	81
Replacing the side access battery	82
Handling the truck in an emergency	86
Emergency mast lowering	86
Towing the truck	87
Handling the truck in specific situations.	89
Slinging the truck	89
Hoisting the truck	90
Transporting the truck	91
Transporting the truck in the lift	91
Driving on loading bridges	91
5 Maintenance	
General maintenance information	94
General	94
Servicing and maintenance personnel training and qualification	95
Battery maintenance staff	95
Maintenance operations that do not require special training	95
Ordering spare parts and consumables	95

Safety guidelines for maintenance	96
Servicing and maintenance measures	96
Working on the electrical equipment	96
Safety devices	96
Recommended lubricants	97
Technical data for inspection and maintenance	98
Access to the technical compartment	99
Accessing the reducer and the brake	101
Maintenance plan as required	102
1000-hour/annual maintenance plan	102
3000-hour maintenance plan	103
Chassis, bodywork and fittings	104
Cleaning the truck	104
General information on battery maintenance	105
Check the condition of the forks	106
Steering and wheels	107
Servicing the wheels and rollers	107
Stabiliser maintenance	108
Regular maintenance of the transmission gear	109
Electrical equipment	110
Servicing the electrical system	110
Fuses	110
Checking the battery acid level and electrolyte density	111
Checking the condition of cables, terminals and battery connector	112
Servicing the pump motor	112
Service the on-board charger	113
Cleaning the sensors for the Autolift option	113
Hydraulic systems	114
Checking the hydraulic system for leaks	114
Checking the oil level and sealing of the hydraulic system	114
Draining the hydraulic system	115
Lift mast	118
Lifting device	118
Servicing the lift mast	118
Commissioning and storage	120
Storage of truck	120
Permanent Putting Out of Commission (Destruction)	121

6 Technical specifications

EXD18 datasheet	124
Mast types	129

1

Introduction

Your industrial truck

Your industrial truck

General

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

If the truck is to be operated on public roads, it must conform to the existing national regulations for the country in which it is being used. The driving permit must be obtained from the appropriate office.

The truck has been fitted with state-of-the-art 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.

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

Therefore:

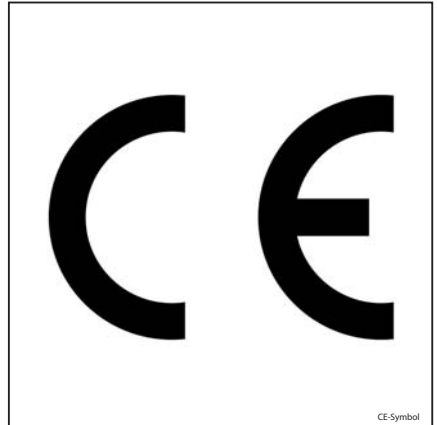
- Before commissioning the truck, read the operating instructions and follow the instructions.
- Always follow all of the safety information contained in the operating instructions and on the truck.

CE labelling

The manufacturer uses CE labelling to indicate that the truck complies with the standards and regulations valid at the time of marketing. The supplied EC declaration of conformity confirms this. The CE labelling is attached to the nameplate.

An independent structural change or an addition to the tow tractor can compromise safety, thereby invalidating the EC declaration of conformity.

The EC declaration of conformity must be carefully stored and made available to the responsible authorities.



Copyright and property rights

This manual - and any excerpts thereof - may not be reproduced, translated or transmitted in any form to third parties without the express written permission of the manufacturer.

EC declaration of conformity

EC declaration of conformity**Declaration**

STILL GmbH
Berzeliusstrasse 10
22113 Hamburg
GERMANY

We declare that the machine

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

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

Person authorised to compile the technical documents:

See EC compliance declaration

STILL S.A.S.

The manufacturer declares that the truck complies with the requirements of the EC directives valid at the time of marketing. This is confirmed by the EC declaration of conformity and by the EC labelling on the nameplate.

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

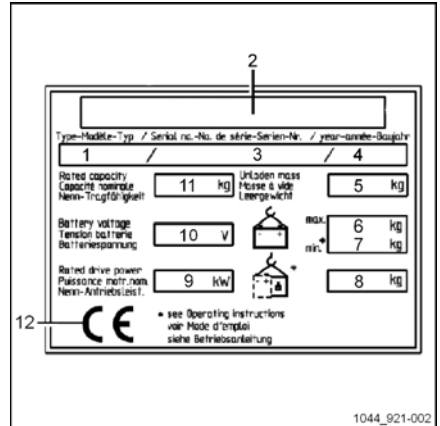
The EC declaration of conformity must be carefully stored and made available to the relevant authorities.

Identification label



NOTE

Indicate the serial number for all technical enquiries.



- 1 Model
- 2 Manufacturer
- 3 Serial number
- 4 Year of manufacture
- 5 Unladen weight (without battery) in kg
- 6 Maximum battery weight
- 7 Minimum battery weight (for a lithium-ion battery, the weight of the ballast container is included)
- 8 Additional weight (ballast weight) in kg
- 9 Nominal motor power (kW)
- 10 Battery voltage in V
- 11 Nominal capacity in kg
- 12 EC conformity symbol

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

Eco-design requirements for electric motors and variable speed drives

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.



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).

Spare parts list

The spare parts list can be downloaded by entering the address <https://sparepartlist.still.eu> into a web browser or by scanning the QR code displayed to the side.

When the web page is open, please type in the following password: **Spareparts24!**

On the next screen, please enter your email address and truck serial number to receive the link by email. Then download the spare parts list.



2511

Proper usage

Proper usage

The truck described in these operating instructions is suitable for lifting, transporting and stacking loads.

The truck should only be used for the purposes for which it was designed, as described in these instructions.

If the truck needs to be used for purposes other than those specified in these instructions, you should first:

- Obtain permission from the manufacturer
- Obtain permission from the competent authorities, if applicable

The purpose of obtaining these permissions in advance is to limit danger as far as possible.

The capacity label specifies the maximum load that can be raised. This limit must not be exceeded.

Description of use and climatic conditions

Normal use

- Indoor and outdoor use.
- Ambient temperature in tropical and Nordic regions ranging from -10°C to 45°C
- Start capability from -10°C to 45°C.
- Maximum start time of 20 seconds
- Use at up to 2000 metres above sea level.

Special use (partly with special measures) for trucks equipped with Gel or Lead batteries

- Use, for example, in the event of abrasive dust (such as AL203), lint, acid, leach, salt and incombustible substances.
- Ambient temperature in tropical regions up to 55 °C.
- Start capability at -25°C.
- Use at up to 3,500 metres above sea level.

Unauthorised use

Any danger caused as a result of unauthorised use becomes the responsibility of the operator or driver and not that of the manufacturer.

Use for purposes other than those described in these operating instructions is prohibited.

Transporting people is prohibited.

The forklift truck should not be used in areas where there is a risk of fire, explosion or corrosion, or in areas that are particularly dusty.

Stacking or unstacking is not permissible on inclined surfaces or ramps.

Explanation of symbols used

DANGER

Compulsory procedure that must be followed to avoid life-threatening danger or physical harm.

WARNING

Compulsory procedure that must followed to avoid injury.

CAUTION

Compulsory procedure that must be followed to avoid damage to and/or destruction of equipment.



NOTE

For technical requirements that require special attention.



ENVIRONMENT NOTE

To prevent environmental damage.

Disposing of components and batteries

The truck is made up of different materials.

If components or batteries must be replaced and scrapped, they must be:

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



NOTE

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



ENVIRONMENT NOTE

We recommend working with a waste management company when disposing of components and batteries.

Disposing of components and batteries

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 forklift operator has properly understood all the safety information.

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

- Information concerning the use of materials handling trucks
- Regulations concerning traffic lanes and working areas
- Appropriate behaviour, rights and responsibilities of the driver
- Use in particular areas
- Information about the weight and dimensions of pallets or any other container
- 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 material-handling trucks.

When instructing forklift 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 transferring pallets.

Forklift truck stability is guaranteed when the unit is used correctly.

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.



⚠️ 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



ENVIRONMENT NOTE

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

Emissions

Emissions

Noise emission values

Calculated during the test cycle performed in accordance with standard EN 12053 from the weighted values for the **LIFT, IDLING and DRIVE** operating statuses.

Acoustic pressure level on the driver's compartment			
EXD18K, EXD18L	L _{PAZ}	=	65 dB (A)
In the LIFT operating state	L _{Pa}	=	71.2 dB (A)
In the IDLING operating state	L _{Pb}	=	0 dB (A)

Acoustic pressure level on the driver's compartment			
In the DRIVE operating state	L _{Pc}	=	66.55 dB (A)
Uncertainty	K _{PA}	±	2.5 dB (A)

 **NOTE**

Lower or higher noise values may occur when using industrial trucks, e.g. due to the mode of operation, environmental factors and other sources of noise.

Vibration characteristics for vibrations to which the body is exposed

The values were determined according to EN 13059 using trucks with standard equipment according to the datasheet (driving over test course with humps).

Specified characteristics for upper limb vibrations	
Vibration characteristics	< 2.5 m/s ²

 **NOTE**

The vibration characteristics for bodily vibrations cannot be used to determine the actual load level of vibrations during operation. This depends on the operating conditions (state of ground, mode of operation etc.) and should therefore be determined on site, where appropriate. It is mandatory to specify the hand-arm vibrations even where the values do not indicate any hazard, as in this case.

Residual dangers, residual risks

Despite all operational precautions and compliance with standards and rules, the possibility of additional risks when using the truck cannot be entirely excluded.

The truck and all its components comply with the regulations relating to current applicable safety rules.

Persons in the vicinity of the truck must be particularly cautious and react immediately in the event of any malfunction, incident, breakdown etc.

WARNING

Personnel in contact with the truck must be informed of the risks related to using the truck.

These operating instructions draw your attention to the safety rules.

The risks are:

- Escape of consumables due to leaks, ruptured lines and tanks etc.
- Risk of accident when driving over difficult ground such as slopes, soft or irregular surfaces or in poor visibility etc.

Stability

Forklift truck stability is guaranteed only if the unit is used according to the indicated recommendations.

It is not guaranteed in the event of:

- cornering at excessive speeds
- moving with the load raised
- moving with a load that is protruding to the side (e.g. sideshift),
- turning and driving diagonally across descents or ascents,
- driving on descents or ascents with the load on the downhill side,
- loads that are too wide or too heavy,
- driving with a swinging load,
- ramp edges or steps.

- Falling, tripping etc. when moving on the industrial truck, especially in the wet, with leaking consumables or icy surfaces.
- Loss of stability due to the load being unstable or the load slipping etc.
- Risk of fire and explosion due to batteries and electrical voltages.
- Human error - Disregarding safety regulations.

It is important to adjust the speed of the truck depending on the load and ground conditions.

The stability of the truck has been tested to the latest standards. These standards only take account of the static and dynamic tilting forces that can arise during operation that complies with the specifications and operating rules. Risks caused by misuse or incorrect operation that jeopardise the stability cannot be ruled out in extreme situations.

Definition of responsible persons

Definition of responsible persons

Operating company

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

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

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

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

It is recommended that these checks comply with national performance specifications.

Specialist

A specialist is deemed to be:

- A person whose experience and technical training has allowed him to develop relevant knowledge of industrial trucks
- A person who is also familiar with national health and safety regulations and generally recognised technical directives and conven-

tions (standards, VDE regulations, technical regulations of other European Union member states or countries that are signatories to the treaty that established the European Economic Area). This expertise allows him to assess the condition of industrial trucks in terms of health and safety

Drivers

This truck may only be driven by suitable persons who are at least 18 years of age, have been trained in driving, have demonstrated their skills in driving and handling loads, and have been specifically designated to drive the truck. Specific knowledge of the truck is also necessary.

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

The driver must:

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

Driver rights, duties and rules of behaviour

The driver must be duly informed of his rights and duties.

The driver must be granted the required rights.

The driver must wear protective equipment (protection suit, safety helmet, industrial goggles and protective gloves) that is appropriate for the conditions, the task and the load to be lifted. The driver must also wear safety footwear to be able to drive and brake in complete safety.

⚠ DANGER

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

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

Definition of responsible persons

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.

Safety tests

Safety tests

Regular safety inspection of the truck

Safety inspection based on time and extraordinary incidents ▷

The operating company (see chapter entitled "Definition of responsible persons") must ensure that the truck is checked by a specialist at least once a year or after noteworthy incidents.

As part of this inspection:

- A full check of the technical condition of the truck in terms of accident safety must be performed
- The truck must be thoroughly checked to detect any damage that may have been caused by improper use
- A test log must be created.

The results of the inspection must be retained until at least a further two inspections have been carried out.

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

- Arrange for the service centre to perform periodic safety inspections on the truck.
- Observe the guidelines for tests carried out on the truck in accordance with FEM 4.004.

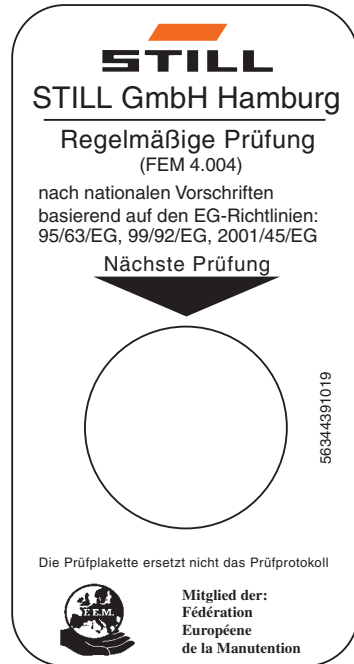
The operator is responsible for ensuring that any defects are remedied immediately.

- Contact your service centre.



NOTE

Observe the regulations in force in your country.



0000_003-001_V3

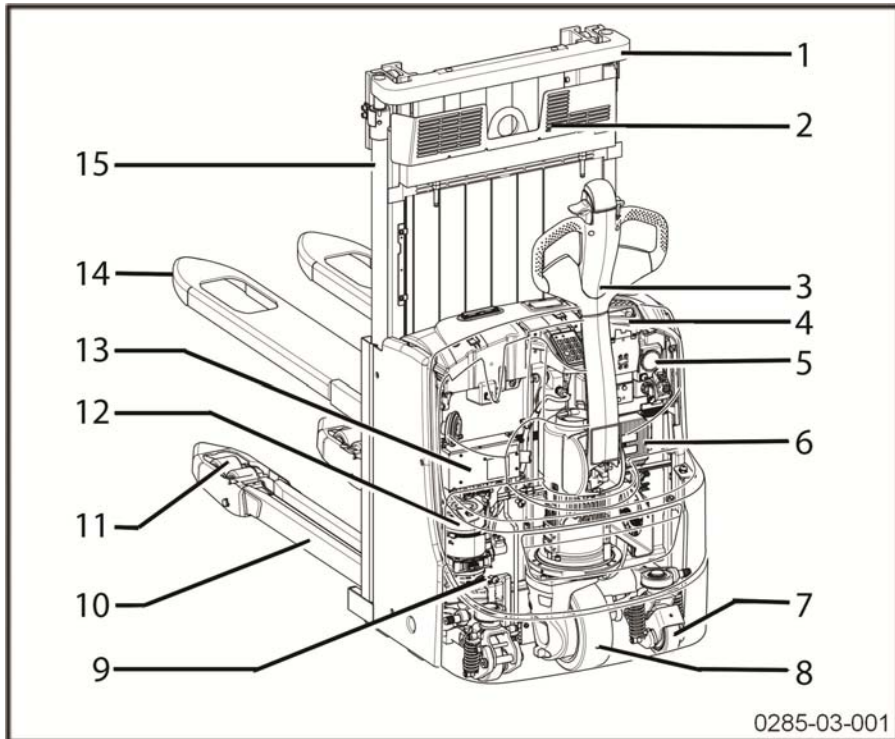
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Overviews

Overview

Overview

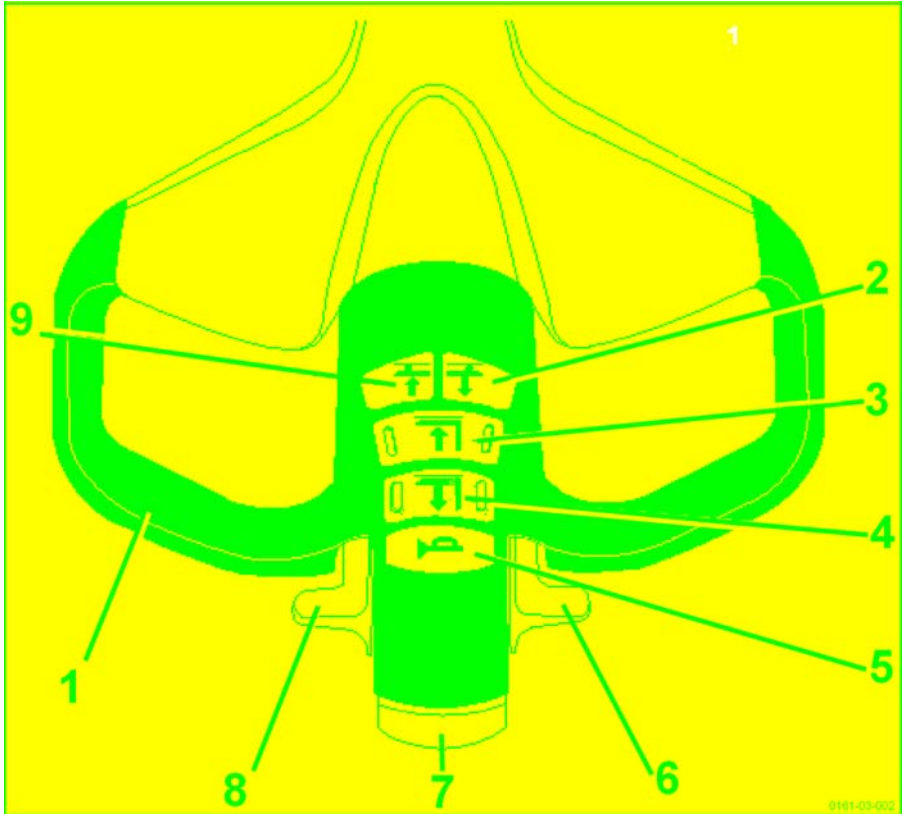
Overview



- | | | | |
|---|-----------------------|----|-----------------------|
| 1 | Lift mast | 9 | Tank |
| 2 | Guard grille | 10 | Load arms |
| 3 | Tiller | 11 | Load wheels or bogies |
| 4 | Emergency stop handle | 12 | Pump unit |
| 5 | Display | 13 | On-board charger |
| 6 | Traction controller | 14 | Fork arms |
| 7 | Stabiliser wheel | 15 | Mast cylinder |
| 8 | Drive wheel | | |

Operating and display devices

Tiller

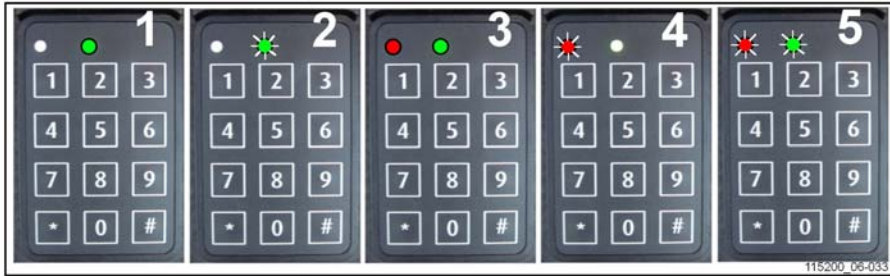


- 1 Handle
- 2 Load arm lifting
- 3 Proportional lowering of fork arms
- 4 Proportional lifting of fork arms
- 5 Horn

- 6 Travel throttle valve
- 7 Anti-crush safety feature
- 8 Travel throttle valve
- 9 Lowering the load arms

Operating and display devices

Digicode (optional)



- | | | | |
|---|------------------------------|---|------------------------------------|
| 1 | Switch ON (operating mode) | 4 | Key fault or incorrect code |
| 2 | Switch OFF and awaiting code | 5 | Time delay of automatic switch-off |
| 3 | Programming mode active | | |

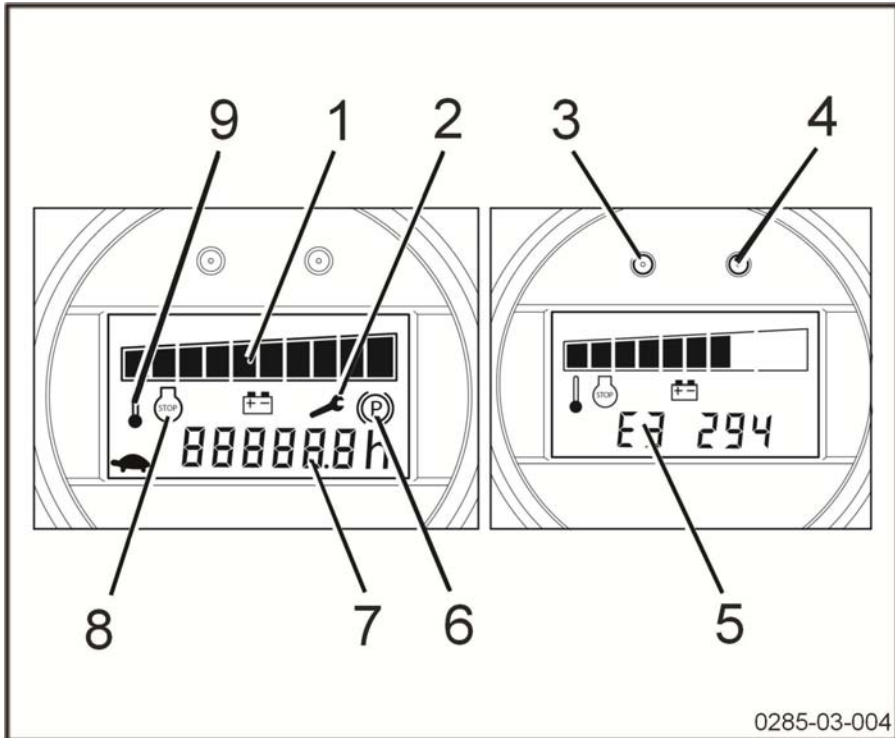
Operation	Enter	Status of LEDs	Notes
USE			
ON	*000000# or 12345# (by default)	<ul style="list-style-type: none"> ○ red off ● continuous green (1) (correct PIN) ● red flashing ○ green off (4) (incorrect PIN) 	00000 or 12345 PIN code by default
OFF	# (3 seconds)	○ red off ● green flashing (2)	Truck power off

PROGRAMMING (truck switch OFF only (2))			
ADMINISTRATOR CODE ESSENTIAL FOR ALL DIGICODE SETTINGS	*00000000# (by default)	● continuous red ● continuous green (3)	Once the diodes have gone out, the digicode automatically reverts to "operating mode".
New operator code	*0*45678#	○ red off ● green flashing (2) (code accepted)	Example of new operator code: 45678
Allocating operator codes	*2*54321#	○ red off ● green flashing (2) (code accepted)	*2*: operator reference 10 options from 0 to 9
Deleting operator codes	*2*#	○ red off ● green flashing (2) (deletion accepted)	*2*: operator reference (between 0 and 9)
Modifying administrator codes	*9*12345678#	○ red off ● green flashing (2) (code accepted)	
Restoring the initial administrator code			To reactivate the default administrator code (00000000), please contact your agent or nearest dealer.

