EJE 114i/116i/118i/120i

02.25

Operating instructions

en-GB

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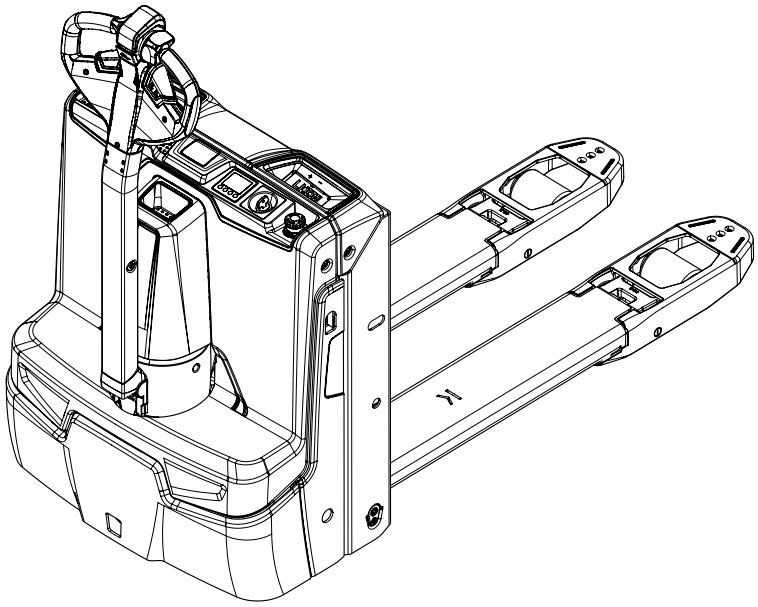
EJE 114i
EJE 116i
EJE 118i
EJE 120i



JUNGHEINRICH

Declaration of Conformity

CE

Manufacturer

Jungheinrich AG, 22039 Hamburg, Germany

Description
Industrial truck

Type	Option	Serial no.	Year of manufacture
EJE 114i EJE 116i EJE 118i EJE 120i			

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.

UK CA

JUNGHEINRICH

Declaration of Conformity (○)

Product:	EJE 114i/116i/118i/120i Serial number/type number
Manufacturer:	Jungheinrich Aktiengesellschaft 22039 Hamburg, Germany
UK representative:	Jungheinrich UK Ltd Sherbourne House Sherbourne Drive Tilbrook Milton Keynes MK7 8HX

Authorised to compile documentation:

The manufacturer is authorised to compile the technical documentation and its representative is authorised to make documentation available upon reasoned request for a period of at least 10 years from the date of first placement of the product on the UK market.

The manufacturer bears sole responsibility for issuance of this Declaration of Conformity.

The subject of the Declaration as outlined above satisfies the applicable UK legislation:

Supply of Machinery (Safety) Regulations 2008 No. 1597

and

Electromagnetic Compatibility Regulations 2016 No. 1091

Signed for and on behalf of:

Jungheinrich Aktiengesellschaft

02.25 en-GB

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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02.25 en-GB

Contents

A Correct Use and Application

1 General

The truck must be used, operated and serviced in accordance with these operating instructions. All other types of use are beyond its scope of application and may result in damage to persons, material assets and/or the truck.

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 97.

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

- Lifting and lowering load units
- Stacking and retrieving load units
- Transporting lowered load units

The following operations are not in accordance with regulations and are prohibited:

- Carrying and lifting passengers
- Pushing and pulling load units

3 Approved application conditions

3.1 Application area

⚠ 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.

Changing the application areas and thawing

– 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.

Special equipment and authorisation are required if the truck is to be used continually in conditions of extreme temperature fluctuations or condensing air humidity.

– Operation in industrial and commercial environments.
– 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 routes that are visible and approved by the operating company.
– Read the instructions in these operating instructions before travelling on slopes and inclines:
  • Truck gradeability – see page 27.
  • Notes on travelling on slopes and inclines – see page 82.

Ground conditions

The condition of the ground on which the truck is used must satisfy the following requirements:

– The ground must be level, secure and have sufficient capacity.
– The ground must be free from oil and grease.
– In accordance with EN 1081, the earthing resistance of the ground must not exceed 1 MΩ.

3.2 Instructions for trucks with lithium-ion batteries

⚠ 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.

Equipping the truck with a lithium-ion battery can affect the permissible operating conditions. The operating conditions of the truck and the various battery types are listed in this section.

- Travel and hydraulic functions: The usable battery capacity and power are reduced at low temperatures. 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.
- High and low ambient temperatures increase the charging time of the lithium-ion battery.
- The permissible application range of the lithium-ion battery does not increase the permissible application range of the truck.

A notification symbol appears on the display unit when the temperature of the lithium-ion battery is outside the permissible range – see page 64.

Notes regarding HGV transport

During HGV transport, the industrial truck with the lithium-ion battery installed can be parked securely at temperatures down to - 10 °C. The following notes must be observed when transporting the lithium-ion battery installed in the industrial truck:

- ▶ After the industrial truck is switched off, the heater also switches off after a shut-off delay. When the heater is switched off and the ambient temperature is below freezing point < 0 °C, the lithium-ion battery and the battery cells cool down to the ambient temperature. In this case, the battery management system reduces the discharge current and thus the performance of the lithium-ion battery. When the lithium-ion battery is put back into operation, a heating cycle is then necessary, which can take several hours depending on the ambient temperature.
- ▶ If the battery management system has reduced the discharge current and thus the performance of the lithium-ion battery during HGV transport, allow the lithium-ion battery to warm up in a temperature-controlled environment (> 1 °C) after unloading the truck from the HGV and connect it to the battery charger. The energy required by the heater is fed back to the lithium-ion battery by the battery charger. Do not operate the lithium-ion battery again until it has warmed up. Once the temperature of all battery cells is over 1 °C, the reduction of lithium-ion battery's discharge current is revoked by the battery management system.

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

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

– Use in a cold store (below -10 °C) is prohibited.

Operating and ambient conditions	
Permissible temperature range	-10 °C to +40 °C
Minimum temperature for charging	+5 °C
Maximum relative air humidity	95% non-condensing

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

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 at low state of charge and at low temperatures

A low state of charge and increasing cooling can damage the battery. To avoid damage, observe the following:

▶ If the battery charge is low, do ***not*** use the truck in temperatures from -28 °C to -5 °C.

▶ If the battery charge is low, avoid using the truck in temperatures from -5 °C to +5 °C ***where possible***.

▶ Charge the battery – see page 49.

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.

– In cold store areas below -10 °C, the truck must be operated **continuously** and must not be parked securely for more than 15 minutes.

Operating and ambient conditions	
Permissible temperature range	-28 °C to +25 °C
Temperature range for secure parking	+5 °C to +40 °C
Maximum relative air humidity	95% non-condensing

3.5 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.

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.

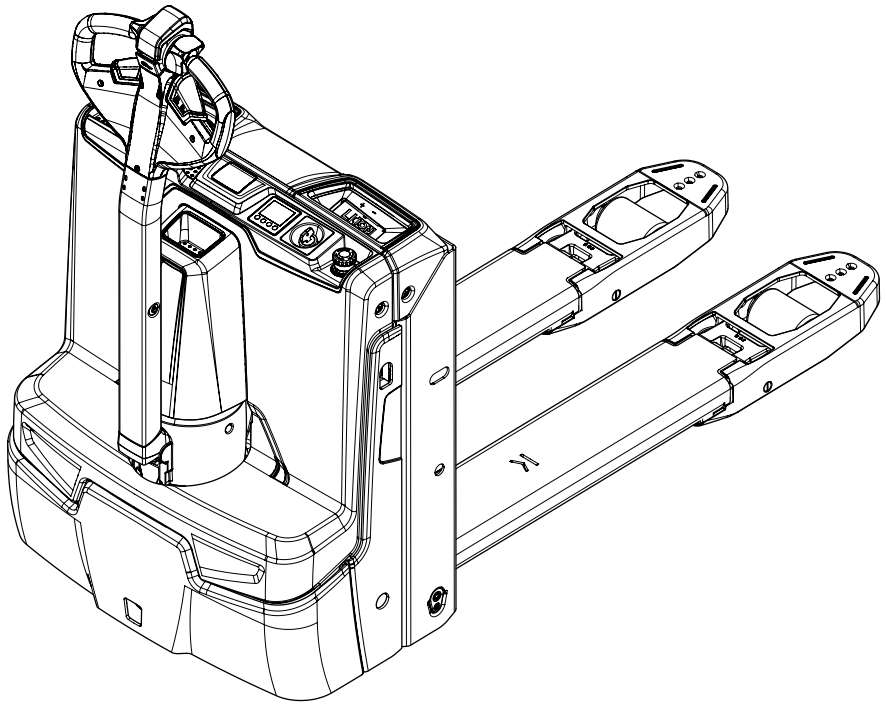
7 Parameters

➔ The truck parameters can be changed only by the manufacturer's customer service department.

B Truck Description

1 Application

The EJE 114i/116i/118i/120i is designed to transport goods on level surfaces. It can lift open-bottom or stringer-board pallets beyond the area above the load wheels, as well as roll cages. The capacity is shown on the capacity plate, Qmax.



1.1 Truck models and rated capacity

The rated capacity depends on the model. The rated capacity can be derived from the model name.

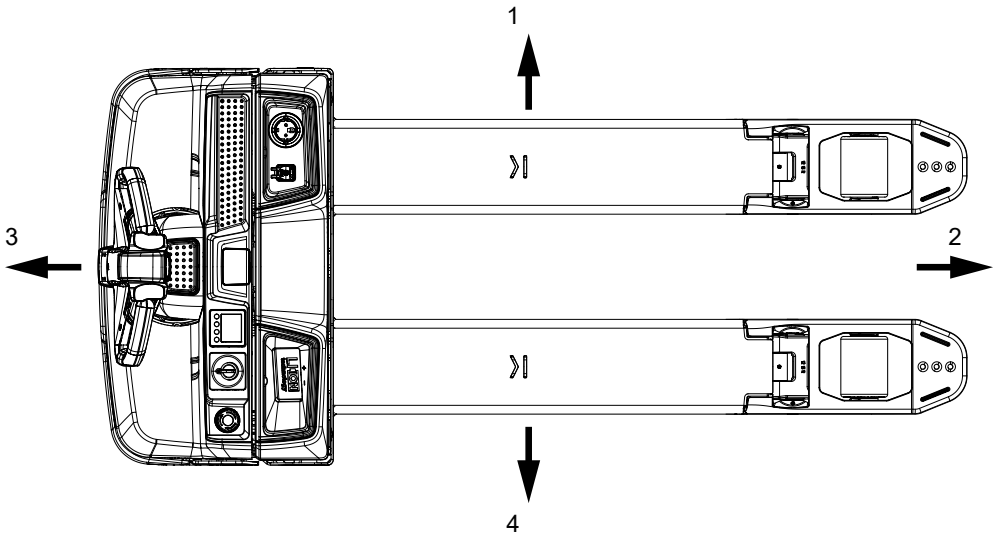
EJE 114i

EJE	Type designation
1	Series
14	Rated capacity x 100
i	Lithium-ion battery

The rated capacity is not generally the same as the permissible capacity. The capacity can be found on the capacity plate attached to the truck.

2 Travel direction definition

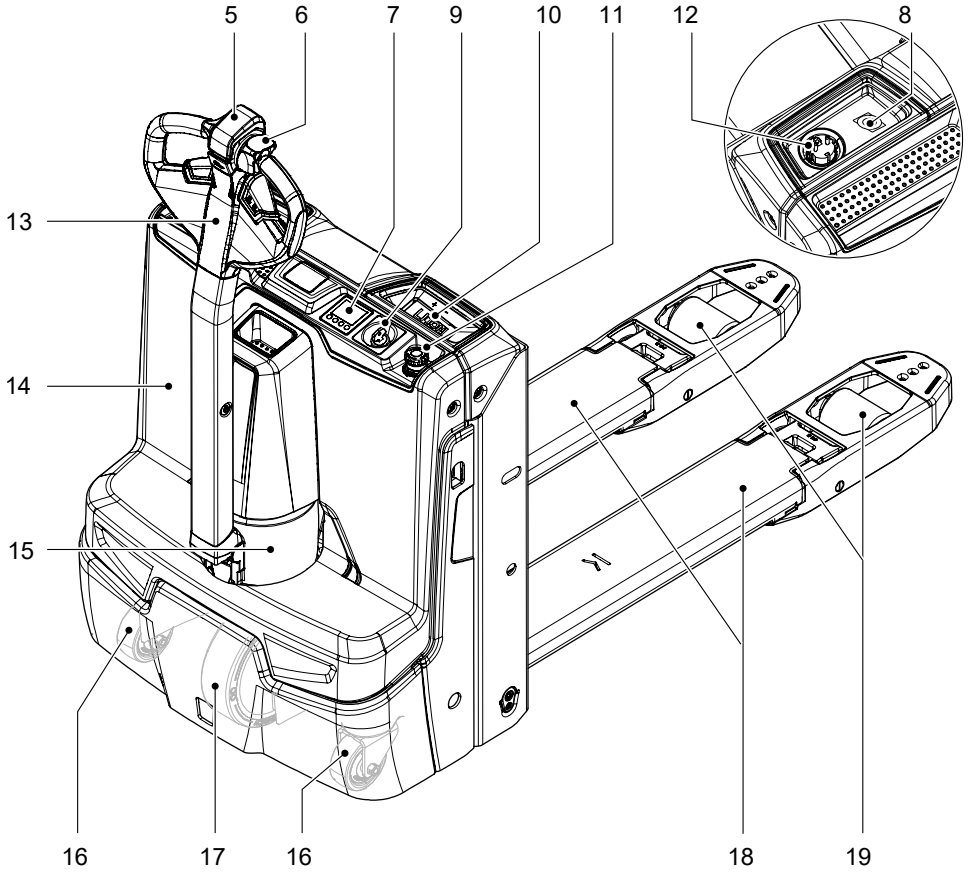
The following determinations have been made for travel direction specification:



Item	Description
1	Left
2	Load direction
3	Drive direction
4	Right

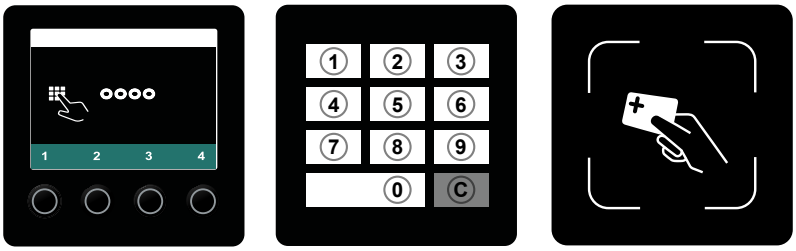
3 Assembly description

3.1 Assembly Overview



Item		Designation
5	●	Collision safety switch
6	●	Travel switch
7	●	Display unit with 2-inch display
8	○	HGV charging interface
9	○	Key switch Alternatively at this position: – Keypad (○) – Transponder reader Plus (○)
10	○	Comfort charging socket
11	●	Emergency disconnect switch
12	●	Mains plug (on-board charger)
13	●	Tiller
14	●	Front panel
15	●	Drive cover
16	●	Support wheel
17	●	Drive wheel
18	●	Load handler
19	●	Load rollers

3.2 Keyless Access System



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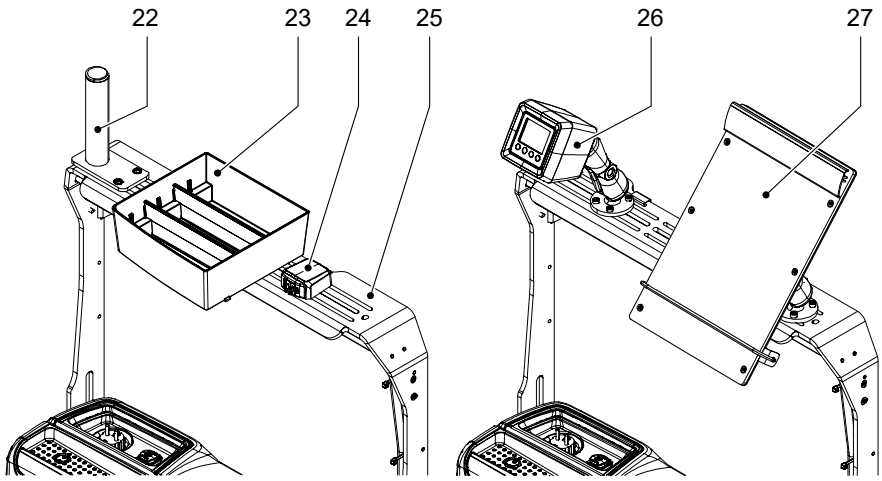
Item		Designation
7	●	Display unit with 2-inch display
20	○	Keypad
21	○	Transponder reader Plus

3.3 Options on the option bracket

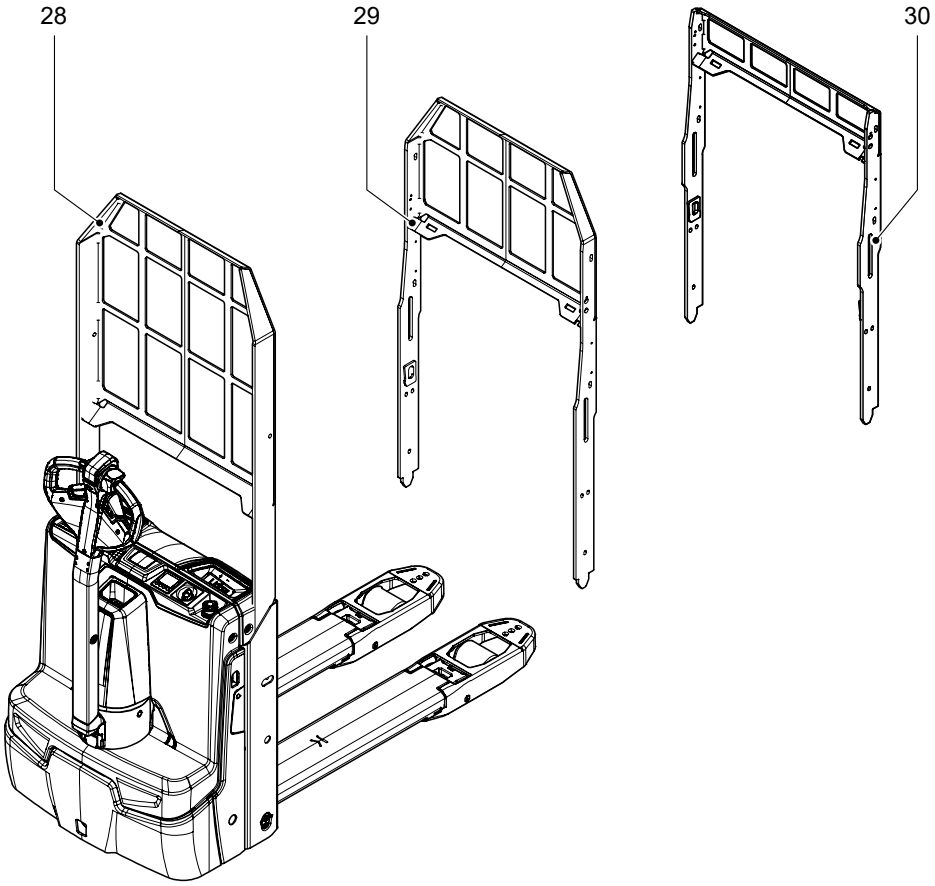


Item		Designation
22	○	Shrink wrap holder
23	○	Tray
24	○	USB-A charging module (2x 5 V / 2.4 A)
25	○	Options bracket
26	○	Pre-Op Check display unit
27	○	DIN A4 writing board

The Pre-Op Check display unit is always located on the left. If the display unit is not present, the DIN A4 writing board can be mounted on the left-hand side.

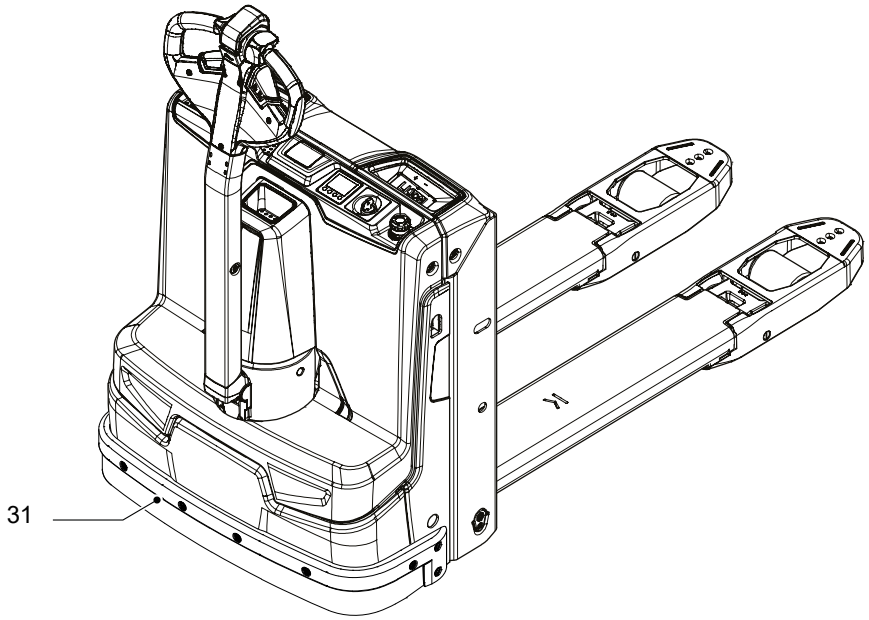
The optional bracket can also be mounted to the load backrest.

