Original instructions

Pallet truck

EXH-S 20
EXH-S 25



first in intralogistics

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1

Introduction

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.

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.

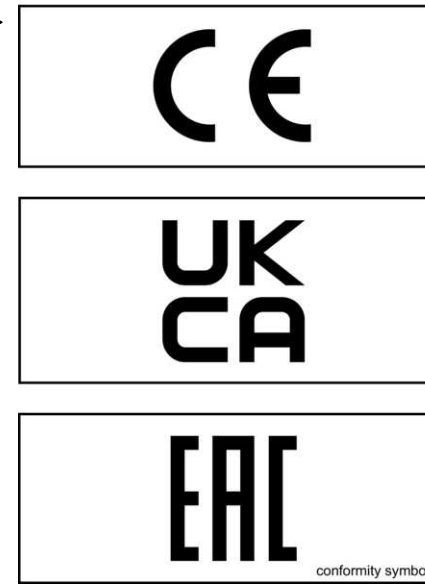
Conformity marking

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

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

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

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



conformity symbols

Declaration that reflects the content of the declaration of conformity

Declaration

STILL GmbH
Berzeliusstraße 10
22113 Hamburg Germany

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

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

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

Personnel authorised to compile the technical documents:

See declaration of conformity

STILL GmbH

[1)] For the markets of the European Union, the EU candidate countries, the EFTA States and Switzerland.
[2)] For the United Kingdom market.

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

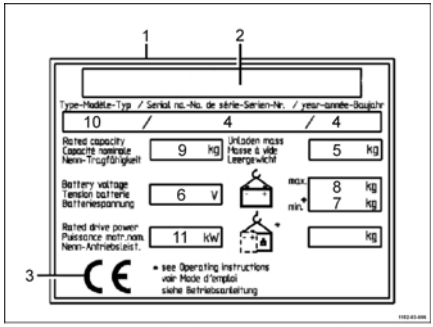
An unauthorised structural change or addition to the industrial truck can compromise safety, thus invalidating the declaration of conformity.

The declaration of conformity must be carefully stored and made available to the responsible authorities if necessary. It must also be

handed over to the new owner if the industrial truck is sold on.

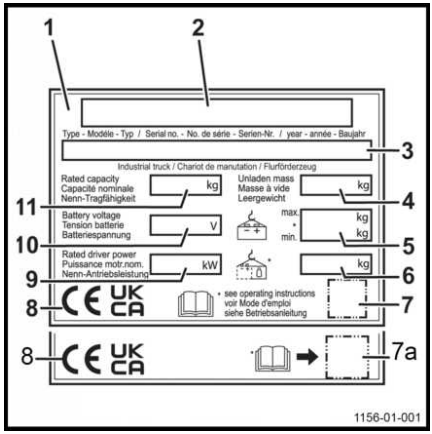
Identification label

Version 1



1 Identification label
2 Manufacturer
3 CE symbol (this symbol means that the machine complies with European regulations for industrial trucks)
4 Serial number/year
5 Unladen weight
6 Battery voltage
7 Minimum battery weight (for a lithium-ion battery, the weight of the ballast container is included)
8 Maximum battery weight
9 Nominal capacity of the truck
10 Model
11 Nominal motor power

Version 2



1 Identification label
2 Manufacturer
3 Model/Serial number/ Manufacturing year
4 Net weight
5 Battery maximum weight/ Battery minimum weight
6 Ballast weight
7 Placeholder for "data matrix code" (truck serial number)
7a Placeholder for "data matrix code" (Internet address of the customer portal with the truck serial number *)
8 Conformity marking:
CE marking for EU markets, EU candidate countries, EFTA states and Switzerland
UKCA marking for the UK market
EAC marking for the Eurasian Economic Union market
9 Nominal drive power

10 Battery voltage

11 Nominal load capacity

NOTE

- *Several conformity markings may appear on the nameplate.*
- *The EAC marking can also be located in the immediate vicinity of the nameplate.*

***)** Type the address **still-smart.com/QR/ms/XXXXXXXXXXX** into a web browser or scan the QR code to access the documents (for example the operating instructions and the spare parts catalogue).

NOTE

XXXXXXXXXXX should be replaced with the truck serial number.

List of abbreviations

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

Abbreviation	Meaning	Explanation
ArbSchG	Arbeitsschutzgesetz	German implementation of EU occupational health and safety directives
BetrSichV	Betriebssicherheitsverordnung	German implementation of the EU working equipment directive
BG	Berufsgenossenschaft	German insurance company for the company and employees
BGG	Berufsgenossenschaftlicher Grundsatz	German principles and test specifications for occupational health and safety
BGR	Berufsgenossenschaftliche Regel	German rules and recommendations for occupational health and safety
DGUV	Berufsgenossenschaftliche Vorschrift	German accident prevention regulations
CE	Communauté Européenne	Confirms conformity with product-specific European directives (CE labelling)

List of abbreviations

Abbreviation	Meaning	Explanation
CEE	Commission on the Rules for the Approval of the Electrical Equipment	International commission on the rules for the approval of electrical equipment
DC	Direct Current	Direct current
DFÜ	Datenfernübertragung	Remote data transfer
DIN	Deutsches Institut für Normung	German standardisation organisation
EG	European Community	
EN	European standard	
FEM	Fédération Européene de la Manutention	European Federation of Materials Handling and Storage Equipment
F_{max}	maximum Force	Maximum power
GAA	Gewerbeaufsichtsamt	German authority for monitoring/issuing regulations for worker protection, environmental protection, and consumer protection
GPRS	General Packet Radio Service	Transfer of data packets in wireless networks
ID no.	Identification number	
ISO	International Organization for Standardization	International standardisation organisation
K_{pA}	Uncertainty of measurement of sound pressure levels	
LAN	Local Area Network	Local area network
LED	Light Emitting Diode	Light emitting diode
L_p	Sound pressure level at the workplace	
L_{pAZ}	Average continuous sound pressure level in the driver's compartment	
LSP	Load centre of gravity	Distance of the centre of gravity of the load from the front face of the fork backs
MAK	Maximum workplace concentration	Maximum permissible air concentrations of a substance at the workplace
Max.	Maximum	Highest value of an amount
Min.	Minimum	Lowest value of an amount
PIN	Personal Identification Number	Personal identification number
PPE	Personal protective equipment	
SE	Super-Elastic	Superelastic tyres (solid rubber tyres)
SIT	Snap-In Tyre	Tyres for simplified assembly, without loose rim parts

Abbreviation	Meaning	Explanation
StVZO	Straßenverkehrs-Zulassungs-Ordnung	German regulations for approval of vehicles on public roads
TRGS	Technische Regel für Gefahrstoffe	Ordinance on hazardous materials applicable in the Federal Republic of Germany
UKCA	United Kingdom Conformity Assessed	Confirms conformity with the product-specific directives that apply in the United Kingdom (UKCA labelling)
VDE	Verband der Elektrotechnik Elektronik Informationstechnik e. V.	German technical/scientific association
VDI	Verein Deutscher Ingenieure	German technical/scientific association
VDMA	Verband Deutscher Maschinen- und Anlagenbau e. V.	German Mechanical Engineering Industry Association
WLAN	Wireless LAN	Wireless local area network

Rules for the operating company of industrial trucks

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

This guide provides information for handling industrial trucks:

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

Internet address and QR code ▷

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

Digital operating instructions

According to the latest revision of the guidelines for the application of machinery directive 2006/42/EC, the original operating instructions no longer have to be supplied in paper form.

The operating instructions for the industrial truck and other relevant documents (e.g. spare parts catalogue) are available in the customer portal.

Procedure:

- Scan the QR code on the nameplate of the industrial truck, or
- Enter the address **still-smart.com/QR/ms/XXXXXXXXXXXX** in an Internet browser.

NOTE

XXXXXXXXXXXX is a placeholder for the serial number.

NOTE

To locate the QR code, see the section entitled "Nameplate".

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.



Permissible use

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

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.

2

Safety

Safety regulations

The truck operating instructions 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 everything, particularly all the safety information.

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

- Information concerning the operation of industrial 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 for 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 operation of industrial trucks.

When instructing forklift operators, we recommend the following points are emphasised:

- 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.

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

Noise emission values

Calculated during the test cycle performed in accordance with standard EN 12053.

Acoustic pressure level in the driver's compartment			
Truck	L_{PAZ}	=	69 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.
- 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.

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.

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 conventions (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.

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.

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

⚠ 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.

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

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.

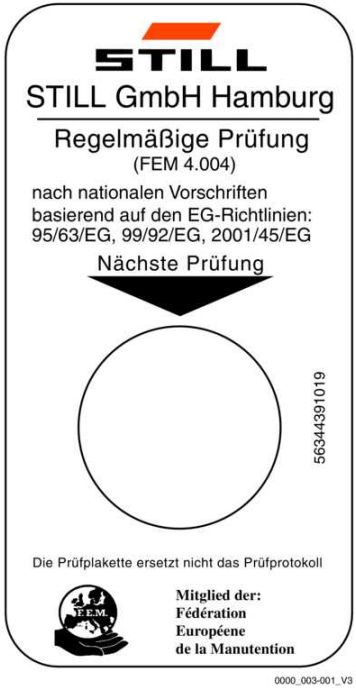
– Observe the guidelines for tests carried out on the truck in accordance with FEM 4.004.

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.

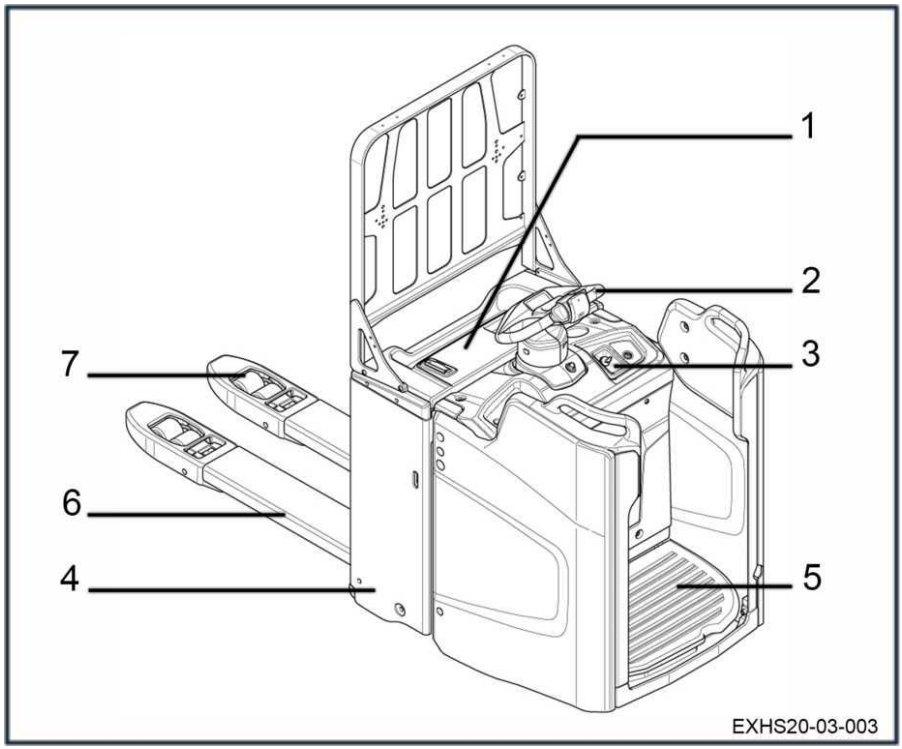


3

Overviews

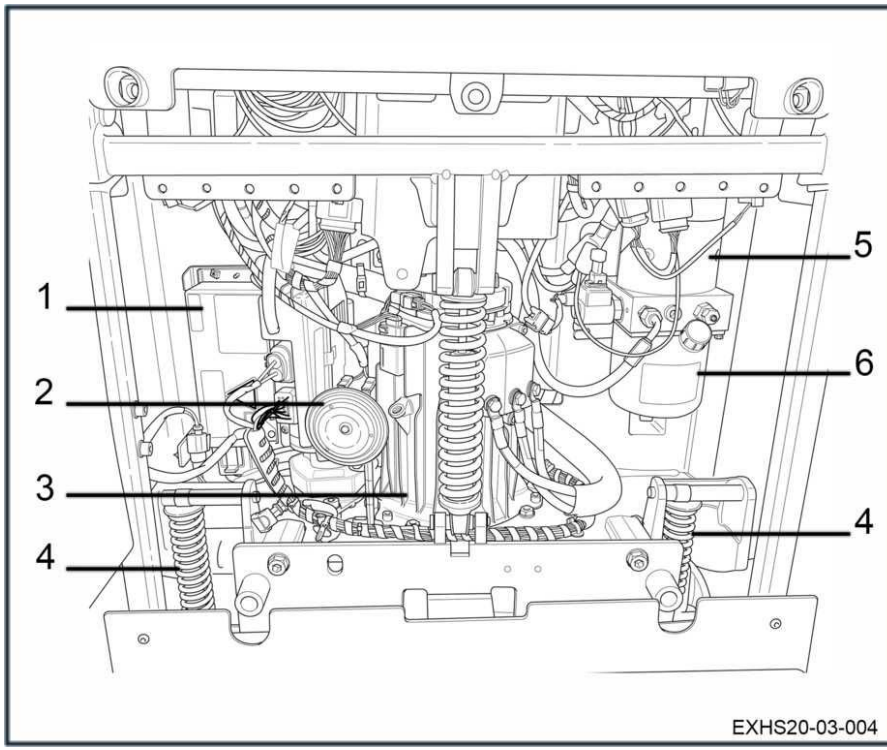
Overview

General view of the truck



1	Battery hood	5	Platform
2	Handlebar	6	Load arms
3	Ignition key or electronic key	7	Load wheels or bogies
4	Battery compartment		

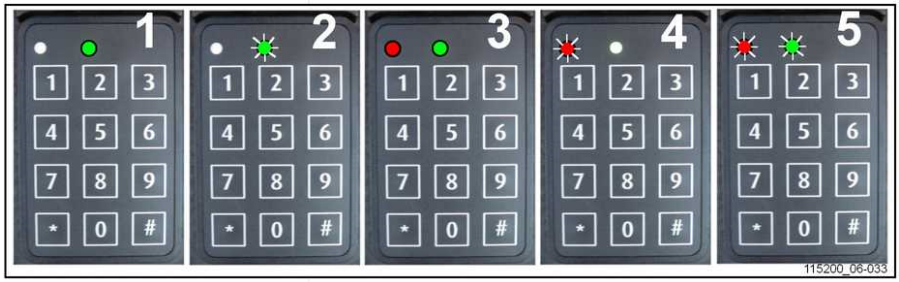
General view of the technical compartment



1	Steering unit	4	Stabilisers
2	Horn	5	Pump-motor unit
3	Traction motor	6	Pump-motor unit tank

Operating and display devices

Electronic key (option)



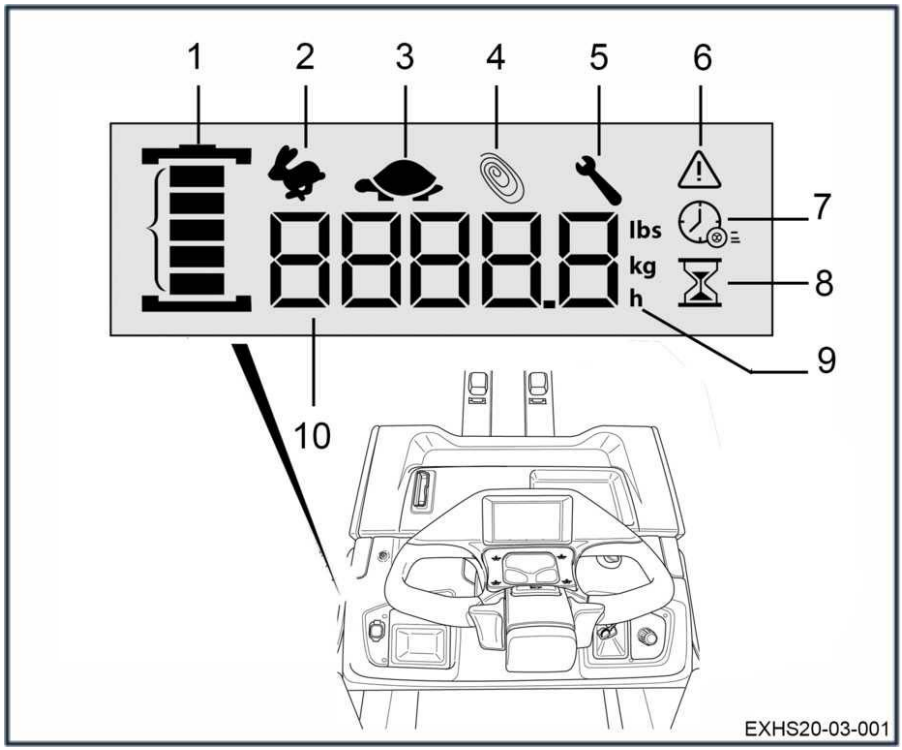
1 Switch ON (operating mode)
2 Switch OFF and awaiting code
3 Programming mode active
4 Key fault or incorrect code
5 Time delay of automatic switch-off

Operation	Enter	Status of LEDs	Comments
USE			
ON	[*][1][2][3][4][5][#] (by default)	○ red off ● continuous green (1) (correct PIN) ● red flashing ○ green off (4) (incorrect PIN)	[1][2][3][4][5] default PIN
OFF	[#] (3 seconds)	○ red off ● green flashing (2)	Truck power off