PROGRAMMING (truck switch OFF only (2))			
Activating the automatic switch-off	* 2 1 #	<ul style="list-style-type: none"> • red flashing • green flashing (5) (5 s before switch-off) 	Power switches off automatically after 10 minutes (600 s by default) if the truck is not in use.
Setting the time delay of the automatic switch-off	* 3 6 0 #	<ul style="list-style-type: none"> ○ red off • green flashing (2) (value accepted) 	Example: automatically switches off after 1 minute (60 s) if not in use. Minimum setting = 10 s / maximum = 3000 s
Deactivating the automatic switch-off	* 2 0 #	<ul style="list-style-type: none"> ○ red off • green flashing (2) (command accepted) 	

Operating and display devices

Battery charging indicator



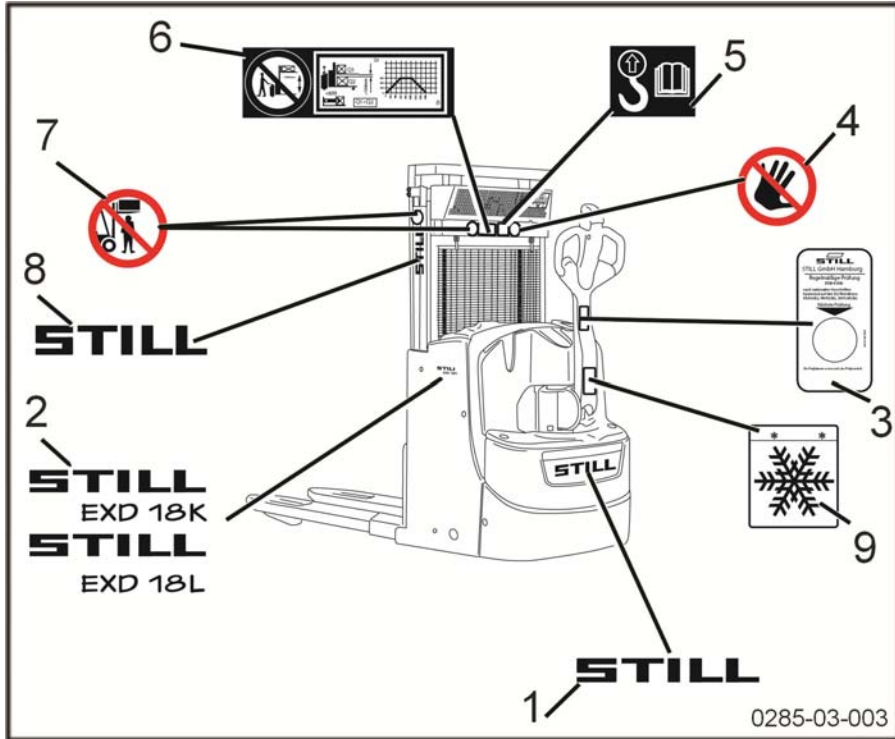
	DESCRIPTION	EXPLANATION	COMMENTS/SCREEN MESSAGES
1	Battery charge level represented by 10 bars	Full charge: 100% Low charge: 10% Discharged: 0%	91% - 100%: 10 bars 1% - 10%: 1 bar 0%: 1 flashing bar (lift function not permitted). NB: To protect the battery, 0% corresponds to max. 80% discharge.
2	Service alarm (red)	1) Flashing: less than 50 hours' truck operation until the next service 2) Constant: Service date overdue	
3	Red indicator light	Switched on: default or alarm	

	DESCRIPTION	EXPLANATION	COMMENTS/SCREEN MESSAGES
4	Green indicator light	Switched off: truck switched off Switched on: truck switched on	
5	Error code	E3 294	These codes will help the service department to decide on the appropriate response from the service engineer.
6	Fault or brake wear (air gap)		Do not operate the truck
7	Hour meter	Indicates the number of operating hours of the machine	<ul style="list-style-type: none"> - The meter starts running when the machine is switched on and a control is used. - When counting, the dot next to the tenths of an hour flashes. - The hour meter displays hours and tenths of an hour. - When the power supply is disconnected, the hours are stored in the memory.
8	STOP alarm (red)	Miscellaneous problems	Do not operate the truck.
9	T° alarm (red)	Constant: control module overheating	-> Truck is stopped In general, wait a few minutes and then continue.
10	Tortoise symbol	Indicates the slow speed	Concerns traction, lifting and lowering speeds.

Markings

Markings

Location of markings



- | | | | |
|----|---|----|---|
| 01 | Brand label | 05 | Sling hook label (see operating instructions) |
| 02 | EXD 18K or EXD 18L model label | 06 | Double pallet stacker label |
| 03 | Warranty label (for Germany only) on the inside of the tiller | 07 | Mast safety label |
| 04 | Never touch with hands label | 08 | Still label on the mast cylinders at both sides |
| | | 09 | Cold store label |

Serial number

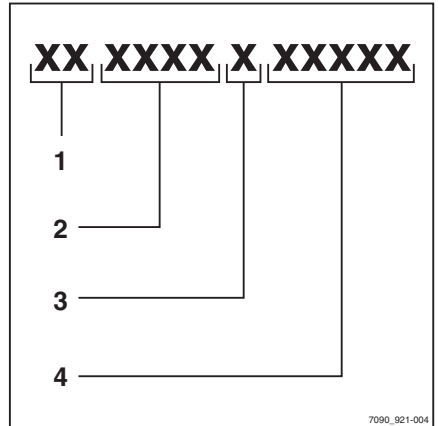


NOTE

Indicate the serial number for all technical enquiries.

The serial number contains the following information:

- 1 Production location
- 2 Type
- 3 Year of production
- 4 Count number



Markings

4

Use

Technical description

Technical description

EXD18 trucks are designed for pallet stacking and double pallet stacking.

This truck is a pedestrian version **ACC** model.

Features

Speed during pedestrian driving:

- 6 km/h unladen.
- 6 km/h laden.

Capacity of the EXD 18:

- 800 kg maximum on the forks.
- 1800 kg in total (load arms + forks).

Applications

EXD18 trucks are mainly designed for loading/unloading applications for trucks equipped with a double stacker. The work is performed:

- in double pallet mode,
- in pallet truck mode,
- in pallet mode.

Refer to the capacity plate.

Drive system

- 1.2 kW traction motor
- LAC controller for traction and lift control
- Pump unit with a power of 1.2 kW

Batteries

Power is supplied by a 24 volt lead or gel battery.

The battery type available is:

- BS or 2PzS type battery with vertical access
- 2PzS type battery with side access

Masts

The mast is lifted using the proportional tiller control.

These masts are equipped with side lift cylinders.

EXD18 trucks are equipped with S (standard) masts for heights ranging from 1574 to 2024 mm.

The cylinders are equipped with end of travel dampers, which enables the carriage to be lowered gradually.

Braking

The truck is equipped with two braking systems:

- an electric counter-current brake:
 - upon accelerator release;
 - by reversing the drive direction;
 - controlled by the rear safety button.
- an electromagnetic brake:
 - electromagnetic safety, controlled by the emergency stop handle;
 - electromagnetic safety, controlled by the upper or lower position of the tiller;
 - electromagnetic parking, applied when supply is cut.

Driver's compartment

The tiller groups together control functions such as steering setting, proportional lift, forward and reverse traction, initial lift, horn and reverse safety double throw switch.

It provides the steering for the truck.

The various models are also equipped with:

- an emergency stop handle located on the chassis, which completely shuts down the electrical system and brings the truck to a standstill when it is pulled.
- a multifunction indicator which shows the date, operating hours and battery discharge level.
- a desk area for storing pencils, etc.

Equipment available as standard or as additional options:

- Load backrest
 - Creep Speed (Creep Speed)
 - Proportional speed (Proportionnal Speed).
- Built-in charger (on versions of battery with vertical access only and non-cold store versions)
 - Central refilling system.
 - Cold store (-35°C).

List of checks prior to start-up

List of checks prior to start-up

WARNING

Damage or other defects on the forklift truck or attachments (special equipment) can result in accidents.

If damage or other faults are noticed on the truck or attachments (special equipment) during the following inspections, do not use the truck until it has been properly repaired. Do not remove or disable the safety systems and switches. Do not change the pre-set values.

WARNING

Risk of falling!

When working on high-level parts of the truck, do not use truck components for access or to stand on.

- Use suitable access equipment.

Before start-up, ensure that the truck operates correctly.

To do this, perform the following checks:

- Fork arms or other load-carrying equipment should not show any signs of noticeable damage (for example: bending, cracks, significant wear).
- Check that there are no signs of leaking consumables under the truck.
- Do not restrict the field of vision. Ensure the visible area specified by the manufacturer is observed.
- Attachment parts (special equipment) must be properly secured and function according to their operating instructions.

- Damaged or missing stickers must be replaced in compliance with the marking position table.
 - The guard grille must be intact and securely mounted.
 - The roller guide rails must be coated in a visible layer of grease.
 - The wheels must show no signs of defects or heavy wear. They must be mounted correctly.
 - Check that there are no foreign objects that could hinder the operation of the wheels and rollers.
 - The warning devices (horn etc.) must work.
 - The battery cover must be closed.
 - Check that the covers are correctly positioned.
 - The chains must be in perfect condition and must be evenly and correctly tensioned.
 - The operator must be qualified to drive the truck. The operator must be able to reach the controls and operate them (especially the anti-crush device). Do not obstruct access to the controls.
- Please inform your supervisor if you notice any defects.

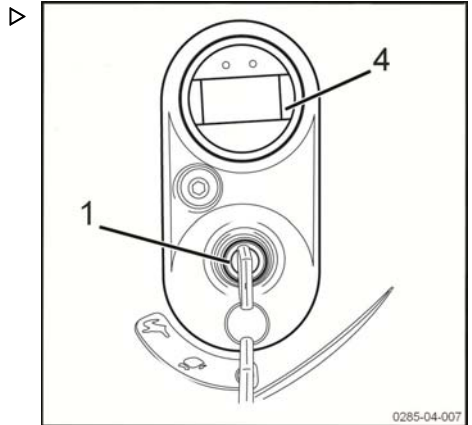
Checks and actions prior to commissioning

Start-up

- Connect the battery connector, if necessary.
- Keep the tiller in the vertical position.
- Place the drive direction selector in the neutral position (in the middle).
- Insert the ignition key (1) and turn it to the desired position or enter the 5-figure code then validate using the # key on the digicode keyboard (default code = 00000).

NOTE

With the digicode option, when the key is turned to the 0 position the truck is in tortoise mode. The truck will function even if the key is removed.



Selecting the driving mode

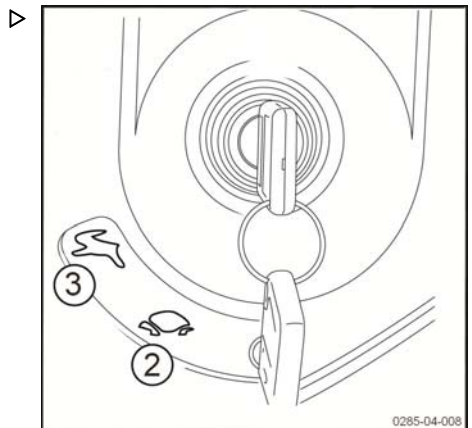
NOTE

The switch key can rotate to two different positions. These two positions choose the operating mode.

"Tortoise" position (2): gentle acceleration and deceleration; maximum speed: 4 km/h.

"Hare" position (3): strong acceleration and deceleration; maximum speed: 6 km/h.

- Check the battery charge on the combined indicator (4) and replace or charge the battery if necessary.
- Turn the ignition key (1) to the "hare" position (3) for normal driving mode.



NOTE

Perform a visual inspection of the truck before starting.

Checks and actions prior to commissioning

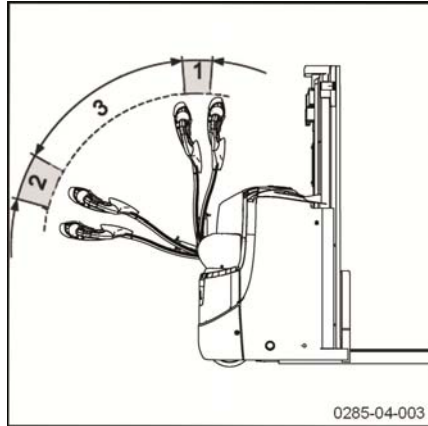
Checking the brake

**CAUTION**

Perform this check on a flat surface.

- Drive the truck and whilst tilting the tiller in areas (1) and (2), test the effectiveness of the brake.

In these two areas, the truck is braked and the drive unit is no longer powered. Releasing the tiller in the drive area (2) sends the tiller into the (1) area and cuts traction.



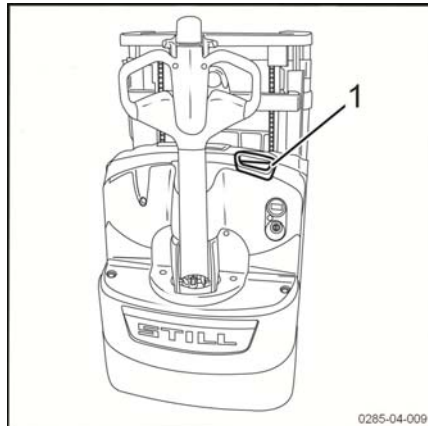
Check emergency shutdown



- Pull the emergency stop handle (1).
- The power supply to the machine is cut off.
- The electrical controls and motors are no longer supplied.
- The electromagnetic brake is applied.
- Press in the emergency stop handle (1) then enter the code or turn the switch key to have the functions available again.

**NOTE**

Ensure the stabiliser wheels operate correctly. This influences braking effectiveness.



Checking the anti-crush safety device

Anti-crush safety function

The machine moves in the opposite direction when the anti-crush button (2) is pressed.

If the truck is being operated in narrow areas (such as in a lift for example), the operator may get stuck against the wall if care is not taken. Without an anti-crush safety device, the tiller could injure the operator.

The truck immediately moves off in the opposite direction when the anti-crush device on the tiller head comes into contact with the driver's body. When the operator moves away from the anti-crush safety device, the machine stops even if a drive direction is selected again.

Normal operation may be resumed after releasing the drive switches.

Checking the anti-crush safety device

⚠ WARNING

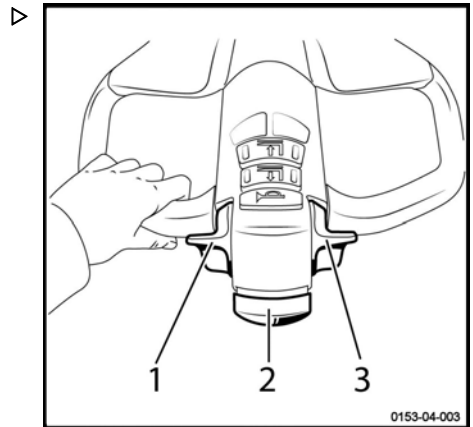
Ensure that the test zone is free of people and objects, both in front of and behind the truck.

- Move the drive switch (1) or (3) to move the truck towards you.
- Operate the anti-crush safety device (2).

The truck stops and accelerates in the opposite drive direction.

- Release the anti-crush safety button.

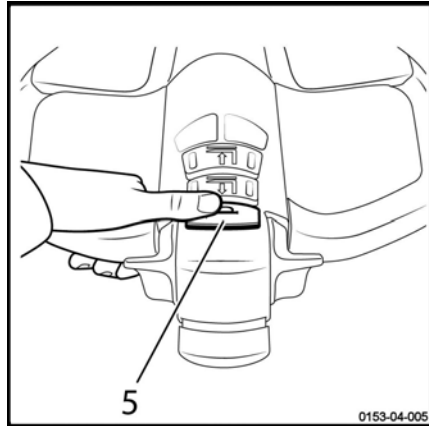
The truck stops.



Checks and actions prior to commissioning

Checking the horn

- Press the horn button (5) located on the upper part of the tiller.
- The horn sounds.



Truck operating instructions

The trucks are designed for indoor and outdoor use in non-hazardous atmospheres. The temperature should be between -10°C and +45°C and the relative humidity of the air less than 95%.

NOTE

A cold store option is available for lower temperatures.

The places where the truck is used must comply with the applicable regulations (condition of the ground, lighting etc.).

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

Before using the truck, it is essential to check the working environment. This check can take the form of visual inspection.

The work area must be clear. The truck's path must be free of obstacles and people.

The operator must be alert to anything that might prevent manoeuvres being carried out safely. The following may create a potential danger:

- A person near the truck
- A person below the forks when they are raised
- The operator must not use an MP3 player or any other electrical equipment that could impair awareness of his/her surroundings
- There must be no signs of oil or grease on the floor

The operator must take care when transporting a load. The load dimensions can interfere with manoeuvres and restrict the field of vision. The speed of the truck must also be reduced as the truck could tip over when breaking or cornering.

The loads must be consistent, with a maximum recommended height of 2 m.

For uses other than those shown above, please consult the After-Sales Service Centre.

It is important to use pallets that are in good condition.

Speed must be reduced when moving over obstacles to prevent the truck from becoming unbalanced and vibrations in the operator's arms.

The trucks can drive across ramps and shallow inclines. With an initial lift, they can cross larger obstacles.

WARNING

Risk of loss of stability

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

NOTE

- *To prevent the bottom of the load lift system from scraping the ground, always move the forks to the raised position before setting off*
- *Always switch off the ignition before leaving the truck*
- *The mast protective screen must always be correctly positioned, properly secured and clean*

WARNING

Risk of damaging the truck

Ensure that the height of the mast is lower than obstacles (racks, doors etc.).