3.4 Load backrest



Item		Designation
29	○	Load backrest, medium version
30	○	Load backrest, small version
28	○	Load backrest, large version

3.5 Foot protection strip (○)



Item		Description
31	○	Foot protection strip, see page 124

4 Functional Description

4.1 General description

Drive system

A fixed AC three-phase motor actuates the drive wheel via a transmission. The electronic traction controller ensures stepless speed regulation of the drive motor and hence smooth starting, powerful acceleration, and electronically controlled braking with energy recovery.

All trucks in the EJE series are supplied with a preset travel program ex works. The information in the "Performance data" section (see page 27) relates to travel program 2.

Travel programs

There are three travel programs with preset accelerations and travel speeds:

– Travel program 1 (slow), medium acceleration
– Travel program 2 (medium), medium acceleration
– Travel program 3 (fast), high acceleration

The following options are available when selecting the travel program:

– The industrial truck always starts with the last travel program set. The operator can switch between the travel programs on the display unit (●).
– The industrial truck always starts with the set travel program 1, 2 or 3. The operator can switch between the travel programs on the display unit (○).
– The industrial truck always starts with a preset travel program. The option to change the travel program is disabled. (○).

Electrical system

The truck has an electronic traction controller. The truck electrical system operates with a rated operating voltage of 24V.

Tiller

The driver steers with an ergonomic tiller. All travel and lift operations can be performed sensitively without having to reach. The tiller has a steer angle of +/- 90°.

Hydraulic system

Pressing the “Lift” button starts the pump unit, supplying hydraulic oil from the oil reservoir to the lift cylinder. The load handler is raised at even speed. Pressing the “Lower” button lowers the load handler.

Control and display elements

Ergonomic controls ensure fatigue-free operation for sensitive application of the travel and hydraulic operations. The display unit shows key information such as travel program, service hours, battery capacity and event messages.

Hour meter

Service hours are counted while the truck is operational and one of the following controls is actuated:
– Tiller in travel zone "F", see page 89.
– "Slow travel button", see page 92.
– Button for lifting or lowering the load handler, see page 97.

Energy-saving function (○)

The energy-saving function includes automatic cut-out of the industrial truck after 5 minutes of inactivity. This value can be changed by the manufacturer's customer service department within a range of 1 to 30 minutes.

Immobiliser, mains plug detection (○)

The mains plug of the on-board charger must be fully inserted into the storage compartment before the industrial truck can be operated. Otherwise, the travel and lift functions are deactivated.

The immobiliser function prevents operation if the industrial truck is connected to a switched-off socket, for example.

Load backrest (○)

The truck is equipped with a load backrest as an additional safety device when moving low or small item loads. The load backrest is mounted on the load frame and protects the operator and truck against falling loads.

➔ The load backrest forms part of the protective and safety equipment. A fitted load backrest must not be removed. Trucks designed for use with a load backrest must not be operated without the load backrest in place.

Pre-Op Check (○)

Pre-Op Check allows the operator to perform and log a digitally guided status check for the industrial truck.

Pre-Op Check is an option of the Jungheinrich Fleet Management System (JH FMS) and can be used only in combination with this system.

➔ For further information on the Pre-Op Check, see the "Jungheinrich Fleet Management System" operating instructions.

Monitoring of the comfort charging socket (○)

The truck functions are disabled whenever the charge connector of a stationary battery charger is plugged into the truck comfort charging socket. For this purpose, the flap on the comfort charging socket is monitored: when the flap is opened, the truck is immediately disabled.

4.2 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 travel switch

After releasing the travel switch, it automatically returns to the neutral position (0) and the truck brakes.

Automatic reset of the tiller

When released, a gas pressure spring pushes the tiller up and activates braking see page 88.

Automatic reset of the lift/lower button

After releasing the button for lifting or lowering, it automatically returns to the neutral position (0) and the lifting/lowering movement of the load handler is stopped.

Collision safety switch

When travelling in the drive direction, the red collision safety switch changes the travel direction if the truck comes into contact with a person. The truck brakes, travels away from the operator for 3 s and stops. This prevents the truck driving into the operator.

Emergency disconnect switch

Activating the emergency disconnect switch disables all electrical functions in hazardous situations.

➔ Further information: see page 86.

Emergency stop safety concept

The emergency stop is activated by the traction controller. Each time the truck is switched on, the system carries out a self-diagnosis. If an error is detected, the truck automatically brakes to a halt. Event messages on the display unit indicate the emergency stop.

Charging stop

The charging stop function enables charging to be safely interrupted via the display unit.

4.3 Assistance systems

Foot protection tiller (○)

The assistance system offers enhanced foot protection as the maximum travel speed is only enabled when the operator has moved the tiller by a sufficient amount. If the tiller is moved only a little, the travel speed is reduced – see page 89.

Foot protection strip (○)

NOTICE

Risk of accident due to unintentional activation of the foot protection strip

When using the truck in confined spaces or when loading it onto an HGV, the foot protection strip can be triggered by unintentional contact. When the foot protection strip is triggered, the truck moves a few centimetres in load direction. This can cause damage to the load, the truck or the surrounding area.

- ▶ Always keep an eye on the area of the foot protection strip.
- ▶ In confined spaces or on HGV loading ramps, maintain a clear distance from the foot protection strip.

The foot protection strip is located on the lower frame edge of the truck. If the foot protection strip hits a foot or an obstacle while travelling in drive direction, the travel direction is reversed. The truck brakes, moves a few centimetres in load direction until the contact is clear, and then stops. The operator's foot is prevented from becoming trapped – see page 124.

NOTICE

Risk of accident due to unintentional activation of the foot protection strip

When using the truck in confined spaces or when loading it onto an HGV, the foot protection strip can be triggered by unintentional contact. When the foot protection strip is triggered, the truck moves a few centimetres in load direction. This can cause damage to the load, the truck or the surrounding area.

- ▶ Always keep an eye on the area of the foot protection strip.
- ▶ In confined spaces or on HGV loading ramps, maintain a clear distance from the foot protection strip.

Slow travel with the forks lowered (○)

When the load handler is fully lowered, the travel speed is reduced to reduce the amount of wear on the load handler.

5 Technical Specifications

The technical specifications comply with the German "Industrial Truck Data Sheet" Guidelines.
Technical modifications and additions reserved.

In accordance with VDI 2198, the load centre is indicated by the letter "c" in this section. In the other sections and on the capacity plate, the letter "D" is used in accordance with EN ISO 3691-1.

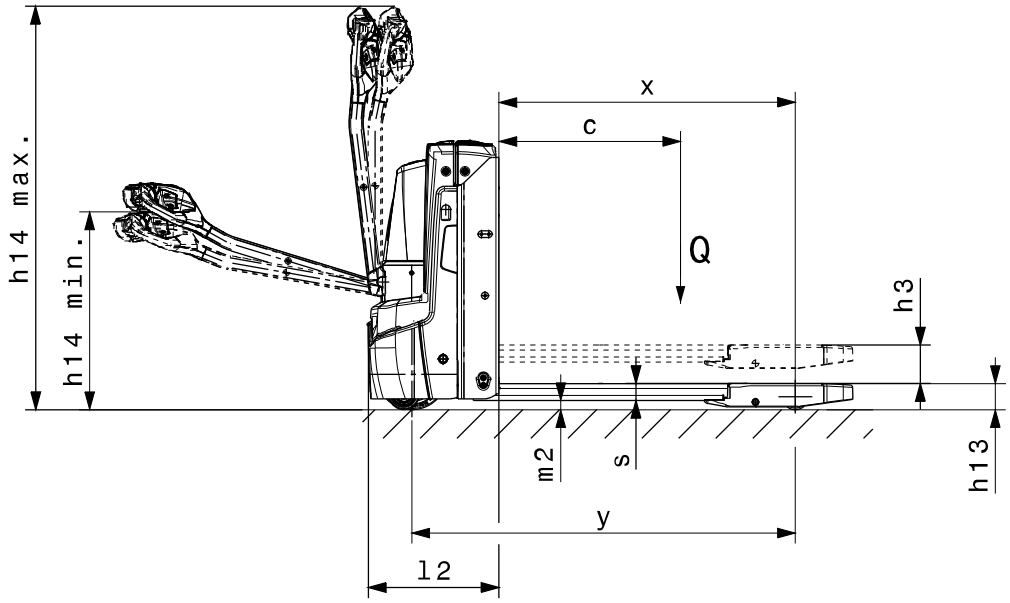
5.1 Performance data

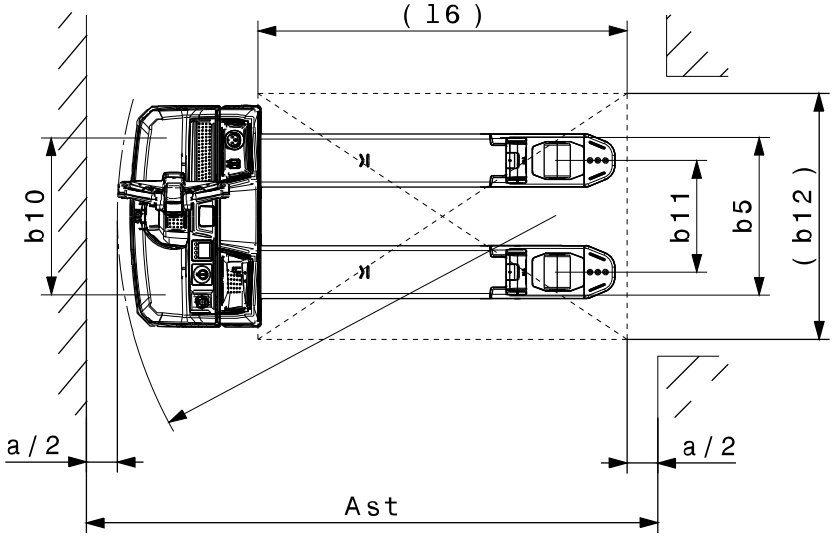
Description	EJE 114i	EJE 116i	EJE 118i	EJE 120i	
Travel speed with/without rated load [1]	5/5	5.6/5.6			km/h
Lift speed with/without rated load	0.03/0.03	0.05/0.06	0.05/0.06	0.05/0.06	m/s
Lowering speed with/without rated load	0.05/0.02	0.06/0.05	0.06/0.05	0.06/0.05	m/s
Drive motor, output S2 60 min	0.9	1.1			kW
Lift motor, output at S3 15 %	1.2				kW
Battery voltage	25.6				V
Nominal capacity K5 (XS/S)	50; 100/105; 150; 200				Ah
Battery weight (XS/S)	23.8; 35/41, 53				kg
Energy consumption in accordance with EN 16796	0.30	0.31	0.33	0.35	kWh/h
1) Travel program 2					

5.2 Gradeability

Load	EJE 114i/116i/118i/120i	
Max. gradeability w / w.o. load	8 / 20	%

5.3 Dimensions





	Description	EJE 114i	EJE 116i	EJE 118i	EJE 120i	
Q	Rated capacity/load	1400	1600	1800	2000	kg
c	Load centredistance for standard forklength	600				mm
x	Load distance [1]	908				mm
y	Wheelbase (XS/S) [1]	1191/1241				mm
b10	Track width, front	510				mm
b11	Track width, rear	363				mm
h3	Lift	122				mm

1) Load section lowered + 56 mm

2) Load section lowered + 50 mm (XS/S)

3) Load section lowered + 25 mm (XS/S)

	Description	EJE 114i	EJE 116i	EJE 118i	EJE 120i	
h14	Tiller height in min. / max. travel position.	690/1235				mm
h13	Lowered height	85				mm
l1	Overall length (XS/S)	1575/1625				mm
b1	Fork width	720				mm
l2	Length including fork shank (XS/S)	425/475				mm
s	Fork-arm thickness	55				mm
e	Fork width	150	172			mm
l	Standard forklength	1150				mm
b5	Width acrossforks	513	535			mm
m2	Ground clearance, centre of wheelbase	30				mm
Ast	Working aisle width with pallet 1000x1200 transv. [2]	2232/2281				mm
Ast	Working aisle width, pallets 800x1200 length [3]	2095/2122				mm
Wa	Turning radius[3] (XS/S)	1431/1481				mm

[1] Load section lowered + 56 mm

[2] Load section lowered + 50 mm (XS/S)

[3] Load section lowered + 25 mm (XS/S)

5.4 Weights

Description	EJE 114i	EJE 116i	EJE 118i	EJE 120i	
Net weight (XS/S)	337/400/400/400				kg
Axle load, laden front/rear (XS/S) [1]	699/1045	701/1262	763/1427	921/1486	kg
Axle load without load front/rear (XS/S) [1]	252/85	293/107	293/107	294/106	kg
1) Load pulling					

5.5 Tyre type

Description	EJE 114i/116i/118i/120i	
Tyre size, front	ø 230 x 70	mm
Tyre size, rear – Single – Tandem – Triple	 ø 85 x 110 ø 85 x 85 ø 85 x 44	mm
Additional wheels (dimensions)	ø 100 x 40	mm
Wheels number front/rear (x = driven)	1x + 2 / 2	

5.6 On-Board Charger

Technical data	Value
Mains voltage	230 V (+15 %, -10 %)
Mains frequency	50 Hz - 60 Hz (±3 Hz)
Current of ELH 2415	15 A
Current of ELH 2435	35 A
Current of ELH 2470	70 A

5.7 Laws, standards and guidelines

⚠ WARNING!

Damage to medical equipment due to non-ionising radiation

Electrical equipment on the truck emitting non-ionising 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 the medical equipment can be used near the industrial truck.

Continuous sound pressure level

– EJE 114i/116i/118i/120i: 61/58/58/58 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 travelling, lifting and idling. The sound pressure level is measured at the operator's ear.

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.

Hand-arm vibrations

The hand-arm vibrations during the use of this industrial truck equate to $a_w < 2.5$ m/s^2 (according to EN 13059).

➔ The specification of hand-arm vibrations is required, even when the values, as in this case, do not indicate any danger.

5.8 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
Transponder reader Plus	13.56 MHz	< 500 mW
Transponder reader Plus	125 kHz	< 500 mW
Battery module	2.4 GHz	< 10 mW
Telematics box Plus 4G/2G INT	850/900 MHz (2G)	< 2 W
	1800/1900 MHz (2G)	< 1 W
	800/900/1800/2100 MHz (4G)	< 200 mW

5.9 Electrical Requirements

The manufacturer certifies compliance with the requirements for the design and manufacture of electrical equipment, according to EN 1175 "Industrial Truck Safety - Electrical Requirements", provided the truck is used according to its purpose.

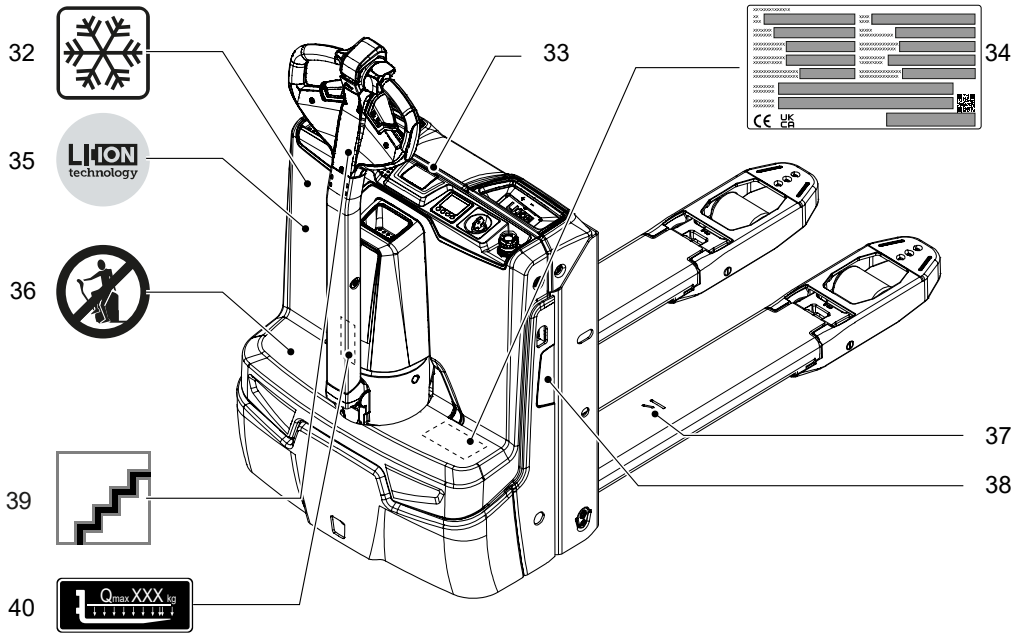
5.10 Safety of trucks

The manufacturer confirms adherence to the requirement for design and manufacture of the truck with regard to the safety requirements specific to intended use in accordance with EN ISO 3691-1.

6 Identification Points and Data Plates

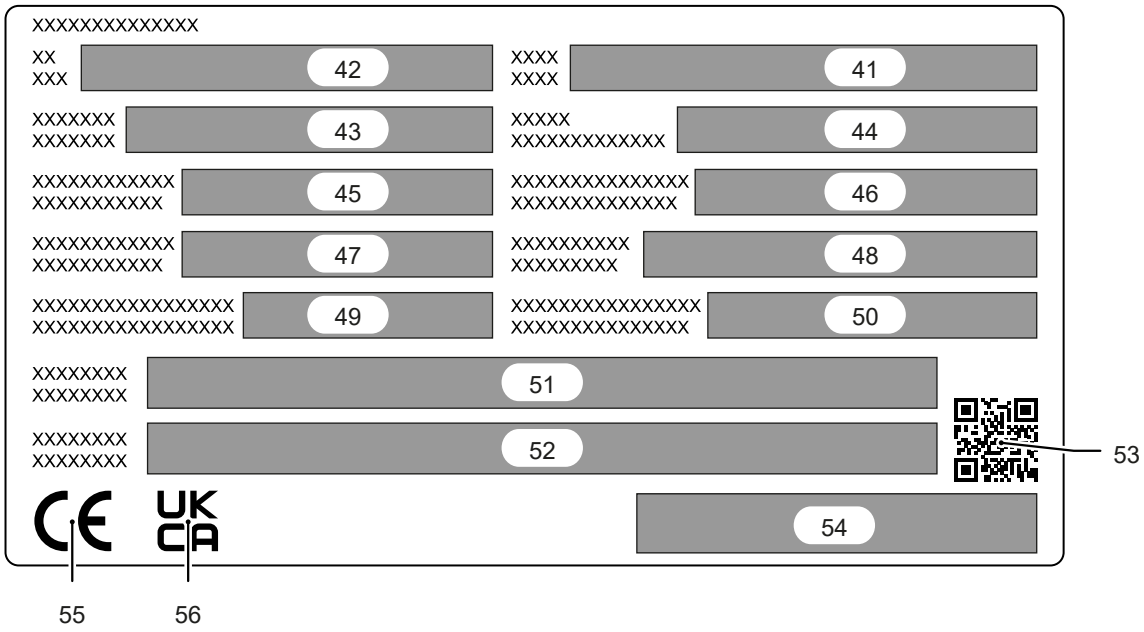
➔ Warnings and notices such as capacity plates, attachment points and data plates must be legible at all times. Replace if necessary.

6.1 Indication Points



Item		Designation
32	○	"Cold-store equipment" plate
33	●	Serial number
34	●	Data plate
35	●	"Lithium-ion battery" plate
36	●	Prohibition plate: "No passengers"
37	●	Marking for picking up a Euro pallet from the side
38	●	Type designation
39	●	Information sign: "QR code" ➔ The QR code contains a short online video on the basic functions of the industrial truck.
40	●	Truck capacity plate

6.2 Data plate



Item	Description	Item	Description
41	Year of manufacture	49	Net weight without battery [kg]
42	Type	50	Min./max. battery weight [kg]
43	Serial number	51	Manufacturer
44	Option	52	Importer - imported by (○)
45	Rated capacity [kg]	53	QR code
46	Load centre distance [mm]	54	Manufacturer's logo
47	Battery voltage [V]	55	CE marking[1)]
48	Drive output [kW]	56	UKCA marking (○)[2)]

➔ For queries regarding the truck or when ordering spare parts, always quote the truck serial number (43).

➔ The illustration shows the standard version for EU member states. The data plate may differ in other countries.

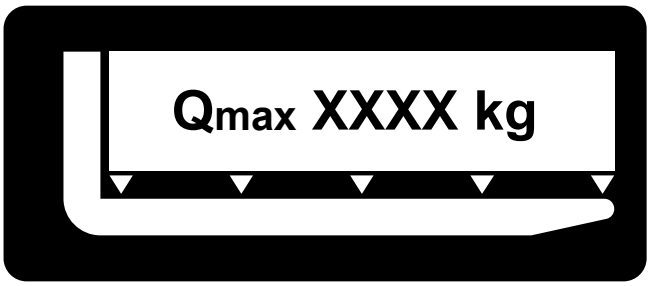
➔ The battery data plate is described in the relevant section – see page 41.

1) *Conformité Européenne*

2) *United Kingdom Conformity Assessed*

6.3 Capacity plate

The capacity plate (57) gives the maximum load-bearing capacity (Q) of the truck in kg assuming the load on the load handler is evenly distributed.



57

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 fall 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.

▶ Loading by crane may only be performed by persons who have been trained in the use of the lifting accessories.

▶ Wear personal protective equipment (e.g. safety shoes, hard hat, hi-vis jacket, protective gloves) when loading by crane.

▶ Do not stand under suspended loads.

▶ Do not enter or stand in the hazardous area.

▶ Always use lifting gear with sufficient capacity (observed truck weight in accordance with truck data plate – see page 34).

▶ Always secure crane lifting gear to the prescribed attachment points and prevent it from slipping.

▶ Use the lifting accessories only in the prescribed load direction.

▶ Lifting slings should be fastened in such a way that they do not come into contact with any attachments when lifting.

⚠ CAUTION!

Lowering of the drive frame when lifting the truck

When lifting the truck, the drive frame can lower in the area of the support arm lift. This can cause the truck to move inadvertently.

