

ERE 120 - 225 drivePLUS

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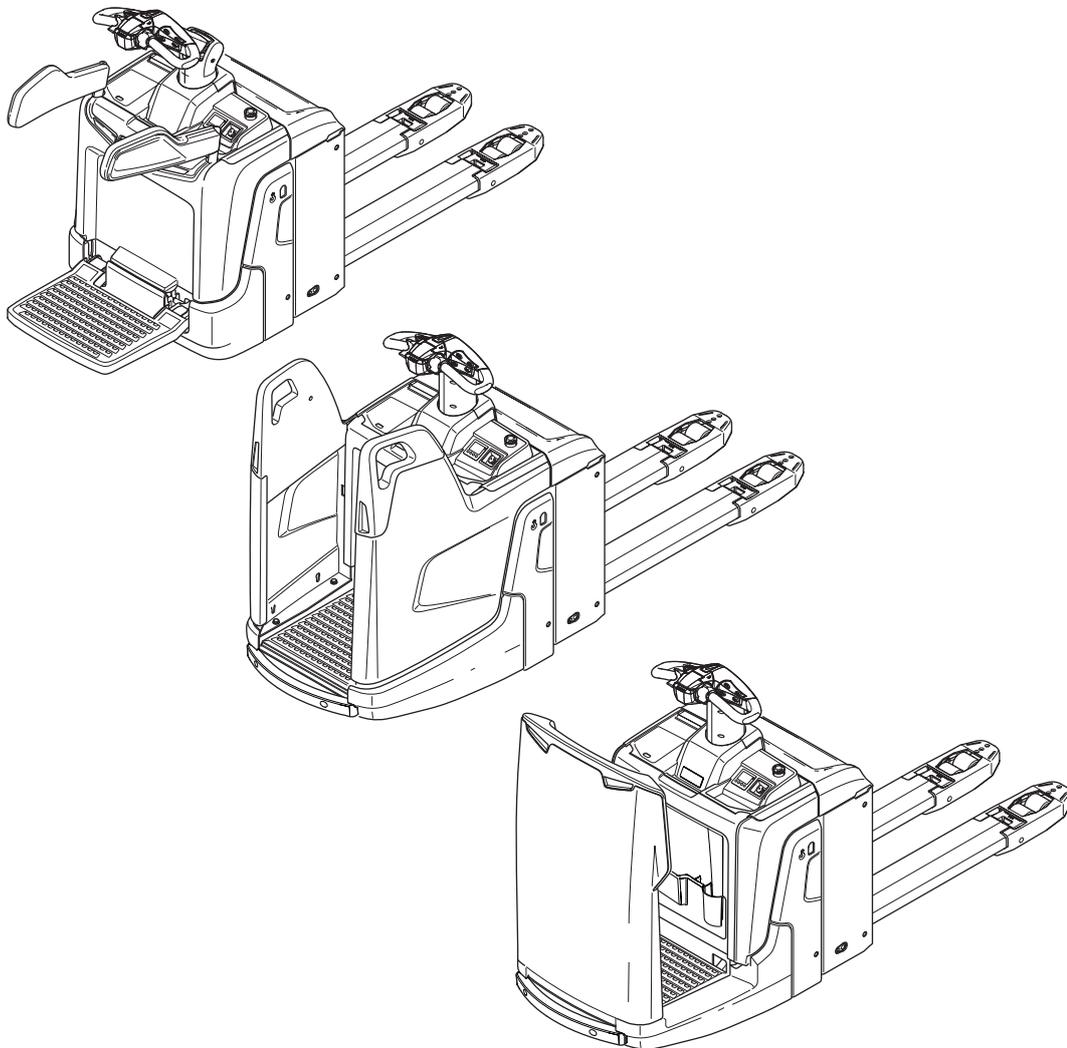
Operating instructions

en-GB

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ERE 120
ERE 125
ERE 225
ERE 225 -
drivePLUS



Declaration of Conformity



Manufacturer

Jungheinrich AG, 22039 Hamburg, Germany

Description Industrial truck

Type	Option	Serial no.	Year of manufacture
ERE 120 ERE 125 ERE 225 ERE 225 - drivePLUS			

On behalf of

Date

EU DECLARATION OF CONFORMITY

The undersigned hereby declare that the powered truck described in detail complies with the current versions of European Directives 2006/42/EG (Machinery Directive) and 2014/30/EU (Electromagnetic Compatibility - EMC). The manufacturer is authorised to compile the technical file.

Foreword

Notes on the operating instructions

The present ORIGINAL OPERATING INSTRUCTIONS are designed to provide sufficient instruction for the safe operation of the industrial truck. The information is provided clearly and concisely. The chapters are arranged by letter and the pages are numbered continuously.

The operator manual details different industrial truck models. When operating and servicing the industrial truck, make sure that the particular section applies to your truck model.

Our trucks are subject to ongoing development. We reserve the right to alter the design, equipment and technical features of the system. No guarantee of particular features of the truck should therefore be assumed from the present operating instructions.

Safety notices and text mark-ups

Safety instructions and important explanations are indicated by the following graphics:

⚠ DANGER!

Indicates an extremely hazardous situation. Failure to comply with this instruction will result in severe irreparable injury and even death.

⚠ WARNING!

Indicates an extremely hazardous situation. Failure to comply with this instruction may result in severe irreparable injury and even death.

⚠ CAUTION!

Indicates a hazardous situation. Failure to comply with this instruction may result in slight to medium injury.

NOTICE

Indicates a material hazard. Failure to comply with this instruction may result in material damage.

 Used before notices and explanations.

	Indicates standard equipment
	Indicates optional equipment

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A Correct Use and Application

1 General

The truck must be used, operated and serviced in accordance with the present instructions. All other types of use are beyond its scope of application and may result in damage to personnel, the industrial truck or property.

2 Correct application

NOTICE

The maximum load and load distance are indicated on the capacity plate and must not be exceeded.

The load must rest on the load handler.

The load must be fully raised, see page 109.

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

- Lifting and lowering loads.
- Storing and retrieving loads.
- Transporting raised loads.

The following operations are prohibited:

- Carrying and lifting passengers.
- Pushing or pulling loads.

3 Approved application conditions

- Operation in industrial and commercial environments.
- Permissible temperature range -10°C to 40°C.
- Operation only on secure, level surfaces with sufficient capacity.
- Do not exceed the permissible surface and point load limits on the travel routes.
- Operation only on travel paths that are visible and approved by the operating company.
- Negotiating inclines up to a maximum of 16 %.
- Do not travel across or at an angle on inclines.

WARNING!

Use under extreme conditions

Using the truck under extreme conditions can result in malfunctions and accidents.

- ▶ Special equipment and authorisation are required if the truck is to be constantly used in extreme conditions, especially in dusty or corrosive atmospheres.
 - ▶ The truck cannot be used in areas at risk of explosion.
 - ▶ In adverse weather conditions (thunder, lightning) the industrial truck must not be operated outside or in endangered areas.
-

Lithium-ion batteries

- If equipped with a lithium-ion battery (○), the permissible operating conditions of the truck may change see page 14.

3.1 Internal Operation Combined with Brief External or Cold Store Operation (●)

In addition to the permissible application conditions in industrial and commercial environments, the truck may also be used in outdoor environments, cold stores and fresh food areas. Secure parking is only permissible indoors or in a cold store environment.

- Permissible temperature range -10°C to 40°C.
- Secure parking is only permissible at +5°C to 40°C.
- Maximum air humidity 95% non-condensing.
- The application areas can be changed, but in general this should be minimised due to thawing and possible corrosion.
- Thawing is permissible only if the truck can be subsequently dried thoroughly.
- Do not charge the battery below +5°C.

3.2 Internal Operation in Cold Stores with Cold Store Equipment (○)

In addition to the permissible operating conditions in industrial and commercial environments, the truck remains primarily in cold stores. The truck should only leave the cold store briefly to hand over a load.

- Permissible temperature range -28°C to +25°C.
- Maximum air humidity 95% non-condensing.
- Thawing is permissible only if the truck can be subsequently dried thoroughly.
- In cold store areas below -10°C the truck must be operated permanently and should not be parked securely for more than 15 minutes.
- Do not charge the battery below +5°C.

NOTICE

Cold store trucks

- ▶ Trucks designed for use in cold stores have a cold store hydraulic oil.
- ▶ If a truck with cold store oil is used outside the cold store, the lowering speeds may increase.

NOTICE

Battery damage

As the temperature becomes increasingly cold, the battery can be damaged if the battery charge is low.

- ▶ If the battery charge is low do not use the truck in areas of -28°C to -5°C.
- ▶ If the battery charge is low it is preferable not to use the truck in areas of -5°C to +5°C.
- ▶ Charge the battery, see page 55.

3.3 Permissible Operating Conditions for Trucks with Lithium-Ion Batteries

Replaceable lithium-ion batteries

- If equipped with a lithium-ion battery (○), the permissible operating conditions change; see the "Lithium-ion battery 24V - 240 Ah / 360 Ah. operating instructions"

Integrated modular lithium-ion batteries

The battery is not authorised for use in cold stores with temperatures below -10°C.

- Permissible temperature range -10°C to +40°C.
- Secure parking (longer than 5 minutes) is only permissible at +5°C to +40°C.
- Maximum air humidity 95% non-condensing.
- The application areas can be changed, but in general this should be minimised due to thawing and possible corrosion.
- Thawing is permissible only if the truck can be subsequently dried thoroughly.
- Do not charge the battery below +5°C.

4 Proprietor responsibilities

For the purposes of the present operating instructions the “operating company” is defined as any natural or legal person who either uses the industrial truck himself, or on whose behalf it is used. In special cases (e.g. leasing or renting) the proprietor is considered the person who, in accordance with existing contractual agreements between the owner and user of the industrial truck, is charged with operational duties.

The proprietor must ensure that the industrial truck is used only for the purpose it is intended for and that danger to life and limb of the user and third parties are excluded. Furthermore, accident prevention regulations, safety regulations and operating, servicing and repair guidelines must be followed. The operating company must ensure that all users have read and understood these operating instructions.

NOTICE

Failure to comply with the operating instructions invalidates the warranty. The same applies if improper work is carried out on the truck by the customer or third parties without the permission of the manufacturer.

5 Adding attachments and/or optional equipment

The mounting or installation of additional equipment which affects or enhances the performance of the industrial truck requires the written permission of the manufacturer. Local authority approval may also need to be obtained.

Local authority approval however does not constitute the manufacturer’s approval.

6 Removal of components

It is forbidden to modify or remove truck components, particularly protective and safety equipment.

→ If in doubt, contact the manufacturer's customer service department.

7 Wind loads

Wind forces can affect the stability of a truck when lifting, lowering and transporting loads with large surface areas.

Light loads must be especially secured when they are subjected to wind forces. This will prevent the load from sliding or falling.

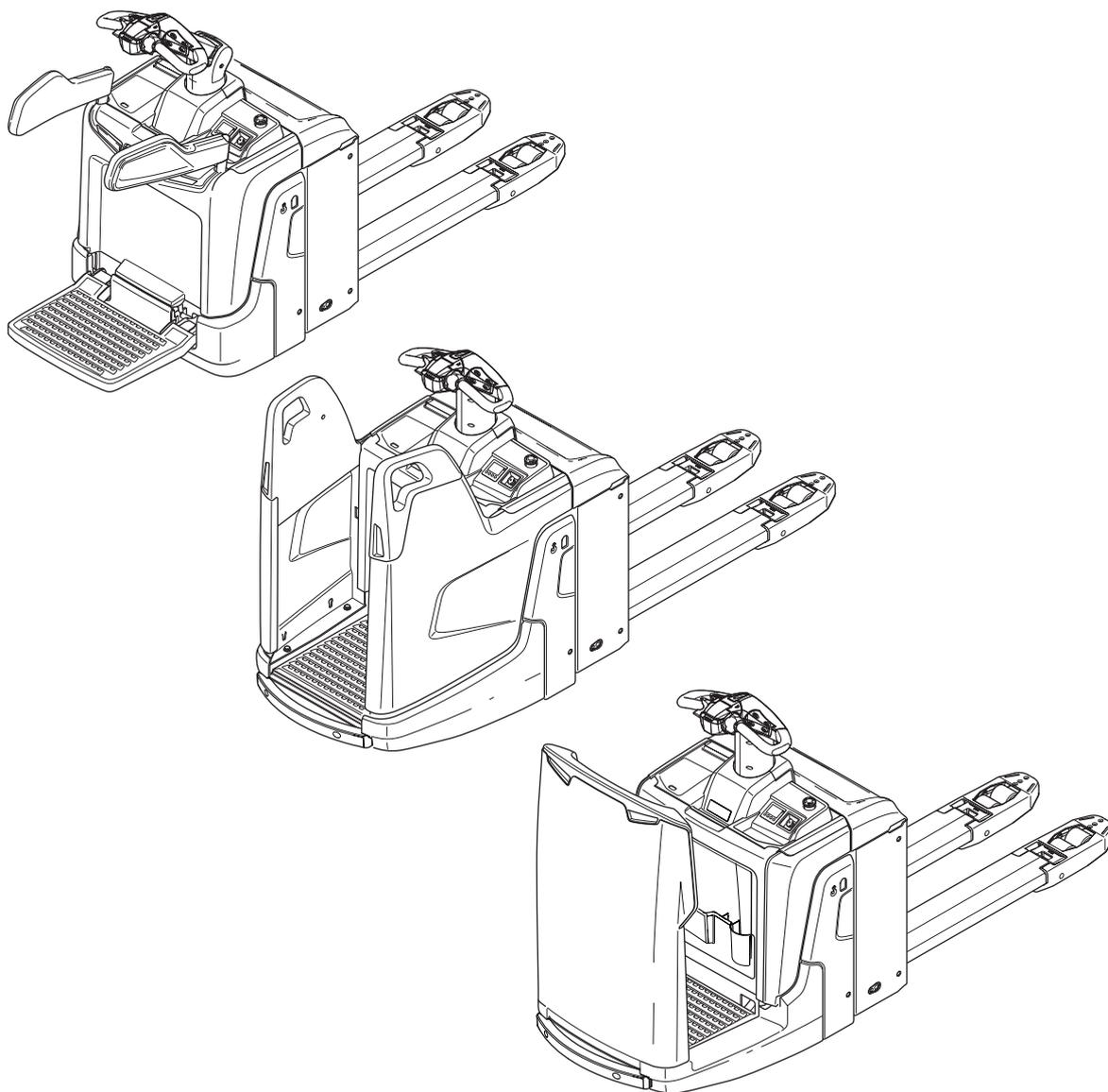
Stop the truck in both cases.

B Truck Description

1 Application

The forklift truck is a tiller-operated electric pallet truck with either a fixed or a folding operator platform. It is designed for transporting goods on level surfaces. Open bottom pallets or pallets with transverse boards (provided that the boards are outside the perimeter of the load wheels) can be lifted.

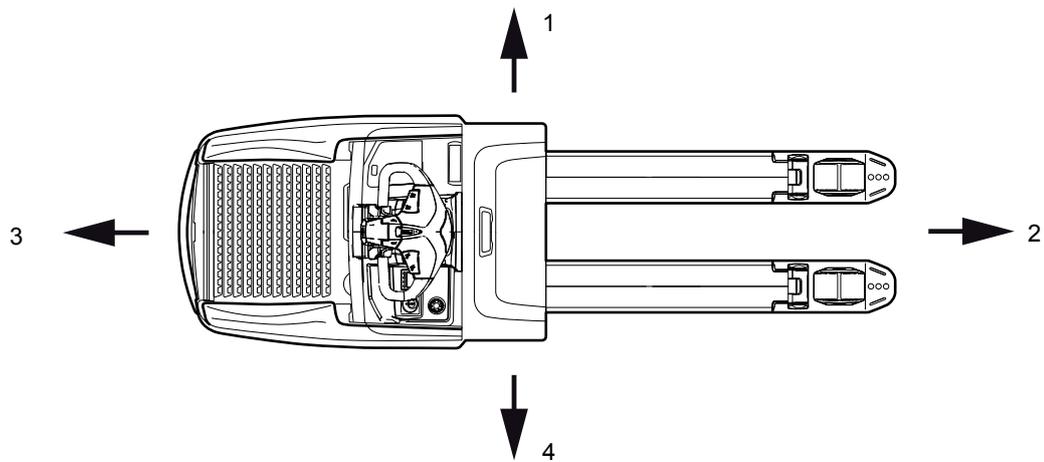
The rated capacity of the truck is shown on the data plate or capacity plate Qmax.



- Top Folding operator platform with optional folding side arms (●)
- Centre Fixed comfort and/or compact operator platform (○)
- Bottom Fixed L platform with side entry (○)

2 Travel direction definition

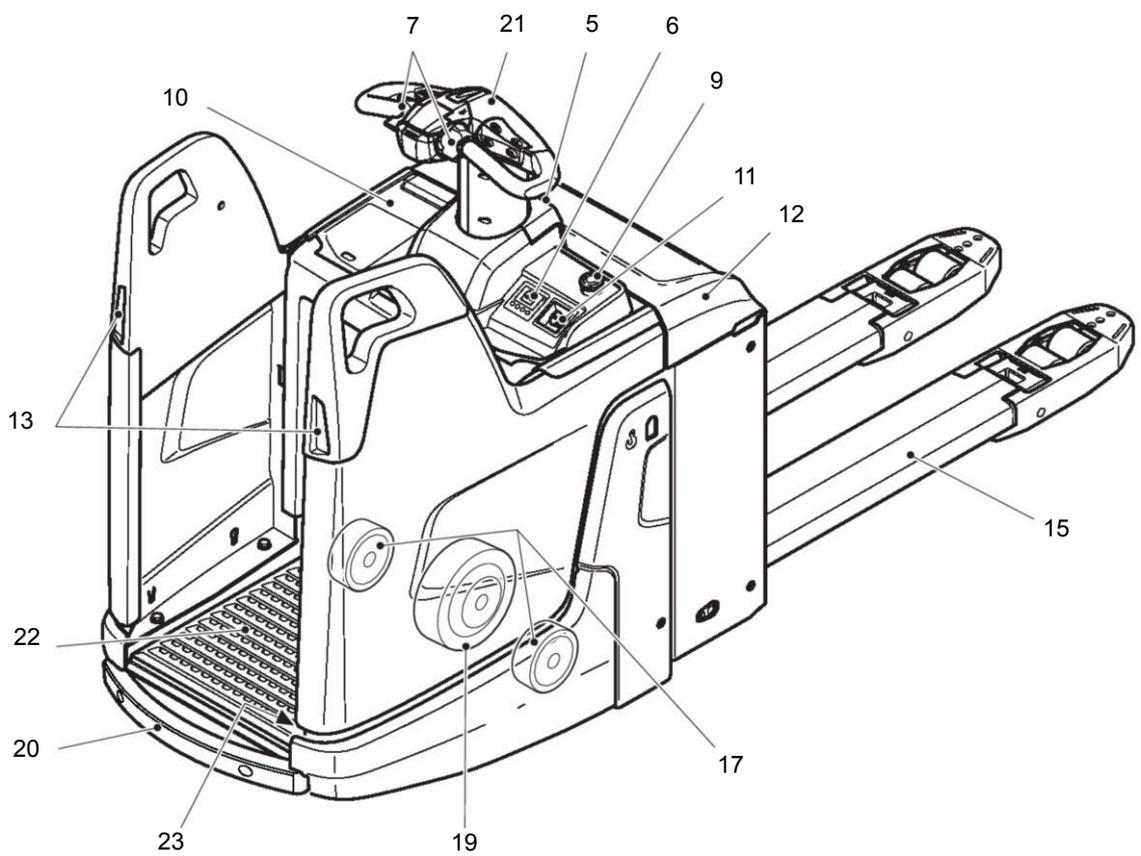
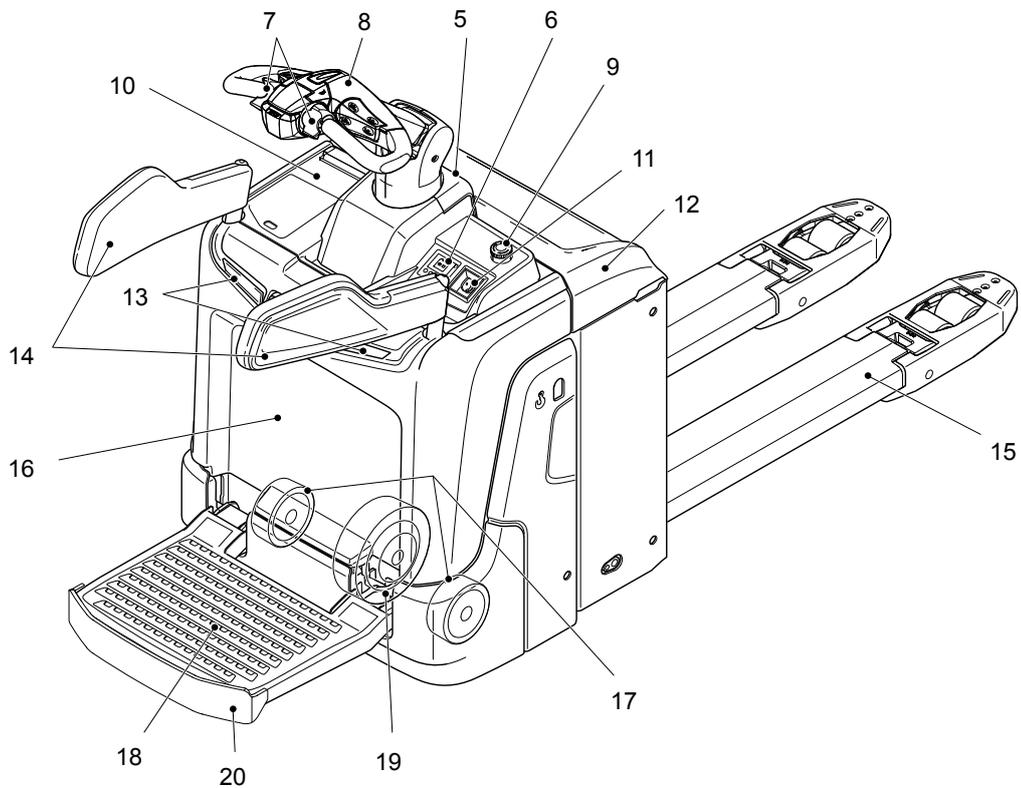
The following determinations have been made for travel direction specification:

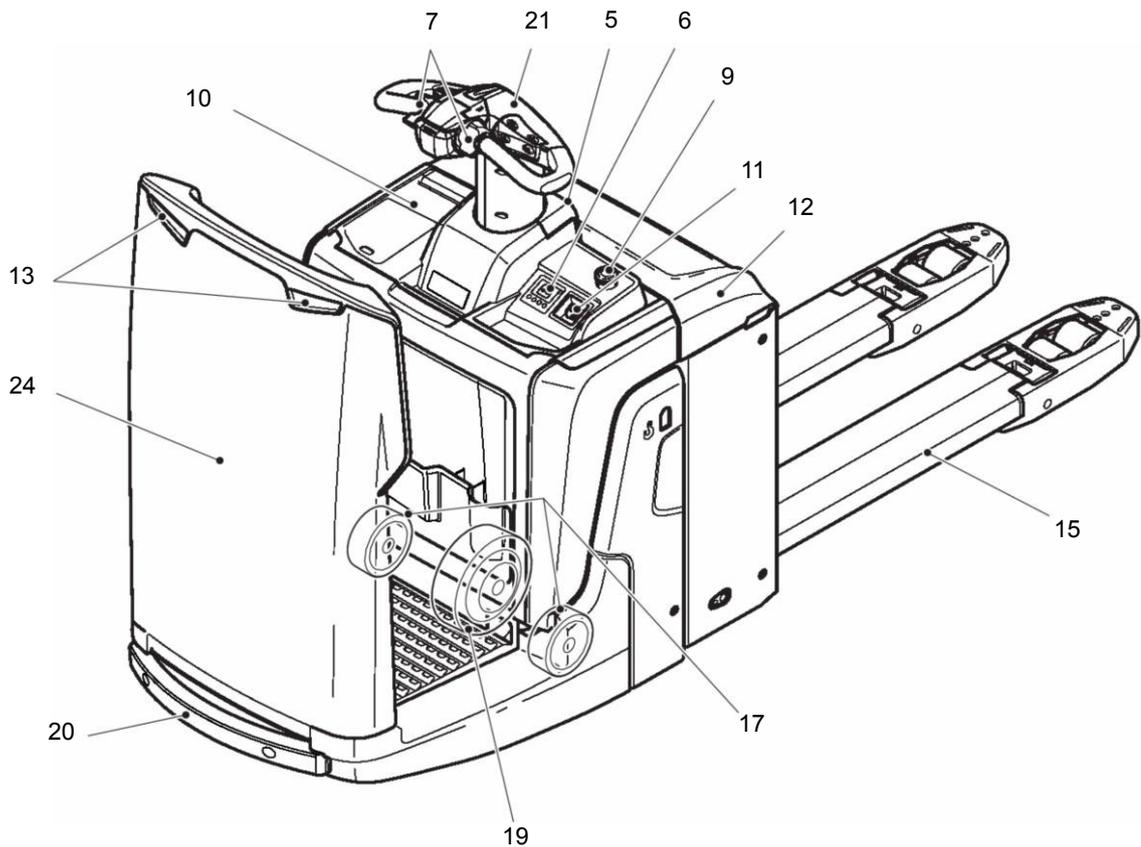


Item	Travel Direction
1	Left
2	Load direction
3	Drive direction
4	Right

3 Assemblies and Functional Description

3.1 Assembly Overview





Item	Model	Item	Model	
5	● Service interface	14	○ Folding side arms	
6	● Charge status indicator	15	● Load handler	
	○ Display unit (2-inch display)		16	● Front panel
7	● Travel switch	17	● Support wheel	
8	● Swivelling tiller	18	● Folding operator platform	
9	● Emergency disconnect switch	19	● Drive wheel	
10	● Storage compartment panel	20	○ Bumper	
11	● Key switch	21	● smartPILOT	
	○ Keypad		22	○ Fixed comfort and/or compact operator platform
	○ Transponder reader			○ Fixed comfort operator platform with weight-dependent adjustable suspension
	○ ISM Online access module			
12	● Battery panel	23	○ Foot protection light barrier	
13	● Reflectors	24	○ L-platform	
	○ Position light ("DayLED")			
● = Standard version		○ = Option		

3.2 Protective and safety equipment

Truck contour

An enclosed, smooth truck perimeter with rounded edges ensures safe handling of the truck. The wheels are surrounded by a solid skirt offering collision protection.

- The truck contour must not be changed. Contact the manufacturer's customer service department, if necessary.

Automatic reset of the controls

Version with swivelling tiller: When released, a gas strut pushes the swivelling tiller up and activates braking, see page 102.

The travel switch must be held in the travel position to move the truck. When released, the travel switch moves to the neutral position and the truck brakes, see page 103.

Emergency disconnect switch

Activating the emergency disconnect switch rapidly cuts out all electrical functions in hazardous situations, see page 91.

Collision safety switch

If the truck touches a person, the red collision safety switch changes the travel direction in pedestrian mode when travelling in drive direction with the platform and the side restraints folded up (○). The truck brakes, travels away from the operator for 3 s and stops. The truck colliding with the operator is prevented. The collision safety switch can also be activated for rider mode (○).

Emergency stop safety concept

The emergency stop is triggered by the traction controller. Each time the truck is switched on, the system carries out a self-diagnosis. The steering controller sends a system status signal, which is monitored by the traction controller. If the signal fails to appear or a fault is identified, the truck automatically brakes to a halt. Event messages on the display indicate the emergency stop.

Control displays on the display unit (2-inch display) (○) indicate the emergency stop.

⚠ CAUTION!

The truck brakes automatically

If the truck detects that required signals have not been received, or if it detects an error, the system reacts by triggering an emergency stop and brakes the truck to a halt.

- ▶ Rider mode: Take up a stable standing position and hold on with both hands.
- ▶ In pedestrian mode: Remain at the maximum distance from the truck during operation.

Load backrest

The load backrest (○) protects the operator from sliding loads.

Foot protection (○) (only in conjunction with fixed operator platform versions)

Foot protection includes a light barrier in the edge area of the fixed operator platform. In the event that the light barrier is interrupted by the operator's foot whilst travelling, the maximum travel speed is reduced for safety reasons. The operator is informed of this by means of an indicator lamp on the display unit (○). The normal travel speed can be selected again as soon as the light barrier has been closed.

"DayLED" position light (○)

The "DayLED" option includes two LED position lights, which can be activated and deactivated with the option menu on the display unit (○) of the truck.

3.3 Functional Description

Electrical system

The truck is equipped with an electronic traction and lift controller, as well as an in-built steering controller (○). The truck electrical system operates with a rated operating voltage of 24 volts.

Operator platform

The truck can be equipped with a folding operator platform with optional folding side arms or with a fixed operator platform. Fixed operator platforms are divided into compact and comfort operator platforms and L platforms with side entry.

The fixed comfort platform (○) has weight-dependent adjustable suspension.

Travel functions are only enabled in rider mode when the operator is standing on the operator platform.

Drive system

An AC three-phase motor actuates the drive wheel via a gearbox. The electronic traction controller ensures smooth speed control of the drive motor and hence smooth starting, powerful acceleration and electrically controlled braking with energy recovery. As an option, you can choose between several travel programs with set acceleration and speed levels.

The "drivePLUS" option (○) makes available an AC three-phase motor with high power and a load-dependent maximum speed.

The "drive & ecoPLUS" option (○) adds to the features of "drivePLUS" with an additional, particularly efficient travel program and special load rollers with reduced rolling resistance.

→ With the "drivePLUS" and "drive & ecoPLUS" options, the load is detected, monitored and shown on the display unit (○) via a pressure sensor.

Hydraulic system

Pressing the lifting button starts the pump unit, supplying hydraulic oil from the oil reservoir to the lift cylinder. Pressing the lifting button raises the load handler at a constant speed; pressing the lowering button lowers the load handler.

Controls and displays

Ergonomic controls ensure fatigue-free operation for sensitive travel movements. The display unit (2-inch display) (○) shows the operator key information such as travel program, service hours, battery capacity, residual run time and event messages.

Tiller

Steering is by means of an ergonomic tiller or smartPILOT. Trucks with folding operator platform are equipped with a swivelling tiller. Fixed platform versions can be optionally equipped with smartPILOT or height-adjustable smartPILOT (○).

The travel and lift operations can be performed sensitively without having to reach.

Electric steering (○)

The electric steering system is self-monitoring.

The steering controller permanently monitors the entire steering system. If an error is detected, the traction controller interrupts travel mode and brakes until the truck comes to rest. The parking brake then engages.

Curve Control (○) (only in conjunction with electric steering)

The "Curve Control" option assists the operator in handling the truck. When cornering, the maximum travel speed is reduced according to the steer angle.

- The default setting can be changed by the manufacturer's customer service department.

Load-dependent curveCONTROL (○) (only for ERE 120 - 225 drivePLUS 225 drivePLUS)

The "load-dependent curveCONTROL" option enhances the curveCONTROL function with weight sensing for the load that has been picked up. The maximum travel speed is reduced according to the determined weight and steer angle.

positionCONTROL (○)

The "positionCONTROL" option enables comfortable approach of predefined entry and lifted heights and free lift heights for up to three definable pallet types with simple actuation of the raise/lower function. "positionCONTROL" can be activated and deactivated with the display unit menu (○).

- Before angled entry into a pallet, positionCONTROL must be deactivated as pallets can become damaged in the event of accidental lifting with the automatic function.

Option bar (○)

The option bar (○) allows for the installation of useful aids within the operator's work area, such as a storage box, writing pad or roll of shrink-wrap.

Entry and exit aids (○)

Various options are available for the truck for comfortable angled entry into pallets. The entry aids (○) can be installed in the fork tip area and are available as entry rollers (plastic or steel), entry plates or entry runners. The exit aid (○) comprises an exit roller, which is installed in the load roller area.

Fork markings

Forks of lengths 1150, 1200 and 2400 mm feature imprints on the fork arms to assist the operator in selecting the correct insertion depth when picking up loads.

3.3.1 Hourmeter

Service hours are counted while the truck is operational and the operator is standing on the platform.

3.3.2 Hourmeter in Pedestrian Mode

Service hours are counted while the truck is operational and one of the following controls is applied:

- Tiller in travel zone "F", see page 94.
- "Lift" button, see page 105.
- "Lower" button, see page 105.

3.3.3 Explanation of travel programs

All trucks in the ERE 120 - 225 drivePLUS series are supplied with a pre-set travel program ex works. The information in the section "Performance data" (see page 26) relates to travel program 2.

Travel program 1: reduced top speed, reduced acceleration.

Travel program 2: standard travel program.

Travel program 3: increased acceleration, maximum braking.

"Eco" additional travel program (○)

In the "Eco" additional travel program, the speed and acceleration of the standard travel program have a reduced setting for rider mode.

4 Technical Specifications

→ Technical data specified in accordance with VDI 2189.
 Technical modifications and additions reserved.

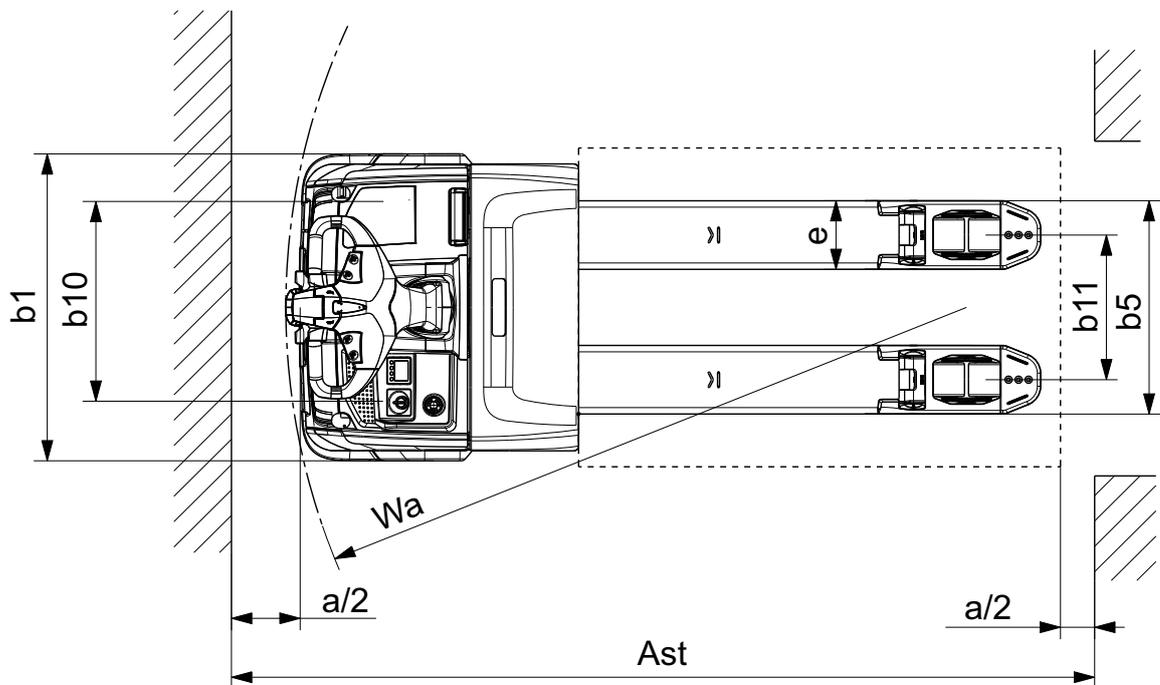
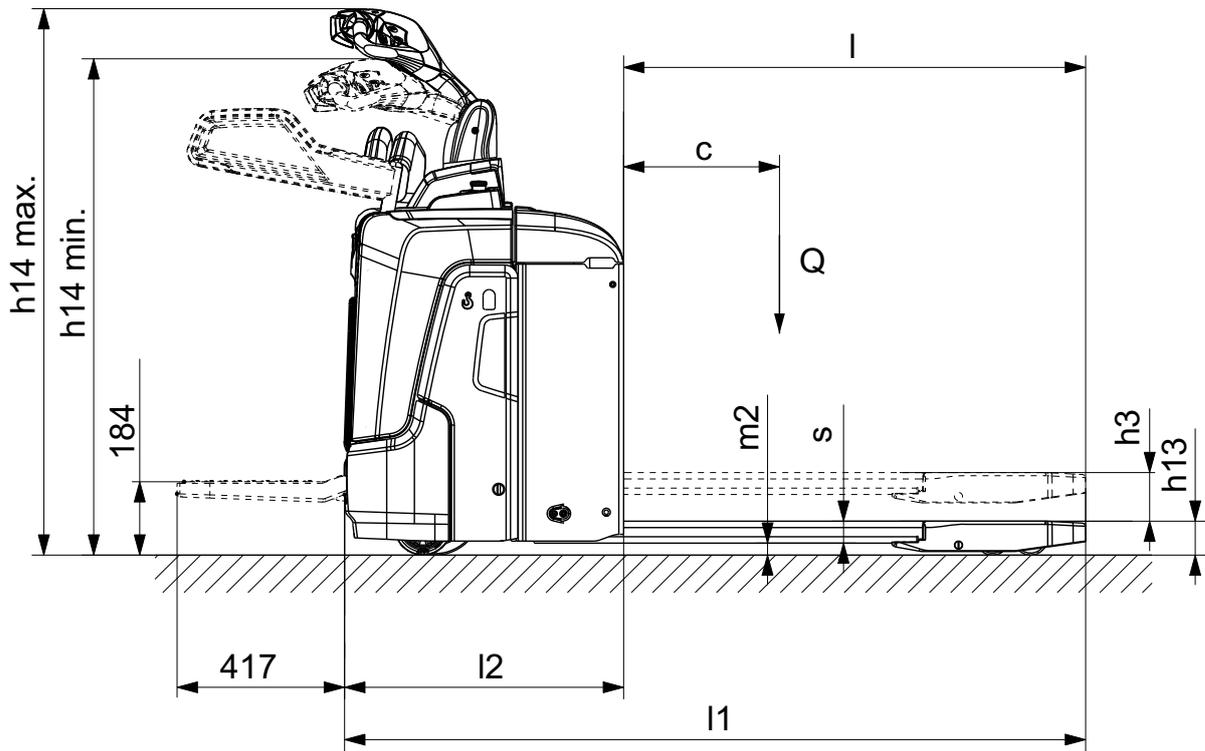
4.1 Performance data

Description	ERE 120	ERE 120	ERE 125	
Rated capacity Q	2000	2000	2500	kg
Travel speed with/without rated load	6.0 / 6.0	8.0 / 9.0	8.0 / 9.0	km/h
Lift speed with/without rated load	0.036 / 0.041			m/s
Lowering speed with/without rated load	0.046 / 0.042			m/s
Max. gradeability (5 min.) with / without load	6 / 16	8 / 16		%
Drive motor Output S2 60 min	2.0	2.0	2.8	kW
Lift motor Output S3 10 %	2.2			kW