PROGRAMMING (truck switch OFF only (2))			
ADMINISTRATOR CODE ESSENTIAL FOR ALL ELECTRONIC KEY SETTINGS	[*][0][0][0][0][0][0][0][0] [#] (by default)	● continuous red ● continuous green (3)	Once the LEDs have gone out, the electronic key automatically reverts to "operating mode".
New operator code	[*][0][*][4][5][6][7][8][#]	○ red off ● green flashing (2) (code accepted)	Example of new operator code: 45678
Allocating operator codes	[*][2][*][5][4][3][2][1][#]	○ 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][*][1][2][3][4][5] [6][7][8][#]	○ red off ● green flashing (2) (code accepted)	

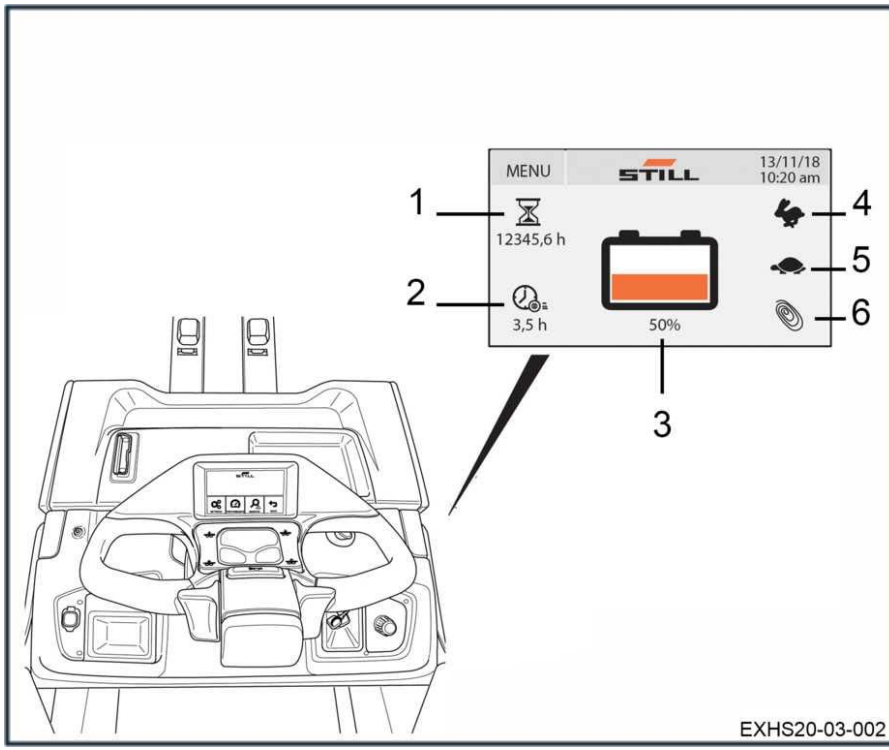
PROGRAMMING (truck switch OFF only (2))			
Restoring the initial administrator code			To reactivate the default administrator code (00000000), please contact your agent or nearest dealer.
Activating the automatic switch-off	[*][*][2][*][1][#]	● red flashing ● green flashing (5) (5 seconds before switch-off)	Power switches off automatically after 10 minutes (600 seconds by default) if the truck is not in use.
Setting the time delay of the automatic switch-off	[*][*][3][*][6][0][#]	○ red off ● green flashing (2) (value accepted)	Example: automatically switches off after 1 minute (60 seconds) if not in use. Minimum setting = 10 seconds/maximum = 3000 seconds
Deactivating the automatic switch-off	[*][*][2][*][0][#]	○ red off ● green flashing (2) (command accepted)	

Basic display operating unit



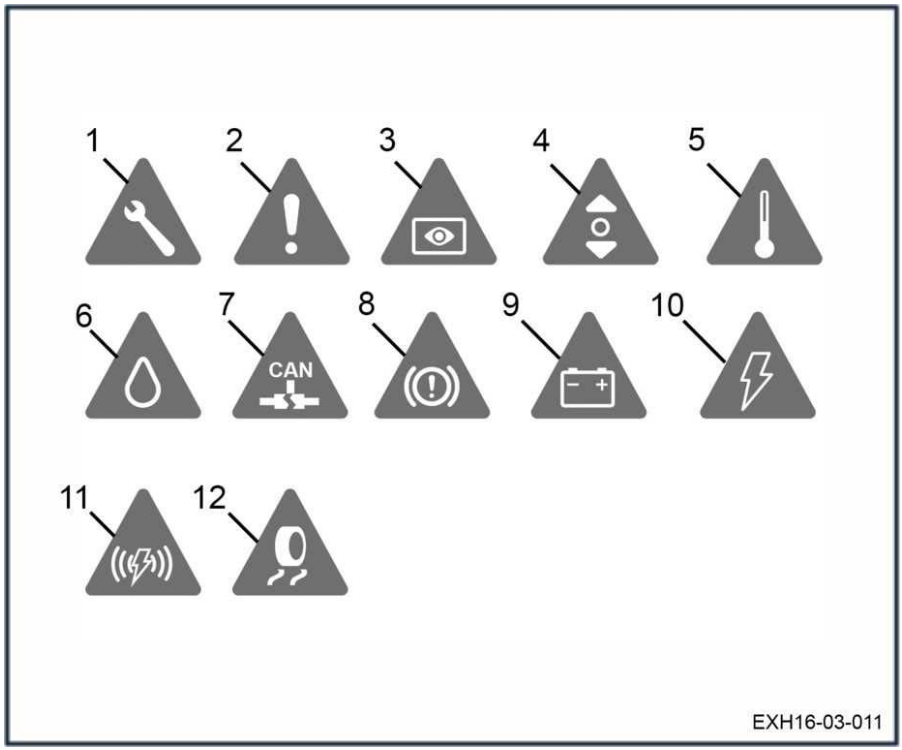
1	Battery indicator	7	Icon indicating the remaining operating hours for the truck
2	Hare icon		
3	Tortoise icon	8	Icon indicating the total operating hours for the truck
4	Blue-Q icon		
5	Maintenance interval	9	Units of measurement
6	Warning indicator light	10	Hour meter/weight/warning code

Standard display operating unit



1	Icon indicating the operating hours of the truck	3	Icon indicating the battery charge level
2	Icon indicating the remaining operating hours of the truck before the battery is discharged	4	Hare icon
		5	Tortoise icon
		6	Blue-Q icon

List of error codes on the Standard display



1 The alarm warns you that the scheduled maintenance deadline has been reached or is approaching. Contact the After-Sales Service to organise a service.

2 The alarm is a generic alarm. Restart the truck and contact the After-Sales Service if the alarm reappears.

3 The alarm indicates a problem with the display. Restart the truck and contact the After-Sales Service if the alarm reappears.

4 The alarm indicates a generic problem with the drive control. Restart the truck and contact the After-Sales Service if the alarm reappears.

5 The alarm indicates a problem with truck overheating. Switch off the truck and wait for it to cool down before restarting. If the warning reappears, contact the After-Sales Service.

6 The alarm indicates a problem with the truck hydraulics. Restart the truck and contact the After-Sales Service if the alarm reappears.

7 The alarm indicates a data transfer problem between the different truck controllers. Restart the truck and contact the After-Sales Service if the alarm reappears.

8 The alarm indicates a problem with the brake system of the truck. Restart the truck and contact the After-Sales Service if the alarm reappears.

9 The alarm indicates a problem with the battery. Charge the battery. If the problem persists, contact the After-Sales Service.

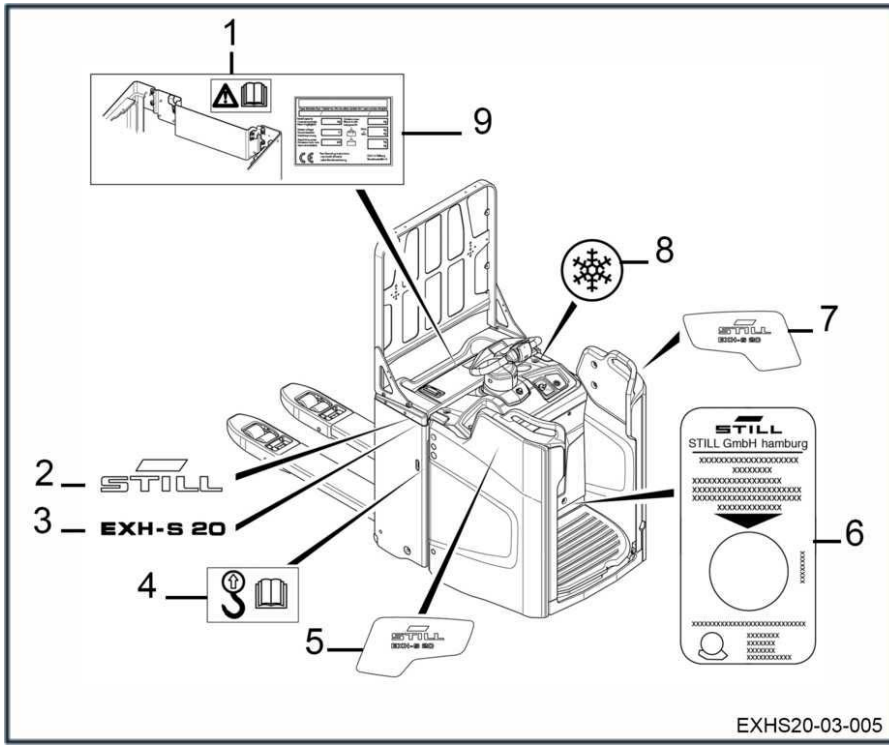
10 The alarm indicates a problem with the electrical system of the truck. Restart the truck and contact the After-Sales Service if the alarm reappears.

11 The alarm indicates a malfunction on a sensor in the truck. Restart the truck and contact the After-Sales Service if the alarm reappears.

12 The alarm indicates a problem with the steering system of the truck. Restart the truck and contact the After-Sales Service if the alarm reappears.

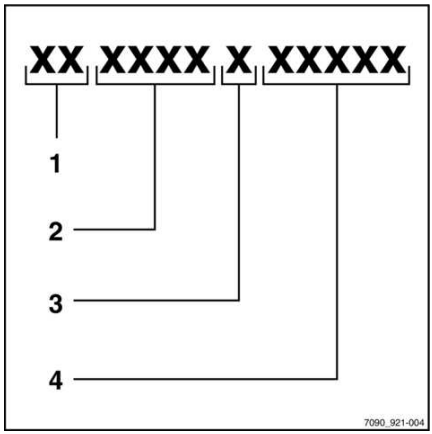
Markings

Labels



1	"Danger" label, consult the operating instructions	6	Next inspection label
2	Brand label	7	Brand and truck type label (depending on model)
3	Truck type label (depending on model)	8	Cold store label
4	Slinging label and "Danger instructions" label, consult the operating instructions	9	Identification label (depending on the version present on the truck)
5	Brand and truck type label (depending on model)		

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

4

Operation

Technical description

Type EXH-S 20 and EXH-S 25 electric pallet trucks with a platform are designed to handle pallets with a maximum weight of 2000 kg or 2500 kg inside warehouses, depots and factories.

The model with driver's platform and fixed side protection is available.

These models offer excellent performance, enhanced stability and a safe and comfortable driver's compartment:

- Performance: AC motor (asynchronous motor)
- Stability: controlled stabilisers
- Comfort: suspended driver's platform, electric steering
- Safety: Driver's side protection

Travel speed:

Model EXH-S 20:

10 km/h laden.

12 km/h unladen.

Model EXH-S 25:

11 km/h laden.

14 km/h unladen.

The speeds are set according to certain criteria.

Drive system

The truck drive system comprises:

- 2.3-kW traction motor (EXH-S 20 model) and 3-kW traction motor (EXH-S 25 model)
- KWPC controller to control traction and lift
- Steering unit
- 1.2-kW pump unit (EXH-S 20 model) and 2.2-kW pump unit (EXH-S 25 model)

Batteries

Power is supplied by:

- Either a 24-volt lead acid battery with different capacities available
- Or a lithium-ion battery

The trucks are compatible with the new generation of lithium-ion batteries.

Two types of battery access are available:

- Vertical access
- Side access on rollers

These different battery types are not available on all models.

Steering

The steering unit offers driving precision and reduced effort during manoeuvres.

The truck is equipped with a 0.185-kW asynchronous steering unit.

The steering is controlled by an ergonomic handlebar.

The drive unit is mounted on a slewing ring. Steering is provided by an electric geared motor that positions the slewing ring.

The steering motor is controlled by a controller that receives information from:

- The handlebar
- The wheel angle position

The speed of the truck is automatically reduced when cornering.

Braking

The trucks are fitted with two brake systems:

- An electromagnetic safety brake that also acts as a parking brake
- An electric counter-current and regenerative brake. It is applied automatically when the accelerator is released and when the drive direction is reversed.

Stabilisers

The trucks are fitted with two suspended stabilisers, which compensate for ground irregularities.

This suspension is controlled by a hydraulic system. It locks the external stabiliser when cornering to provide the truck with maximum stability.

The solenoid valves that operate the hydraulic system are controlled by an electronic circuit.

Load lift system

The auxiliary lift system is operated by two cylinders.

The reinforced joints are maintenance-free. A lubricated version is available as an option.

The cylinders are powered by a pump unit.

- EXH-S 20: pump unit power 1.2 kW
- EXH-S 25: pump unit power 2.2 kW

Driver's compartment

An operator presence contact is incorporated into the suspended platform.

- The side protection is fixed
- The right-hand protection provides back support for the driver
- The handlebar that provides the controls and steering is operated by the right hand

The models are also equipped with:

- An emergency off switch located on the dashboard
- A display integrated into the handlebar

Optional equipment

Among other things, the truck may be equipped with the following options:

- Cold store
- Wheels or bogies

This list is not exhaustive.

List of checks prior to start-up

⚠ WARNING

Damage or other defects on the 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.

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

To do this, perform the following checks:

– The load arms must 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 roller channels 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 hood must be closed.

– Check that the hoods are correctly positioned.

– 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.

Starting up

NOTE

- *Check that the battery is locked.*

– Check that the battery is connected.

– Check that the battery compartment hood is closed and locked correctly.

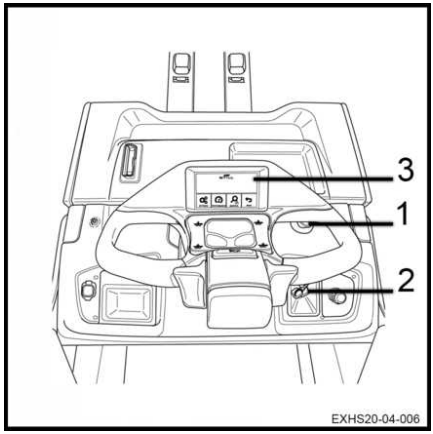
– Step onto the driver's platform.

– Pull the emergency off switch (1) if it has been pressed in. ▷

– Turn the key (2). For models equipped with an electronic key or the FleetManager option, enter the PIN code.

The display (3) switches on. The truck is ready for operation. The brake is automatically disengaged.

– Raise the load arms several centimetres.



NOTE

Always adjust your speed to suit the route, any dangers and the load. Use the truck on ground that has the correct surface and hardness.

⚠ DANGER

Risk of sparks

Using the truck with the battery hood open is prohibited.

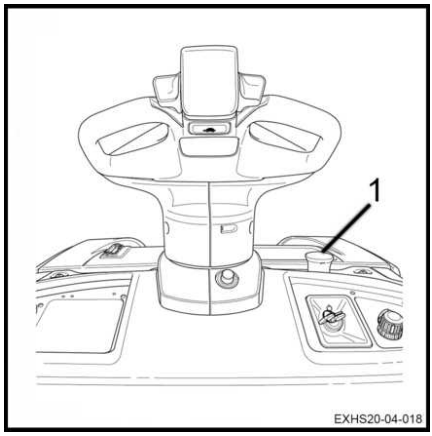
⚠ WARNING

Risk of accident or loss of load

Driving on excessively steep slopes is prohibited due to braking capacity and stability. The load being transported could tip over. Please refer to the datasheet.

Checks and actions prior to commissioning

Checking the emergency shut-down



To check the operation of the emergency off switch, proceed as follows:

– Start up the truck.

– Drive the truck.

– Press the emergency off switch (1).

- The truck stops immediately.
- The truck power supply is cut.
- The electrical controls and motors are no longer supplied with power.

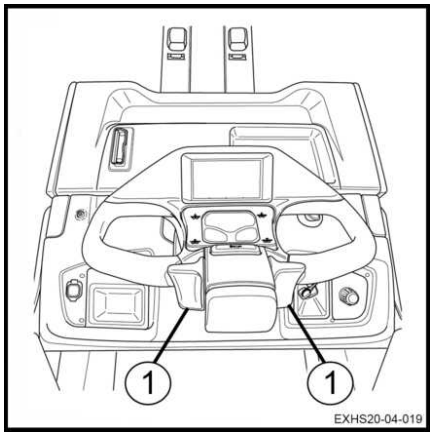
– Pull the emergency off switch (1).

The functions are available again.

NOTE

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

Checking the braking



To check the truck braking, proceed as follows:

– Drive the truck forwards.