▶ Raise and set down the truck slowly and carefully.

▶ Keep the area around the truck clear.

⚠ CAUTION!

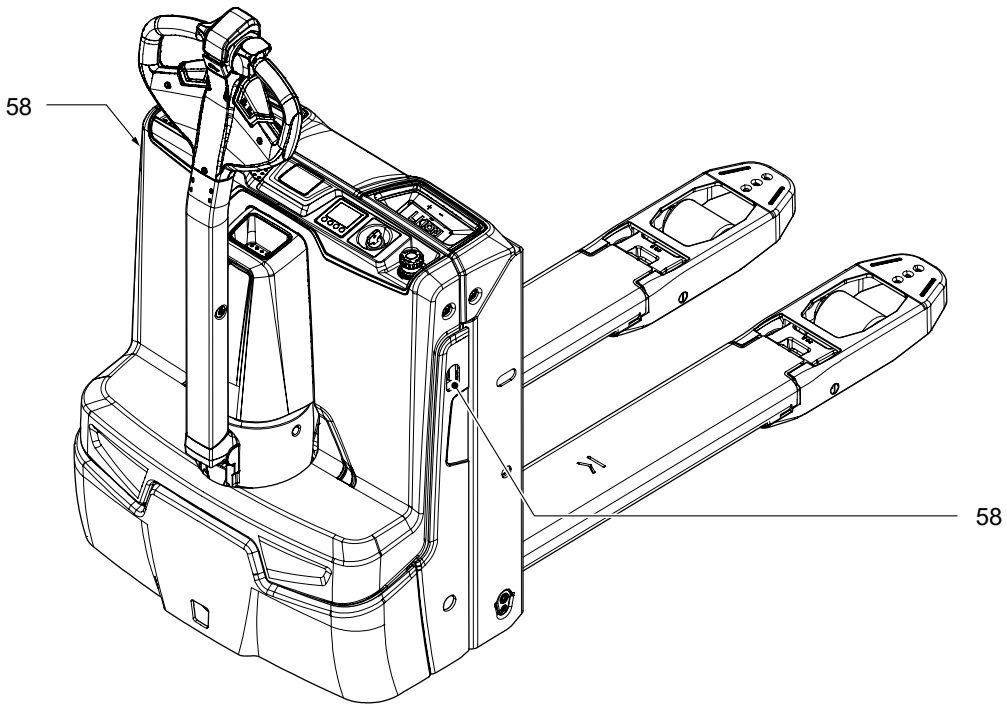
Danger of injury from swinging truck

The truck may swing when suspended.

▶ Raise the truck carefully and allow to swing.

▶ Keep the hazardous area around the truck clear.

Strap points (58) on the chassis are provided for transporting the truck with crane lifting gear.



Lifting the truck by crane

Requirements

– Park the truck securely, see page 80.

Tools and Material Required

– Lifting gear
– Crane lifting gear

Procedure

• Secure the crane lifting gear to the strap points (58).

The truck can now be lifted by crane.

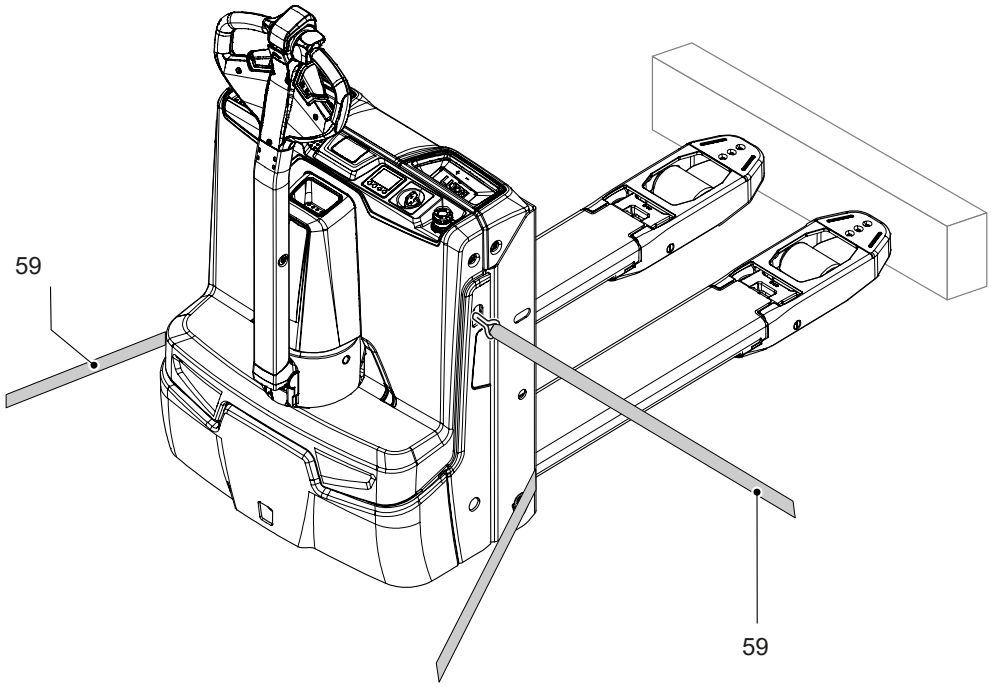
2 Transport

⚠ WARNING!

Uncontrolled movements during transport

Improper fastening of the truck during transport can result in serious accidents. Slipping lashing straps can lead to uncontrolled movements of the truck and even a fall during transport. Accidents caused by this can result in property damage and fatal injuries.

- ▶ 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 working with load securing equipment. Correct dimensioning and implementation of load securing measures must be ensured in each individual case.
- ▶ The truck must be securely fastened when transported on a lorry or a trailer.
- ▶ The lorry or trailer must be equipped with lashing rings.
- ▶ Use wedges to prevent the truck from accidentally moving.
- ▶ Use only lashing straps with sufficient tensile strength.
- ▶ Use non-slip materials to secure the transport aids (pallet, wedges, etc.), e.g. non-slip mats.



Securing the truck for transport

Requirements

– The truck is now loaded.
– Truck parked securely – see page 80.

Tools and Material Required

– Lashing straps

Procedure

- Attach the lashing straps (59) to the truck, strap them to the transport vehicle and tension sufficiently.

The truck can be transported.

3 Using the Truck for the First Time

⚠ WARNING!

The use of unsuitable energy sources can be hazardous

Rectified AC current damages the assemblies (controllers, sensors, motors etc.) of the electronic system.
Unsuitable cable connections (too long, wire cross-section too small) with the battery (jump leads) can overheat, setting the battery on fire.

▶ Operate the truck with battery current only.

NOTICE

Cold-store trucks

▶ Trucks for use in cold stores are equipped with suitable hydraulic oil suitable for cold-store applications and adapted components.

▶ If a truck with cold-store oil is used outside the cold store, the lowering speeds may increase.

NOTICE

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

If the truck is equipped with a display unit (EasyAccess Softkey), the delivery code is marked on a sticker – see page 110.

If the truck is equipped with a keypad (EasyAccess PinCode) or a transponder reader (EasyAccess Transponder), it can only be operated at first by the keys on the display unit – see page 111.

Carrying out initial commissioning

Procedure

- Check that the equipment is complete.
- Charge the battery – see page 49.
- Check the hydraulic oil level and correct if necessary – see page 147.
- Carry out initial commissioning of the optional equipment as soon as this is possible:
  - Activate the keypad or transponder reader – see page 110.

The truck can now be started – see page 76.

D Battery

1 General safety regulations for batteries

⚠ WARNING!

Risk of overtemperature, fire or explosion due to incorrect handling

Incorrect handling of the lithium-ion battery can result in over temperature, fire or a battery explosion. Lithium-ion batteries with mechanical damage can cause a short circuit inside the lithium-ion battery. A short-circuited lithium-ion battery can overheat or release gas.

- ▶ Do not open the lithium-ion battery.
- ▶ Do not mechanically machine the lithium-ion battery.
- ▶ Do not mechanically modify the lithium-ion battery (conversion).
- ▶ Do not damage, penetrate, bend, strike, crush, compress the lithium-ion battery or similar.
- ▶ Do not immerse a lithium-ion battery in water.
- ▶ Do not store or operate the lithium-ion battery in pressurised containers.
- ▶ The safety devices (e.g. safety valves) of the lithium-ion battery must never be modified or rendered ineffective.

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 Lithium-Ion Battery

General information

The truck is equipped with an integrated 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.

Battery management system

The lithium-ion battery is continually monitored by the battery management system. The battery management system monitors the cell temperature, voltage and charge status of the cells, for example. The charge and discharge processes of the lithium-ion battery are also enabled and monitored by the lithium-ion battery.

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

If critical values are reached or malfunctions occur, messages may be displayed or cut-offs triggered on the truck.

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

2.1 Safety regulations for handling lithium-ion batteries

2.1.1 Correct application

⚠ WARNING!

Do not open the battery!

If external influences (e.g. force, fire, flooding) cause unusual conditions or situations, the following instructions must be observed:

– The battery cells inside the lithium-ion battery contain substances that can be flammable if they come into contact with oxygen or water.
– The substances can escape if the battery cells are exposed to high pressure, an external fire or are mechanically damaged by force.
– The amount of these substances is so small that caution is only required in the immediate vicinity of the battery.

⚠ WARNING!

Hazard from liquid or gaseous contents from the battery

In the event of a technical defect or mechanical damage to the lithium-ion battery, as well as an overheated lithium-ion battery, electrolyte fluid can escape in liquid or gaseous form. Electrolyte fluid is hazardous to health. If the electrolyte fluid comes into contact with the skin or eyes, this can result in chemical burns and visual impairment. Inhaling the contents of electrolyte fluid can lead to respiratory illness.

▶ Wear personal protective equipment (e.g. safety gloves, safety shoes, respirator mask).
▶ In the case of contact with the skin or eyes, rinse the affected areas with plenty of water and seek medical assistance immediately.
▶ If the contents leak out, do not inhale the fumes.
▶ If contents have been inhaled, seek medical assistance immediately. The affected person should also be taken to the fresh air.
▶ Cordon off the affected area.
▶ Ensure there is adequate ventilation.
▶ Remain upwind of the area.
▶ Keep persons away.

NOTICE

Environmental hazard due to electrolyte fluid escaping from the battery cell

If the stack or battery cell suffers mechanical damage, electrolyte fluid can escape from the damaged battery cell. If the escaped electrolyte fluid flows into the ground or groundwater, this can cause damage to the environment.

▶ Escaped electrolyte fluid must be removed professionally by the operating company on the basis of a corresponding risk assessment and disposed of in the correct manner. The fire brigade or similar institutions must be used where necessary.
▶ Do not allow electrolyte fluid to enter the sewage system (surface water) or groundwater.
▶ Absorb electrolyte fluid with liquid-binding material (e.g. vermiculite, sand, sawdust, universal binders, diatomaceous earth).

2.1.2 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 truck with a fixed lithium-ion battery can be transported without special precautions.

2.1.3 Battery lifetime and maintenance

NOTICE

Damage to the lithium-ion battery due to discharge

If the lithium-ion battery undergoes a long period of non-use or storage, damage may occur due to deep discharge of the battery cells. Take the following actions to avoid damage due to deep discharge:

- ▶ Truck parked securely – see page 80.
- ▶ Fully charge the lithium-ion battery before extended periods of non-use or storage.
- ▶ Fully charge the lithium-ion battery every 3 months to protect against deep discharge.

Maintenance

The lithium-ion battery is a wear-free, maintenance-free and gassing-free (emission-free) sealed system.

No maintenance intervals are planned for this lithium-ion battery. For example, no refilling of liquids or other substances is necessary.

The lithium-ion battery is continually monitored by the battery management system.

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

Fire-fighting measures may only be carried out on a burning lithium-ion battery by trained and specially equipped fire-fighting personnel (e.g. by a member of the fire brigade).

▶ If possible, drive the truck outside before fighting the fire.

2.1.5 Touch voltage hazard

⚠ WARNING!

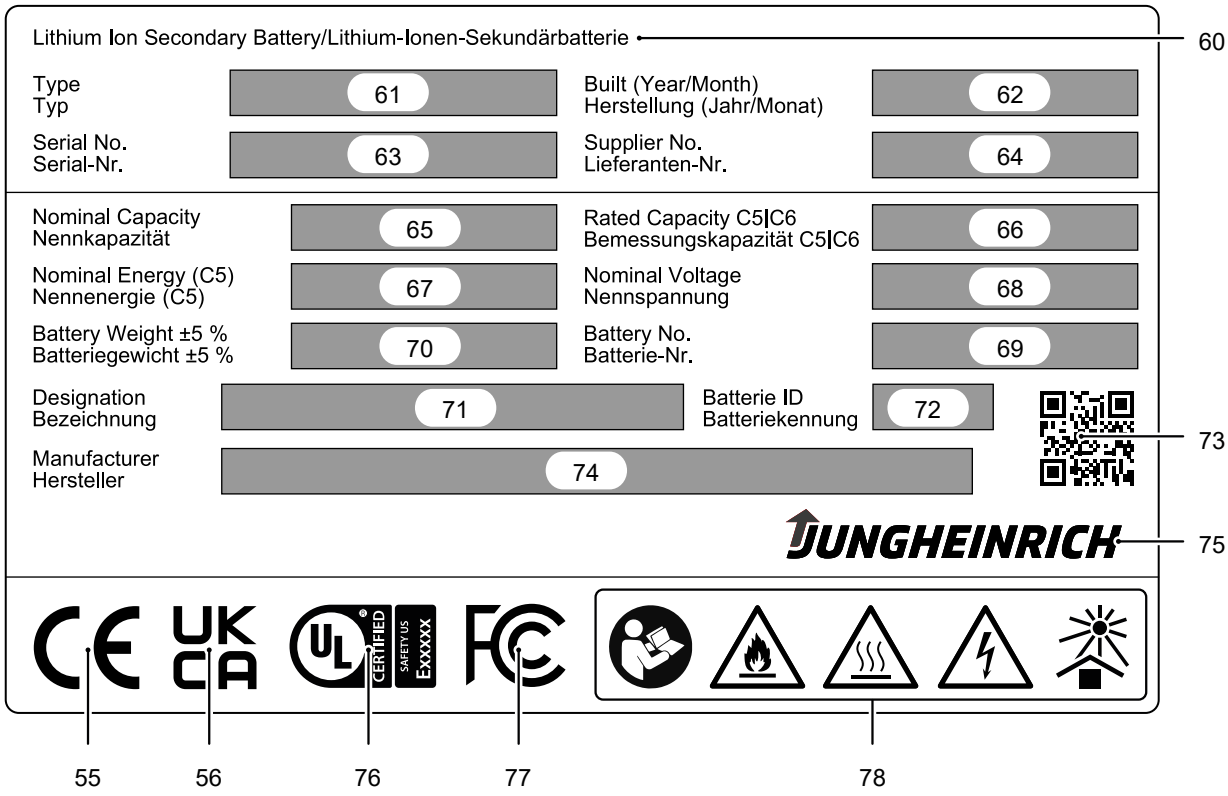
Touch voltage hazard

Hazardous touch voltages may occur in the event of a technical or mechanical defect on the battery. Touch voltages also occur on seemingly discharged batteries. Touching the battery terminals or live attachments (battery cable, battery connector etc.) can result in dangerous current flows through the body. There is a risk of serious, irreversible or fatal injuries.

▶ Tag out the faulty battery and take out of service.
▶ Do not touch faulty batteries.
▶ Do not place any objects or tools on the lithium-ion battery to avoid short-circuiting the battery.
▶ Do not short-circuit the lithium-ion battery.
▶ Notify the customer service department.

With this kind of defect, the battery must not be touched and must not come into contact with metal objects – see page 43.

2.2 Lithium-ion battery data plate

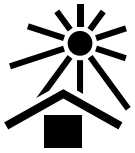


If you have any questions about the lithium-ion battery, supply the serial number (63) to either the manufacturer's customer service department or a customer service organisation authorised by the manufacturer.

Item	Description
55	CE mark (*Conformité Européenne*)
56	UKCA marking (*United Kingdom Conformity Assessed*)
60	Lithium-ion secondary battery
61	Battery type
62	Production (year/month)
63	Serial number
64	Supplier number
65	Rated capacity in ampere-hours [Ah]
66	Rated capacities C5 and C6 in ampere-hours [Ah]
67	Rated energy (C5) in watt-hours [Wh] – Calculation of the rated energy (C5): rated capacity C5 multiplied by the rated voltage
68	Rated voltage in volts [V]
69	Battery material number
70	Battery weight in kilogrammes [kg] – Tolerance range: 5 %
71	Designation

Item	Description
72	Battery identifier
73	QR code
74	Contact details of manufacturer: – Address – Website – E-mail
75	Manufacturer's logo
76	UL mark (*Underwriters Laboratories*)
77	FCC mark (*Federal Communications Commission*)
78	Safety and warning information – see page 47

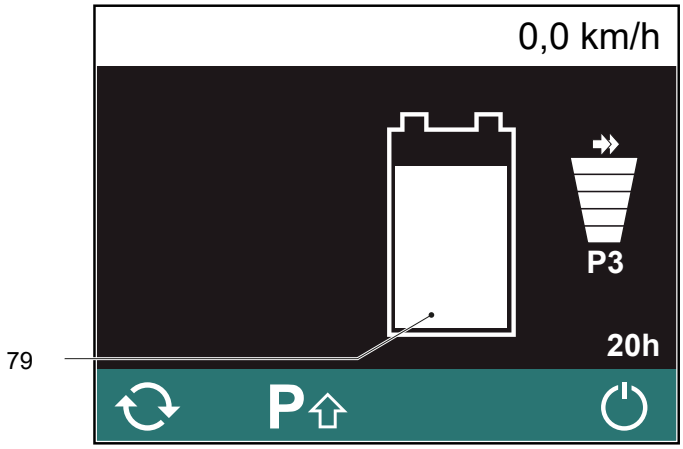
2.2.1 Safety Instructions, Warning Indications and other Notes

	Observe the operating instructions – The operating instructions must be clearly visible at the charging location. – If any faults are identified on the battery, the battery must no longer be used. Immediately tag out the faulty battery and take it out of service. Contact the manufacturer's customer service department. – Do not attempt to rectify faults independently. – Do not open the battery.
	Avoid fire and short-circuits due to overheating – Do not ignite or position open flames, glowing embers or sparks near the lithium-ion battery. – Keep batteries away from strong heat sources.
	Hot surfaces – Battery cells can generate very high short-circuit currents, causing them to become hot.
	Hazardous electrical voltage – The metal parts of the battery cells are permanently live. Therefore, do not place any foreign objects or tools on the battery. – Observe the accident prevention regulations and DIN EN 62485-3.
	Protect the battery against heat and solar radiation.

2.3 Battery types

Battery type	Nominal voltage	Capacity
Lithium-ion	25.6 V	50 Ah
		100 Ah
		105 Ah
		150 Ah
		200 Ah

2.4 Charge Status Indicator



The charge status of the lithium ion battery is shown on the display of the display unit (79). The display of the display unit also indicates important information on the operating condition of the lithium-ion battery as required (e.g. low charge status, excessively high or low temperature) – see page 64.

Cut-out depending on the charge status

Depending on the charge status of the lithium-ion battery, the truck may initiate lift cut-off or travel cut-off:

– Lift cut-off:
  The lift cut-off prevents the load handler from lifting.
  Lowering of the load handler is still available.
– Travel cut-off:
  The travel cut-off locks the travel functions or reduces the truck travel speed.

Deeply discharged batteries

No charging takes place if the battery is deeply discharged. Deeply discharged batteries cannot be charged by the operator (faulty).

➔ Contact the manufacturer's customer service department.

2.5 Removing or installing the battery

➔ The lithium-ion battery is permanently installed. Removal and installation are not foreseen in normal operation.

3 Charging the battery

3.1 Safety information

⚠ 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!

Danger of overheating when charging with an unsuitable battery charger

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.

⚠ WARNING!

Risk of electric shock and fire due to insufficient or inappropriate residual current devices

A lack of residual current devices or the use of inappropriate residual current devices can result in fatal injury due to electric shocks or electrical fires in the event of a fault.

- ▶ The owner must conduct an operational risk assessment of the usage location.
- ▶ An RCD switch (residual current device, circuit breaker) of type B or B+ must be used where necessary.

3.2 Charge statuses and compensation charging

Intermediate charging of the lithium-ion battery

The lithium-ion battery can be partially charged (intermediate charging) each time there is a break in use, without limiting its service life. The following must be borne in mind when doing so.

– In the event of frequent intermediate charging, charge the lithium-ion battery fully at least once per week.
– Interrupt the charging process with the charging stop function before disconnecting the battery charger from the mains – see page 54. If the battery charger is not disconnected from the mains, charging continues automatically after a waiting time.
– When the battery is fully charged, charging ends automatically.

Trickle charge

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.

Charging time

The duration of the charge depends on the battery capacity and charge status.

Mains failure

Charging continues automatically after a mains failure.

3.3 Setting the Charging Characteristic

NOTICE

Battery damage

The battery, battery charger (charging characteristic) and battery parameters must match; otherwise, the battery may be damaged during charging.

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

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

3.4 Charging the battery with an on-board charger

3.4.1 Safety information

⚠ 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 classes and resistance to acids and alkalis must correspond to those of the manufacturer's mains lead.
- ▶ The mains connector must be dry and clean when used.

⚠ WARNING!

Danger due to damage to the on-board charger or live attachments

Damage to the on-board battery charger or live attachments (mains cable, plug) can cause a short circuit or electric shock.

- ▶ Report any defects immediately to your supervisor.
- ▶ Notify the customer service department.
- ▶ Mark the defective truck accordingly and take it out of service.
- ▶ Do not return the truck to service until the fault has been identified and rectified.

⚠ WARNING!