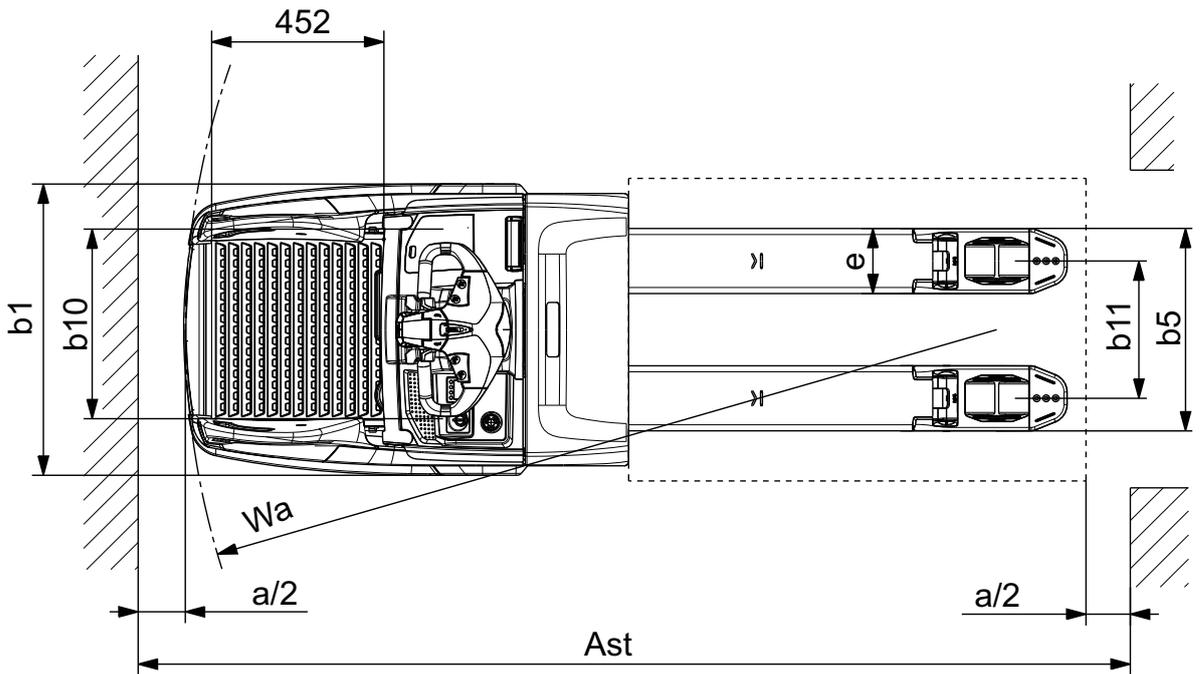
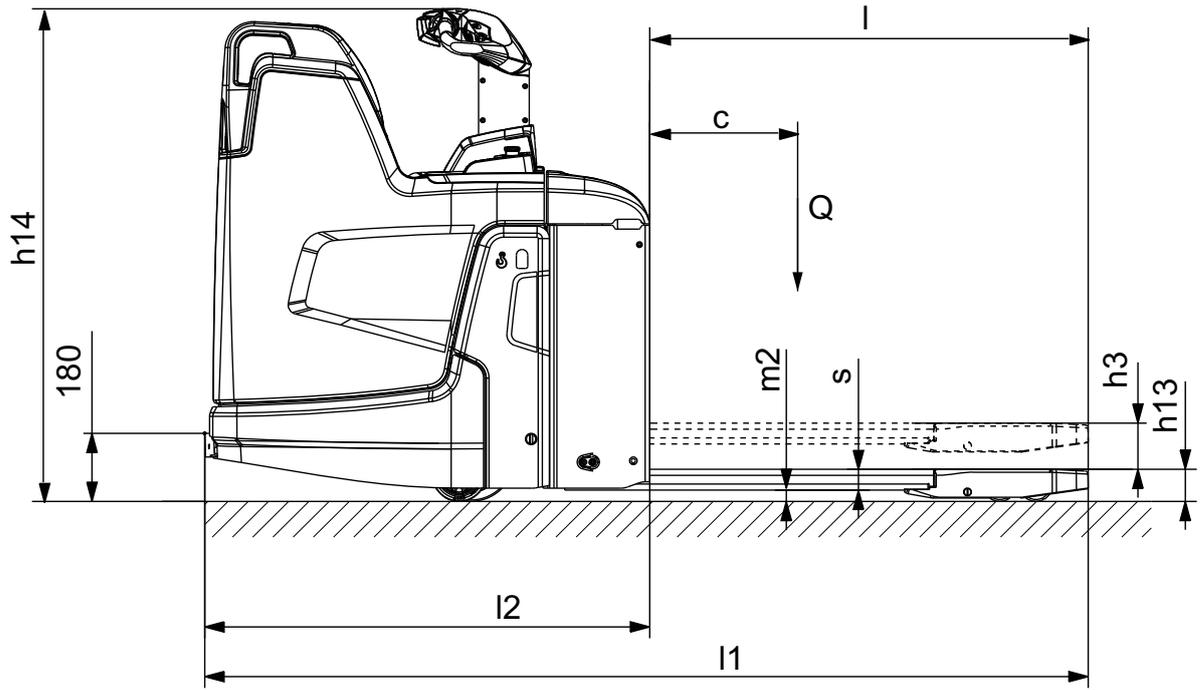
Model	ERE 225	ERE 225 drivePLUS	
Rated capacity Q	2500	2500	kg
Travel speed with / without rated load	9.0 / 12.5	9.5 / 14.0	km/h
Lift speed with/without rated load	0.047 / 0.070		m/s
Lowering speed with/without rated load	0.05 / 0.05		m/s
Max. gradeability (5 min.) with / without load	8 / 16	10 / 16	%
Drive motor Output S2 60 min	2.8	3.2	kW
Lift motor Output S3 10 %	2.2		kW

4.2 Dimensions

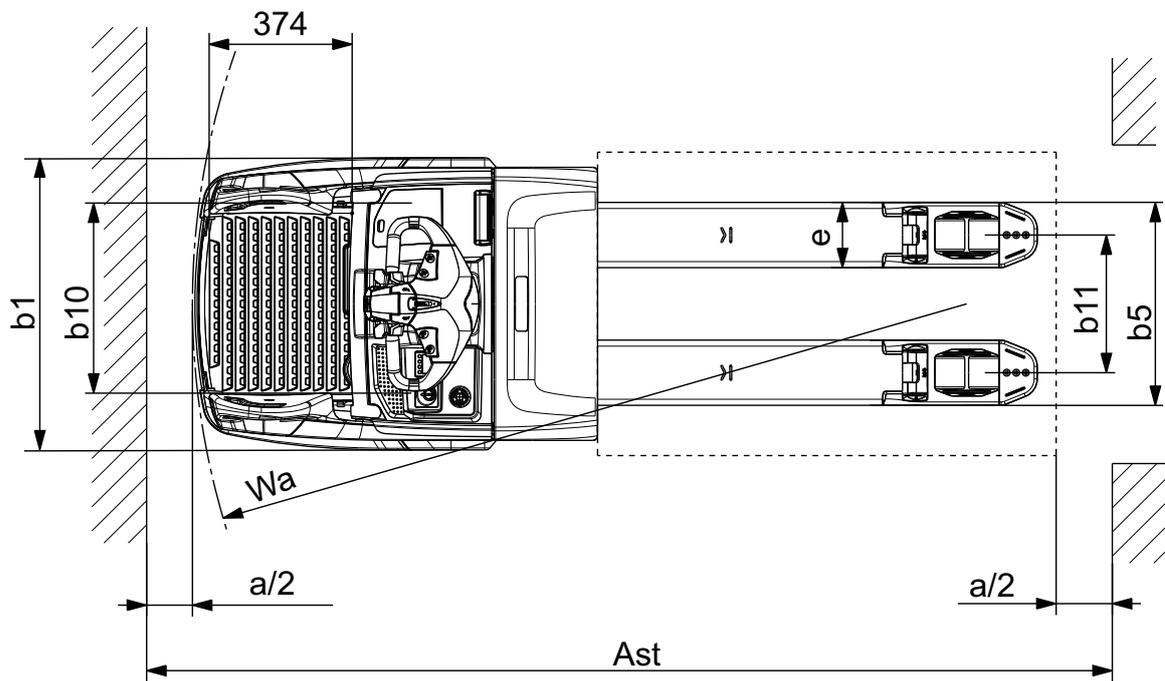
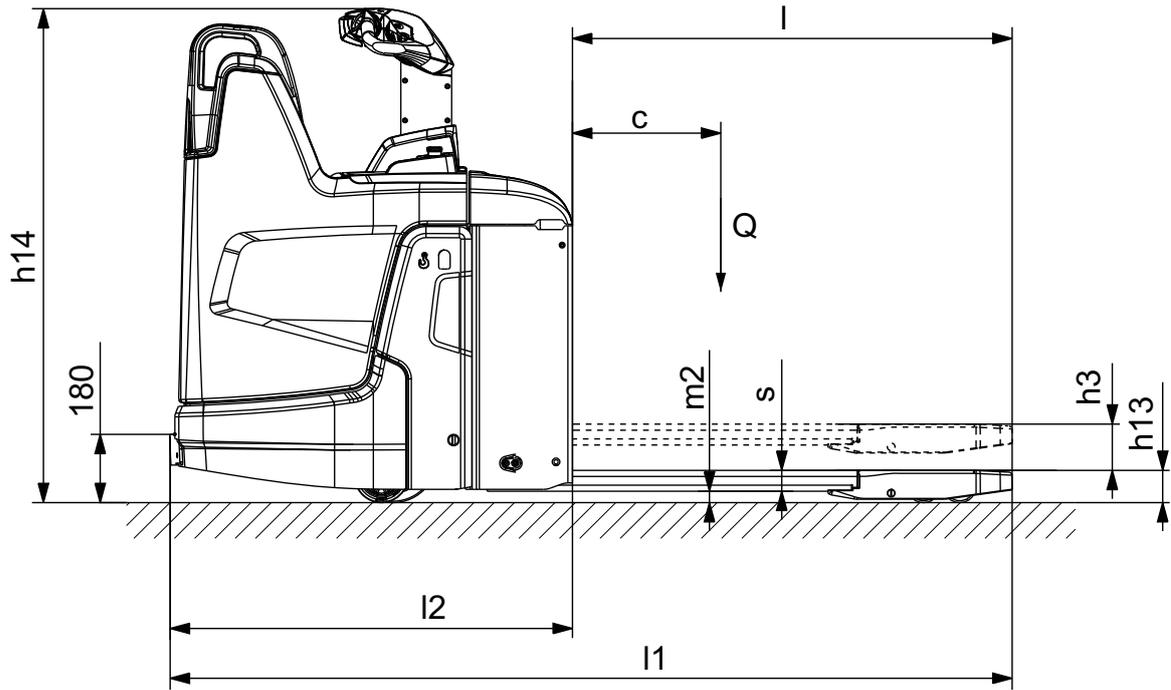
4.2.1 Dimensions sheet for industrial truck with folding standing platform



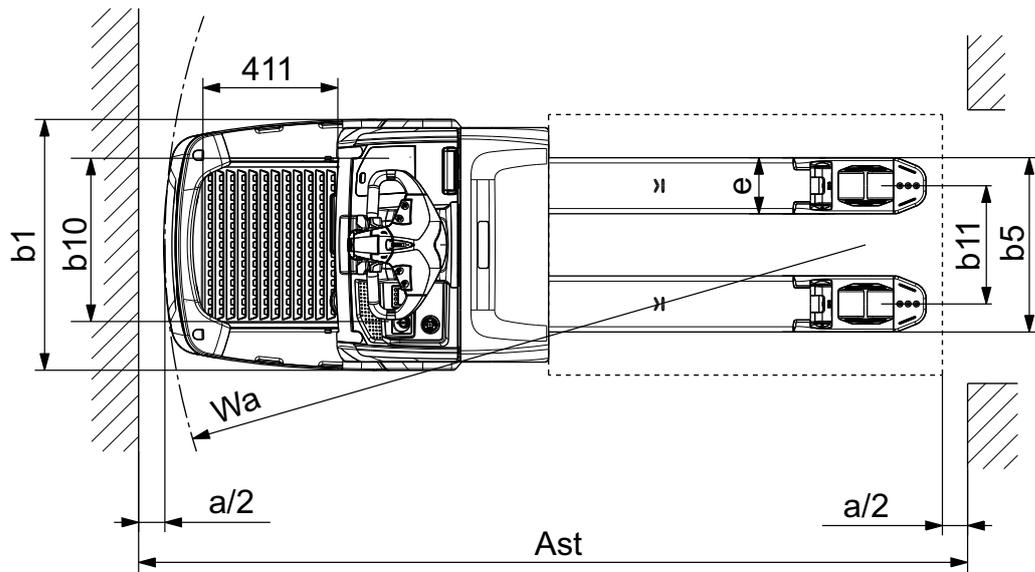
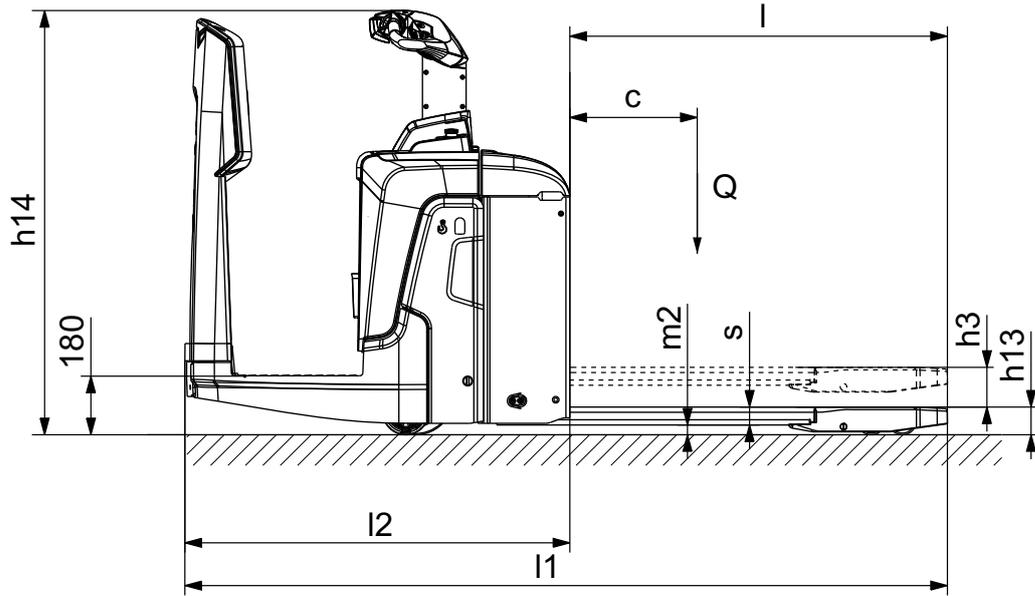
4.2.2 Specification sheet for truck with fixed compact operator platform



4.2.3 Specification sheet for truck with fixed comfort operator platform



4.2.4 Specification Sheet for Truck with L Platform



	Description		
h14	Tiller height in travel position, folding operator platform	1150 / 1419	mm
h13	Lowered fork height	85	mm
c	Load centre distance with standard fork length	600	mm
h3	Rated lift	122	mm
b1	Overall width	770	mm
b5	Width across forks	535	mm
b10	Track width, rear	512	mm
b11	Track width, front	363	mm
s/e/l	Fork dimensions	55 / 172 / 1150	mm
a	Safety clearance	200	mm
l1	Overall length (M/L) ^{4) 5)}	1847 / 1919	mm
l2	Length including fork shank (M/L), folding operator platform ^{4) 5)}	696 / 768	mm
m2	Ground clearance, centre of wheelbase	30	mm
Ast	Aisle width for pallets 1000 x 1200 transv. (M/L) ^{1) 3) 4) 5)}	2411 / 2483	mm
Ast	Aisle width for pallets 800 x 1200 length (M/L) ^{1) 2) 4) 5)}	2414 / 2486	mm
Wa	Turning radius (M/L) ^{1) 5)}	1604 / 1676	mm

- 1) Load section lowered +56 mm
- 2) Diagonal in accordance with VDI: +205 mm
- 3) Diagonal in accordance with VDI: +369 mm
- 4) Side battery removal (battery tray L): +53 mm
- 5) Version with compact operator platform: +358 mm
Version with comfort operator platform: +472 mm
Version with L platform +477 mm

4.3 Weights

Model	ERE 120	ERE 120	ERE 125	
Net weight ¹⁾ excl. battery (M/L)	400 / 410	400 / 410	404 / 414	kg
Axle loading, laden front/rear (M)	899 / 1686	795 / 1825		kg
Axle loading without load front/rear (M)	462 / 130	474 / 138		kg
Battery weight	see page 46			kg

Model	ERE 225	ERE 225 drivePLUS	
Net weight ¹⁾ excl. battery (M/L)	404 / 414		kg
Axle loading, laden front/rear (L)	1126 / 2090		kg
Axle loading without load front/rear (L)	550 / 159		kg
Battery weight	see page 46		kg

¹⁾ Weight with top battery removal
Weight with side battery removal +25 kg

→ Weights and axle loads vary depending on truck features.

4.4 Tyre type

Description	ERE 120	ERE 120	ERE 125
Tyre size, drive system	230 / 65	230 / 65	230 / 77
Tyre size, load section (●)	85 / 110	85 / 110	85 / 110
Tyre size, load section (tandem) (○)	85 / 85	85 / 85	85 / 85
Support wheel (twin roller)	125 x 40	140 x 57	140 x 57
Wheels, number front / rear (x = driven)	1x +2 / 2	1x +2 / 4	1x +2 / 4

Description	ERE 225	ERE 225 drivePLUS
Tyre size, drive system	230 / 77	230 / 77
Tyre size, load section (●)	85 / 110	85 / 110
Tyre size, load section (tandem) (○)	85 / 85	85 / 85
Support wheel (twin roller)	140 x 57	140 x 57
Wheels, number front / rear (x = driven)	1x +2 / 4	1x +2 / 4

4.5 EN norms

Continuous sound pressure level

Truck

- ERE 120: 63 dB(A)
- ERE 125: 64 dB(A)
- ERE 225: 64 dB(A)
- ERE 225 drivePLUS: 67 dB(A)

in accordance with EN 12053 as harmonised with ISO 4871.

- The continuous sound pressure level is calculated according to standard procedures and takes into account the sound pressure level when driving, lifting and idling. The noise level is measured at the driver's ear.
- Noise levels can fluctuate according to ground conditions, platform version and wheel lining.

Vibration

- Truck with folding operator platform: 0,87 m/s²
- Truck with L platform/fixed operator platform: 0,95 m/s²

in accordance with EN 13059

- In accordance with standard procedures, the vibration acceleration acting on the body in the operating position is the linearly integrated, weighted acceleration in the vertical direction. It is calculated when travelling over thresholds at constant speed. These measurements were taken on a single occasion and must not be confused with the human vibrations of the "2002/44/EC/Vibrations" operator directive. The manufacturer offers a special service to measure these human vibrations, see page 168.
- With the weight-dependent adjustable comfort platform (○), vibration levels may be less than specified here with the corresponding setting.

Electromagnetic compatibility (EMC)

The manufacturer confirms that the truck adheres to the limits for electromagnetic emissions and resistance as well as the static electricity discharge test in accordance with EN 12895 as well as the standardised instructions contained therein.

- No changes to electric or electronic components or their arrangement may be made without the written agreement of the manufacturer.

⚠ WARNING!

Medical equipment can be damaged by non-ionised radiation

Electrical equipment on the truck emitting non-ionised radiation (e.g. wireless data transmission) can affect operators' medical equipment (pacemakers, hearing aids etc.) and result in malfunctions. Consult a doctor or the manufacturer of the medical equipment to clarify whether it can be used near the industrial truck.

4.6 Specifications according to RED guideline (Radio Equipment Directive) for radio units

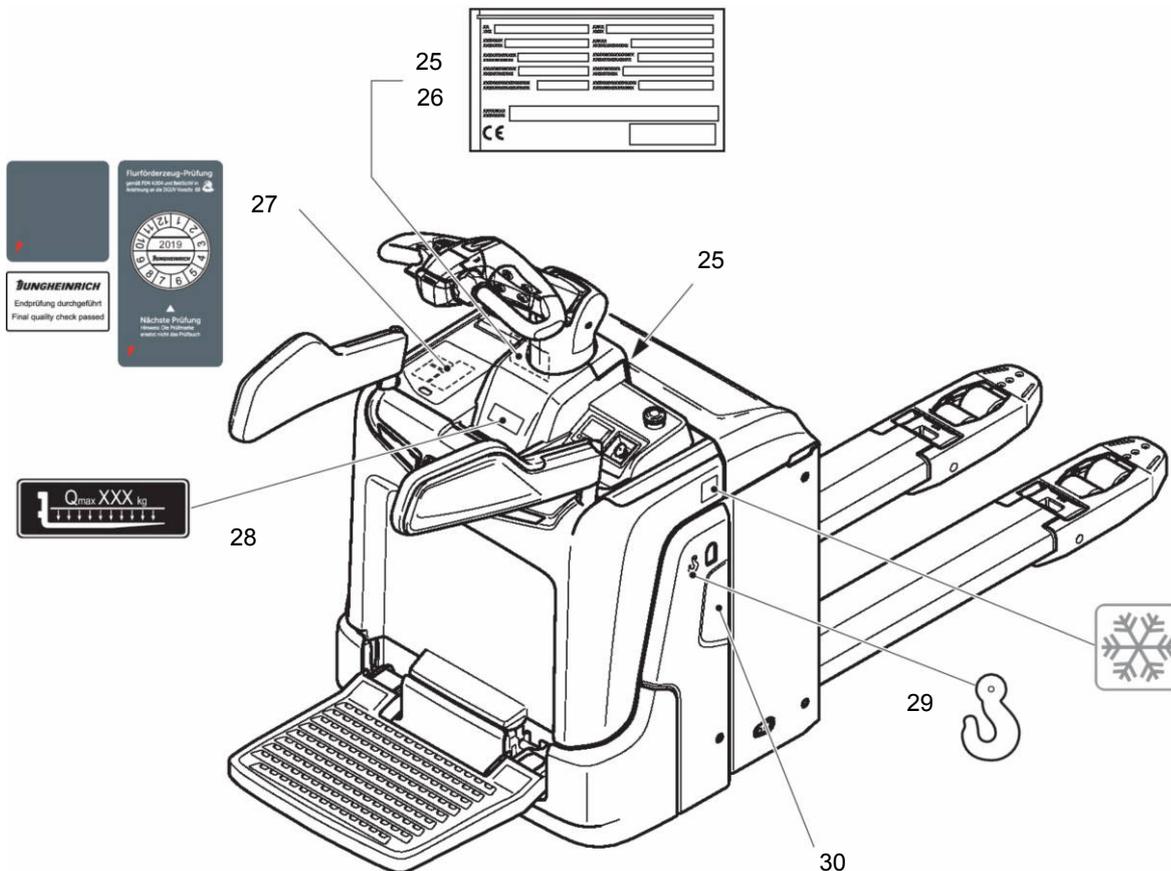
- The table contains any components installed according to the European Directive 2014/53/EU. The table shows the affected frequency range and the emitted transmission power for each component.

Component	Frequency range	Transmission power
WMT 110	13.56 MHz	< 100 mW
WMT 110	2.4 GHz	10 mW
Radio module (ISM Online)	433.05 - 434.79 MHz	< 10 mW
Access module (ISM Online)	13.56 MHz	< 100 mW
Transponder reader	13.56 MHz	< 100 mW
Telematics Box Basic	2G 850 /900 MHz	< 2 W
Telematics Box Basic	2G 1800/1900 MHz	< 1 W
Telematics Box Basic	3G 800 - 2100 MHz	< 250 mW
Telematics Box Plus	4G 700-2100 MHz	< 200 mW
Telematics Box Plus	2.4 GHz	< 100 mW
Telematics Box Plus	2.4 GHz	< 10 mW
Telematics Box Plus	5 GHz	< 100 mW
Telematics Box Plus	2G 850/900 MHz	< 2 W
Telematics Box Plus	2G 1800/1900 MHz	< 1 W
Telematics Box Plus	3G 800-2100 MHz	< 250 mW
Telematics Box Plus	4G 700-2100 MHz	< 200 mW

5 Identification Points and Data Plates

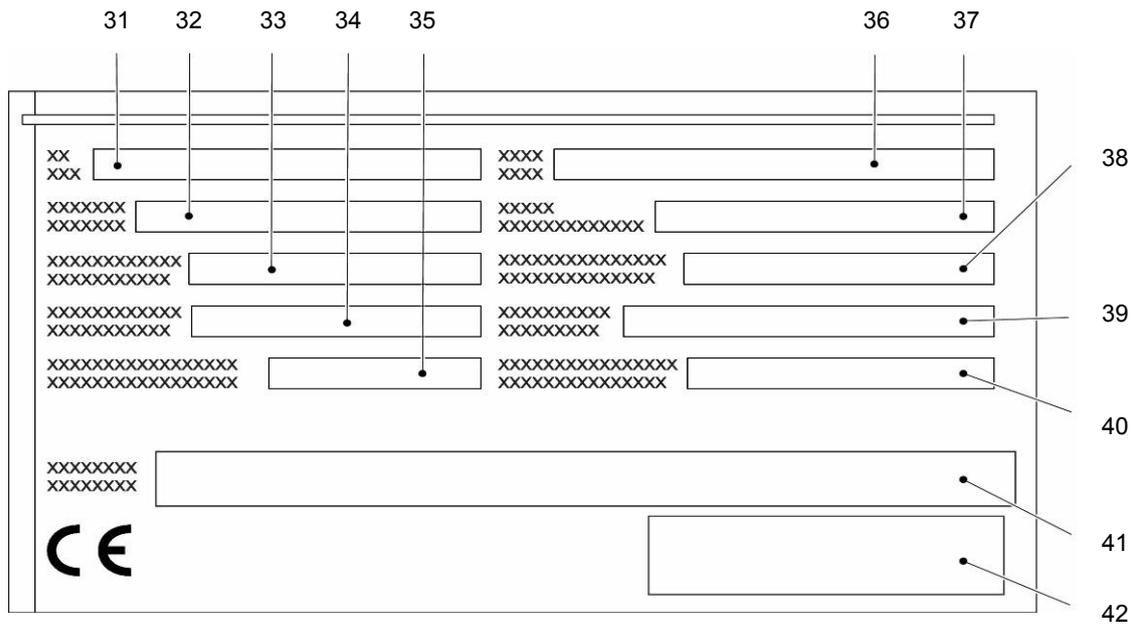
- Warnings and notices such as capacity charts, strap points and data plates must be legible at all times. Replace if necessary.

5.1 Indication Points



Item	Model
25	Serial number
26	Data Plate
27	Test plaque
28	Load capacity Qmax
29	Strap points for loading by crane
30	Model name

5.2 Data plate

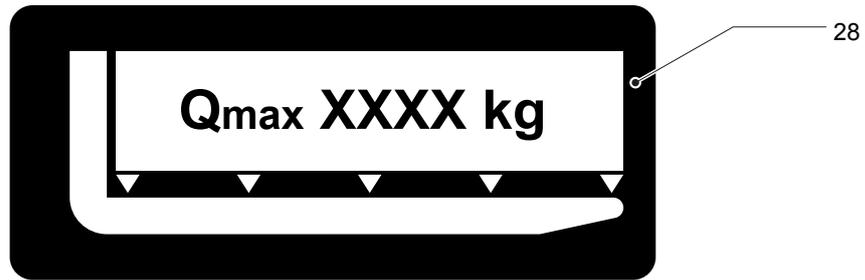


Item	Description	Item	Description
31	Type	37	Year of manufacture
32	Serial number	38	Load centre distance (mm)
33	Rated capacity (kg)	39	Nominal power
34	Battery voltage (V)	40	Min./max. battery weight (kg)
35	Net weight without battery (kg)	41	Manufacturer
36	Option	42	Manufacturer's logo

→ For queries regarding the truck or when ordering spare parts, always quote the truck serial number (32).

5.3 Truck capacity plate

The capacity plate (28) gives the maximum load-bearing capacity (Q) of the truck in kg assuming the load on the load handler is evenly distributed.



C Transport and Commissioning

1 Lifting by crane

⚠ WARNING!

All persons involved in loading by crane must be trained

Incorrect crane loading procedures due to untrained personnel can cause the truck to fall. There is a risk of injury to personnel and a risk of material damage to the truck.

- ▶ Loading must only be performed by specialist personnel trained for this purpose. The specialist personnel must be instructed in securing loads on road vehicles and handling load securing devices. In each case correct measurements must be taken and appropriate safety measures applied.

⚠ WARNING!

Improper loading by crane can result in accidents

Improper use or use of unsuitable lifting gear can cause the truck to crash when being loaded by crane.

Prevent the truck from hitting other objects during lifting, and avoid uncontrolled movements. If necessary, secure the truck with guide ropes.

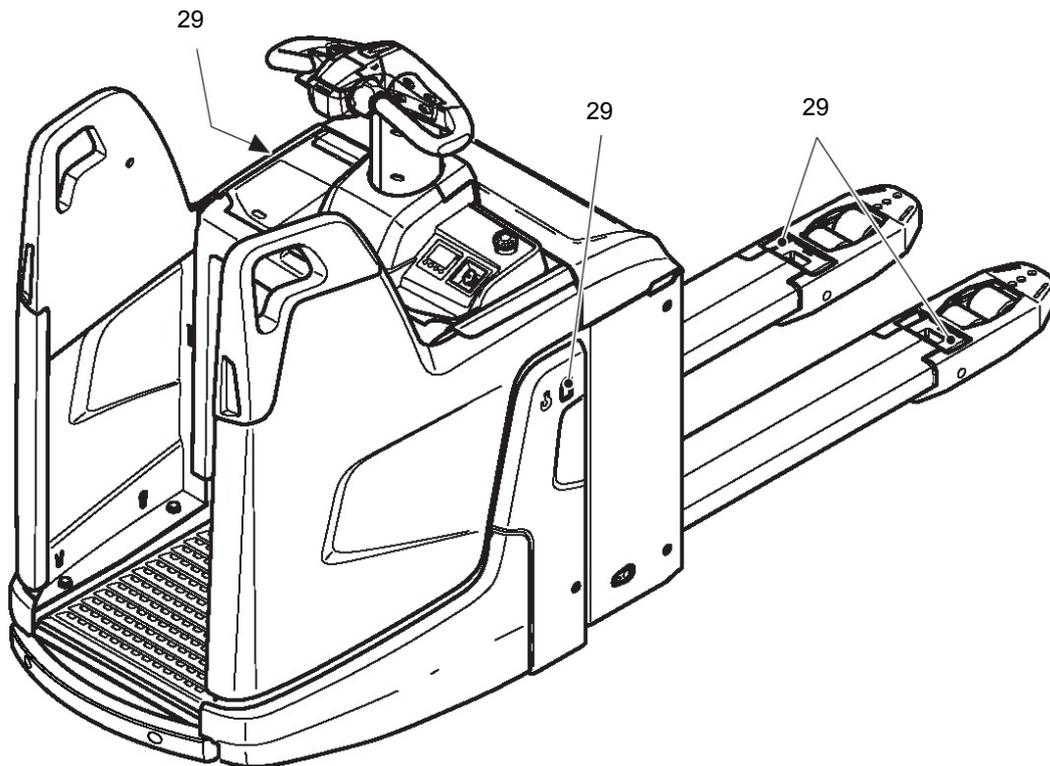
- ▶ The truck may be loaded only by people who are trained in using lifting accessories and lifting gear.
- ▶ Wear personal protective equipment (e.g. safety shoes, safety helmet, hi-vis jacket, protective gloves) when loading by crane.
- ▶ Do not stand under suspended loads.
- ▶ Do not walk into or stand in a hazardous area.
- ▶ Always use lifting gear with sufficient capacity (for truck weight, see truck data plate).
- ▶ Always attach the crane lifting gear to the prescribed attachment points and prevent them from slipping.
- ▶ Use the lifting accessories only in the prescribed load direction.
- ▶ Crane lifting gear must be fastened in such a way that it does not come into contact with any attachments when lifting.

⚠ CAUTION!

Danger of injury from swinging truck

Different battery versions and battery weights can lead to the truck oscillating in a suspended position after being raised.

- ▶ Raise the truck carefully and allow to swing.
- ▶ Keep the hazardous area around the truck clear.



Loading the truck by crane

Requirements

- Truck parked securely, see page 86.

Tools and Material Required

- Lifting gear
- Crane lifting gear

Procedure

- Attach the crane lifting gear to the attachment points (29).

The truck can now be loaded by crane.

2 Transport

⚠ WARNING!

Uncontrolled movement during transport

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

- ▶ Loading is only to be carried out by specially trained staff. The specialist personnel must be instructed in the securing of loads on road vehicles and in the use of load-securing equipment. When securing the truck, the appropriate measures must be determined and applied for each individual case.
- ▶ The truck must be securely fastened when transported on a lorry or a trailer.
- ▶ The lorry or trailer must have lashing rings.
- ▶ Use wedges to prevent the truck from moving.
- ▶ Use only lashing straps with sufficient load rating.
- ▶ Use anti-slip material to secure loading aids (pallets, wedges,...), e. g. anti-slip mats.

Securing the truck for transport

Requirements

- The truck is loaded.
- The truck is parked securely, see page 86.

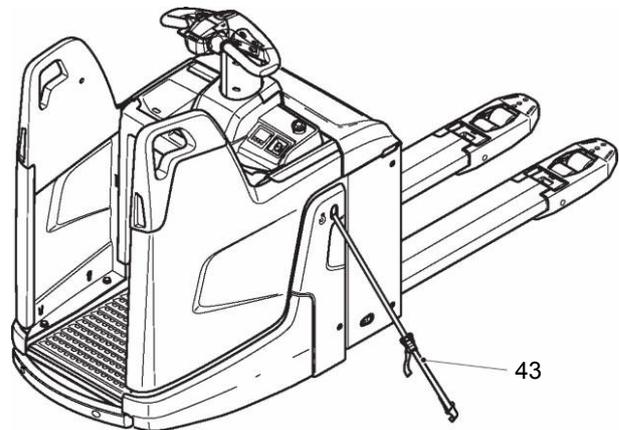
Tools and Material Required

- Lashing straps

Procedure

- Attach the lashing straps (43) to the industrial truck and the transport vehicle and tension sufficiently.

The truck can now be transported.



3 Using the Truck for the First Time

⚠ WARNING!

The use of unsuitable energy sources can be hazardous

Rectified AC current will damage the assemblies (controllers, sensors, motors etc.) of the electronic system.

Unsuitable cable connections (too long, insufficient wire cross-section) to the battery (tow cables) can overheat, setting the truck and battery on fire.

- ▶ The truck must only be operated with battery current.
- ▶ Cable connections to the battery (tow leads) must be less than 6 m long and have a minimum cross-section of 50 mm².

Procedure

- Check the equipment is complete.
- If necessary, install the battery, see page 50. Do not damage the battery cable.
- Charge the battery, see page 55.

→ The truck settings must match the battery model (if the customer is charging the battery).

- Check the hydraulic oil level and top up if necessary (see page 162).
- Start up the truck (see page 82).

Truck is operational.

→ If the truck is equipped with a display unit the delivery code is marked on a sticker, see page 125.

→ If the truck is equipped with a keypad or a transponder reader, it can only be operated at first by the keys in the display unit, see page 125.

D Battery - Servicing, Recharging, Replacement

1 Replaceable lead-acid and lithium-ion batteries

1.1 Notes on Battery Technologies

Acid batteries

The truck is equipped with an acid battery as standard. The following sections relate to this battery technology.

Lithium-ion batteries (○)

The trucks may be optionally equipped with a lithium-ion battery. All notes and information concerning lithium-ion batteries can be found in the separate "Lithium-ion battery 24 V - 240 Ah / 360 Ah" operating instructions.

1.2 Safety instructions for handling lead-acid batteries

Maintenance personnel

Batteries may only be charged, serviced or replaced by trained personnel. These operating instructions and the manufacturer's instructions concerning batteries and charging stations must be observed when carrying out the work.

- Do not physically machine or modify the battery.
- Do not open, damage, penetrate or bend the battery.
- Do not throw the battery into a fire.
- Protect the battery from high temperatures and overheating.
- Protect the battery from solar irradiation.
- Keep the battery away from radiant sources and strong heat sources.
- The specified charging, operating and storage temperature ranges must be observed.

Failure to observe these safety instructions can result in fire.

Fire protection measures

WARNING!

Short circuits can result in fire

Damaged cables can cause short circuits, setting the forklift truck and battery on fire.

- ▶ Before closing the battery cover make sure that the battery cables are not damaged.
-

⚠ CAUTION!

The use of unsuitable fire-protection equipment can result in acid burns

In the event of fire, a reaction with the battery acid can occur if water is used to extinguish the fire. This can lead to acid burns.

- ▶ Use powder extinguishers.
 - ▶ Never extinguish burning batteries with water.
-

Do not smoke and avoid naked flames when handling batteries. Wherever an industrial truck is parked for charging, there must be no inflammable material or consumables capable of creating sparks within a minimum distance of 2,5 m from the truck. The room must be ventilated. Fire protection equipment must be on hand.

Battery disposal

Batteries may only be disposed of in accordance with national environmental protection regulations or disposal laws. The manufacturer's disposal instructions must be observed.

WARNING!

Risk of accidents and injuries when handling acid batteries

Batteries contain dissolved acid, which is toxic and caustic. Above all, avoid any contact with battery acid.

- ▶ Dispose of used battery acid in accordance with regulations.
 - ▶ Always wear protective clothing and goggles when working with batteries.
 - ▶ Do not let battery acid come into contact with skin, clothing or eyes. If necessary, rinse with plenty of clean water.
 - ▶ In the event of physical damage (e.g. skin or eye contact with battery acid) consult a doctor immediately.
 - ▶ Spilled battery acid should be neutralised immediately with plenty of water.
 - ▶ Only batteries with a sealed battery container may be used.
 - ▶ Follow national guidelines and legislation.
-

Using the battery

WARNING!

Unsuitable batteries that have not been approved by Jungheinrich for the truck can be hazardous

The design, weight and dimensions of the battery have a considerable effect on the operational safety of the truck, in particular its stability and capacity. The use of unsuitable batteries that have not been approved for the truck by Jungheinrich, can lead to a deterioration of the braking characteristics of the truck during energy recovery, causing considerable damage to the electric controller and resulting in serious danger to the health and safety of individuals.

- ▶ Only Jungheinrich-approved batteries may be used on the truck.
 - ▶ Battery equipment may only be replaced with the agreement of Jungheinrich.
 - ▶ When replacing/installing the battery make sure the battery is securely located in the battery compartment of the truck.
 - ▶ Do not use batteries that have not been approved by the manufacturer.
-

Park the truck securely before carrying out any work on the batteries (see page 86).

1.3 Battery types

Depending on the model, the truck will be supplied with different battery types. The following table shows which combinations are included as standard:

The battery weights can be taken from the battery data plate. Batteries with non insulated terminals must be covered with a non slip insulating mat.