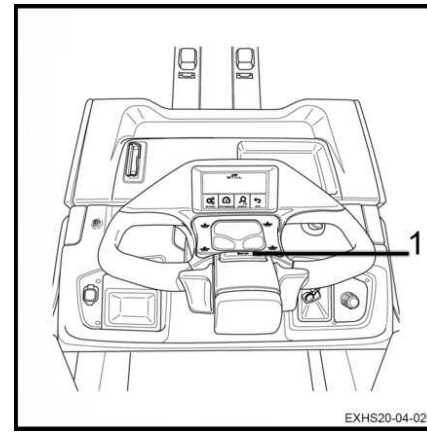
– Release the drive switch (1).

The truck will slow down and then stop.

Checking the horn

– Press the horn button (1).

The horn sounds.



Adjusting the handlebar height

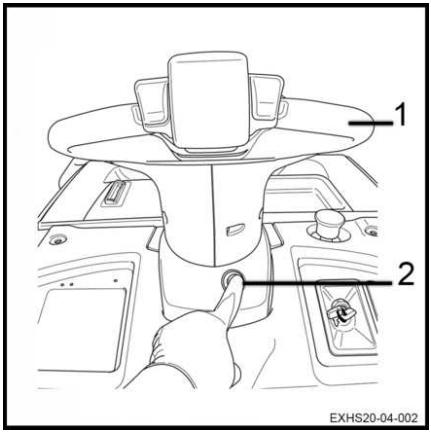
The handlebar height can be adjusted.

To adjust the handlebar height, proceed as follows:

– Press and hold the button (1).

– Pull the handlebar (2) towards you or lower it until the required height is reached.

– Release the button (1).



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 forklift 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
- The forklift 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 forklift 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 forklift 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 load arms to the raised position before setting off*
- *Always switch off the ignition before leaving the truck*

⚠ 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.

⚠ 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.

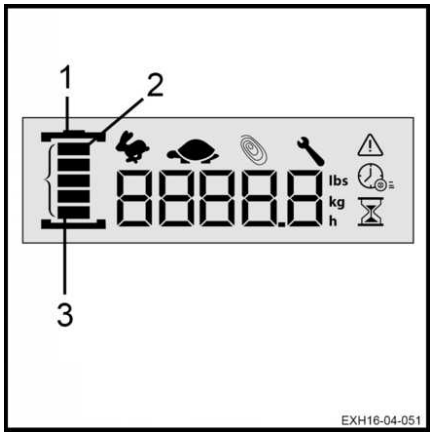
⚠ CAUTION

Risk of injury

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

Using the Basic display-operating unit

Battery indicator



The battery indicator (1) shows the battery charge status. Each bar (2) represents 20% charge.

Battery fully charged:

Five bars (2) are displayed. The number of bars on the display decreases as the battery discharges.

Battery with 20% remaining charge:

Only the last bar (3) is illuminated. It is advisable to charge the truck battery.

For a lithium-ion battery, the last bar (3) remains illuminated (continuous light).

For another battery type, such as a lead-acid battery, the last bar (3) remains illuminated with a flashing light.

Battery with 10% remaining charge:

The battery must be recharged immediately.

For a lithium-ion battery, only the last bar (3) remains illuminated with a flashing white light.

For another battery type, such as a lead-acid battery, only the last bar (3) remains illuminated with a continuous red light.

With less than 10% residual charge, truck performance may be limited (reduction of maximum speed, prevention of fork lifting etc.).

Battery fully discharged:

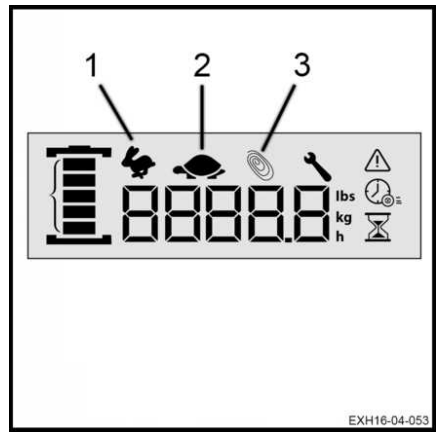
The battery must be recharged immediately.

Only the last bar (3) remains illuminated with a flashing red light.

Charge level	Lithium-ion battery	Other battery types	Truck performance	Required action
100%	Five bars displayed on the screen	Five bars displayed on the screen	Optimum performance	
20%	The last bar (3) remains illuminated Continuous light	The last bar (3) remains illuminated Flashing light	Normal performance	Battery charging recommended

Charge level	Lithium-ion battery	Other battery types	Truck performance	Required action
10%	The last bar (3) remains illuminated Flashing white light	The last bar (3) remains illuminated Continuous red light	Limited performance	Please charge the battery
0%	The last bar (3) remains illuminated Flashing red light	The last bar (3) remains illuminated Flashing red light	The truck no longer works	Please charge the battery

Different performance modes ▷



The truck has three performance modes:

- Hare mode
- Tortoise mode
- Blue-Q mode

Only one mode can be activated at a time.

Hare icon (1)

When the Hare icon (1) is illuminated, truck performance is at maximum.

Tortoise icon (2)

When the Tortoise icon (2) is illuminated, truck performance is automatically reduced and limited.

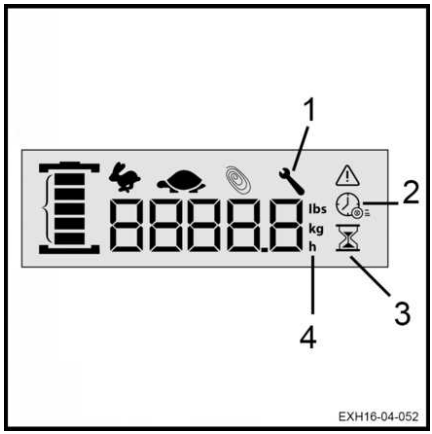
Blue-Q icon (3)

When the Blue-Q icon (3) is illuminated, truck performance is optimised to save as much battery power as possible.

NOTE

For each performance level, the corresponding icon switches on when the level is activated and switches off when it is deactivated.

Other display icons



The maintenance interval (1)

When this indicator flashes, this means that the maintenance interval is approaching. Contact the After-Sales Service Centre for further information.

If the indicator is illuminated continuously, this means that maintenance is overdue. Contact the After-Sales Service Centre.

The remaining number of operating hours for the truck (2)

This icon indicates that the value displayed in the central numeric field corresponds to the remaining number of operating hours for the truck.

The number of operating hours for the truck (3)

This icon (6) indicates that the value displayed in the central numeric field corresponds to the total number of operating hours for the truck. This value is usually displayed when the truck is switched on.

The units of measurement (4)

When the "h" icon is illuminated, the value displayed on the screen is in operating hours.

When the "kg" icon is illuminated, the weight displayed on the screen is in kg.

When the "lbs" icon is illuminated, the weight displayed on the screen is in pounds.

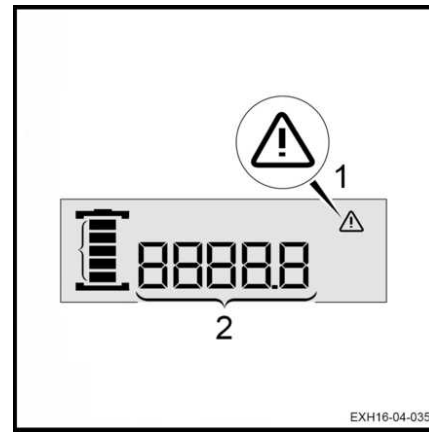
Warnings on the display

Incorrect switch-on sequence

The warning indicator light (1) illuminates on the display and the standard information (for example, the number of operating hours) remains on the display in the field (2).

The warning indicates that the forklift operator has performed an incorrect switch-on sequence. The forklift operator must release all the controls (tiller, drive switches etc.) then wait for a while before using the truck again.

If the warning reappears, switch the truck off and on again.



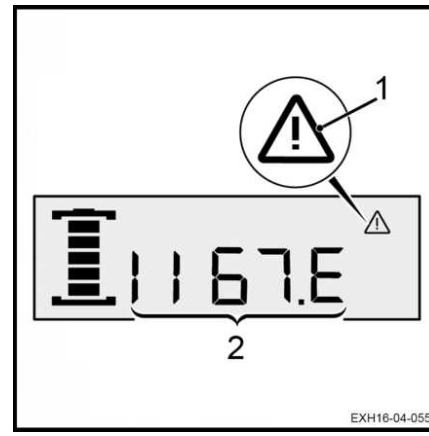
Generic warning

The warning indicator light (1) illuminates on the display and an error code appears in the field (2).

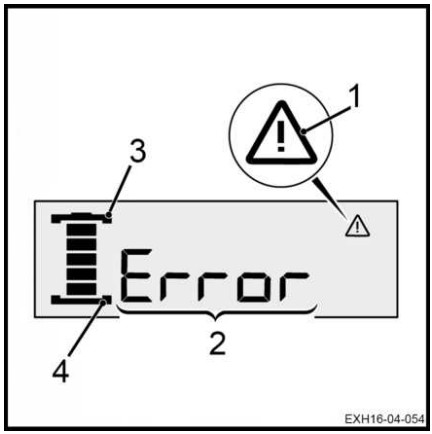
The warning indicates that there may be various issues with the truck.

Switch the truck off and on.

If the warning reappears at start-up, contact the After-Sales Service Centre. During this time, park the truck in a safe and suitable place.



Specific warning for battery charging ▷



This warning relates specifically to charging the battery via the on-board charger (if option available).

The warning indicator light (1) illuminates on the display. Error is displayed in the field (2) and segments (3) and (4) flash.

The warning indicates that there are issues with charging the truck via the on-board charger.

Switch the truck off and on.

If the warning reappears at start-up, contact the After-Sales Service Centre.

Using the Standard display-operating unit

Start-up screen

When the truck is started, the display lights up and shows the STILL logo.

For a few seconds, the display shows the number of days remaining (1) before the next service. This indication appears only if the notification option is activated. Contact the After-Sales Service for further information.



Display for entering the PIN code

If the "PIN code" option is present, the forklift operator must enter their five-digit personal code to start the truck.

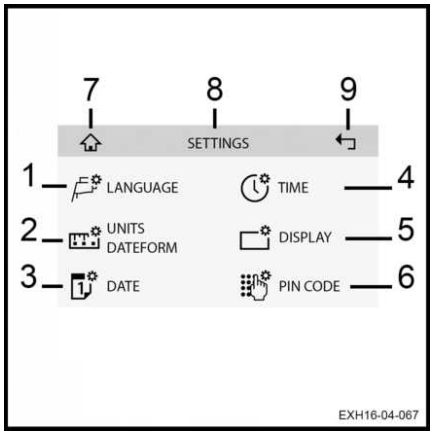


Settings menu

On the Settings display, you can find the following:

- Language options (2)
- Units of measure and date format (3)
- The date (4)
- The time (6)
- The brightness and noise level of the display (7)
- Access codes (6) if this option is enabled

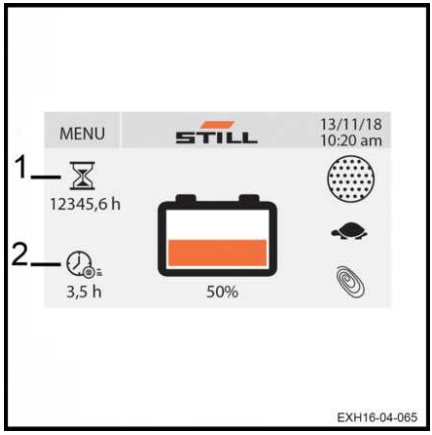
Press key (1) to return to the main page or press key (5) to return to the previous page.



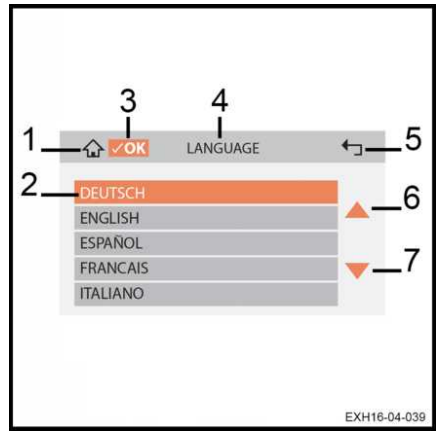
Time menus

By pressing Menu, you can access:

- Operating hours (1): Indicates the total number of operating hours of the truck
- Hours remaining (2): Indicates the operating hours remaining (estimated value) before the battery is completely discharged.



Selecting the operating language in the menu



It is possible to select and change the operating language (4) of the truck at any time. Proceed as follows:

– Select the Language menu (4).

– Scroll through the list using buttons (6) and (7).

– Press the desired language (2).

The row of the selected language changes colour (2).

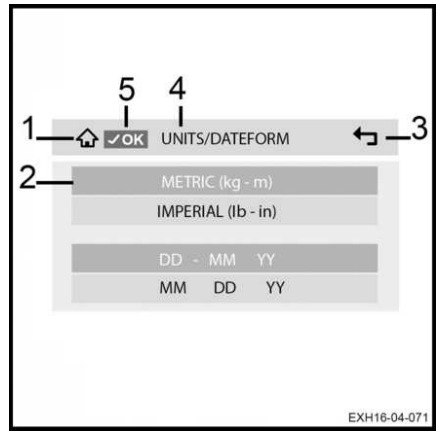
– Then press the OK key (3) to confirm your choice.

– Press the key (1) to return to the main menu.

You can return to the previous page without saving your changes by pressing the Back key (5).

Setting the unit and date format

Setting the unit



The unit of measure (4) can be set to METRIC (kg - m) or IMPERIAL (lb - in).

Proceed as follows:

– Select the desired unit of measure.

The selected row changes colour (2).

– Press the OK key (5) to confirm your choice or the Back key (3) to return to the previous page.

The key (1) is used to return to the main menu.

Setting the date format

The date (4) can be set to European (day/ month/year) or American (month/day/year).

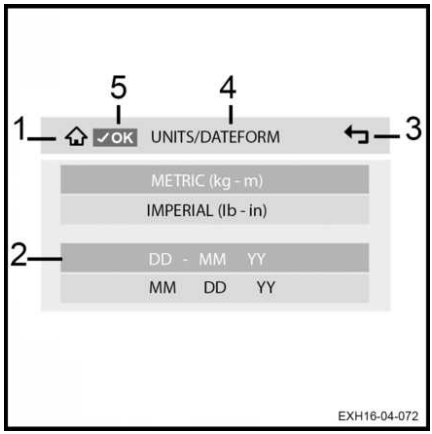
Proceed as follows:

– Select the desired date format.

The selected row changes colour (2).

– Press the OK key (5) to confirm your choice or the Back key (3) to return to the previous page.

The key (1) is used to return to the main menu.



Setting the date and time

Setting the date

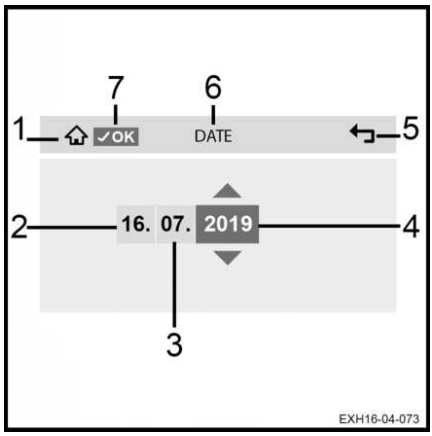
To set the date (6), proceed as follows.

– Select the desired date by setting the day (2), month (3) and year (4).

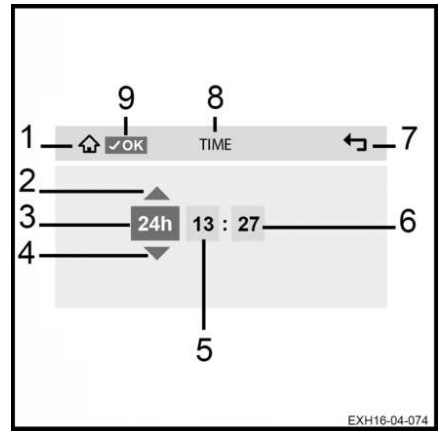
The selected data changes colour (4).

– Press the OK key (7) to confirm your choice or the Back key (5) to return to the previous page.

The key (1) is used to return to the main menu.



Setting the time



To set the time (8), proceed as follows.

– Select the desired format, 24 h or 12 h (3), using the arrows (2) and (4).

The selected data changes colour (3).

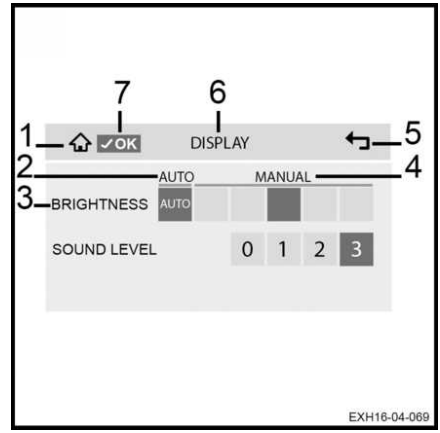
– Select the desired time by adjusting the hours (5) and minutes (6).

– Press the OK key (9) to confirm your choice or the Back key (7) to return to the previous page.

The key (1) is used to return to the main menu.

Setting the brightness and sound

Setting the brightness



In Auto mode (2), the brightness of the screen is adjusted automatically according to the level of brightness outside.

– To activate Auto mode (2), press the AUTO tile (which then lights up orange) and set the desired average brightness value of the screen using the other tiles.

To adjust the brightness (3) manually (4) in the DISPLAY menu (6), proceed as follows.

– Make sure that the AUTO tile is not active; it should be greyed out.