WARNING

Risk of injury

Always keep your hands on the controls. Never put your hands near moving parts and assemblies without first lowering the load arms to the ground and disconnecting the battery.

For effective protection, safety shoes must be worn.

Do not climb on the hoods of the truck (battery, chassis etc.).

Truck operating instructions

WARNING

Driving safety guidelines:

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

CAUTION

Risk of injury

Before using a side access truck, check that the battery is correctly locked.

Driving

Driving safety instructions

Behaviour when driving

The operator must obey the same rules within the plant as he would on the road. He must drive at a speed appropriate for the driving conditions.

Therefore, he must drive slowly:

- when cornering
- through narrow passageways
- through swing doors
- at blind spots
- when the roadway is uneven.

The driver must always maintain a safe braking distance from vehicles or persons in front of him. He must always have the truck under control. He should avoid sudden stops, making fast U-turns, overtaking other vehicles in potentially dangerous areas or areas with poor visibility.

Driving the truck while sitting on top of it is prohibited.

These trucks are designed to be used as a pallet stacker, double pallet stacker and pallet truck. Therefore:

- Never sit on the truck to drive it.
- The truck must not be used as a stepladder.
- This truck is not designed to transport people.
- The operator must always stay within the truck clearance.
- Stay in the safety area (working area defined by the manufacturer).
- Ensure the stability of the truck and do not exceed its maximum capacity.

Use of a telephone or radio with the truck is permitted.

However, do not use these devices when driving as they may distract you.

Take a test drive on an open surface.



NOTE

The driver must wear safety footwear in their size to be able to drive and brake in complete safety.

Driving

Driving

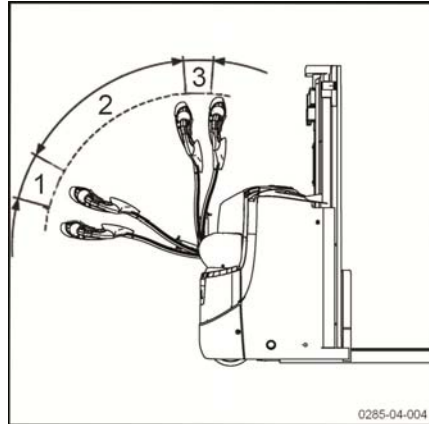
- Turn the ignition key to the **Tortoise** position (slow acceleration and deceleration) or the **Hare** position (faster acceleration and deceleration).
- Lower the tiller in the (2) zone.

i NOTE

The truck is in the drive position in the (2) zone. In the lower zone (1) or the upper zone (3), the brake is applied and the traction motor is switched off.

i NOTE

Always operate the drive direction selector slowly, as the truck reacts immediately. Abrupt starts or braking or reversal of drive direction must be avoided at all costs.



0285-04-004

Forward travel

- Press the lower part of the drive direction selector with your thumb.
- The speed increases with the movement of the drive direction selector. The speed is limited to 4 or 6 km/h depending on the position of the key.
- When the drive direction selector is released, the truck brakes electrically.

Reverse travel

- Press the upper part of the drive direction selector with your thumb.
- The speed increases with the movement of the drive direction selector. The speed is limited to 4 or 6 km/h depending on the position of the key.
- When the drive direction selector is released, the truck brakes electrically.

Reversing the direction of travel

- Release the drive direction switch.

- Operate it progressively in the opposite direction until the required speed is reached.

Optispeed

- Lower the tiller.

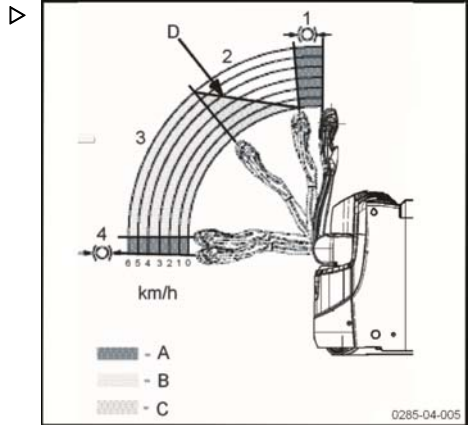


NOTE

The machine is only in the driving position in zones (2) and (3). In the lower zone (4) or the upper zone (1), the brake is applied and the traction motor is switched off.

In zone (3), the truck can be used at full speed. The traction speed is proportional to the drive direction selector activation.

In zone (2), the maximum authorised speed varies according to the position of the tiller.



- A Brake action zone
- B Maximum speed authorisation zone
- C Maximum speed automatic authorisation zone
- D Maximum speed curve

Driving

Braking

⚠ WARNING

The quality of the floor surface affects the braking distance of the truck.

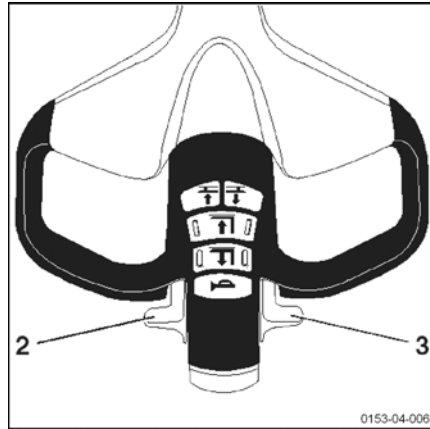
To be taken into consideration when driving.

Gentle braking

- Release the drive direction selector (2) or (3) during operation.

Moderate braking

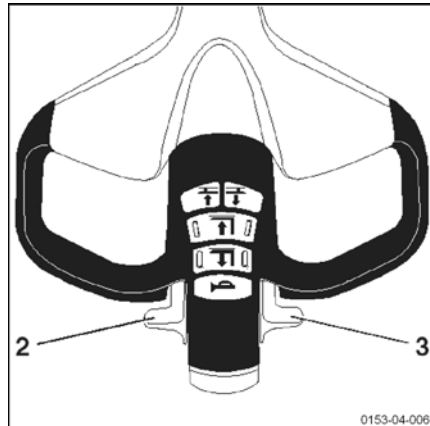
- Move the drive direction selectors (2) or (3) in the opposite drive direction.



Parking brake

- Release the drive direction switch (2) or (3).

The truck is braked with the electromagnetic brake when its speed approaches 0 km/h or when the tiller returns to the vertical position.



Creep Speed function

This function makes it possible to manoeuvre the truck in confined spaces.

The tiller remains in the vertical position.

- Press the Creep Speed button (1) (tortoise icon) on the tiller. Hold the button down.
- Gently move the drive switch forwards or backwards depending on the manoeuvre to be performed.

NOTE

The traction speed can be set between 0.5 and 1.5 km/h. Contact the After-Sales Service to change this.

The Creep Speed function cancels automatically when the tiller is in the drive position.

CAUTION

Danger of forklift operator being trapped by the truck.

Gently move the drive switch to adjust the truck speed. This prevents it moving too quickly towards the operator.

NOTE

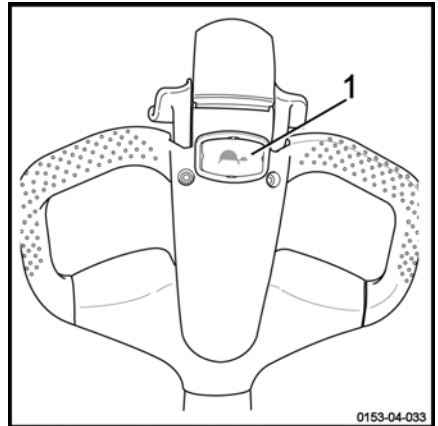
If the operator releases the Creep Speed button and/or the drive switch, the vertical position of the tiller applies the emergency brake again.

Standby (optional)

The truck can be put in energy-saving mode to prolong the service life of the battery when it is not in use.

After a certain period of inactivity, the truck switches off. To restart the truck, you must switch it off and then switch it on again, using the key.

This time period can be configured between 0 and 10 minutes. This function is disabled by default.



Driving

Timeout can be adjusted. Please call the After-Sales Service Centre.

Driving on upward and downward slopes ▷

Slopes should always be approached with the load facing towards the top of the slope.

Only slopes

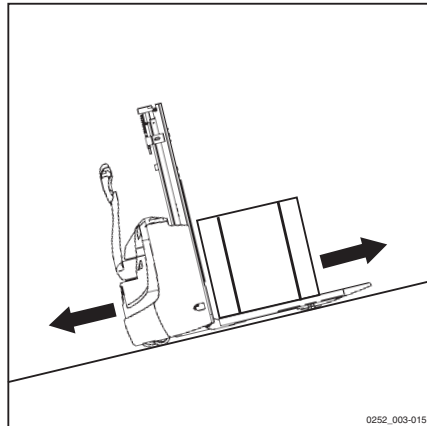
- marked as traffic routes
- and compatible with the truck's technical specifications can be safely used.

The operator must ensure that the ground is clean and has a non-slip surface.

Never travel across slopes or make a U-turn on the slope.

Do not park the truck on a slope. Reduce speed when going down slopes.

Please observe the maximum gradients defined as suitable for laden and unladen transport.



Operating the FleetManager™ option

Description of the FleetManager option

The FleetManager option allows you to control access to the truck. The option is a fleet management system.

You can access the system:

- Either by using a keypad
- Or by using a reading device for a transponder or an RFID card

The fleet manager sets the access details via the web interface. This affects the transponder cards or PIN codes for the corresponding trucks. It is possible to change the amount of time for which the access authorisation is valid.

Software is also available.

Additional options:

- Shock sensor
- Tools for wireless data management:
 - ▶ GSM⁽²⁾GPRS⁽¹⁾ module with antenna

The options available on the truck are:

- Access control
- Access control and shock sensor
- Access control and GPRS module
- Access control, shock sensor and GPRS module

⁽¹⁾ GPRS: General Packet Radio Service

⁽²⁾ GSM: Global System for Mobile Communication

Shock sensor

This sensor allows you to record the shocks received by the truck.

If the truck receives a shock, it is possible to configure a speed reduction.

The fleet manager is the only person who is able to change certain parameters.



NOTE

Replace the sensor if it is faulty.

GSMGPRS module

The module consists of a GSM modem and an antenna.

The module allows you to:

- Access truck information remotely
- Use geolocation

The data is stored on a server.

Data is transmitted by Bluetooth (default) or by GSM module (optional).

Operating the FleetManager™ option

Commissioning a truck equipped with the FleetManager™ option

Commissioning a truck equipped with a keypad or an electronic key ▷

- Turn the switch key to start the truck.
- Enter the PIN code on the keypad. The PIN code consists of five to eight digits.

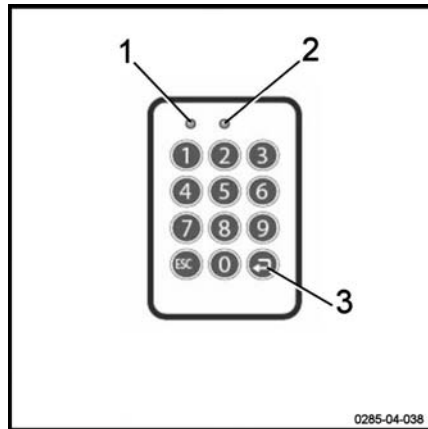
By default, no PIN code is given as a factory setting.

If the PIN code is correct, the LED (1) is not lit. The LED (2) flashes slowly at two-second intervals (green colour).

No acoustic signal sounds.

- Press the Enter key (3) to confirm.

The truck is now ready for use.



NOTE

In the configuration, the fleet manager can specify that the operator must enter a preliminary code when logging in. The operator can then assess the state of the truck.

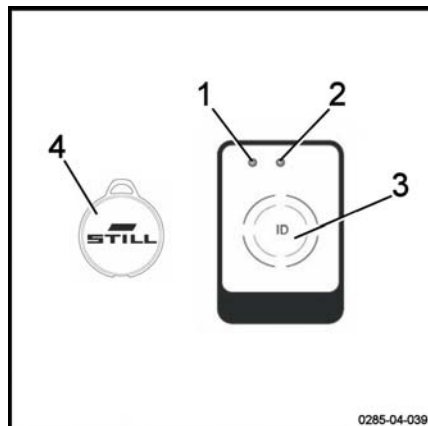
Commissioning a truck equipped with an RFID reading device ▷

- Turn the switch key to start the truck.
- Place the RFID transponder card or the RFID transponder (4) in front of the reading device (3).

If the card is correct, the LED (1) is not lit. The LED (2) flashes slowly at two-second intervals (green colour).

Two acoustic signals sound.

The truck is now ready for use.



FleetManager™ option: Colour code for the LEDs

The LEDs can have different statuses and different colours. Below is the list of the most common messages and their meanings.

Malfunction		Signal transmitter	Cause	Solution
LED status				
LED 1	LED 2			
Lit continuously Red colour	Off	A long acoustic signal sounds	Reading device variant: no valid access authorisation	Generate a valid access authorisation using the interface
			Keypad variant: no valid access authorisation for the PIN code entered	
			Keypad variant: PIN code entered incorrect or not confirmed using the Enter key	Re-enter the PIN code
Lit continuously Red colour	Flashes once Green colour	A long acoustic signal sounds	The operator has been granted access authorisation. But the period of validity has expired.	Use the interface to enter a new period of validity
			The date of the truck is incorrect	Update the date of the truck
Flashes quickly Yellow colour	Lit continuously Green colour		Memory is 80% full	Clear the memory
Flashes quickly Red colour	Flashes quickly Red colour	A long acoustic signal sounds upon activation	There are several possible causes: - Reading device or keypad not accessible - GPRS module not accessible - Built-in rechargeable battery flat - Memory full	Contact the After-Sales Service Centre

Operating the FleetManager™ option

Malfunction		Signal transmitter	Cause	Solution
LED status				
LED 1	LED 2			
Flashes quickly Red colour	Lit continuously Green colour		A shock has occurred	Reset the shock
Flashes quickly Blue colour	Off		The truck is connected via a Bluetooth link. The operating data is being read. The reading process can take up to five minutes.	The truck is switched on but is not moving. Wait for all of the relevant data to be read. As soon as the LEDs change to a different status, resume work.

Disconnecting a truck equipped with the FleetManager™ option

NOTE

Operators must not log off intentionally while driving.

WARNING

Access to the truck must be disabled.
Unauthorised users are not allowed to use the truck.

Disconnecting a truck equipped with a keypad or electronic key ▷

- Park the truck in a safe place.
- Press the button (3) to log off. Keep the button pressed in.

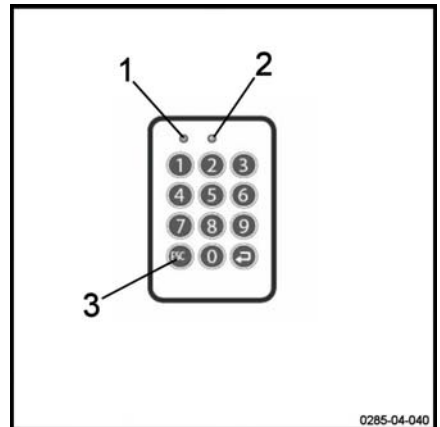
No LEDs light up. A long acoustic signal sounds.

The LED (1) lights up for a second (red colour). The LED (2) is not lit. A long acoustic signal sounds.

The LED (1) is no longer lit. The LED (2) flashes slowly at two-second intervals (green colour). No acoustic signal sounds.

The truck is disabled.

- Turn the switch key to the off position to switch the truck off completely.



Operating the FleetManager™ option

Disconnecting a truck equipped with an RFID reading device ▶

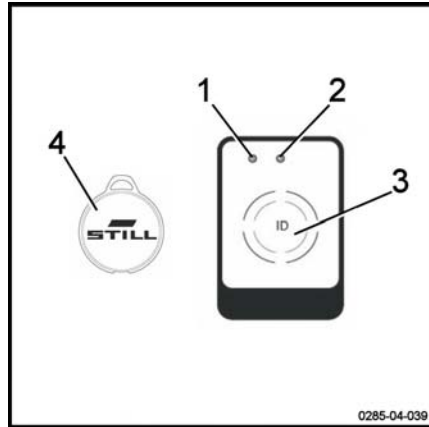
- Park the truck in a safe place.
- Briefly place the RFID card or the RFID transponder (4) in front of the reading device (3).

The LED (1) lights up for a second (red colour). The LED (2) is not lit. A long acoustic signal sounds.

The LED (1) is no longer lit. The LED (2) flashes slowly at two-second intervals (green colour). No acoustic signal sounds.

The truck is disabled.

- Turn the switch key to the off position to switch the truck off completely.



Transporting loads

Load handling safety rules

WARNING

Carefully observe the following instructions before picking up loads. Never touch or stand on moving parts of the truck (e.g. lifting device, pushing devices, work installations or devices for picking up loads).

WARNING

Take care not to trap hands or feet when operating the truck.

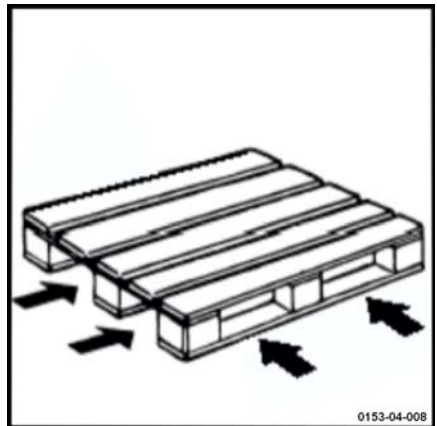


Grabbing a loading unit

Watch out for the following elements:

- the load must be well-balanced and centred correctly between the fork arms
- the fork arms must be sufficiently slid underneath the load to guarantee stability.

The load must not protrude too far over the fork arms, nor should the fork arms protrude too far out from the load.



Transporting loads

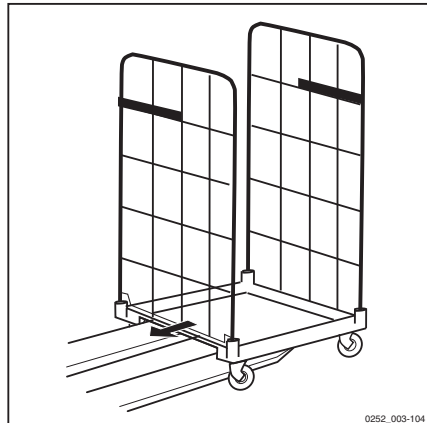
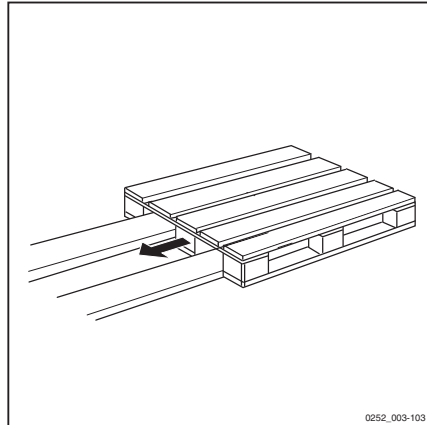
Transporting pallets or other containers



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

- when the safety preconditions are fulfilled.
- by order of the monitoring agent.

The forklift operator must ensure that the loading unit is properly packaged. He must only move loading units that have been carefully prepared and that meet the safety requirements.



Lift control elements

WARNING

Risk of injury

The safety regulations must be strictly adhered to.

It is strictly forbidden to touch or stand on moving parts (e.g. lifting device, pushing devices, work installations, load lifting devices).

For safety reasons, the lift and traction functions are inhibited when the tiller is in the rest position.

The truck has two lift systems:

Main Lift

Fork arms lifting

- Press the proportional control button (2).

Fork arms lowering

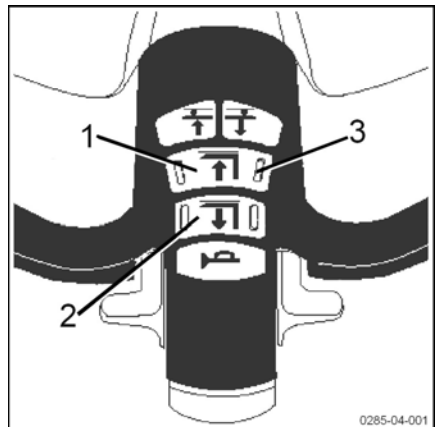
- Press the proportional control button (1).



NOTE

A groove (3) is present on each side of the button. This helps you to feel the button and to identify it even if there is not much light.

The fork arms are lowered to the lowest position. It is always possible to stop the movement of the forks by releasing the buttons.