ERE 120 Battery tray M

Top battery removal/ side battery removal

Voltage	Battery type	Min. weight (kg)	Max. dimensions L x W x H (mm)
24 V	24V2PzS180	171	624 x 212 x 537
24 V	24V2PzV160	171	624 x 212 x 537
24 V	24V2PzS250	204	624 x 212 x 628
24 V	24V2PzV200	204	624 x 212 x 628
24 V	24V2PzV174	171	624 x 212 x 537
24 V	24V2PzV220	204	624 x 212 x 628
24 V	24V2PzM180	171	624 x 212 x 537
24 V	24V2PzM250	204	624 x 212 x 628
24 V	24VXFC158	204	624 x 212 x 628
24 V	24VNXS166	204	624 x 212 x 628

ERE 120 Battery tray L

Top battery removal/ side battery removal

Voltage	Battery type	Min. weight (kg)	Max. dimensions L x W x H (mm)
24 V	24V3PzV300	273	624 x 284 x 628
24 V	24V3PzS375	273	624 x 284 x 628
24 V	24V3PzV330	273	624 x 284 x 628
24 V	24V3PzM375	273	624 x 284 x 628
24 V	24VXFC316	273	624 x 284 x 628
24 V	24VNXS332	273	624 x 284 x 628
24 V	24V LIB 360/390 Ah LB	273	624 x 284 x 628
24 V	24V LIB 240/260 Ah LB	273	624 x 284 x 628

ERE 125 Battery tray M

Top battery removal/ side battery removal

Voltage	Battery type	Min. weight (kg)	Max. dimensions L x W x H (mm)
24 V	24V2PzS180	171	624 x 212 x 537
24 V	24V2PzV160	171	624 x 212 x 537
24 V	24V2PzS250	204	624 x 212 x 628
24 V	24V2PzV200	204	624 x 212 x 628
24 V	24V2PzV174	171	624 x 212 x 537
24 V	24V2PzV220	204	624 x 212 x 628
24 V	24V2PzM180	171	624 x 212 x 537
24 V	24V2PzM250	204	624 x 212 x 628
24 V	24VXFC158	204	624 x 212 x 628
24 V	24VNXS166	204	624 x 212 x 628

ERE 125 Battery tray L

Top battery removal/ side battery removal

Voltage	Battery type	Min. weight (kg)	Max. dimensions L x W x H (mm)
24 V	24V3PzV300	273	624 x 284 x 628
24 V	24V3PzS375	273	624 x 284 x 628
24 V	24V3PzV330	273	624 x 284 x 628
24 V	24V3PzM375	273	624 x 284 x 628
24 V	24VXFC316	273	624 x 284 x 628
24 V	24VNXS332	273	624 x 284 x 628
24 V	24V LIB 360/390 Ah LB	273	624 x 284 x 628
24 V	24V LIB 240/260 Ah LB	273	624 x 284 x 628

ERE 225 Battery tray M

Top battery removal/ side battery removal

Voltage	Battery type	Min. weight (kg)	Max. dimensions L x W x H (mm)
24 V	24V2PzS180	171	624 x 212 x 537
24 V	24V2PzV160	171	624 x 212 x 537
24 V	24V2PzS250	204	624 x 212 x 628
24 V	24V2PzV200	204	624 x 212 x 628
24 V	24V2PzV174	171	624 x 212 x 537
24 V	24V2PzV220	204	624 x 212 x 628
24 V	24V2PzM180	171	624 x 212 x 537
24 V	24V2PzM250	204	624 x 212 x 628
24 V	24VXFC158	204	624 x 212 x 628
24 V	24VNXS166	204	624 x 212 x 628

ERE 225 Battery tray L

Top battery removal/ side battery removal

Voltage	Battery type	Min. weight (kg)	Max. dimensions L x W x H (mm)
24 V	24V3PzV300	273	624 x 284 x 628
24 V	24V3PzS375	273	624 x 284 x 628
24 V	24V3PzV330	273	624 x 284 x 628
24 V	24V3PzM375	273	624 x 284 x 628
24 V	24VXFC316	273	624 x 284 x 628
24 V	24VNXS332	273	624 x 284 x 628
24 V	24V LIB 360/390 Ah LB	273	624 x 284 x 628
24 V	24V LIB 240/260 Ah LB	273	624 x 284 x 628

ERE 225 Battery tray L high

Side battery removal

Voltage	Battery type	Min. weight (kg)	Max. dimensions L x W x H (mm)
24 V	24V3PzS465AH	350	624 x 286 x 784
24 V	24VNXS332	350	624 x 286 x 784

ERE 225 drivePLUS Battery tray M
Top battery removal/ side battery removal

Voltage	Battery type	Min. weight (kg)	Max. dimensions L x W x H (mm)
24 V	24V2PzS180	171	624 x 212 x 537
24 V	24V2PzV160	171	624 x 212 x 537
24 V	24V2PzS250	204	624 x 212 x 628
24 V	24V2PzV200	204	624 x 212 x 628
24 V	24V2PzV174	171	624 x 212 x 537
24 V	24V2PzV220	204	624 x 212 x 628
24 V	24V2PzM180	171	624 x 212 x 537
24 V	24V2PzM250	204	624 x 212 x 628
24 V	24VXFC158	204	624 x 212 x 628
24 V	24VNXS166	204	624 x 212 x 628

ERE 225 drivePLUS Battery tray L
Top battery removal/ side battery removal

Voltage	Battery type	Min. weight (kg)	Max. dimensions L x W x H (mm)
24 V	24V3PzV300	273	624 x 284 x 628
24 V	24V3PzS375	273	624 x 284 x 628
24 V	24V3PzV330	273	624 x 284 x 628
24 V	24V3PzM375	273	624 x 284 x 628
24 V	24VXFC316	273	624 x 284 x 628
24 V	24VNXS332	273	624 x 284 x 628
24 V	24V LIB 360/390 Ah LB	273	624 x 284 x 628
24 V	24V LIB 240/260 Ah LB	273	624 x 284 x 628

ERE 225 drivePLUS Battery tray L high
Side battery removal

Voltage	Battery type	Min. weight (kg)	Max. dimensions L x W x H (mm)
24 V	24V3PzS465AH	350	624 x 286 x 784
24 V	24VNXS332	350	624 x 286 x 784

1.4 Battery removal and installation

⚠ WARNING!

Accident risk during battery removal and installation

Due to the battery weight and acid there is a risk of trapping or scalding when the battery is removed and installed.

- ▶ Note the "Safety regulations for handling acid batteries" section in this chapter.
 - ▶ Wear safety shoes when removing and installing the battery.
 - ▶ Use only batteries with insulated cells and terminal connectors.
 - ▶ Park the truck on a level surface to prevent the battery from sliding out.
 - ▶ Make sure the crane slings have sufficient capacity to replace the battery.
 - ▶ Use only approved battery replacement devices (battery roller stand, replacement trolley etc.).
 - ▶ Make sure the battery is securely located in the truck's battery compartment.
-

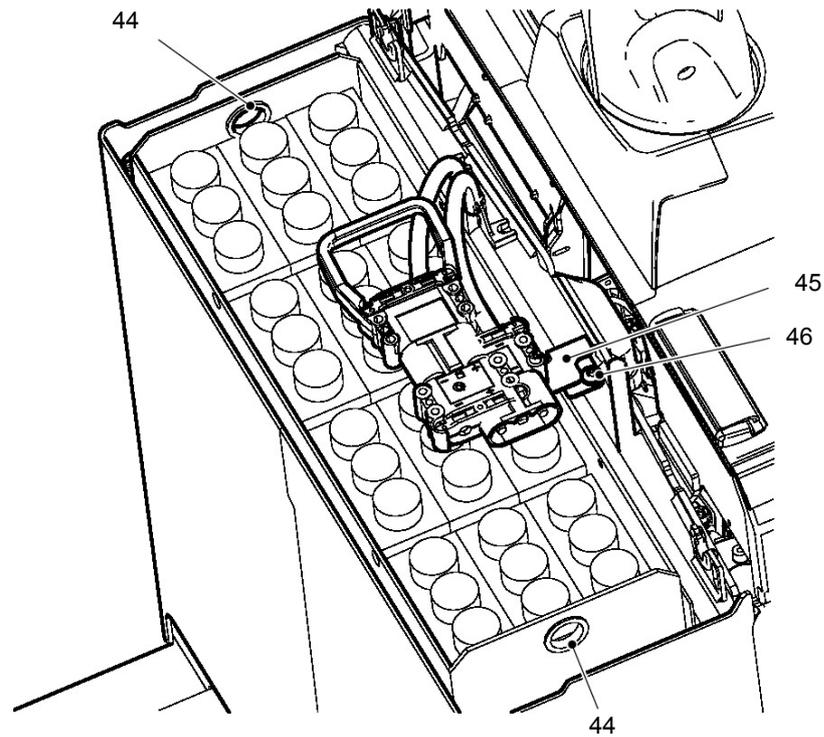
⚠ CAUTION!

Trapping hazard

There is a risk of trapping when you close the battery cover.

- ▶ Make sure there is nothing between the battery cover and the truck when you close the battery cover.
-

1.4.1 Removing the battery from the top



Battery removal

Requirements

- Truck parked securely, see page 86.
- Battery exposed, see page 54.

Procedure

- Disconnect the battery connector from the truck connector.
- ➔ Place the battery cable on the battery tray so that it cannot be severed when the battery is extracted.
- Undo the screw (46) of the battery retainer and remove the battery retainer (45).
- Attach the crane lifting gear to the eyes (44).
- ➔ The crane lifting gear must exert a vertical pull. The hooks of the crane lifting gear must never fall onto the battery cells.
- Pull the battery upwards out of the battery compartment.

The battery has now been removed.

- ➔ Assembly is in the reverse order. Note the correct mounting position and make sure the battery is connected correctly.

1.4.2 Removing the battery from the side

⚠ CAUTION!

Trapping hazard

Trapping hazard when removing and installing the battery.

- ▶ When removing and installing the battery do not put your hands between the battery and the chassis.

Removing the battery

Requirements

- The truck is parked securely, see page 86.
- Battery is exposed, see page 54.

Tools and Material Required

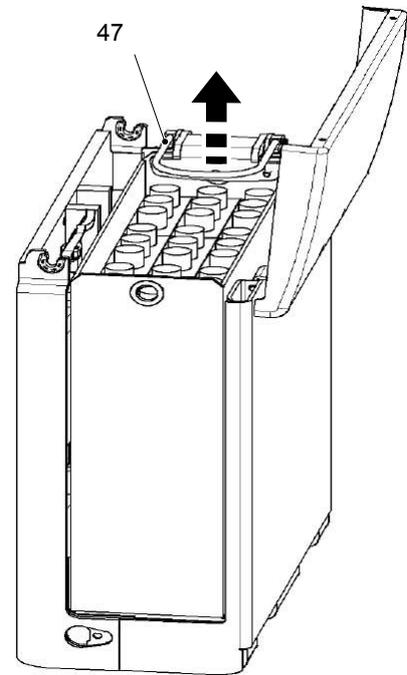
- Battery replacement station/trolley

Procedure

- Disconnect the battery connector (49) from the truck connector.
- Undo the battery latch (47).
- Move the battery replacement station/trolley up to the side of the truck.
- Turn the battery latch as far as the stop.

- ➔ Fully turning the bar moves the battery by approx. 30 mm.
- Carefully push the battery off the truck onto the battery replacement station/trolley.

The battery has now been removed.



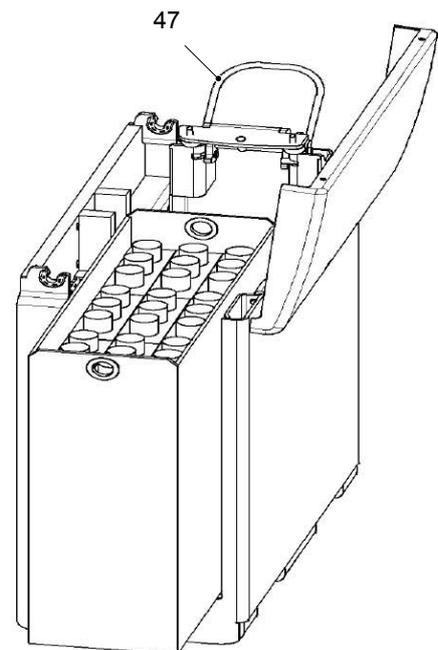
Installing the battery

Requirements

- The truck is parked securely, see page 86.
- Battery compartment is freely accessible.

Procedure

- Place the battery cable on the tray so that it cannot be severed when the battery is inserted.
- Ensure that the battery is installed and connected correctly
- Move the battery replacement station/trolley up to the side of the truck.
- Insert the battery.
- Press to return the battery latch to its original position and ensure the battery is locked securely.
- Attach the battery connector and the truck connector.
- Close the battery panel.



The battery is now installed.

- After each replacement, check that the battery is properly secured by the battery lock.

1.5 Exposing the battery

⚠ WARNING!

An unsecured truck can cause accidents

Parking the truck on an incline or with a raised load handler is dangerous and is strictly prohibited.

- ▶ Park the truck on a level surface. In special cases the truck may need to be secured with wedges.
- ▶ Fully lower the load handler.
- ▶ Select a place to park where no other people are at risk of injury from the lowered load handler.
- ▶ If the brakes are not working, place wedges underneath the wheels of the truck to prevent it from moving.

⚠ CAUTION!

A closing battery panel can pose a trapping hazard

If the battery cover is not opened fully, it can suddenly close on its own and cause bruising. The battery cover is only properly opened at an angle greater than 90°. It is then held by gravity.

- ▶ Open the battery cover as far as the stop.

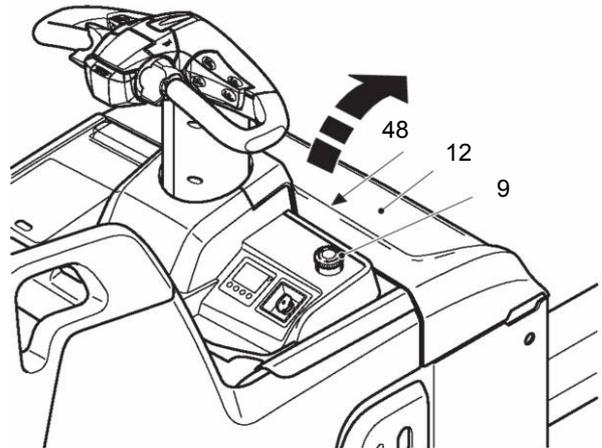
Requirements

- Truck parked on a level surface.
- Truck parked securely, see page 86.

Procedure

- Press the Emergency Disconnect switch (9).
- Lift up the battery panel (12) at the recess (48) and fold it back.

The battery connector and battery retainer can be accessed



1.6 Charging the battery

→ Information on charging the integrated modular lithium-ion batteries see page 69.

The following applies for lead-acid batteries:

⚠ WARNING!

The gases produced during charging can cause explosions

The battery produces a mixture of nitrogen and hydrogen (electrolytic gas) during charging. Gassing is a chemical process. This gas mixture is highly explosive and must not be ignited.

- ▶ Switch the charging station and truck off first before connecting/disconnecting the charging cable of the battery charging station to/from the battery connector.
- ▶ The charger must be adapted to the battery in terms of voltage and charge capacity.
- ▶ Before charging, check all cables and plug connections for visible signs of damage.
- ▶ Ventilate the room in which the truck is being charged.
- ▶ The battery cover must be open and the battery cell surfaces must be exposed during charging to ensure adequate ventilation.
- ▶ Do not smoke and avoid naked flames when handling batteries.
- ▶ Wherever an industrial truck is parked for charging there shall be no inflammable material or lubricants capable of creating sparks within 2,5 m around the truck.
- ▶ Fire protection equipment must be on hand.
- ▶ Do not lay any metallic objects on battery.
- ▶ It is essential to follow the safety regulations of the battery and charger station manufacturers.

NOTICE

Battery damage

The battery, charger (charge characteristics) and battery parameters must match each other, otherwise damage may result.

1.6.1 Charging the battery with a stationary charger

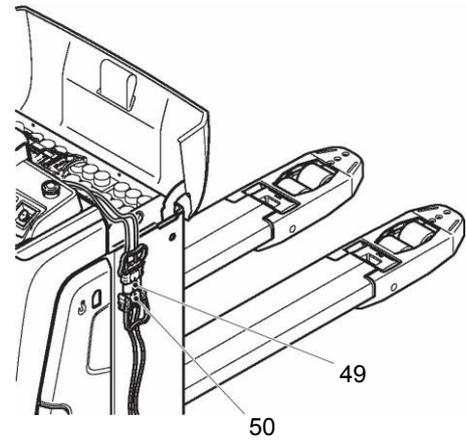
Charging the battery

Requirements

- Truck parked on a level surface.
- Battery exposed, see page 54.
- Battery disconnected.
- Battery charger switched off.
- The charging program that matches the battery type is set on the battery charger.

Procedure

- Disconnect the battery connector (49).
- Remove the insulating mat from the battery, if present.
- Connect the charger lead (50) of the battery charger station to the battery connector (49).
- Switch on the battery charger.



Charging begins automatically. The battery is charged.

- If charging has been interrupted, the full battery capacity will not be available.
- Optional NexSys batteries may only be charged with special NexSys battery chargers or the on-board charger (see page 57).

NOTICE

If charging has been interrupted, the full battery capacity will not be available.

Complete battery charging and restore the truck to operation

Requirements

- Battery charging is complete.

Procedure

- Switch off the charger.
- Remove the battery connector (49) from the charging cable (50).
- Connect the battery connector (49) to the truck.
- If applicable, place the removed insulating mat back over the battery.
- Securely close the battery panel.

The truck is now ready for operation.

1.6.2 Charging the battery with the on-board charger

⚠ DANGER!

Risk of electric shock and fire

Damaged and unsuitable cables can cause electric shocks and can overheat, resulting in fires.

- ▶ Always use mains cables with a maximum length of 30 m.
Local regulations must be observed.
- ▶ Unwind the cable reel fully when using it.
- ▶ Always use original manufacturer's mains cables.
- ▶ Insulation safety, acid and caustic ratings must comply with the manufacturer's mains lead.
- ▶ The charging connector must be dry and clean when used.

NOTICE

Material damage due to incorrect use of the on-board charger

The on-board charger, which comprises the battery charger and battery controller, must not be opened. In the case of faults, contact the manufacturer's customer service department.

- ▶ The battery charger may only be used for batteries supplied by the manufacturer or other approved battery types provided they have been adapted by the manufacturer's customer service department.

1.6.2.1 Setting the charging characteristics (ELH 2415 / 2425 / 2435)

The charging characteristic is set via parameters from the truck software.

The setting is made by the manufacturer's customer service department.

1.6.2.2 Charging the battery

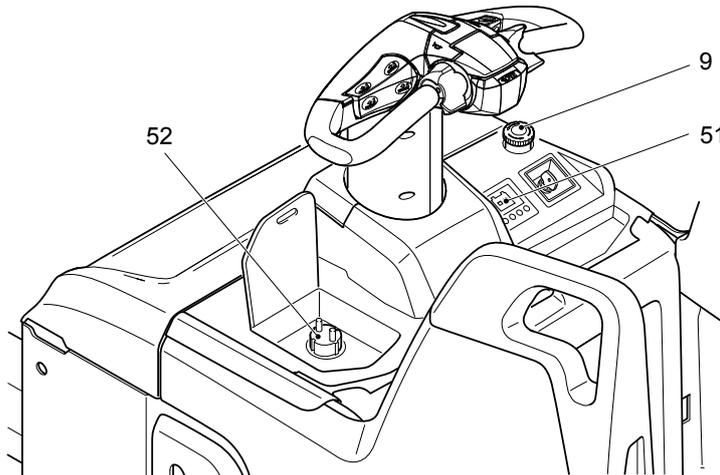
Starting charging with an on-board charger

– ELH mains connection

Mains supply: 230 V

Mains frequency: 50 Hz / 60 Hz

The plug for the battery charger (52) is located under the cover on the storage compartment panel on the left next to the tiller.



Charging the battery

Requirements

- Truck parked securely, see page 86.
- Battery exposed, see page 54.
- The charging program that matches the battery type is set on the battery charger.

Procedure

- Remove the insulating mat from the battery, if present.
- The battery connector must remain plugged in.
- Plug the mains connector(52) into a mains socket.
- Turn the emergency disconnect switch (9) to unlock it.

The flashing LED (51) indicates the charge status or a fault (for flashing codes, see the "LED display" table).

The battery is charged.

- *When the mains connector is attached to the mains, all the truck's electrical functions are disconnected (immobiliser). The truck cannot be operated.*
- *When the mains connector is attached to the mains the battery connector cannot be disconnected.*

Completing battery charging; restoring the truck to operation

Requirements

- The battery is fully charged.

Procedure

- If charging has been interrupted, the full battery capacity will not be available.
- Remove the mains connector from the socket and store it in the storage compartment with the cable.
 - If applicable, place the insulating mat back over the battery.
 - Securely close the battery panel.

The truck is now ready for operation.

⚠ CAUTION!

Damaged mains cables can be hazardous

- ▶ Do not trap the mains cable when closing the battery panel.
-

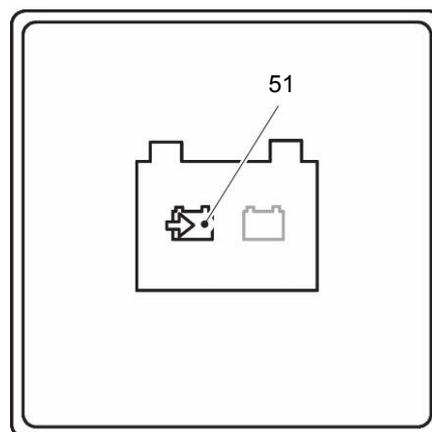
Charging times

The duration of charge depends on the battery capacity.

- Charging continues automatically after a mains failure. Charging can be interrupted by removing the mains connector and continued as partial charging.

LED display (51)

Green LED (charge status)	
Lit	Charging complete, battery full. (Charge interval, float or compensation charge).
Slow flash	Charging.
Rapid flash	Display at beginning of charge or after setting a new characteristic curve. Number of flash pulses corresponds to the characteristic curve set.



Red LED (fault)	
Lit	Charging characteristic or battery parameters invalid
Slow flash	1x flash with noticeable interval: Overvoltage detected before charging starts
	2x flash with noticeable interval: Max. charge time exceeded
	3x flash with noticeable interval: Max. charge capacity exceeded
	4x flash with noticeable interval: Control deviation I_{max}
	5x flash with noticeable interval: Overvoltage cut-out
	6x flash with noticeable interval: Low voltage cut-out
	7x flash with noticeable interval: Battery is faulty, battery error
	8x flash with noticeable interval: Fan error
	9x flash with noticeable interval: Battery disconnected from battery charger during charging.
	10x flash with noticeable interval: Equipment overtemperature

Trickle charge

The trickle charge starts automatically when charging is complete.

Partial charging

Partial charging is possible, but should be the exception rather than the rule.

2 Integrated Modular Lithium-Ion Battery

2.1 Notes on Lithium-Ion Batteries

General information

The truck is optionally fitted with an integrated modular lithium-ion battery. All notes and information concerning lithium-ion batteries can be found in these operating instructions.

The Jungheinrich lithium-ion batteries are maintenance-free batteries with rechargeable high-performance energy cells. The batteries' daily operating time can be extended through intermediate charges.

The battery is continually monitored by the battery management system. The battery management system checks for example the cell temperature, the voltage and the charge status of the cells, as well as releasing charge and discharge processes.

- The battery management system data can be checked by the manufacturer's customer service department.

Lithium ion battery management system

Charging and discharging of the lithium ion battery is enabled and monitored. Faults or messages warning of approaching critical values are displayed. If necessary, the truck is switched off.

The battery management system is connected to the truck via an interface.

When the charge status approaches a critical value, the operator is notified by the display message.

2.2 Safety regulations for handling lithium-ion batteries

Maintenance personnel

Batteries may only be charged, serviced or replaced by trained personnel. These operating instructions and the manufacturer's instructions concerning batteries and charging stations must be observed when carrying out the work.

2.2.1 Correct application

No hazards are anticipated if the equipment is used correctly.

The following hazards can arise in the event of improper use:

- Physical damage:
Mechanical damage may lead to problems including falling or deformation of the lithium-ion battery due to pressure.
Mechanical damage includes cracks, breaks, splinters or holes in the battery housing. This type of damage can cause a short circuit inside the lithium-ion battery.
- Short circuits:
Short circuits may be caused by connecting the two battery terminals (e.g. battery immersed in water).
- Temperature effects:
High temperatures caused by, for example, sunlight or storage in warm locations (e.g. close to ovens) can cause premature ageing and damage to the lithium-ion battery.

Safe places for storing batteries until the manufacturer's customer service department arrives on site must satisfy the following criteria:

- Do not store in places often frequented by personnel.
- Do not store in places where valuable objects (e.g. cars) are stored.
- A carbon dioxide extinguisher (CO₂) must be provided on site.
- There should be no fire or smoke detectors in the vicinity in order to ensure that an automatic fire detection system is activated only in the event of actual danger (e.g. naked flames).
- Small amounts of discharge from a single lithium-ion battery are not critical to the environment. Above-average natural ventilation is required in this case.
- No ventilation intake pipes should be in the vicinity, as discharged content could spread within a building.

Examples of where to store a non-functional lithium-ion battery:

- Roofed outdoor position
- Ventilated container
- Covered box with pressure and smoke discharge option

2.2.2 Storing the battery

NOTICE

Damage to the lithium-ion battery due to discharge

If the lithium-ion battery is not used for a long period of time, it can become damaged through discharge.

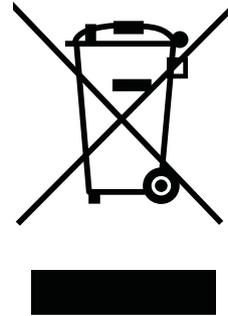
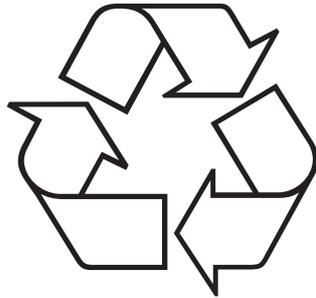
- ▶ Fully charge the battery before extended downtimes.
 - ▶ To ensure a long service life of the lithium-ion battery, it must be fully charged every 4 weeks when not in use.
-

2.2.3 Instructions for disposal

NOTICE

Lithium-ion batteries must be disposed of in accordance with the relevant national environmental protection regulations.

- ▶ For lithium-ion battery disposal, contact the manufacturer's customer service department.
-



Used lithium-ion batteries are recyclable commodities. These batteries must be treated as hazardous waste.

Lithium-ion batteries marked with the recycling symbol and the sign showing a crossed-out waste bin must not be disposed of with ordinary household waste.

Return or recycling of batteries must be ensured, for example, in accordance with the Battery Directive 2006/66/EG. Buy-back terms and the manner of recycling must be agreed with the manufacturer.

2.2.4 Shipping information

The Jungheinrich lithium-ion battery is a hazardous material. The applicable ADR regulations must be observed during transport.

-
- ADR = Accord européen relatif au transport international des marchandises Dangereuses par Route.
 - If in doubt, contact the manufacturer's customer service department.
-

A modular lithium-ion battery fixed in the truck can be transported without special precautions.

2.2.5 Battery lifetime and maintenance

NOTICE

Damage to the lithium-ion battery due to discharge

If the lithium-ion battery is not used for a long period of time, it can become damaged through discharge.

- ▶ Fully charge the battery before extended downtimes.
 - ▶ To ensure a long service life of the lithium-ion battery, it must be fully charged every 4 weeks when not in use.
-

The lithium-ion battery is wear-free.

The components are designed to be maintenance-free, and therefore no maintenance intervals are defined for this battery.

The battery is continually monitored by the battery management system.

2.2.6 Dangers and information relating to fire in the vicinity of the lithium-ion battery

The lithium ion battery may be damaged by a fire in the vicinity of the lithium ion battery. When fighting a lithium-ion battery fire, the following dangers and information must be taken into consideration.

2.2.6.1 Particular hazard from combustion products

⚠ WARNING!

Contact with combustion products can be hazardous

Fires produce combustion products.

Combustion is a chemical process by which a flammable material combines with oxygen under heat and light (fire).

The resulting combustion products can occur in the form of smoke, through leaking fluids, escaping gases, debris as well decomposition products of certain chemicals.

These combustion products are substances that enter the body through the respiratory tract and / or the skin, where they can produce and adverse effects such as choking.

- ▶ Avoid contact with combustion products.
 - ▶ Use protective equipment.
-

- Hydrogen fluoride (HF) Hydrofluoric acid = extremely corrosive
- Risk of toxic substances produced by pyrolysis
- Risk of highly flammable gas mixtures.
- Other combustion products: Carbon monoxide & - dioxide.

2.2.6.2 Special fire fighting protective equipment

- Use self-contained breathing apparatus.
- Wear protective overalls.

2.2.6.3 Additional fire fighting instructions

To prevent secondary fires from occurring, the lithium-ion battery must be cooled from the outside. Fluids or solids must never be directed into the lithium-ion battery.

Suitable extinguishing agents

- Carbon dioxide extinguisher (CO₂)
- Water (not on mechanically opened or damaged batteries!)

Unsuitable extinguishing agents

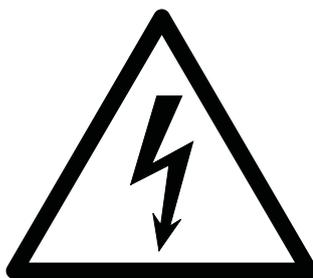
- Foam
- Grease fire extinguishing agents
- Powder extinguishers
- Metal fire extinguishers (PM 12i extinguishers)
- Metal fire powder PL-9/78 (DIN EN 3SP-44/95)
- Dry sand

2.2.7 Touch voltage hazard

⚠ WARNING!

Hazardous contact voltages only arise in the event of a technical or physical defect. The batteries are normally charged. There is still some residual voltage in a discharged battery. This must be considered as a hazardous contact voltage.

With this kind of defect the battery must not be touched and must not come into contact with metal objects see page 61.



2.3 Battery types

Depending on the version, the truck is equipped with different battery types. The following table shows the different battery types.

Battery type	Rated voltage	Number of cells	Capacity
Lithium ion	25.6 V	3.2 V x 8 cells	130 Ah
Lithium ion	25.6 V		260 Ah

2.4 Battery data plate

The integrated modular lithium-ion battery is an inherent component of the truck and must not be changed by the operator or owner. For this reason, the data plate of the battery is not directly visible.

Lithium Ion Secondary Battery / Lithium Ionen Sekundärbatterie

Type / Typ: 54

Year of Manufacture / Baujahr: 55

Serial-No. / Serien-Nr.: 56

Supplier-No. / Lieferanten-Nr.: 57

Capacity / Kapazität: 58

Nominal voltage / Nennspannung: 59

Nominal energy / Nennenergie: 60

Battery-No. / Batterie-Nr.: 61

Battery weight +/- 5% / Batteriegewicht +/- 5%: 62

Battery ID / Batterieerkennung: 63

Designation / Bezeichnung: 64

Manufacturer / Hersteller: 66

67

68

69

Item	Designation	Item	Designation
53	Lithium-ion secondary battery	62	Battery weight ($\pm 5\%$) in kg
54	Battery type	63	Battery identifier
55	Year of manufacture	64	Designation
56	Serial number	65	QR code
57	Supplier number	66	Manufacturer
58	Rated capacity in Amp hours (Ah)	67	Manufacturer's logo
59	Rated voltage in Volts (V)	68	Safety and warning information, see page 67
60	Rated energy in Watt hours (Wh)	69	CE marking
61	Battery number		

2.4.1 Safety and warning information

	<p>Used lithium-ion batteries must be treated as hazardous waste. Lithium-ion batteries marked with the recycling symbol and the sign showing a crossed-out waste bin must not be disposed of with ordinary household waste. Buy-back terms and type of recycling are to be agreed with the manufacturer in example to accordance with the Battery Directive 2006/66/EG, for example.</p>
	<p>Avoid fire and short circuits due to overheating. Do not ignite or position an open flame, glowing embers, or sparks near the lithium-ion battery. Keep lithium-ion batteries away from strong heat sources.</p>
	<p>Hot surfaces. Battery cells can generate very high short-circuit currents, causing them to become hot.</p>
	<p>Dangerous electrical voltage! Battery cells can generate very high short-circuit currents, causing them to become hot. Caution! The metal parts of the battery cells are constantly under voltage, so do not place any foreign objects or tools on the lithium-ion battery. Observe the accident prevention regulations and DIN EN 50272-3.</p>
	<p>Wear personal protective equipment (e.g. safety goggles and safety gloves) when handling damaged battery cells and lithium-ion batteries. Use only insulated tools. If the contents leak out, do not inhale the fumes. Always wash your hands after completing the work. Do not mechanically machine the lithium-ion battery, strike, crush, compress, notch, dent or modify it in any way. Do not open, damage, penetrate, bend, heat the lithium-ion battery or allow it to become hot, do not throw it into a fire, short circuit it or immerse it in water. Do not store it or operate it in pressurised containers.</p>
	<p>Follow the operating instructions and keep them in a visible position in the charging area. If any faults are found on the lithium-ion battery, contact the manufacturer's customer service department immediately. Do not carry out any actions on your own. Do not open the lithium-ion battery.</p>
	<p>Protect the lithium-ion battery from solar radiation or other forms of heat radiation. Do not expose the lithium-ion battery to heat sources.</p>

2.5 Usability as a Function of the Battery Temperature

Lithium-ion battery temperature	Usability
-10°C to +55°C ^{1,2}	Travel and hydraulic functions: – The usable battery capacity and power is reduced at low temperatures.
0°C to +55°C ³	Charging of the lithium-ion battery: – In the event of high temperatures ($\geq 50^\circ\text{C}$), the charging time of the lithium-ion battery is extended due to a reduction in the charge current.

- 1 The permissible range of the lithium-ion battery operating temperature does not increase the permissible range of the truck's operating temperature. Observe the permissible temperature range for the use of the truck.
- 2 Corresponds to an ambient temperature of approx. -10°C to +40°C.
- 3 Corresponds to an ambient temperature of approx. 0°C to +40°C.

Cold-store application (below -10°C) is prohibited.

If the temperature is too high or too low, the battery management system shuts down the lithium-ion battery.

Extended exposure to low temperatures causes the lithium-ion battery to cool down, thereby reducing the usable battery capacity.

WARNING!

Danger of accidents due to regenerative braking fault

Regenerative braking faults can result in extended stopping distances and accidents, particularly when travelling on inclines. Other persons can be injured in the truck's hazardous area.

- ▶ Keep all persons out of the hazardous area during travel operations.
- ▶ Instruct other people to move out of the hazardous area of the truck. Stop working with the truck if people do not leave the hazardous area.
- ▶ In emergencies, use the service brake for braking.

If the lithium-ion battery is in the low-temperature range, the lift function may be impaired and regenerative braking with the coasting brake may not function correctly.

The usable battery capacity and power are reduced at low temperatures.

-  A notification symbol appears on the display unit when the lithium-ion battery is in a low-temperature area.

2.6 Exposing the battery

Exposing the fixed lithium-ion battery is analogous to exposing the replaceable batteries, see page 54.

2.7 Charging the battery

2.7.1 Safety instructions for charging lithium-ion batteries

- Only charge the lithium-ion battery with the manufacturer's stationary battery charger SLH 300i. Observe the battery charger operating instructions.

⚠ WARNING!

Warning: hazardous electrical voltage!

The charger is an electric component conducting voltages and currents that are hazardous to people.

- ▶ The charger must only be operated by trained technicians.
- ▶ Disconnect the mains supply and the battery connector before carrying out any work on the charger.
- ▶ The charger should only be opened and serviced by trained electricians.

⚠ WARNING!

Risk of accidents and injuries when handling lithium-ion batteries

Improper use can result in overheating, fire or explosion.

- ▶ Do not expose the lithium-ion battery during charging.
- ▶ Do not use the lithium ion battery cable connected to the truck for charging.
- ▶ Do not place any metallic objects on the lithium-ion battery.

⚠ WARNING!

Charging with an unsuitable battery charger can be hazardous

The use of an unsuitable charger can cause the battery to overheat.

- ▶ Only charge the lithium-ion battery with a battery charger specially designed for this battery. Observe the operating instructions and operating conditions for the battery charger.

NOTICE

Intermediate charging of the lithium-ion battery

Intermediate charging of the lithium-ion battery is possible. A battery that is not fully discharged can be charged or partially charged at any time.

- ▶ The lithium-ion battery should be fully charged before use.
 - ▶ To ensure reliable operation of the lithium-ion battery, it must be fully charged at least every 4 weeks with frequent intermediate charging.
 - ▶ Turn off the battery charger before disconnecting the lithium-ion battery from the charger.
-



If the battery is fully discharged or if the battery temperature is below the permissible level, the battery will not charge. Fully discharged batteries cannot be charged by the user (faulty). Contact the manufacturer's customer service department.

NOTICE

Battery damage

The battery, charger (charge characteristics) and battery parameters must match each other, otherwise damage may result.

2.7.2 Activating the lithium-ion battery

If the lithium-ion battery is not used for several hours, it switches to energy-saving mode to protect against deep discharge.

The lithium-ion battery can be reactivated by connecting it to the stationary battery charger, see page 72.

2.7.3 Compensation charging

The lithium-ion battery can be partially charged (compensation charging) each time there is a break in use, without limiting its service life. The following information must be borne in mind when carrying out compensation charging of the lithium-ion battery.

NOTICE

Intermediate charging of the lithium-ion battery

Intermediate charging of the lithium-ion battery is possible. A battery that is not fully discharged can be charged or partially charged at any time.

- ▶ The lithium-ion battery should be fully charged before use.
 - ▶ To ensure reliable operation of the lithium-ion battery, it must be fully charged at least every 4 weeks with frequent intermediate charging.
 - ▶ Turn off the battery charger before disconnecting the lithium-ion battery from the charger.
-

2.7.4 Partial charging, interrupting and re-starting charging

The charging process can be interrupted on the battery charger and continued as a partial charge. The charging process is automatically adapted to the charge status of the battery, see the operating instructions for the battery charger SLH 300i.

- ⇒ Charging continues automatically after a mains failure.

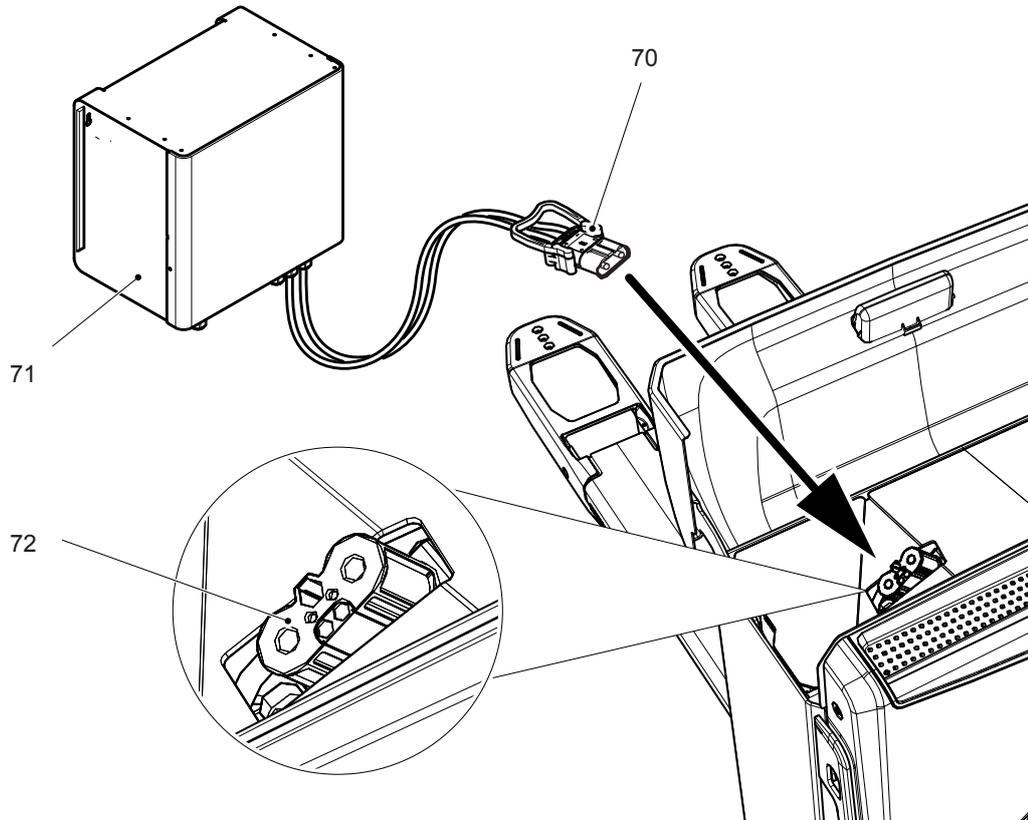
2.7.5 Trickle charging the lithium-ion battery

A fully charged lithium-ion battery can be connected to the battery charger for automatic trickle charging.

In the event of an extended period out of use, it is recommend that the trickle charge function of the battery charger be used in order to maintain the available capacity of the battery.

2.7.6 Charging the battery with a stationary charger

- Only charge the lithium-ion battery with the manufacturer's stationary battery charger SLH 300i. Observe the battery charger operating instructions.



Charging the battery

Requirements

- The truck is parked securely, see page 86.
- The battery charger has been tested and is free of defects, see the operating instructions for the battery charger SLH 300i.
- The battery charger is connected to the power supply, but not yet turned on.
- Battery is exposed, see page 54.

Procedure

- Connect the charge connector (70) of the battery charger (71) to the charge connector (72) of the battery.
- Commence charging in accordance with the battery charger operating instructions.
- If the charge status is to be displayed:
 - Reset the emergency disconnect switch so that the control unit is powered up again, see page 91.
 - In this case, the truck should not be switched on.

The battery is now charged.

⚠ WARNING!

There is a danger of sparks if charging is improperly interrupted

Owing to the high charge currents, there is a risk of spark discharge if the charge connector is removed while charging is active. There is a risk of injury and of damage to the electrical contacts.

▶ Stop charging on the battery charger before removing the charge connector.

NOTICE

If charging has been interrupted, the full battery capacity will not be available.

Completing battery charging; restoring the truck to operation

Requirements

- The battery is partially or complete charged.
- Complete charging in accordance with the battery charger operating instructions.
- Disconnect the charge connector of the battery charger (70) from the charge connector (72) of the battery.
- Close the battery lid.

The truck is now ready for operation.

2.7.7 Charging the battery with an on-board charger

The process for charging the integrated modular lithium-ion battery with an on-board charger is analogous to the process for charging the replaceable batteries – see page 57.

E Operation

1 Safety Regulations for the Operation of Forklift Trucks

Driver authorisation

The truck may only be used by suitably trained personnel, who have demonstrated to the proprietor or his representative that they can drive and handle loads and have been authorised to operate the truck by the proprietor or his representative.