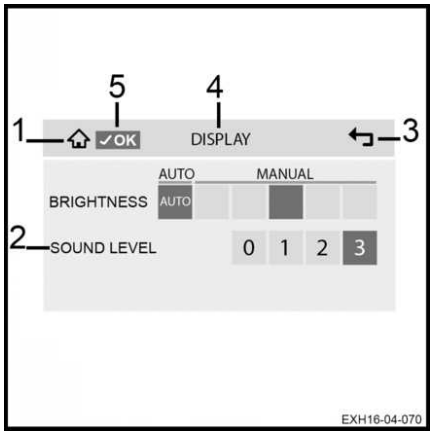
– Press one of the tiles to set the fixed brightness of the screen.

The selected tile lights up orange. When adjusting the brightness, the set value is displayed on the screen.

– Press the OK key (7) to confirm your choice or the Back key (5) to return to the previous page.

The key (1) is used to return to the main menu.

Setting the sound



The noise level (2) of the display can be set from the available noise levels

- Level 0: The noise level is at its lowest, but it is not silent. If the DLC option is installed, the sounds emitted specifically by the DLC system are completely switched off. .
- Level 1: The noise level is set to the minimum.
- Level 2: The noise level is set to medium.
- Level 3: The noise level is set to the maximum.

To adjust the sound (2) in the DISPLAY menu (4), proceed as follows.

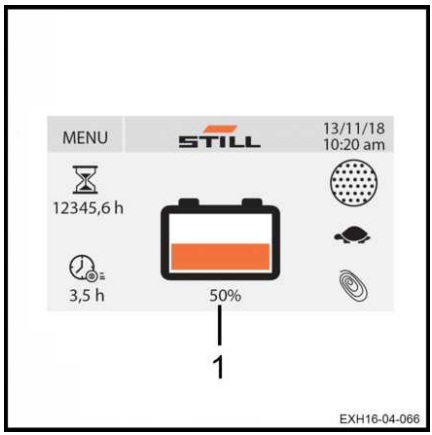
– Press the desired level.

The selected noise level field lights up orange

– Press the OK key (5) to confirm your choice or the Back key (3) to return to the previous page.

The key (1) is used to return to the main menu.

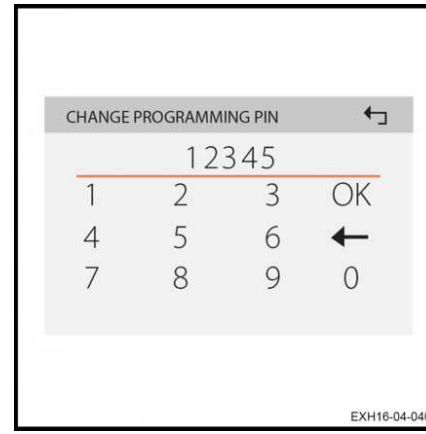
Battery charge level



The icon (1) on the display shows the battery charge level in real time.

PIN code menu

The fleet manager for the forklift operators using the truck must enter the programming code (eight zeros) "00000000" when logging in for the first time. It is recommended to change the programming code afterwards as explained below.



PIN code menu

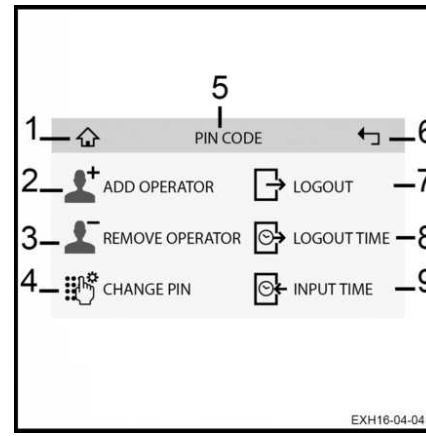
From the PIN code menu (5), the fleet manager can access the individual configuration pages using the programming code at when starting the truck.

The following list of operations are possible from the PIN code menu (5):

- Add a forklift operator (2)
- Remove a forklift operator (3)
- Change the PIN code (4)
- Set a manual or automatic logout (7)
- Set the number of seconds of truck inactivity (8) The truck will be disconnected after this set period of inactivity.
- Set a maximum time (9) for entering the PIN code when the truck is switched on. Once this time has elapsed, the entered code is erased and the forklift operator must re-enter the access code.

The Home key (1) is used to return to the main page.

The Back key (6) is used to return to the previous page.



Adding a forklift operator

This function allows you to add a new forklift operator. Enter the access code of the new operator, then press OK to confirm and return to the previous page (3).

On this page, the fleet manager can change a forklift operator's access code by deleting the code and entering a new code. The arrows (1) and (2) allow you to scroll through the list of operators.

A maximum of ten forklift operators can be stored in the memory.

Operator one with access code "12345" is already set as part of the factory parameters.

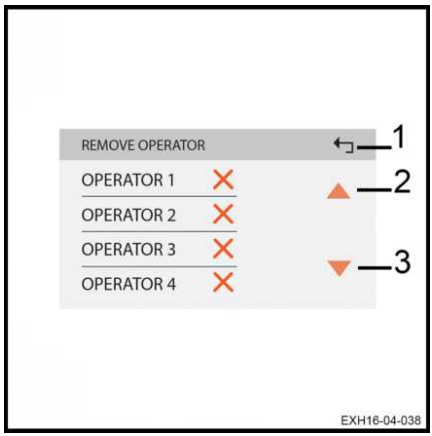


Removing a forklift operator

To remove a forklift operator, press the X corresponding to the operator you wish to remove. To scroll through the list of forklift operators, use the arrows (1) and (2).

NOTE

If one forklift operator is deleted, the numbers of the other forklift operators remain the same.



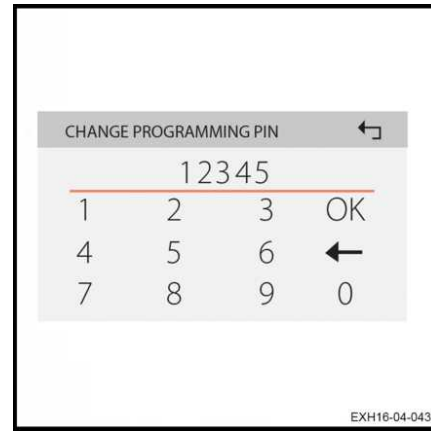
Changing the PIN code

On this display, the fleet manager can change the access PIN. Proceed as follows, then press OK to confirm and return to the previous page

– Delete the existing PIN code.

– Enter a new PIN code.

– Press OK.



Modifying the logout process

The Change Log Out (8) display allows you to set logout modes.

Manual logout (2):

Pressing the NOW button (6) will log out the user immediately.

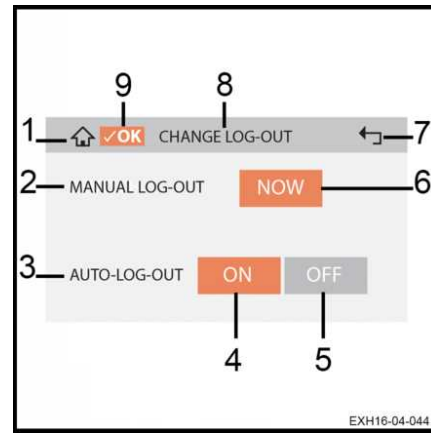
Automatic logout (3):

To enable automatic logout, press the ON button (4). To deactivate this, press the OFFbutton (5).

When automatic logout is enabled, the truck logs out after a defined period of inactivity. This can be set in the timeout function.

– Press the key (9) to confirm your selections or the Home key (1) to return to the main page.

– Press the Back key (7) to return to the previous page without saving your changes.



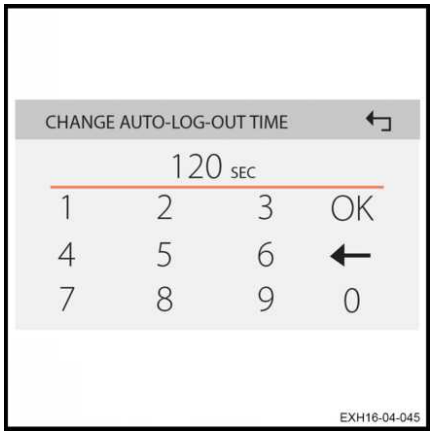
Changing the timeout period for automatic logout ▷

To set a defined period of inactivity after which the truck disconnects, proceed as follows:

– Enter the timeout period.

– Press OK to confirm the setting.

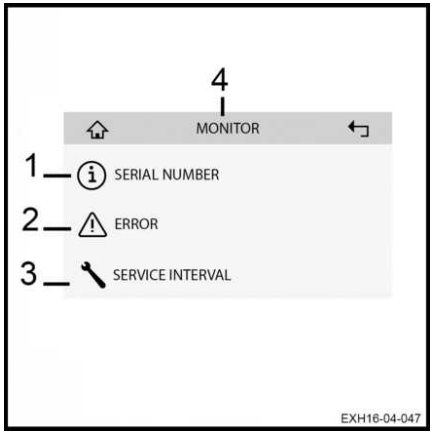
– Return to the previous page.



Monitor menu ▷

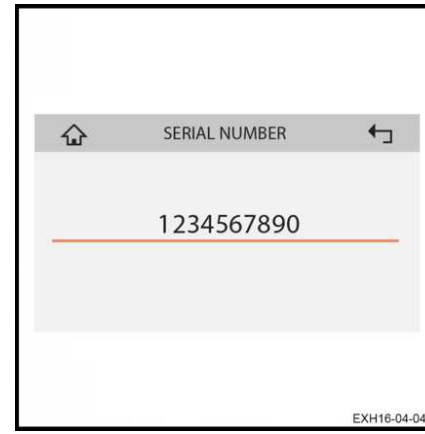
The Monitor menu (4) shows:

- The serial number (1)
- The fault codes (2)
- The next maintenance (3)



Serial number

The serial number can be viewed on this screen of the Monitor menu.



Fault codes

If the truck cannot operate correctly, an error code is displayed immediately in the Monitor menu.



Next maintenance

The Monitor menu shows you when the next maintenance is due.



Blocking alarms

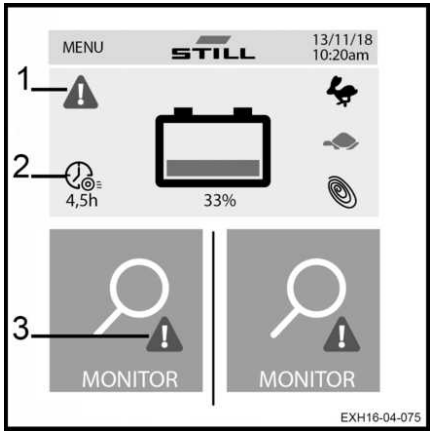
If one or more blocking alarms activate during operation, the symbol (1) is displayed on the main page of the display.

In the main menu, symbols (3) and (4) appear.

– Press the symbol (1) to go directly to the error page.

– Press the symbol (2) to display the total number of operating hours of the truck.

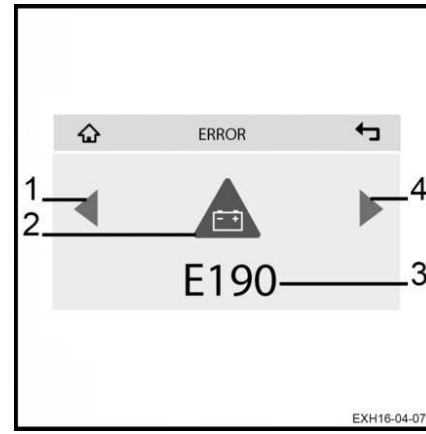
After ten seconds or if the symbol (2) is pressed again, the previous screen (estimated operating hours remaining) is displayed again.



Error code

On the alarms page (if alarms are active), the icon (2) is displayed with the error code (3) below.

In the event of multiple errors, these can be viewed by scrolling through the pages using the arrows (1) and (4).



Warnings

Various warnings may appear on the display. The following list is not exhaustive.

Drive control warning

This warning (1) indicates that the drive control will be deactivated if the auxiliary hydraulic function option is active.

– Deactivate the auxiliary hydraulic function using the controls for the auxiliary hydraulic function.

The truck drive control is restored.



Incorrect starting procedure warning

This warning (1) appears on the display when the truck starting procedure is incorrect.

– Release the tiller and all controls then re-start the truck.

– Or release the travel controls, push the tiller to the lower stop and then to the upper stop.

The truck is unlocked.



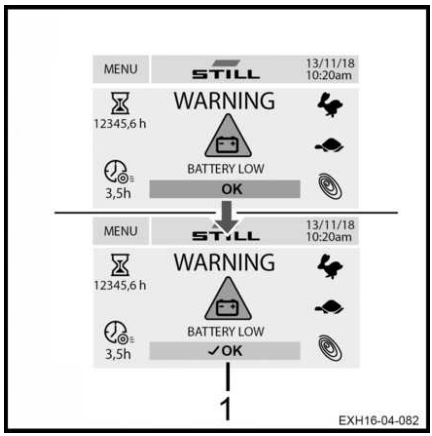
Low battery charge warning

This warning (1) indicates that the battery charge is low.

– Press the yellow OK bar (1).

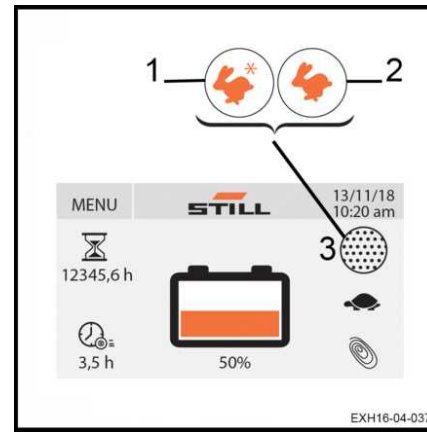
– Hold it down until it turns green.

When released, the main page reappears. It is recommended to recharge the battery as soon as possible.



Truck performance icons

Hare icon



Press Menu to access the operator menu page, where you can set or select the display settings and settings for certain truck functions.

At position (3), the display shows the hare icon (2) or the hare* icon (1).

Each time the dial is pressed in position (3), the display alternates between the hare icon (2) and the hare* icon (1).

To switch from one to the other, simply press the hare icon that is illuminated. This will disable the hare icon that is currently active and enable the one that was inactive.

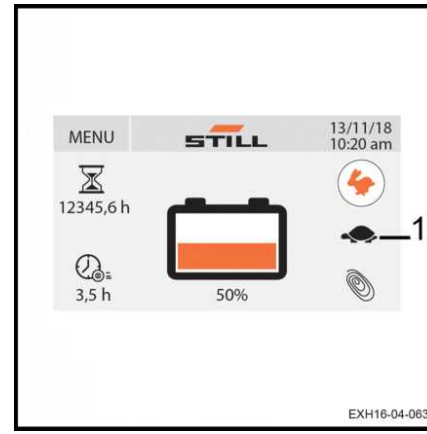
Hare icon (2):

Switches on to give maximum performance to the truck driving mode.

Hare* icon (1):

Switches on to provide user-customisable performance for the truck's driving mode.

Tortoise icon



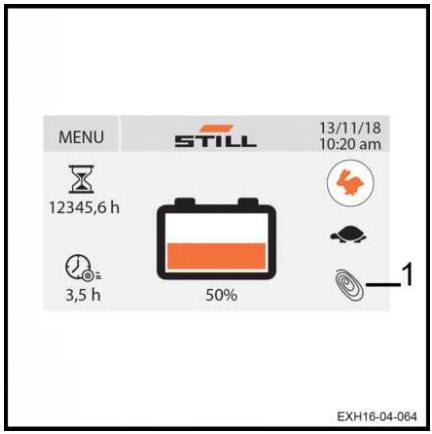
Press Menu to access the operator menu page, where you can set or select the display settings and settings for certain truck functions.

Press the tortoise icon (1). The icon lights up. The performance of the truck is automatically reduced and limited.

Blue-Q icon

Press Menu to access the operator menu page, where you can set or select the display settings and settings for certain truck functions.

Press the Blue-Q icon (1). The icon lights up. The performance of the truck is optimised for maximum battery saving.



Performance menu

In the Performance menu (10), it is possible to reduce the maximum performance as a percentage of the hare* mode (8) to create a custom mode.

Here is a list of editable fields:

- The maximum travel speed of the truck (2) as a percentage.
- The maximum acceleration of the truck (3) as a percentage.
- The maximum lifting speed of the forks (4) as a percentage.
- The maximum lowering speed of the forks (5) as a percentage.

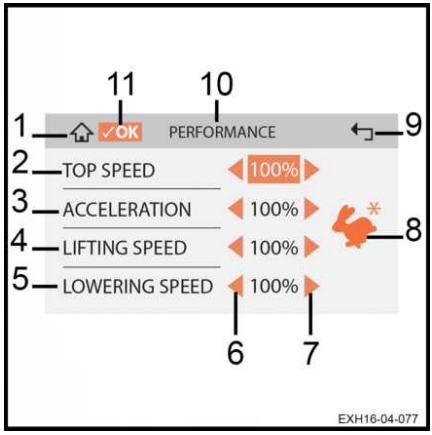
– Proceed as follows to modify the settings:

– Click on the field to be modified (this will turn orange).

– Use the arrows (6) and (7) to increase or decrease the percentage value. The maximum value that can be set is 100%.

– Press the OK key (11) to confirm your choice.

– Press the Back key (9) to return to the previous page without saving your changes. Or press the key (1) to return to the main menu.



Driving safety guidelines

Behaviour when driving

Operators must obey the same rules within the plant as on the road. They must drive at speeds appropriate for the driving conditions.