Moving of a connected industrial truck with the mains socket switched off

If an industrial truck is being charged at an external mains socket, the automatic immobiliser detects this process and deactivates the truck travel functions. When charging an industrial truck at a mains socket that can be switched off, the industrial truck can start moving when the socket is switched off because the immobiliser detects only live mains sockets. This can cause damage to the electrical building installation as well as electric shocks and electrically induced fires.

- ▶ Before commissioning the truck, disconnect the mains cable from the mains socket and stow away in the designated position on the truck.
- ▶ If no additional protective measures have been taken [3], do not charge the industrial truck at a mains socket that can be switched off.
- ▶ This warning must be taken into account by the operating company when analysing the risk.

[3] One possible protective measure is the "mains plug detection, immobiliser" function.

⚠ 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!

Danger of overheating when charging with an unsuitable battery charger

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

Improper use of the on-board charger

Material damage to the industrial truck

- ▶ Do not open the on-board charger.
- ▶ Only use the on-board charger to charge the battery installed in the industrial truck.
- ▶ Only use other batteries after installation and approval by the manufacturer's customer service department.
- ▶ Do not install the on-board charger in other industrial trucks.

3.4.2 Charging Times

The charging times apply to discharged lithium-ion batteries. Partial charging can be carried out at any time to bring forward the use of the industrial truck.

In the event of ***high*** or ***low*** battery temperature, the charging time of the lithium-ion battery is extended due to a reduction in the charge current.

15 A on-board charger (●)

Battery capacity	Charging time for a discharged battery
50 Ah	3 hours 20 minutes
100 Ah	6 hours 40 minutes
105 Ah	7 hours
150 Ah	10 hours
200 Ah	13 hours 20 minutes

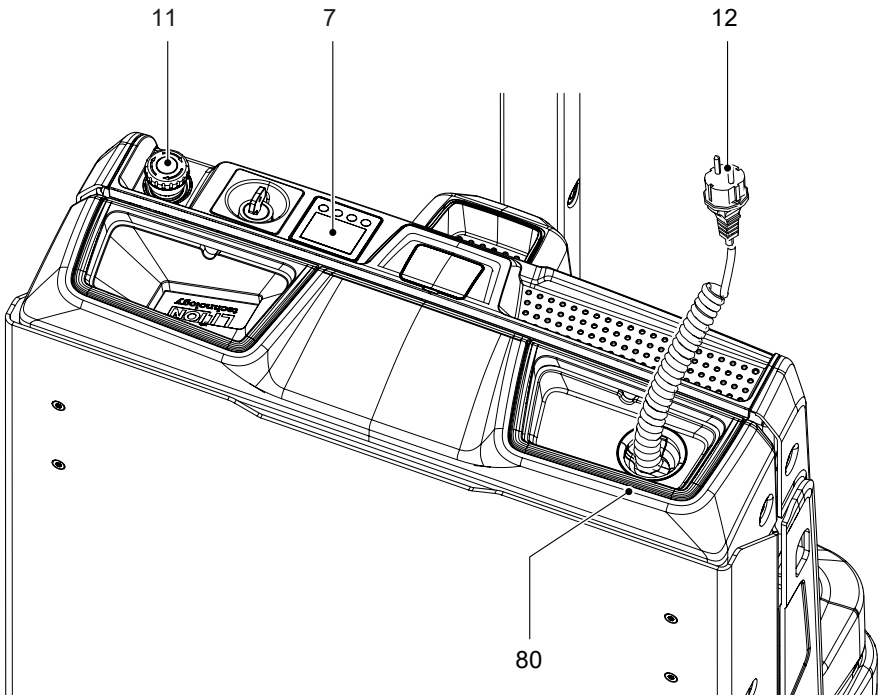
35 A on-board charger (○)

Battery capacity	Charging time for a discharged battery
50 Ah	1 hour 25 minutes
100 Ah	2 hours 50 minutes
105 Ah	3 hours
150 Ah	2 hours 20 minutes
200 Ah	5 hours 40 minutes

70 A on-board charger (○)

Battery capacity	Charging time for a discharged battery
50 Ah	1 hour
100 Ah	1 hour 25 minutes
105 Ah	1 hour 30 minutes
150 Ah	2 hours 10 minutes
200 Ah	2 hours 50 minutes

3.4.3 Charging the battery



Charging the battery

Requirements

– Truck parked securely – see page 80.

Procedure

- Check the cable and mains plug (12) of the on-board charger for visible damage before charging.

➔ If damage is identified, mark the truck accordingly and take it out of service. Have the truck repaired by the manufacturer or by a specialist authorised by the manufacturer.

- Plug the mains plug (12) into a mains socket.
- If the charge status is to be displayed on the industrial truck, unlock the emergency disconnect switch (11) – see page 86.

➔ The display unit (7) shows the charge status, symbols in connection with the charging stop or a fault – see page 64.

Charging starts and ends automatically. The battery is charging.

Completing the battery charge

Requirements

– The battery is partially or fully charged.

Procedure

- Press the "charging stop" function button on the display unit to interrupt charging.

➔ The cut-off with "charging stop" reduces wear on the internal power contacts.

➔ The display unit shows the "disconnect mains plug" symbol – see page 66.

- Unplug the mains plug (12) by pulling the plug (not the cable) out of the mains socket.
- **Always** stow the entire charger cable in the storage compartment (80).

➔ Only if equipped with the "mains plug detection, immobiliser" function (○); otherwise, a display symbol will appear on the display unit, see page 66. With this equipment, the truck can be started only when the mains plug is fully stowed in the storage compartment.

- Establish operational readiness.

The truck is operational.

3.5 Charging the battery with a stationary battery charger

⚠ WARNING!

Risk of injury due to use of an unsuitable battery charger.

Voltage peaks may occur when using a battery charger with an incompatible voltage, charging capacity and battery technology. Voltage peaks can permanently damage the battery charger, truck and battery Spark formation and uncontrolled movement of electronically controlled components may cause injury.

- ▶ The battery may only be charged with the Jungheinrich battery charger designed for this battery.
- ▶ Use only battery chargers approved by the manufacturer.

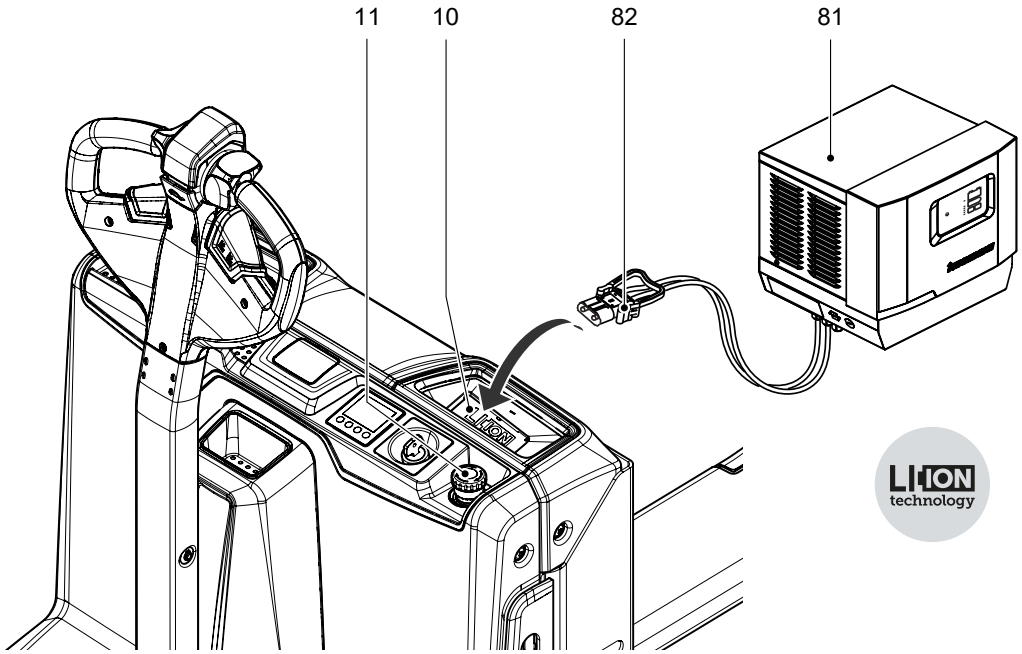
⚠ WARNING!

Risk of overheating and damage when charging with an unsuitable battery charger

The battery may overheat or sustain damage when using a battery charger with an incompatible voltage, charging capacity or battery technology.

- ▶ Only charge the lithium-ion battery with a battery charger specially approved for this battery. Observe the operating instructions and operating conditions for the battery charger.
- ▶ The battery charger (charging characteristic) and battery parameters must match.
- ▶ For safety information regarding correct behaviour in the event of a fire on or in direct proximity of the battery, see see page 45.

While the charge connector of the stationary charger is connected to the truck, the electrical functions of the truck are disabled (electric immobiliser). The truck cannot be operated in this case.



Charging the battery

Requirements

– Battery charger operational.
– Truck parked securely – see page 80.

Procedure

- Check the cable and charge connector (82) of the battery charger (81) for visible damage before charging.

➔ If damage is identified, mark the affected battery charger and take out of service. Have the battery charger repaired by the manufacturer or by a specialist authorised by the manufacturer.

- Insert the charge connector (82) of the battery charger (81) into the comfort charging socket (10) on the truck.
- Start charging in accordance with the battery charger operating instructions.
- If the charge status is to be displayed on the truck:
  - Unlock the emergency disconnect switch (11) – see page 86.

    The display unit displays the charge status or a fault – see page 64.

The battery is charging.

Ending battery charging

⚠ 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.

▶ Do not disconnect the mains cable or charge connector of the battery charger while charging (under load).

Procedure

- Complete charging in accordance with the battery charger operating instructions.
- Remove the charge connector of the battery charger (82) from the comfort charging socket (10) on the truck.

Battery charging is complete.

E Operation

1 Safety Regulations for the Operation of Forklift Trucks

⚠ WARNING!

Risk of injury due to removal or disabling of safety equipment

Removing or disabling safety equipment such as the emergency disconnect switch, covers etc. can result in accidents and injury.

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

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 33) and warning instructions in the present operating instructions must be strictly observed.

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.

Do not allow unauthorised persons to use the 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.

When leaving the industrial truck, the operator must ensure that the industrial truck is secured against unauthorised use, e.g. remove the key or keep the access code secret.

Damage and defects

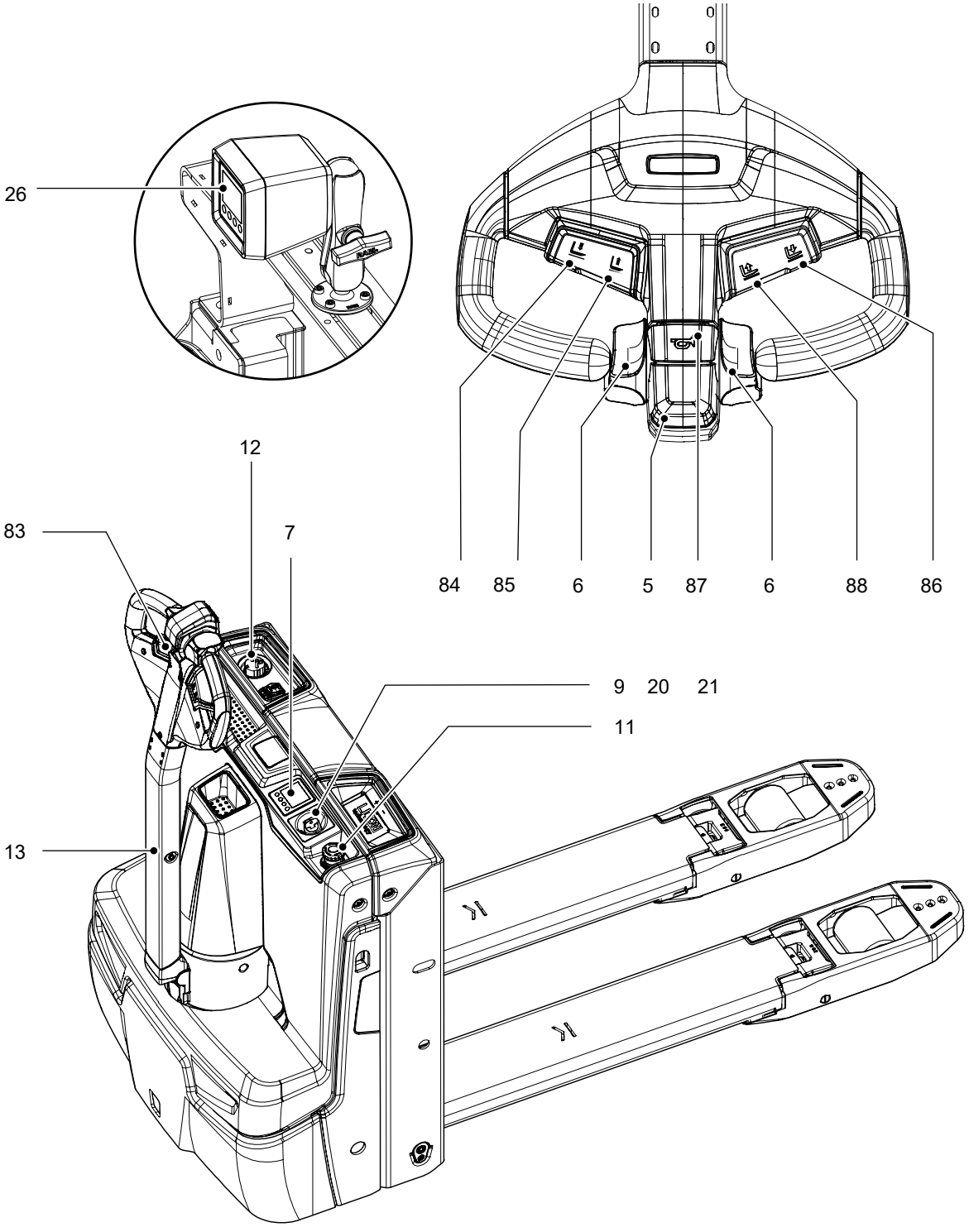
The supervisor must be informed immediately of any damage or faults to the truck or attachment. Trucks which are unsafe for operation (e.g. wheel or brake problems) must not be used until they have been rectified.

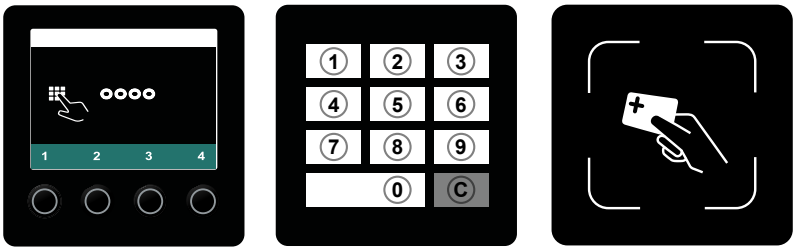
Repairs

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.

2 Displays and Controls

2.1 Overview





The controls for raising and lowering the support arms and load fork can optionally be arranged laterally reversed.

Item	Control/display		Function
5	Collision safety switch	●	Safety feature, drive direction travel only: When applied, the truck travels for approx. 3 Seconds in the load direction. The parking brake is then applied. The truck remains switched off until the travel switch is returned to neutral.
6	Travel switch	●	Controls travel direction and travel speed.
7	Display unit with 2-inch display	●	Display for: – Battery charge status – Battery capacity – Service hours – Travel program – Warning indicators – Event messages Selection of: – Travel program – Options – Releasing the truck by entering master and access codes with EasyAccess Softkey
9	Key switch	○	Is used to switch the truck on with a key.
11	Emergency disconnect switch	●	Used to brake the truck with maximum force and to interrupt the truck functions in an emergency. Activating the emergency disconnect switch disables all electrical functions in hazardous situations.
12	Mains plug for on-board charger	●	Used to charge the battery with the on-board charger – see page 49.
13	Tiller	●	Controls lift and travel functions.
20	Keypad	○	Supplement to the display unit. – Releasing the truck by entering setup and access codes with EasyAccess PinCode access system
21	Transponder reader Plus	○	Supplement to the display unit. – Releasing the truck by card/transponder with EasyAccess Transponder access system – The transponder reader Plus supports additional transponder standards

Item	Control/display		Function
26	Pre-Op Check display unit	○	Displaying the digital checklist for the Pre-Op Check – Performing and logging a digitally guided status check for the industrial truck – Only available in conjunction with the Jungheinrich Fleet Management System. – For further information on the Pre-Op Check, see the "Jungheinrich Fleet Management System" operating instructions.
83	“Slow travel” button	●	If the tiller is in the upper braking zone, braking can be overridden by pressing the switch, and the truck can move at reduced speed (slow travel), see page 92.
84	"Lower load handler" button	○	Two-sided button operation: Lowers the load handler at a constant speed.
85	"Raise load handler" button	○	Two-sided button operation: Raises of the load handler at a constant speed.
86	"Lower load handler" button	●	Lowers the load handler at a constant speed.
87	"Warning signal" button (horn)	●	Used to trigger the warning signal (horn).
88	"Raise load handler" button	●	Raises of the load handler at a constant speed.

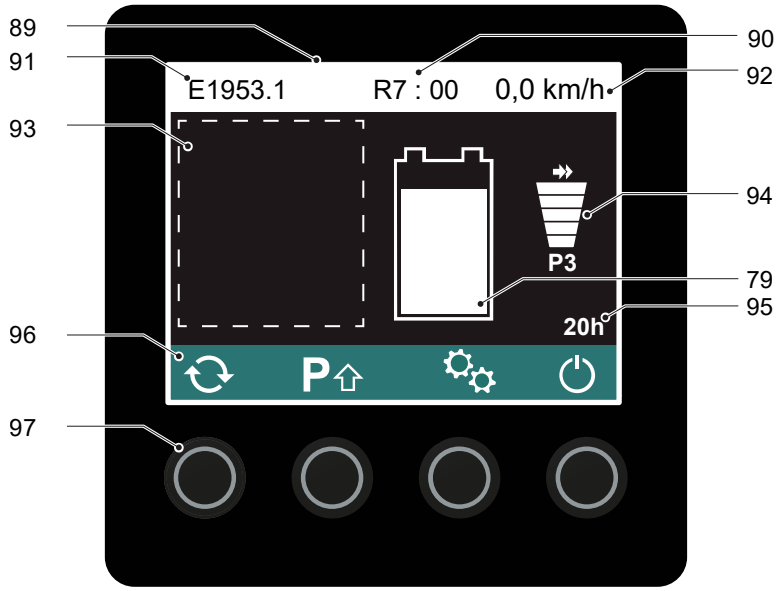
2.2 Battery discharge monitor

The default setting for the battery discharge monitor is made on lithium-ion batteries and cannot be changed.

If the residual capacity falls below the required level (< 12%), lifting is inhibited. A corresponding display appears. Lifting is not re-enabled until the lithium-ion battery is at least 13% charged.

2.3 Display unit

2.3.1 Display unit with 2-inch display



Item	Display or control element	Function
79	Battery charge status	The higher the fill level on the charge status indicator, the higher the residual capacity of the battery.
89	Information field	Displays event messages and optional information such as speed – see page 65.
91	Event message	Display of an event message – see page 103
92	Speed (○)	Display of the current speed – see page 65
93	Area for display symbols	Area for information concerning operation of the truck. The symbols shown depend on the operating situation and the truck status – see page 66.
94	Travel-program display	Displays the current travel program. The selected travel program is also shown in text form (P1, P2, P3) under the bar display.
95	Service-hours display	Displays the current number of service hours.
96	Function symbols	The functions shown as function symbols are operated using the function key located underneath, see page 69.
97	Function keys	Selection buttons for the corresponding functions.

The indicator lamps that appear on the display unit are dependent on the truck equipment.

2.3.2 Information field

Display of event messages

Current event messages are shown in the left section of the information line (89).

→ Further information on the event messages shown: see page 103.

Speed display

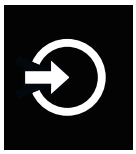
The right section of the information line shows the truck speed in km/h or mph.

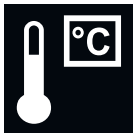
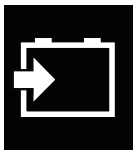
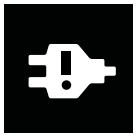
→ The setting for the displayed units can be configured by the manufacturer's customer service department.

2.3.3 Display symbols

Any number of symbols can be shown in the display area. The symbols shown during operation depend on the operating and truck status.

Pictograms that appear in connection with the Pre-Op Check are explained in the "Jungheinrich Fleet Management System" operating instructions.

Symbol	Meaning	Colour	Function
	Emergency stop	Red	Lights up in the case of automatic function deactivation due to truck malfunctions.
	Login with additional equipment	White	Lights up when waiting for user authentication on additional equipment (○).
		Green	
		Yellow	
		Red	
	Warning	Yellow	Lights up in the case of an operating error.
		Red	Lights up in the case of a truck fault. Travel is restricted to slow travel or lift, lower and travel functions are reduced.
	Truck disabled	Yellow	Lights up when the truck has been disabled due to a serious event. Possible causes: – Error in the drive system – Error in the hydraulic system – Shock event (truck with fleet management system)
	Tiller position	Yellow	Lights up on power-up with tiller in travel zone. Illuminates with travel switch operated and tiller in braking zone.
	Service note	Yellow	Lights up when maintenance is due.
	Assistance system not ready	Yellow	Lights up when an assistance system of the truck is not ready.
	Lithium-ion battery overtemperature	Red	Lights up to indicate an overtemperature of the lithium-ion battery

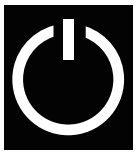
Symbol	Meaning	Colour	Function
	Lithium-ion battery low temperature	Yellow	Lights up to indicate a low temperature of the lithium-ion battery – Discharge currents and energy recovery are reduced.
		Red	Lights up to indicate a low temperature of the lithium-ion battery – The truck is switched off via the battery contactor. – The display unit switches off.
	Truck overtemperature	Yellow	Lights up when the temperature of the truck exceeds the permissible range. – Lifting, lowering and travel functions are reduced.
		Red	Lights up when the temperature of the truck exceeds the permissible range. – Lifting, lowering and travel functions are deactivated.
	Lift deactivated	Yellow	Lights up if the lift functions are deactivated due to insufficient battery capacity or if the lift function has not been released.
	Charging process	Green	Battery charge display (with on-board charger only): – Flashing: Charging in progress – Illuminates continuously: Charging complete
		Red	Charging interrupted
	Mains plug detection	Yellow	Lights up if the mains cable of the on-board charger is not fully stowed in the storage compartment.
	Charging is complete – disconnect the mains plug	White	Lights up when unplugging the mains plug of the on-board charger is allowed.
	Charging active – disconnecting the mains plug is not recommended	White	Lights up when unplugging the mains plug of the on-board charger is not allowed. If charging is to be interrupted, the "charging stop" function button must be actuated.
	Battery indicator, low residual capacity	Yellow	Lights up when residual capacity ≤ 30% Charge the battery soon.
		Red	Lights up when residual capacity ≤ 20 % Charge the battery immediately.