Operator's rights, responsibilities and rules of conduct

The driver must be informed of his duties and responsibilities and be instructed in the operation of the truck and shall be familiar with the operating instructions. Safety shoes must be worn on pedestrian-operated trucks.

- It is recommended that safety shoes be worn at all times when using the truck in ride-on mode to avoid injuries.

Unauthorised use of truck

The operator is responsible for the truck during the time it is in use. The operator must prevent unauthorised persons from driving or operating the truck. Do not carry passengers or lift other people.

Damage and faults

The supervisor must be informed immediately of any damage or faults to the truck or attachment. Trucks which are unsafe for operation (e.g. wheel or brake problems) must not be used until they have been rectified.

Repairs

The operator must not carry out any repairs or alterations to the truck without authorisation and the necessary training to do so. The operator must never disable or adjust safety mechanisms or switches.

Hazardous area

WARNING!

Risk of accidents/injury in the hazardous area of the truck

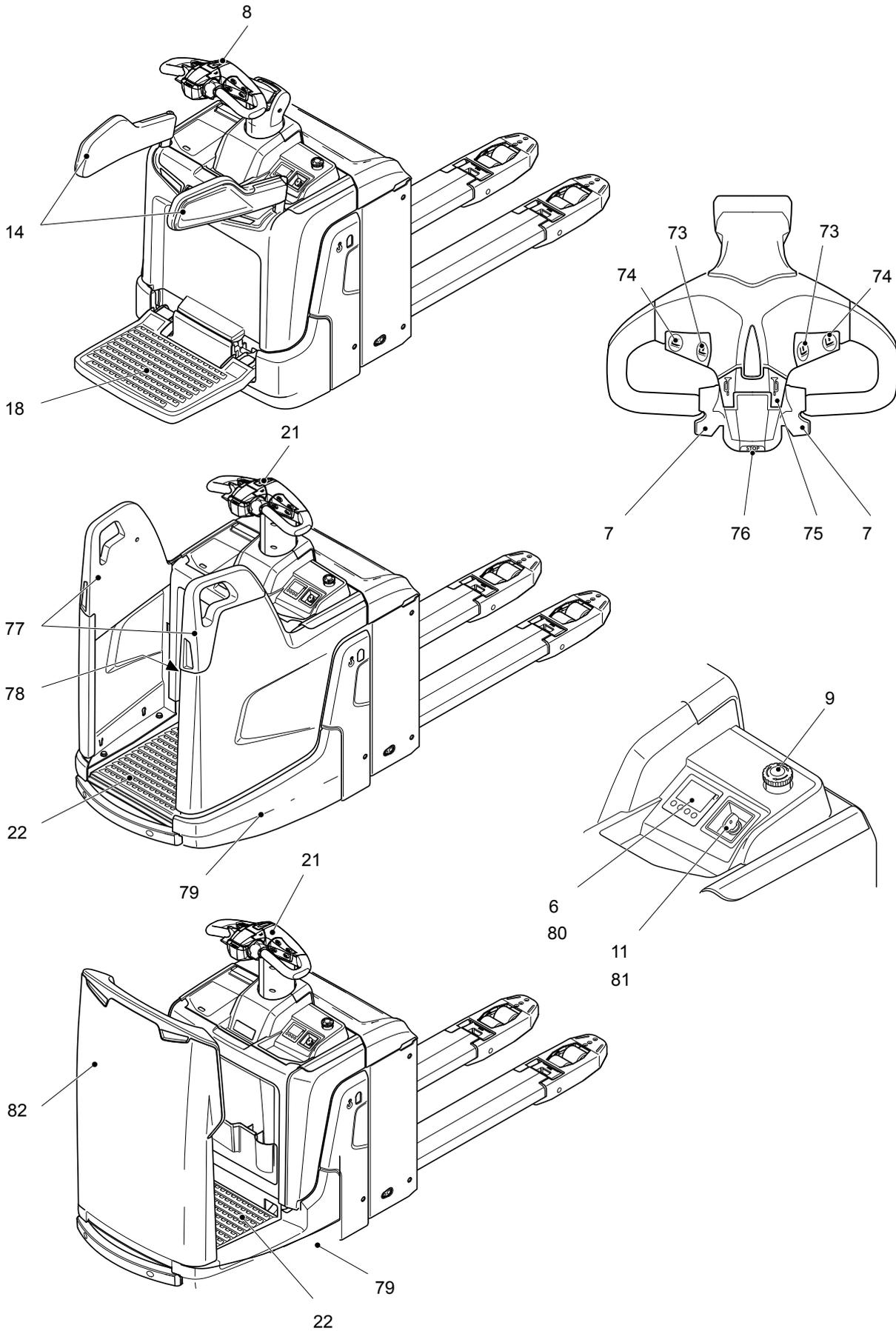
A hazardous area is defined as the area in which people are at risk due to travel or lifting operations of the truck, its load handler or the load. This also includes the area within reach of falling loads or lowering/falling operating equipment.

- ▶ Instruct unauthorised persons to leave the hazardous area.
 - ▶ In case of danger to third parties, give a warning signal in good time.
 - ▶ If unauthorised persons are still within the hazardous area, stop the truck immediately.
-

Safety devices, warning signs and warning instructions

Safety devices, warning signs (see page 35) and warning instructions in the present operating instructions must be strictly observed.

2 Displays and Controls



Item	Control/display		Function
6	Charge status indicator	●	Display of the charge/discharge status of the battery.
7	Travel switch	●	Control of the travel direction and travel speed.
8	Swivelling tiller ("folding operator platform" version)	●	Steering and braking (see page 101) the truck
9	Emergency disconnect switch	●	Disconnect all active parts of the truck from the battery by pressing the emergency disconnect switch.
11	Key switch	●	Activates the truck by applying the control voltage Removing the key prevents the truck from being switched on by unauthorised personnel.
14	Folding side arms ("folding operator platform" version)	○	When the side restraints are not unfolded and the standing platform is laden and unfolded: – Travel speed restricted to max. 6 km/h.
18	Folding operator platform	●	Pedestrian mode – Operator platform up: Pedestrian travel speed restricted to max. 4,5 km/h Ride mode, operator platform with platform sensing: – Operator platform down and vacated: Travel inhibited. – Operator platform down and laden by operator (both side arms must be folded fully out or in): Travel function enabled
21	smartPILOT ("fixed operator platform" version)	●	Steering the industrial truck.
	smartPILOT ("fixed operator platform", height-adjustable version)	○	
22	Fixed operator platform (all functions enabled when occupied)	●	only ride mode, operator platform with platform sensing: – Operator platform occupied: Travel and all functions enabled – Operator platform unoccupied: The truck is coasting to a stop
	Weight-dependent adjustable comfort platform	○	
73	"Lift" button	●	Raises the lift mechanism.
74	"Lowering" button	●	Lowers the lift mechanism.

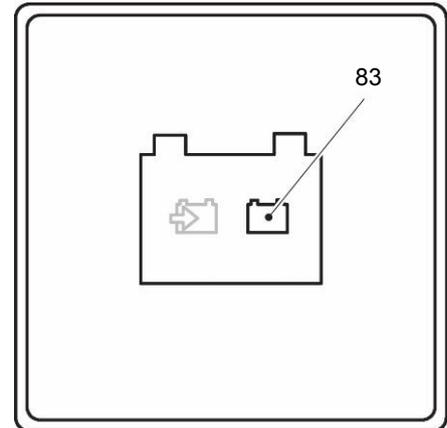
Item	Control/display		Function
75	Warning signal (horn) button	●	Triggers an audible signal – Warning signal button
76	Stop button or collision safety switch	●	Safety function – “Fixed operator platform” version: The truck is braked.
			Safety feature on the folding operator platform – Pedestrian mode: When applied, the truck travels for approx. 3 seconds in the fork direction. The parking brake is then applied. The truck remains switched off until the travel switch is set to neutral. – Rider mode: No function (optional function available as for pedestrian mode)
77	Rigid side arms ("fixed operator platform" version)	●	Rider mode only possible.
78	Lever	○	Adapts the adjustable comfort platform to the operator's weight.
79	Side collision protection	●	Driver protection
80	Display unit	○	Display for: – Battery charge status – Battery capacity – Service hours – Travel program – Load weight (○) – Residual running time – Travel speed – Warning indicators – Event messages
	Soft keys under the display unit	○	Selection of – Travel program – Options
			Truck release by entering master and access codes

Item	Control/display		Function
81	Transponder reader	<input type="radio"/>	Replaces the key switch – Solely to expand the display unit – Releases the truck via a card/transponder
	Keypad	<input type="radio"/>	Replaces the key switch – Solely to expand the display unit – Truck release by entering master and access codes
	ISM Online access module	<input type="radio"/>	Replaces the key switch – Releases the truck via a card/transponder – Displays readiness for operation – Operational-data logging – Data exchange with card/transponder
82	Rigid side arms ("L platform with fixed operator platform" version)	<input checked="" type="radio"/>	Rider mode only possible.
		<input checked="" type="radio"/> = Standard equipment	<input type="radio"/> = Optional equipment

2.1 Charge Status Indicator

After the truck has been started, the charge status of the battery is shown. The LED (83) colours represent the following conditions:

LED colour	Charge status
Green	40 - 100%
Orange	30 - 40 %
Green/orange flashes 1 Hz	20 - 30 %
Red	0 - 20 %



- If the LED is lit red, load can no longer be lifted. Lifting is only enabled when the battery connected is at least 70% charged.
- If the LED flashes red and the truck is not ready for operation, inform the manufacturer's customer service department. Red flashing is a truck controller code. The flashing sequence indicates the type of fault.

2.2 Battery discharge monitor

- The standard setting for the battery discharge indicator / discharge monitor is based on standard batteries. When using maintenance-free batteries or special batteries, the display and cut-off points of the battery discharge monitor must be set by the manufacturer's customer service department. If this setting is not configured, the battery may be damaged due to deep discharge.

NOTICE

Full discharge can damage the battery

Self-discharge can cause the battery to fully discharge. Full discharge shortens the useful life of the battery.

► Charge the battery at least every 2 months.

- Charge the battery see page 55.

If the residual capacity falls below the required level, lifting is inhibited. A corresponding display (83) appears.

3 Starting up the truck

3.1 Checks and Operations to Be Performed Before Starting Daily Work

⚠ WARNING!

Damage and other truck or attachment (optional equipment) defects can result in accidents.

If damage or other truck defects are discovered during the following checks, the truck must be taken out of service until it has been repaired.

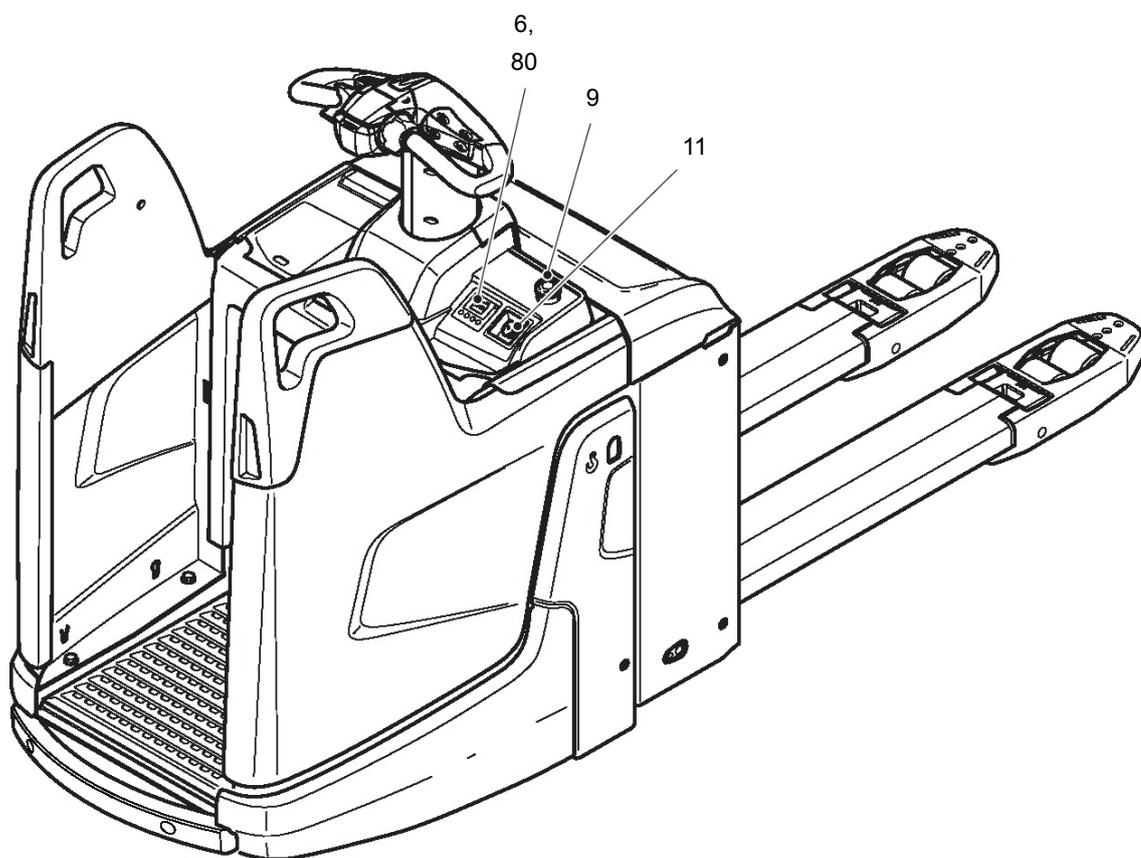
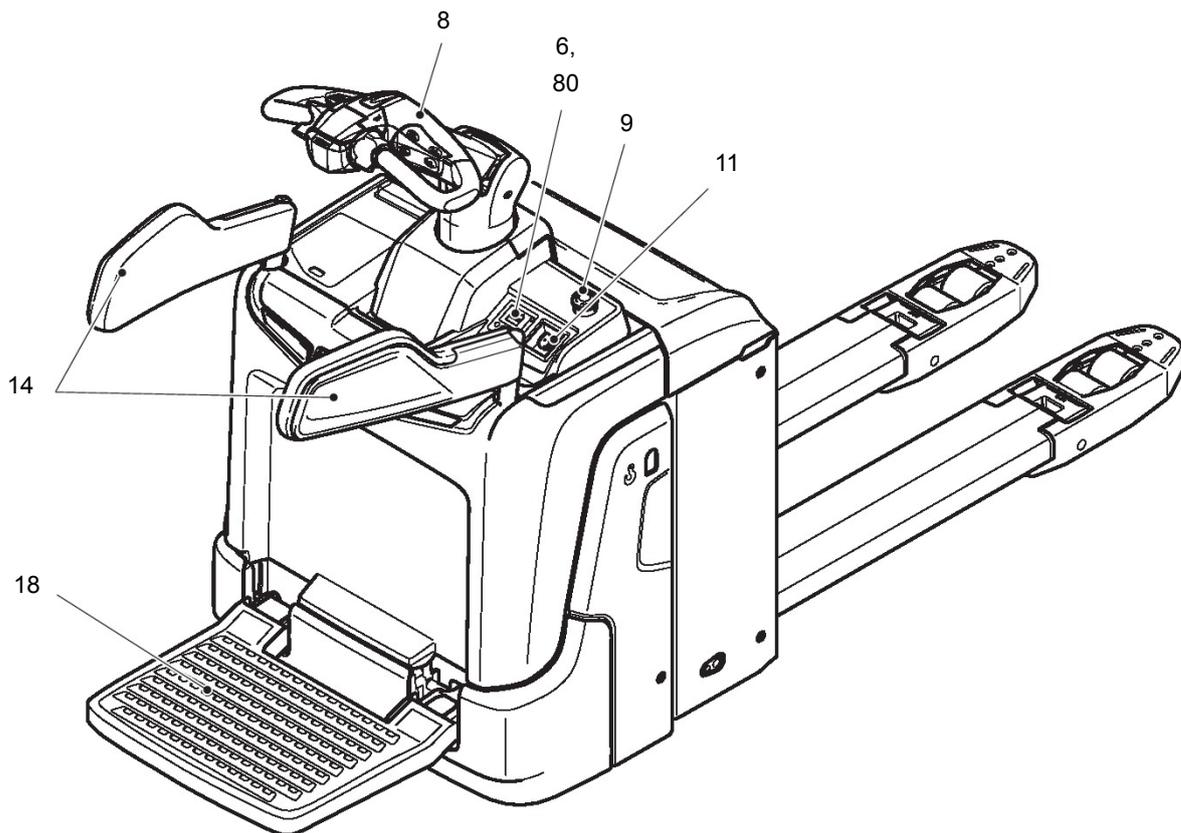
- ▶ Report any defects immediately to your supervisor.
- ▶ Mark the defective truck and take it out of service.
- ▶ Do not return the truck to service until you have identified and rectified the fault.

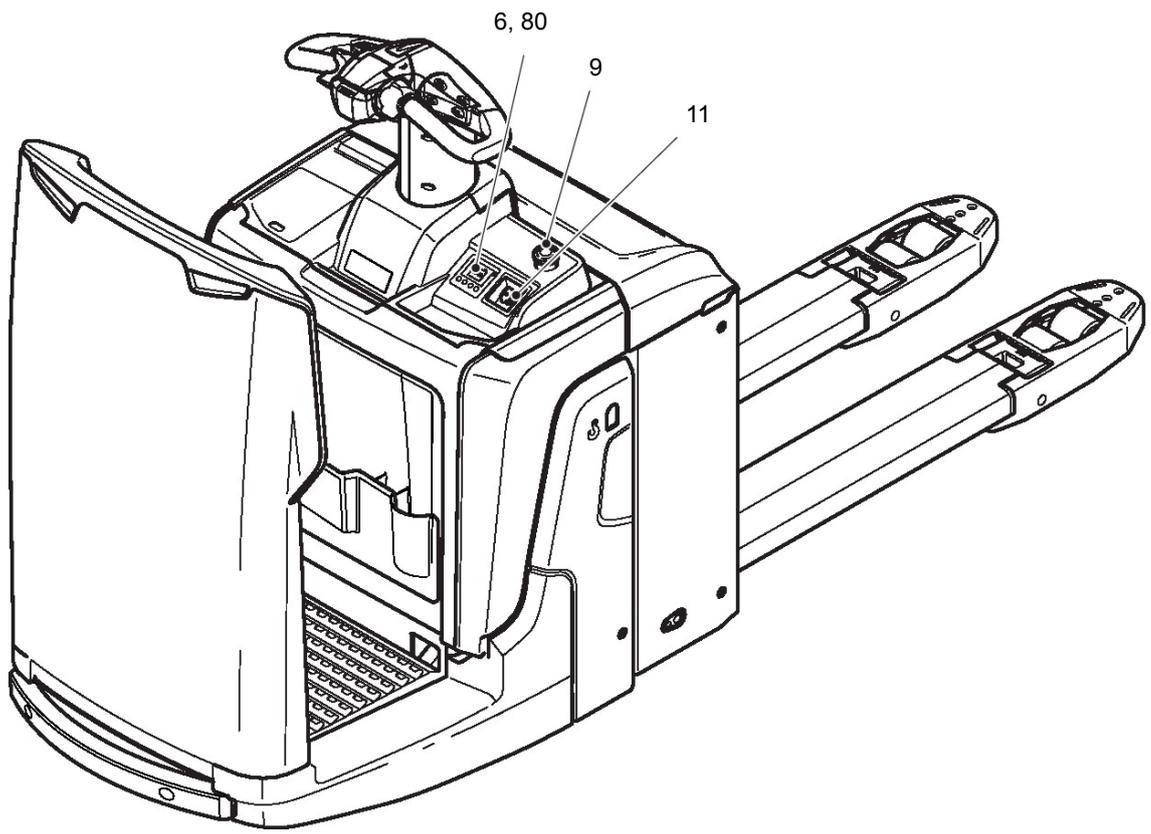
Inspection before daily operation

Procedure

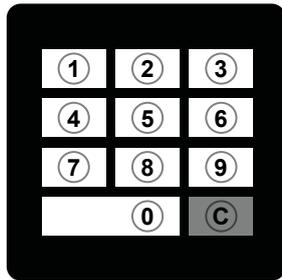
- Check the whole of the outside of the truck for signs of damage and leaks.
Damaged hoses must be replaced immediately.
- Check that the battery is securely mounted and that the cable connections are free of damage and firmly secured.
- Check that the battery connector is secure.
- Check the load handler for visible signs of damage such as cracks, bent or severely worn forks.
- Check the drive wheel and load wheels for damage.
- Check the markings and labels for completeness and legibility, see page 35.
- Check the protective mesh (○) and the attachment are secure and damage-free.
- Ensure that the drive panels and covers are secure and check for damage.
- Check that the swivelling tiller (damper) reverts back to its normal position.
- Check that the controls automatically return to the neutral position after actuation.

3.2 Preparing the truck for operation

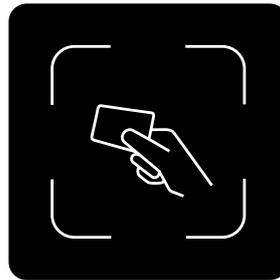




80



84



85



86

Switching on the truck

Requirements

- Checks and operations before starting daily work performed, see page 81.

Procedure

- Trucks with folding operator platform: Fold out the folding operator platform (18) and side arms (14).
 - Step onto the operator platform.
 - Turn the emergency disconnect switch (9) to unlock it.
 - Switch on the truck. To do this:
 - Insert the key into the key switch (11) and turn it as far to the right as it will go.
 - Enter the code in the display unit (80), see page 128.
 - Enter the code in the keypad (84), see page 133.
 - Hold the transponder in front of the transponder reader (85), see page 138.
 - Hold the card or transponder in front of the ISM Online access module (86) and press the  button on the ISM Online access module, see page 124.
- For trucks with a folding operator platform, the tiller (8) must be in the upper brake zone "B". If event message "E1914.1" is shown on the display unit (○), pivot the tiller to the upper brake zone "B", see page 94.
- For checks and operations to be carried out when the truck is operational, see page 85.

Truck is operational.

- After switching on, the travel program that was active when the truck was switched off is always active. Check the travel program.
- The display unit (80) (○) shows the available battery capacity.

WARNING!

Accidental truck movement can cause injury

Do not press the travel switch when leaving the operator platform.

3.3 Checks and operations to be carried out when the truck is operational

⚠ WARNING!

Risk of accident due to damage to or other defects in the truck and optional features

If damage or other truck or attachment (optional equipment) defects are discovered during the following checks, the truck must be taken out of service until it has been repaired.

- ▶ Report any defects immediately to your supervisor.
- ▶ Mark defective truck and take out of service.
- ▶ Do not return the industrial truck to service until you have identified and rectified the fault.

Procedure

- Test warning devices and safety equipment:
 - Test the Emergency Disconnect function by pressing the Emergency Disconnect switch. The main circuit is disconnected and no truck operations can be performed. Now turn the emergency disconnect switch to release it, see page 91.
 - Test the horn by pressing the "warning signal" button, see page 76.
 - Check braking efficiency, see page 101.
 - Test the steering, see page 101.
 - Test the hydraulic system, see page 105.
 - Test the travel functions, see page 94.
 - Test the safety collision switch by applying the safety collision switch button while travelling in the drive direction.
 - Trucks with pivoting tiller: Set the tiller to the upper position. The truck may not move. Repeat the test with the tiller in the lower position.
- Test the controls and displays and check for damage, see page 76.
 - Check tiller return function.
 - Check that the controls automatically return to the zero position after actuation.

3.4 Parking the truck securely

⚠ WARNING!

An unsecured truck can cause accidents

Do not leave an unsecured truck.

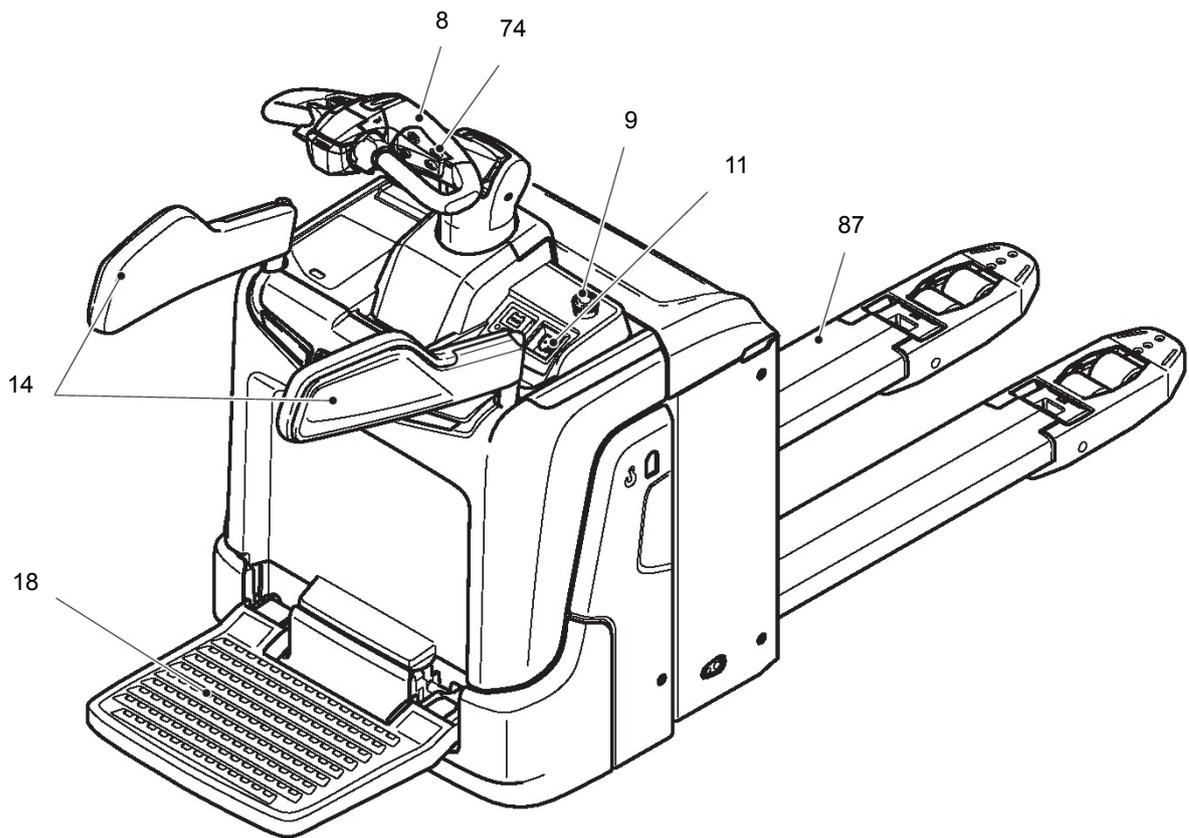
- ▶ Park the truck securely when leaving it.
 - ▶ Exception: If the operator intends to remain in the immediate vicinity and is leaving the truck for only a short while, the applied parking brake is sufficient to hold the truck, see page 104. Immediate vicinity is when the operator is able respond to malfunctions or attempts to use the truck by unauthorised persons immediately.
-

⚠ WARNING!

An unsecured truck can cause accidents

Do not park the truck on an incline. Do not park the truck without the brakes engaged. Do not park and leave the truck with the load handler raised.

- ▶ Park the truck on a level surface. In special cases the truck may need to be secured with wedges.
 - ▶ Fully lower the load handler when leaving the truck.
 - ▶ Select a place to park where no other people are at risk of injury from the lowered load handler.
 - ▶ If the brakes are not working, place wedges underneath the wheels of the truck to prevent it from moving.
-

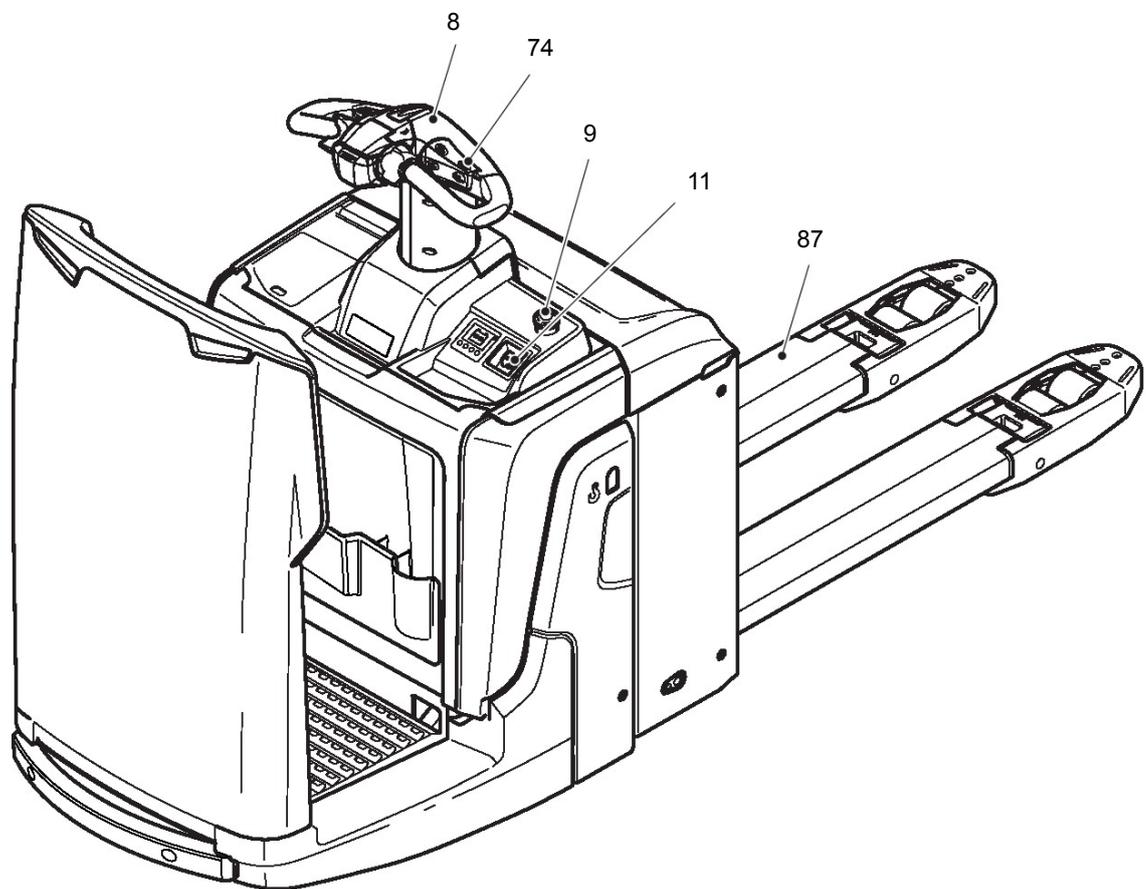
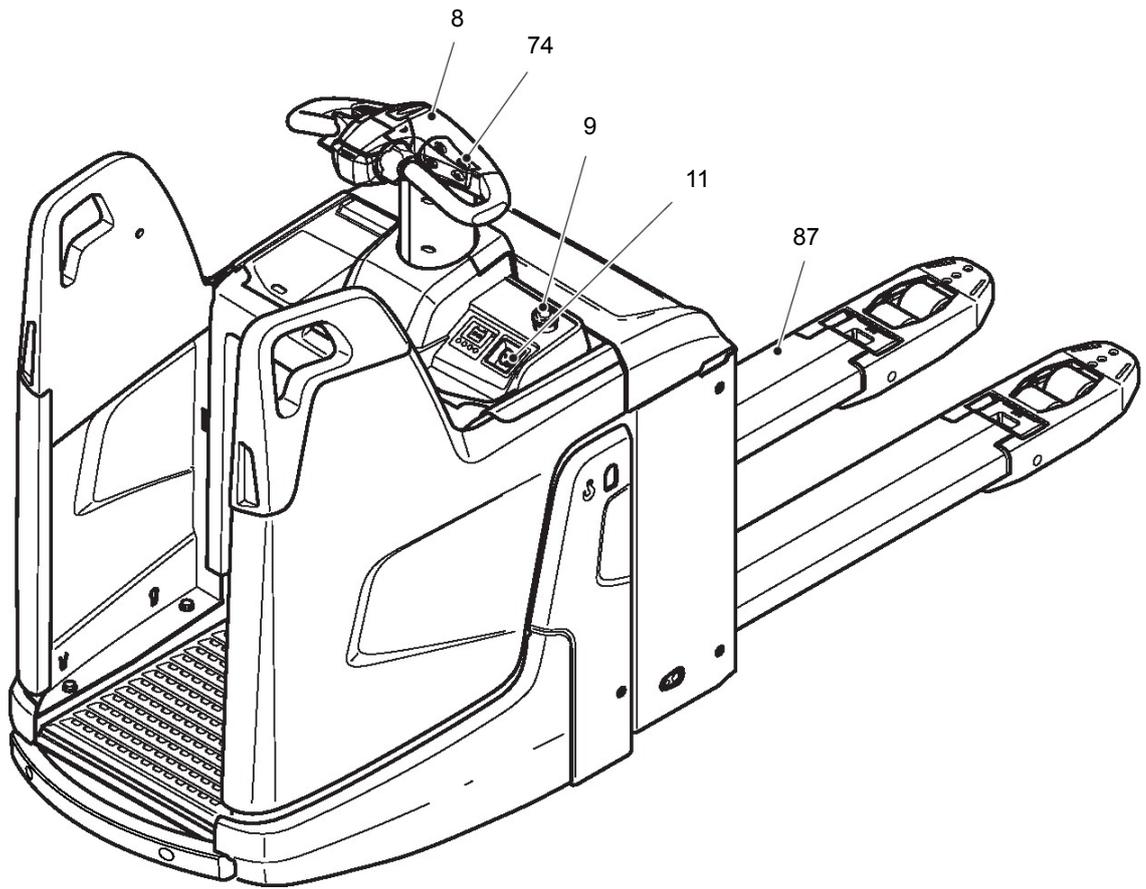


Parking the truck securely

Procedure

- Park the truck on a level, horizontal surface.
- Fully lower the load handler (87):
 - Press the lower button (74).
- Using the tiller (8), turn the drive wheel to the straight-ahead position.
- Switch off the truck; to do this:
 - Turn the key in the key switch (11) anti-clockwise as far as it will go. Remove the key from the key switch (11).
 - If equipped with a keypad (84): see page 133.
 - If equipped with a transponder reader (85): see page 138.
 - Press the  button on the ISM Online access module (86).
- Press the emergency disconnect switch (9).
- Fold in the folding side arms (○) (14).
- Fold up the folding operator platform (18).

Truck is parked securely.



4 Industrial Truck Operation

4.1 Safety regulations for truck operation

Travel routes and work areas

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

The truck must only be operated in work areas with sufficient lighting to avoid danger to personnel and materials. Additional equipment is necessary to operate the truck in areas of insufficient lighting.

DANGER!

Do not exceed the permissible surface and point loading on the travel lanes.

At blind spots get a second person to assist.

The driver must ensure that the loading dock /dock leveller cannot be removed or come loose during loading/unloading.

Travel conduct

The operator must adapt the travel speed to local conditions. The truck must be driven at slow speed when negotiating bends or narrow passageways, when passing through swing doors and at blind spots. The operator must always observe an adequate braking distance between the forklift truck and the vehicle in front and must be in control of the truck at all times. Abrupt stopping (except in emergencies), rapid U turns and overtaking at dangerous or blind spots are not permitted. Do not lean out or reach beyond the working and operating area.

Travel visibility

The operator must look in the direction of travel and must always have a clear view of the route ahead. If the truck is carrying loads that affect visibility, the truck must travel against the load direction. If this is not possible, a second person must walk alongside the truck as a lookout to observe the travel route while maintaining eye contact with the operator. Proceed only at walking pace and with particular care. Stop the truck as soon as you lose eye contact.

Negotiate slopes and inclines

Do not negotiate slopes and inclines (permissible slope and incline values see page 26) unless they are marked as traffic lanes. The slopes and inclines must be clean and non-slip and it must be possible to negotiate them safely in accordance with the truck's technical specifications. The travel direction when negotiating slopes and inclines is dependent on several factors, see page 111. The truck must not be turned, operated at an angle or parked on inclines or slopes. Inclines must only be negotiated at slow speed, with the driver ready to brake at any moment.

Negotiating lifts, loading ramps and docks

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

Type of loads to be carried

The operator must make sure that the load is in a satisfactory condition. Loads must always be positioned safely and carefully. Use suitable precautions to prevent parts of the load from tipping or falling down. Prevent liquid loads from sloshing out.

⚠ WARNING!

Electromagnetic influence can result in accidents

Strong magnets can cause electronic components such as Hall sensors to become damaged, resulting in accidents.

- ▶ Do not use magnets in the operating area of the truck. Exceptions to this rule are commercial, weak clamping magnets for attaching notices.
-

4.2 How to act in hazardous situations

⚠ CAUTION!

If the truck is in danger of tipping over or falling off a loading ramp, proceed as follows:

▶ Abandon the truck.

- When travelling on a loading ramp, avoid steering and fold in the side arms as required to facilitate leaving the truck if it tips over.

4.3 Emergency Disconnect

⚠ CAUTION!

Applying maximum braking can result in accidents

Applying the Emergency Disconnect switch during travel will cause the truck to decelerate to a halt at maximum force. This may cause the load to slide off the load handler. There is a higher risk of accidents and injury.

- ▶ Do not use the Emergency Disconnect switch as a service brake.
 - ▶ Use the Emergency Disconnect switch during travel only in emergencies.
-

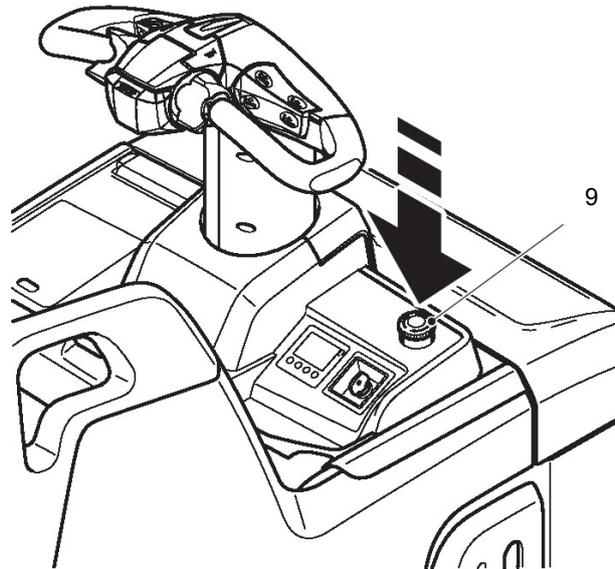
⚠ CAUTION!

Faulty or non-accessible Emergency Disconnect switches can cause accidents

A faulty or non-accessible Emergency Disconnect switch can cause accidents. In dangerous situations the operator cannot bring the truck to a halt in time by applying the Emergency Disconnect switch.

- ▶ The operation of the Emergency Disconnect switch must not be affected by any objects placed in its way.
 - ▶ Report any defects on the Emergency Disconnect switch immediately to your supervisor.
 - ▶ Mark defective truck and take out of service.
 - ▶ Do not return the industrial truck to service until you have identified and rectified the fault.
-

**Press
the**



Emergency Disconnect switch

Procedure

- Press the Emergency Disconnect switch (9).

All main electrical functions are deactivated. The truck brakes to a halt.

- *When you press the Emergency Disconnect switch electric steering is cut out. Steering functions are disabled until the system is reset.*
- Press the Emergency Disconnect switch on in emergencies.
- Do not use the emergency disconnect switch as a service brake; otherwise, wear of the drive wheel will increase significantly.