Therefore, they must drive slowly:

- When cornering
- Through narrow passageways
- Through swing doors
- In low-visibility areas
- When the roadway is uneven

Operators must always maintain a safe braking distance from vehicles or people in front of them. They must always maintain control of the truck. They must avoid sudden stops, making fast U-turns, overtaking other vehicles in potentially hazardous or low-visibility areas.

Driving the truck while sitting on the dashboard is prohibited. The forklift operator must be resting against the seat (if the truck has one).

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

- Never sit on the dashboard to drive the truck
- The truck must not be used as a stepladder
- The truck is not designed to transport people
- Operators 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 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.

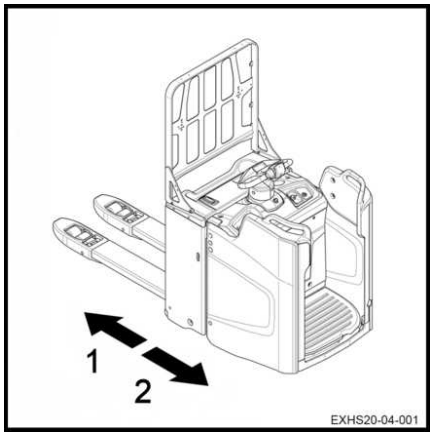
Take a test drive on an open surface.

NOTE

Drivers must wear safety shoes that fit properly to be able to drive and brake in complete safety.

Driving

Determining the direction of travel ▷



On a ride-on pallet truck, the conventional directions for the direction of travel are:

- Forward travel (1): Direction of load arms
- Reverse travel (2): Opposite direction to load arms

Driving

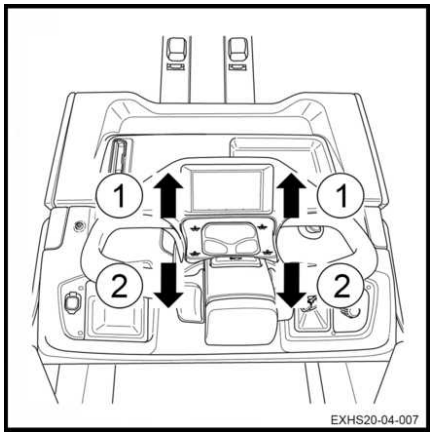
⚠ DANGER

Risk of injury

Always keep both feet and hands inside the driver's compartment while the truck is moving.

The drive switch is positioned on the handlebar.

Forward travel ▷



– Step onto the forklift operator detection platform.

– Pull the emergency off switch.

– Gradually and slowly press the drive switch forwards (1) with your thumb.

– When the drive switch is released, the truck brakes electrically.

Reverse travel

– Step onto the forklift operator detection platform.

– Pull the emergency off switch.

– Gradually and slowly press the drive switch backwards (2) with your thumb.

– When the drive switch is released, the truck brakes electrically.

⚠ WARNING

Restricted visibility

During reverse travel, visibility may be restricted. Be very careful. Make sure that the path behind is clear before travelling in reverse.

Reversing the direction of travel

– Push the drive switch in direction (1) or (2).
– Release the drive switch.
– Operate it progressively in the opposite direction until the required speed is reached.

Steering

In a straight line, the handlebar is centred.

To move the truck, proceed as follows:

– Turn the handlebar to the left: the truck turns to the left in forward travel (1).
– Turn the handlebar to the right: the truck turns to the right in forward travel (2).

⚠ WARNING

Risk of tipping.

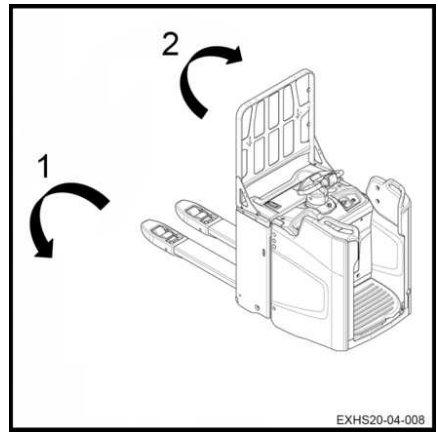
Always slow down before negotiating a corner. Approaching a tight corner too fast can cause the truck to overturn.

Steering angle: 180°

The turning radius (Wa) depends on the length of the chassis.

Safety when cornering: speed limitation

Trucks with a platform are fitted with a safety device that automatically reduces the speed when cornering above a certain steering angle of the drive wheel.

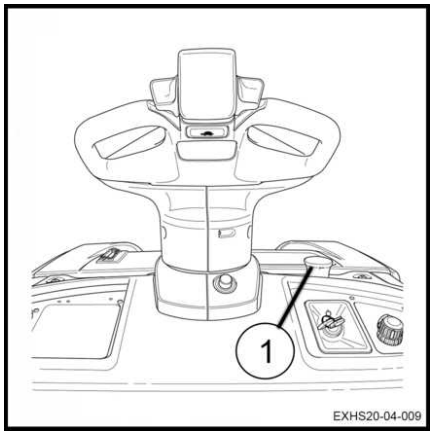


Emergency off switch

During normal operation, the emergency off switch (1) must be pulled out.

In case of danger:

– Press the button (1) to break the electrical circuit and immobilise the truck.



Braking

Counter-current braking

By reversing the drive direction:

– Move the drive switch (3) in direction (1) or (2).

– While travelling, move the switch in the opposite direction.

First the truck is braked electrically.

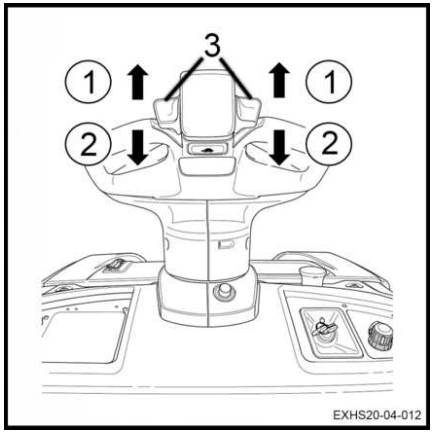
– Release the drive switch.

The brake is automatically activated. The truck is immobilised.

By releasing the drive switch:

– While travelling, completely release the drive switch.

The brake is automatically activated. The truck is immobilised.



Electromagnetic braking

The electromagnetic brake is activated automatically if one of the following conditions is met:

- The forklift operator leaves the platform that detects the presence of the forklift operator.
- The forklift operator presses the emergency off switch.
- The drive switch is in the neutral position.
- The power supply is cut off.

Horn

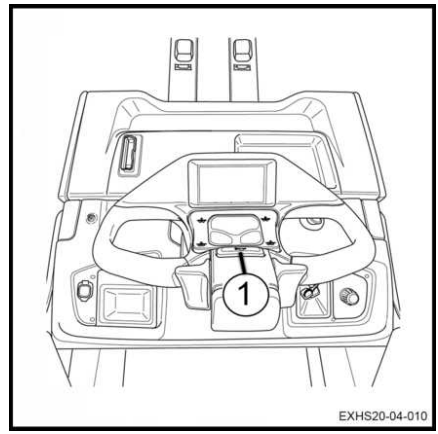
The horn is positioned on the steering wheel.

It is used:

- On routes where there is poor visibility
- At junctions
- In the event of immediate danger

– Press the button (1).

The horn sounds.



Using the truck on a slope

NOTE

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

Slopes must always be approached with great caution:

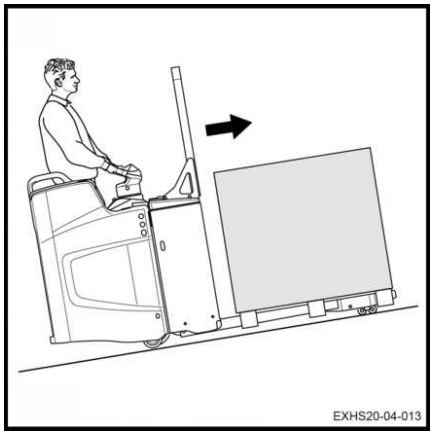
- Never attempt a slope with a gradient that is greater than that specified in the truck's datasheet.
- Make sure that the ground is clean and has a non-slip surface and that the route is clear.

Travelling up slopes

Always travel forwards when going up a slope.

The load faces uphill.

Without a load, it is advisable to go up a slope forwards.



Travelling down slopes

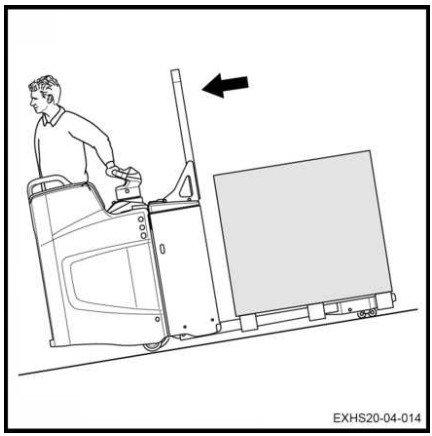
Always travel in reverse when going down a slope.

The load faces uphill.

Without a load, it is advisable to go down a slope forwards.

Avoid maximum speed when travelling downhill.

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



⚠ DANGER

Danger of death and/or risk of serious damage to equipment

Never park the truck on a slope. Never make a U-turn or take a shortcut on a slope.

On a slope, the forklift operator must drive more slowly.

⚠ WARNING

Risk of serious injury and/or serious damage to equipment

Driving on slopes is subject to conditions due to braking capacity and stability. The load being transported could tip over. Please refer to the datasheet in chapter 6 to check the maximum permissible gradient for the truck. Please comply with the limit stated.

Starting on a slope

Proceed as follows:

– Move the drive switch in the required direction.

– Release the drive switch to apply the parking brake.

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:

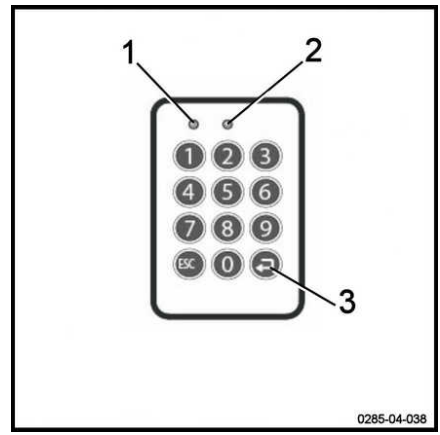
- Access truck information remotely
- Use geolocation

The data is stored on a server.

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

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.

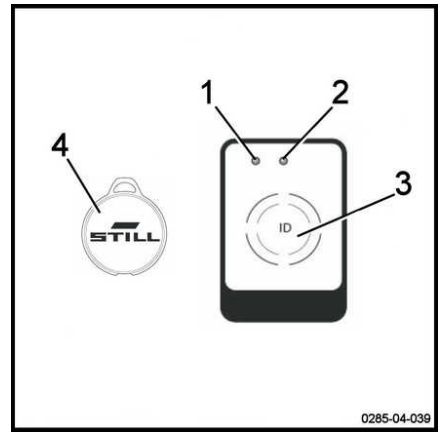
– Press the Enter key (3) to confirm.

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			Cause	Solution
LED status		Signal transmitter		
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

Malfunction			Cause	Solution
LED status		Signal transmitter		
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

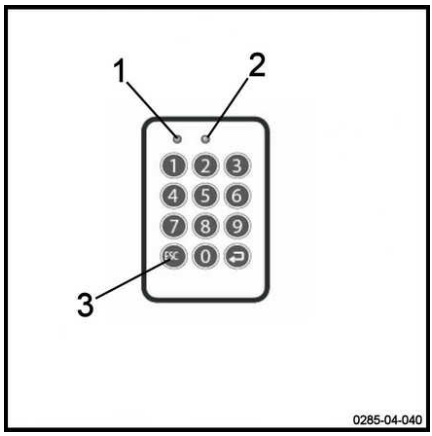
Operators must not log off intentionally while driving.

⚠ 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.

Disconnecting a truck equipped with an RFID reading device ▷

– Park the truck in a safe place.

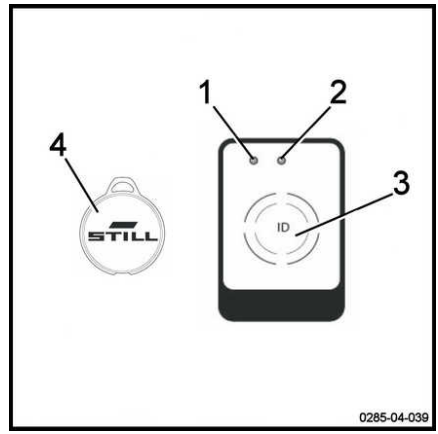
– Briefly place the RFID card or the RFID transponder (4) in front of the reading device (3).

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.

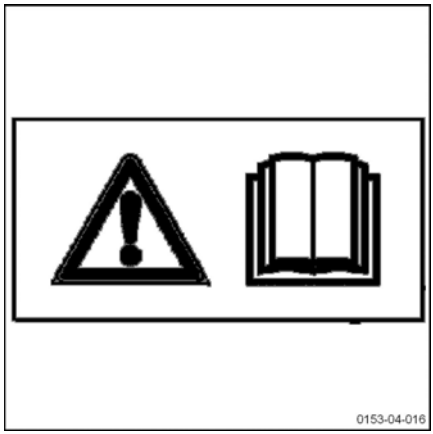
The truck is disabled.

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



Transporting loads

Load handling safety rules



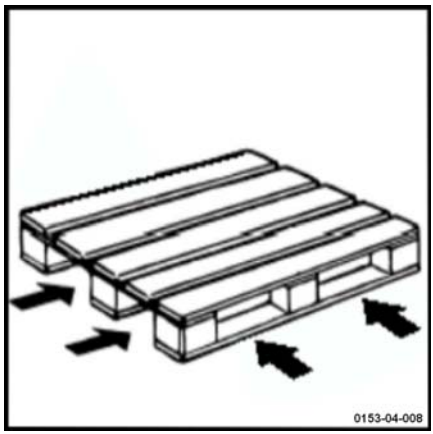
⚠ WARNING

Closely follow 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.

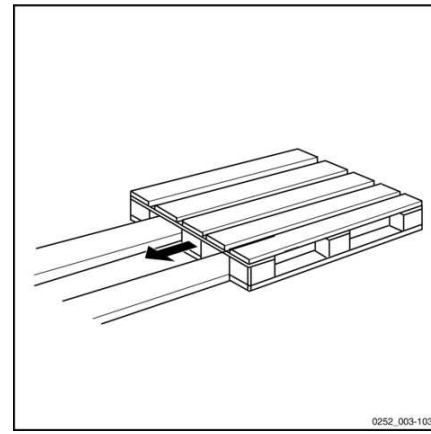
The load must not protrude too far over the fork arms, nor should the fork arms protrude too far out from the load.

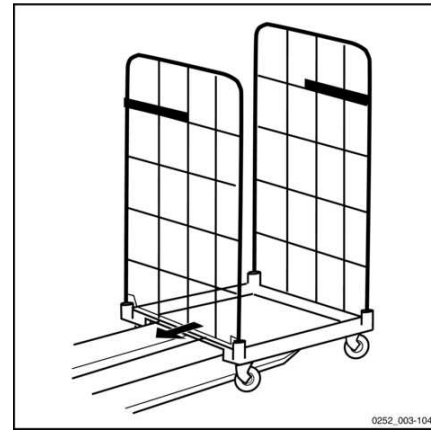
Transporting pallets or other containers ▷

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:

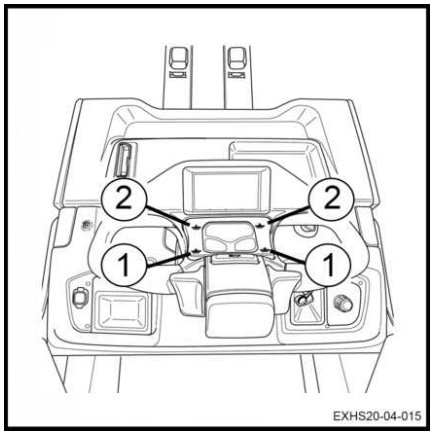
- when the safety preconditions are fulfilled.
- by order of the monitoring agent.

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.





Using the load arms



⚠ WARNING

Appropriate use of the equipment

Only use the lifting device and the accessories for the work for which they are intended.

The forklift operator must receive instruction on the operation of the load lift system.

⚠ WARNING

Risk of injury

The safety instructions must be strictly observed.

Do not touch or stand on moving parts (e.g. lifting device, pusher units, work installations, load lifting devices).

⚠ WARNING

Risk of injury

Never put your hands near the load lift system.

The initial lift controls are located on the steering wheel. As an option, they can also be located behind the steering wheel.

Raising the load arms:

– Press the button (1).

The load arms are raised.

Lowering the load arms:

– Press the button (2).

The load arms are lowered.

Load handling

⚠ WARNING

Risk of crushing feet

Safety shoes must be worn.

⚠ WARNING

Arrangement of loads

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.

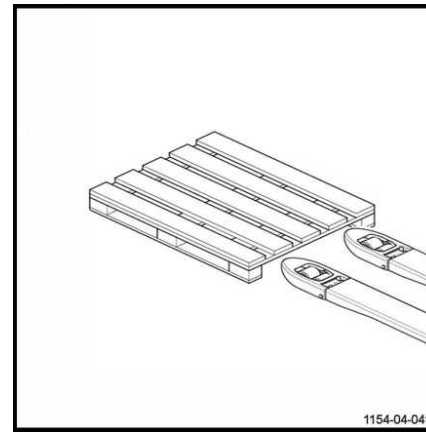
Before picking up a load

– Ensure that the load weight does not exceed the capacity of the truck.