Symbol	Meaning	Colour	Function
	Impact display (equipment with fleet management system)	Yellow	Lights up when a moderate shock event has occurred. – Slow travel is triggered.
		Red	Lights up when a serious shock event has occurred. – Lifting and travel functions are deactivated.
	Eco mode	Green	Lights up when the energy-saving travel program is active.
	Slow travel	Yellow	Lights up when the travel speed is reduced by the control unit of the industrial truck (e.g. optional when the load handler is completely lowered)
			Lights up when the operator reduces the travel speed ("slow travel" button pressed).
	Slow travel	Green	Lights up when slow travel is activated via an external interface (e.g. by the fleet management system).
		Yellow	
		White	
	Slow travel (foot protection tiller)	Yellow	Illuminates when speed reduction has been activated by the "foot protection tiller" assistance system.
	Foot protection strip	Yellow	Lights up when the foot protection strip needs to be triggered for a function test.
			Flashes when the foot protection strip has been triggered and the truck is moving a few centimetres in load direction until the contact is clear again.

2.3.4 Function Symbols

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.

General

Symbol	Meaning	Function
	Function selection	Switches through the various functions and displays of the display unit.
	ON/OFF	Switches the truck on and off.
	Travel program	Switches through the various travel programs of the truck.
	Settings	Opens the Settings menu.
	Charging stop	Used to interrupt charging before the mains plug of the on-board charger is disconnected.
	ECO mode	Activates or deactivates ECO mode.

Settings menu

Symbol	Meaning	Function
	Back	Cancels the current operation and returns to the previous menu.
	Edit access code/ transponder	To add or delete access codes or transponders.
	Changing the Set-up Code	To change the set-up code and to activate the keypad or the transponder reader.
	Log-in History	Shows the log-in history in chronological order.

Submenus

Symbol	Meaning	Function
	Confirm	To confirm an entry or a transponder code.
	Adding	To add new access codes.
	Delete	To delete selected access codes.
	Selection up	For selecting the access codes or transponders and to scroll back during the log-in process.
	Selection down	For selecting the access codes or transponders and to scroll forward during the log-in process.

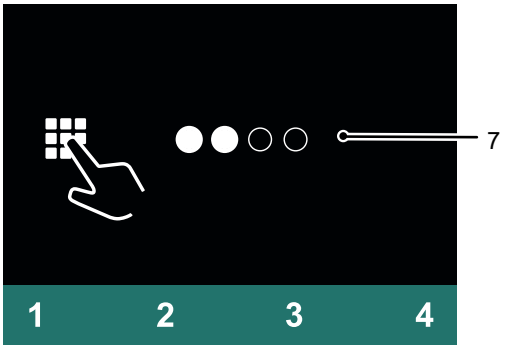
2.3.5 Using the Display:

2.3.5.1 Switching on the truck with an access code

Procedure

- Release the emergency disconnect switch, see page 86.
- Enter the access code with the buttons below the display (7).

The truck is switched on.

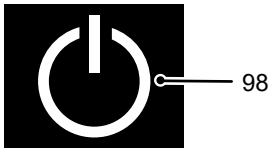


2.3.5.2 Switching off the truck

Procedure

- Press the key under the "Switch off" symbol (98) in the display unit.
- Press the Emergency Disconnect switch, see page 86.

The truck is switched off.



2.3.5.3 Changing the set-up code

Requirements

– The truck is switched on, see page 71.

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 (7).

  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 (7).

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

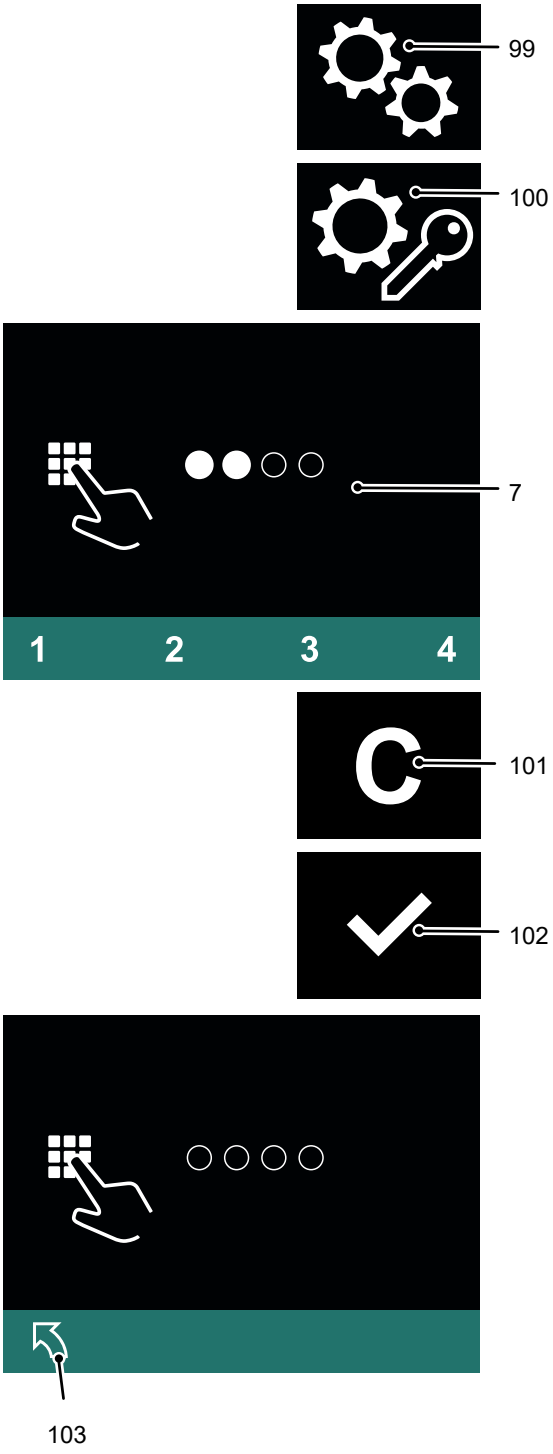
- Press the key below the "Confirm" symbol (102).

  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 (103).

The set-up code has been changed.



2.3.5.4 Adding a new access code

Requirements

– The truck is switched on, see page 71.

Procedure

- Press the key below the "Settings" symbol (99).
- Press the key below the "Edit access code" symbol (104).

  The set-up code is requested.
- Enter the set-up code using the keys below the display unit (7).

  All the access codes are displayed.
- Press the key below the "Add" symbol (105).
- Enter the new access code using the keys below the display unit (7).

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

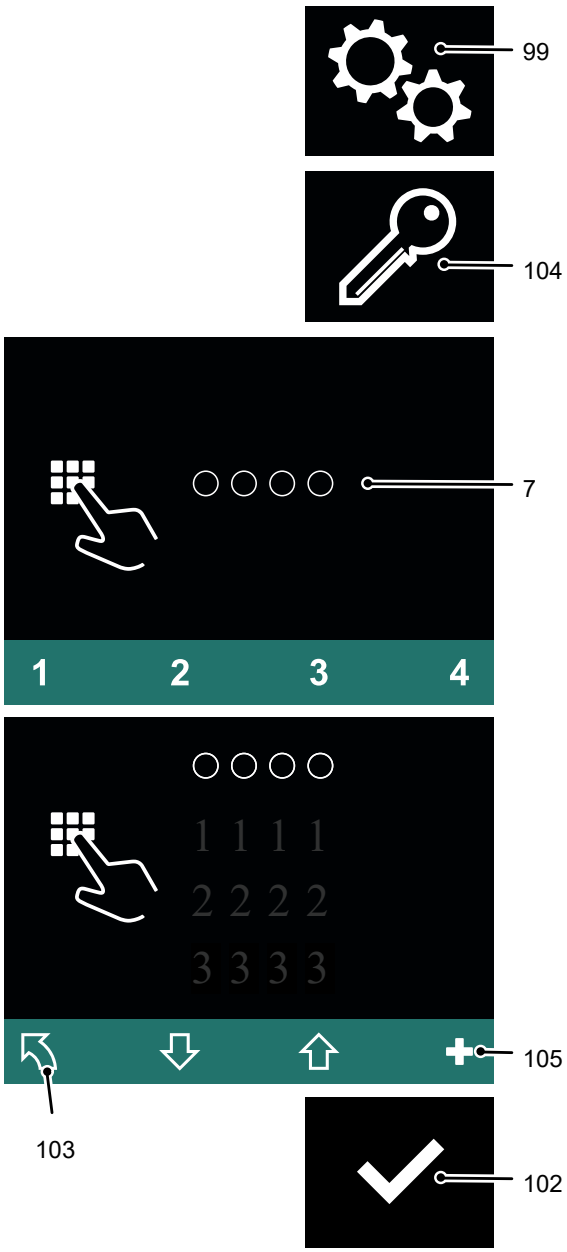
- Press the key below the "Confirm" symbol (102).

  The new access code is displayed.

➔ If the new access code has been entered incorrectly, delete it, see page 74, and add an access code again.

To return to the main menu, press the key below the "Back" symbol (103).

A new access code has been added.



2.3.5.5 Deleting an access code

Requirements

– The truck is switched on, see page 71.

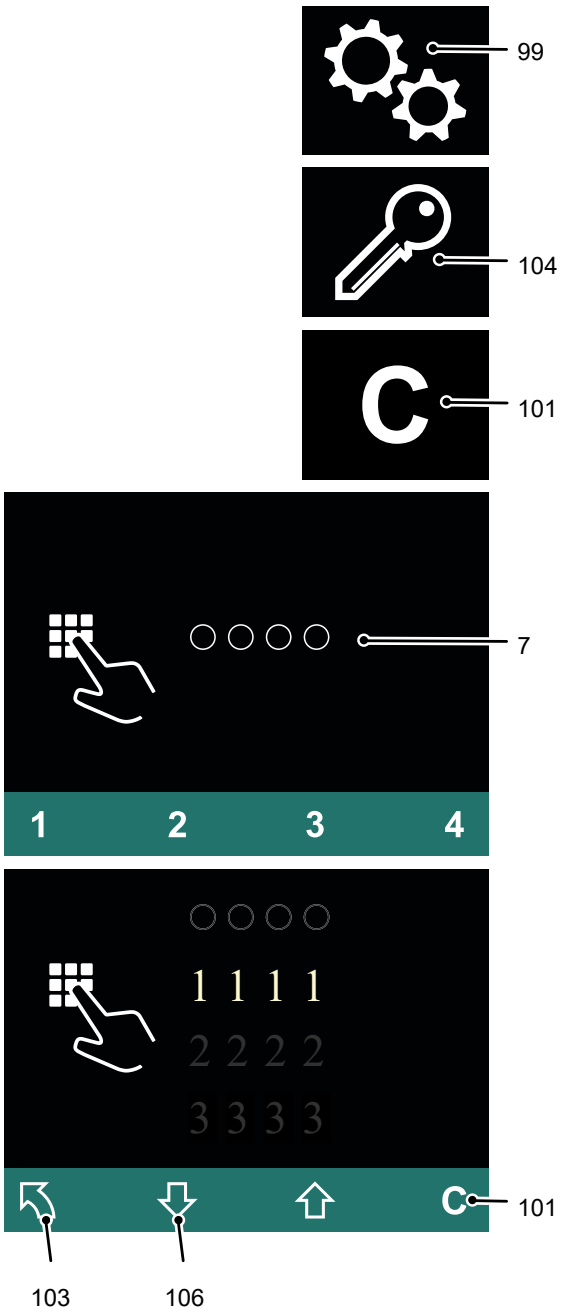
Procedure

- Press the key below the "Settings" symbol (99).
- Press the key below the "Edit access code" symbol (104).

  The set-up code is requested.
- Enter the set-up code using the keys below the display unit (7).

  All the access codes are displayed.
- Select the access code to be deleted using the key below the "Down selection" symbol (106).
- 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 (103).



2.3.5.6 Displaying the log-in history

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.

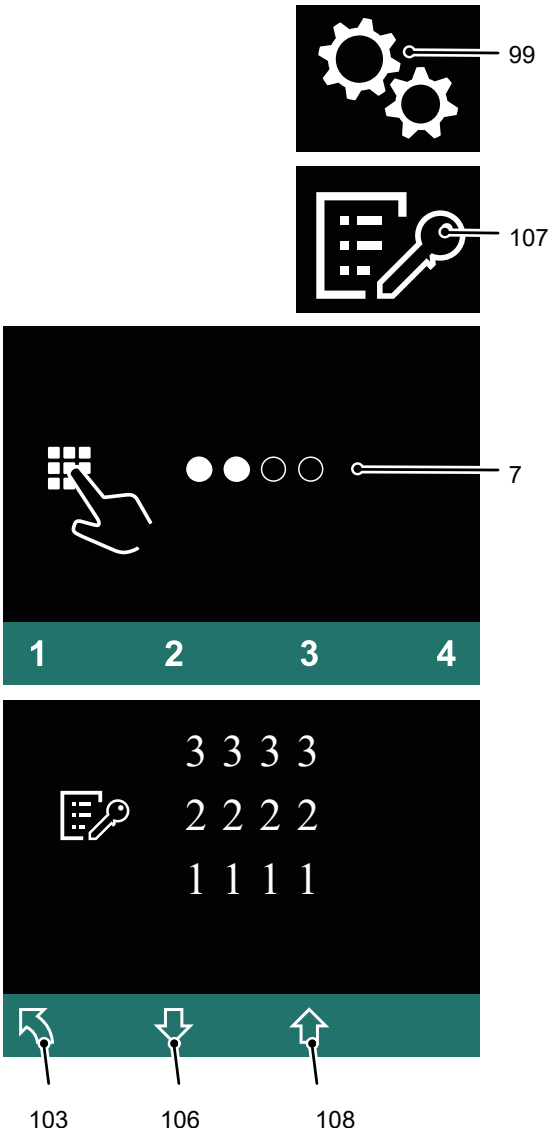
Requirements

– The truck is switched on, see page 71.

Procedure

- Press the key below the "Settings" symbol (99).
- Press the key below the "Log-in process" symbol (107).
- Enter the set-up code using the keys below the display unit (7).
  The set-up code entered is shown as filled-in circles.
- To scroll forward, press the button under the "Down selection" symbol (106) 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 (108) 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 (103).

The log-in process is displayed.



3 Preparing the Truck for Operation

3.1 Checks and Operations to Be Performed Before Starting Daily Work

⚠ WARNING!

Truck damage or 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.

▶ Tag out 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

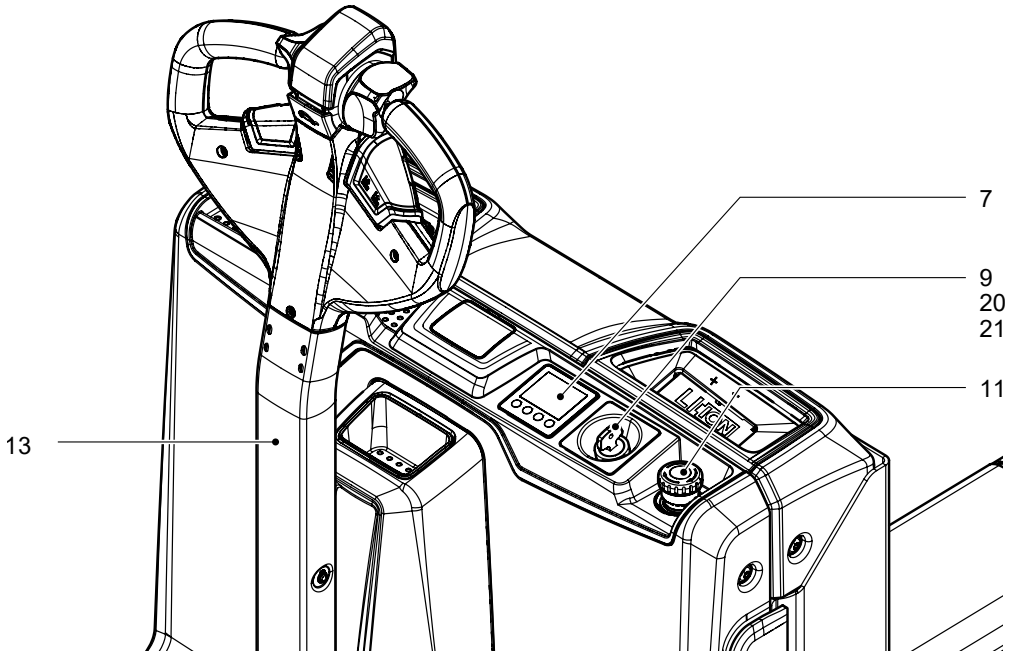
Requirements

– Truck parked securely – see page 80.

Procedure

- Check the whole of the outside of the truck for signs of damage and leaks. Damaged hoses must be replaced immediately.
- Check the load handler for visible signs of damage such as cracks, bends or severe wear.
- Check the hydraulic system for leaks – see page 147.
- Check the mains cable of the on-board charger for damage, see page 51.
- Check the drive wheel and load wheels for damage and freedom of movement, see page 148.
- Check that the drive panels and covers are securely attached and check for damage, see page 19.
- Check the markings and labels for completeness and legibility, see page 33.
- Ensure that the load backrest or options bar is secure and check for damage.
- Check that the controls return automatically to the neutral position after being used, see page 89.
- Check that the tiller automatically returns to the upright position – see page 88.
- Check the foot protection strip (○) for secure attachment and damage – see page 125.

3.2 Preparing the truck for operation



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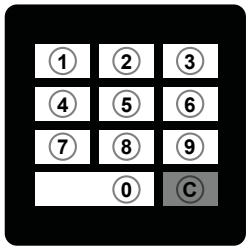

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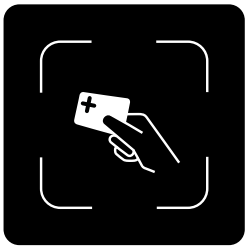


21

Switching on the truck

Requirements

– Checks and operations before starting daily work completed, see page 76.

Procedure

- Unlock the emergency disconnect switch (11), see page 86.
- Switch on the truck. To do this:
  - Insert the key into the key switch (9) and turn it as far to the right as it will go.
  - Use the keyless access system (○), see page 110.

The truck is ready for use.

→ The display unit (7) shows the available battery capacity.

➔ If the industrial truck is equipped with the Pre-Op Check function (○), the associated checklist must first be processed before the truck is fully ready for operation. For further information on the Pre-Op Check, see the "Jungheinrich Fleet Management System" operating instructions.

➔ If the truck cannot be switched on: Read any event messages on the display unit (7) and use the "Troubleshooting" section to identify the cause – see page 103.

3.3 Visual inspections and activities to be performed after establishing operational readiness

⚠ 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.

Requirements

– Checks and operations before starting daily work performed – see page 76.
– Truck is switched on, see page 77.

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 pull the emergency disconnect switch to unlock it, see page 86.
  - Test the horn by pressing the "warning signal" button – see page 61.
  - Check the braking efficiency – see page 95.
  - Test the steering – see page 94.
  - Test the travel functions – see page 89.
  - Test the lifting and lowering functions – see page 97.
  - Test the collision safety switch by pressing it while travelling in the drive direction – see page 61.
- Test the controls and displays and check for damage – see page 61.

3.4 Parking the truck securely

⚠ WARNING!

An unsecured truck can cause accidents

Do not leave an unsecured truck.

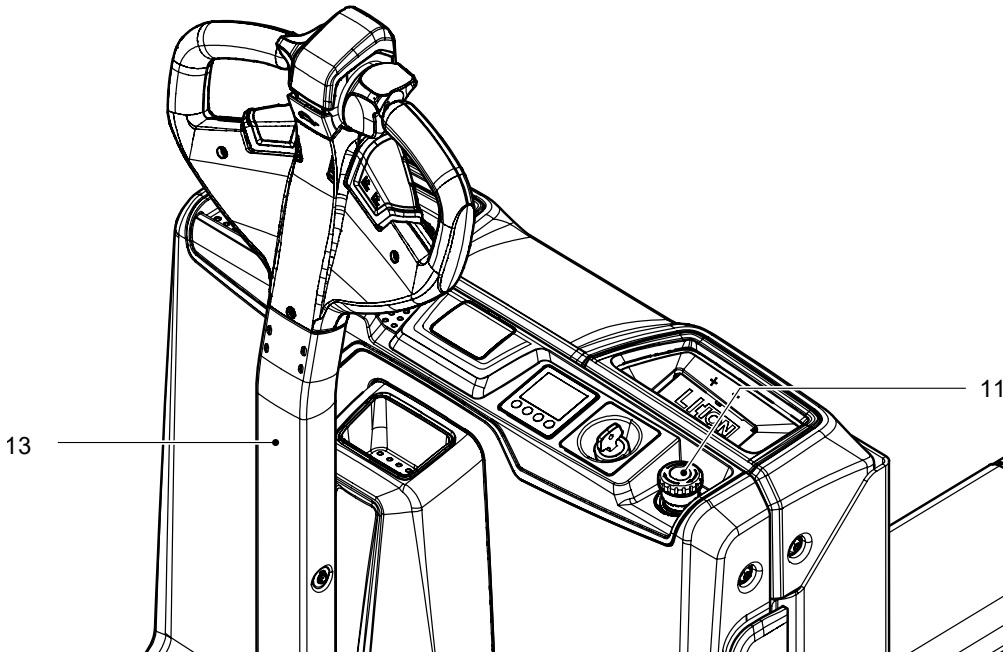
- ▶ Park the truck securely when leaving it.
- ▶ Exception: If the operator intends to remain in the immediate vicinity and is leaving the truck for only a short while, the applied parking brake is sufficient to hold the truck, see page 96. Immediate vicinity is when the operator is able respond to malfunctions 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 surface.
- Fully lower the load handler, see page 97.
- Set the drive wheel to "straightahead travel" using the tiller (13).
- Switch off the truck – see page 71.
- Press the emergency disconnect switch (11).