Releasing the emergency disconnect switch

Procedure

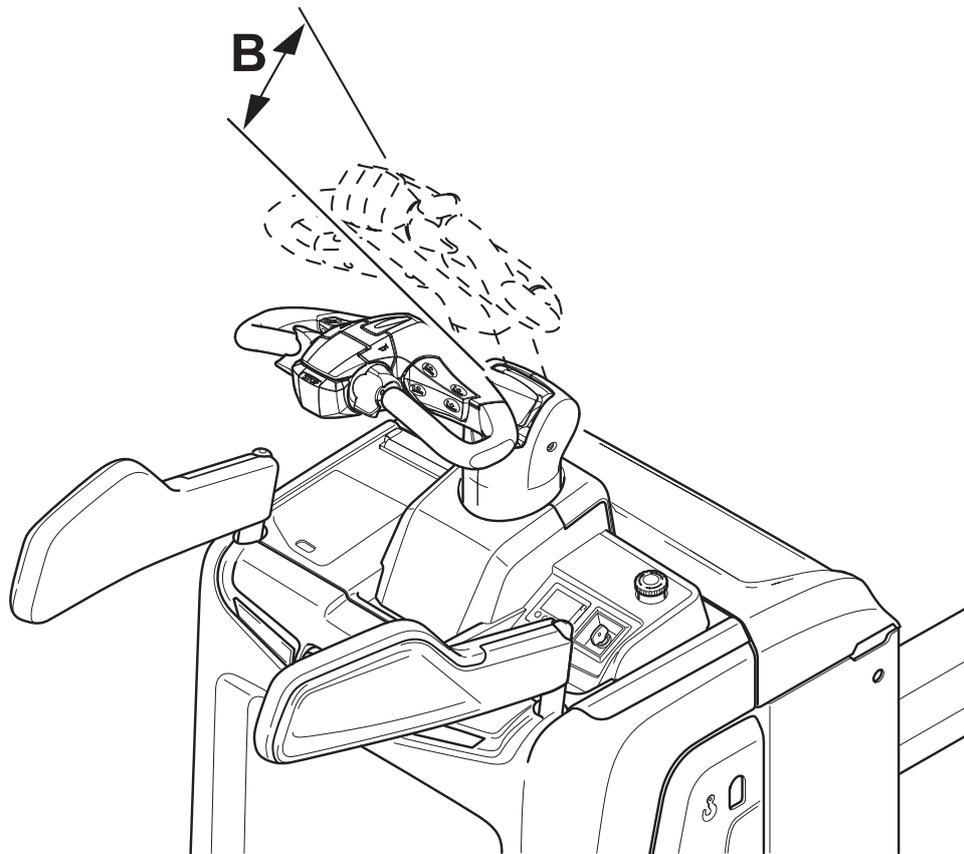
- Turn the emergency disconnect switch (9) to unlock it.

All electrical functions are enabled and the truck is operational again (provided the truck was operational before the emergency disconnect switch was pressed).

- If the truck is not equipped with a key switch, the truck is not operational after the emergency disconnect switch has been released. Prepare the truck for operation, see page 82.

4.4 Automatic braking

Trucks with a folding operator platform and swivelling tiller



- When the tiller is released, it returns automatically to the upper brake zone (B) and the brakes are applied automatically.

⚠ WARNING!

Risk of collision due to a defective tiller

Operating the truck with a defective tiller can lead to collisions with persons or objects.

- ▶ If the tiller returns to the brake position slowly or not at all, the truck must be taken out of service until the cause of this fault is rectified.
- ▶ Contact the manufacturer's customer service department.

4.5 Travel

⚠ CAUTION!

Trapping hazard from the truck during pedestrian mode

In pedestrian mode, the truck can pose a trapping hazard for the operator and other people.

- ▶ Wear personal protective equipment (e.g. safety shoes).
 - ▶ The truck must be operated with particular care and attention in pedestrian mode.
 - ▶ Make sure there are no other people standing between the truck and obstacles when operating in pedestrian mode.
-

- It is recommended that safety shoes be worn at all times when using the truck in rider mode to avoid injuries.
- A truck without side arms (●) behaves like a truck with folded-in side arms.

Anti-roll back device for slow travel on inclines

If the truck does not have sufficient speed to travel up an incline, it may roll back. Rolling back is detected by the truck's controller and the truck brakes to a halt immediately.

Reduced speed when the load handler is fully lowered (○)

When the load handler is fully lowered, the truck can only travel at reduced speed. The load handler must be raised in order to use the maximum available speed.

Industrial trucks with a folding standing platform and moving tiller

We distinguish between two travel modes:

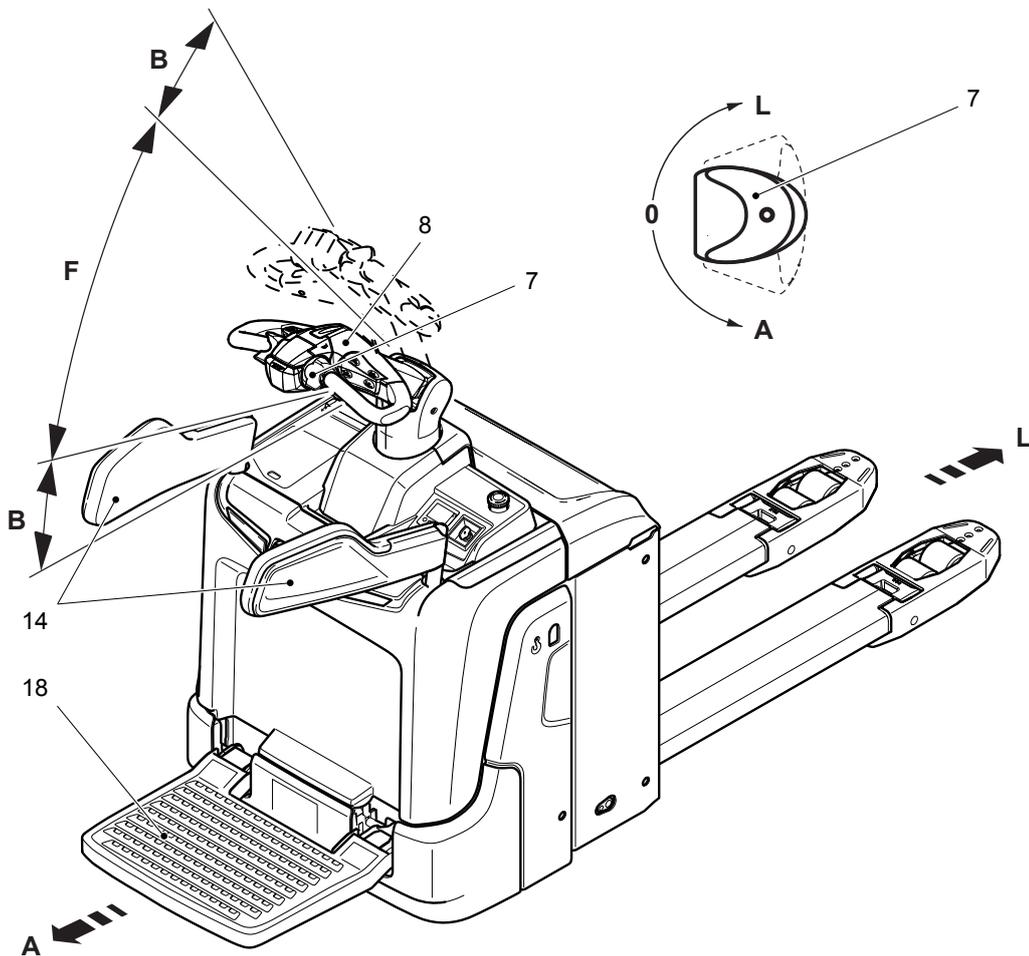
- Travel in pedestrian mode
- Travel in rider mode

⚠ WARNING!

Risk of trapping

Be extremely careful when driving and steering, especially if parts of your body extend outside the perimeter of the truck.

- ▶ Do not reach between the operator platform and the truck frame when you fold up the platform.
- ▶ In pedestrian mode, ensure that you are a sufficient distance from the truck.



Travelling in pedestrian mode

Requirements

- Truck prepared for operation, see page 81

Procedure

- Pivot both folding side arms (14) in.
- ➔ Both side arms must always be folded in (○), otherwise all functions are deactivated (E-1953.1).
 - Fold up the operator platform (18).
 - Swing the tiller (8) into the travel zone (F).
 - Push the travel switch (7) in the load direction (LD) or drive direction (DD).
- ➔ When the travel switch is released, it automatically returns to the zero position.
 - Control the travel speed with the travel switch (7).

The brakes are released and the truck moves in the selected direction.

- ➔ In pedestrian mode the truck can only operate at reduced speed.

Travelling in Rider Mode

Requirements

- Starting up the truck, see page 81

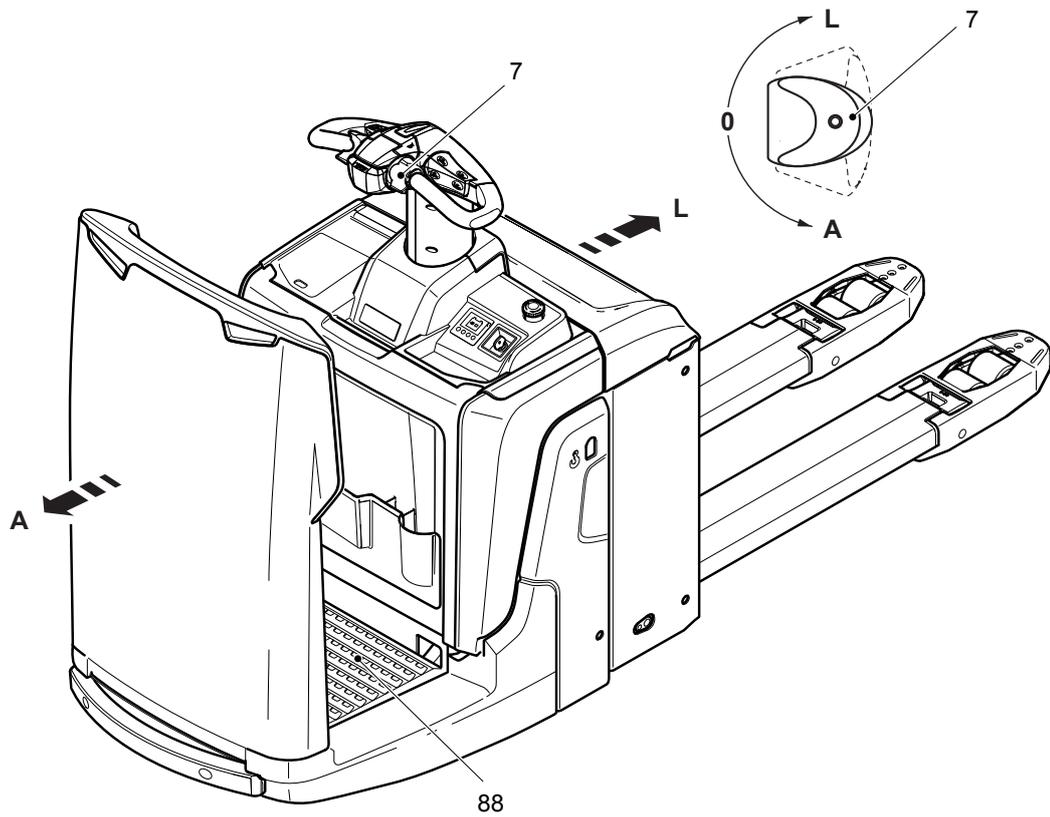
Procedure

- Fold out both folding side arms (14).
- ➔ Both side arms must be folded in or folded out at all times otherwise all functions will be deactivated (E-1953.1).
 - Fold down and step onto the stand-on platform (18).
 - Swing the tiller (8) into the travel zone (F).
 - Push the travel switch (7) in the load direction (LD) or drive direction (DD).
- ➔ When the travel switch is released, it automatically returns to the zero position.
 - Control the travel speed with the travel switch (7).

The brakes are released and the truck moves in the selected direction.

NOTICE

- ▶ Travelling is inhibited when the operator platform is vacated and the side arms (○) are not folded out.
 - ▶ If the standing platform is occupied and the side arms are not folded out, the industrial truck can only be operated at reduced travel speed.
 - ▶ If the operator platform is occupied and only one side arm is folded out, travel is inhibited.
-



Requirements

- Start up the truck, see page 81

Procedure

- Step onto the operator platform (88).
- Push the travel switch (7) in the load direction (LD) or drive direction (DD).

→ When the travel switch is released, it automatically returns to the zero position.

- Control the travel speed with the travel switch (7).

The brakes are released and the truck moves in the selected direction.

4.6 Changing direction during travel

⚠ CAUTION!

Danger when changing direction during travel

Changing direction during travel causes the truck to decelerate sharply. When the truck changes direction, it can start travelling at high speed in the opposite direction unless the travel switch is released in time.

- ▶ After setting off in the opposite direction, apply the travel switch gently or not at all.
 - ▶ Do not perform any sudden steering operations.
 - ▶ Always face in the direction of travel.
 - ▶ Maintain an adequate overview of the route you are travelling.
-

Changing direction during travel

Procedure

- Set the travel switch (7) to the opposite direction while travelling.

The truck decelerates until it starts to travel in the opposite direction.

4.7 Operator platform

For rider mode, the operator platform (88) must be occupied before the travel switch is applied.

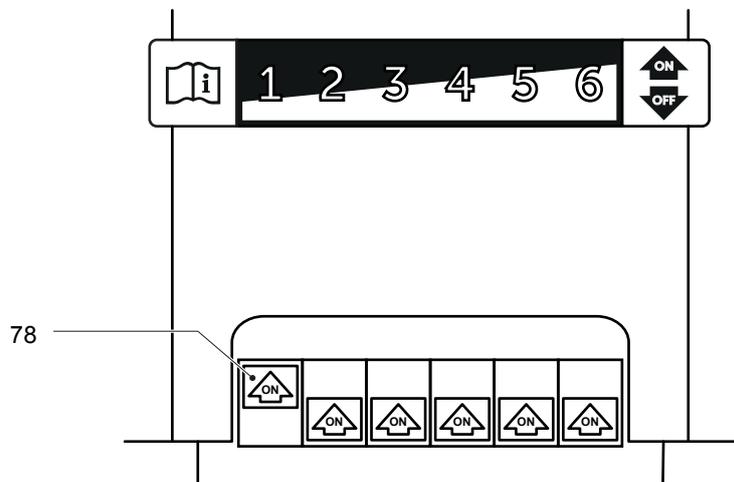
4.7.1 Adjustable comfort platform (○)

The comfort platform has an adjustable suspension to increase comfort while travelling on uneven ground. The human vibrations acting on the operator during travel are considerably reduced with the correct setting. Above the platform there are up to six gas pressure springs that can be applied via levers (78) to adapt to the operator's weight.

→ Gas pressure springs 5 and 6 have twice the compression force.

Recommended settings for adjustable comfort platform

Operator weight	Number of gas springs applied	
	Recommendation	Range
52 kg	0	0
62 kg	0	0 to 1
75 kg	1	0 to 2
87 kg	2	1 to 3
100 kg	3	2 to 4
125 kg	4	3 to 5
150 kg	5	4 to 6



Requirements

- Platform discharged.

Procedure

- Optionally you can apply up to six gas springs by moving the lever (78) up or push them away by moving the lever (78) down.
- Selecting too few gas pressure springs or insufficient suspension can cause the cushioned platform to touch the ground.
- Selecting too many gas pressure springs or an excessively hard suspension will mean that any human vibrations impacting on the operator during travel will not be reduced sufficiently.

Comfort platform is adjusted.

4.8 Steering

Procedure

- Swivel or rotate the swivelling tiller (8) or smartPILOT (21) to the left or to the right.

The truck is steered in the required direction.

4.9 Brakes

⚠ CAUTION!

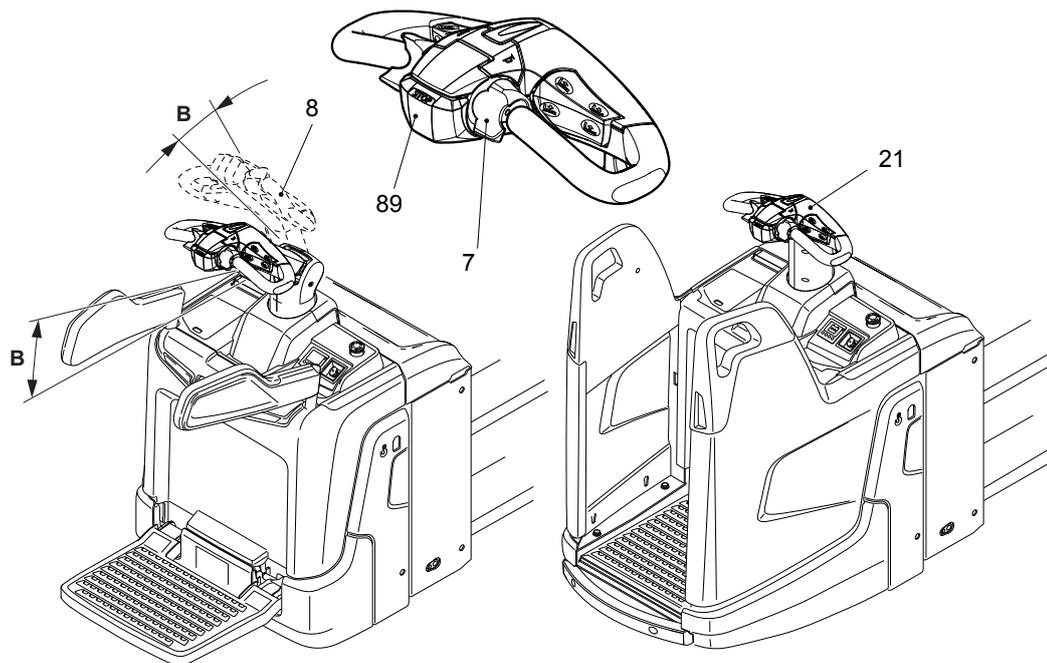
- ▶ In hazardous situations, swing the tiller to the brake position or press the emergency disconnect switch.
-

The brake pattern of the truck depends largely on the travel conditions and the load. The driver must take this into account when driving the truck.

The truck can brake in different ways:

- with inversion braking (travel switch reverse)
- with the regenerative brake (coasting brake).
- with the stop button with fixed operator platforms (○) (service brake),
- with the emergency disconnect switch
(Press only in an emergency, as damage to the drive wheel may occur).
- with the tiller in braking zone 'B' (folding operator platform only).

4.9.1 Braking with the service brake



Braking with the stop button

Procedure

- Press the stop button (89).

The truck brakes to the maximum.

- This braking mode is only available on trucks with fixed operator platform and electric steering.

Braking with the swivelling tiller in the "B" zone

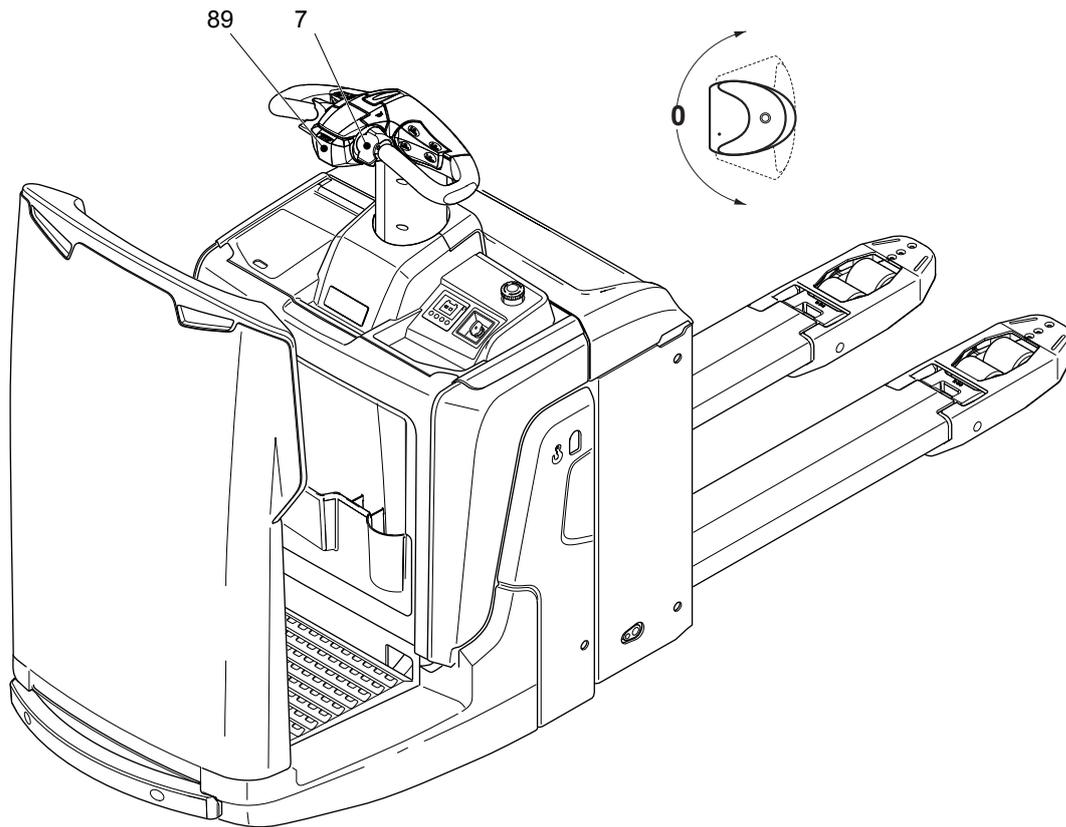
Procedure

- Move the pivoting tiller (8) up or down to one of the brake zones (B).

The truck decelerates at the maximum rate and the brake is applied to bring it to a halt.

- This braking mode is only available on trucks with pivoting tiller.
- With non-pivoting tillers (21), the stop button (76) is defined as a service brake. The following settings are possible in this regard:
- The truck brakes to a halt after pressing the stop button (default setting).
 - The truck is decelerated for as long as the stop button is pressed.

4.9.2 Regenerative braking



Procedure

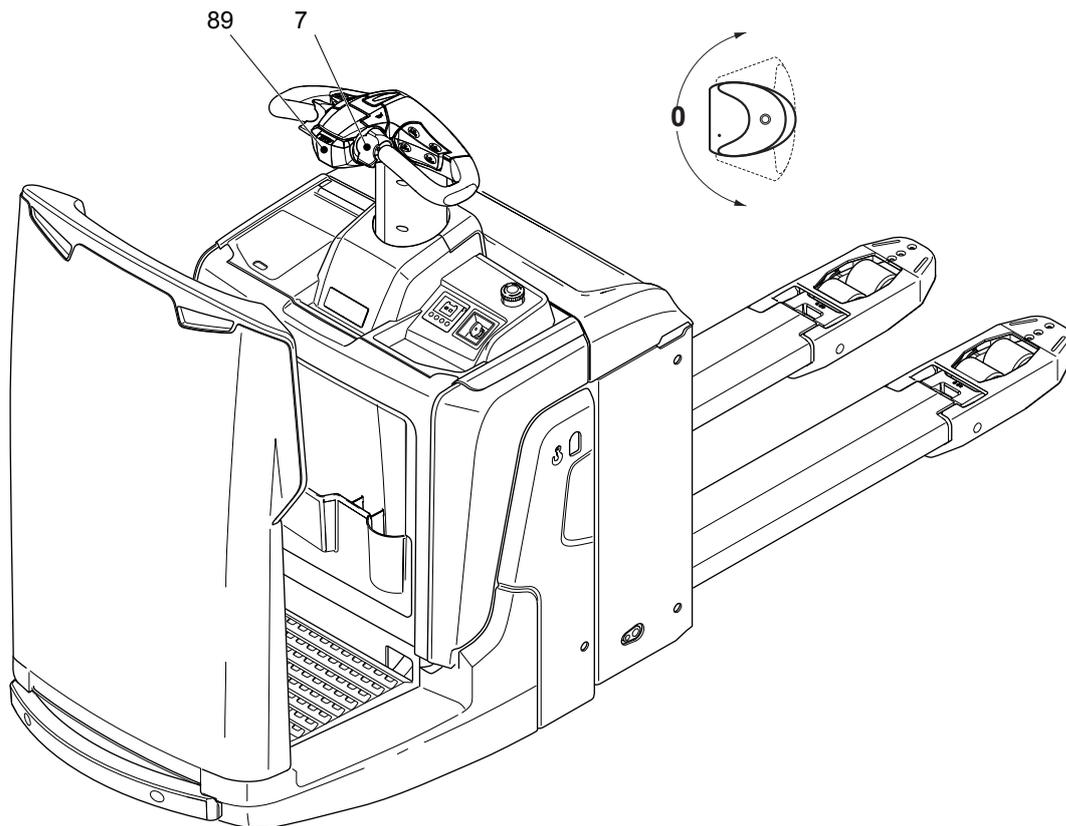
- When the travel switch (7) is set to the zero position (0), the truck brakes regeneratively.

The truck brakes regeneratively to a halt.



With regenerative braking, energy is fed back to the battery.

4.9.3 Inversion braking



Procedure

- Set the travel switch (7) to the opposite direction while travelling, see page 98.

The truck brakes regeneratively until it starts to move in the opposite direction.

4.9.4 Parking brake

- ➔ Depending on the model version, the mechanical brake engages immediately on standstill, or a few seconds thereafter, to prevent the truck from rolling away. In the event of a fault in the system or if the truck is switched off, the brake engages immediately, irrespective of the model.
- ➔ In the event that the truck is switched off manually before the mechanical brake has engaged, there will be a noticeable jolt.

4.10 Load handler raise/lower

WARNING!

Risk of accidents during lifting and lowering

People can be injured in the hazardous area of the truck.

The hazardous area is defined as the area in which people are at risk from movements of the truck including the load handler, etc. This also includes areas that can be reached by falling loads, operating equipment, etc.

Apart from the operator (in the normal operating position), no other people are permitted in the hazardous area of the truck.

- ▶ Instruct other people to move out of the hazardous area of the truck. Stop using the truck immediately if people do not vacate the hazardous area.
- ▶ If people do not leave the hazardous area despite the warning, prevent the truck from being used by unauthorised people.
- ▶ Only carry loads that have been correctly secured and positioned. Use suitable precautions to prevent parts of the load from tipping or falling down.
- ▶ Never exceed the maximum loads specified on the capacity plate.
- ▶ Do not stand on the load handler.
- ▶ Never reach or climb into moving truck parts.
- ▶ Do not climb onto parts of the building or other trucks.

WARNING!

Risk of electric shock

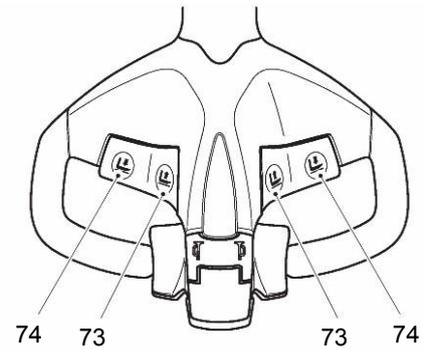
Do not lift loads if the truck is operated via a tow lead with an external battery.

- ▶ Disconnect the trailing cable from the truck.

4.10.1 Lifting or lowering the load handler without the automatic lifting/lowering function

Requirements

- Truck operational, see page 82.



Procedure

- Press the “Raise load handler ” button (73) until you reach the desired lift height.

The load handler is raised.

NOTICE

Automatic lift cut-off

The ERE 120 - 225 drivePLUS is equipped with automatic lift cut-off. This function can be triggered by the operator when needed. The “Raise load handler” button (73) must be pressed for approx. 5 seconds until automatic cut-off. Additional lifting is then terminated automatically by the system in order to save energy.

Procedure

- Press the “Lower load handler” button (74) until you reach the desired lift height.

The load handler is lowered.

4.10.2 Lifting or lowering the load handler with the automatic lifting/lowering function - positionCONTROL (o)

WARNING!

Risk of accidents while lifting with the automatic lifting function

Damage can occur from the use of the automatic lifting function in the hazardous area of the truck, since this function cannot be cancelled by releasing a control.

- ▶ Be particularly careful when activating automatic lifting.
 - ▶ Avoid activating automatic lifting accidentally.
-

After activation by the operator, automatic lifting enables the truck to lift continuously up to a set free lift height or above the intermediate height up to the lift limit.

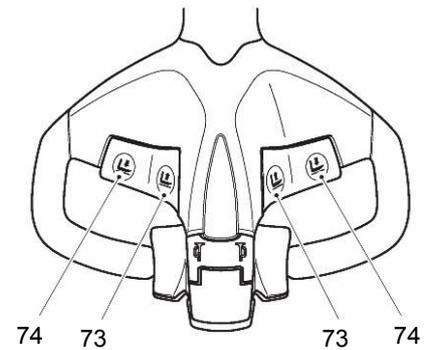
After activation by the operator, automatic lowering enables the truck to lower continuously down to a set lifted height or below the lifted height down to the lowering limit.

The automatic lifting/lowering function can be activated and deactivated using the options menu on the display unit, see page 118.

- The status and usage of the automatic lifting/lowering function are shown on the display unit, see page 121.
- The free lift height, lifted height and time interval until activation of the automatic lifting/lowering function can be set by the manufacturer's customer service department.

Requirements

- Truck operational, see page 82.



Procedure

- Briefly press the "Raise load handler" button (73).

The load handler is raised continuously up to the free lift height.

Procedure

- Briefly press the "Lower load handler" button (74).

The load handler is lowered continuously down to the lifted height or the lowering limit.

- Actuating the emergency disconnect switch or vacating the platform will interrupt automatic lifting/lowering.
- Pressing the respective button for longer allows the height of the load handler to be adjusted manually, including whilst using the automatic raise/lower function.

4.11 Lifting, transporting and depositing loads

⚠ WARNING!

Risk of accident due to unsecured and incorrectly positioned loads

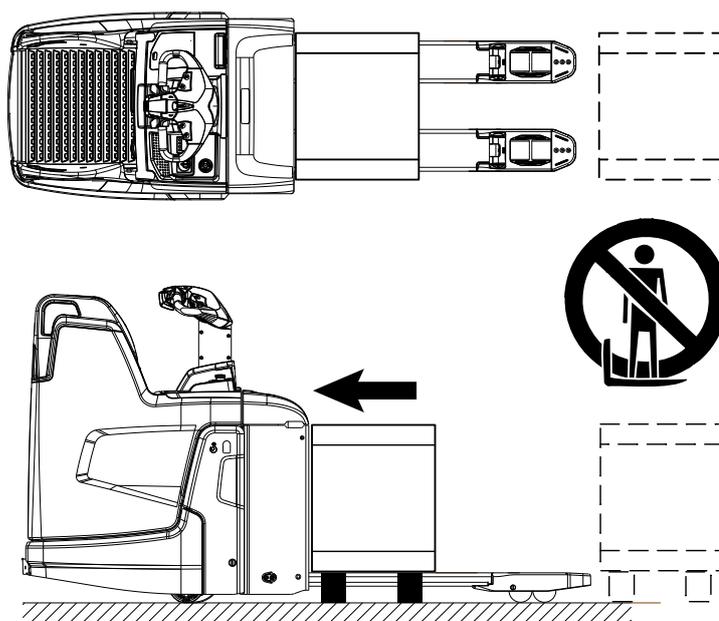
Before lifting a load, the operator must ensure that it has been correctly palletised and does not exceed the truck's rated capacity.

- ▶ Instruct other people to move out of the hazardous area of the truck. Stop using the truck immediately if people do not vacate the hazardous area.
- ▶ Only transport loads that have been correctly secured and positioned. Use suitable precautions to prevent parts of the load from tipping or falling down.
- ▶ Damaged loads must not be transported.
- ▶ Never exceed the maximum loads specified on the capacity plate.
- ▶ Do not stand on the load handler.
- ▶ Do not pick up people.
- ▶ Insert the load handler as far as possible underneath the load.

⚠ CAUTION!

- ▶ Picking up longitudinal goods (e.g. pipes, rods, etc.) from the side is not permitted.
-

4.11.1 Raising a load



Requirements

- Load correctly palletised.
- Load weight does not exceed the maximum capacity of the truck.
- Load handler evenly laden for heavy loads.
- Load does not protrude more than 50 mm beyond the tips of the forks.

Procedure

- Drive the truck slowly up to the pallet.
- Insert the load handler slowly into the pallet until the pallet is against the back of the load handler (see right-hand graphic).
- Raise the load handler until you reach the desired lift height see page 105.

The load is raised.

⚠ WARNING!

Loss of traction when load not picked up correctly

If the load is not picked up correctly, transported as closely as possible to the battery carrier, the traction of the drive wheel is reduced. With heavier loads, this leads to poor acceleration and braking behaviour.

4.11.2 Transporting a load

Requirements

- Load raised correctly.
- Good ground conditions.

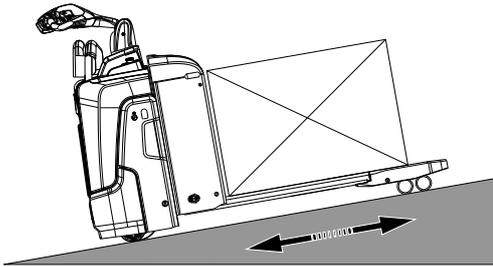
Procedure

- Accelerate and decelerate with care.
- Adapt your travel speed to the conditions of the travel paths and the load you are transporting.
- Travel at a constant speed.
- Be prepared to brake at all times:
 - Brake gently in normal circumstances.
 - Only stop abruptly in hazardous situations.
- Watch out for other traffic at crossings and passageways.
- Always travel with a lookout at blind spots.
- Do not travel across or at an angle on inclines. Do not turn on slopes or inclines.

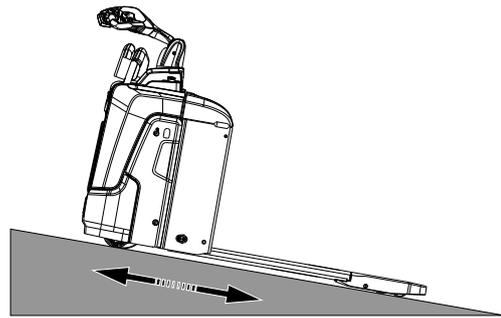


The travel direction when negotiating slopes and inclines is dependent on whether the truck is laden or unladen and whether the truck is in pedestrian mode or rider mode (see following figures).

Pedestrian mode - folding operator platform

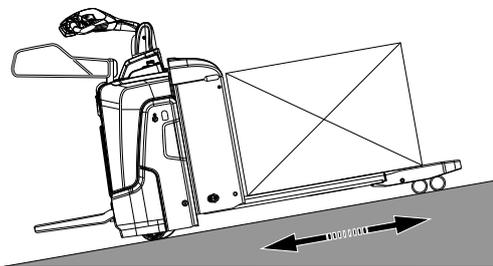


Travelling laden: The load must be transported on the upslope.

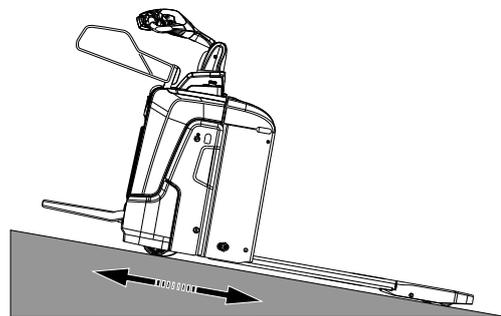


Travelling unladen: The load handler can be oriented towards the downslope.

Rider mode - folding operator platform:

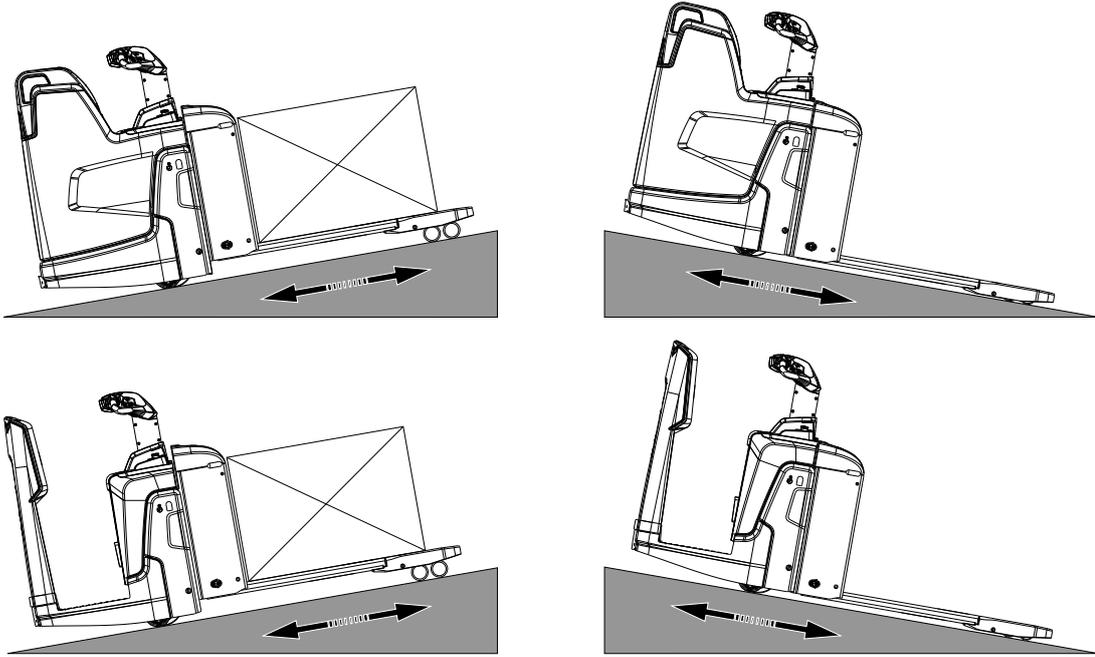


Travelling laden: The load must be transported on the upslope.



Travelling unladen: The load handler can be oriented towards the downslope.

Rider mode - fixed operator platforms



Travelling laden: The load must be transported on the upslope.

Travelling unladen: The load handler can be oriented towards the downslope.

4.11.3 Depositing a load

⚠ CAUTION!

Loads must not be deposited on traffic lanes or escape routes, or in front of safety equipment or operating equipment that must be accessible at all times.

Requirements

- Storage location suitable for storing the load.

Procedure

- Drive carefully up to the storage location.
- Lowers the load handler.
- Lower the load handler so that the load handler is clear of the load, see page 105.
- Carefully remove the load handler from the pallet.

The load is deposited.

5 Troubleshooting

This chapter enables the operator to localize and rectify basic faults or the results of incorrect operation himself. When trying to locate a fault, proceed in the order shown in the remedy table.



If, after carrying out the following remedial action, the truck cannot be restored to operation or if a fault in the electronics system is displayed with a corresponding error code, contact the manufacturer's service department.

Troubleshooting must only be performed by the manufacturer's customer service department. The manufacturer has a service department specially trained for these tasks.

In order for customer services to react quickly and specifically to the fault, the following information is essential:

- Truck serial number
- Event message from the display unit (if applicable)
- Error description
- Current location of truck.

5.1 Truck does not start

Possible cause	Actions
Battery connector not plugged in	Check the battery connector and connect if necessary
Emergency disconnect switch pressed	Unlock the emergency disconnect switch
Key switch in position "O"	Set the key switch to position "I"
Battery charge too low	Check battery charge and charge the battery if necessary
Faulty fuse	Check the fuses
Incorrect code entered in display unit (○)	Enter correct code, see page 128
Incorrect code entered in keypad (○)	Enter correct code, see page 133
Incorrect transponder used on transponder reader (○)	Use correct transponder, see page 138
Incorrect transponder used on ISM access module (○)	Use correct transponder, see page 143
Swivelling tiller not in brake position when the truck is switched on	Set the tiller to the top or bottom brake zone, see page 102
Only one side arm is folded out	Fold both side arms in/out

Possible cause	Actions
Stop switch/collision safety switch not in home position when truck switched on	Do not actuate the stop button/collision safety switch
"Raise load handler" button/"Lower load handler" button not in home position when truck switched on	Do not press the buttons
Travel switch not in home position when truck switched on	Do not actuate the travel switch
Operating sequence not observed (travel switch applied before the fixed operator platform or the folded-out folding operator's platform was occupied)	Follow the operating sequence

5.2 Load cannot be lifted

Possible cause	Actions
Truck not operational	Carry out all actions listed under "Truck does not start"
Hydraulic oil level too low	Check the hydraulic oil level
Battery discharge monitor has switched off	Charge the battery
Faulty fuse	Check the fuses
Excessive load	Observe the rated capacity, see data plate
"Raise load handler" button/"Lower load handler" button not in home position when truck switched on	Do not press the buttons

5.3 Lithium-ion battery fault

If any faults are found in the battery or the Jungheinrich charger, contact the manufacturer's customer service department immediately.

The operating company must not carry out any remedial work on its own.

Independent attempts to tamper with or repair the battery may invalidate the warranty. A service agreement with Jungheinrich will help identify faults.

WARNING!

Do not open the battery.