Transporting loads

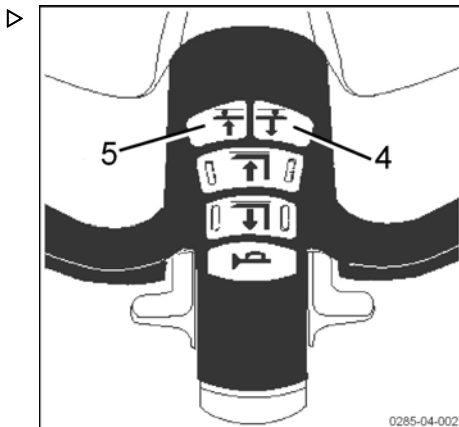
Base lift

Lifting the load arms

- Press button (4).

Lowering the load arms

- Press button (5).



Reading the capacity label

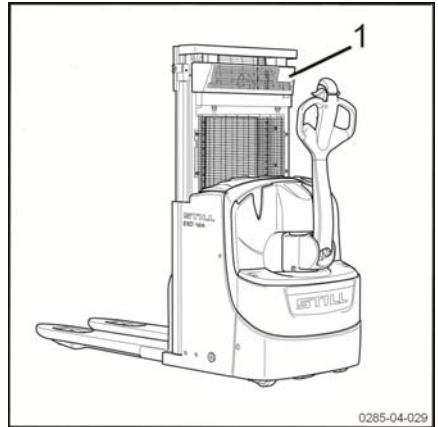
⚠ CAUTION

Before picking up a load, make sure that its weight does not exceed the lifting capacity of the machine.

Refer to the nominal capacity specified on the truck's capacity label (1).

The values shown correspond to compact, homogeneous loads. They must not be exceeded. If they are exceeded, the stability of the truck and the resistance of the mast and the chassis are no longer guaranteed.

The distance of the load centre of gravity from the back of the fork and the lift height determine the maximum load weight. Check the pallet is in good condition.



EXD18 capacity in stacker and pallet truck mode

EXD18: 800 kg

EXD18 capacity in double stacker mode

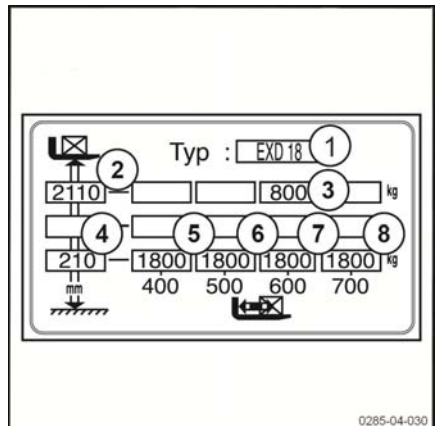
EXD18: 800 kg on the fork arms and 1000 kg on the load arms.

Reading the capacity label with initial lift:



Example using a EXD18 with initial lift, fitted with a 2024 mm standard mast:

- 1: Model: EXD18
- 2: Maximum lift height: 2110 mm
- 3: Maximum mast capacity: 800 kg with a height of 2110 mm (centre of gravity: 600 mm)
- 4: Maximum lift height: 210 mm with 1800 kg in pallet truck mode
- 5 to 8: Maximum capacity in pallet truck mode: 1800 kg with a height of 210 mm



Transporting loads

Load handling

DANGER

Risk of truck falling

Do not stack the initial lift high.

CAUTION

Safety shoes must be worn.

Transporting people is strictly prohibited.

DANGER

Risk of loss of stability

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

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 hooking onto one another.

Picking up a load from the ground

- Use the initial lift to raise a load of up to 1800 kg several centimetres from the ground.

DANGER

Ensure that the pallet is in good condition before commencing any operation.

Transporting a load

⚠ DANGER

Risk of accidents

There must be no one under or near the truck when the load is in the raised position.

⚠ DANGER

Risk of falling

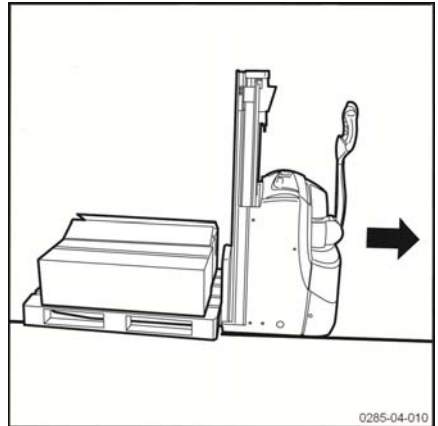
Never transport a load with the forks in the raised position as the truck may become unstable.

Observe the following recommendations:

- Drive forwards for optimum visibility
- Travel up or down slopes with the load uphill Do not travel across the slope or make a U-turn
- Reverse travel is used for setting down the load Adjust your speed, as the position of the forklift operator is now less comfortable
- Do not drive with an unstable load
- If visibility is poor, let someone guide you
- Raise the forks slightly in order to pass obstacles
- Be careful of low passageways, low doorways, scaffolding, pipes etc.
- Check that the width of the load is not greater than the width of the aisle
 - To facilitate movement over obstacles, increase the ground clearance.
 - Check that the width of the load is not greater than the width of the aisle.

Setting a load down on the ground

- Drive the machine to the required location.
- Carefully move the load into the unloading area.
- Lower the load until the forks are freed.
- Withdraw the machine in a straight line.
- Raise the forks a few centimetres.



Transporting loads

⚠ CAUTION

Risk of falling

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

⚠ CAUTION

Risk of accidents

Before you remove the load, ensure that there are no people around the truck or load.

Stacking a load

⚠ CAUTION

Risk of loss of stability

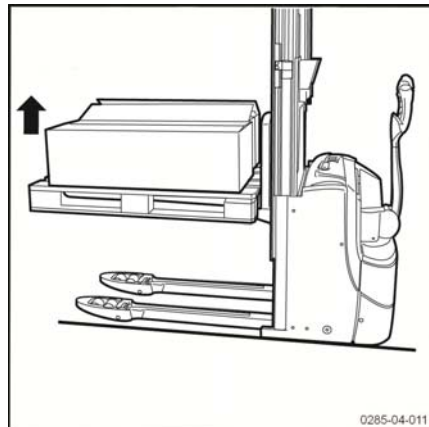
In order to retain maximum stability and to avoid any risk of overloading the truck, do not use the initial lift control to disengage the load from the storage area.

- Drive the truck to the required location.
- Lower the load arms completely.
- Raise the forks clearly above the level where the load is to be placed.
- Drive the truck forward into the racking.
- Lower the load until the forks are freed.
- Withdraw the machine in a straight line.
- Lower the forks again to several centimetres from the ground.

⚠ DANGER

Risk of fatal accident

There must be no one under or near the truck when the load is in the raised position.



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Picking up a load at a height

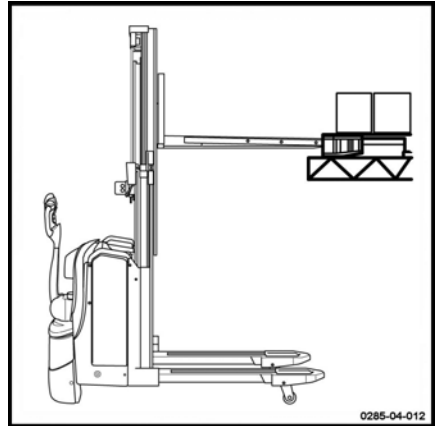
- Drive the machine to the required location.
- Lower the load arms completely.
- Lift the forks to the height of the pallet.
- Carefully move the forks forward under the pallet.
- Lift the forks until the pallet moves away from the racking.
- Reverse the truck slowly to move the pallet.
- Lower the forks again with the load a few centimetres from the ground.

Before leaving the machine

CAUTION

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

- Lower the forks to the lowered position.
- Switch off the ignition.
- In the case of a prolonged standstill, pull the emergency stop handle and disconnect the battery.



Transporting loads

Handling two stacked pallets

EXD18 trucks enables two stacked loads to be transported:

- one load on the load arms of the initial lift
- one load on the fork arms.

⚠ DANGER

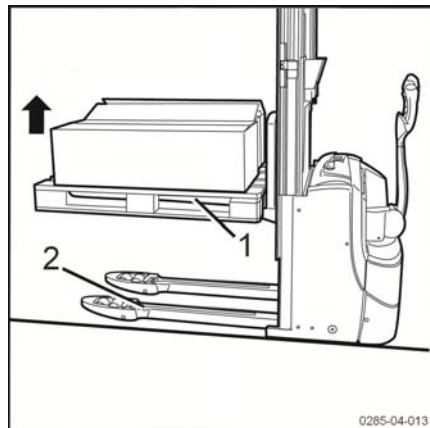
Risk of loss of stability

The overall weight of the two loads must not exceed the maximum capacity of the machine (refer to the capacity plate).

The heavier load must be placed on the load arms.

Picking up two loads

- Lower the load arms.
- Raise the forks to the correct height to load the upper pallet.
- Carefully move the forks forward under the pallet.
- Raise the forks (1) to lift the upper load.
- Reverse the truck slowly in a straight line to withdraw the first load.
- Move forward slowly to pick up the second load.



- Then raise the load arms (2) to lift the load from the ground. ▷
- Lower load (Q1) again as close as possible to load (Q2) before driving.

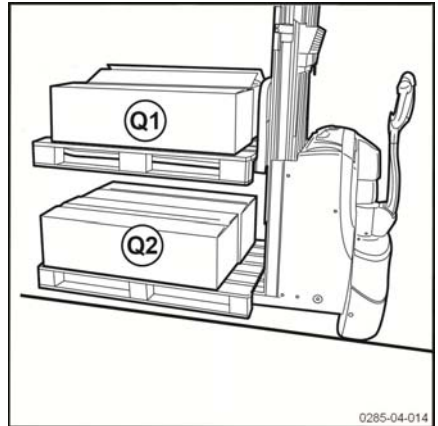
⚠ CAUTION

Make sure that there is enough space above load (Q2) so as not to crush the top of the pallet.

- Reverse the truck slowly to remove the pallets from the storage area.

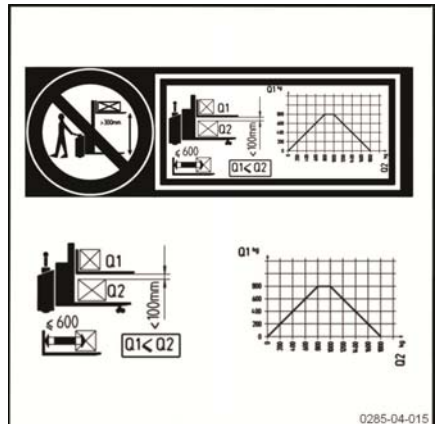
⚠ CAUTION

The total load (Q1) + (Q2) must not exceed 1800 kg. It is essential that **Q1 is less than Q2** (see details on reading the double stacker label).



Transporting two loads

- The normal direction of travel is forwards. ▷
- In the event of poor visibility, move slowly and carefully and work with guidance.
- Do not travel with a load (Q1) on the forks if there is no load (Q2) on the load arms above 300 mm from the ground.
- **It is imperative that the heavier of the two loads (Q2) be placed down on the load arms.**
- Keep the upper load (Q1) as close as possible to load (Q2) at all times.



Setting down two loads

- Carefully move the truck to the desired area.
- Raise the forks clearly above the level where the load is to be placed.
- Slowly move the loads towards the storage area.
- First of all, place the lower pallet on the ground and then place the upper pallet on the first level.
- Slowly remove the truck in a straight line.

Transporting loads

- Lower the forks again.

WARNING

The initial lift or lowering operation (load arms) is matched by the forks.

Option Autolift

⚠ DANGER

Do not use the Autolift option in double stacking mode.

i NOTE

Training on how to use this option is required before use.

⚠ WARNING

Risk of accident

Ensure that there is nobody in the work area.

Description of the Autolift option

The Autolift option enables automatic lifting and automatic lowering of the forks. The forks are adjusted to the ideal height depending on the load added or removed from the pallet.

The truck is equipped with sensors (1) that enable the load on the forks to be detected and the height to be adjusted.

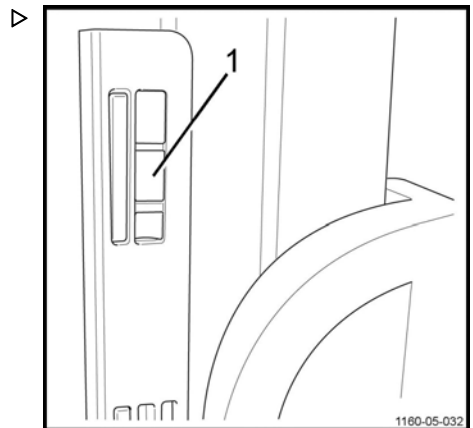
Automatic lifting and lowering occurs between 300 mm and 800 mm.

⚠ WARNING

Risk of crushing feet

It is advisable to wear safety shoes.

Do not put your feet underneath the forks.



Transporting loads

Using the Autolift option

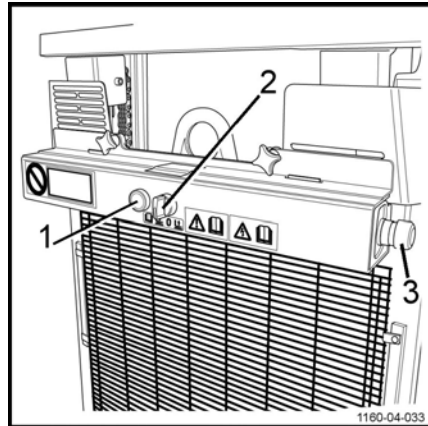
The unit that controls the Autolift option consists of:

- A green illuminating button (1)
- A turning knob (2) to select the lift (4) or lower (5) position
- Two emergency off switches (3) located at each end of the unit

⚠ WARNING

Risk of crushing fingers

When using Autolift, nobody should lean on the mast or the sensor guard plate.



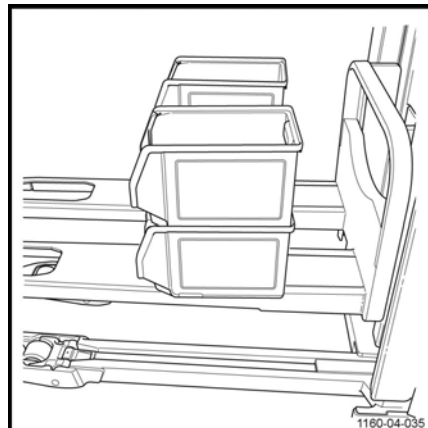
Loading goods

⚠ DANGER

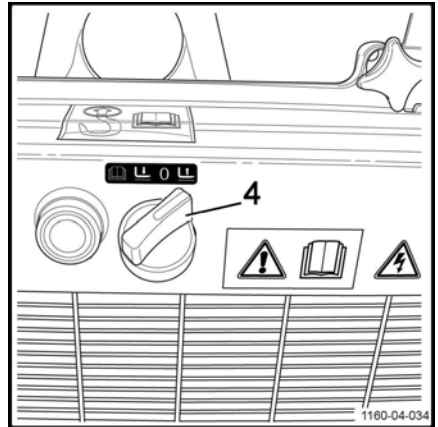
In case of danger, press one of the two emergency off switches (3) located on either side of the unit. It is also possible to pull the truck's emergency stop handle.

When loading goods, the load must be centred on the forks in order for the sensors to detect it accurately.

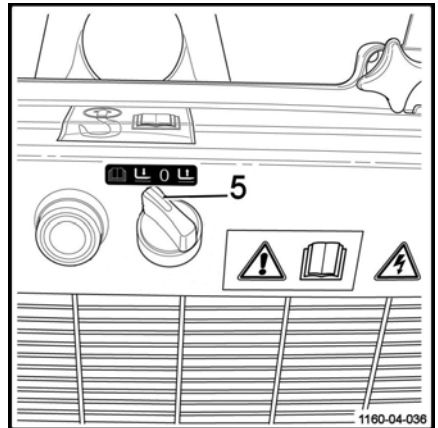
To load the forks, proceed as follows:



- Turn the Autolift(2) turning knob to the **Lift** (4) position. ▷
- Press the green illuminating button (1).
- The forks are raised to 800 mm. A beep sounds before activation. The green illuminating button lights up when the forks are moving.
- The green indicator light will turn off when the forks stop moving.



- Turn the Autolift(2) turning knob to the **Lower**(5) position. ▷
- Use the entire surface for the load. The load height must not exceed a maximum of 500 mm.
- The Autolift function will automatically adjust the height of the forks. The forklift operator can load until the forks are lowered to 300 mm.



Unloading goods

- Turn the Autolift(2) turning knob to the **Lift** (4) position.
- Press the green illuminating button (1).
- A beep sounds before activation. The green button is illuminated.
- Remove the goods on the forks. The rest of the goods must be distributed evenly so that the sensors work correctly.
- The Autolift function will automatically adjust the height of the forks. The forklift operator can unload again until the forks reach 800 mm.
- The green illuminating button (1) lights up when the forks are moving. It turns off when the forks stop moving.

Cold store usage (optional)

Cold store usage (optional) ▷

⚠ CAUTION

Standard trucks risk being subject to significant damage if used in extreme conditions.

Only trucks with the Cold Store option may be used inside cold storage. Specific oil designed for cold stores must be used.

These trucks are identified by their Cold Store label.

Area of Use

Trucks with the Cold Store option may be used in two different areas:

- **operating range 1:** the truck can operate at a temperature of $-5\text{ }^{\circ}\text{C}$ and, for short periods, at a temperature of $-10\text{ }^{\circ}\text{C}$. It must be parked outside of the cold store.
- **operating range 2 (Entry / Exit applications):** the truck must be used alternately inside and outside of the cold store. It can withstand temperatures between $-30\text{ }^{\circ}\text{C}$ and $+45\text{ }^{\circ}\text{C}$. Specific rules should be followed so as not to damage the truck and to avoid the occurrence of streaming (see the following paragraph). The truck is parked outside of the cold store.

Precautions for Use

The difference in temperature between the cold store and the room temperature zone may result in the formation of condensation water.

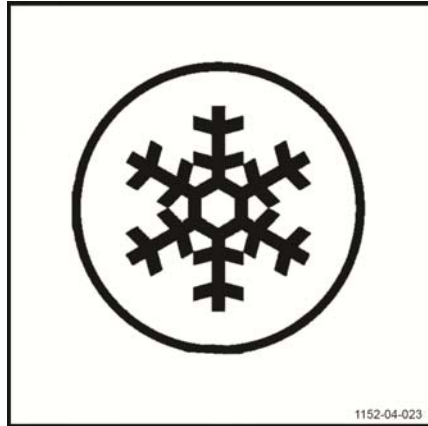
This water can freeze when the truck goes back into the cold store and jam the moving parts of the truck.

Streaming occurs if the truck remains outside of the cold store for more than ten minutes. Therefore, it is essential to leave the truck outside of the cold store for 30 minutes so that the condensation disappears.

⚠ DANGER

If the condensation freezes in the cold store, it is prohibited to operate the jammed parts.

This could cause permanent damage to the truck.



Parking

The truck must be parked outside of the cold store.

Parking inside the cold store could cause serious damage to the electrical and mechanical equipment (seals, hoses, rubber and synthetic parts).

CAUTION

Do not leave discharged or unused batteries in the cold store.

They could be permanently damaged.

Stopping the truck

Stopping the truck


WARNING

Do not stop the truck on a slope, or if this is absolutely necessary, make sure it is safely secured using chocks.

Never leave the truck with the load in the raised position.

Stopping the truck

- Bring truck to a controlled stop.
- Lower the forks.

- Switch off the ignition then remove the key or press the  button on the digicode for 2 seconds.
- Pull the emergency stop handle.

Restarting work

- Put the key back in the ignition or enter the 5-digit code on the electronic key (default code: 12345).
- Press the emergency stop handle.

Handling the battery

Battery type

Trucks can be fitted with different types of battery. Comply with the information indicated on your battery's type plate, as well as with its features.

WARNING

The weight and size of the battery influence the stability of the truck.

The new battery must weigh the same as the old one. Do not remove extra weight or change its position.

CAUTION

Be careful not to damage any wiring when replacing the battery.

Order picking

Maintenance personnel

The battery must be replaced by specially trained personnel. Personnel must follow the manufacturer's instructions for the battery, the charger and the truck.

It is also necessary to follow the battery maintenance instructions.

Fire protection measures



WARNING

Do not smoke or create a flame when handling batteries. There must be no combustible material or tools that produce sparks within a minimum radius of 2 m around the truck and the battery charger.

The work area must be well ventilated. Fire extinguishers must be provided and located near the work area.