The truck is parked.

4 Working with the truck

4.1 Safety regulations for travel mode

Travel paths and work areas

⚠ DANGER!

Do not exceed the permissible surface and spot load limits on the travel routes.
At blind spots get a second person to assist.
The driver must ensure that the loading ramp / dock cannot move or come loose during loading / unloading.

Only use lanes and routes specifically designated for 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.

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.

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.

Types of load to be carried

The operator must make sure that the loads are in a satisfactory condition. Loads must always be positioned safely and carefully. Take appropriate countermeasures if there is a risk of the load or parts of the load tipping or falling down.

Prevent liquid loads from sloshing out. Drive slowly and take special care when transporting liquid loads. Avoid abrupt braking or acceleration.

Faults due to strong magnets

⚠ 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.

4.1.1 Negotiating slopes and inclines

When negotiating slopes and inclines, observe the following:

– Negotiating slopes and inclines in accordance with the technical specifications is permissible only if they are marked as traffic lanes.
– Before negotiating slopes, ensure that the truck has sufficient gradeability – see page 27.
– The uphill and downhill slopes 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 must be selected in accordance with the following overview.
– The truck must not be turned, operated at an angle or parked on uphill and downhill slopes.
– Downhill slopes must only be negotiated at slow speed, with the driver ready to brake at any moment.
– In accordance with the German accident prevention regulations DGUV regulation 68 (as at August 2013), when travelling on slopes and inclines, the load must be guided uphill.
– When travelling on slopes and inclines unladen, the load handler must be guided downhill.
– Deviating national regulations must be given priority by the operating company.

In accordance with the German accident prevention regulations DGUV regulation 68 (as at August 2013), when travelling laden on slopes and inclines, the load must be oriented towards the upslope.

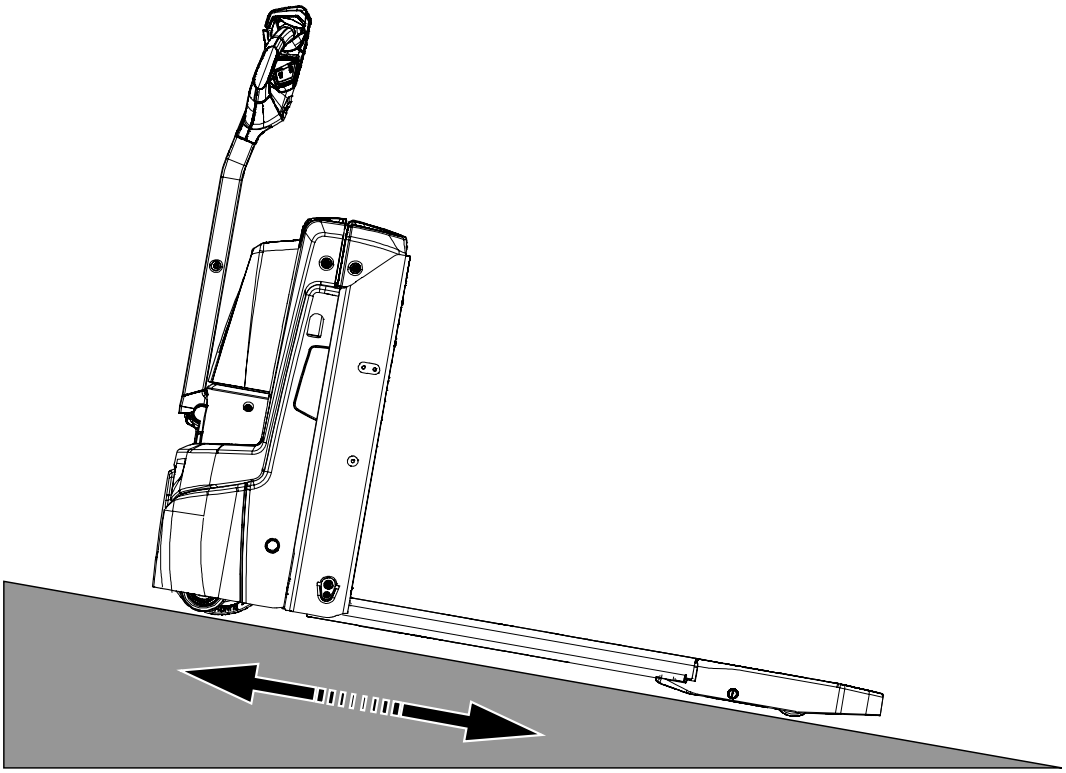
➔ When travelling on slopes and inclines unladen, the load handler should be oriented towards the downslope.

➔ Deviating national regulations must be given priority by the operating company.

4.1.1.1 Load status

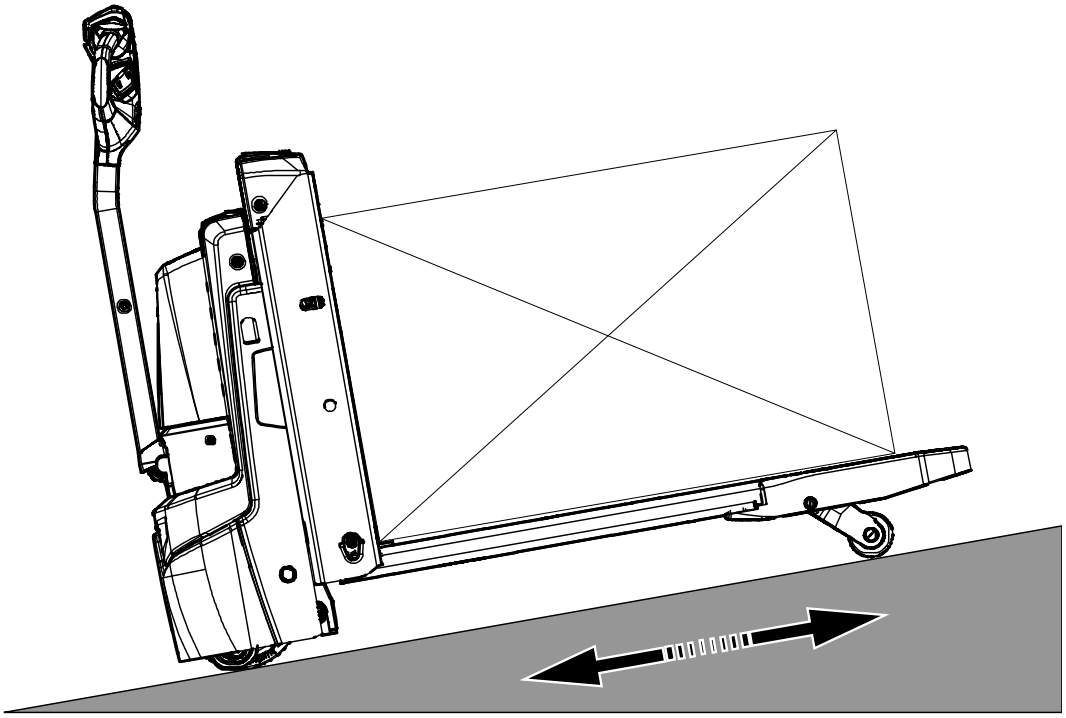
The travel direction that should be selected when driving on slopes and inclines depends on the current load status (transport travel or unladen travel).

4.1.1.2 Empty journey



➔ When travelling unladen in pedestrian mode, the load handler must be oriented towards the downslope, irrespective of the travel direction.

4.1.1.3 Transport run



When travelling laden in pedestrian mode, the load handler must be oriented towards the upslope, irrespective of the travel direction.

NOTICE

Risk of accident due to unintentional activation of the foot protection strip

When using the truck in confined spaces or when loading it onto an HGV, the foot protection strip can be triggered by unintentional contact. When the foot protection strip is triggered, the truck moves a few centimetres in load direction. This can cause damage to the load, the truck or the surrounding area.

- ▶ Always keep an eye on the area of the foot protection strip.
- ▶ In confined spaces or on HGV loading ramps, maintain a clear distance from the foot protection strip.

4.2 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.

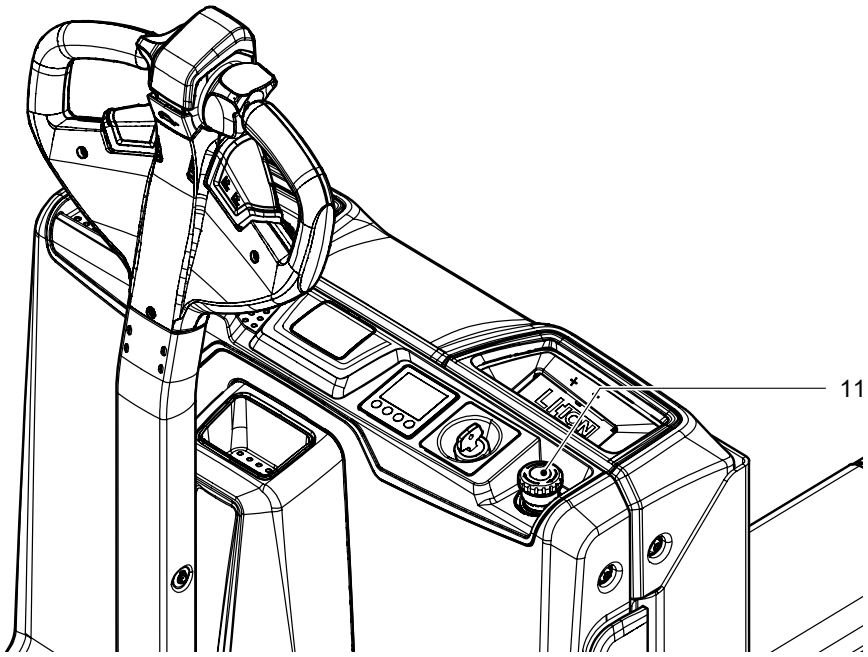
- ▶ Do not use the Emergency Disconnect switch as a service brake.
- ▶ Use the Emergency Disconnect switch during travel only in emergencies.

⚠ 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.



Operating the emergency disconnect switch

Procedure

- Press the emergency disconnect switch (11).

The industrial truck brakes to a halt and all electrical functions are deactivated.

➔ Increased wear of the drive wheel.

Unlocking the emergency disconnect switch

Procedure

- Turn the emergency disconnect switch (11) 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).

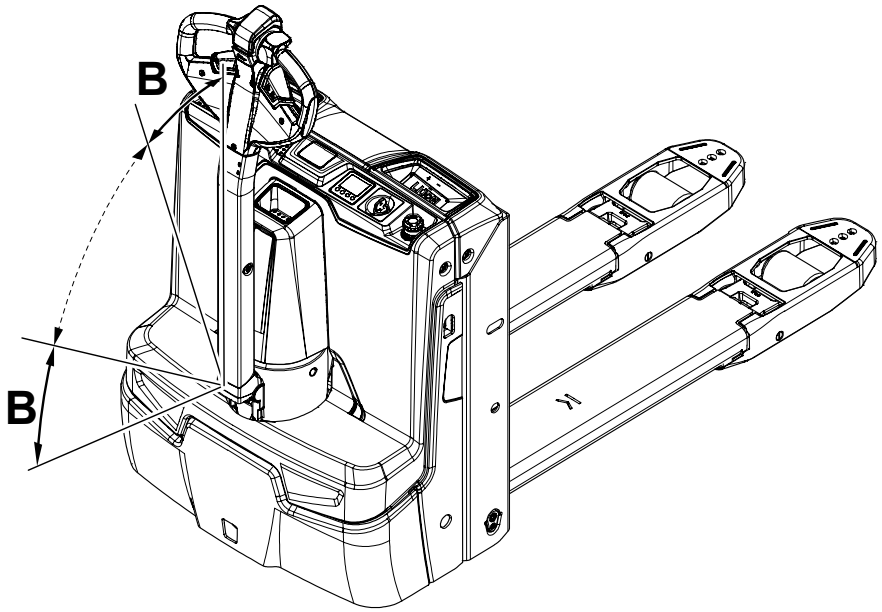
4.3 Automatic braking

⚠ WARNING!

Faulty tillers can result in collisions

Operating the truck with a faulty tiller can result in collisions with other people and objects.

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



Automatic reset of the tiller

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

4.4 Travel

⚠ WARNING!

Collision hazard when operating the truck

Collisions with personnel and equipment can result if the truck is operated with open panels.

- ▶ Do not operate the truck unless the panels and covers are closed and properly locked.
- ▶ When travelling through swing doors etc. make sure that the doors do not activate the collision safety button.

⚠ WARNING!

Risk of collision due to faulty travel switch

Operating the truck with a faulty travel switch can result in collisions with other people and objects.

- ▶ If the travel switch returns to the neutral position too slowly or not at all when released, the truck must be taken out of service until the cause of this fault is identified and rectified.

⚠ 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.

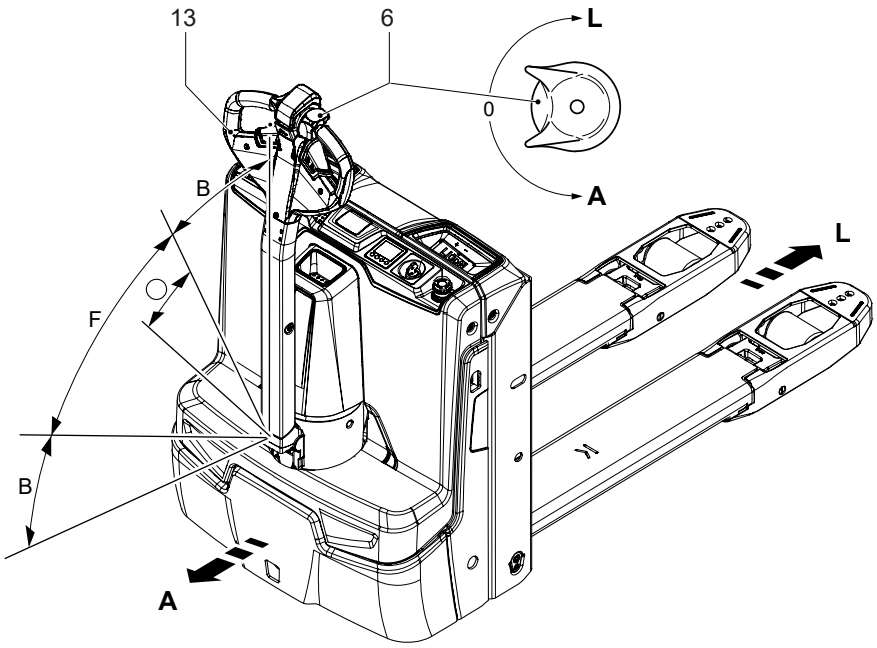
⚠ CAUTION!

Automatic braking can cause accidents

If the truck detects that signals which are required have not been received, or if it detects an error, the system reacts by triggering an emergency stop, either by braking the truck to a halt or until a valid signal status has been reached.

- ▶ Remain at a suitable distance from the truck during operation.

Trucks can be equipped with an optional foot protection tiller. In this case, the travel speed is reduced in the upper range (○) of the travel zone F, see page 26.



Requirements

– Truck has been prepared for operation – see page 76.

Procedure

- Set the tiller (13) to the travel zone (F).
- Control the travel direction with the travel switch (6):
  - Slowly turn the travel switch in the load direction (L):
    Travel in load direction.
  - Slowly turn the travel switch in the drive direction (A):
    Travel in drive direction.
- Control the travel speed with the travel switch (6):
  - The further the travel switch is turned, the higher the speed.

The brake is released and the truck moves in the selected direction.

Automatic reset of the travel switch

After releasing the travel switch, it automatically returns to the neutral position (0) and the truck brakes.

Automatic reset of the tiller

When released, a gas pressure spring pushes the tiller up and activates braking see page 88.

Roll-back protection on inclines (speedCONTROL)

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.

Slow travel with the forks lowered (○)

When the load handler is fully lowered, the travel speed is reduced to reduce the amount of wear on the load handler.

The load handler must be raised in order to use the maximum available speed.

4.4.1 Changing the direction of 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.

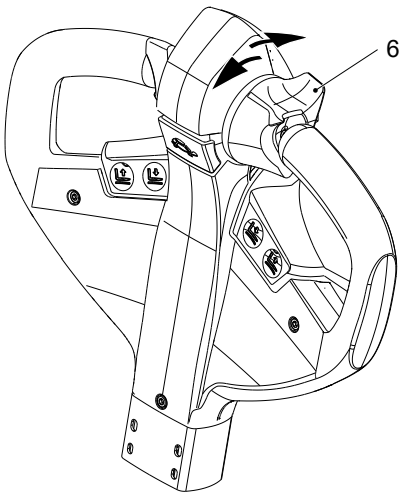
▶ Maintain an adequate overview of the route you are travelling.

Changing direction during travel

Procedure

- Set the travel switch (6) to the opposite direction while travelling.

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



4.4.2 Slow travel

⚠ CAUTION!

Risk of accident if the service brake is deactivated

Particular care and attention is required by the operator during slow travel. The service brake is deactivated during slow travel and is only reactivated after the "slow travel" button is released.

▶ In hazardous situations brake by immediately releasing the "slow travel" button and the travel switch.

▶ During slow travel you can only brake by coating braking.

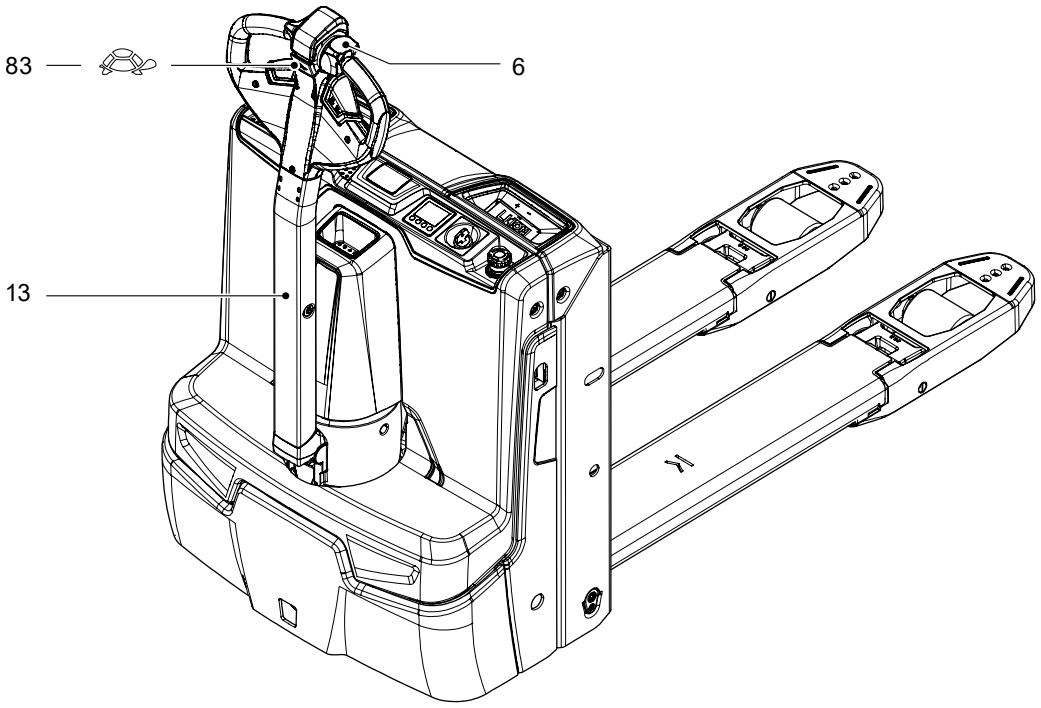
The truck can be operated with an upright tiller (13) (e. g. in confined spaces / elevators).

Switch on the slow travel function

Procedure

- Press and hold down the "slow travel" button (83).
- Rotate the travel switch (6) in the required travel direction.

The brake is released. The truck travels at slow speed.