– Also ensure that the load is stable and balanced to avoid dropping any part of the load.

– Check that the width of the load is compatible with the width of the load arms.

– Check that the load is not damaged.



⚠ DANGER

Risk of tipping

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

Picking up a load from the ground

Proceed as follows:

– Approach the load carefully.

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

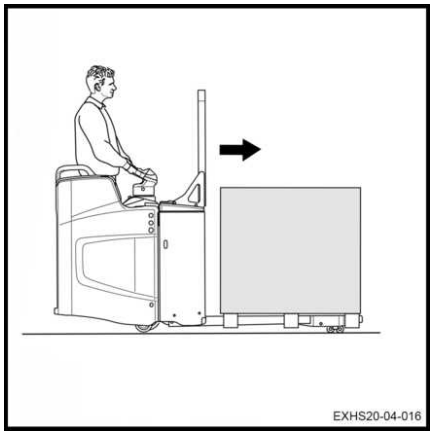
– Insert the load arms under the load.

– For a load that is shorter than the load arms, position it so that the load overhangs the end of the load arms by a few centimetres. This will prevent the load hooking onto the one in front.

– Raise the load arms a few centimetres to lift the load.

– Withdraw the load slowly in a straight line.

Transporting a load



Observe the following recommendations:

- Drive forwards for optimum visibility
- Travel up or down slopes with the load facing 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

Setting a load down on the ground

Proceed as follows:

– Drive the truck to the required location.

– Carefully move the load into the unloading area.

– Lower the load until the load arms are free.

– Withdraw the truck in a straight line.

– Raise the load arms again several centimetres.

⚠ CAUTION

Risk of accident

Before you set down the load, ensure that no one is around the truck or the load.

Before leaving the truck

NOTE

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

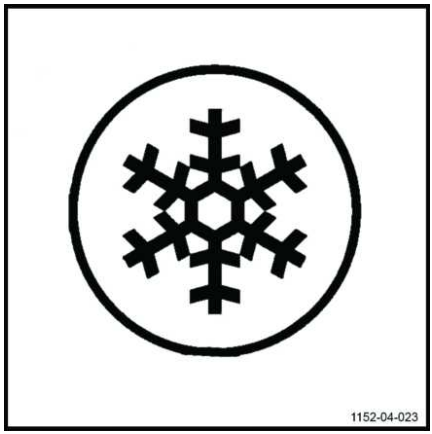
Proceed as follows:

– Lower the load arms to the lowered position.

– Switch off the ignition (key or electronic key).

– In the event of a prolonged shutdown, press the emergency off switch. Then disconnect the battery.

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 °C and, for short periods, at a temperature of -10 °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 °C and +45 °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.

Before leaving the truck

– Choose a safe and level location.

– Set down the load and fully lower the load arms.

The load arms must touch the ground.

– Switch off the truck.

The automatic braking is activated.

– Remove the switch key.

⚠ DANGER

Risk of injury!

It is prohibited to park the truck with the load lift system in the raised position.

Handling the gel and lead 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

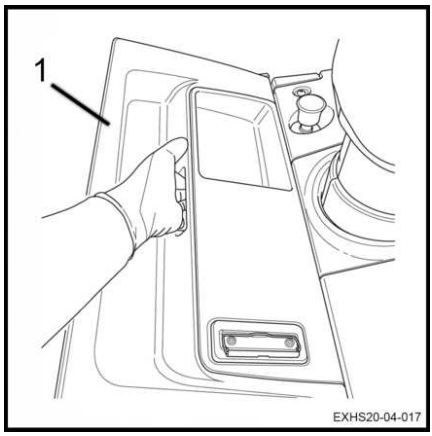
Do not smoke or create a flame when handling batteries. There must be no combustible material or tools that produce sparks within a minimum radius of 2 m around the truck and the battery charger.

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

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 and closing the battery hood ▷



Opening the battery hood

To open the battery hood:

– Immobilise the truck.

– Lower the forks.

– Switch off the ignition (key or electronic key).

– Press the emergency off switch.

– Lift the hood (1) using the handle designed for this purpose.

Closing the battery hood

To close the battery hood:

– Close the hood (1).

⚠ WARNING

Risk of trapping fingers

When closing the battery hood, correctly position your fingers to avoid any risk of them being trapped.

– Check that the hood is closed securely.

⚠ CAUTION

Risk of sparks

Never drive with the hood open or incorrectly closed.

Disconnecting/connecting the battery connector

⚠ WARNING

Major risk of arcing and destruction of contacts

Never connect or disconnect the connector if the truck is switched on.

Regularly check the condition of the contacts of the connectors. Replace them if there are signs of arcing and carbonisation.

Adhere to the direction of polarity "+" and "-". Always connect "+" to "+" and "-" to "-". Do not reverse the connectors.

Each ½ connector has a polarising pin. Ensure that the connectors are present and in good condition. They prevent any risk of reverse polarity.

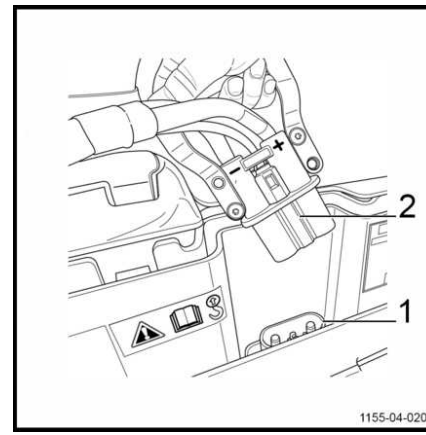
Disconnecting the battery connector ▷

– Immobilise the machine and switch off the ignition.

The fixed socket on the truck (1) is located above the battery and under the battery hood.

– Open the battery hood.

– Pull the handle of the battery connector (2) (if present) to disconnect it from the fixed socket on the truck (1).



Connecting the battery connector

– Insert the battery connector (2) (if present) into the fixed socket on the truck (1).

– Close the battery hood.

Charging the battery

Precautions for installation and use:

- The electric installation must comply with the standard applicable in your country
- The electric wall socket must be a 2-pole + earth 16-A, 230-V type socket that is correctly connected and protected
- Before charging, check the condition of the connections and cables. If necessary, re-tighten them
- External 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

General charging recommendations

It is recommended that you adhere to the following recommendations:

- Start charging when the battery is discharged
- Avoid interrupting charging until it is complete. This will optimise the service life of the battery
- Immobilise the truck near a power socket (220 V - 10/16 A)
- Open the battery compartment cover to allow proper ventilation (risk of gas escaping)

Recommendations for the external charger

Before charging using an external charger:

- If you are unsure about the compatibility of the charger, please contact the After-Sales Service Centre before use.
- When using old chargers, it is essential that the truck is switched off or that the battery connector (if present) is disconnected from the truck.

⚠ WARNING

Serious risk of damage

If the charger is not compatible and/or the instructions are not followed correctly, there is a risk of irreversible damage to the components.

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.

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.

Using the on-board charger

Thanks to the on-board charger, it is no longer necessary to use a charging room. This charger can be connected to a **2P+T 230-V, 16-A** socket. It is necessary to ensure that this socket is electrically protected by a type-A differential (RCD).

However, before charging in this way, it is necessary to check that the location selected for charging satisfies all of the safety requirements.

NOTE

The charger is compatible with wet lead batteries, gel lead batteries and lithium-ion batteries.

The charger is designed:

– To be incorporated in the truck.

– To remain permanently connected to the battery.

– To stay connected to the mains during periods when the truck is not being used to ensure the availability of the machine.

⚠ CAUTION

Charging instructions

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

Do not disconnect the battery connector during charging (flashing green indicator or battery charging icon) except for the lithium-ion battery.

The truck cannot be operated during charging.

⚠ WARNING

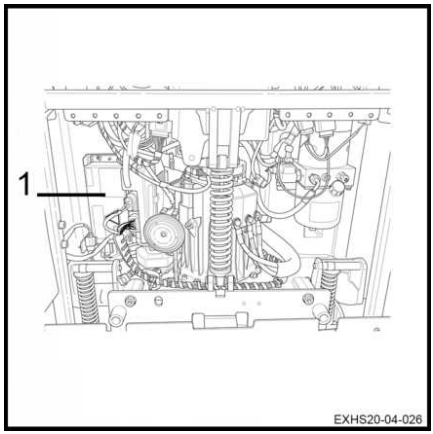
A lead battery produces explosive gases during charging.

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

The on-board charger is intended to recharge the battery.

– Switch off the truck.
– Connect the charger plug (1) to a mains wall socket.

▷



Charging starts automatically. A green indicator flashes or a battery charging icon is present on the truck display.

– Unplug from the mains wall socket when the battery is fully charged. It is also possible to stop the current charging by unplugging from the mains wall socket (for lithium-ion batteries only).
– Store the charger plug in its compartment.

⚠ CAUTION

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

Park the truck close to the mains wall socket. The mains cable of the on-board charger must not be taut when connected and charging.

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

Adjusting the on-board charger

Handling the gel and lead battery

- When the truck is delivered with its battery, the charger (1) settings are adjusted in the factory.
- When the truck is delivered without a battery, the adjustment is made according to the configuration chosen during the order.

General information on changing batteries

Removing/refitting the battery

When handling batteries, make sure that the capacity of the equipment used (hoist, slings, hooks, roller frame, trolley) is sufficient for the battery weight.

If you are installing a replacement battery, it must be identical to the original battery in terms of:

- Weight
- Compartment dimensions
- Voltage
- Capacity
- Socket

Refer to the rating plate of the truck for the minimum and maximum acceptable weights.

⚠ CAUTION

Risk of injury

The battery is a heavy and fragile component that must be handled with care.

It is recommended to wear gloves and safety shoes.

⚠ CAUTION

Risk of crushing.

When lowering the forks, make sure that your feet are not underneath the fork carriage.

⚠ CAUTION

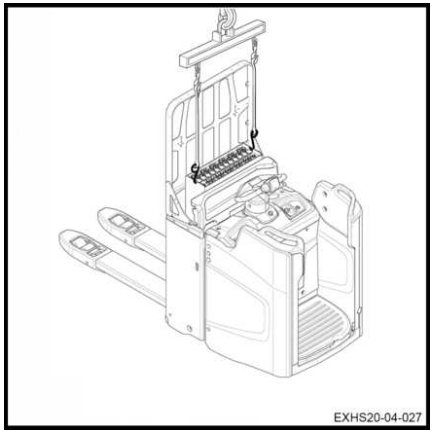
Risk of trapping.

During operations to lock and insert the battery, keep your fingers away from moving parts to avoid any risk of them being trapped.

Changing the vertical access battery

To change the battery, proceed as follows:

– Immobilise the truck.
– Lower the load arms.
– Switch off the ignition and remove the key.
– Press in the emergency off switch.
– Open the battery hood.
– Disconnect the battery connector.
– Unlock the battery (see handling below).
– Attach the slinging hooks to the battery compartment. ▷



NOTE

Using secured hooks is recommended.

– Lift the battery.
– Replace the battery.
– Position the new battery in the chassis.
– Remove the slinging hooks.
– Lock the battery (see handling below).
– Reconnect the battery connector.
– Close the battery hood.
– Return the truck to service.

Battery locking

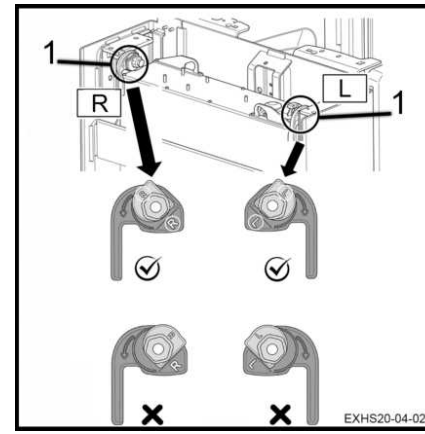
The battery must be in its casing and visually centred.

To lock the battery, proceed as follows:

– Position the lock assembly L and the cam L, then the assembly R and the cam R in the locations provided for this purpose (1).

– Make sure to follow the indications in the image.

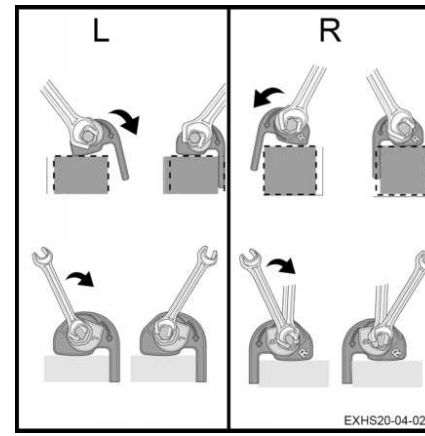
– Position the screws without tightening them.



Left-hand side L:

– Tighten the cam in the direction of the arrow to 50 Nm using the size-28 wrench to secure the battery against the bottom of the casing.

– Complete the locking process by tightening the screw using the size-18 wrench to 80 Nm.



Right-hand side R:

– Tighten the cam in the direction of the arrow to 50 Nm using the size-28 wrench to secure the battery against the bottom of the casing.

– Hold the cam in position.

– Complete the locking process by tightening the screw using the size-18 wrench to 80 Nm while preventing the cam from rotating.

For unlocking, proceed in the reverse order.

Replacing the side access battery

⚠ DANGER

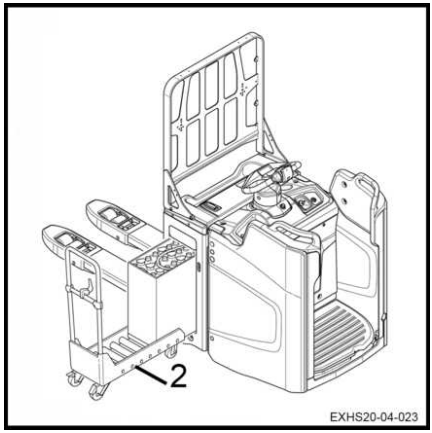
Risk of trapping fingers

It is advisable to wear gloves when changing the battery.

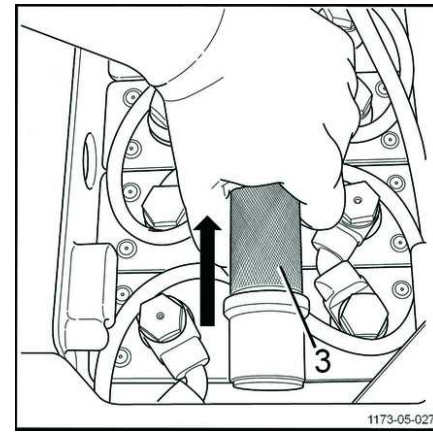
The battery compartment is equipped with four guide rollers for changing the battery. The space for the rollers on the battery lock side is left empty. If the user wishes to change the side lock, the roller opposite the side will also need to be changed.

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.

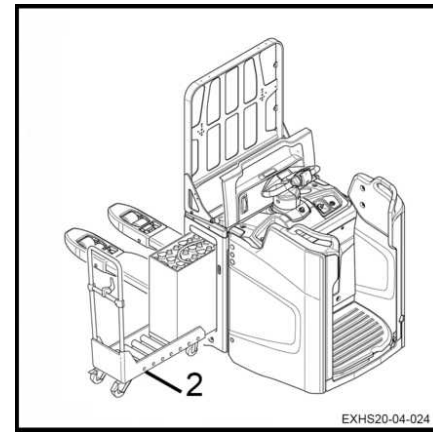
– Immobilise the truck.
– Lower the load arms.
– Switch off the ignition and remove the key.
– Press in the emergency off switch.
– Open the battery hood.
– Position the truck in the upright position with extraction rollers or the roller frame (2) near the battery compartment on level ground. ▷
– Disconnect the battery connector.
– Place the connector on the battery cells.



– Actuate and pull the locking handle (3) to release the battery. It will jut out slightly from its compartment.



– Place the battery on the truck with extraction rollers or the roller frame (2).
– Replace the battery on the truck with extraction rollers or the roller frame (2).
– Gently push the battery inside the compartment. Leave part of the battery (a few centimetres) outside of the compartment.
– Lower the locking lever to insert the battery completely into the compartment.

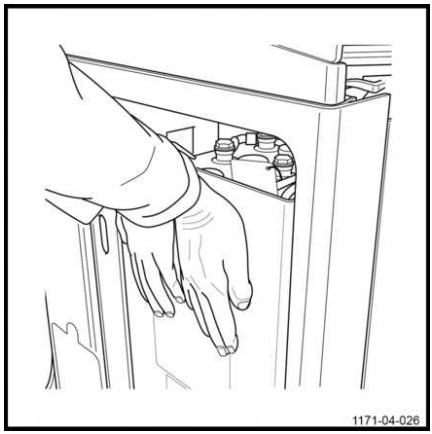


⚠ DANGER

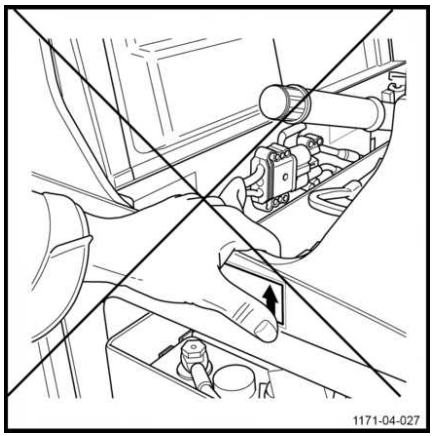
Risk of rapid lowering of the lever

Do not push the battery down to the bottom of the battery compartment suddenly.