5.3.1 Restricted use (slow travel, lift cut-off, no travel) of the truck

Possible cause	Actions
<ul style="list-style-type: none"> – Error in a strand (event message 5195.x) The lithium-ion battery can still be used, but with reduced capacity. 	<ul style="list-style-type: none"> – Connect the lithium-ion battery to the battery charger. – If the malfunction persists, contact the manufacturer's customer service department.

→ For other malfunctions, see the truck operating instructions.

5.3.2 Truck can no longer be switched on

Possible cause	Action
<ul style="list-style-type: none"> – The lithium-ion battery has switched to energy-saving mode to protect against deep discharge. 	<ul style="list-style-type: none"> – Switch the lithium-ion battery from energy-saving mode to normal operation, see page 71. – Connect the battery to the battery charger. – If the malfunction persists, contact the manufacturer's customer service department.
<ul style="list-style-type: none"> – The lithium-ion battery was operated outside of the application range or has a fault. The following error messages indicate that the lithium-ion battery is being operated outside of the application range and will lead to the battery shutting down: <ul style="list-style-type: none"> – High temperature: E5409.1 – Low temperature: E5413.2 – Low voltage: E5344.1 / E5342.1 Before the lithium-ion battery is shut down, corresponding warnings appear on the truck. 	<ul style="list-style-type: none"> – Adjust the lithium-ion battery to the permissible application range, see page 14. – Connect the battery to the battery charger. – If the malfunction persists, contact the manufacturer's customer service department.

6 Operating the truck without its own drive system

The truck can be moved without its own drive system only when the drive wheel brake is disassembled.

6.1 Drive Wheel Brake Assembly and Disassembly

The brake may be disassembled and assembled only by authorised service personnel.

⚠ WARNING!

Uncontrolled truck movement

When the brake is disassembled, the truck must be parked on a level surface, since braking is no longer available.

- ▶ Do not disassemble the brake on slopes or inclines.
- ▶ Do not park the truck without the brake assembled.
- ▶ Assemble the brake again when you reach your destination.
- ▶ Return the truck to service only when you have identified and rectified the fault.

⚠ WARNING!

Only return the truck to service when you have identified and rectified the fault.

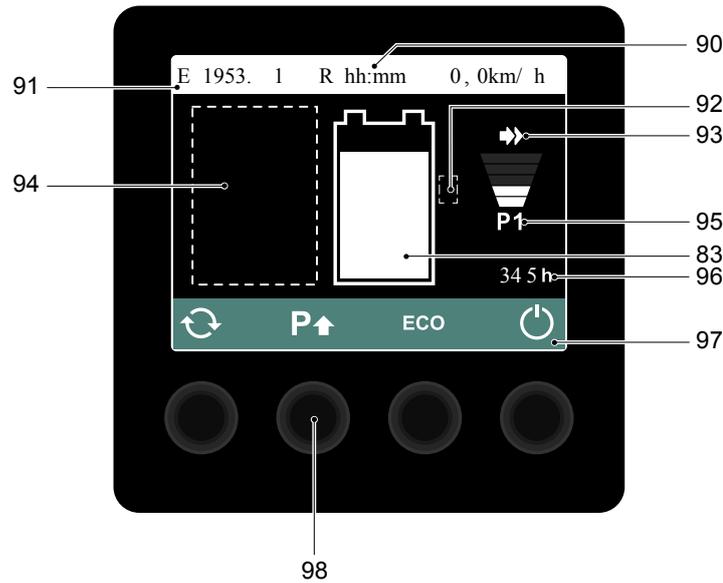
⚠ CAUTION!

Open covers can cause injury and accidents

- ▶ The covers (battery cover, side panels, drive compartment cover etc.) must be closed during operation.

7 Optional equipment

7.1 Display unit (2 inch display)



Item	Control or display	Function
83	Battery capacity display	Battery discharge status
90	Remaining running time	Displays remaining service life with available residual capacity of the battery
91	Information line	Displays event messages and optional information such as speed or weight (○).
92	Battery type (characteristics)	Shows the set battery type or characteristics ¹ 1 = Maintenance-free gel/dry-cell battery 2 = Special battery, for example XFC
93	Power display	Shows the current available travel power.
94	Icon field	Displays the icons, see page 121.
95	Travel program	Shows the travel program selected.
96	Service hours	see page 24
97	Button allocation	see page 118
98	Buttons	Selection buttons for the functions shown above them.

¹⁾ If the setting is for normal or high-performance wet batteries or batteries for special options, no battery type is shown.

7.1.1 Information field

Any event messages are shown in the left section of the information line (91).

The right section of the information line shows the truck speed in km/h or mph.

7.1.2 Button allocation of the display

Functions and operator menus that can be operated via the icons and keys of the display unit depend on the operating situation as well as the scope and settings of the truck.

Button allocation within the main menu

Symbol	Meaning
	Menu change: Changes to the next operator menu
	Travel program up: Changes the travel program
	Eco mode (○): Switches the energy-saving travel program Eco mode on/off Based on travel program 1, the travel speed and acceleration are reduced.
	Shutdown (○): Allows the truck to be switched off Shutdown is only on the display if the truck is switched on with an access code.

Button allocation in options menu (○)

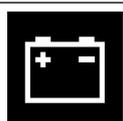
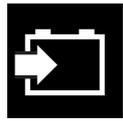
Symbol	Meaning
	Menu change: Changes to the next operator menu
	Settings (○): To change to the menu to administer the codes or transponders
	Automatic lifting/lowering function (○): Switches the automatic lifting/lowering function on/off
	"DayLED" position light (○): Switches the position light on/off
	positionCONTROL (○): Switches the function for automatic approach of predefined entry and lifted heights on and off

Button allocation in menu for managing codes or transponders (○)

Symbol	Meaning
	Change set-up code: To change the set-up code and to activate the keypad or the transponder reader.
	Edit access code / transponder: To add or delete access codes and transponders.
	Log-in history: Displays the chronological log-in history
	Up selection: To select access codes or transponders. To scroll back during the log-in process
	Down selection: To select access codes or transponders. To scroll forward during the log-in process
	Delete: To delete selected access codes.
	Add: To add new access codes.
	Back: Cancels the current procedure and returns to the previous menu.
	Confirm: To confirm an entry or a transponder code.

7.1.3 Symbols in the display

Any number of pictograms can be displayed in the pictogram field (94). Which pictograms are shown in the pictogram field depends on the operating and truck status.

Symbol	Meaning	Colour	Function
	Stop notice	Red	Truck malfunction detected. – Lifting, lowering and travel functions are deactivated.
	Warning	Yellow	Operating error
		Red	Truck malfunction detected – Lifting, lowering and/or travel functions reduced
	Eco mode (○)	Green	Energy-saving travel program
	Battery indicator, low residual capacity	Yellow	Battery capacity $\leq 30\%$ for wet-cell battery and lithium-ion batteries; battery capacity $\leq 50\%$ for maintenance-free batteries – Charge the battery soon.
		Red	Battery capacity $\leq 20\%$ for wet-cell battery and lithium-ion batteries; battery capacity $\leq 40\%$ for maintenance-free batteries – Charge the battery immediately.
	Charging process	Green	Battery charge display (on-board charger only): – Flashing: Charging in progress – Steady light: Charging complete
		Red	Charging interrupted
	High temperature	Yellow	High temperature detected – Lifting, lowering and travel functions reduced
		Red	High temperature detected – Lifting, lowering and travel functions deactivated

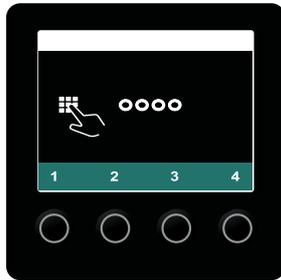
Symbol	Meaning	Colour	Function
	Lithium-ion battery low temperature (○)	Yellow	Lithium-ion battery low temperature detected – Discharge currents and energy recovery are reduced at low temperatures.
		Red	Lithium-ion battery below permissible temperature range – The truck is switched off via the battery contactor. – The display unit switches off.
	Side arms	Yellow	Illuminates when speed reduced if the side arms are not folded out and the operator platform is folded out.
		Red	Illuminates when travel functions are inhibited due to one or both side arms being folded out when the platform is folded in or due to a side arm not being folded out when the platform is folded out.
	Operator platform Deadman switch/foot protection (○)	Yellow	Illuminates if the fixed or folded-out operator platform is not under load when the travel switch is actuated. Illuminates when the foot protection light barrier (○) is interrupted.
	Tiller position	Yellow	Illuminates when the travel switch is actuated and the swivelling tiller is in the braking zone.
	Slow travel (○)	Yellow	Illuminates when a reduction in travel speed is required, e.g. optional when the load handler is fully lowered.
	Lift deactivated	Yellow	Illuminates if the lifting functions are shut off due to insufficient battery capacity.
	Lift limit Lifting inhibited	Yellow	Illuminates if the "lift" button is pressed when the lift limit has been reached. Illuminates if the "Raise load handler" button or the "Lower load handler" button is pressed when the swivelling tiller is in the brake zone.
	Lower limit (○) Lowering inhibited	Yellow	

Symbol	Meaning	Colour	Function
	Automatic lifting/lowering function (○): Continuous lifting up to the free lift height or lift limit, continuous lowering down to the lifted height or lower limit	Green	Automatic lifting/lowering function ready
		Yellow	Flashes when the load handler is raised or lowered via the automatic lifting/lowering function
	Shock display (ISM) (○)	Yellow	Medium-sized shock due to improper driver actions – Slow travel triggered
		Red	Severe shock due to improper driver actions – Lifting, lowering and travel functions are deactivated.
	"DayLED" position light (○)	Green	Position light is switched on.
  	positionCONTROL (○)	Green	<ul style="list-style-type: none"> – Illuminates when one of the predefined entry/lifted heights has been selected with positionCONTROL. – Flashing when one of the predefined entry/lifted heights is being used. Automatic mode is active.

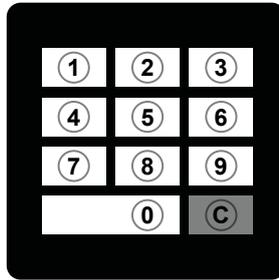
7.2 Keyless Access System

The keyless access systems serve as a replacement for the key switch to release the truck.

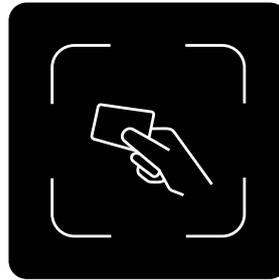
The keyless access system allows an individual code to be allocated to each operator or group of operators.



80



84



85



86

Item	Description
80	Display unit (EasyAccess Softkey): <ul style="list-style-type: none"> – Description see page 117 – Entry of 4-digit set-up and access codes – For set-up and access codes with the numbers 1 to 4 – Up to 10 access codes can be stored
84	Keypad (EasyAccess PINCode): <ul style="list-style-type: none"> – Only in combination with the display unit (80) – Entry of 4-digit set-up and access codes and C (clear) – For set-up and access codes with the numbers 0 to 9 – Up to 100 access codes can be stored
85	Transponder reader (EasyAccess Transponder): <ul style="list-style-type: none"> – Only in combination with the display unit (80) – Up to 100 transponders can be stored
86	ISM online access module: <ul style="list-style-type: none"> – If the truck is equipped with an ISM Online access module, see "ISM Online Access Module" operating instructions.

7.3 General Information about the Use of Keyless Access Systems

The default code is to be found on a sticker. When using for the first time, change the set-up code and remove the sticker!

- Default code: 2-5-8-0
- Factory set-up code: 2-4-1-2

- When allocating the codes, ensure the rider trucks are given a different code than pedestrian trucks.
- When a valid code is entered or a valid transponder used, a green tick appears in the display unit.
When an invalid code has been entered or a invalid transponder used, a red cross is displayed, and the entry must be repeated.
- If the truck is not used for a certain length of time, the display unit switches to standby mode. Pressing any key cancels the standby mode.

The following additional settings can be performed by the manufacturer's customer service department.

7.4 Commissioning the Keypad and the Transponder Reader

If the truck is equipped with a keypad or a transponder reader, it can only be operated using the keys in the display unit. The keypad and the transponder reader have to be activated by the operating company.

7.4.1 Activating the keypad

Procedure

- Release the emergency disconnect switch, see page 91.
- Enter the default code 2-5-8-0 using the keys below the display unit (80).

The truck is switched on.

- Press the key below the "Settings" symbol (99).
- Press the key below the "Change set-up code" symbol (100).
- Enter the set-up code 2-4-1-2 using the keypad (84).

The set-up code entered is displayed.

- When starting the truck for the first time, change the set-up code. The new set-up code must not be the same as the default set-up code or an access code.

Press the key below the "Delete" symbol (101).

The set-up code is deleted.

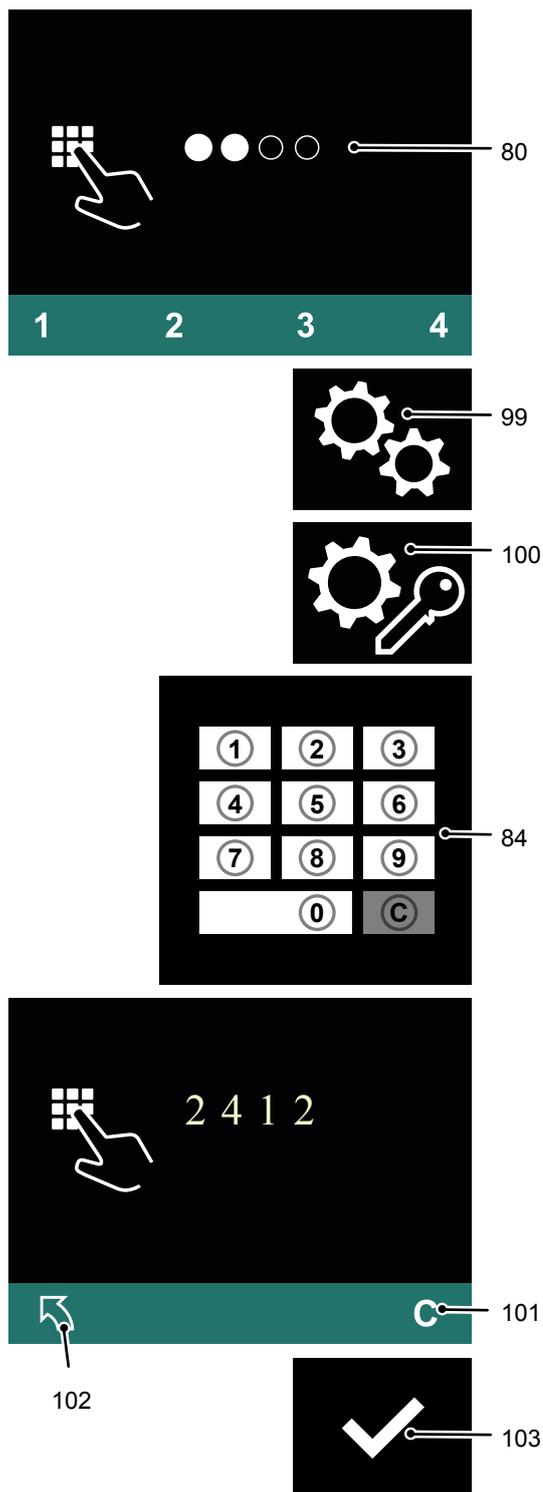
- Enter the new set-up code using the keypad (84).
- Press the key below the "Confirm" symbol (103).

The new set-up code is displayed.

- If the new set-up code was entered incorrectly, the procedure can be repeated using the key below the "Delete" symbol (101).

- To return to the main menu, press the key below the "Back" symbol (102).
- Delete the default code, see page 136.
- Create access codes, see page 135.

The keypad is active.



7.4.2 Activating the transponder reader

Procedure

- Release the emergency disconnect switch, see page 91.
- Enter the default code 2-5-8-0 using the keys below the display unit (80).

The truck is switched on.

- Press the key below the "Settings" symbol (99).
- Press the key below the "Change set-up code" symbol (100).
- Enter the set-up code 2-4-1-2 using the keys below the display unit (80).

The set-up code entered is displayed.

- Press the key below the "Delete" symbol (101).

The set-up code is deleted.

- Hold a transponder in front of the transponder reader (85).

This transponder thus becomes the set-up transponder.

- Press the key below the "Confirm" symbol (103).

The code for the set-up transponder is displayed.

→ *If the wrong transponder has been used, the procedure can be repeated using the key below the "Delete" symbol (101).*

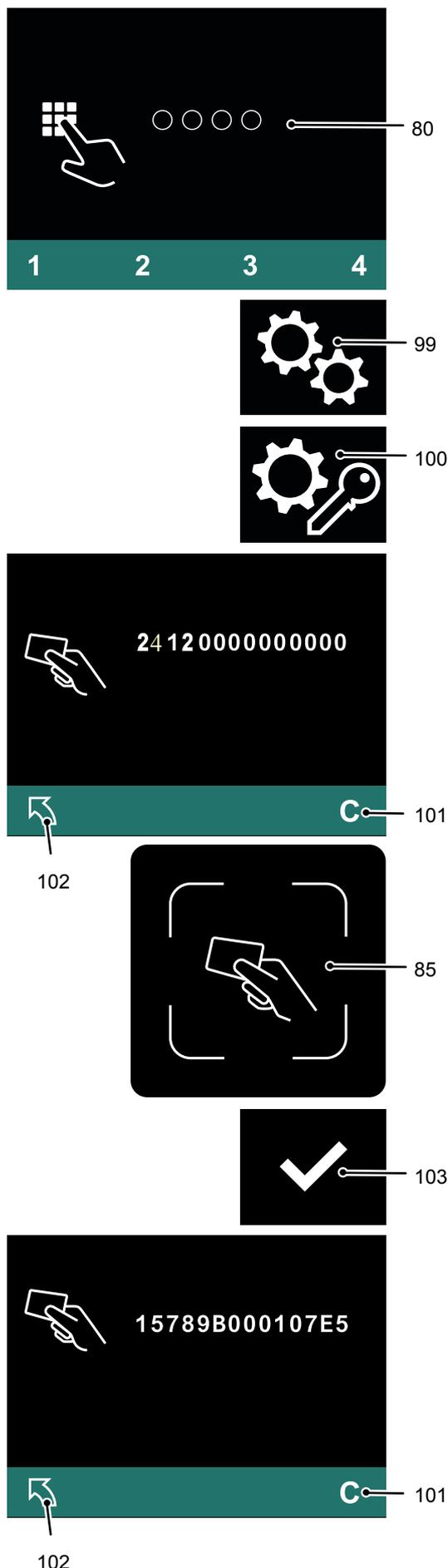
- To return to the main menu, press the key below the "Back" symbol (102).

→ The default code can no longer be used and must be deleted.

Delete the default code, see page 141.

- Add new transponders, see page 140.

The transponder reader is now active.



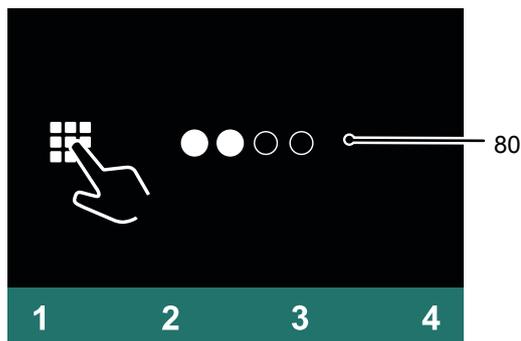
7.5 Using the Display:

7.5.1 Switch on the truck with the access code.

Procedure

- Release the emergency disconnect switch, see page 91.
- Enter the access code with the buttons below the display (80).

The truck is switched on.

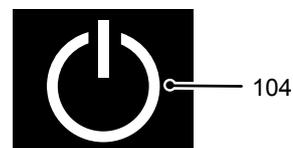


7.5.2 Switching off the truck

Procedure

- Press the key under the "Switch off" symbol (104) in the display unit.
- Press the Emergency Disconnect switch, see page 91.

The truck is switched off.



7.5.3 Changing the Set-up Code

Requirements

- The truck is switched on, see page 133.

Procedure

- Press the key below the "Settings" symbol (99).
- Press the key below the "Change set-up code" symbol (100).
- Enter the set-up code using the keys below the display unit (80).

The set-up code entered is shown as filled-in circles.

- Press the key below the "Delete" symbol (101).

The set-up code is deleted.

- Enter the new set-up code using the keys below the display unit (80).

→ The new set-up code must be different from existing access codes.

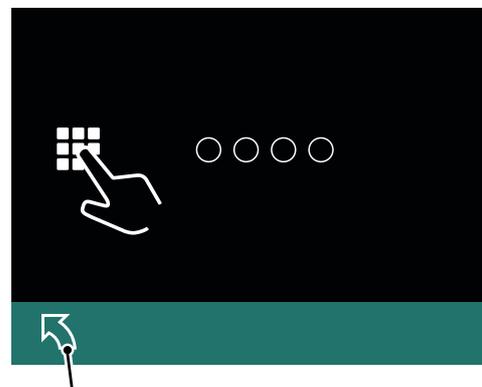
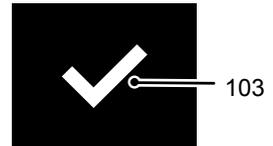
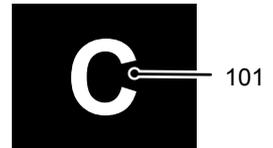
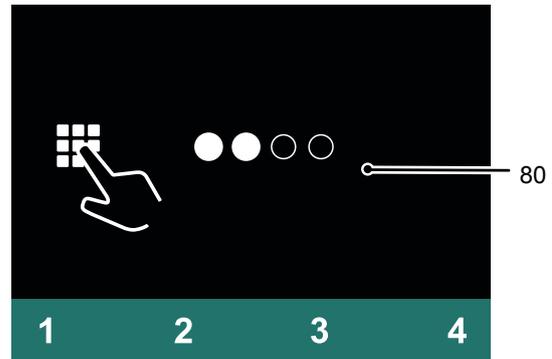
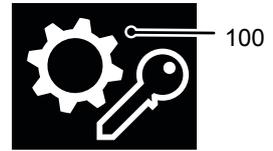
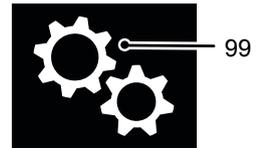
- Press the key below the "Confirm" symbol (103).

The new set-up code is displayed.

→ If the new set-up code has been entered incorrectly, delete it and add a set-up code again.

To return to the main menu, press the key below the "Back" symbol (102).

The set-up code has been changed.



7.5.4 Adding a new access code

Requirements

- The truck is switched on, see page 133.

Procedure

- Press the key below the "Settings" symbol (99).
- Press the key below the "Edit access code" symbol (105).

The set-up code is requested.

- Enter the set-up code using the keys below the display unit (80).

All the access codes are displayed.

- Press the key below the "Add" symbol (106).
- Enter the new access code using the keys below the display unit (80).

→ The new access code must be different from existing access codes.

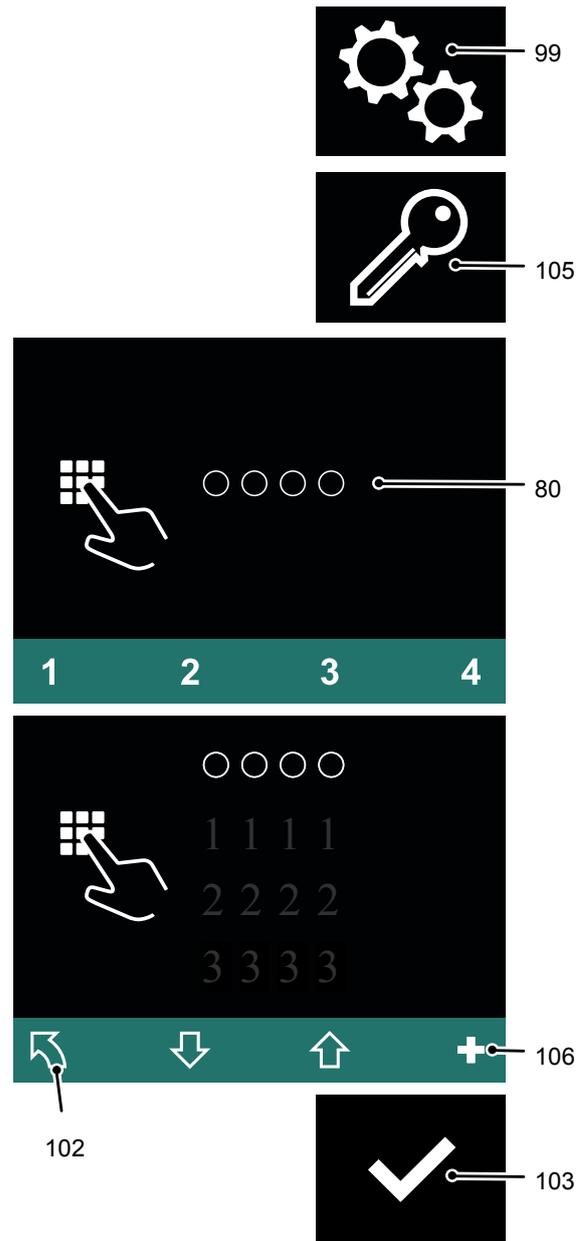
- Press the key below the "Confirm" symbol (103).

The new access code is displayed.

→ If the new access code has been entered incorrectly, delete it, see page 136, and add an access code again.

To return to the main menu, press the key below the "Back" symbol (102).

A new access code has been added.



7.5.5 Deleting an access code

Requirements

- The truck is switched on, see page 133.

Procedure

- Press the key below the "Settings" symbol (99).
- Press the key below the "Edit access code" symbol (105).

The set-up code is requested.

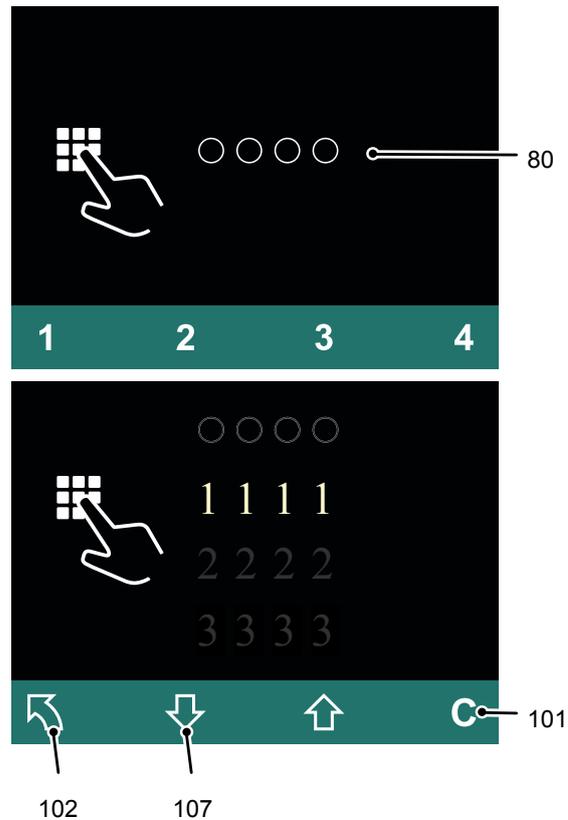
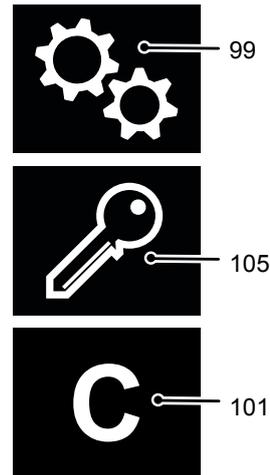
- Enter the set-up code using the keys below the display unit (80).

All the access codes are displayed.

- Select the access code to be deleted using the key below the "Down selection" symbol (107).
- Press the key below the "Delete" symbol (101).

The access code has been deleted.

- To return to the main menu, press the key below the "Back" symbol (102).



7.5.6 Displaying the Log-in Process

The use of the last different access codes is displayed during the log-in process. The last log-in is displayed first.

- If multiple access codes are logged as being displayable simultaneously, the display area can be moved by scrolling forward or back.

Requirements

- The truck is switched on, see page 128.

Procedure

- Press the key below the "Settings" symbol (99).
- Press the key below the "Log-in process" symbol (108).
- Enter the set-up code using the keys below the display unit (80).

The set-up code entered is shown as filled-in circles.

- To scroll forward, press the button under the "Down selection" symbol (107) as many times as necessary.

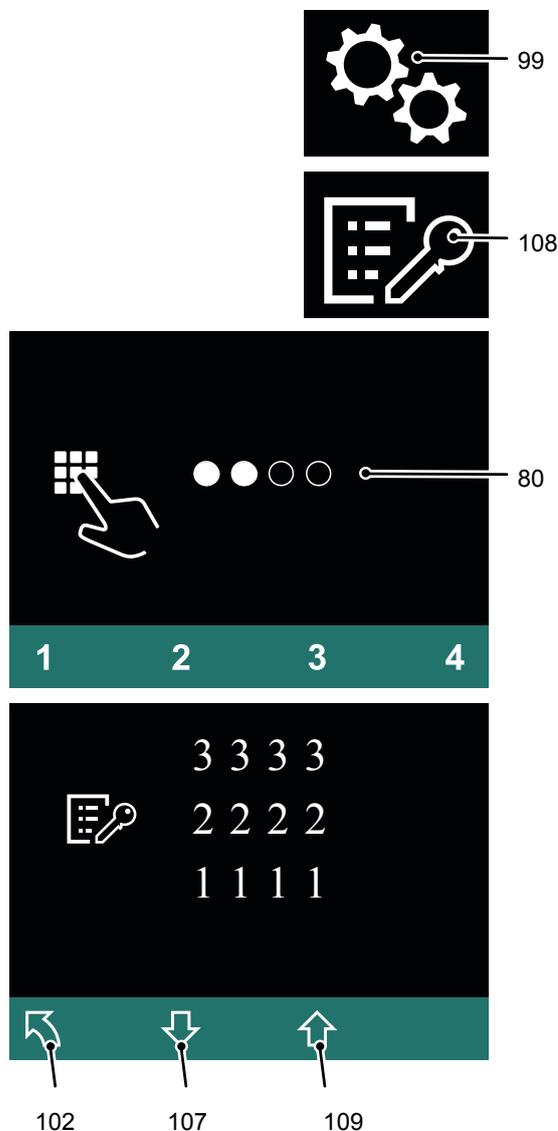
The display area moves: Additional earlier log-ins are displayed.

- To scroll back, press the button under the "Up selection" symbol (109) as many times as necessary.

The display area moves: More recent log-ins are displayed.

- To return to the main menu, press the key below the "Back" symbol (102).

The log-in process is displayed.



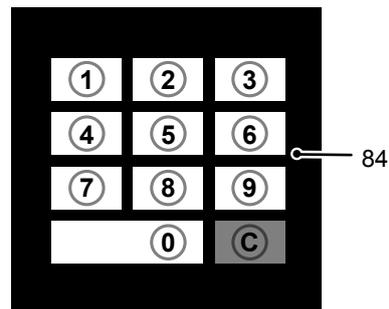
7.6 Using the Keypad

7.6.1 Switch on the truck with the access code.

Procedure

- Release the emergency disconnect switch, see page 91.
- Enter the access code with the keypad (84).

The truck is switched on.

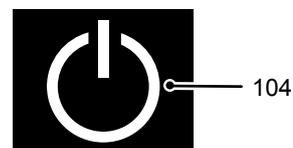


7.6.2 Switching off the truck

Procedure

- Press the key under the "Switch off" symbol (104) in the display unit.
- Press the Emergency Disconnect switch, see page 91.

The truck is switched off.



7.6.3 Changing the Set-up Code

Requirements

- The truck is switched on, see page 133.

Procedure

- Press the key below the "Settings" symbol (99).
- Press the key below the "Change set-up code" symbol (100).
- Enter the set-up code using the keypad (84).

The set-up code entered is shown in the display unit (80) as filled-in circles.

- Press the key below the "Delete" symbol (101).

The set-up code is deleted.

- Enter the new set-up code using the keypad (84).

→ The new set-up code must be different from existing access codes.

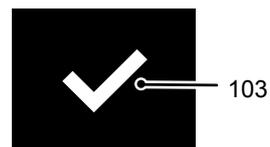
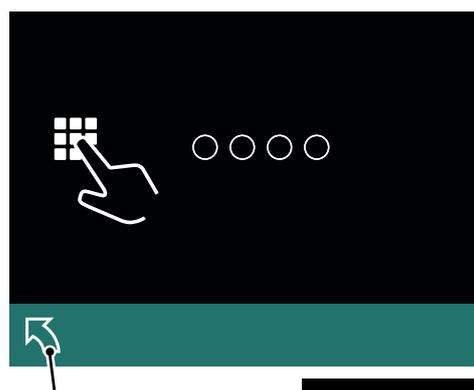
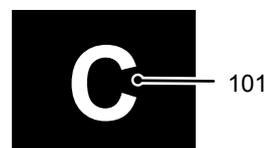
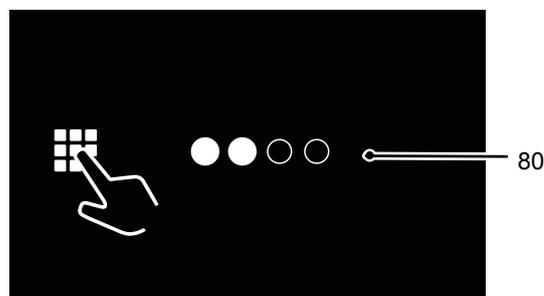
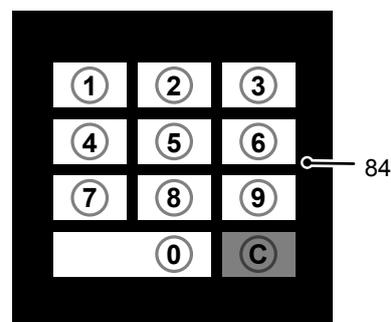
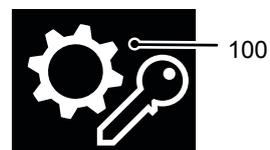
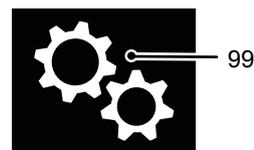
- Press the key below the "Confirm" symbol (103).

The new set-up code is displayed.

→ If the new set-up code has been entered incorrectly, delete it and enter the correct set-up code.

To return to the main menu, press the key below the "Back" symbol (102).

The set-up code has been changed.



7.6.4 Adding a new access code

Requirements

- The truck is switched on, see page 133.

Procedure

- Press the key below the "Settings" symbol (99).
- Press the key below the "Edit access code" symbol (105).

The set-up code is requested.

- Enter the set-up code using the keypad (84).

All access codes are shown on the display unit (80).

- Press the key below the "Add" symbol (106).
- Enter a new access code using the keypad (84).

→ The new access code must be different from existing access codes.

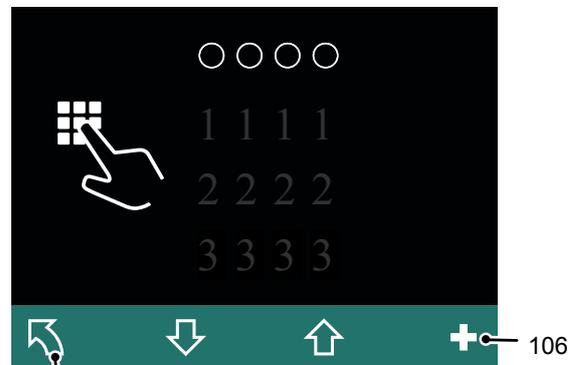
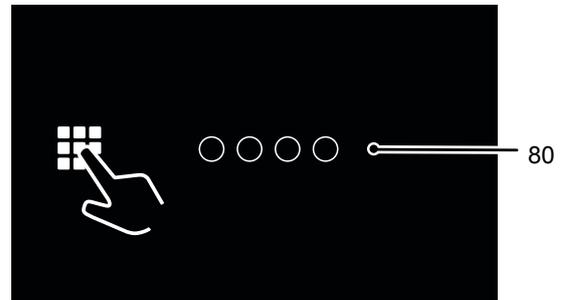
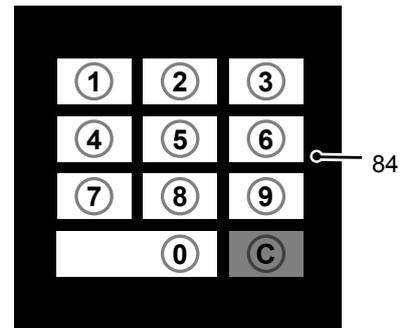
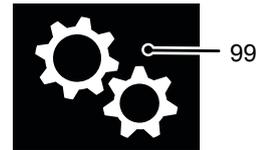
- Press the key below the "Confirm" symbol (103).

The new access code is shown on the display unit (80).

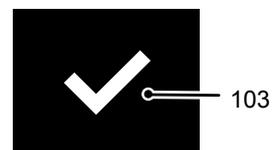
→ If the new access code has been entered incorrectly, delete it, see page 136, and enter the correct access code.

To return to the main menu, press the key below the "Back" symbol (102).

A new access code has been added.



102



7.6.5 Deleting an access code

Requirements

- The truck is switched on, see page 133.

Procedure

- Press the key below the "Settings" symbol (99).
- Press the key below the "Edit access code" symbol (105).

The set-up code is requested.

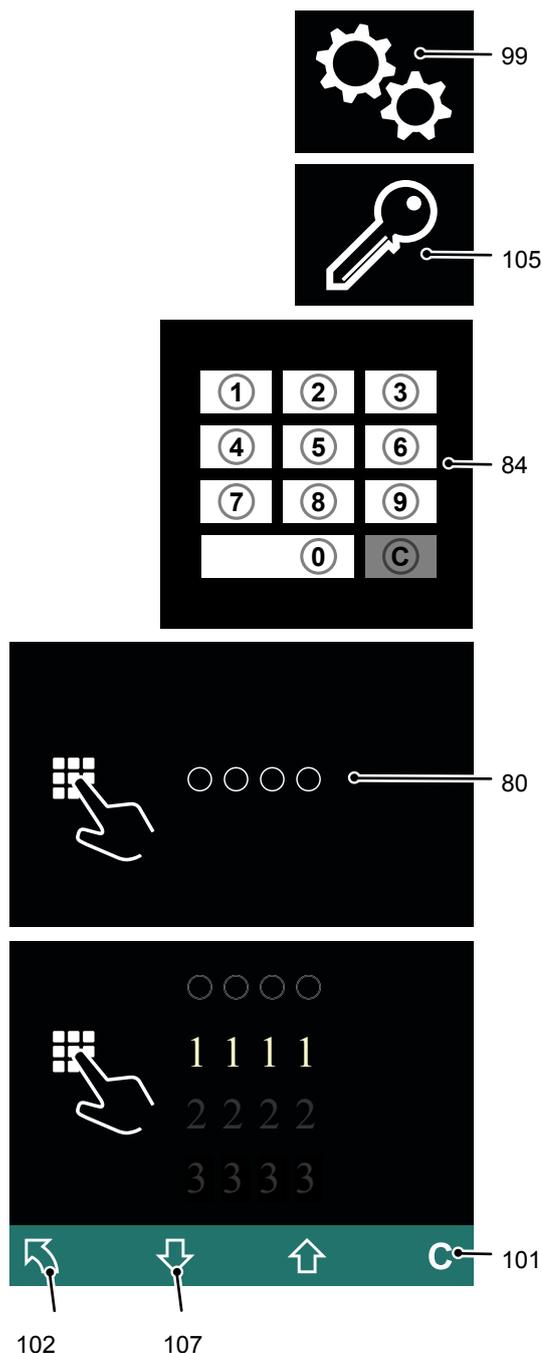
- Enter the set-up code using the keypad (84).

All access codes are shown on the display unit (80).

- Select the access code to be deleted using the key below the "Down selection" symbol (107).
- Press the key below the "Delete" symbol (101).

The access code has been deleted.

- To return to the main menu, press the key below the "Back" symbol (102).



7.6.6 Displaying the Log-in Process

The use of the last different access codes is displayed during the log-in process. The last log-in is displayed first.

- If multiple access codes are logged as being displayable simultaneously, the display area can be moved by scrolling forward or back.

Requirements

- The truck is switched on, see page 133.

Procedure

- Press the key below the "Settings" symbol (99).
- Press the key below the "Log-in process" symbol (108).
- Enter the set-up code using the keypad (84).