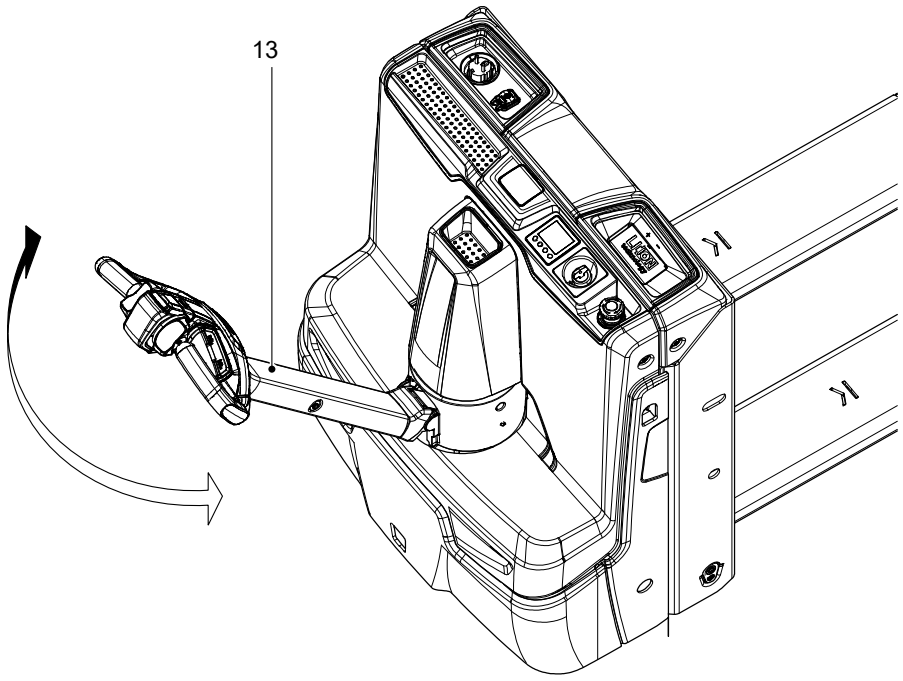
Switching off slow travel

Procedure

- Release the "slow travel" button (83).
  If the tiller is in brake zone "B", the brake applies and the truck stops.
  If the tiller is in brake zone "F" the truck continues at slow travel speed.
- Release the travel switch (6).

Slow travel ends and the truck can now travel again at normal speed.

4.5 Steering

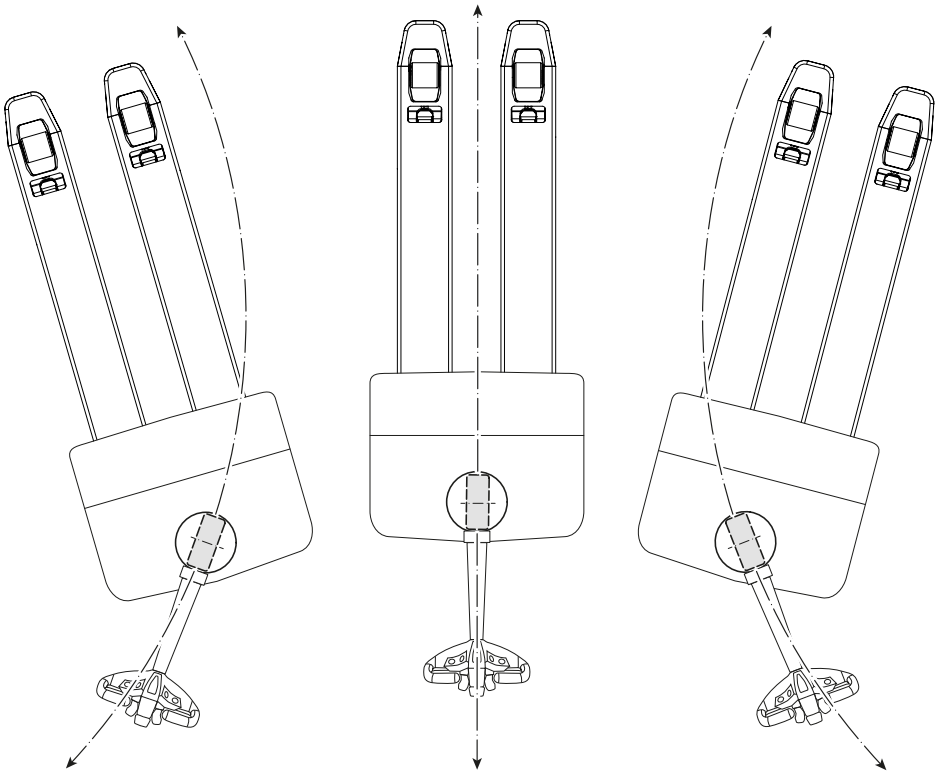


Procedure

- Swivel the tiller (13) to the left or right.

The truck is steered in the required direction.

➔ The steering direction of the truck corresponds to the swivel direction of the tiller, as shown by the figure.
The curve radius is determined by the swivel angle of the tiller.



4.6 Brakes

⚠ WARNING!

Accident risk

The brake pattern of the truck depends largely on the ground conditions.

▶ The operator must take into account the travel route conditions when braking.

▶ Brake with care to prevent the load from slipping.

▶ During normal operation the truck is to be braked only with the service brake.

⚠ CAUTION!

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

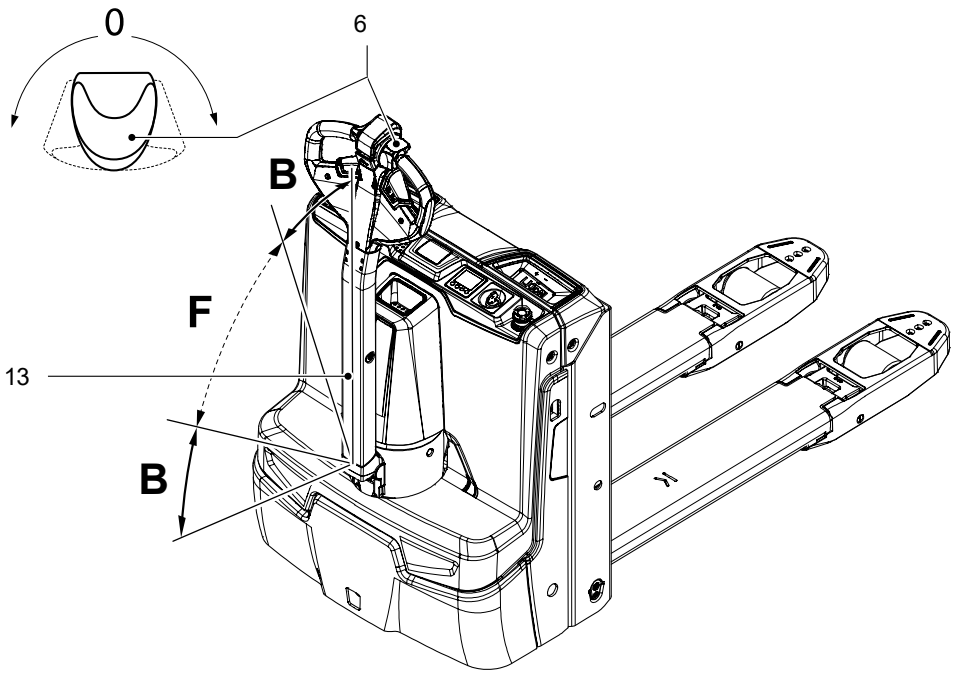
⚠ CAUTION!

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.



The truck can be braked in the following ways:

– Regeneratively with the service brake (tiller in braking zone B)
– Regeneratively with the coasting brake
– With the inversion brake (by reversing the travel direction via the travel switch)
– In emergencies: with the emergency stop switch – see page 86.

4.6.1 Braking with the service brake

Procedure

• Move the tiller (13) up or down to one of the brake zones (B).

The truck brakes to a halt regeneratively via the service brake.

4.6.2 Braking with the coasting brake

Procedure

- If the travel switch (6) is set to (0), the truck automatically brakes regeneratively.

The truck brakes to a halt regeneratively via the coasting brake.

→ *When braking regeneratively, energy is returned to the battery, ensuring a longer service time.*

4.6.3 Inversion braking

⚠ 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.

Procedure

- Set the travel switch (6) to the opposite travel direction during travel – see page 91.

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

4.6.4 Parking brake

When the truck has come to a halt the parking brake applies automatically. The parking brake is electrically released and actuated through spring pressure. The parking brake prevents the truck from accidentally rolling away.

4.7 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.

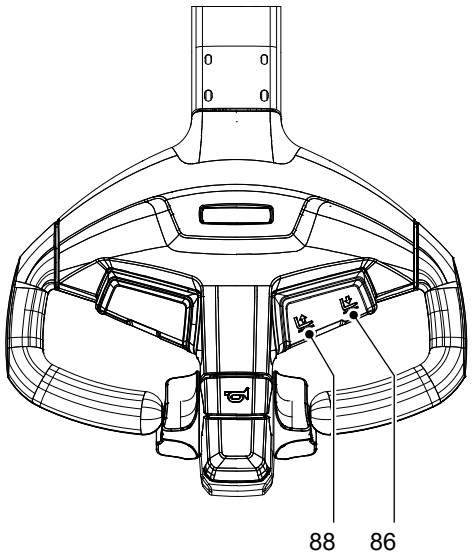
- ▶ Instruct other people to move out of the hazardous area of the truck. Stop using the truck immediately if people do not vacate the hazardous area.
- ▶ Only transport loads that have been correctly secured and positioned. Use suitable precautions to prevent parts of the load from tipping or falling 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.

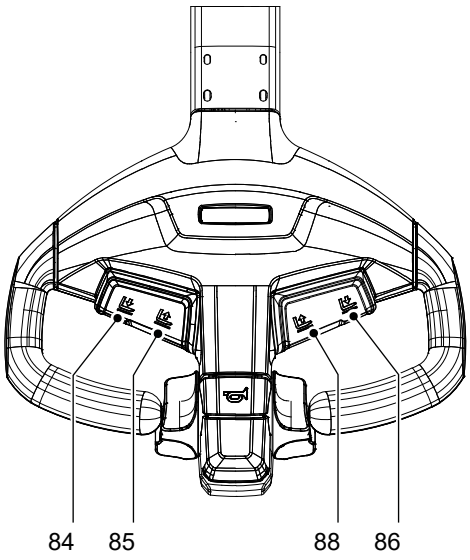
⚠ CAUTION!

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

Maximum load length

The load to be picked up must not extend more than 50 mm beyond the load handler tips.





Picking up the load

Requirements

– Load is correctly palletised.
– The weight of the load corresponds to the capacity of the industrial truck.
– Fork arms evenly loaded for heavy loads.

Procedure

• Drive the truck carefully up to the pallet.
• Carefully insert the fork arms into the pallet.
• Press the "lift" button (88/●, 85/○) until the maximum lift height is reached.

The load is raised.

Picking up the load

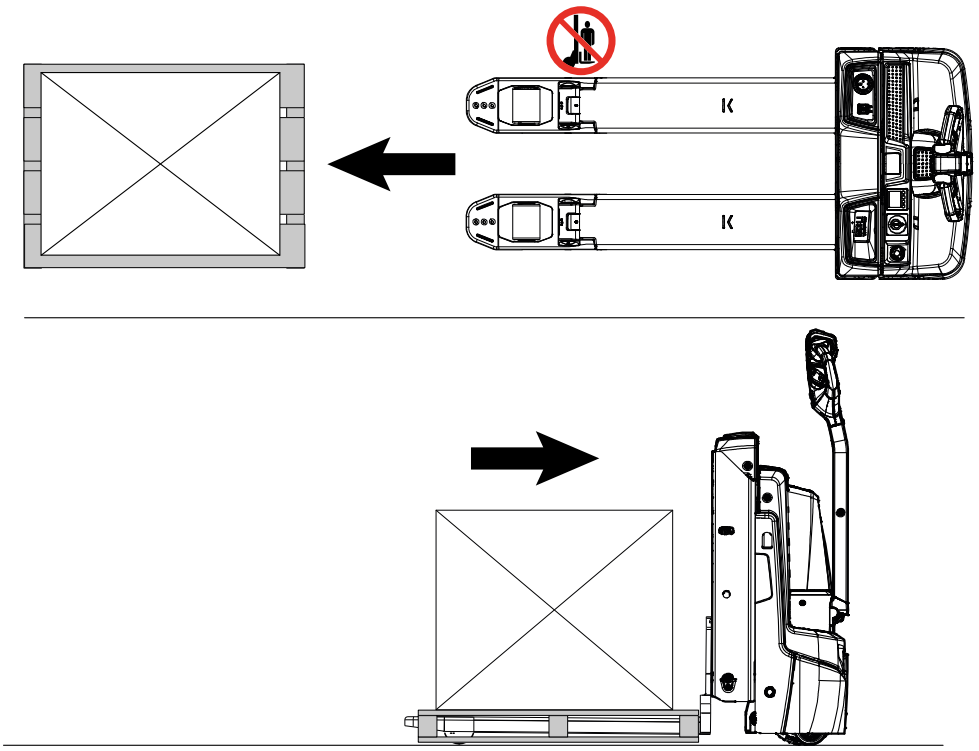
Requirements

– Load is correctly palletised.
– The weight of the load corresponds to the capacity of the industrial truck.
– Fork arms evenly loaded for heavy loads.

Procedure

• Drive the truck carefully up to the pallet.
• Carefully insert the fork arms into the pallet.
• Press the "lift" button (88/●, 85/○) until the maximum lift height is reached.

The load is raised.



Hydraulic function lock: The default setting of the control enables lifting and lowering only when the tiller is in the travel range (F) or when the "slow travel" button is pressed. This presetting can be changed by the manufacturer's customer service department.

Transporting Load Units

Requirements

– Load raised correctly.
– Good ground conditions.

Procedure

- Accelerate and decelerate with care.
- Adapt your travel speed to the conditions of the route 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.
- You must use a lookout at blind spots.
- Do not travel across or at an angle on inclines. Do not turn on slopes and inclines, and always drive with the load facing uphill.

Picking up a Euro pallet from the side

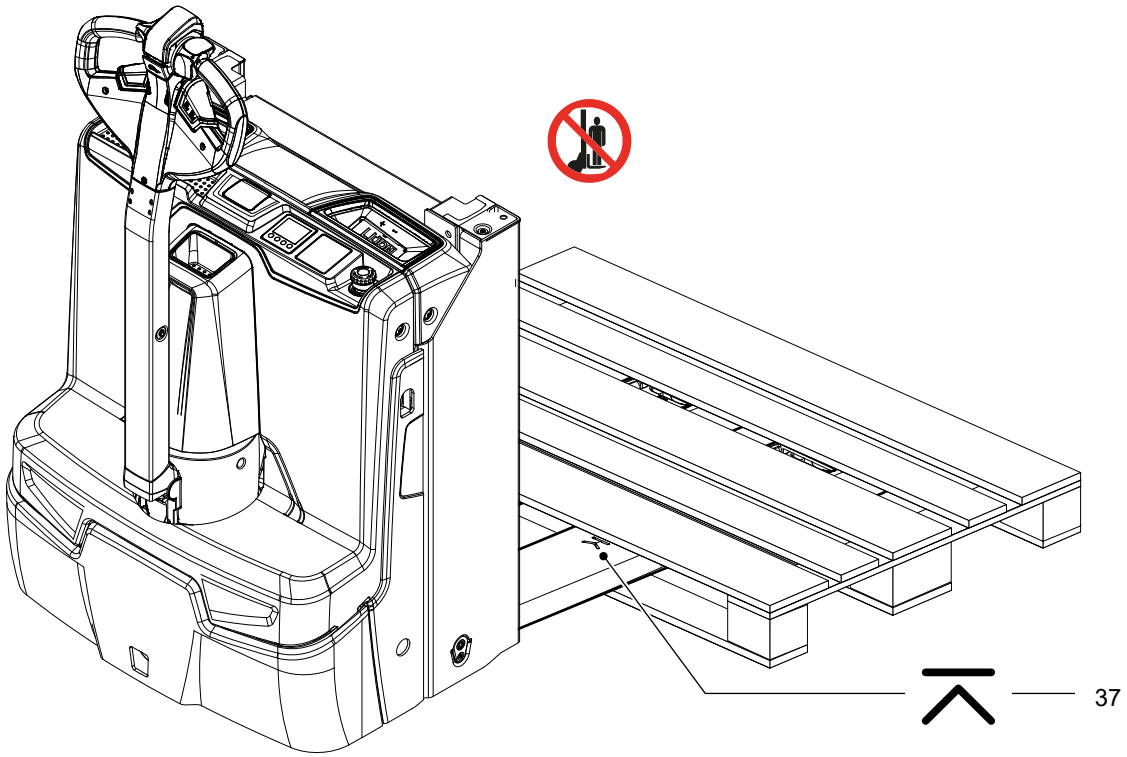
NOTICE

Damage to incorrectly positioned pallets during lifting

When picking up a pallet from the side, if the truck is driven either not far enough or too far into the pallet the load rollers may end up resting on one of the transverse boards. The pallet may then be damaged when the initial lift is raised.

▶When picking up Euro pallets from the side, observe the marking points on the support arms.

▶When picking up other pallet types from the side, make sure before lifting that the load rollers are on the ground.



The truck support arms have special markings (37) that help the operator when picking up pallets from the side. When the pallet is correctly positioned, the truck load rollers are located between the pallet base boards.

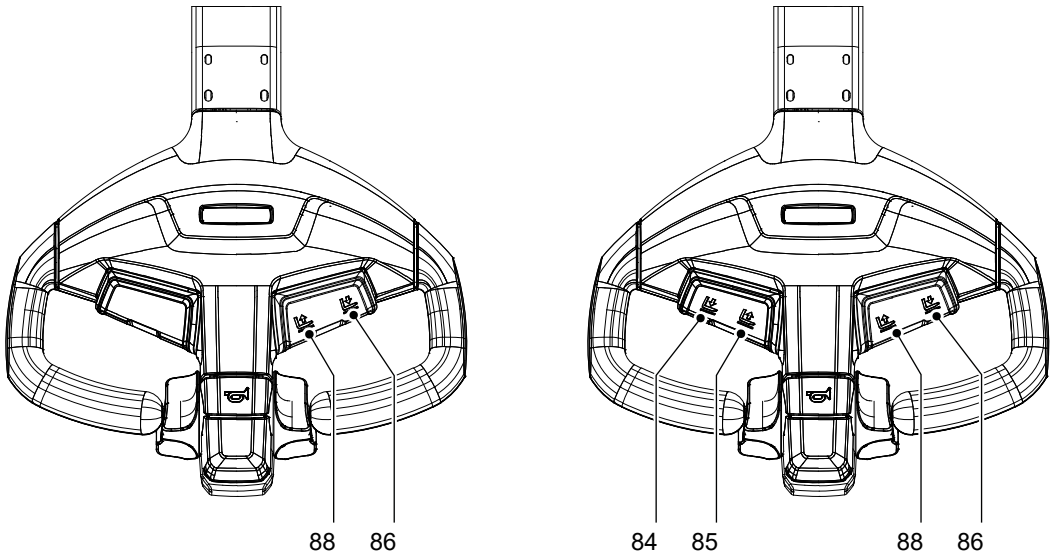
Procedure

- Drive the truck up to the crossways pallet.
- Slowly insert the support arms into the Euro pallet until the transverse side of the pallet is touching the marking (37).
- Raise the support arms.

Load is picked up.

Lift cut-off (○)

The EJE 114i/116i/118i/120i is optionally equipped with automatic lift cut-off. This function can be set by the operator when needed. For this, the truck must be secured and parked without load. The "lift" button (88/●, 85/○) is then pressed for approx. 5 seconds until the automatic cut-off occurs. Additional lifting is then terminated automatically by the system in order to save energy.



⚠ CAUTION!

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

Depositing the load

Requirements

– Storage location suitable for storing the load.

Procedure

- Drive carefully up to the storage location.
- Press the "lower" button (86/●, 84/○).
- Lower the load handler until it is clear of the load.
- Carefully remove the load handler from the pallet.

The load is set down.

5 Troubleshooting

This chapter allows operators to identify and rectify simple faults or the results of incorrect operation themselves. When trying to locate a fault, proceed in the order shown in the remedy table.

➔ If, after carrying out the following remedial action, the industrial truck cannot be restored to operation or if a fault in the electronics system is displayed with a corresponding error message, contact the manufacturer's customer service department.
Subsequent troubleshooting must only be performed by the manufacturer's customer service department. The manufacturer has a customer 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 on the display unit (if present)
- Error description
- Current location of truck.

5.1 Truck does not start

Possible cause	**Actions**
Mains connector of the on-board charger not completely stowed in the storage facility	Stow the mains connector completely in the storage compartment.
Emergency disconnect switch pressed	Unlock the emergency disconnect switch.
Key switch set to "O"	Set the key switch to position I.
Battery charge too low	Check the battery charge and charge battery if necessary.
Faulty fuse	Check the fuses.

Event message	Possible cause	Actions
E-0914.2	Tiller not in the upper or lower braking zone when the industrial truck is switched on	– Set the tiller to the top or the bottom braking zone – see page 89
E-1914.1	Collision safety switch pressed when truck switched on	– Do not press collision safety switch
E-1925.1	Slow travel button pressed when truck switched on	– Do not press the button
E-1953.1	Travel switch not in home position when truck switched on	– Do not actuate the travel switch
E-1953.1	Travel switch actuated for more than 0.5 seconds with the tiller folded up, without release via the tiller switch or the "slow travel" button. The operating sequence has not been observed.	Follow the operating sequence: 1. Move the tiller into the travel zone (F) or press the "slow travel" button. 2. Actuate the travel switch.
E-2953.1	Button for lifting or lowering a load handler not in the home position when switching on the truck	– Do not press the button – see page 61

5.2 Load cannot be lifted

Possible cause	Action
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 battery
Excessive load	Note maximum capacity, see data plate.

Event message	Possible cause	Actions
E-1914.1	Collision safety switch pressed when truck switched on	– Do not press collision safety switch
E-1953.1	Travel switch not in home position when truck switched on	– Do not actuate the travel switch
E-2953.1	Button for lifting or lowering a load handler not in the home position when switching on the truck	– Do not press the button – see page 61

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.