– Position your hands flat on the side of the battery. ▷



Improper handling could result in significant injury. ▷



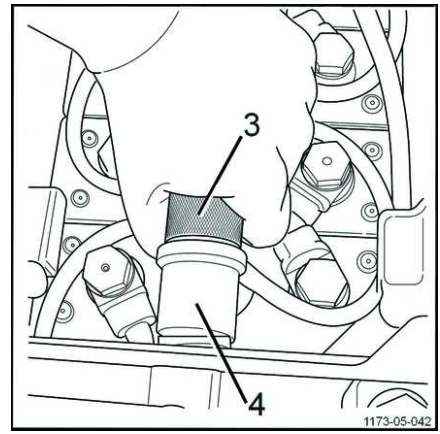
⚠ DANGER

Risk of injury

Do not position your fingers on the top of the chassis above the battery. The lever could trap your fingers when it swings down.

– Push it down to the bottom of the compartment while holding the lever.

– Lower and lock the handle (3) of the locking bar (4). ▷
– Reconnect the battery connector.
– Close the battery hood.
– Return the truck to service.



⚠ WARNING

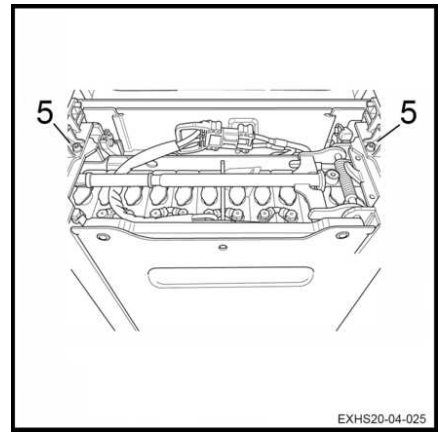
Risk of losing the battery

Before restarting the truck, ensure that the battery is correctly installed and that the battery hood is fully locked.

Choice of opening side for battery compartment ▷

It is possible to remove the battery from its compartment to the left or right of the truck:

– Reverse the battery mounting assembly (5) on the chassis and the hood.



NOTE

Regularly check that the battery mounting assembly (5) is always correctly positioned on the machine.

This operation should preferably be carried out by the After-Sales Service Centre. If the battery mounting assembly is incorrectly positioned on the chassis and the hood, the locking system of the battery cannot function correctly.

Handling the truck in an emergency

Towing and transporting the truck

Towing the truck

⚠ CAUTION

Risk of the equipment becoming worn or damaged

The brake is applied if there is no power supply to the truck from the battery.

The truck must be moved with the front raised and with caution.

⚠ CAUTION

Risk of the equipment becoming worn or damaged

Do not pull the truck by the tiller.

⚠ CAUTION

Risk of the equipment becoming worn or damaged

Unload the truck before towing it.

Transporting the machine

If the truck has to be transported, please ensure that it is properly chocked and protected against bad weather.

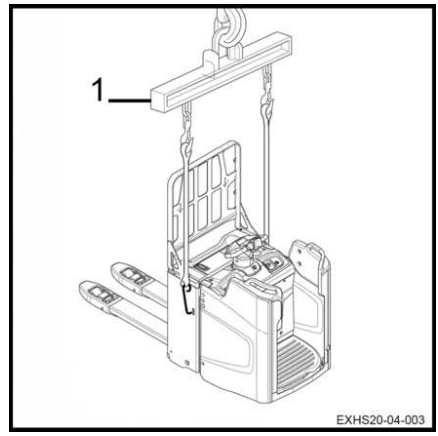
⚠ WARNING

Risk of truck losing stability

Exercise great care when moving a truck that has no battery and is equipped with reinforced stabilisers.

Handling the truck in specific situations

Slinging the truck



⚠ DANGER

Danger of truck falling

Only use slings and a hoist of sufficient quality.

Check the weight of the truck (including battery) in order to choose a suitable device.

Refer to the technical features.

Observe the following instructions:

– Lower the load arms (the initial lift must be in the lowered position).

– Switch off the truck and disconnect the battery connector.

– Remove any items that could fall.

– Protect all parts that come into contact with the lifting device.

– Attach the lifting device (1).

NOTE

Do not sling the truck by the tiller. Do not sling the truck by the accessory support.

– Carefully lift the truck.

⚠ DANGER

Risk of falling

Make sure no one is under or near the truck when slinging the truck.

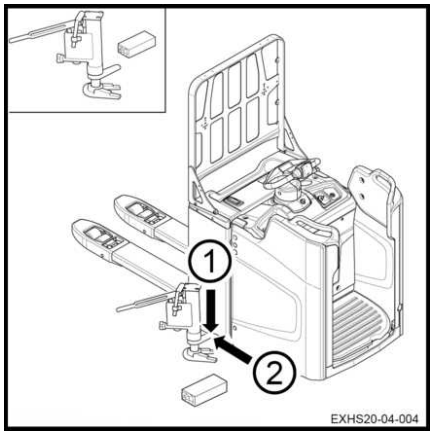
Lifting the truck

⚠ DANGER

Danger of truck tipping over

Truck lifting must be performed carefully. This operation should preferably be carried out by the After-Sales Service Centre.

Maintaining the load wheels



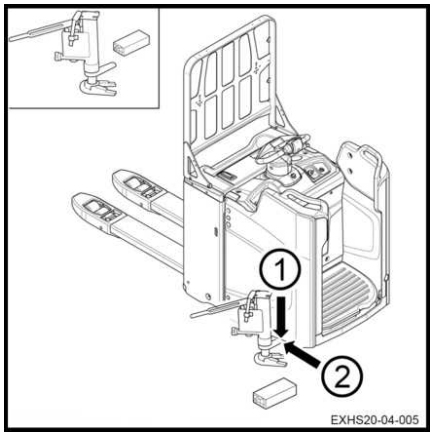
For some work on the load wheels it is necessary to lift the truck.

– Lift the load arms.
– Switch off the ignition and disconnect the battery connector.
– Use a jack with adequate lifting capacity.
– Place the jack under the battery compartment in the location indicated (1).
– Place the wedge under the battery compartment in the location indicated (2).
– Raise the rollers only slightly.

NOTE

If the jack is raised higher, several wedges will need to be placed one on top of the other until the jack lift height is reached.

Maintaining the drive wheel and the technical compartment



For some work, it is necessary to lift the truck.

– Lift the load arms.
– Switch off the ignition and disconnect the battery connector.
– Use a jack with adequate lifting capacity.
– Place the jack under the flank of the fixed chassis in the location indicated (1).
– Place the wedge under the flank of the fixed chassis in the location indicated (2).
– Raise the rollers only slightly.

NOTE

If the jack is raised higher, several wedges will need to be placed one on top of the other until the jack lift height is reached.

Transporting the truck

⚠ CAUTION

Always switch off the ignition and disconnect the battery.

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

⚠ CAUTION

Risk of damage to the truck.

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 service or if the battery has been removed, sling the truck. See **Chapter 4 Slinging the truck**.

⚠ DANGER

Danger of death.

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

Transporting the machine

If the truck has to be transported, please ensure that it is properly chocked and protected against bad weather.

⚠ WARNING

Risk of truck losing stability

Exercise great care when moving a truck that has no battery and is equipped with reinforced stabilisers.

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.

5

Maintenance

General maintenance information

General

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

Maintenance plan

One of the display functions indicates the truck's hours of use. Refer to it and consult the truck's maintenance plan.

The maintenance plan is followed by advice to facilitate work.

Maintenance intervals must be reduced if the truck is used under harsh conditions (extreme heat or 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 in maintenance work.

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

Never mix different grades 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

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:

Depending on the transmission gear fitted in the truck, two types of oil can be used:

- Alphasyn EP 150
- RENOLYN XT 150

Please contact the After-Sales Service to find out which oil should be used with your transmission gear.

Aerosol can for chains

Standard chain spray.

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

Assembly	Consumables/lubricants	Capacities/adjustment values
Hydraulic system	Hydraulic oil	X litres (minimum volume: X litres)
Transmission gear	Transmission gear oil	
Traction motor 2.3 kW (EXH-S 20 models) 3 kW (EXH-S 25 models)	Fuse 1F1	Power: 300 A, quantity: 1
Pump motor 1.2 kW (EXH-S 20 models) 2.2 kW (EXH-S 25 models)	Fuse 1F1	Power: 300 A, quantity: 1
Control fuse	Fuse 1F3	Control: 7.5 A, quantity: 1
Control fuse	Fuse 1F4	Control: 5 A, quantity: 1
Joints	Lithium soap grease	As required

Easily accessing the technical compartment

For some operations, it is not necessary to access all the components in the technical compartment.

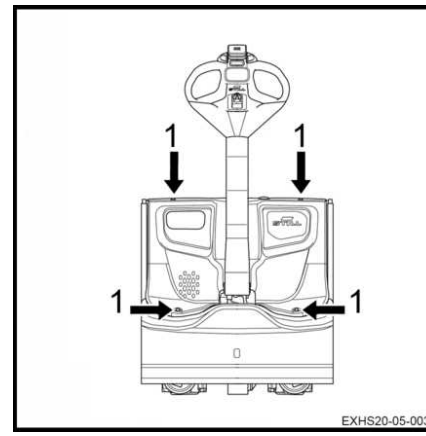
In this case, simply remove the main front hood from the truck.

– Switch off the ignition (key or electronic key).
– Push the emergency off switch.
– Open the battery compartment.
– Disconnect the battery connector.
– Remove the four mounting screws (1) from the hood. ▷
– Carefully remove the hood.

The technical compartment can be accessed.

To refit the hood, proceed as follows:

– Position the tab inside the chassis.
– Reposition the hood.
– Refit and tighten the mounting screws (1).
– Return the truck to service.



Regular Service schedule

Comment on maintenance operations
Servicing work requires specialist knowledge. Special tools may also be required. Contact the After-Sales Service.

Preparatory tasks
Clean the truck
Error code history: read out and delete
Indicator: Check the time and the date
Check the date and the time and enter the next maintenance interval

Regular maintenance, to be carried out at least every 12 months
Traction motor and transmission gear
Traction motor: perform a visual check of the mounting
Traction motor: clean the cooling fins
Transmission gear: check for leaks
Chassis and equipment
Steering: Clean, check and lubricate the pinion gear and the ring gear
Check the battery hood
Check the accelerator and the brake
Check the mounting of the control unit and its operation
Check the operation of the forklift operator presence detection across the entire surface of the bottom plate (adjust if necessary)
Wheels
Load wheels (lubricated version): lubricate the axles and the bearing
Support wheel (drive): check for wear
Check the shock absorbers
Mechanical stabilisers: check the height adjustment
Mechanical stabilisers: perform a visual check for wear
Controlled stabilisers: check for leaks
Controlled stabilisers: check the oil level
Electrical equipment
Clean the optical sensors
Battery: check the condition
Battery: check the cables and sockets
Battery trolley: check and lubricate
Battery compartment: check that the battery is correctly secured
Battery replacement via side access: Check the lock

Battery replacement via side access: check the plastic support rollers
Battery replacement via side access: lubricate the plastic support rollers
On-board charger: clean
On-board charger: check the operation
Clean the electrical components
Check the initial lift sensors (position + operation)
Hydraulics
Hydraulic pump: perform a visual check of the mounting
Hydraulic system: check the oil level
Hydraulic system: check for leaks
Hydraulic system: clean or replace the suction filter
Hydraulic system: clean the return line filter
Hydraulic system: drain the oil (at least every 3 years)
Stabilisers: check for leaks
Stabilisers: check the oil level
Load lift system
Lift cylinders, lifting chains, chain rollers and stop: check the condition, mounting and operation (once only after 1000 hours)
Check the protective device (protective screen)
Initial lift: check the linkage

Final tasks
Carry out a functional test and a test drive
Labels: check the condition and the legibility
Attach the maintenance label

1000-hour service plan

Depending on the application, environmental conditions and driving style, the following procedures should be carried out every 1000, 2000, 4000, 5000, 7000, 8000 and 10,000 hours
Preparation
Clean the truck
Error code history: read out and delete
Indicator: Check the time and the date
Check the date and the time and enter the next maintenance interval
Traction motor and transmission gear
Traction motor: perform a visual check of the mounting
Traction motor: clean the cooling fins

Transmission gear: perform a visual check of the mounting
Transmission gear: check for leaks
Chassis and equipment
Steering: Perform a visual check of the mounting
Steering: perform a visual check of the tiller and of the mounting of the steering centre
Steering: Clean, check and lubricate the pinion gear and the ring gear
Check the battery hood
Electric brake: check for wear
Brake system: check for damage and leaks
Check the accelerator and the brake
Check the mounting of the control unit and its operation
Check the operation of the forklift operator presence detection across the entire surface of the bottom plate (adjust if necessary)
Wheels
Load wheels (lubricated version): lubricate the axles and the bearing
Support wheel (drive): check for wear
Controlled stabilisers: check the oil level
Check the wheels for damage, foreign bodies and wear
Check the shock absorbers
Mechanical stabilisers: check the height adjustment
Mechanical stabilisers: perform a visual check for wear
Controlled stabilisers: check for leaks
Controlled stabilisers: check the oil level
Electrical equipment
Clean the optical sensors
Battery: check the condition
Battery: check the cables and sockets
Battery trolley: check and lubricate
Battery compartment: check that the battery is correctly secured
Battery replacement via side access: Check the lock
Battery replacement via side access: check the plastic support rollers
Battery replacement via side access: lubricate the plastic support rollers
On-board charger: clean
On-board charger: check the operation
Electrical connections: check the condition and positioning
Clean the electrical components
Pump motor: Clean and check the brushes
Check the initial lift sensors (position + operation)
Hydraulics
Hydraulic pump: perform a visual check of the mounting

Hydraulic system: Bleed the circuit
Pump-motor unit: check the mounting
Hydraulic system: check the oil level
Hydraulic system: check for leaks
Stabilisers: check for leaks
Stabilisers: check the oil level
Load lift system
Lift cylinders, lifting chains, chain rollers and stop: check the condition, mounting and operation (once only after 1000 hours)
Hydraulic system: Bleed the circuit
Check the protective device (protective screen)
Check the mobile chassis
Lubricate the initial lift
Initial lift: check the linkage
Initial lift: adjust the clearance of the sliding pads on the guide rollers
Initial lift: check the condition of the initial lift rollers and guides on the chassis
Initial lift: check the movement of the lift shaft and the support points on the level compensator
Initial lift: check the pins and the mounting of the push rods
Driver's platform: check the condition of the shock absorbers of the suspended platform.

Final tasks
Carry out a functional test and a test drive
Labels: check the condition and the legibility
Attach the maintenance label

3000-hour service 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
Traction motor
Transmission gear: check the mounting (once only after 3000 hours)
Chassis frame
Electric brake: check for wear
Hydraulics
Hydraulic system: drain the oil (at least every 3 years)
Hydraulic system: clean or replace the suction filter

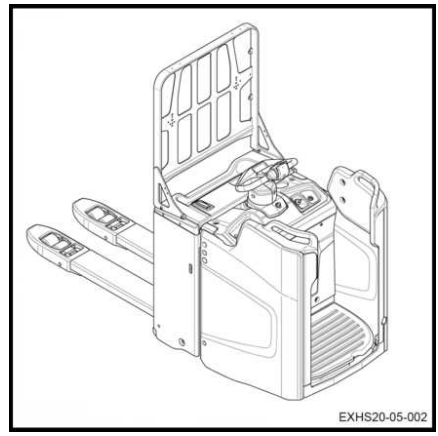
Hydraulic system: clean the return line filter
Load lift system
Lift cylinders, lifting chains, chain rollers and stop: Check the condition, mounting and operation

10,000-hour service plan

Depending on the application, environmental conditions and driving style, the following procedures should be carried out every 10,000 hours
Information
Carry out all 1000-hour maintenance work
Traction motor
Transmission gear: drain the oil

Chassis, bodywork and fittings

Cleaning the truck ▷



Disconnect the battery before cleaning.

Be very careful when using steam jets or cleaning products with a strong degreasing effect. They dilute the grease inside the sealed-for-life bearings. Relubrication is then impossible.

These cleaning methods damage the bearings.

⚠ WARNING

Use of compressed air

It is advisable to wear protection goggles and a mask.

If using compressed air, first remove stubborn dirt with a cold cleaning agent.

Before carrying out lubrication operations, thoroughly clean:

- The oil filling openings and the areas around them.
- The grease nipples.

Dry the truck after cleaning.

If, despite taking all of these precautions, water enters the motors, the truck must be returned to service. This operation prevents rust forming (it dries out by its own heat). The motors can also be dried using compressed air.

NOTE

A truck that is cleaned frequently will also require more frequent lubrication.

General information on battery maintenance

⚠ DANGER

Risk of injury

Before carrying out any work on the electric installation, turn the truck power supply off. Disconnect the battery connector (if present).

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.

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.

– Press the emergency off switch.

– Open the battery hood.

– Follow the instructions.

⚠ CAUTION

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

The charger becomes hot during the operation.

⚠ CAUTION

Risk of injury

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.

Steering and wheels

Checking the condition of the wheels ▷

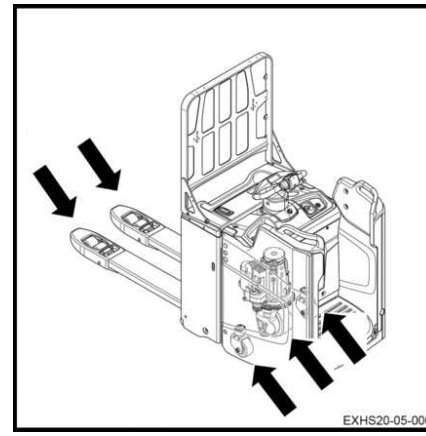
– Raise the truck until the wheels are off the ground.