Handling the battery

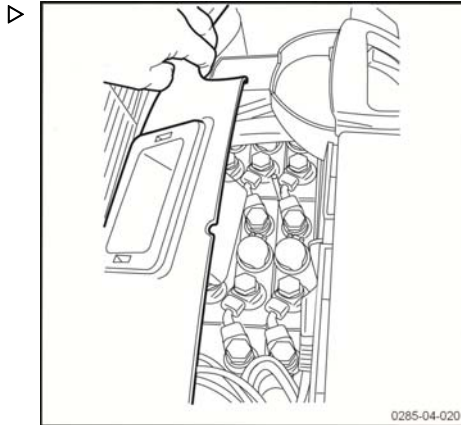
Parking the truck securely

When the battery is being worked on, the truck must be parked safely. The truck can only be restarted when the covers and connectors have been put back in the operating position.

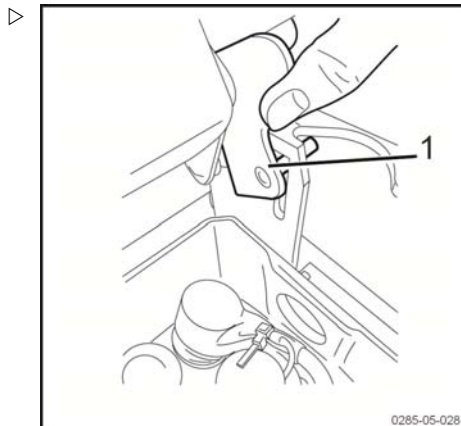
Opening/closing the battery cover

Opening

- Bring truck to a controlled stop.
- Lower the forks.
- Turn off the ignition and remove the key.
- Pull the emergency stop handle.



- Open the battery cover by lifting the plastic cover towards the mast.
- Lock the cover in the vertical position using the support (1).



Closing

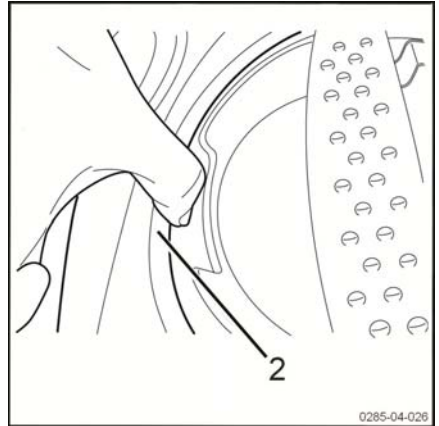
- Lift the support (1) to unlock it.

- Guide it downwards. The cover will gradually close. ▷
- At the end of travel, be careful not to trap your fingers. With your second hand, hold the cover handle (2) and lower it slowly.
- Return the cover to the horizontal position.

⚠ CAUTION

Keep fingers away from moving parts to avoid any risk of them being trapped.

- Restart the truck.



Refit the battery cover.

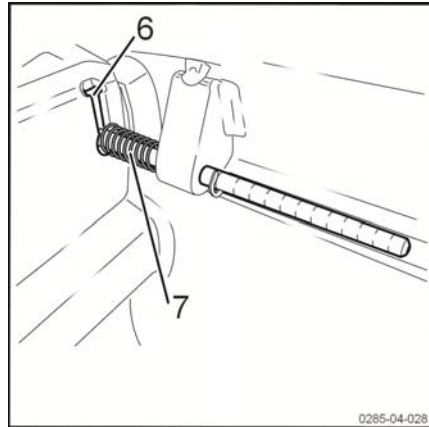
To put the battery cover on the truck, proceed as follows:

- Position the axis (4) of the support (1) in the corresponding slot (3).



Handling the battery

- Subsequently, position the second axis in the opening (5) . The first side of the cover is back in place.
- Position the rod (7) into the opening (6). The second side is in place.
- Close the cover.



Battery charging using an external charger

CAUTION

The battery may be damaged if discharged beyond a given limit.

- Immediately charge the battery.
-
- Park the truck safely.
 - Before charging, check the condition of the battery cable and the charger cable. Replace them if necessary.
 - Open the cover and leave open.

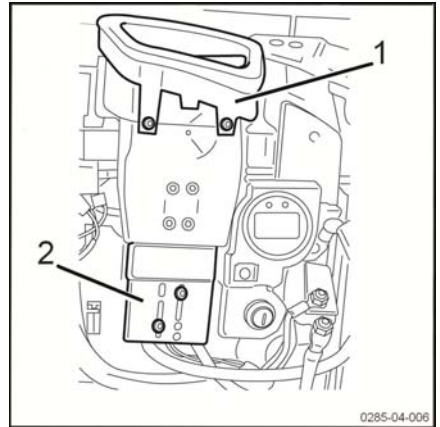
- Remove the battery disconnection handle (1) from the truck plug (2).
- Connect the battery connector to the wall-mounted connector.

⚠ WARNING

Only unplug the battery connector from the battery charger when both the battery charger and truck are switched off.

i NOTE

Follow the instructions provided by the battery and battery charger manufacturers (equalising charge).



⚠ WARNING

Risk of damage, short circuit or explosion.

Do not place any metallic objects or tools on the battery.

Do not smoke.

⚠ WARNING

The electrolyte (diluted sulphuric acid) is toxic and very caustic.

Follow the safety regulations when handling battery acid.

⚠ WARNING

Explosive gases are generated during battery charging.

- Ensure the work area is well-ventilated.
- Make sure that the battery hood remains open for the entire time the battery is charging.

Handling the battery

On-board charger

Precautions for installation and use

The on-board charger means you no longer have to use a charging room. This charger can be connected to any 2P+T 230 V 16 A socket. However, before charging this way, the user must ensure that the location selected for charging satisfies all the required safety guarantees:

- The electrical system must comply with standard NF C 15 100.
- The electric wall socket must be a 2 pole + earth 16 A 230 V type that is correctly connected and protected.
- Before charging, check the condition of the connections and cables (retighten, as required).
- Charging must be carried out in an area where there is no condensation or pollution and there must be sufficient ventilation.
- The charger must not be exposed to oil, grease or other similar substances.
- Charging must be carried out with the truck stopped.
- The increase in the temperature of the unit in relation to the ambient temperature is 10°C maximum. The temperature of the expelled air is 25°C maximum. Wait 10 minutes after stopping the charger before touching the unit.
- As the charger is cooled by forced ventilation, do not block the air inlets and outlets. There must be sufficient air circulation to the outside.

The charger is designed:

- To be incorporated inside an industrial truck. The charger must never be used alone (out of the truck).
- To stay permanently connected to the battery.
- To operate in all positions.
- Remain connected to the mains during periods of truck downtime to ensure the availability of the machine.
- To tolerate "opportunity charging".

⚠ CAUTION

Risk of damage to the mains cable resulting in electric shock and/or burns.

Park the truck very close to the wall-mounted mains socket to avoid tensioning the charger's mains cable during charging.

Electrical specifications of the charger

Mains voltage	190 V < U < 260 V
Network frequency	50 / 60 Hz +/-1% (automatic adaptation) No inrush current to the mains connection
Maximum output power	1040 W +/-3%
Maximum output current	35 A +/-2%
Nominal battery voltage	24 V
Tolerance on the voltage of bearing U	1%

Electrical safety

- Protection against reversal of battery polarity: the charger is protected by an output relay. After the battery is reconnected in the right direction, the charger starts charging without requiring human intervention.
- Mains protection: by a 250 V 10 A 5x20 timed fuse. The mains fuse is fitted directly to the electronic card. The user is not authorised to change this fuse. If this fuse is faulty, the charger must be returned to the service centre.

Other charging characteristics

Maintenance charges

If the charger stays connected to the mains, it restarts a charging cycle every 48 hours after the end of the previous charge in order to compensate for self-discharge.

Partial recharging

The charger adapts automatically to the battery discharge situation and therefore allows any type of partial charging to be carried out ("opportunity charging").

The overcharging calculation takes into account partial recharging. The mixture is always sufficient, without needless water consumption, which prevents premature wear of the batteries (often due to overlong charging periods) and reduces the need for maintenance.

Protection during charging

Mains micro-break protection

If the mains power is cut off, all the existing charging parameters are stored in the memory for 13 minutes. As soon as the mains power returns, charging resumes from the point (I, U) at which it was cut off, with the number of Ah already injected stored in the memory.

If the cut-off period is longer than 13 minutes (the truck could have been used), a complete charging cycle is initialised.

Using the on-board charger

NOTE

The charger is compatible with wet lead and gel batteries with a maximum capacity of 400 Ah.

CAUTION

Do not disconnect the battery connector during charging (green indicator light flashes).

The truck cannot be operated during charging.

The on-board charger is for recharging the battery.

- Switch off the truck.

Do not pull the emergency stop handle. This operation cuts off the circuits and stops the battery from charging.

- Connect the charger plug (1) to a mains wall socket.

Time protection

If the duration of phases I1 + P + U is more than 16 hours, the charger automatically stops. This can happen when a battery has a short-circuited component. Simply reset the mains to clear the fault.

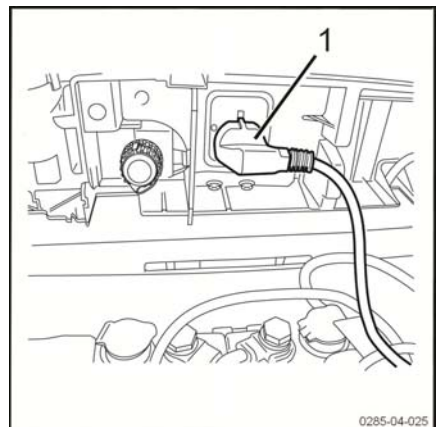
Temperature safety

As the charger is cooled by ventilation, the air inlets and outlets must never be blocked.

The fan runs when the mains power is connected. It stops when charging is complete or when the mains power is disconnected.

The charger supplies reduced power if the ambient temperature exceeds the usage temperature range in order to protect itself (the charging period will be extended in this case).

The charger stops if the micro-controller detects a temperature measurement fault.



0285-04-025

Handling the battery

Phase	Green LED	Red LED
Disconnected mains socket	Off	Off
Charging phases	Flashing	Off
Stopped / Equalisation / Maintenance phase	Continuously lit	Off
Charging too long	Off	Continuously lit
Charger polarity reversed (+battery and -battery charger cables reversed, with the battery remaining normally connected to the truck assembly)	Continuously lit	Continuously lit
Polarity inversion of the battery	Off	Off
Selector in neutral position	Flashing	Flashing

CAUTION

It is strictly prohibited to use an on-board charger other than the one recommended.

CAUTION

Risk of damage to the mains cable due to frequent operator handling. Risk of electric shock and/or burns!

The mains cable must be checked regularly as part of periodic statutory checks and maintenance operations.



NOTE

The on-board charger is not compatible with the Cold Store option.

Adjusting the on-board charger

Charging curve selector

The curve is selected using the selector located on the front face of the charger.

The curve selector is protected by a cap.

The 4 fine lines indicate neutral positions. The charger does not flow and the two LEDs flash simultaneously to indicate that no curve has been selected.

⚠ CAUTION

Risk of premature damage to the battery.

Ensure that the charger setting corresponds to the type of battery.

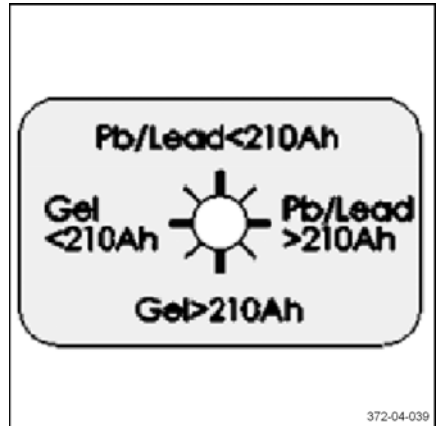
If the battery is changed, ensure that the setting corresponds to the type of battery.

The four thick lines indicate the four charging curves:

- open lead-acid battery with a capacity less than or equal to 210 Ah
- open lead-acid battery with a capacity equal to or exceeding 210 Ah
- GEL battery with a capacity below 210 Ah
- GEL battery with a capacity greater than 210 Ah

⚠ CAUTION

The charger is supplied in the **neutral** position.



Handling the battery

Replacing the vertical access battery

Maintain a safe distance in order to remove the battery and not damage the truck.

⚠ DANGER

Risk to life

Risk of the battery falling. No-one should be under a raised load.

Changing the battery with a hoist

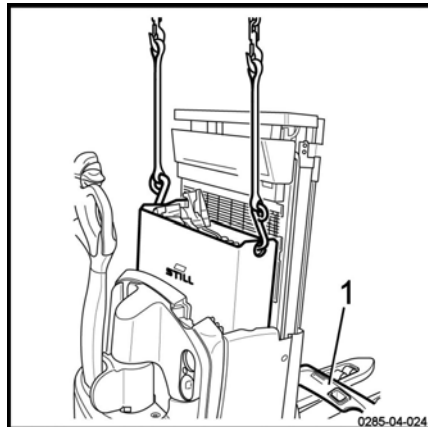
- Bring truck to a controlled stop.
- Lower the forks.
- Turn off the ignition and remove the key.
- Pull the emergency stop handle and remove it.
- Open the battery hood.
- Place the battery connector on the battery cells.
- Remove the battery hood (1).
- Attach the slinging hooks to the battery case.



NOTE

Using secured hooks is recommended.

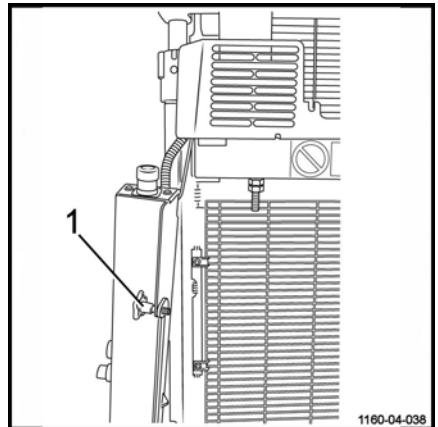
- Lift the battery. Take care not to hook onto the upper bridge piece of the mast.
- Replace the battery.
- Position the new battery carefully in the chassis.
- Guide it to the end of travel.
- Remove the sling hooks.
- Refit the battery hood.
- Reconnect the battery connector.
- Close the battery hood.
- Restart the truck.



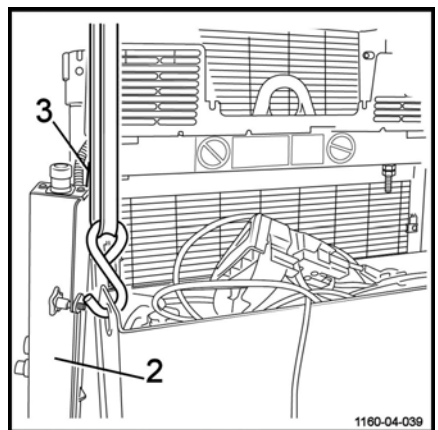
Replacing a vertical access battery with the Autolift option

If equipped with the Autolift option, replacing the vertical access battery involves an additional step.

- Immobilise the truck.
- Lower the forks.
- Switch off the ignition and remove the key.
- Pull the emergency stop handle and remove it.
- Unscrew the knurled screws (1) to release the Autolift unit. ▷



- Remove the Autolift unit (2) on the side of the truck. A cable (3) holds it in place and prevents it from falling. Handle the Autolift unit carefully. Ensure that the detection cam is not pressed in. ▷
- Open the battery hood.
- Place the battery connector on the battery cells.
- Attach the slinging hooks to the battery case.



i NOTE

Using secured hooks is recommended.

- Lift the battery. Take care not to hook onto the upper bridge piece of the mast.

Handling the battery

- Replace the battery.
- Position the new battery carefully in the chassis.
- Guide it to the end of travel.
- Remove the sling hooks.
- Reconnect the battery connector.
- Close the battery hood.
- Refit the Autolift unit and tighten the nuts (1) correctly. Take care not to trap the hose and the cable during the reassembly process.
- Return the truck to service.

⚠ CAUTION

The battery is a heavy and fragile component which must be handled with care. Wearing gloves is recommended.

Replacing the side access battery

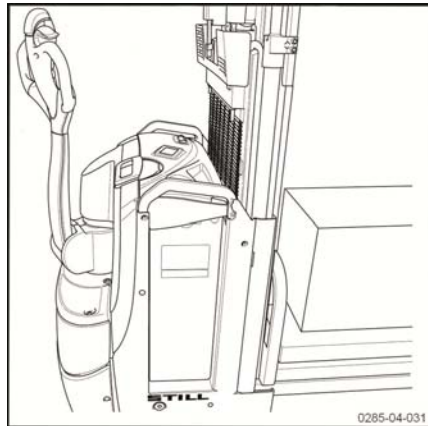
⚠ WARNING

Risk of trapping

Wear safety shoes and gloves to replace the battery.

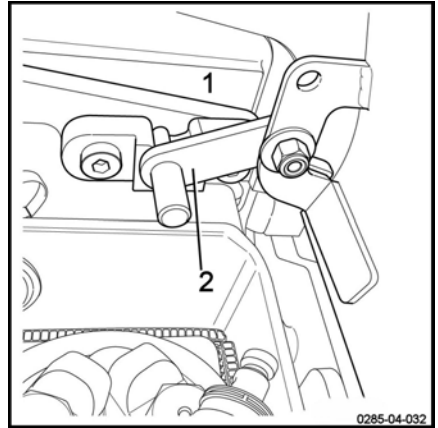
To remove the battery, we recommend that you use a fixed roller frame or a truck with extraction rollers (fitted with rollers) for easier handling of the battery.

- Immobilise the truck.
- Lower the forks.
- Switch off the ignition and remove the key.
- Pull the emergency stop handle.

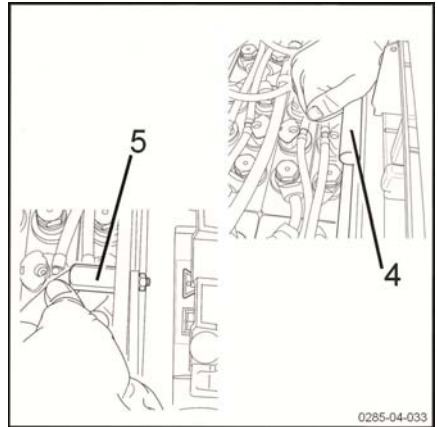


Handling the battery

- Open the battery hood (1). Position the support (2) in the opening provided for this purpose. ▷
- Position the truck in the upright position with extraction rollers or the roller frame (3) near the battery compartment on level ground.

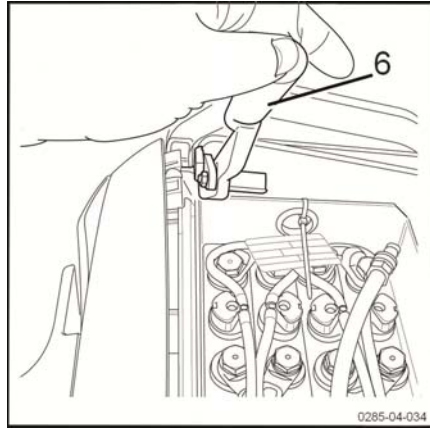


- Press the lever (4) with one hand and raise the joystick (5) with the other hand. ▷
- The locking bar (6) raises slightly.

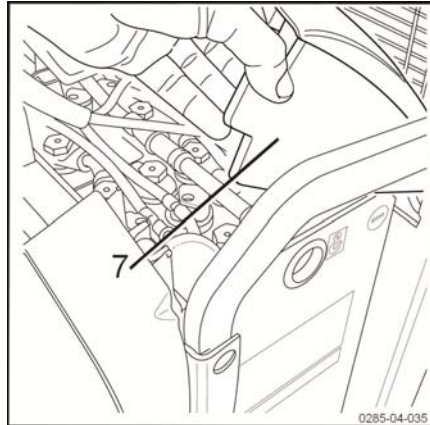


Handling the battery

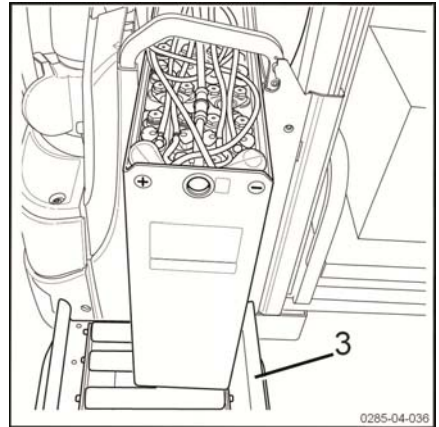
- Fully raise the locking bar (6).