The set-up code entered is shown in the display unit (80) as filled-in circles.

- To scroll forward, press the button under the "Down selection" symbol (107) as many times as necessary.

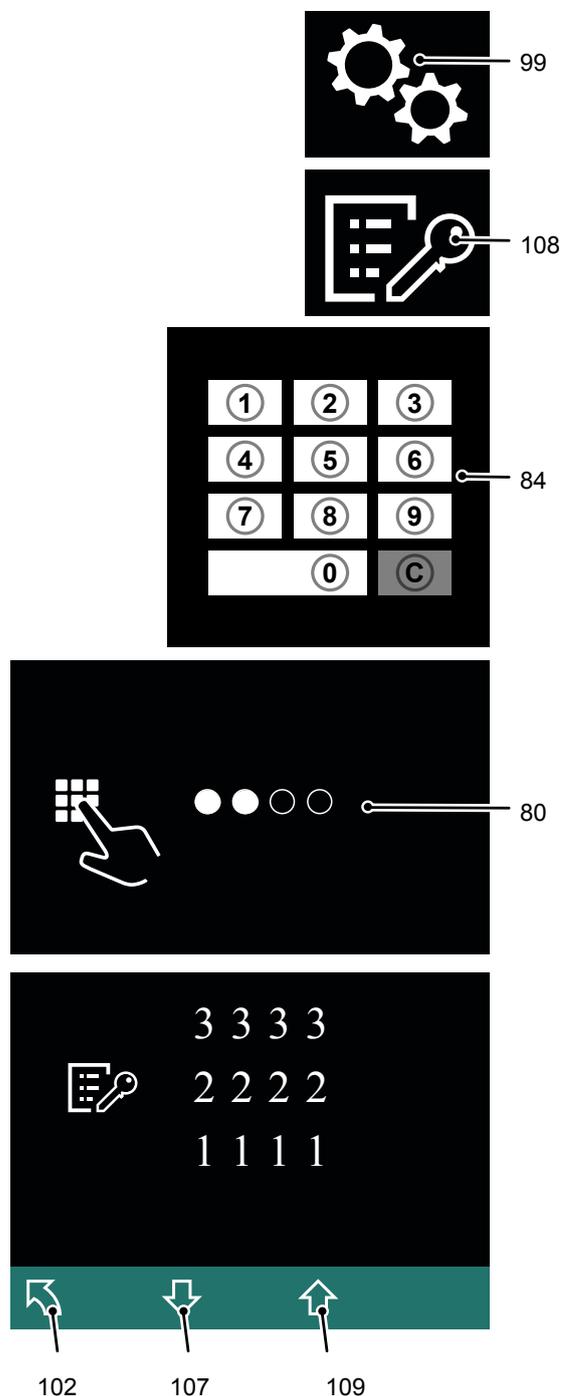
The display area moves: Additional earlier log-ins are displayed.

- To scroll back, press the button under the "Up selection" symbol (109) as many times as necessary.

The display area moves: More recent log-ins are displayed.

- To return to the main menu, press the key below the "Back" symbol (102).

The log-in process is displayed.



7.7 Operating the transponder reader

NOTICE

Take care not to damage the transponder. If the transponder is damaged, the truck cannot be switched on.

7.7.1 Switching on the truck with the transponder

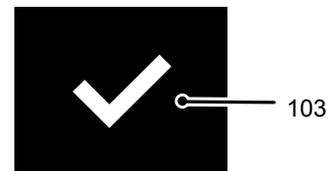
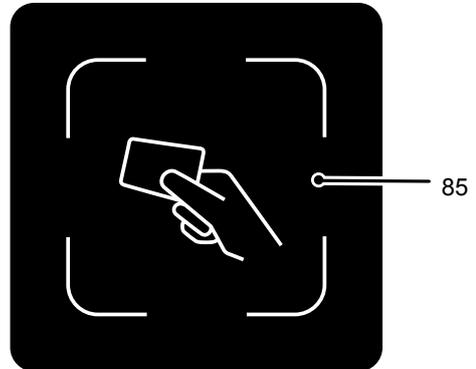
Procedure

- Release the Emergency Disconnect switch, see page 91.
- Hold the transponder in front of the transponder reader (85).

A green tick appears and remains until the transponder has been confirmed. If there is no confirmation within 20 seconds the access prompt appears.

- Press the button below the "Confirm" symbol (103).

The truck is switched on.



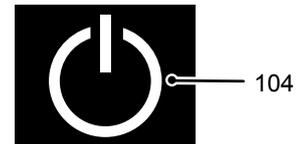
- The truck can only be switched on when the display unit (80) is lit. If the display unit is in standby the code or transponder will not be recognised. Pressing any key cancels standby mode.

7.7.2 Switching the truck off (transponder reader)

Procedure

- Press the key under the "Switch off" symbol (104) in the display unit.
- Press the Emergency Disconnect switch, see page 91.

The truck is switched off.



7.7.3 Changing the Set-up Transponder

Requirements

- The truck is switched on, see page 138.

Procedure

- Press the key below the "Settings" symbol (99).
- Press the key below the "Change set-up code" symbol (100).
- Place the set-up transponder on the transponder reader (85).

The code of the set-up transponder is shown on the display unit (80).

- Press the key below the "Delete" symbol (101).

A dashed line is shown.

- Place the new set-up transponder on the transponder reader (85).

→ The new set-up transponder code must be different from existing transponder codes.

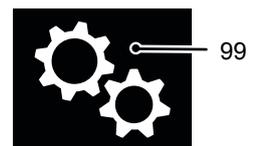
- Press the key below the "Confirm" symbol (103).

The new code for the set-up transponder is displayed.

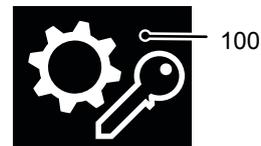
→ If the wrong transponder has been used, the procedure can be repeated using the key below the "Delete" symbol (101).

To return to the main menu, press the key below the "Back" symbol (102).

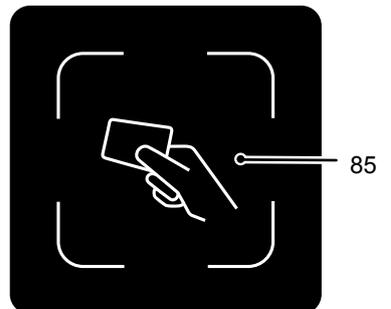
The set-up transponder has been changed.



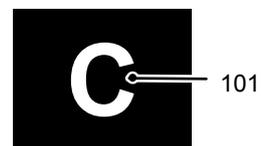
99



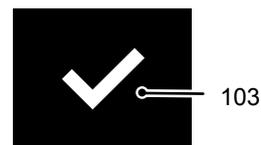
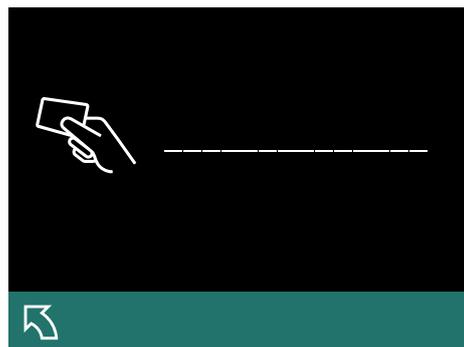
100



85



101



103



80



102

7.7.4 Adding a new transponder

Requirements

- The truck is switched on, see page 138.

Procedure

- Press the key below the "Settings" symbol (99).
- Press the key below the "Edit transponder" symbol (105).

The set-up transponder is requested.

- Place the set-up transponder on the transponder reader (85).

All transponder codes are shown on the display unit (80).

- Press the key below the "Add" symbol (106).
- Place the new transponder on the transponder reader (85).

→ The new transponder code must be different from existing transponder codes.

- Press the key below the "Confirm" symbol (103).

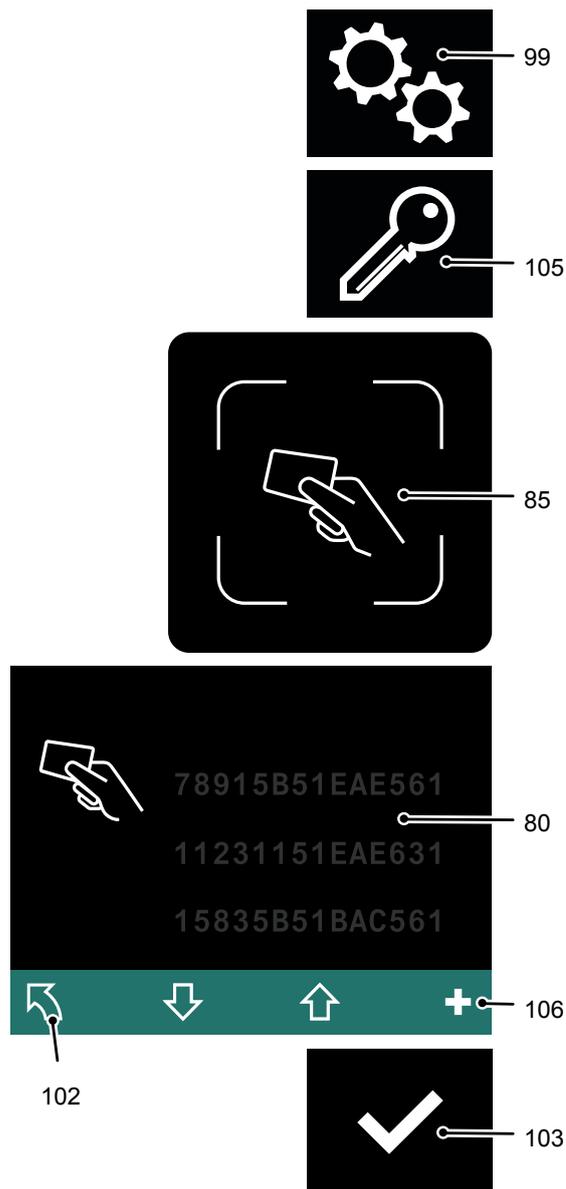
The new transponder code is displayed.

→ If the wrong transponder has been used, delete it, see page 141, and add a correct transponder.

To return to the main menu, press the key below the "Back" symbol (102).

A new transponder has been added.

→ The transponder codes saved are sorted first of all numerically and then alphabetically.



7.7.5 Deleting transponders

Requirements

- The truck is switched on, see page 138.

Procedure

- Press the key below the "Settings" symbol (99).
- Press the key below the "Edit transponder" symbol (105).

The set-up transponder is requested.

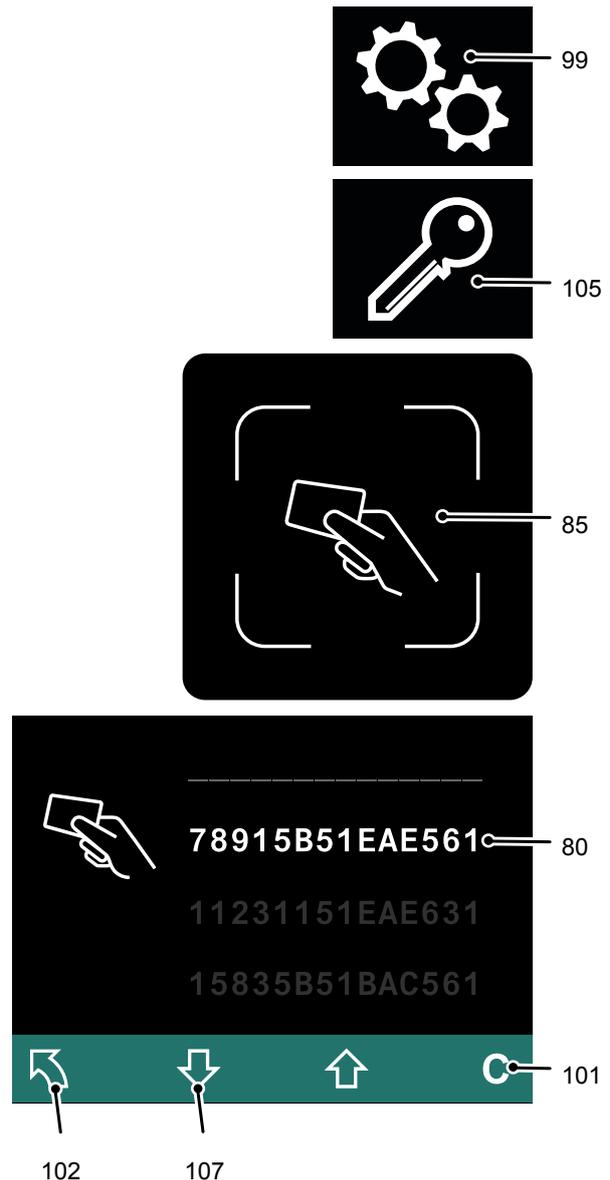
- Place the set-up transponder on the transponder reader (85).

All transponder codes are shown on the display unit (80).

- Select the transponder code to be deleted using the key below the "Down selection" symbol (107).
- Press the key below the "Delete" symbol (101).

The transponder has been deleted.

- To return to the main menu, press the key below the "Back" symbol (102).



7.7.6 Displaying the Log-in Process

The use of the last different transponders is displayed during the log-in process. The last log-in is displayed first.

- If multiple transponders are logged as being displayable simultaneously, the display area can be moved by scrolling forward or back.

Requirements

- The truck is switched on, see page 138.

Procedure

- Press the key below the "Settings" symbol (99).
- Press the key below the "Log-in process" symbol (108).
- Place the set-up transponder on the transponder reader (85).
- To scroll forward, press the button under the "Down selection" symbol (107) as many times as necessary.

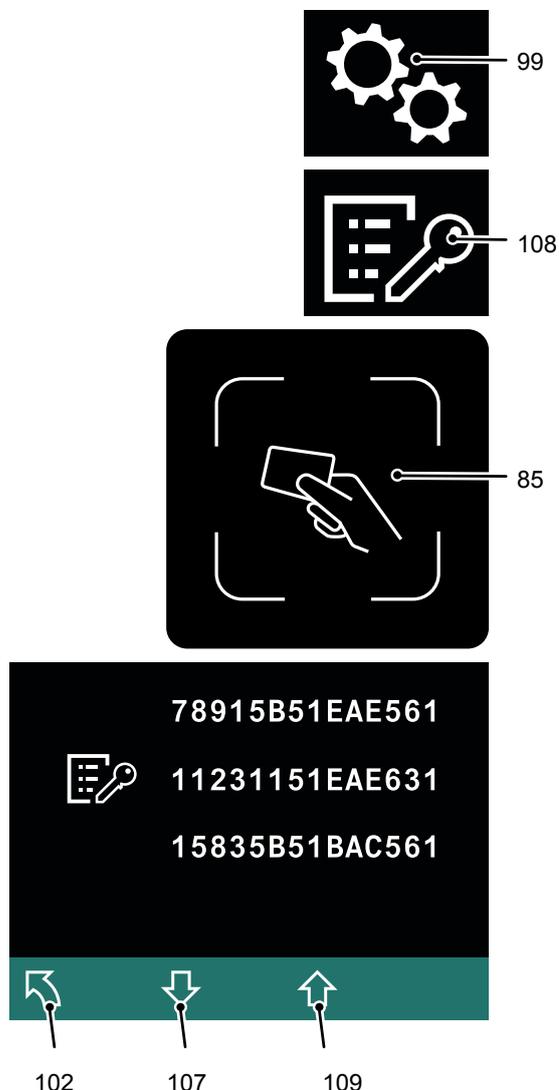
The display area moves: Additional earlier log-ins are displayed.

- To scroll back, press the button under the "Up selection" symbol (109) as many times as necessary.

The display area moves: More recent log-ins are displayed.

- To return to the main menu, press the key below the "Back" symbol (102).

The log-in process is displayed.



7.8 Access module (ISM Online)

- ☞ *If equipped with ISM Online access module, see "ISM Online access module" operating instructions.

7.9 Parameters

- ☞ The default settings can be changed by the manufacturer's customer service department.

7.9.1 Default settings for rider mode

Optionally, the operator can change the current travel program with pre-set accelerations and travel speeds via the display unit, see page 117.

7.9.2 Battery parameter default settings

For supplied batteries, the correct battery parameter is set ex works.

F Industrial Truck Maintenance

1 Spare Parts

To ensure safe and reliable operation, use only the manufacturer's original spare parts.

The manufacturer's original spare parts are consistent with the manufacturer's specifications and guarantee the highest possible quality of safety, size accuracy and material.

The installation or use of non-original spare parts can negatively affect the specified properties of the product and impair safety. The manufacturer cannot be held liable for damage caused by the use of non-original spare parts.

The product-related electronic spare parts catalogue can be found at (www.jungheinrich.de/spare-parts-search) by entering the serial number.

→ The serial number can be found on the data plate, see page 37.



2 Operational Safety and Environmental Protection

The inspections and maintenance tasks listed in chapter "Maintenance and Inspection" must be performed according to the defined service intervals (see page 169).

The manufacturer recommends the replacement of the maintenance parts also listed in chapter "Maintenance and Inspection" according to the specified replacement intervals (see page 169).

⚠ WARNING!

Risk of accidents and component damage

Any modification to the truck, in particular the safety mechanisms, is prohibited.

Exception: Operating companies should only make changes or have changes made to powered industrial trucks if the manufacturer is no longer operating in the field and there is no successor to the business; operating companies must however:

- Ensure that the changes to be made are planned, tested and performed by a specialist engineer in industrial trucks taking safety into account.
- Keep permanent records of the construction, tests and completion of changes
- Carry out and have authorised the respective changes to the capacity data plates, decals and stickers as well as the operating instructions and workshop manuals
- Attach a permanent and clearly visible marking to the truck indicating the types of changes made, the date of the changes and the name and address of the organisation responsible for the work.

NOTICE

Only original spare parts are subject to the manufacturer's quality control. To ensure safe and reliable operation, use only the manufacturer's spare parts.

For safety reasons, only components which have been specially agreed by the manufacturer for this truck may be installed near the computer, controllers and wire guidance sensors (antennae). These components (computers, controllers, wire guidance sensors (antennae)) must therefore not be replaced by similar components from other trucks of the same series.

- On completion of inspection and service work, carry out the operations listed in the "Recommissioning the truck after cleaning or maintenance work" section (see page 165).

3 Maintenance Safety Regulations

Maintenance and repair personnel

- The manufacturer has a customer service department specially trained for these tasks. A maintenance contract with the manufacturer will support trouble-free operation.

Truck maintenance, repair work and changing of parts requiring replacement must only be carried out by specialist personnel. The activities to be carried out are divided into the following target groups.

Customer Services

Customer Services are specially trained in the use of the truck and are able to carry out maintenance and repairs independently. Customer Services are aware of the relevant standards, guidelines and safety regulations as well as potential risks.

Operating company

The maintenance personal of the operating company has the technical expertise and experience to perform the activities in the maintenance check list for the operating company. The maintenance and repair work to be performed by the operating company are also written down, see page 154.

NOTICE

In the event that the front panel needs to be removed for maintenance, the storage compartment panel must first be removed.

3.1 Working on the electrical system

⚠ WARNING!

Electrical current can cause accidents

Ensure the electrical system is de-energised before starting work. The capacitors in the control must be completely discharged. The capacitors are fully discharged approx. 10 minutes after disconnecting the electrical system from the battery.

Before starting maintenance on the electrical system:

- ▶ Only suitably trained electricians may work on the truck's electrical system.
 - ▶ Before working on the electrical system, take all precautionary measures to avoid electric shocks.
 - ▶ Park the truck securely (see page 86).
 - ▶ Disconnect the battery.
 - ▶ Remove any rings, metal wristbands etc.
-

⚠ CAUTION!

Fire hazard

Do not use flammable liquids to clean the industrial truck.

- ▶ Disconnect the battery before starting cleaning work.
 - ▶ Carry out all necessary safety measures to prevent sparking before cleaning (e.g. by short-circuiting).
-

3.2 Consumables and used parts

⚠ CAUTION!

Consumables and used parts are an environmental hazard

Used parts and consumables must be disposed of in accordance with the applicable environmental-protection regulations. Oil changes should be carried out by the manufacturer's customer service department, whose staff are specially trained for this task.

▶ Note the safety regulations when handling these materials.

3.3 Wheels

⚠ WARNING!

The use of wheels that do not match the manufacturer's specifications can result in accidents

The quality of wheels affects the stability and performance of the truck.

Uneven wear reduces truck stability and increases the stopping distance.

▶ After replacing wheels, make sure the truck is not skewed.

▶ Always replace wheels in pairs, i.e. left and right at the same time.

→ When replacing wheels fitted at the factory, only use the manufacturer's original spare parts. Otherwise the truck's rated performance cannot be ensured, see page 145.

3.4 Hydraulic system

⚠ WARNING!

Leaky hydraulic systems can result in accidents

Hydraulic oil can escape from leaky and faulty hydraulic systems.

▶ Report any defects immediately to your supervisor.

▶ Mark the defective truck and take it out of service.

▶ Do not return the truck to service until the fault has been identified and rectified.

▶ Remove any spilled hydraulic oil immediately with an appropriate bonding agent.

▶ The bonding agent/consumable mixture must be disposed of in accordance with regulations.

⚠ WARNING!

Faulty hydraulic hoses can result in injury and infection

Pressurised hydraulic oil can escape from fine holes or hairline cracks in the hydraulic hoses. Brittle hydraulic hoses can burst during operation. People standing near the truck can be injured by the hydraulic oil.

▶ Call for a doctor immediately if you are injured.

▶ Do not touch pressurised hydraulic hoses.

▶ Report any defects immediately to your supervisor.

▶ Mark the defective truck and take it out of service.

▶ Only restore the truck to service when the fault has been rectified.

NOTICE

Testing and replacing hydraulic hoses

Hydraulic hoses can become brittle through age and must be checked at regular intervals. The operating conditions of the truck have a considerable impact on the ageing of the hydraulic hoses.

- ▶ Hydraulic hoses must be checked at least 1x per year and replaced if necessary.
 - ▶ If the operating conditions become more arduous, the inspection intervals must be reduced accordingly.
 - ▶ In normal operating conditions, a precautionary replacement of the hydraulic hoses is recommended after 6 years. The owner must carry out a risk assessment to ensure safe, prolonged use. The resulting protection measures must be observed and the inspection interval reduced accordingly.
-

4 Lubricants and Lubrication Schedule

4.1 Handling consumables safely

Handling consumables

Consumables must always be handled correctly. Follow the manufacturer's instructions.

⚠ WARNING!

Improper handling is hazardous to health, life and the environment

Consumables can be flammable.

- ▶ Keep consumables away from hot components and naked flames.
- ▶ Always keep consumables in prescribed marked containers.
- ▶ Always fill consumables in clean containers.
- ▶ Do not mix up different grades of consumable. The only exception to this is when mixing is expressly stipulated in the Operating Instructions.

⚠ CAUTION!

Spilled consumables can cause slipping and endanger the environment

Risk of slipping from spilled consumables. The risk is greater when combined with water.

- ▶ Do not spill consumables.
 - ▶ Spilled consumables must be removed immediately with an appropriate bonding agent.
 - ▶ The bonding agent / consumable mixture must be disposed of in accordance with regulations.
-

⚠ WARNING!

Improper handling of oils can be hazardous

Oils (chain spray / hydraulic oil) are flammable and poisonous.

- ▶ Dispose of used oils in accordance with regulations. Store used oil safely until it can be disposed of in accordance with regulations.
 - ▶ Do not spill oil.
 - ▶ Spilled oils must be removed immediately with an appropriate bonding agent.
 - ▶ The mixture consisting of the bonding agent and oil must be disposed of in accordance with regulations.
 - ▶ Observe national regulations when handling oils.
 - ▶ Wear safety gloves when handling oils.
 - ▶ Prevent oil from coming into contact with hot motor parts.
 - ▶ Do not smoke when handling oil.
 - ▶ Avoid contact and digestion. If you swallow oil do not induce vomiting but seek medical assistance immediately.
 - ▶ Seek fresh air after breathing in oil fumes or vapours.
 - ▶ If oil has come into contact with your skin, rinse your skin with water.
 - ▶ If oil has come into contact with your eyes, rinse them with water and seek medical assistance immediately.
 - ▶ Replace oil-soaked clothing and shoes immediately.
-

⚠ CAUTION!

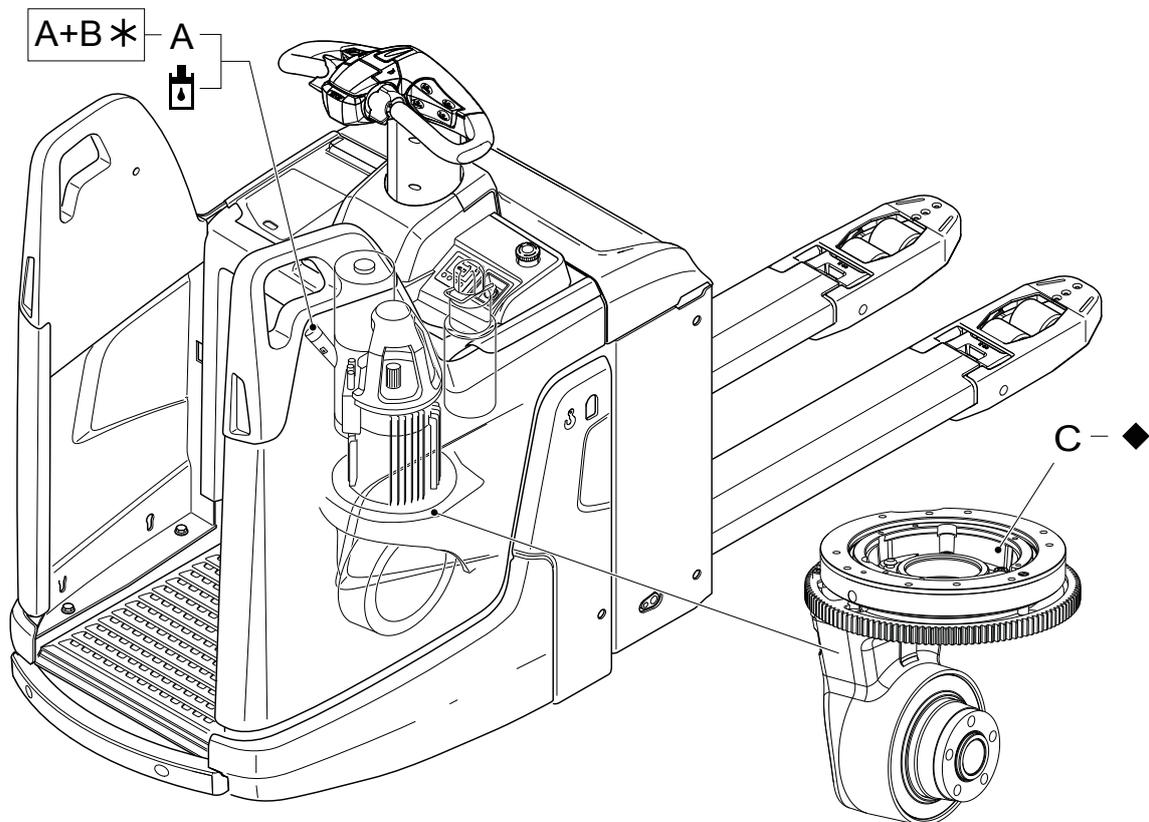
Consumables and used parts are an environmental hazard

Used parts and consumables must be disposed of in accordance with the applicable environmental-protection regulations. Oil changes should be carried out by the manufacturer's customer service department, whose staff are specially trained for this task.

- ▶ Note the safety regulations when handling these materials.
-

4.2 Lubrication Schedule

- The truck is equipped with lubrication-free bushes. As such, no lubrication is required as part of maintenance.



⊕	Hydraulic-oil filler plug	*	Cold store application
◆	Transmission oil filling		

4.3 Consumables

Code	Order no.	Quantity	Description	Used for	Volume
A	51132827	5.0 l	Jungheinrich Hydraulic oil* HVLP 32, DIN 51524	Hydraulic system	0.9 l
	51132826	1.0 l			
B	51081875	5.0 l	Renolin MR 310	Cold store hydraulic system	See note
C	50380904	5.0 l	Titan Cytrac HSY 75W-90	Transmission ¹⁾ , ²⁾	0.9 l
				Transmission ³⁾	1.05 l
D	29202050	1.0 kg	Grease, Polyube GA 352P	Lubrication service	

¹⁾ Bevel gear, i=18:1, 5.75 el (order no. 51466245)

²⁾ Bevel gear, i=18:1, 5.75 me (order no. 51412741)

³⁾ Bevel gear, i=18:1, 5.90.04 (order no. 51418210)



For cold-store applications, the Jungheinrich hydraulic oil and the cold-store hydraulic oil must be mixed in a 1:1 ratio.

*The trucks are factory-equipped with a special hydraulic oil (the Jungheinrich hydraulic oil with a blue colouration) and the cold store hydraulic oil (red colouration). The Jungheinrich hydraulic oil is available only from the Jungheinrich service department. The Jungheinrich hydraulic oil may be mixed with one of the named alternative hydraulic oils.

5 Maintenance and repairs

5.1 Preparing the truck for maintenance and repairs

Procedure

- Park the truck securely, see page 86.
- Disconnect the battery to prevent the truck from being switched on accidentally.

5.2 Lifting and jacking up the truck safely

⚠ WARNING!

Lifting and jacking up the truck safely

In order to raise the truck, the lifting gear must only be secured to the points specially provided for this purpose.

In order to raise and jack up the truck safely, proceed as follows:

- ▶ Jack up the truck only on a level surface and prevent it from moving accidentally.
 - ▶ Always use a jack with sufficient capacity. When jacking up the burden carrier, take appropriate measures to prevent it from slipping or tipping over (e.g. wedges, wooden blocks).
 - ▶ In order to raise the truck, the lifting accessories must only be secured to the points specially provided for this purpose, see page 39.
-

5.3 Front panel disassembly and assembly

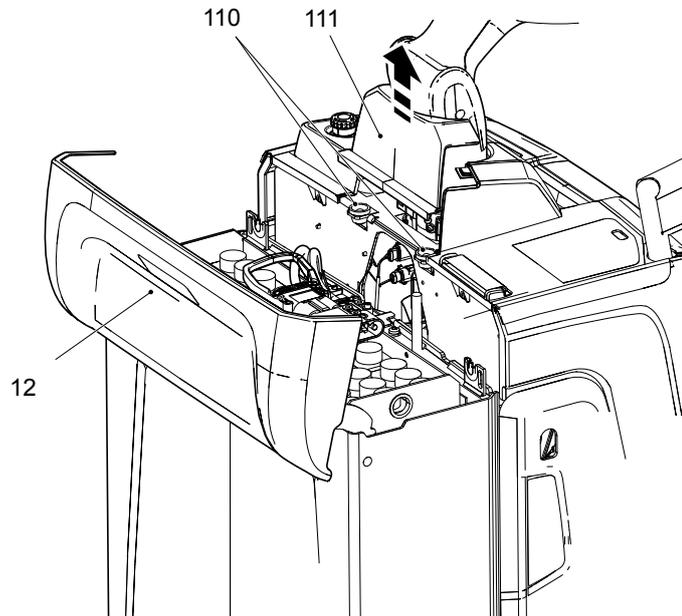
Front panel disassembly

Requirements

- Truck prepared for maintenance and repair work, see page 154.

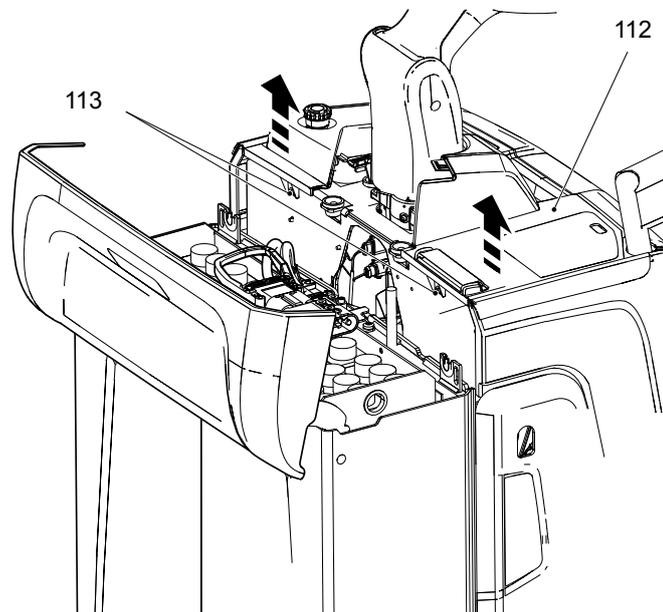
Procedure

- Trucks with folding operator platform: Fold down the operator platform.

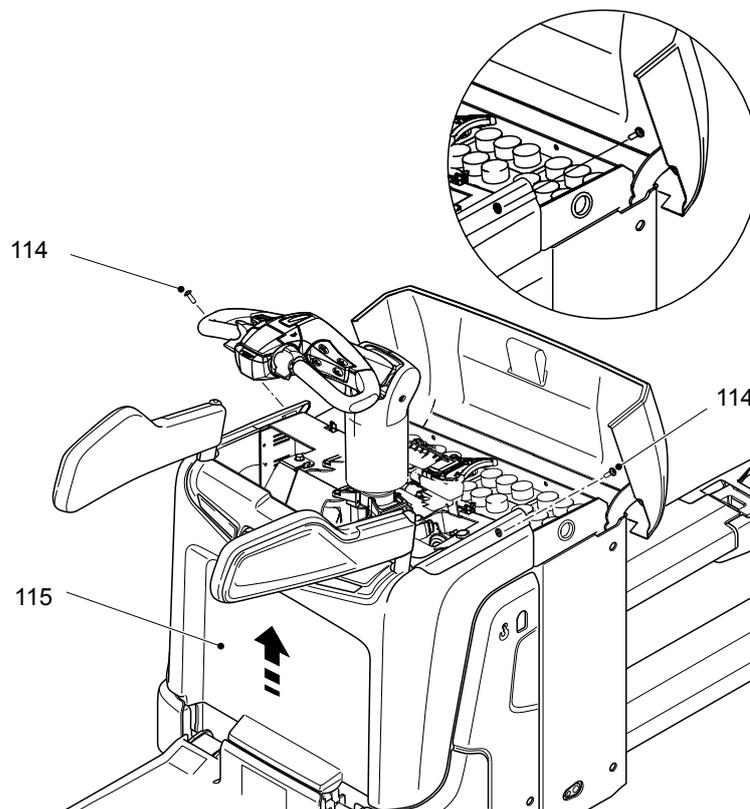


Open the battery panel (12) fully, see page 54.

- Carefully loosen and remove the cover (111) at the bottom end of the rear of the tiller by pulling out and removing the two rubber bearings (110).

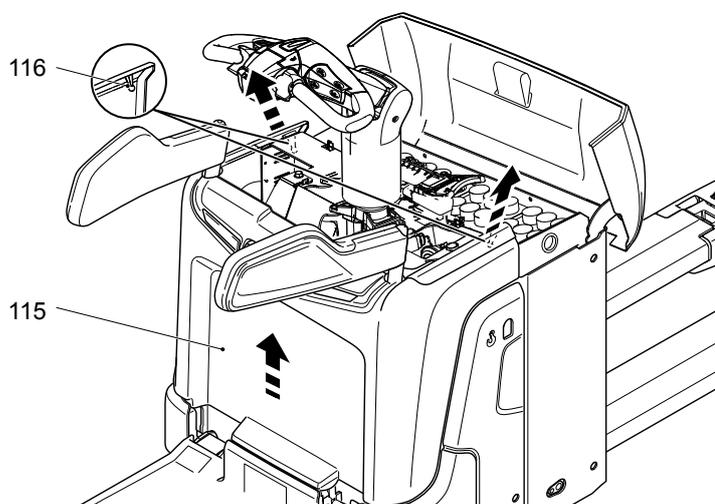


Remove the storage compartment panel (112). To this end, loosen and remove the two Torx screws (113) on the back. Then remove the storage compartment panel upwards and set down.



Bolted front panel:

Remove the round head flanged screws (114) and loosen and lift out the front panel (115) from the bottom centre stop.



Front panel secured with snaplocks:

Loosen the holders (116) of the front panel (115) from the two rubber bearings by carefully pulling at the side at a 45° angle on the upper edges then pull out of the lower centre stop.

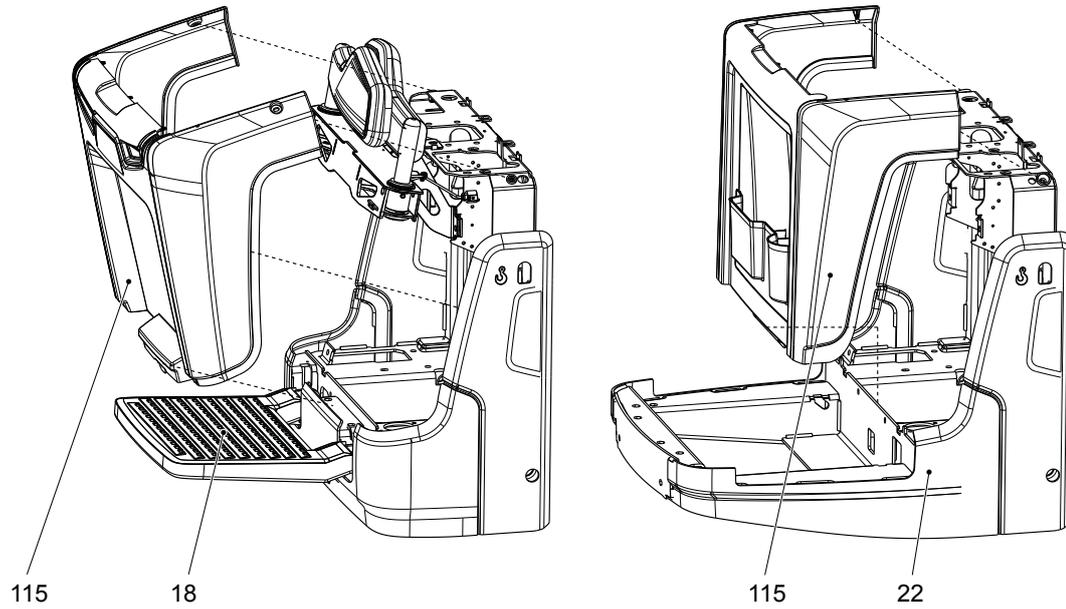
- Set down the front panel (115).

The front panel has been removed.



Assembly is carried out in the reverse order.
Round head flanged screw torque M8x20: 7 Nm

- For versions with battery tray L high, a guard plate must be removed before removing the storage compartment panel, which covers the Torx screws on the back of the storage compartment panel. The plate can be pulled upwards out of the two brackets.



5.4 Cleaning

5.4.1 Cleaning the truck

- Cleaning tasks may only take place in the designated locations, which adhere to the stipulations of the country of use.

⚠ CAUTION!

Fire hazard

Do not use flammable liquids to clean the industrial truck.

- ▶ Disconnect the battery before starting cleaning work.
- ▶ Carry out all necessary safety measures to prevent sparking before cleaning (e.g. by short-circuiting).

NOTICE

Risk of component damage when cleaning the truck

Cleaning with a high-pressure cleaner can result in malfunctions due to humidity.

- ▶ Cover all electronic system assemblies (controllers, sensors, motors etc.) before cleaning the truck with a high-pressure cleaner.
- ▶ Do not hold the jet of the pressure washer by the marked points to avoid damaging them (see page 35).
- ▶ Do not clean the truck with a steam jet.

Cleaning the truck

Requirements

- Truck prepared for maintenance and repair work, see page 154.

Tools and Material Required

- Water-based solvents
- Sponge or cloth

Procedure

- Clean the surface of the truck with water-based solvents and water. Use a sponge or cloth to clean.
- Dry the truck after cleaning, e.g. with compressed air or a dry cloth.
- Carry out all the tasks in the section "Recommissioning the truck after cleaning or maintenance work" (see page 165).

The truck is now clean.

5.4.2 Cleaning the electrical system assemblies

⚠ CAUTION!

Risk of electrical system damage

Cleaning the assemblies (controllers, sensors, motors etc.) of the electronic system with water can damage the electrical system.

- ▶ Do not clean the electrical system with water.
- ▶ Clean the electrical system with weak suction or compressed air (use a compressor with a water trap) and not a conductive, anti-static brush.

Cleaning the electrical system assemblies

Requirements

- Truck prepared for maintenance and repair work (see page 154).