– Check that the wheels rotate freely and remove any objects that may prevent them from turning or may obstruct them.

⚠ CAUTION

Risk of damaging the wheels

In order to avoid any risk of damaging the wheel bearings and tyres, any wires or plastic strips that may wind around the wheel hubs and bearings must be removed.



Stabiliser maintenance

Trucks are equipped with two stabilisers. They ensure the dynamic stability of the truck. Different types of stabilisers are available as options.

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.
- 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. The wheels must rotate freely
- No locking at the level of the upper bearing.
- Ensure that the wheel nuts are correctly tightened.
- Ensure that there is no oil leakage under the truck when it is fitted with hydraulic stabilisers.

⚠ WARNING

Risk of loss of dynamic stability

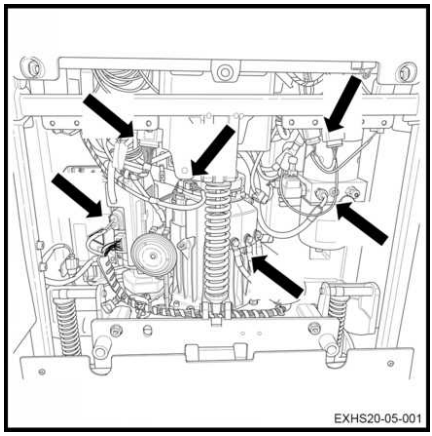
The dynamic behaviour of the device must be monitored, particularly when turning. The behaviour of the truck must be the same when cornering, whether turning to the left or right. If there is a difference in behaviour, please contact the After-Sales Service Centre. Only the technician can replace the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

NOTE

It is necessary to monitor the wear of the wheels in order to preserve the traction of the truck.

Electrical equipment

Cleaning and blowing air through the electrical components



⚠ CAUTION

Electrical hazards

Always disconnect the battery connector before working on an electrical component.

– Press in the emergency off switch.
– Disconnect the battery connector.
– Open the technical compartment.
– Blow the electrical components with compressed air.

⚠ WARNING

Use of compressed air

It is advisable to wear protection goggles and a mask.

Checking the battery acid level and electrolyte density ▷



⚠ WARNING

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

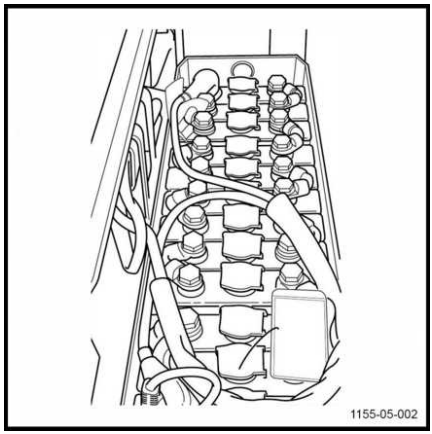
- Always wear suitable protective equipment (industrial goggles, safety gloves) when working on a battery.
- Never wear a watch or jewellery when handling battery acid.
- Do not allow any acid to get onto the clothing or skin or into the eyes. If this does happen, rinse immediately with plenty of clean 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.

Checking the condition of cables, terminals and the battery connector



- Check that the cable insulation is undamaged.
- Check that there are no signs of heat build-up in the connections.
- Check that the "+" and "-" output terminals are not sulphated (presence of white salt).
- Check the condition of the battery connector contacts (if present) and check that the keying pin is present.

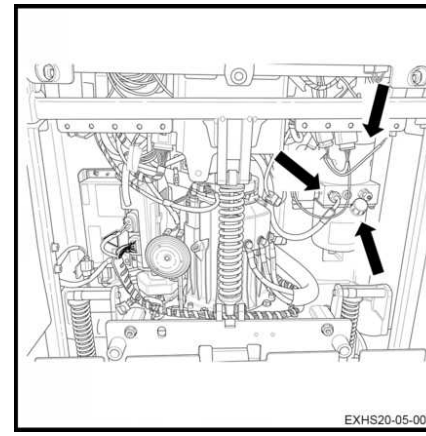
⚠ CAUTION

Risk of damaging the equipment

The points mentioned above can cause serious incidents. In the event of an incident, contact our After-Sales Service Centre as quickly as possible.

Hydraulic systems

Checking the hydraulic system for leaks ▷



- Switch off the truck and disconnect the battery connector.
- Remove the hood of the technical compartment.
- Inspect the hydraulic system: pipes, hoses and connections between the pump unit and the cylinders.
- Check cylinders for leaks.
- Check that the hoses are attached correctly and show no signs of friction wear.
- Check the external pipes and hoses on the technical compartment.
- Refit the hood of the technical compartment.
- Return the truck to service.

⚠ CAUTION

Risk of damaging the truck

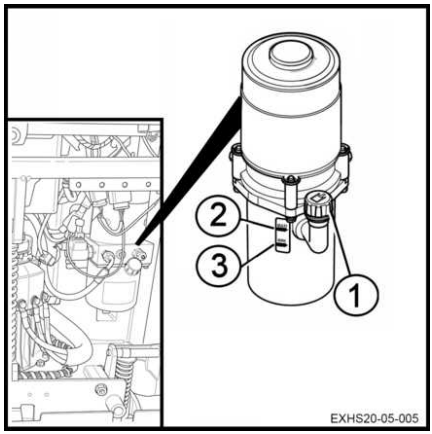
In the event of leakage, please contact the After-Sales Service Centre.

Checking the hydraulic oil level

To check the hydraulic oil level, proceed as follows:

- Immobilise the truck.
- Lower the load arms.
- Switch off the ignition and remove the key.
- Press in the emergency off switch.
- Disconnect the battery connector.

– Remove the hood of the technical compartment. ▷



To ensure proper usage of the truck functions, the oil level must be between the minimum (3) and maximum (2) marks on the tank.

– Remove the plug (1). If necessary, top up via the opening.

– Refit the plug (1) afterwards.

⚠ CAUTION

Risk of damage to hydraulic components

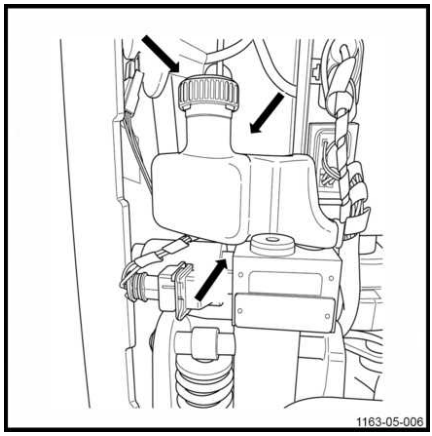
Only use hydraulic oil that complies with the manufacturer's specifications (see table of recommended lubricants).

– Refit the hood of the technical compartment.

– Reconnect the battery connector.

– Return the truck to service.

Checking the controlled stabiliser hydraulic system for leaks ▷



– Switch off the truck and disconnect the battery connector.

– Remove the hood of the technical compartment.

– Inspect the stabiliser hydraulic system:

- Tank
- Rigid pipes
- Connections from the stabiliser directional control valve block to the cylinders

– Check the tank for leaks.

– Tighten the swivel joints on the cylinders if necessary.

– Check the cylinders for leaks.

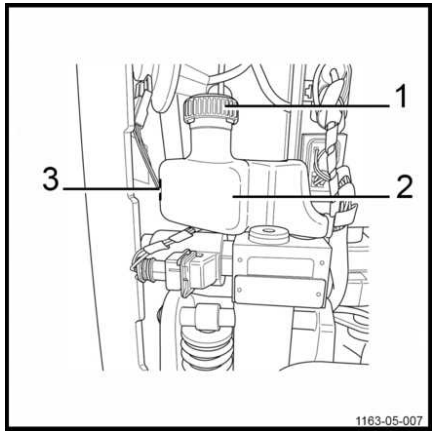
– Check that the rigid pipes are attached correctly and show no signs of friction wear.

– Refit the hood of the technical compartment.

– Return the truck to service.

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

Checking the oil level in the controlled stabiliser circuit ▷



– Switch off the truck and disconnect the battery connector.

– Remove the hood of the technical compartment.

It is essential that the oil level of the stabilisers is on the mark situated between the raised MIN and MAX (3) lettering on the tank (2)

– Top up the level if necessary, after unscrewing the plug (1).

– Screw the plug back in at the end of the operation.

⚠ CAUTION

Risk of damage to the truck

Only use hydraulic oil that complies with the specifications. See table of lubricants.

– Refit the hood of the technical compartment.

– Return the truck to service.

Storage and decommissioning

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.

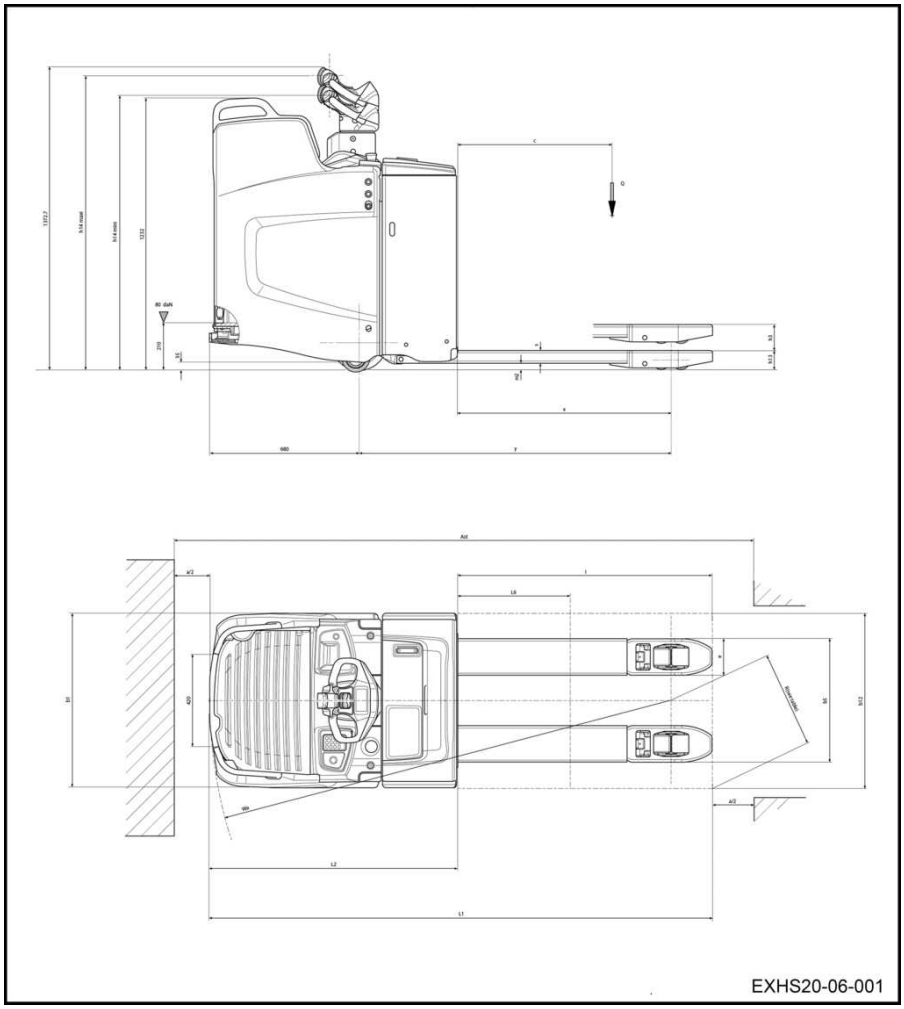
NOTE

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 features

Datasheet



DESCRIPTION				
1.1	Manufacturer		Still	
1.2	Model type		EXH-S 20	EXH-S 25
1.3	Drive type: battery, diesel, petrol, LPG, mains power		Battery	
1.4	Driving mode: manual, pedestrian, standing, seated, order picking		Standing/ride-on	
1.5	Nominal capacity	Q (kg)	2000	2500
1.6	Centre of gravity	C (mm)	600	1200
1.8	Distance from load wheel axle to load support face (±5 mm) (1)	X	970 / 900	1832 / 1762
1.9	Wheelbase (±5 mm) (1), (4)	Y	1416 / 1346	2278 / 2208

WEIGHT			EXH-S 20	EXH-S 25
2.1	Weight in working order (±10%) with battery (4)	kg	860	1010
2.2	Load per laden axle, drive side/load side (±10%), load = 2000 kg (3)	kg	1200 / 1660	1470 / 2040
2.3	Load per unladen axle, drive side/load side (±10%) (3)	kg	720 / 150	853 / 157

WHEELS			EXH-S 20	EXH-S 25
3.1	Tyre: polyurethane, rubber, drive side/load side		PU	
3.2	Drive wheel dimensions (width at the ground)	Ø x W (mm)	Ø254 x W102	
3.3	Dimensions of wheels, load side (7)	Ø x W (mm)	Ø85 x W80	
3.4	Additional wheels (dimensions)	Ø x W (mm)	2 x Ø125 x W60	
3.5	Number of wheels at drive side/load side (x = drive wheel) (7)		1X + 2/2 (1X + 2/4)	

3.6	Track width, drive side (±5 mm)	mm	572
3.7	Track width, load side (±5 mm)	mm	355 / 375 / 395 / 515

DIMENSIONS			EXH-S 20	EXH-S 25
4.4	Lift (±5 mm)	h3 (mm)	115	
4.9	Height of tiller in driving position, minimum/maximum (±5 mm)	h14 (mm)	1233.5 / 1313.5	
4.15	Height at the ends of the forks in the lowered position (0/+5 mm)	h13 (mm)	85	
4.19	Total length (+5 mm) (4)	L1 (mm)	2283	3521
4.20	Length to the load support face (±5 mm) (4)	L2 (mm)	1126	
4.21	Total width (±5 mm)	b1 (mm)	790	
4.22	Dimensions of the load arms DIN ISO 2331	s/e/L (mm)	55 / 165 / 1150	55 / 165 / 2400
4.25	Outside spread of the fork arms (±5 mm)	s/e/L (mm)	520 / 540 / 560 / 680	
4.32	Ground clearance, at the centre of the wheelbase (±2 mm) (1)	m2 (mm)	30 / 145	
4.33	Load dimension b12 x L6	b12 x L6	800 x 1200	2 x 800 x 1200
4.34	Aisle width with predetermined load (1) (4) (8)	Ast (mm)	2759 / 2727	3978 / 3943
4.34.1	Aisle width with a pallet 1000 x 1200 crosswise (1) (4) (8)	Ast (mm)	2897 / 2835	4168 / 4079
4.35	Turning radius (minimum) Initial lift, raised/lowered (1) (4)	Wa (mm)	2097 / 2027	3334 / 3264

PERFORMANCE			EXH-S 20	EXH-S 25
5.1	Travel speed, laden/unladen (±5%) (9)	km/h	10 / 12	11 / 14
5.1.1	Travel speed when laden/unladen, in reverse (±5%) (9)	km/h	10 / 12	11 / 14
5.2	Lifting speed, laden/unladen (±10%)	m/s	0.03 / 0.05	0.04 / 0.06
5.3	Lowering speed, laden/unladen (±10%)	m/s	0.07 / 0.06	0.07 / 0.06

5.8	Maximum gradient, laden/unladen (10)	%	10 / 18	8 / 18
5.9	Acceleration time (10 m), laden/unladen	s	5.9 / 4.6	
5.10	Service brake		Electrohydraulic/electro-magnetic	

DRIVE SYSTEM				EXH-S 20	EXH-S 25
6.1	Traction motor, hourly output	kW		2.3	3
6.2	Lift motor at 15% utilisation	kW		1.2	2.2
6.3	Battery type in accordance with DIN 43 535 (6)			3 PzS side access	
6.4	Battery voltage and capacity (discharge in 5 hours)	V/Ah or kWh	2 PzS vertical access	24 / 250	
			3 PzS side access	24 / 375	
			3 PzS vertical access	24 / 375	
			4 PzS side access	24 / 500	
			4 PzS vertical access	24 / 500	
6.5	Battery weight (±10%)	(kg)	2 PzS vertical access	242	
			3 PzS side access	327	
			3 PzS vertical access	333	
			4 PzS side access	425	
			4 PzS vertical access	412	
6.6	Energy consumption according to DIN EN 16796	kWh/h		0.35	0.41
6.6.2	CO2 equivalent emissions for electricity grid energy (EN 16796)	kg/h		0.11	0.22
6.7	Turnover output (according to VDI 2198)	T/h		142	195
6.8	Energy consumption at turn-over output (according to VDI 2198)	kWh/h		112	121

MISCELLANEOUS			EXH-S 20	EXH-S 25
8.1	Speed monitor (AC controller)		KWPC	
10.7	Noise level at forklift operator's ears (±2.5)	dB (A)	69	
	Vibrations transmitted to the operator (EN 13059)	m/s²	0.7	

1) Forks raised/lowered

3) Weight according to line 2.1

4) With battery line 6.3

5) In the lowered position

6) For the 2 PzS vertical access = 3 PzS side access

For 3 PzS vertical access and 4 PzS side access, add 75.

For 4 PzS vertical access, add 150.

For 5 PzS vertical access, add 225.

7) Numbers in brackets with bogies

8) Ast = Wa + R + a

Safety distance a = 200 mm

9) With hydraulic stabilisers

10) Unladen: mechanical crossover with new wheel, avoid maximum speed when lowering

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).

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