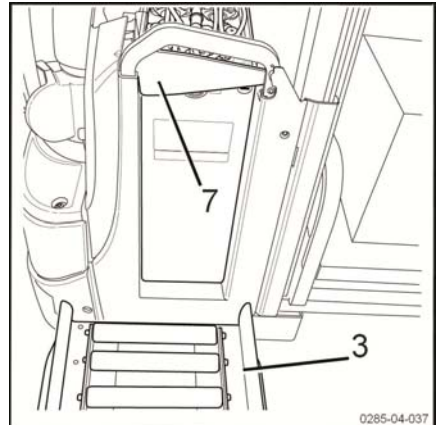
- Lift the stop (7). The stop is magnetic so that it can be perfectly positioned in the battery hood.



- Pull the battery onto the truck with extraction rollers or the roller frame (3). ▷
- Replace the battery.



- Push the battery to the end of the compartment. ▷
- Fold the stop (7) down.
- Fully lower the locking bar (6).
- Close the battery hood.
- Reconnect the battery connector.
- Return the truck to service.



⚠ WARNING

Before restarting the truck, ensure that the battery is correctly installed and that it is properly locked.

Handling the truck in an emergency

Handling the truck in an emergency

Emergency mast lowering

The drain screw allows the mast to be lowered manually in the event of a problem.

⚠ CAUTION

This operation is only carried out in exceptional circumstances.

This operation is to be performed as follows:

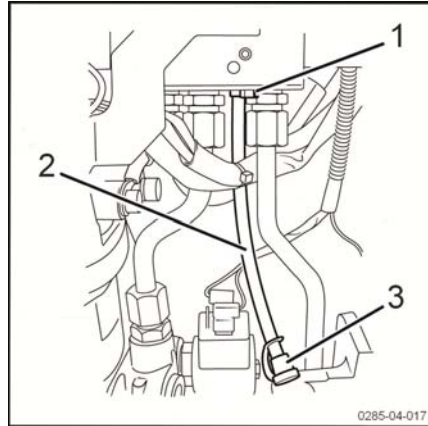
- Remove the plug (3) from the white pipe.
- Place a large container under the white pipe (2).
- Loosen the screw (1) using a 7-mm spanner. The oil will then flow and the mast will lower gradually.

⚠ DANGER

Danger of death!

Do not walk underneath raised loads!

Check that no one is in the danger area before manually lowering the mast.



Towing the truck

It is not possible to tow the truck with no electrical function. The electromagnetic brake remains in the closed position.

You may tow the truck with a rigid connection (tow bar) if the truck to be towed can no longer be braked. Check that the towing vehicle is sufficiently powerful to pull and brake the truck being towed.

Moving with no battery

NOTE

In the event of an electrical fault or no battery, it is possible to unlock the brake manually.

CAUTION

Risk of damaging the truck.

This procedure must be carried out by authorised personnel.

- Remove the load if necessary.
- Disconnect the battery connector.
- Remove the hood of the technical compartment.

Two M5 X 30 screws are required.

- Screw the screws into the brake (2) in the holes (3).

This will unlock the brake.

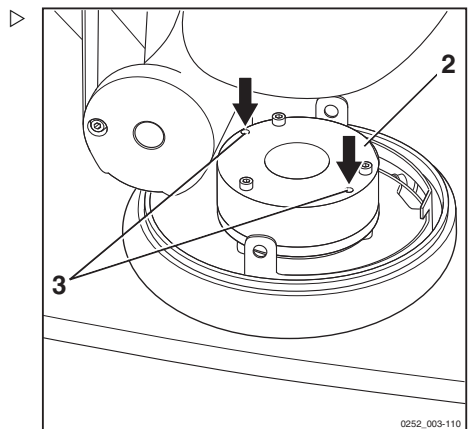
- Close the hood of the technical compartment.

CAUTION

Risk of injury.

The truck must only be towed at creep speed.

- After towing, chock the truck to prevent it from moving.
- Remove the hood of the technical compartment.
- Unscrew and remove the two screws to re-establish brake operation.



Handling the truck in an emergency

- Close the hood of the technical compartment.

Handling the truck in specific situations

Slings the truck

⚠ DANGER

Danger of truck falling

Only use slings (2) or a hoist of sufficient quality. Check the weight of the truck (including battery) in order to choose a suitable device. Refer to the technical data.

Please observe the following instructions:

- Bring truck to a controlled stop.
- Lower the forks.
- Turn off the ignition and remove the key.
- Pull the emergency stop handle.
- Remove any items that could fall.
- Protect all parts that come into contact with the lifting device (2).
- Hook the lifting device (2) onto the sling hook only (1).
- Lift the truck slowly and carefully.

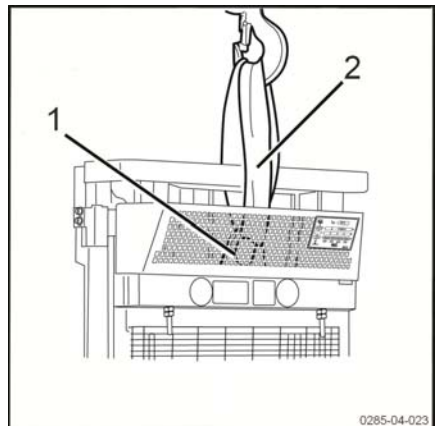
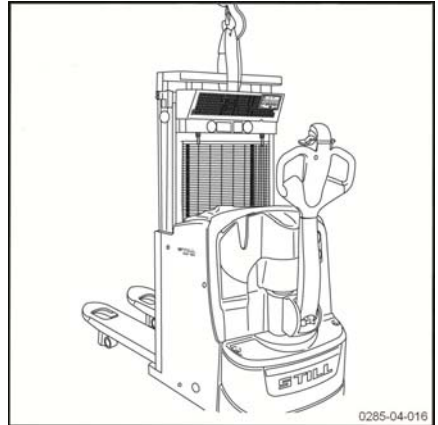
i NOTE

Never sling the truck by the tiller or other points not designed for this.

⚠ DANGER

Risk of falling

Personnel must not stand under or near the truck when slinging the truck.



Handling the truck in specific situations

Hoisting the truck

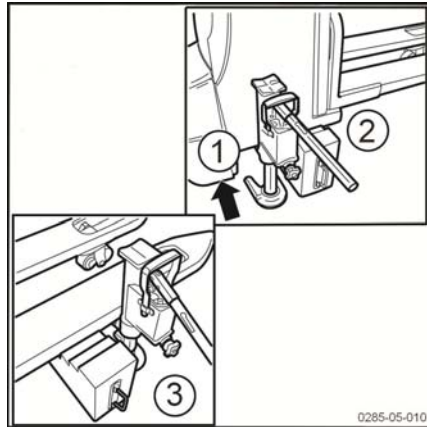
⚠ DANGER

Danger of swinging

The lifting action must be performed carefully.

For some work it is necessary to lift the truck.

- Raise the load arms.
- Switch off the ignition and unplug the battery connector.
- Use a jack with adequate lifting capacity.
- To lift the front section of the truck, place a jack under the chassis (1). For safety reasons, chock with a piece of wood.
- For work on the lifting device, the jack must be placed under the battery frame (2).
- To service the load wheels, the jack must be fitted under the load arms as illustrated (3).



⚠ WARNING

Immobilise and chock the machine after lifting it.

Transporting the truck

⚠ CAUTION

Always switch off the ignition and disconnect the battery.

Never tie down or sling the truck by the tiller or other points not designed for this.

⚠ CAUTION

Use a hoist and woven **NON METALLIC** slings with an adequate lifting capacity. Refer to the load weight shown on the truck's capacity plate.

The lifting operations must be performed by qualified personnel.

Trucks are generally transported by road or by rail.

The truck must be suitably protected from the effects of the weather during transport and storage.

To load or unload the truck, use an inclined plane or a mobile ramp. If the truck is out of commission or if the battery has been removed, move the truck in the following way:

- Attach a woven sling to each location, as indicated by a hook symbol.

⚠ DANGER

Risk to life

Do not stand within the hoist's operating radius or below the lifted truck.

Transporting the truck in the lift

The truck must only be taken in lifts with an adequate loading capacity that are designed for this purpose, and for which authorisation has been received from the operator. Inside the lift, the truck must be immobilised so that no part is in contact with the wall of the lift cage.

A minimum safety distance of 100 mm from the walls of the lift must always be observed.

Anyone transported with the truck must only enter the lift after the truck has been correctly immobilised and they must exit the lift first.

Driving on loading bridges

Before crossing a loading bridge, the operator must make sure it is properly attached and secured and its load capacity is sufficient. Cross the loading bridge slowly and carefully. The driver must be sure that the vehicle to be entered is secured sufficiently against movement

and that it can support the load of the forklift truck.

The lorry driver and lift truck operator must coordinate the departure time of the lorry.

Handling the truck in specific situations

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.

Service plan

Maintenance work must be carried out according to the hour meter. Please consult the truck's maintenance plan.

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

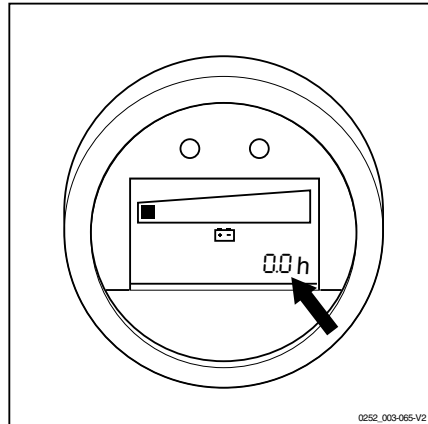
Only lubricants and other consumables specified in these operating instructions are authorised for use during maintenance work.

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 recharged, 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.

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

Ordering spare parts and consumables

Spare parts are provided by our spare parts service department. You will find the information required to place an order in the spare parts and fitting catalogue.

Only use spare parts recommended by the manufacturer.

Unauthorised spare parts may increase the risk of accidents due to faults relating to quality or incorrect choices. Anyone who uses non-compliant spare parts must assume full responsibility in the event of an accident.

Safety guidelines for maintenance

Safety guidelines for maintenance

Servicing and maintenance measures

To avoid accidents during servicing and maintenance operations, take all necessary safety measures. For example:

- Ensure that there is no risk of the truck moving or starting up unexpectedly. For this reason, remove the battery connector.

Working on the electrical equipment

Operations on the truck's electrical system must only be carried out when there is no voltage supply.

Operating checks, testing and adjustment work on parts supplied with voltage must only be carried out by personnel:

- who have received detailed instructions
- who have been authorised to perform this work
- who have taken the necessary precautionary measures.

Rings, metal bracelets etc., must be removed before carrying out any operations on electric components.

Remove the electric equipment (which comprises electric components such as the traction controller) before carrying out any welding operations. This precaution prevents this electric equipment from being damaged.

Operations on the electric system require the consent of the manufacturer.

Safety devices

After any repair or maintenance work, it is necessary:

- to refit all safety devices
- to check these for correct operation.

Recommended lubricants

DANGER

Toxic products.

Oils and other consumables are toxic products. It is advisable to handle and use them with the utmost care.

Hydraulic oil

Recommended oil for standard use:

ISO-L-HM 46 as per ISO 6743-4 or ISO VG46-HLP as per DIN 51524-2.

Recommended oil for heavy-duty use:

ISO-L-HM 68 as per ISO 6743-4 or ISO VG68-HLP as per DIN 51524-2.

Recommended oil for the cold store version:

ISO-L-HM 32 as per ISO 6743-4 or ISO VG32-HLP as per DIN 51524-2.



NOTE

If in doubt, please ask your local dealer for advice. You should also consult your local dealer if a representative of an oil company offers you an oil product that is not specified in these operating instructions. Only the oils listed above are approved by the manufacturer. Using oil mixtures or hydraulic fluids that are not recommended can cause damage that may be expensive to rectify.

Transmission gear oil

Recommended oil:

SAE 85W 90 API GL4

Aerosol can for chains

Standard chain spray.

If in doubt, please ask your local dealer for advice. You should also consult your local dealer if a representative of an oil company offers you an oil product that is not specified in these operating instructions.

Multi-purpose grease

Lithium soap grease, extreme pressure with anti-wear additive - Standard DIN 51825 - KPF 2K - 30, KPF 2K - 20, KPF 2N - 30.



ENVIRONMENT NOTE

Used oil must be stored safely until it is disposed of in compliance with environmental protection measures. No one should have access to the used oil. Do not dispose of used oil in drains or allow it to penetrate soil.



ENVIRONMENT NOTE

Do not allow the product to disperse into the environment. Packaging that has contained this product is treated as waste. Contaminated packaging must be completely emptied and may then be recovered following a thorough clean.

Technical data for inspection and maintenance

Technical data for inspection and maintenance

Assembly	Consumables	Capacities/Setting values
Hydraulic system	Hydraulic oil	Total quantity of oil: 2.5 litres
Transmission gear	Transmission gear oil	0.9 litre max.
Traction and pump motor		125 A power circuit fuse Quantity: 1
Control cable harness		7.5 A control circuit fuse Quantity: 1
Traction motor	Maintenance-free	1.2 kW (AC)
Pump motor	Maintenance-free	1.2 kW
Battery	Distilled water	As required
Joints	Lithium soap grease	As required

Access to the technical compartment

- Fully raise the truck's load arms to facilitate these operations.

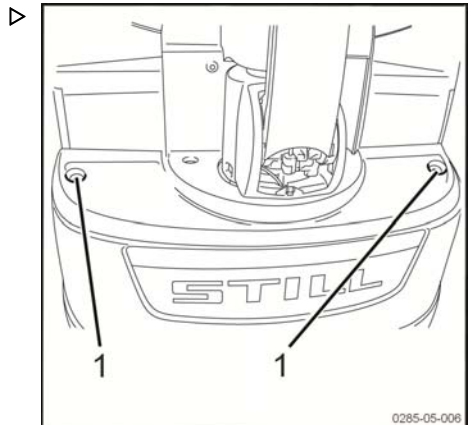
⚠ CAUTION

Before removing anything from the truck:

- Switch off the ignition.
- Pull the emergency stop handle.

Opening the lower cover

- Unscrew the 2 screws (1) that hold the hood in place
- Unclip the cover at both ends
- Raise and pull back the lower cover.

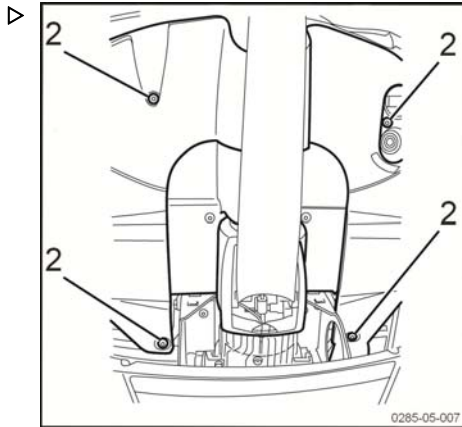


Access to the technical compartment

Opening the front cover

After removing the lower cover:

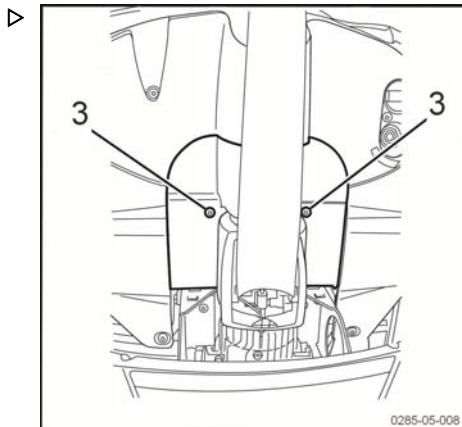
- Unscrew the 4 screws (2) that hold the front hood in place.



Opening the intermediate cover

After removing the lower cover then the front cover:

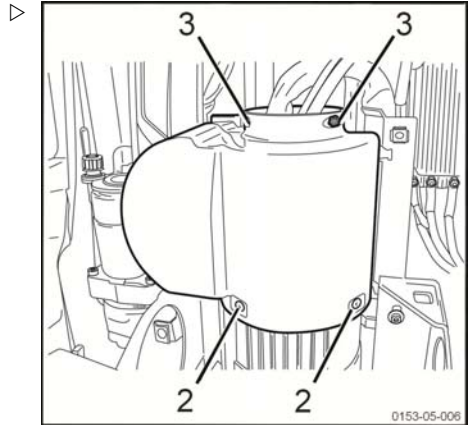
- Unscrew the 2 screws (3) that hold the intermediate cover in place.



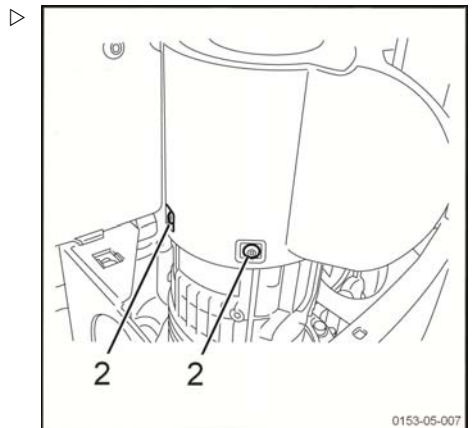
Accessing the reducer and the brake

To access the transmission gear and brake, it is necessary to remove the cover behind the tiller.

- Turn the tiller to the right or left-hand stop.
- Release the 2 screws (3).



- Unscrew the 2 screws (2) located either side of the two 1/2 covers.
- Remove the two 1/2 covers.



Maintenance plan as required

Maintenance plan as required

Depending on the application, environmental conditions and driving style, the following procedures should be carried out as required
Preparation
Cleaning the truck
Chassis and equipment
Checking the brake operation
Checking the condition of the roller frame
Wheels
Checking the wheels for wear
Electrical equipment
Checking the condition of the cables, connections and battery connectors
Check the battery acid level and the electrolyte level
Checking the fuses
Transmission
Regularly checking the transmission gear
Lift mast
Checking the load lift system

1000-hour/annual maintenance plan

Depending on the application, environmental conditions and driving style, the following procedures should be carried out every 1000, 2000, 4000, 7000 and 8000 hours
Preparation
Cleaning the truck
Check the error codes using the diagnostic tool
Chassis and equipment
Checking the condition of the forks
Checking that the brake system operates correctly
Checking the condition of the pump-motor unit
Wheels
Checking the condition of the stabilisers
Electrical equipment
Check the condition and correct positioning of the truck and battery cables
Checking the condition of the on-board charger
Checking that the cables and fuses are secure
Check the battery acid level and the electrolyte level
Hydraulics
Checking the oil level and sealing of the hydraulic system

Checking the hydraulic system for leaks
Checking the lift cylinders and pipes for leaks
Lift mast
Checking the condition and wear of the chains, and lubricating them
Adjusting the length of the mast chain
Checking the guard grille

3000-hour maintenance plan

Depending on the application, environmental conditions and driving style, the following procedures should be carried out every 3000, 6000 and 9000 hours
Information
Carry out all 1000-hour maintenance work
Transmission
Carrying out maintenance on the transmission gear
Hydraulics
Draining the hydraulic system
Lift mast
Carrying out maintenance on the lift mast

Chassis, bodywork and fittings

Chassis, bodywork and fittings

Cleaning the truck

Cleaning instructions

- Park the truck.
- Pull the emergency stop handle.

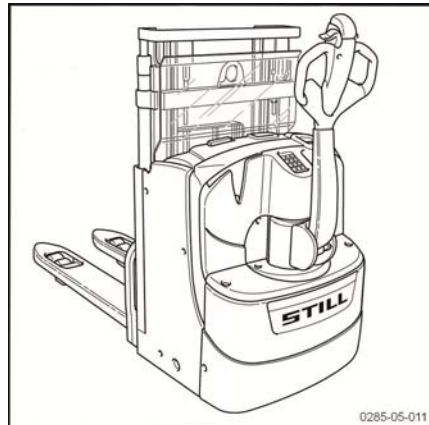
⚠ CAUTION

The battery must always be disconnected during cleaning procedures.

Washing the outside of the truck

⚠ WARNING

- Do not use flammable liquids to clean the truck.
 - The safety rules set out above must be followed to prevent spark formation. They could lead to a short circuit.
 - All components that are sensitive to moisture (particularly electric components) must be protected when the truck is cleaned.
 - Follow the manufacturer's instructions when using the cleaning product.
-
- Clean the truck with a non-flammable cleaning product mixed with water, a sponge and cloths.
 - Specifically clean the oil filler holes and surrounding area as well as the lubricating nipples (before lubrication).