Tools and Material Required

- Compressor with water separator
- Non-conductive, antistatic brush

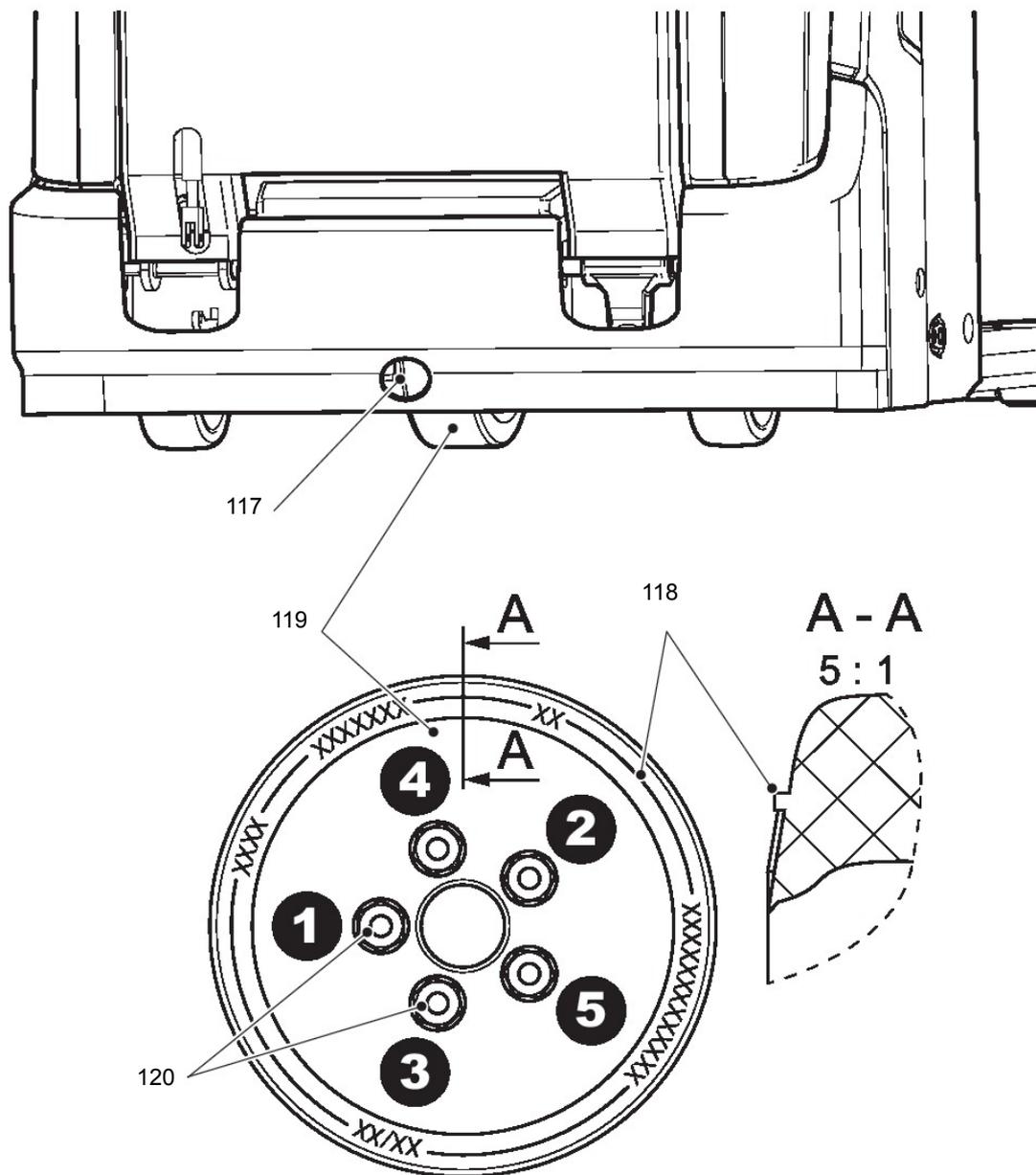
Procedure

- Expose the electrical system, see page 54.
- Clean the electrical system assemblies with weak suction or compressed air (use a compressor with a water separator) and a non-conductive, anti-static brush.
- Fit the electrical system panel, see page 54.
- Carry out all the tasks in the section "Recommissioning the truck after cleaning or maintenance work" (see page 168).

The electrical system assemblies are now clean.

5.5 Check wheel attachment and wear

- Replace the wheels if the wear limit (118) has been reached.
- The drive wheel must only be replaced by authorised service personnel.



- The wheel nuts on the drive wheel must be retightened in accordance with the maintenance intervals indicated in the maintenance checklist, see page 169.

Tightening the wheels nuts

Requirements

- Truck prepared for maintenance and repair work, see page 154.

Tools and Material Required

- Torque wrench

Procedure

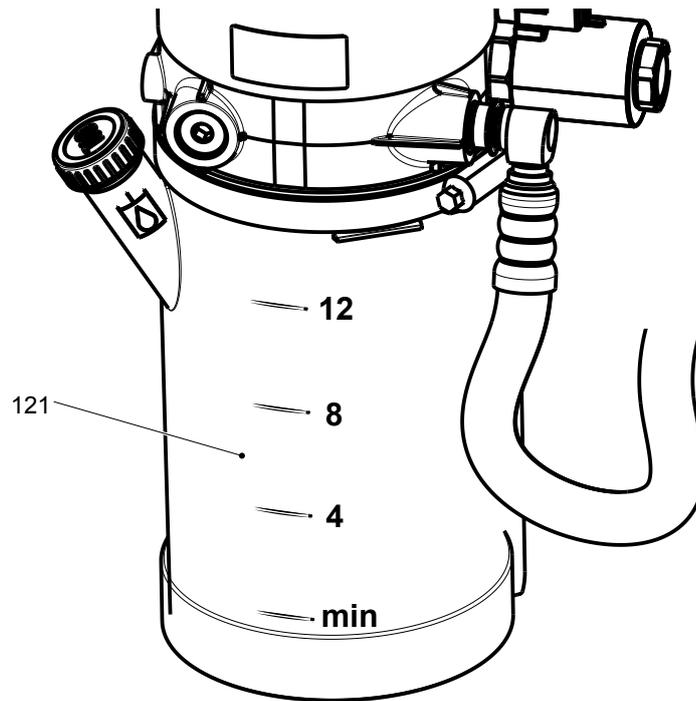
- Position the drive wheel (119) perpendicular to the longitudinal axis of the truck.
- Remove the front panel, see page 155.
- Trucks with fixed operator platform: Remove the operator platform.
- Tighten all wheel nuts (120) using the torque wrench through the opening (117) in the chassis.

To do this, tighten the wheel nuts in the indicated order

- initially to 10 Nm
- then to 150 Nm.

The wheel nuts are tightened.

5.6 Checking the hydraulic oil level



Checking the oil level

Requirements

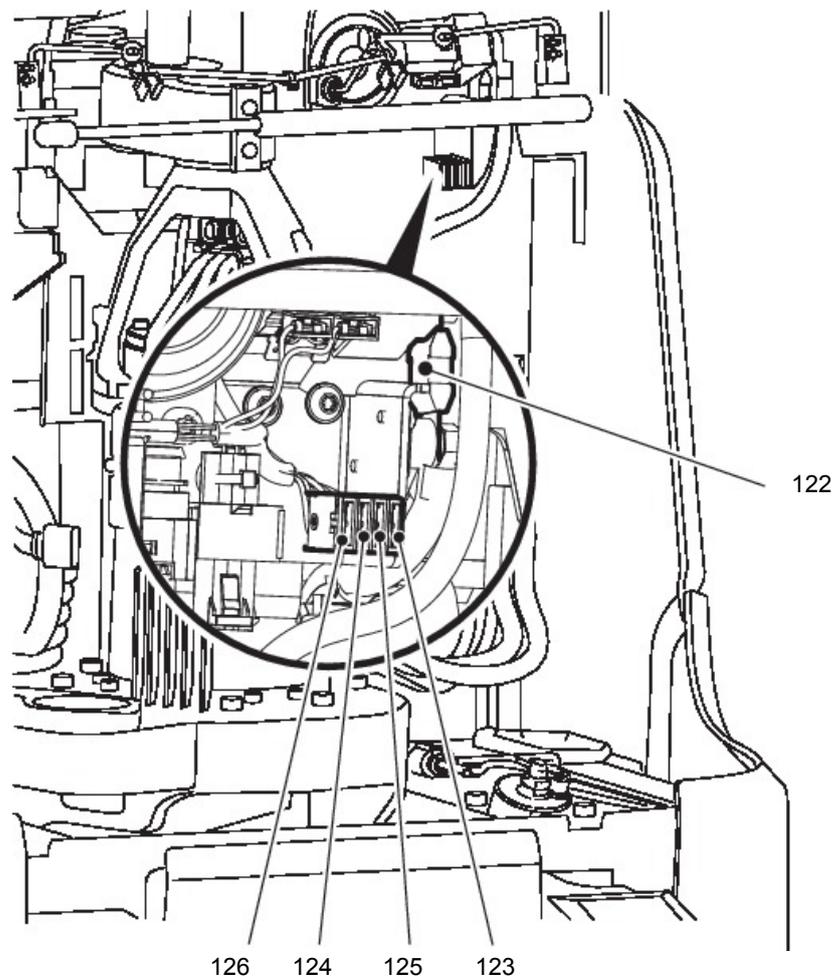
- Lower the load handler.
- Prepare the truck for maintenance and repairs, see page 154.

Procedure

- Disassemble the front panel, see page 155.
 - Check the oil level in the hydraulic reservoir (121).
- ➔ With the load handler lowered, the hydraulic oil level in the hydraulic reservoir must be at roughly the "8" marking.
- If necessary, add hydraulic oil of the correct grade, see page 153.

The oil level has now been checked.

5.7 Checking electrical fuses



Checking fuses

Requirements

- Truck prepared for maintenance and repair work, see page 154.
- Front panel removed, see page 155.

Procedure

- Check the fuse ratings against the table and their condition, and replace if necessary.

The fuses have been checked.

Item	Description	To protect	Rating (A)
122	F50	Main fuse/drive motor/lift motor	200 ¹ 300 ²
123	F18	Main contactor power-up	4
125	6F1	Battery measurement input	2
124	9F22	Electromechanical components	4
126	F17	Radio data (optional only)	

1) ERE 120

2) ERE 125, ERE 225, ERE 225 drivePLUS

5.8 Restoring the truck to service after maintenance and repairs

Procedure

- Thoroughly clean the truck – see page 158.
- Lubricate the forklift truck according to the lubrication schedule – see page 152.
- Equipped with lead-acid battery (●): Clean the battery, grease the battery terminal screws with terminal grease and connect the battery.
- Charge the battery – see page 55.
- Commission the forklift truck – see page 81.

6 Decommissioning the Industrial Truck

If the truck is to be out of service for more than a month, it must be stored in a frost-free and dry room. All necessary measures must be taken before, during and after decommissioning as described hereafter.

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

→ Jack up the truck, see page 154.

If the truck is to be out of service for more than 6 months, agree further measures with the manufacturer's customer service department.

6.1 Prior to decommissioning

6.1.1 Trucks with lead-acid battery

Procedure

- Thoroughly clean the truck – see page 158.
- Prevent the truck from rolling away accidentally.
- Check the hydraulic oil level and replenish if necessary, see page 162.
- Apply a thin layer of oil or grease to any non-painted mechanical components.
- Lubricate the truck according to the lubrication diagram, see page 152.
- Charge the battery, see page 55.
- Disconnect and clean the battery.
- Clean the terminal screws, grease them with terminal grease and screw them into the connection thread to prevent short circuits.

→ In addition, follow the battery manufacturer's instructions.

6.1.2 Trucks with Lithium-Ion Battery

Procedure

- Thoroughly clean the truck, see page 158.
- Prevent the truck from rolling away accidentally.
- Check the hydraulic oil level and replenish if necessary, see page 162.
- Apply a thin layer of oil or grease to any non-painted mechanical components.
- Lubricate the truck according to the lubrication diagram, see page 152.
- Charge the battery, see page 55.

6.2 Action to be taken during decommissioning

NOTICE

Full discharge can damage the battery

Self-discharge can cause the battery to fully discharge. Full discharge shortens the useful life of the battery.

► Charge the battery at least every 2 months.

→ Charge the battery, see page 55.

6.3 Restoring the truck to service after decommissioning

Procedure

- Thoroughly clean the truck – see page 158.
- Lubricate the forklift truck according to the lubrication schedule – see page 152.
- Equipped with lead-acid battery (●): Clean the battery, grease the battery terminal screws with terminal grease and connect the battery.
- Charge the battery – see page 55.
- Commission the forklift truck – see page 81.

7 Safety tests to be performed at intervals and after unusual incidents

The truck must be inspected at least annually (refer to national regulations) or after any unusual event by a qualified inspector. The manufacturer offers a safety inspection service which is performed by personnel specifically trained for this purpose.

A complete test must be carried out on the technical condition of the truck with regard to safety. The truck must also be examined thoroughly for damage.

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

8 Final de-commissioning, disposal

- Final de-commissioning or disposal of the truck in must be performed in accordance with the regulations of the country of use. In particular, regulations governing the disposal of batteries, consumables and electronic and electrical systems must be observed.

The truck must only be disassembled by trained personnel in accordance with the procedures as specified by the manufacturer.

9 Human vibration measurement

- Vibrations that affect the operator over the course of the day are known as human vibrations. Excessive human vibrations will cause the operator long term health problems. The European "2002/44/EC/Vibration" operator directive has therefore been established to protect operators. To help operators to assess the application situation, the manufacturer offers a service of measuring these human vibrations.

G Maintenance and Inspection

⚠ WARNING!

Lack of maintenance can result in accidents

Failure to perform regular maintenance and inspections can lead to truck failure and poses a potential hazard to personnel and equipment.

- ▶ Thorough and expert maintenance and inspections are among the most important requirements for the safe operation of the industrial truck.

NOTICE

The application conditions of an industrial truck have a considerable impact on component wear. The following service, inspection and replacement intervals are based on single-shift operation under normal operating conditions. The intervals must be reduced accordingly if more stringent requirements are placed on the equipment, e.g., use in conditions of extreme dust, temperature fluctuations or multiple shifts.

- ▶ To prevent damage due to wear, the manufacturer recommends an on-site application analysis to agree on appropriate intervals.

The following chapter defines the tasks to be performed, the respective intervals to be observed and the maintenance parts for which replacement is recommended.

1 Notes on the Truck Descriptions in the Maintenance Checklists

Description	Meaning
eL	Truck with electric steering
mechL	Truck with mechanical steering
fPL	Truck with fixed platform
kPL	Truck with folding platform

2 Maintenance Contents ERE 120 mechL, fPL

Issued on: 2020-11-01 08:00

2.1 Owner

To be performed every 50 service hours, but at least once a week.

2.1.1 Maintenance contents

2.1.1.1 Standard equipment

Brakes
Test the function of the brakes
Hydraulic operations
Correct the hydraulic oil level.
Steering
Test the tiller return function.

2.1.1.2 Optional equipment

Lead-acid battery, international

Power supply
Correct the battery acid level using demineralised water.

Lead-acid battery

Power supply
Correct the battery acid level using demineralised water.

2.1.2 Inspection contents

2.1.2.1 Standard equipment

The following points must be checked:

Electrical system
Warning and safety devices are in accordance with the operating instructions
Function of display and controls
The function of the emergency disconnect and for damage
Power supply
Battery and battery components for damage
The function and secure seating of the battery connector and for damage
Travel
The function of the collision safety switch and for damage
Wheels for wear and damage
Chassis/structure
Industrial truck for damage and leaks
Labels are legible, complete and plausible
Doors or covers for damage
Hydraulic operations
The function of the hydraulic system
The forks or load handler for wear and damage

2.1.2.2 Optional equipment

The following points must be checked:

Standard on-board charger

Battery charger
The mains plug and mains cable for damage

On-board charger 35A

Battery charger
The mains plug and mains cable for damage

Daytime travel light / lighting

Electrical system
The function of the lighting and for damage

Lead-acid battery, international

Power supply
Battery and battery components for damage
Battery cable connections are secure

Lead-acid battery

Power supply
Battery cable connections are secure

2.2 Customer Service

In accordance with the ERE 120 mechL, fPL service interval, to be performed every 1000 service hours, but at least once a year.

2.2.1 Maintenance contents

2.2.1.1 Standard equipment

Brakes
Test the brake with the tiller in the maximum vertical and horizontal positions.
Test the function of the brakes
Measure the air gap of the magnetic brake.
Electrical system
Test the contactors and/or relays.
Carry out a chassis insulation-resistance test.
Chassis/structure
Test the operator platform.
Check that the panels and covers as well as mounting brackets are secure. Ensure they function correctly and are safe.
Hydraulic operations
Test the function of the cut-off of the initial lift.
Correct the hydraulic oil level.
Test the pressure relief valve.
Agreed services
Carry out a test run with the rated load or a customer-specific load.
Demonstration after maintenance.
Steering
Test the tiller return function.

2.2.1.2 Optional equipment

Standard on-board charger

Battery charger
Test the immobiliser on trucks with on-board chargers.
Carry out a potential measurement on the chassis while charging is in progress.

On-board charger 35A

Battery charger
Test the immobiliser on trucks with on-board chargers.
Clean the fan.
Carry out a potential measurement on the chassis while charging is in progress.

Cushioned comfort platform

Chassis/structure
Test and adjust the platform.

Lead-acid battery, international

Electrical system
Carry out a chassis insulation-resistance test.

Power supply
Clean and grease the battery terminals.
Clean the battery.
Measure the acid density and battery voltage.
Correct the battery acid level using demineralised water.

Lead-acid battery

Electrical system
Carry out a chassis insulation-resistance test.

Power supply
Clean and grease the battery terminals.
Clean the battery.
Measure the acid density and battery voltage.
Correct the battery acid level using demineralised water.

2.2.2 Inspection contents

The following points must be checked:

2.2.2.1 Standard equipment

Electrical system
Cables and engine are secure and for damage
Warning and safety devices are in accordance with the operating instructions
Function of display and controls
The secure seating and function of the the sensors and for damage
The function of the emergency disconnect and for damage
Contactors and/or relays for wear and damage
The electric wiring for damage (insulation damage, connections) and the fuse ratings
Power supply
The function of the battery latch and battery attachment and for damage
The function and secure seating of the battery connector and for damage
Travel
The function of the deadman switch and for damage
Drivetrain bearings for wear and damage
The drive support plate is secure and for damage
Transmission for noise and leaks
Wheel bearings and attachment for wear and damage
Wheels for wear, damage and secure mounting
Chassis/structure
Industrial truck for damage and leaks
The secure seating of the chassis and screw connections and for damage
Labels are legible, complete and plausible
Operator platform for damage
Operator mat and steps are non-slip and free of damage
Hydraulic operations
The function of the "hydraulic system" controls and for legibility, completeness and plausibility
The function of the lift mechanism and for wear and damage
The secure seating of the cylinders and piston rods and for leaks and damage
The function of the hydraulic system
The forks or load handler for wear and damage
Tie/plunger rods are uniformly adjusted and for wear and damage
the secure seating of the hoses, pipes and connections and for wear, leaks, damage, blisters and kinks

Steering
The steering components for play and damage
The attachment of the flat belt and for damage and tension

2.2.2.2 Optional equipment

Standard on-board charger

Battery charger

The mains plug and mains cable for damage

The secure seating of the cables and electrical connections and for damage
--

Electrolyte circulation

Power supply

The function of the hose connections and pump

Aquamatik

Power supply

The function of the Aquamatik plug, hose connections and float and for leaks
--

The function of the flow indicator and for leaks
--

Load backrest

Hydraulic operations

Proper securing of the attachment to the truck and the load-bearing components for secure fit and damage
--

Battery refill system

Power supply

The function of the battery refill system and for leaks

Lateral battery removal

Power supply

The function of the battery latch and battery attachment and for damage

Shock sensor / data recorder

Electrical system

The shock sensor/data recorder is secure and for damage

Access module

Electrical system

Access module is secure and functions correctly and for damage
--

Entry skids/rollers

Hydraulic operations

The function of entry skids or entry rollers and for damage and wear
--

Automatic crawl speed

Travel
Sensors/switches are secure and function correctly and for damage

On-board charger 35A

Battery charger
The mains plug and mains cable for damage
The function of the fan and for damage
The secure seating of the cables and electrical connections and for damage

Cushioned comfort platform

Chassis/structure
The platform for damage

Daytime travel light / lighting

Electrical system
The function of the lighting and for damage

Lead-acid battery, international

Power supply
The secure seating of the battery, battery cables and cell connectors and for damage
The presence of safety labels are present and for damage

Lead-acid battery

Power supply
The secure seating of the battery, battery cables and cell connectors and for damage

2.2.3 Maintenance parts

The manufacturer recommends the replacement of the following maintenance parts at the specified intervals.

2.2.3.1 Standard equipment

maintenance part	service hours	months
Hydraulic oil	2000	12
Hydraulic system - breather filter	2000	12
Transmission oil	10000	
Flat belt and 4x mounting screws	2000	12

2.2.3.2 Optional equipment

Cold-store application

maintenance part	service hours	months
Hydraulic oil	1000	12
Hydraulic oil additive	1000	12

3 Maintenance Contents ERE 120 mechL, kPL

Issued on: 2020-11-01 08:00

3.1 Owner

To be performed every 50 service hours, but at least once a week.

3.1.1 Maintenance contents

3.1.1.1 Standard equipment

Brakes
Test the function of the brakes
Hydraulic operations
Correct the hydraulic oil level.
Steering
Test the tiller return function.

3.1.1.2 Optional equipment

Lead-acid battery, international

Power supply
Correct the battery acid level using demineralised water.

Lead-acid battery

Power supply
Correct the battery acid level using demineralised water.

3.1.2 Inspection contents

3.1.2.1 Standard equipment

The following points must be checked:

Electrical system
Warning and safety devices are in accordance with the operating instructions
Function of display and controls
The function of the emergency disconnect and for damage
Power supply
Battery and battery components for damage
The function and secure seating of the battery connector and for damage
Travel
The function of the collision safety switch and for damage
Wheels for wear and damage
Chassis/structure
Industrial truck for damage and leaks
Labels are legible, complete and plausible
The function of the barriers, railings and doors for damage
Doors or covers for damage
Hydraulic operations
The function of the hydraulic system
The forks or load handler for wear and damage

3.1.2.2 Optional equipment

The following points must be checked:

Standard on-board charger

Battery charger
The mains plug and mains cable for damage

On-board charger 35A

Battery charger
The mains plug and mains cable for damage

Lead-acid battery, international

Power supply
Battery and battery components for damage
Battery cable connections are secure

Lead-acid battery

Power supply
Battery cable connections are secure

3.2 Customer Service

In accordance with the ERE 120 mechL, kPL service interval, to be performed every 1000 service hours, but at least once a year.

3.2.1 Maintenance contents

3.2.1.1 Standard equipment

Brakes
Test the brake with the tiller in the maximum vertical and horizontal positions.
Test the function of the brakes
Measure the air gap of the magnetic brake.
Electrical system
Test the contactors and/or relays.
Carry out a chassis insulation-resistance test.
Chassis/structure
Test the operator platform.
Check that the panels and covers as well as mounting brackets are secure. Ensure they function correctly and are safe.
Hydraulic operations
Test the function of the cut-off of the initial lift.
Correct the hydraulic oil level.
Test the pressure relief valve.
Agreed services
Carry out a test run with the rated load or a customer-specific load.
Demonstration after maintenance.
Steering
Test the tiller return function.

3.2.1.2 Optional equipment

Standard on-board charger

Battery charger
Test the immobiliser on trucks with on-board chargers.
Carry out a potential measurement on the chassis while charging is in progress.

On-board charger 35A

Battery charger
Test the immobiliser on trucks with on-board chargers.
Clean the fan.
Carry out a potential measurement on the chassis while charging is in progress.

Lead-acid battery, international

Electrical system
Carry out a chassis insulation-resistance test.

Power supply
Clean and grease the battery terminals.
Clean the battery.
Measure the acid density and battery voltage.
Correct the battery acid level using demineralised water.

Lead-acid battery

Electrical system
Carry out a chassis insulation-resistance test.

Power supply
Clean and grease the battery terminals.
Clean the battery.
Measure the acid density and battery voltage.
Correct the battery acid level using demineralised water.

3.2.2 Inspection contents

The following points must be checked:

3.2.2.1 Standard equipment

Electrical system
Cables and engine are secure and for damage
Warning and safety devices are in accordance with the operating instructions
Function of display and controls
The secure seating and function of the the sensors and for damage
The function of the emergency disconnect and for damage
Contactors and/or relays for wear and damage
The electric wiring for damage (insulation damage, connections) and the fuse ratings
Power supply
The function of the battery latch and battery attachment and for damage
The function and secure seating of the battery connector and for damage
Travel
Drivetrain bearings for wear and damage
The drive support plate is secure and for damage
Transmission for noise and leaks
Wheel bearings and attachment for wear and damage
Wheels for wear, damage and secure mounting
Chassis/structure
Industrial truck for damage and leaks
The secure seating of the chassis and screw connections and for damage
Labels are legible, complete and plausible
The function of the barriers, railings and doors for damage
Operator platform for damage
Operator mat and steps are non-slip and free of damage
Hydraulic operations
The function of the "hydraulic system" controls and for legibility, completeness and plausibility
The function of the lift mechanism and for wear and damage
The secure seating of the cylinders and piston rods and for leaks and damage
The function of the hydraulic system
The forks or load handler for wear and damage
Tie/plunger rods are uniformly adjusted and for wear and damage
the secure seating of the hoses, pipes and connections and for wear, leaks, damage, blisters and kinks

Steering
The steering components for play and damage
The mechanical parts of the steering column for wear and damage
The attachment of the flat belt and for damage and tension

3.2.2.2 Optional equipment

Standard on-board charger

Battery charger

The mains plug and mains cable for damage

The secure seating of the cables and electrical connections and for damage
--

Electrolyte circulation

Power supply

The function of the hose connections and pump

Aquamatik

Power supply

The function of the Aquamatik plug, hose connections and float and for leaks
--

The function of the flow indicator and for leaks
--

Load backrest

Hydraulic operations

Proper securing of the attachment to the truck and the load-bearing components for secure fit and damage
--

Battery refill system

Power supply

The function of the battery refill system and for leaks

Lateral battery removal

Power supply

The function of the battery latch and battery attachment and for damage

Shock sensor / data recorder

Electrical system

The shock sensor/data recorder is secure and for damage

Access module

Electrical system

Access module is secure and functions correctly and for damage
--

Entry skids/rollers

Hydraulic operations

The function of entry skids or entry rollers and for damage and wear
--

Automatic crawl speed

Travel

Sensors/switches are secure and function correctly and for damage

On-board charger 35A

Battery charger

The mains plug and mains cable for damage

The function of the fan and for damage
--

The secure seating of the cables and electrical connections and for damage
--

Lead-acid battery, international

Power supply

The secure seating of the battery, battery cables and cell connectors and for damage
--

The presence of safety labels are present and for damage
--

Lead-acid battery

Power supply

The secure seating of the battery, battery cables and cell connectors and for damage
--

3.2.3 Maintenance parts

The manufacturer recommends the replacement of the following maintenance parts at the specified intervals.

3.2.3.1 Standard equipment

maintenance part	service hours	months
Hydraulic oil	2000	12
Hydraulic system - breather filter	2000	12
Transmission oil	10000	
Flat belt and 4x mounting screws	2000	12

3.2.3.2 Optional equipment

Cold-store application

maintenance part	service hours	months
Hydraulic oil	1000	12
Hydraulic oil additive	1000	12

4 Maintenance Contents ERE 120/125/225 eIL, fPL

Issued on: 2020-11-01 08:00

4.1 Owner

To be performed every 50 service hours, but at least once a week.

4.1.1 Maintenance contents

4.1.1.1 Standard equipment

Brakes
Test the function of the brakes
Hydraulic operations
Correct the hydraulic oil level.

4.1.1.2 Optional equipment

Lead-acid battery, international

Power supply
Correct the battery acid level using demineralised water.

Lead-acid battery

Power supply
Correct the battery acid level using demineralised water.

4.1.2 Inspection contents

4.1.2.1 Standard equipment

The following points must be checked:

Electrical system
Warning and safety devices are in accordance with the operating instructions
Function of display and controls
The function of the emergency disconnect and for damage
Power supply
Battery and battery components for damage
The function and secure seating of the battery connector and for damage
Travel
The function of the collision safety switch and for damage
Wheels for wear and damage
Chassis/structure
Industrial truck for damage and leaks
Labels are legible, complete and plausible
Doors or covers for damage
Hydraulic operations
The function of the hydraulic system
The forks or load handler for wear and damage

4.1.2.2 Optional equipment

The following points must be checked:

Standard on-board charger

Battery charger
The mains plug and mains cable for damage

On-board charger 35A

Battery charger
The mains plug and mains cable for damage

Daytime travel light / lighting

Electrical system
The function of the lighting and for damage

Lead-acid battery, international

Power supply
Battery and battery components for damage
Battery cable connections are secure

Lead-acid battery

Power supply
Battery cable connections are secure

4.2 Customer Service

In accordance with the ERE 120/125/225 eLL, fPL service interval, to be performed every 1000 service hours, but at least once a year.

4.2.1 Maintenance contents

4.2.1.1 Standard equipment

Brakes
Test the brake with the tiller in the maximum vertical and horizontal positions.
Test the function of the brakes
Measure the air gap of the magnetic brake.
Electrical system
Test the contactors and/or relays.
Carry out a chassis insulation-resistance test.
Chassis/structure
Test the operator platform.
Check that the panels and covers as well as mounting brackets are secure. Ensure they function correctly and are safe.
Hydraulic operations
Test the function of the cut-off of the initial lift.
Correct the hydraulic oil level.
Test the pressure relief valve.
Agreed services
Carry out a test run with the rated load or a customer-specific load.
Demonstration after maintenance.

4.2.1.2 Optional equipment

Standard on-board charger

Battery charger
Test the immobiliser on trucks with on-board chargers.
Carry out a potential measurement on the chassis while charging is in progress.

On-board charger 35A

Battery charger
Test the immobiliser on trucks with on-board chargers.
Clean the fan.
Carry out a potential measurement on the chassis while charging is in progress.

Cushioned comfort platform

Chassis/structure
Test and adjust the platform.

Lead-acid battery, international

Electrical system
Carry out a chassis insulation-resistance test.

Power supply
Clean and grease the battery terminals.
Clean the battery.
Measure the acid density and battery voltage.
Correct the battery acid level using demineralised water.

Lead-acid battery

Electrical system
Carry out a chassis insulation-resistance test.

Power supply
Clean and grease the battery terminals.
Clean the battery.
Measure the acid density and battery voltage.
Correct the battery acid level using demineralised water.

4.2.2 Inspection contents

The following points must be checked:

4.2.2.1 Standard equipment

Electrical system
Cables and engine are secure and for damage
Warning and safety devices are in accordance with the operating instructions
Function of display and controls
The secure seating and function of the the sensors and for damage
The function of the emergency disconnect and for damage
Contactors and/or relays for wear and damage
The electric wiring for damage (insulation damage, connections) and the fuse ratings
Power supply
The function of the battery latch and battery attachment and for damage
The function and secure seating of the battery connector and for damage
Travel
The function of the deadman switch and for damage
Drivetrain bearings for wear and damage
The drive support plate is secure and for damage
Transmission for noise and leaks
Wheel bearings and attachment for wear and damage
Wheels for wear, damage and secure mounting
Chassis/structure
Industrial truck for damage and leaks
The secure seating of the chassis and screw connections and for damage
Labels are legible, complete and plausible
Operator platform for damage
Operator mat and steps are non-slip and free of damage
Hydraulic operations
The function of the "hydraulic system" controls and for legibility, completeness and plausibility
The function of the lift mechanism and for wear and damage
The secure seating of the cylinders and piston rods and for leaks and damage
The function of the hydraulic system
The forks or load handler for wear and damage
Tie/plunger rods are uniformly adjusted and for wear and damage
the secure seating of the hoses, pipes and connections and for wear, leaks, damage, blisters and kinks

Steering
The function of the electric steering and its components and for wear and damage
The steering components for play and damage
The mechanical parts of the steering column for wear and damage

4.2.2.2 Optional equipment

Standard on-board charger

Battery charger
The mains plug and mains cable for damage
The secure seating of the cables and electrical connections and for damage

Electrolyte circulation

Power supply
The function of the hose connections and pump

Aquamatik

Power supply
The function of the Aquamatik plug, hose connections and float and for leaks
The function of the flow indicator and for leaks

Load backrest

Hydraulic operations
Proper securing of the attachment to the truck and the load-bearing components for secure fit and damage

Battery refill system

Power supply
The function of the battery refill system and for leaks

Lateral battery removal

Power supply
The function of the battery latch and battery attachment and for damage

Shock sensor / data recorder

Electrical system
The shock sensor/data recorder is secure and for damage

Access module

Electrical system
Access module is secure and functions correctly and for damage

Entry skids/rollers

Hydraulic operations
The function of entry skids or entry rollers and for damage and wear

Automatic crawl speed

Travel
Sensors/switches are secure and function correctly and for damage

On-board charger 35A

Battery charger
The mains plug and mains cable for damage
The function of the fan and for damage
The secure seating of the cables and electrical connections and for damage

Cushioned comfort platform

Chassis/structure
The platform for damage

Daytime travel light / lighting

Electrical system
The function of the lighting and for damage

Lead-acid battery, international

Power supply
The secure seating of the battery, battery cables and cell connectors and for damage
The presence of safety labels are present and for damage

Lead-acid battery

Power supply
The secure seating of the battery, battery cables and cell connectors and for damage

4.2.3 Maintenance parts

The manufacturer recommends the replacement of the following maintenance parts at the specified intervals.

4.2.3.1 Standard equipment

maintenance part	service hours	months
Hydraulic oil	2000	12
Hydraulic system - breather filter	2000	12
Transmission oil	10000	

4.2.3.2 Optional equipment

Cold-store application

maintenance part	service hours	months
Hydraulic oil	1000	12
Hydraulic oil additive	1000	12

5 Maintenance Contents ERE 120/125/225 eIL, kPL

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5.1 Owner

To be performed every 50 service hours, but at least once a week.

5.1.1 Maintenance contents

5.1.1.1 Standard equipment

Brakes
Test the function of the brakes
Hydraulic operations
Correct the hydraulic oil level.

5.1.1.2 Optional equipment

Lead-acid battery, international

Power supply

Correct the battery acid level using demineralised water.

Lead-acid battery

Power supply

Correct the battery acid level using demineralised water.

5.1.2 Inspection contents

5.1.2.1 Standard equipment

The following points must be checked:

Electrical system
Warning and safety devices are in accordance with the operating instructions
Function of display and controls
The function of the emergency disconnect and for damage
Power supply
Battery and battery components for damage
The function and secure seating of the battery connector and for damage
Travel
The function of the collision safety switch and for damage
Wheels for wear and damage
Chassis/structure
Industrial truck for damage and leaks
Labels are legible, complete and plausible
The function of the barriers, railings and doors for damage
Doors or covers for damage
Hydraulic operations
The function of the hydraulic system
The forks or load handler for wear and damage

5.1.2.2 Optional equipment

The following points must be checked:

Standard on-board charger

Battery charger
The mains plug and mains cable for damage

On-board charger 35A

Battery charger
The mains plug and mains cable for damage

Lead-acid battery, international

Power supply
Battery and battery components for damage
Battery cable connections are secure

Lead-acid battery

Power supply
Battery cable connections are secure

5.2 Customer Service

In accordance with the ERE 120/125/225 eIL, kPL service interval, to be performed every 1000 service hours, but at least once a year.

5.2.1 Maintenance contents

5.2.1.1 Standard equipment

Brakes
Test the function of the brakes
Measure the air gap of the magnetic brake.
Electrical system
Test the contactors and/or relays.
Carry out a chassis insulation-resistance test.
Chassis/structure
Test the operator platform.
Check that the panels and covers as well as mounting brackets are secure. Ensure they function correctly and are safe.
Hydraulic operations
Test the function of the cut-off of the initial lift.
Correct the hydraulic oil level.
Test the pressure relief valve.
Agreed services
Carry out a test run with the rated load or a customer-specific load.
Demonstration after maintenance.

5.2.1.2 Optional equipment

Standard on-board charger

Battery charger
Test the immobiliser on trucks with on-board chargers.
Carry out a potential measurement on the chassis while charging is in progress.

On-board charger 35A

Battery charger
Test the immobiliser on trucks with on-board chargers.
Clean the fan.
Carry out a potential measurement on the chassis while charging is in progress.

Lead-acid battery, international

Electrical system
Carry out a chassis insulation-resistance test.

Power supply
Clean and grease the battery terminals.
Clean the battery.
Measure the acid density and battery voltage.
Correct the battery acid level using demineralised water.

Lead-acid battery

Electrical system
Carry out a chassis insulation-resistance test.

Power supply
Clean and grease the battery terminals.
Clean the battery.
Measure the acid density and battery voltage.
Correct the battery acid level using demineralised water.

5.2.2 Inspection contents

The following points must be checked:

5.2.2.1 Standard equipment

Electrical system
Cables and engine are secure and for damage
Warning and safety devices are in accordance with the operating instructions
Function of display and controls
The secure seating and function of the the sensors and for damage
The function of the emergency disconnect and for damage
Contactors and/or relays for wear and damage
The electric wiring for damage (insulation damage, connections) and the fuse ratings
Power supply
The function of the battery latch and battery attachment and for damage
The function and secure seating of the battery connector and for damage
Travel
The function of the collision safety switch and for damage
Drivetrain bearings for wear and damage
The drive support plate is secure and for damage
Transmission for noise and leaks
Wheel bearings and attachment for wear and damage
Wheels for wear, damage and secure mounting
Chassis/structure
Industrial truck for damage and leaks
The secure seating of the chassis and screw connections and for damage
Labels are legible, complete and plausible
The function of the barriers, railings and doors for damage
Operator platform for damage
Operator mat and steps are non-slip and free of damage

Hydraulic operations
The function of the "hydraulic system" controls and for legibility, completeness and plausibility
The function of the lift mechanism and for wear and damage
The secure seating of the cylinders and piston rods and for leaks and damage
The function of the hydraulic system
The forks or load handler for wear and damage
Tie/plunger rods are uniformly adjusted and for wear and damage
the secure seating of the hoses, pipes and connections and for wear, leaks, damage, blisters and kinks

Steering
The function of the electric steering and its components and for wear and damage
The steering components for play and damage
The mechanical parts of the steering column for wear and damage

5.2.2.2 Optional equipment

Standard on-board charger

Battery charger
The mains plug and mains cable for damage
The secure seating of the cables and electrical connections and for damage

Electrolyte circulation

Power supply
The function of the hose connections and pump

Aquamatik

Power supply
The function of the Aquamatik plug, hose connections and float and for leaks
The function of the flow indicator and for leaks

Load backrest

Hydraulic operations
Proper securing of the attachment to the truck and the load-bearing components for secure fit and damage

Battery refill system

Power supply
The function of the battery refill system and for leaks

Lateral battery removal

Power supply
The function of the battery latch and battery attachment and for damage

Shock sensor / data recorder

Electrical system
The shock sensor/data recorder is secure and for damage

Access module

Electrical system
Access module is secure and functions correctly and for damage

Entry skids/rollers

Hydraulic operations
The function of entry skids or entry rollers and for damage and wear

Automatic crawl speed

Travel

Sensors/switches are secure and function correctly and for damage

On-board charger 35A

Battery charger

The mains plug and mains cable for damage

The function of the fan and for damage
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The secure seating of the cables and electrical connections and for damage
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Lead-acid battery, international

Power supply

The secure seating of the battery, battery cables and cell connectors and for damage
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The presence of safety labels are present and for damage
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Lead-acid battery

Power supply

The secure seating of the battery, battery cables and cell connectors and for damage
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5.2.3 Maintenance parts

The manufacturer recommends the replacement of the following maintenance parts at the specified intervals.

5.2.3.1 Standard equipment

maintenance part	service hours	months
Hydraulic oil	2000	12
Hydraulic system - breather filter	2000	12
Transmission oil	10000	

5.2.3.2 Optional equipment

Cold-store application

maintenance part	service hours	months
Hydraulic oil	1000	12
Hydraulic oil additive	1000	12