NOTE

A frequently cleaned truck must be lubricated more regularly.

Cleaning the electrical installations

⚠ WARNING

Do not expose electrical equipment (especially motors) to direct jets.

i NOTE

- Only use dry cleaning products.
- Do not remove the protective covers.
- Clean the electrical installations with a non-metal brush and dry with lightly compressed air.

After washing

- Carefully dry the truck (e.g. with compressed air).
- Restart the truck in accordance with the instructions.

i NOTE

If, despite taking precautions, traces of moisture remain in the motor, dry it using compressed air. After having eliminated any traces of moisture, the truck may be reactivated. Do not move it forward to prevent any corrosion.

General information on battery maintenance**⚠ DANGER****Risk of injury**

Before carrying out any operations on the electric installation, turn the truck power supply off. Disconnect the battery connector.

Precautions to be taken during battery maintenance

The plugs on the battery cells must always be dry and clean.

Neutralise any spilt battery acid immediately.

The battery terminals and lugs must be clean, lightly covered with grease for terminals and securely tightened.

Charging the battery

During the charging process, the surface of the battery cells must be clear to ensure sufficient ventilation.

Do not place metal objects on the battery.

The battery cover must remain open during charging. See the chapter entitled **Battery charging using an external charger**.

Battery type

Lead or gel batteries are used. It is advisable to choose a compatible charger.

Before charging, ensure that the charger is suitable for the type of battery.

⚠ CAUTION

Gel batteries are subject to specific charging, maintenance and treatment instructions. A non-compatible charger may result in a battery failure.

Observe the manufacturer's recommendations.

Chassis, bodywork and fittings



NOTE

- *The discharge indicators used to check the battery must also be suitable for the type of battery.*
- *Contact the relevant After-Sales Service Centre.*

Charging the battery

- Park the truck in an area without condensation or pollution and with sufficient ventilation.
- Stop the truck.
- Pull the emergency stop handle.

Check the condition of the forks

- Check that the fork arms (1) show no signs of deformation, splits, heavy wear or cracks.

CAUTION

The fork carriage must be replaced by the After-Sales Service Centre if it is damaged.

- Open the battery hood.
- Do not disconnect the battery plug.

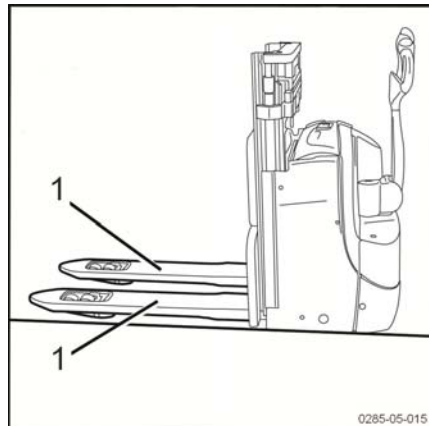
CAUTION

Do not expose the charger to water, rain, oils, grease or any similar substances.

The charger becomes hot during the operation.

CAUTION

Do not obstruct the ventilation. Allow the charger to cool down for 10 minutes after charging is complete before touching it. Do not use the charger out of the truck.



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Steering and wheels

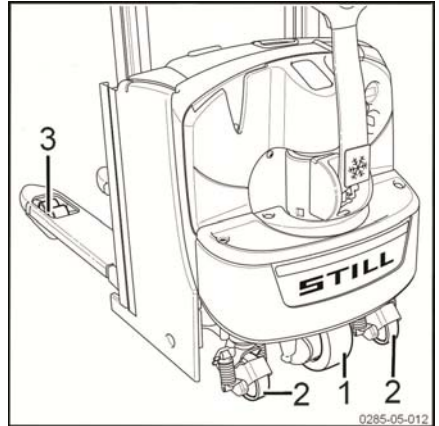
Servicing the wheels and rollers

The tyre treads on the drive wheel (1), stabilising wheels (2) and rollers (3) should show no signs of deterioration.

- Replace damaged or worn wheels with new wheels.
- Replace damaged or worn rollers with new rollers.

 **NOTE**

Contact the After-Sales Service Centre regarding the replacement of wheels and rollers.



Steering and wheels

Stabiliser maintenance

EXD18 trucks are equipped with two damper stabilisers (1). They ensure the dynamic stability of the truck.

Stabilisers do not require any specific maintenance or adjustment work. Wheel wear (drive wheel and stabiliser wheel) is automatically compensated.

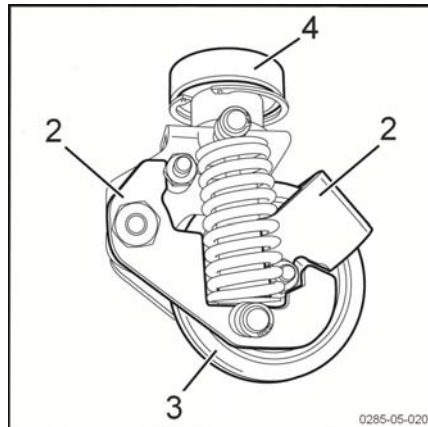
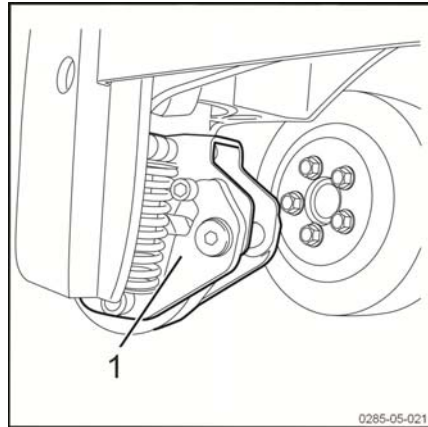
However, it is necessary to check the condition of the stabilisers:

- no significant damage to the superstructure (2).
- the damper cylinder pins must not be twisted.
- no oil leakage must be present on the damper cylinder. This cylinder must be inside the spiral spring.
- no damage to the rollers (3). The wheels must rotate freely.
- no locking at the level of the upper bearing (4).
- ensure that the wheel nuts are correctly tightened.

⚠ WARNING

Risk of loss of dynamic stability

The dynamic behaviour of the device must be monitored, particularly when taking bends. The behaviour of the truck must be the same when cornering, whether turning to the left or right. If there is a difference in behaviour, please contact the After-Sales Service Centre. Only the technician can replace the two stabilisers if deemed necessary.



Regular maintenance of the transmission gear ▷

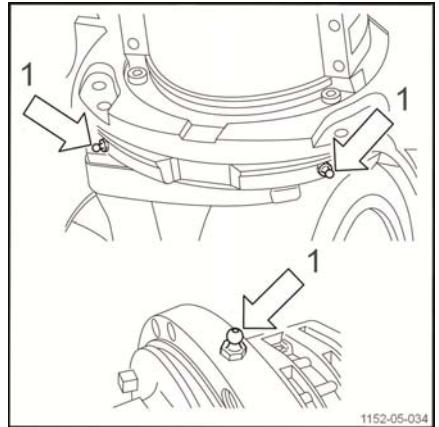
To increase the service life of the transmission gear, 2 grease nipples (1) have been added to its turntable.

It is therefore possible to regularly lubricate the transmission gear.



NOTE

Use the lubricants recommended by the manufacturer.



Electrical equipment

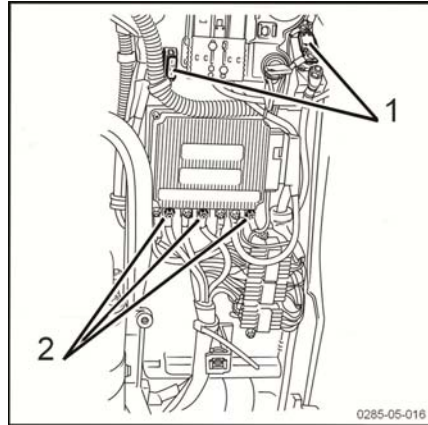
Electrical equipment

Servicing the electrical system

Checking the cable and fuse connection ▷
mountings**⚠ WARNING**

Stop the truck and disconnect the battery before carrying out the following checks.

- Remove the front hood.
- Check the condition of the fuses (1).
- Check that the cable terminals (2) are properly fitted.
- Retighten all cable mounting screws.



Fuses

⚠ CAUTION

Electricity danger

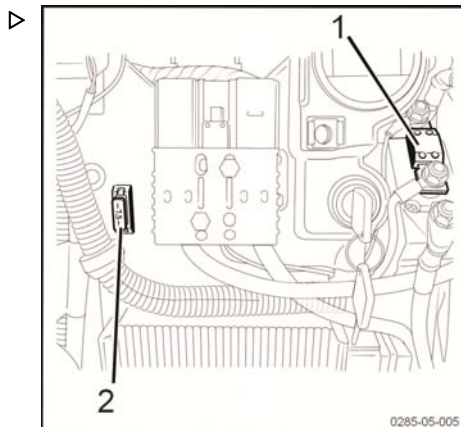
Before carrying out any work on the electric installation, turn the power supply off. Disconnect the battery connector for this purpose.

- Remove the front cover to gain access to the fuses.
- Check that the following two fuses are correctly secured:

The 125A fuse (1) protects the traction and lift power circuit.

The 7.5 A fuse (2) protects the control circuits.

This operation should preferably be carried out by the After-Sales Service Centre.



Checking the battery acid level and electrolyte density ▷

⚠ WARNING

The electrolyte (diluted sulphuric acid) is poisonous and caustic!

- Always wear suitable protective equipment (industrial goggles, safety gloves) when working on a battery.
 - Never wear a watch or jewellery when handling battery acid.
 - 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.
 - Immediately rinse away any spilled battery acid with plenty of water.
 - In case of injury, seek medical advice immediately.
 - Always follow the safety information provided by the battery manufacturer.
 - Comply with the regulations in force.
-
- Check the battery acid level and electrolyte density according to the battery manufacturer's recommendations.
 - The cell covers of the battery must be kept dry and clean.
 - Any spillage of battery acid must be neutralised immediately.



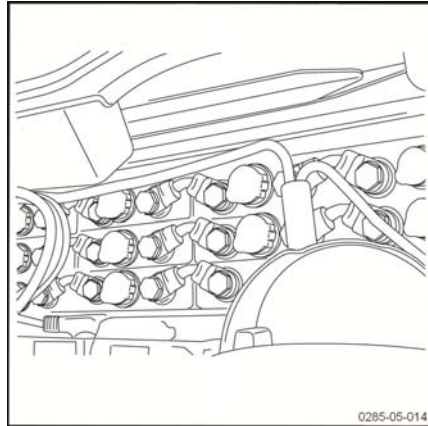
♻ ENVIRONMENT NOTE

Dispose of any used battery acid in accordance with the regulations.

Electrical equipment

Checking the condition of cables, terminals and battery connector

- Check that the cable insulation is undamaged and that there are no signs of overheating at the connections.
- Check that the "+" and "-" output terminals are not sulphated (presence of white salt).
- Check the condition of the battery connector contacts and the presence of the keying pin.
- If the truck is equipped with an on-board charger, check the condition of the spindles of the mains socket. No oxidation must be present and the wires must not be damaged.



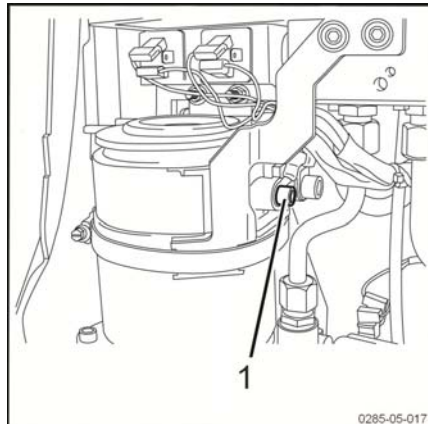
⚠ CAUTION

The points mentioned above can cause serious incidents. In case of an incident, contact our service engineers as quickly as possible.

Servicing the pump motor

Checking the electrical connections

- Check the mounting, condition and insulation of the pump motor cables (1).
- Eliminate any traces of oxidation.
- Replace faulty cables.



NOTE

Oxidised connections and faulty cables will result in a drop in voltage, leading to malfunctions.

Service the on-board charger

It is necessary to check the on-board charger.
Proceed as follows:

- Connect the cord to the 220 V mains.
- Check that the green indicator light on the display is flashing and that the red one is off (charging in progress).
- Check that the truck is immobilised (traction and lifting not permitted) as long as the cord is connected to the 220 V supply.
- Disconnect the mains cord.

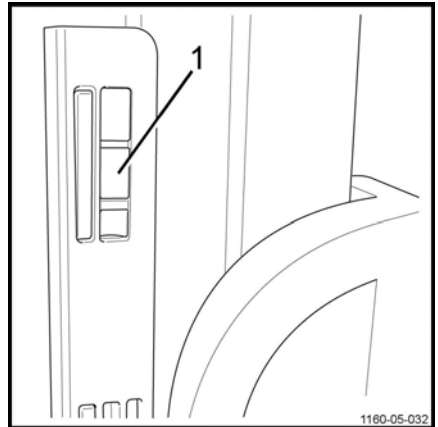
NOTE

In the event of a fault, do not work on the charger. Contact the After-Sales Service Centre.

Cleaning the sensors for the Autolift option ▷

To ensure the correct operation of the Autolift option, the sensors must be cleaned regularly.

- Clean the sensors (1) thoroughly using a soft cloth.



Hydraulic systems

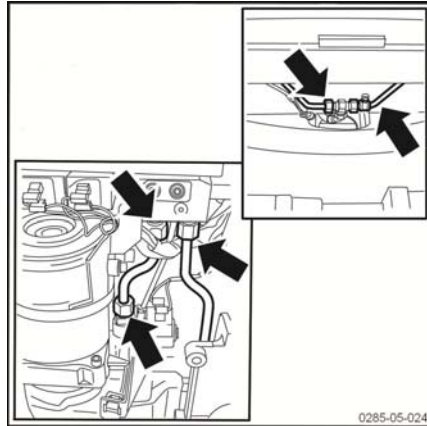
Hydraulic systems

Checking the hydraulic system for leaks ▷

- Inspect the hydraulic system: pipes, hoses and connections between the pump unit and the cylinders.
- Tighten the connections if required.
- Check cylinders for leaks.
- Check that the hoses are attached correctly and show no signs of friction wear.
- Check that there are no signs of oil leakage under the truck.

⚠ CAUTION

In the event of a leakage, contact the After-Sales Service Centre.



Checking the oil level and sealing of the hydraulic system ▷

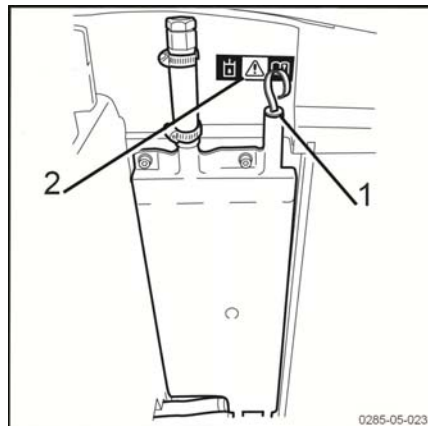
The hydraulic system includes:

- a main tank located under the pump unit
- an additional tank located in the battery compartment

The Drop of oil label (2) indicates that it is important to follow the indications in the manual.

The oil level is checked in the additional tank. Proceed as follows:

- Open the battery cover.

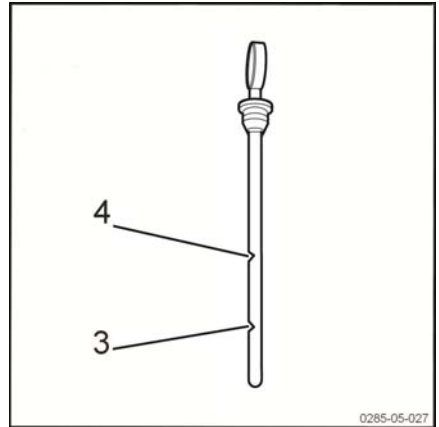


- Remove the tank gauge (1).
- Check the hydraulic oil level. It must be located in the section indicated between the minimum mark (3) and the maximum mark (4).
- If necessary, top up with oil recommended by the manufacturer

i **NOTE**

The amount of oil in a full hydraulic system is 2.5 litres.

- Close the battery hood

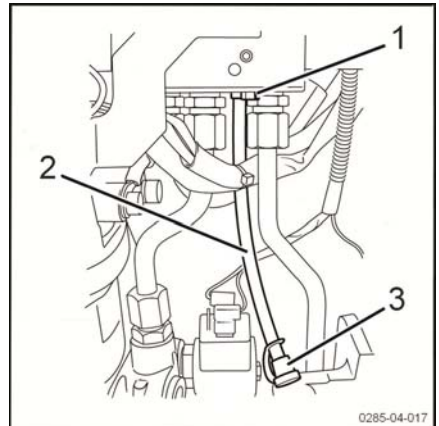


Draining the hydraulic system

A full hydraulic system contains 2.5 litres of oil.

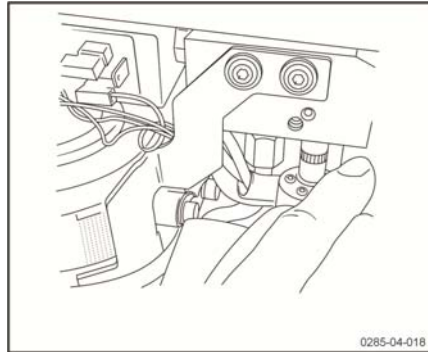
To drain the hydraulic system, the additional tank and the main tank must be drained. Proceed as follows:

- Keep the mast and the load arms in the raised position.
- Switch off the ignition. Pull the emergency stop handle.
- Remove the front hoods to access the technical compartment.
- Place a large container under the bleed pipe (2).



Hydraulic systems

- Remove the bleed pipe (2) plug (3).
- Loosen the screw (1) using a 7 mm open-ended spanner. The oil will then flow.



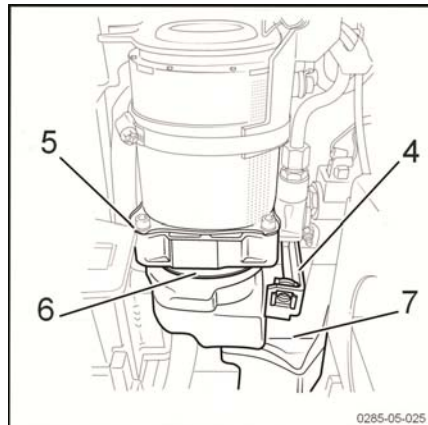
⚠ DANGER

Do not stand under the forks.

When the technician loosens the screws, the carriage will gradually lower.

Lift the mobile chassis using a lifting device. Place a chock on each side of the truck to immobilise and secure it.

- Remove the hood support mounting bracket (4).
- Loosen the clip (5).
- Loosen the tank mounting clip (6).
- Carefully remove the tank (7) from below.
- Drain any oil that may remain at the bottom of the tank.
- Collect the oil in compliance with environmental standards.
- Remove any residual impurities from the bottom of the tank.



Filling up

⚠ WARNING

Do not operate the pump without oil.
Risk of destroying the pump.

- Replace the tank O-ring.
- Fit the tank (7) into the technical compartment.
- Retighten clips (5) and (6).
- Remove the hood support mounting bracket (4).
- Pour the hydraulic oil into the additional tank via the filling opening. This is found in the battery compartment. A full hydraulic system contains 2.5 litres of oil.
- Check the quantity of oil using a dipstick.

- Screw on the breather plug.
- Bleed the hydraulic system by performing several fork and load arm lifting and lowering operations.

⚠ CAUTION

Only use hydraulic oil that complies with the specifications (see lubrication table).

Lift mast

Lift mast

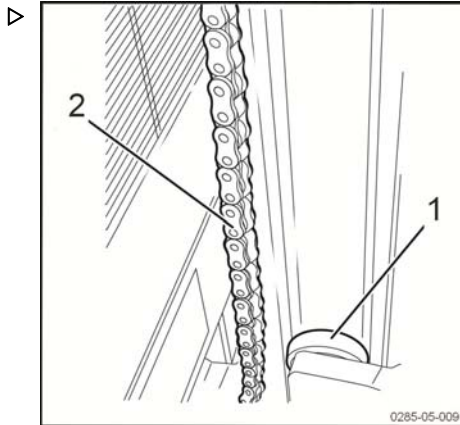
Lifting device

- Remove any dirt from the guide rails (1).
- Lubricate the guide rails of the outer, central and inner masts using pressure high resistance adhesive lubricant to slow down wear.

i NOTE

Lubricate the guide rails uniformly using an aerosol spray at a distance of 15 to 20 cm. Wait approximately 15 minutes before restarting the truck.

- Coat the chain (2) with spray for chains.
- Lubricate the various bearings and friction points with oil.



Servicing the lift mast

- Raise the fork carriage and ensure that it cannot lower unexpectedly.

Checking the lift cylinders and connections for leaks

- Visually check the hydraulic connections and cylinders for leaks.
- Tighten any leaking connections and repair faulty cylinders.

Checking the condition and wear of the chains and lubrication ▷

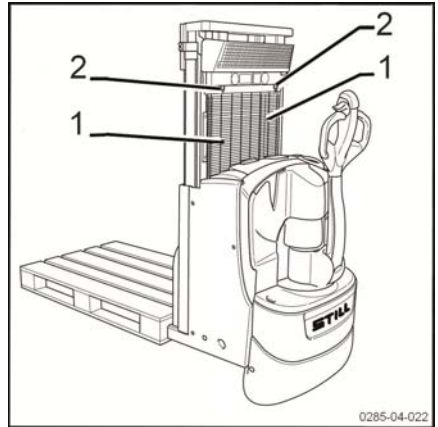
- Lubricate the lift chains (1) using chain spray.

Adjust the lift chains



NOTE

The forks should rest on the load arms in the lower position, with the chains slightly taut. If this is not the case, the chains must be retightened (2) and extended by no more than 3%. Otherwise, the chains must be replaced.



0285-04-022

Checking the guard grille ▷

- Check that the guard grille (3) is correctly attached and in good condition.
- Replace the guard grille if it is damaged.
- Adhere to the number of fastenings as defined by the manufacturer.

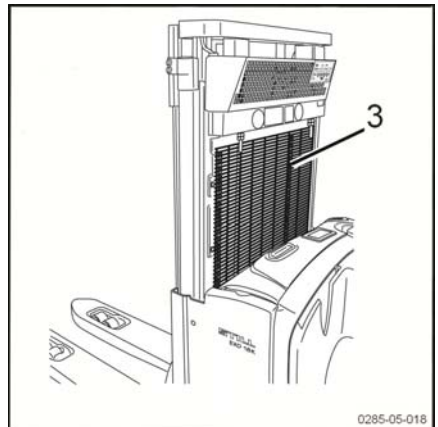
⚠ DANGER

Risk of injury

The grille must be installed and correctly attached.

Do not attach anything to the grille that could affect the visibility of the forks.

When cleaning the fork carriage side, only clean the grille when the fork carriage is in the lowered position.



0285-05-018

Commissioning and storage

Commissioning and storage

Storage of truck

Precautions should be taken if the truck must not be used for a reasonably long period. The operations depend on the length of time it is unused.

Long-term truck storage

The following work must be carried out on the truck to prevent corrosion if it needs to be stored for a long period of time. If the truck is to be stored for more than two months, it must be positioned in a clean and dry area. The area must be well-ventilated with no risk of freezing.

The following operations must be performed:

- Clean the truck thoroughly.
- Check the hydraulic oil level and refill if necessary.
- Lower the forks onto a suitable support (e.g. a pallet) until the chains are slack.
- Coat any unpainted metal parts with a thin layer of oil or grease.
- Grease all hinges and joints.
- Check battery condition and electrolyte density. Maintain the battery in accordance with the manufacturer's requirements. (Follow the instructions).
- Spray contacts with an aerosol product designed for contacts.
- Raise and chock the truck: the wheels must not touch the ground in order to prevent irreversible deformation of the tyres.
- Cover the truck with a cotton cover to protect it from dust.

⚠ CAUTION

We recommend that you do not use a plastic sheet as this encourages condensation to form.

Consult the service department for further measures to take if the truck must be stored for a longer period of time.

Recommissioning after storage

If the truck has been stored for more than six months, it must be checked carefully before being recommissioned. This check is similar to the workplace accident prevention inspection. It is therefore necessary to check all points and systems that are important for truck safety.

Carry out the following operations:

- Clean the truck thoroughly.
- Grease all hinges and joints.
- Check the condition and density of electrolyte, and, if necessary, recharge the battery.
- Check that there are no traces of condensation water in the hydraulic oil. Drain if necessary.
- Carry out the same maintenance work as for the first time it was commissioned.
- Commission the truck.
- In particular, check the following during start-up:
 - traction, control and steering.
 - brakes (service brake and parking brake).
 - lifting device.

Permanent Putting Out of Commission (Destruction)

When scrapping the truck, it is necessary to:

- Remove the various parts of the truck (covers, battery, chains, motors etc.)
- Sort out the components depending on their type: pipes, rubber components, lubricants, aluminium, iron etc.
- Before scrapping the truck, notify the competent authorities of your country in writing.
- After receiving the authorisation from the competent authorities, remove any components according to national standards.



NOTE

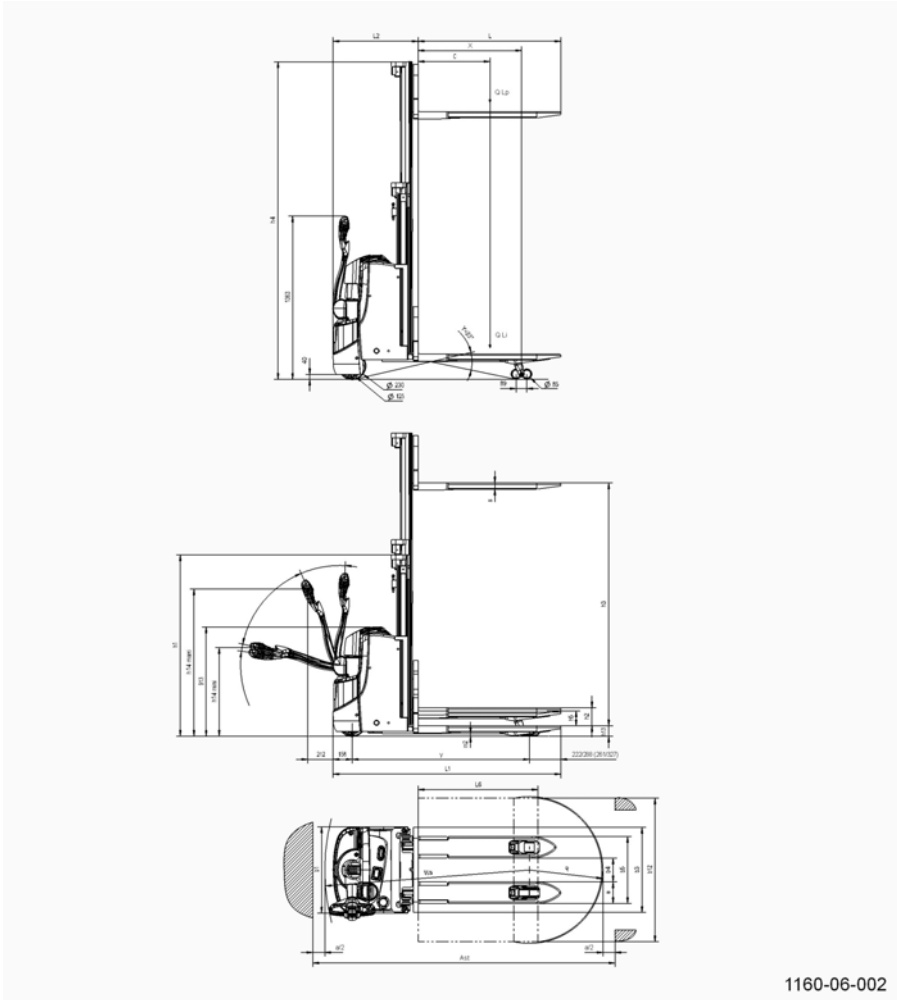
The client is solely responsible for any irregularities he has committed during or after the scrapping of the truck's components and the removal of components.

6

Technical specifications

EXD18 datasheet

EXD18 datasheet



1160-06-002

DESCRIPTION				
1.1	Manufacturer			STILL GmbH
1.2	Model type		EXD18 (K)	EXD18 (L)

1.3	Method of propulsion: battery, diesel, petrol, LPG, mains power			Battery	Battery
1.4	Driving: manual, pedestrian, standing, seated, order picking			Pedestrian	Pedestrian
1.5	Nominal capacity ⁽¹⁾	Q (kg)	LP/LI (LI only) & LP ≤ LI	800/1000 (1800)	800/1000 (1800)
1.6	Centre of gravity	c (mm)		600	
1.8	Distance from load wheel axle to load mating face (±5 mm)	x	low/high	928/862	924 / 858
1.9	Wheelbase (±5 mm)	y	low/high	1479/1413	1529/1463

WEIGHT				EXD18 (K)	EXD18 (L)
2.1	Kerb weight with battery (±10%) ⁽³⁾	kg	BS V	2PzS V	854 / 948
2.2	Load per laden axle, drive side/load side (±10%) ⁽²⁾	kg	BS V	2PzS V	938 / 1716 / 949 / 1799
2.3	Load per unladen axle, drive side/load side (±10%) ⁽²⁾	kg	BS V	2PzS V	615 / 239 / 674 / 274

WHEELS				EXD18 (K)	EXD18 (L)
3.1	Tyres: solid, full soft, inflatable, polyurethane, rubber			Polyurethane	
3.2	Drive wheel sizes	∅ x L (mm)		230 x 75	
3.3	Wheel sizes, load side	∅ x L (mm)		85 x 85 (bogies: 85 x 60)	
3.4	Additional wheels	∅ x L (mm)	Stabilisers	2x (125 x 40)	
3.5	Number of wheels at drive side/load side (x = drive wheel)			1x + 2/2 (4 in bogies)	
3.6	Drive side track width (± 5 mm)	mm		482	
3.7	Load side track width (± 5 mm)	mm	Mobile chassis 540/560	360/380	

DIMENSIONS				EXD18 (K)	EXD18 (L)
4.2	Lowered mast height (±5 mm)	h1 [m]	minimum overall height	1515 (S2024), 1365 (S1724), 1290 (S1574)	

EXD18 datasheet

4.3	Free lift (± 5 mm)	h2 (m m)			150	
4.4	Lift (± 5 mm)	h3 (mm)	without LI		2024 (S2024), 1724 (S1724), 1574 (S1574)	
4.5	Extended mast height (± 5 mm)	h4 (mm)	maximum overall height (with LI)		2652 (S2024), 2352 (S1724), 2202 (S1574)	
4.6	Initial lift (± 5 mm)	h5 (mm)			125	
4.9	Height of tiller in driving position, minimum/maximum. (± 20 mm)	h14 (mm)	(brake minimum) minimum/maximum (brake maximum)		(691) 740/1230 (1284)	
4.1	Load arm height / ground (0 / +5 mm)	h8 (mm)			80	
4.15	Height at the ends of the fork in the lower position (0/+5 mm)	h13 (mm)			86	
4.19	Total length (± 5 mm)	l1 (mm)	BS V 1150 (1200)	2PzS V 1150 (1200)	1899	1954
4.20	Length to front of forks (± 5 mm)	l2 (mm)	BS V	2PzS V	709	764
4.21	Total width (± 5 mm)	b1 (mm)			720	
4.22	Fork arm dimensions	s/e/ l [mm]			60 / 180 / 1190	
4.23	Load arm dimensions	s/e/ l [mm]			60 / 107 / 1112	
4.24	Fork carriage width (± 5 mm)	b3 (m m)			711	
4.25	Outside fork spread	b5 (mm)	540/560		540/560	
4.26	Inside load arm spread	b4 (mm)	540/560		210/230	
4.32	Ground clearance at centre of wheelbase (± 2 mm)	m2 (mm)	minimum/maximum		20/145	
4.33	Load dimension b12 x L6 crosswise	b12 x L6 (mm)			1200 x 800	
4.34	Aisle width for predetermined load dimension (± 20 mm)	Ast (m m)	BS V	2PzS V	2444	2494
4.34 .1	Aisle width for pallet 1000 (b12) x 1200 (L6) lengthwise (± 20 mm) (4)	Ast (m m)	BS V	2PzS V	2444	2494
	Aisle width for pallet 1000 (b12) x 1200 (L6) lengthwise (± 20 mm) (5)	Ast (m m)	BS V	2PzS V	2179	2233

4.34 2	Aisle width for pallet 800 (L6) x 1200 (b12) crosswise (± 20 mm) (4)	Ast (m m)	BS V	2PzS V	2444	2494
	Aisle width for pallet 800 (b12) x 1200 (L6) lengthwise (± 20 mm) (4)	Ast (m m)	BS V	2PzS V	2364	2414
	Aisle width for pallet 800 (L6) x 1200 (b12) crosswise (± 20 mm) (5)	Ast (m m)	BS V	2PzS V	1779	1833
	Aisle width for pallet 800 (b12) x 1200 (L6) lengthwise (± 20 mm) (5)	Ast (m m)	BS V	2PzS V	2179	2233
4.35	Turning radius (minimum) (± 20 mm)	Wa (mm)	BS V lower/ upper LI	2PzS V lower/ upper LI	1707/1641	1757/1691

PERFORMANCE DATA				EXD18 (K)	EXD18 (L)
5.1	Travel speed ($\pm 5\%$)	km/h	laden/unladen	6.00/6.00	
5.1 1	Reverse travel speed ($\pm 5\%$)	km/h	laden/unladen	6.00/6.00	
5.2	Initial lifting speed (LI) ($\pm 10\%$)	m/s	laden/unladen	0.032 / 0.045	0.032 / 0.045
	Main lifting speed (LP) ($\pm 10\%$)	m/s	laden/unladen	0.100 / 0.152	0.100 / 0.152
5.3	Initial lowering speed (LI) ($\pm 10\%$)	m/s	laden/unladen	0.081 / 0.075	0.081 / 0.075
	Main lowering speed (LP) ($\pm 10\%$)	m/s	laden/unladen	0.251 / 0.171	0.251 / 0.171
5.7	Gradient	%	laden/unladen	/	
5.8	Maximum gradient, 5 minutes	%	laden/unladen	13 / 25	
5.9	Acceleration time (d = 10 m)	s	laden/unladen	7.6 / 6.6	
5.1 0	Service brake			Electromagnetic	

DRIVE				EXD18 (K)	EXD18 (L)
6.1	Traction motor, S2: 60 minutes	kW	AC motor	1.2	
6.2	Lift motor at S3: 10% utilisation	kW	DC motor	1.2	
6.3	Battery type in accordance with		BS	2 PzS	DIN 43 535 A
6.4	Battery voltage and capacity (discharge in 5 hours)	V/Ah	BS	2 PzS	24 / 250

EXD18 datasheet

6.5	Battery weight ($\pm 10\%$)	kg	BS	2 PzS	157	212
6.6	Energy consumption according to standardised VDI cycle	kWh/1 h	BS V	2 PzS V	0.61	
6.7	Load transfer	t/h			NC	
6.8	Energy consumption during a load transfer	kWh/1 h			NC	

MISCELLANEOUS					EXD18 (K)	EXD18 (L)
8.1	Speed control		LAC controller		LAC	
8.4	Noise level at operator's ears (± 5)	dB (A)	BS V	2 PzS V	65	
	Level of vibration felt by the operator (EN 13059)		BS V	2 PzS V	< 2.5	

1) In brackets: pallet truck capacity on load arms.

2) Weight according to: line 2.1.

3) With battery: line 6.5.

4) Ast pallet stacker

5) Ast pallet truck

6) With mast S2024

Mast types

Mast type		Simplex		
	Truck	1574S	1724S	2024S
h3	Lift (mm)	1574	1724	2024
h3 + h13	Lift + fork height (mm)	1660	1810	2110
h1	Mast height HT retracted (mm)	1290	1365	1515
h4	Mast height HT extended (mm)	2202	2352	2652
h2	Free lift (mm)	150	150	150

Mast types

A

Accessing the reducer and the brake.	101
Access to the technical compartment.	99
Address of manufacturer.	1
Aerosol can for chains.	97
Anti-crush safety device	
Checking.	37
Description of the function.	37
Applications.	32
Autolift option.	65

B

Batteries.	32
Battery	
Type.	71
Battery acid.	14
Battery charging indicator.	26
Battery charging using an external charger.	74
Brake	
Checking the brake.	36
Braking.	32, 44

C

CE labelling.	3
Changing the battery with a hoist.	80
Charging the battery.	106
Check emergency shutdown.	36
Checking the anti-crush safety device.	37
Checking the battery acid level and electrolyte density.	111
Checking the battery cables, terminals and connector.	112
Checking the electrical connections.	112
Checking the horn.	38
Checking the oil level and sealing of the hydraulic system.	114
Checks prior to start-up.	34
Check the condition of the forks.	106
Cleaning the sensors for the Autolift option.	113
Cleaning the truck.	104
Climatic conditions.	8
Closing the battery cover.	72
cold store.	68
Cold store usage.	68

Consumables.	13
Battery acid safety instructions.	14
Disposal.	15
Oil Safety Information.	13
Safety information for handling hydraulic fluid.	14
Contact details.	1
Copyright and property rights.	3

D

Description of the Autolift option.	65
Description of use.	8
Destruction.	121
Digicode (optional).	24
Disposing of components and batteries.	9
Driver rights, duties and rules of behaviour.	18
Drivers.	18
Driver's compartment.	32
Drive system.	32
Driving.	42
Driving on loading bridges.	91
Driving on upward and downward slopes.	46
Driving safety instructions.	41

E

EC declaration of conformity.	4
Emergency mast lowering.	86
EXD18 datasheet.	124

F

Features.	32
FleetManager™	
Colour code for the LEDs.	49
Commissioning a truck equipped with a keypad or an electronic key.	48
Commissioning a truck equipped with an RFID reading device.	48
Description.	47
Disconnecting a truck equipped with a keypad or electronic key.	51
Disconnecting a truck equipped with an RFID reading device.	52
Disconnecting the truck.	51
Start-up.	48
Fuses.	110

G

General.	2
------------------	---

General information on battery maintenance.	105	Operating company.	18
H		Optispeed.	43
Handling two stacked pallets.	62	Ordering spare parts and consumables.	95
Hoisting the truck.	90	Order picking.	71
Hydraulic fluid.	14	Overview.	22
Hydraulic system		P	
Checking the hydraulic system for leaks.	114	Parking brake.	44
Draining the hydraulic system.	115	Permanent Putting Out of Commission.	121
I		Picking up a load from the ground.	58
Identification label.	5	Picking up two loads.	62
L		Precautions to be taken during battery maintenance.	105
Lift control elements.	55	Prohibition of use by unauthorised persons.	19
Lifting		Proper usage.	8
Base lift.	56	R	
Main Lift.	55	Recommended lubricants.	97
Lifting device.	118	Refit the cover.	73
Load handling.	58	Regular maintenance of the transmission gear.	109
Load handling safety rules.	53	Replacing a vertical access battery with the Autolift option.	81
Location of markings.	28	Replacing the side access battery.	82
M		Replacing the vertical access battery.	80
Maintenance plan		Residual dangers, residual risks.	17
1000-hour/annual.	102	S	
3000 hours.	103	Safety devices.	96
As required.	102	Safety Inspection.	20
Masts.	32	Selecting the driving mode.	35
Mast types.	129	Serial number.	29
Multi-purpose grease.	97	Service the on-board charger.	113
N		Servicing and maintenance measures.	96
Noise emission values.	16	Servicing the electrical system.	110
O		Servicing the lift mast.	118
Oils.	13	Servicing the pump motor.	112
On-board charger		Servicing the wheels and rollers.	107
Adjusting the on-board charger.	79	Setting down two loads.	63
Charging curve selector.	79	Slinging the truck.	89
Using the on-board charger.	77	Spare parts list.	7
Opening/closing the battery cover.	72	Specialist.	18
Opening the battery cover.	72	Stabiliser maintenance.	108
Opening the front cover.	100	Stability.	17
Opening the intermediate cover.	100	Start-up.	35
Opening the lower cover.	99	Symbols used.	9

T

Technical data for inspection and maintenance. 98
 Technical description. 32
 Towing the truck. 87
 Transporting the truck. 91
 Transporting the truck in the lift. 91
 Transporting two loads. 63
 Truck operating instructions. 39

U

Unauthorised use. 9

Using the Autolift option. 66

V

Vibrations
 Vibration characteristics for vibrations to which the body is exposed. 16

W

Working on the electrical equipment. 96