Description / possible cause	Actions
Low voltage : – The lithium-ion battery switches off.	– Move the lithium-ion battery into the permissible temperature range, see page 12. – Connect the lithium-ion battery to the battery charger. – Charge the lithium-ion battery – see page 56. – If the malfunction persists, contact the manufacturer's customer service department.
Low temperature: – Cell temperature of at least one battery cell is too low. – The lithium-ion battery was operated outside the permissible application range. – The lithium-ion battery switches off.	– Move the lithium-ion battery into the permissible temperature range, see page 12. – Connect the lithium-ion battery to the battery charger. – Warm up the lithium-ion battery to ambient temperature. Do not operate the lithium-ion battery again until the lithium-ion battery has warmed up. – If the malfunction persists, contact the manufacturer's customer service department.
Overtemperature: – Cell temperature of at least one battery cell is too high. – The lithium-ion battery was operated outside the permissible application range. – The lithium-ion battery switches off.	– Move the lithium-ion battery into the permissible temperature range, see page 12. – Do not operate the lithium-ion battery further. – Allow the lithium-ion battery to cool down. Do not operate the lithium-ion battery again until it has cooled down. – If the malfunction persists, contact the manufacturer's customer service department.

5.3.1 Deeply discharged batteries

Discharging below a certain capacity limit (deep discharge) considerably reduces the service life of the battery.

To protect the battery, the charge status indicator shows only the battery capacity range that can be used for operation, i.e. when the capacity limit is reached, the charge status is shown as 0 %. On some trucks, the lift function is also disabled, the travel speed is restricted to slow travel or a warning notice is shown on the control unit. This reduces the risk of damage to the battery through further discharge.

➔ Fully or partially discharged batteries must be re-charged immediately and not left. To achieve an optimum service life, avoid discharges below the displayed capacity range.

Deeply discharged batteries

No charging takes place if the battery is deeply discharged. Deeply discharged batteries cannot be charged by the operator (faulty).

➔ Contact the manufacturer's customer service department.

6 Emergency recovery of the truck

⚠ WARNING!

Accidental truck movement

When the brakes are released, the truck must be parked securely on a level surface, since the brakes are no longer effective.

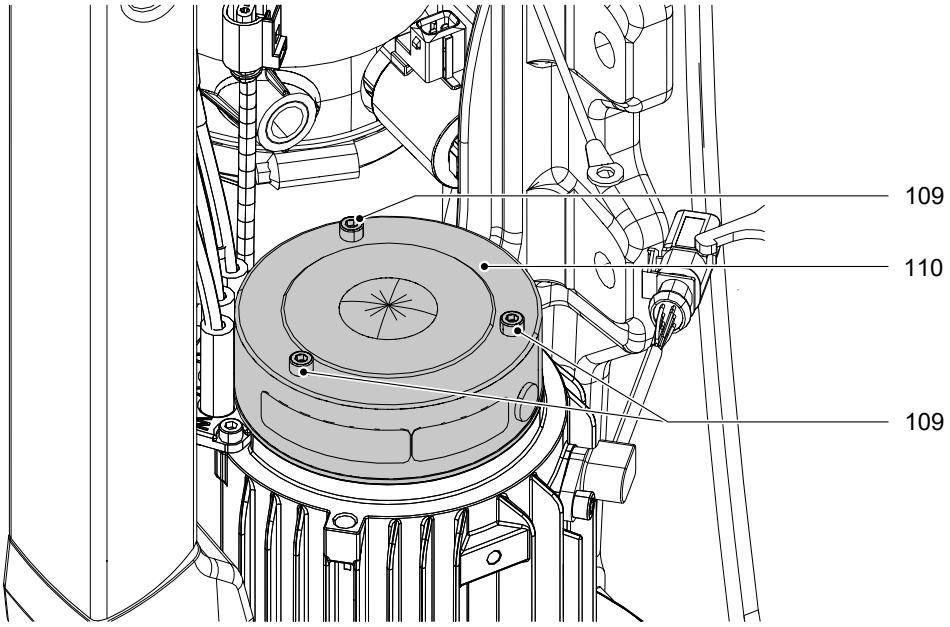
▶Do not release the parking brake on slopes or inclines.

▶Activate the parking brake again when you reach your destination.

▶Do not park the truck with the parking brake released.

⚠ WARNING!

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



Releasing the brake

Requirements

– Industrial truck can no longer be moved under its own power.
– Secure the truck to prevent accidental movement, e.g. using wheel chocks.
– The front panel has been disassembled – see page 139.
– Dome is disassembled, see page 140.
– The drive panel has been disassembled, see page 141.

Tools and Material Required

– Hexagon socket insert 4 mm

Procedure

• Unscrew three screws (109) until the brake (110) is resting loosely on the surface.

➔ The brake must not be released completely.

• Remove the chocks.

The truck can be moved.

Activating the brake

Requirements

– Secure the truck to prevent accidental movement, e.g. using wheel chocks.

Procedure

- Tighten three screws (109) with a torque of 6 Nm.
- Fit the drive panel – see page 140.
- Mount dome, see page 140.
- Fit the front panel – see page 139.

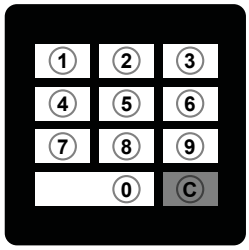
Braking is now restored. The brake can now be applied without current.

7 Optional Equipment

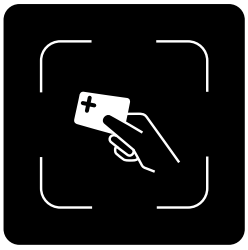
7.1 Keyless Access System

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

7



20



21

Item	Description
7	Display unit (EasyAccess Softkey): – Description see page 64 – Entry of 4-digit set-up and access codes – Up to 10 access codes can be stored – For set-up and access codes with the numbers 1 to 4
20	Keypad (EasyAccess PinCode): – Consists of keys 0 to 9 and C (clear) – Entry of 4-digit set-up and access codes – Up to 100 access codes can be stored
21	Transponder reader Plus (EasyAccess Transponder): – The transponder reader Plus supports additional transponder standards.

7.1.1 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: 1-2-3-4
– 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.

7.1.2 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.

7.1.2.1 Activating the keypad

Procedure

- Release the emergency disconnect switch, see page 86.
- Enter the default code 1-2-3-4 using the keys below the display unit (7).
  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 (20).
  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.

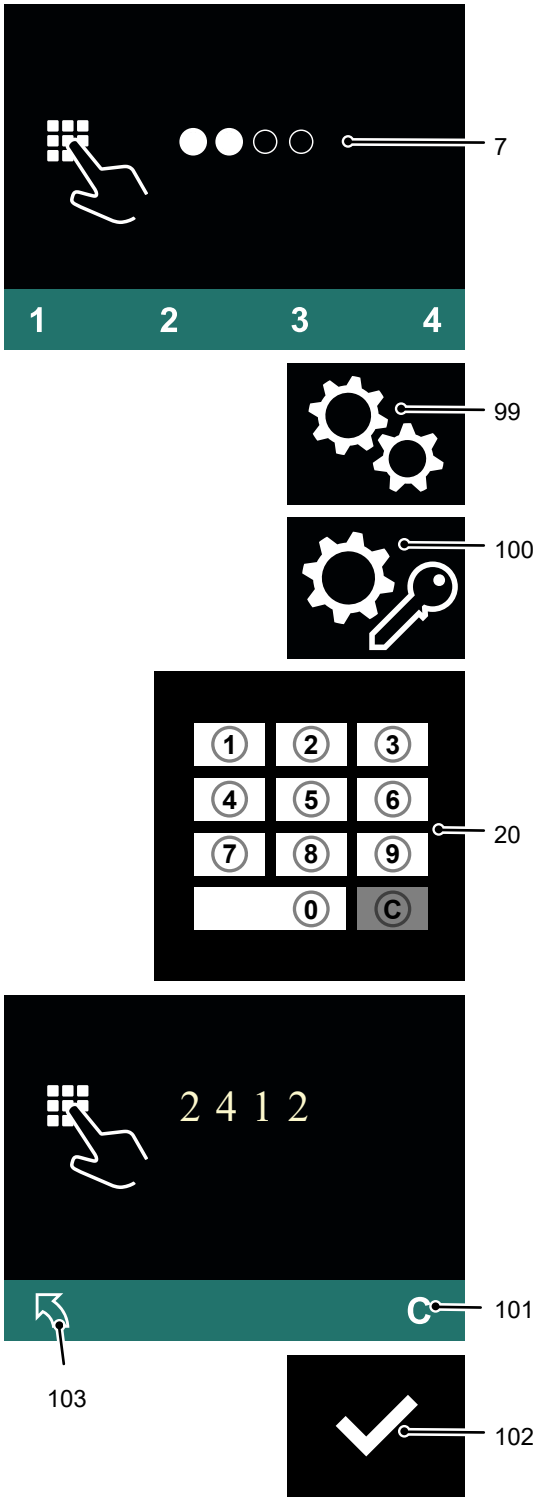
Press the key below the "Delete" symbol (101).
The set-up code is deleted.

- Enter the new set-up code using the keypad (20).
- Press the key below the "Confirm" symbol (102).
  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 (103).
- Delete the default code, see page 117.
- Create access codes, see page 116.

The keypad is active.



7.1.2.2 Activating the transponder reader

Procedure

- Release the emergency disconnect switch, see page 86.
- Enter the default code 1-2-3-4 using the keys below the display unit (7).

  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 (7).

  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 (111).

  This transponder thus becomes the set-up transponder.
- Press the key below the "Confirm" symbol (102).

  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).

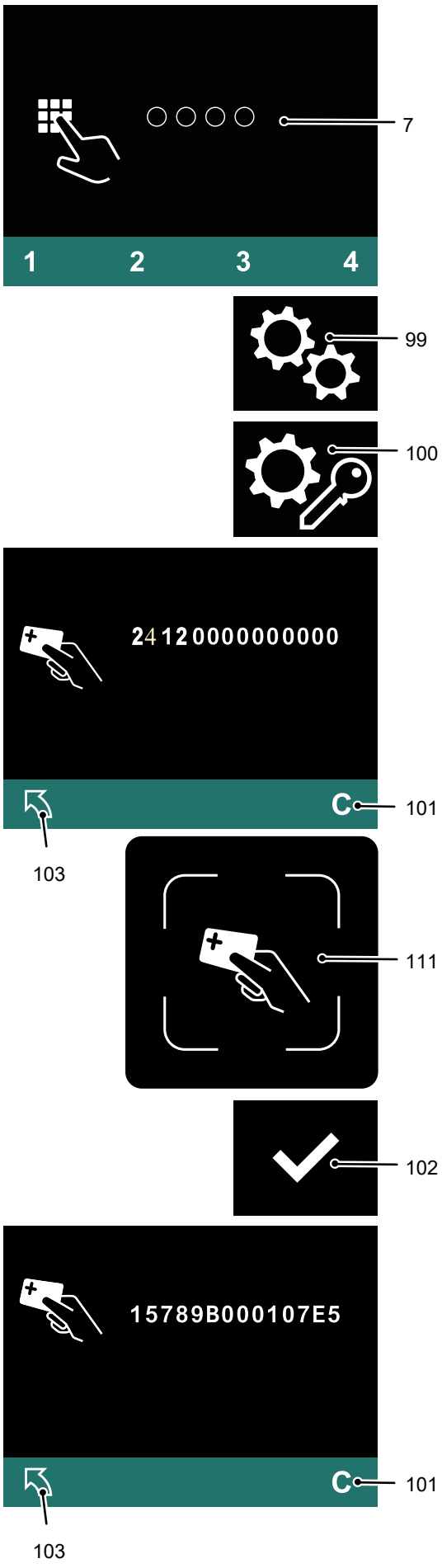
- To return to the main menu, press the key below the "Back" symbol (103).

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

Delete the default code, see page 122.

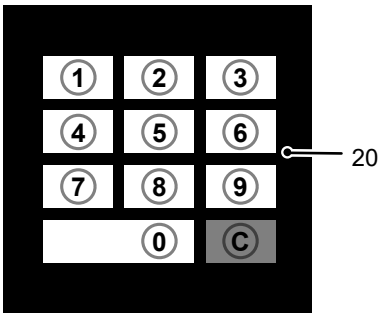
- Add new transponders, see page 121.

The transponder reader is now active.



7.1.3 Using the Keypad

7.1.3.1 Switching on the truck with an access code



Procedure

- Release the emergency disconnect switch, see page 86.
- Enter the access code with the keypad (20).

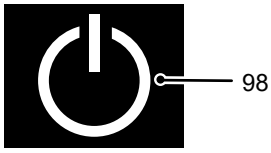
The truck is switched on.

Procedure

- Press the key under the "Switch off" symbol (98) in the display unit.
- Press the Emergency Disconnect switch, see page 86.

The truck is switched off.

7.1.3.2 Switching off the truck



Procedure

- Press the key under the "Switch off" symbol (98) in the display unit.
- Press the Emergency Disconnect switch, see page 86.

The truck is switched off.

7.1.3.3 Changing the set-up code

Requirements

– The truck is switched on, see page 114.

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 (20).

  The set-up code entered is shown in the display unit (7) 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 (20).

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

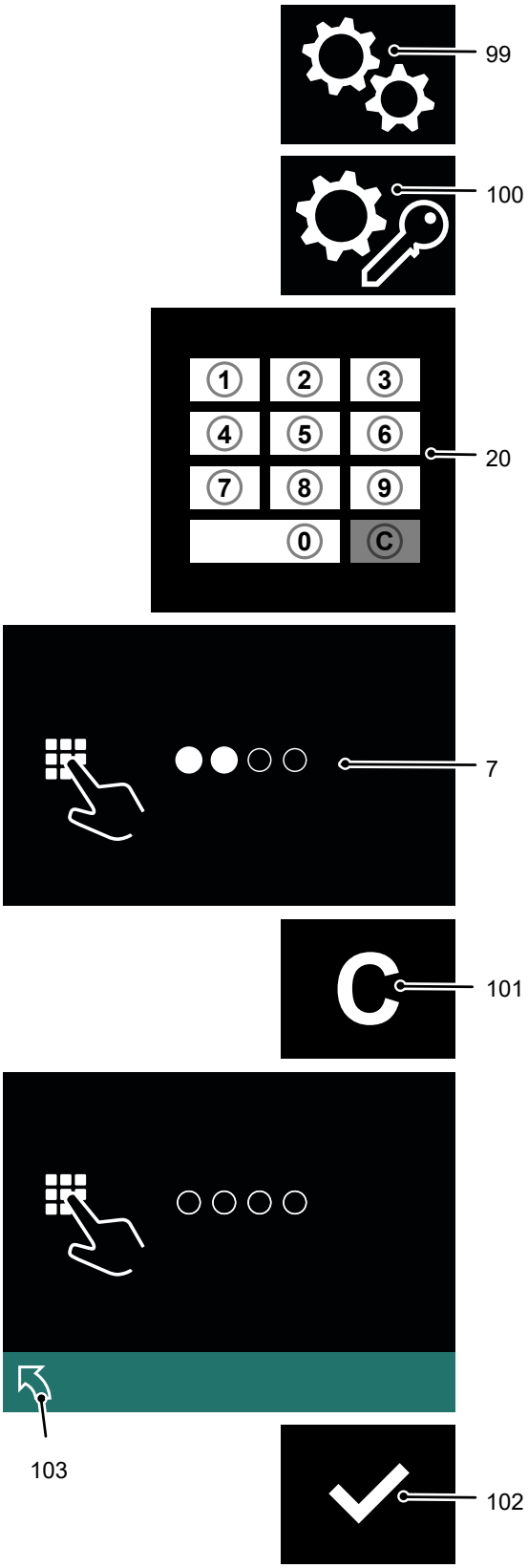
- Press the key below the "Confirm" symbol (102).

  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 (103).

The set-up code has been changed.



7.1.3.4 Adding a new access code

Requirements

– The truck is switched on, see page 114.

Procedure

- Press the key below the "Settings" symbol (99).
- Press the key below the "Edit access code" symbol (104).

  The set-up code is requested.
- Enter the set-up code using the keypad (20).

  All access codes are shown on the display unit (7).
- Press the key below the "Add" symbol (105).
- Enter a new access code using the keypad (20).

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

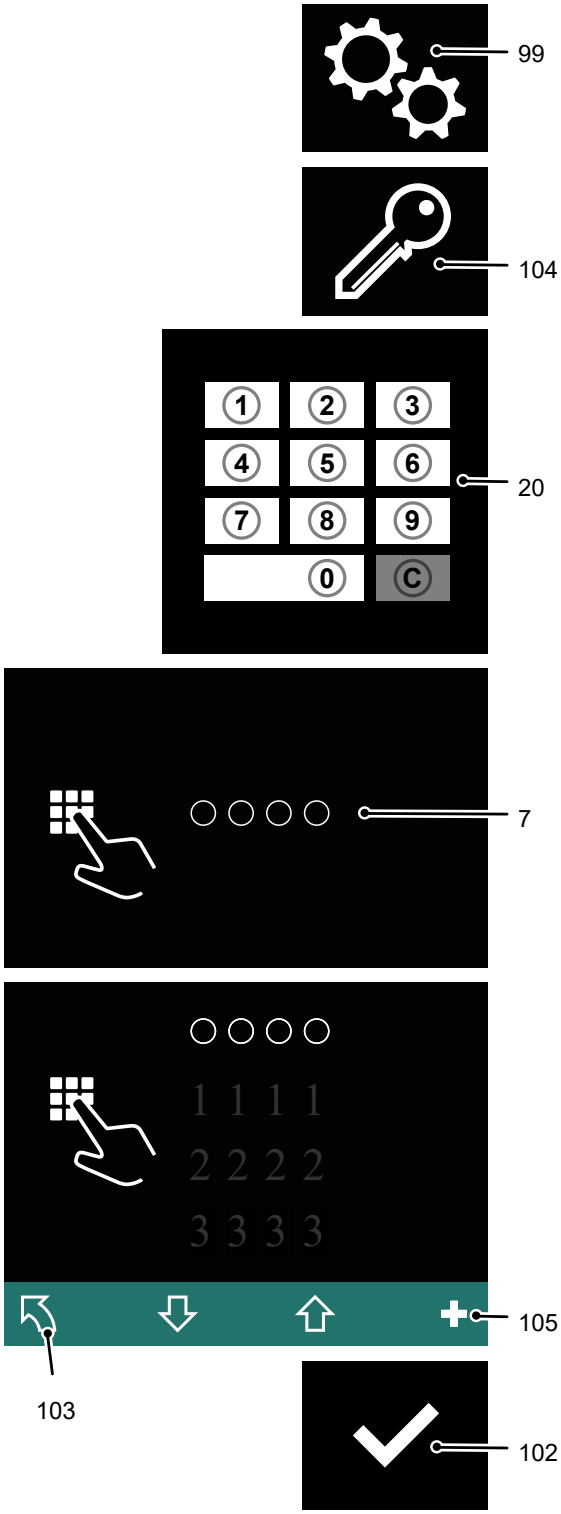
- Press the key below the "Confirm" symbol (102).

  The new access code is shown on the display unit (7).

If the new access code has been entered incorrectly, delete it, see page 117, and enter the correct access code.

To return to the main menu, press the key below the "Back" symbol (103).

A new access code has been added.



7.1.3.5 Deleting an access code

Requirements

– The truck is switched on, see page 114.

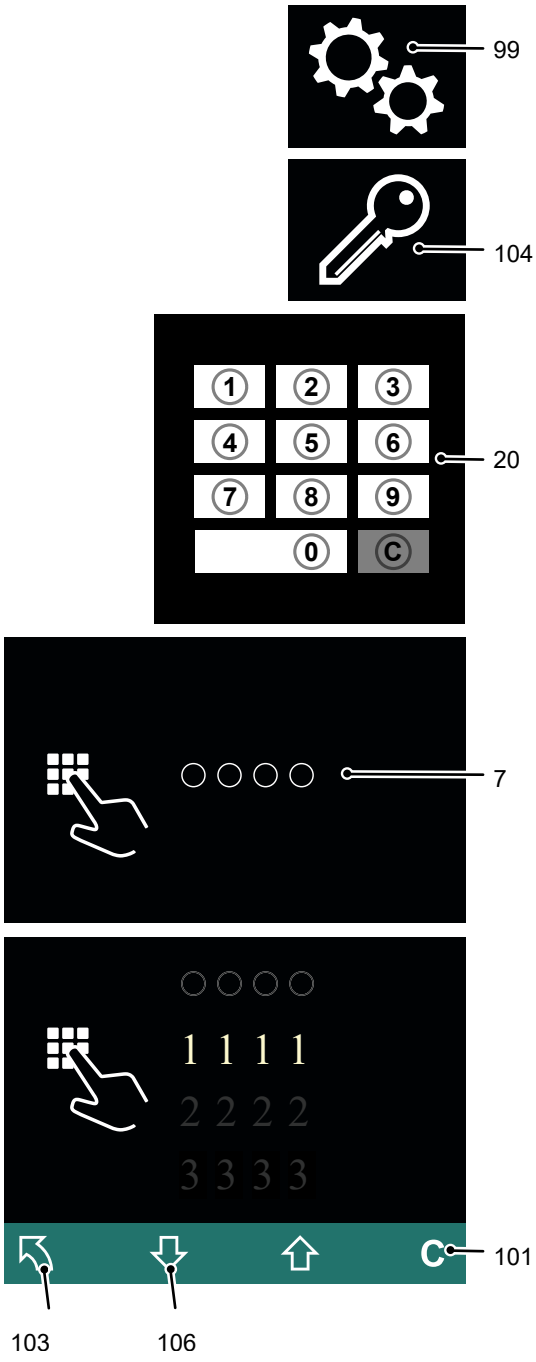
Procedure

- Press the key below the "Settings" symbol (99).
- Press the key below the "Edit access code" symbol (104).

  The set-up code is requested.
- Enter the set-up code using the keypad (20).

  All access codes are shown on the display unit (7).
- Select the access code to be deleted using the key below the "Down selection" symbol (106).
- 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 (103).



7.1.3.6 Displaying the log-in history

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.

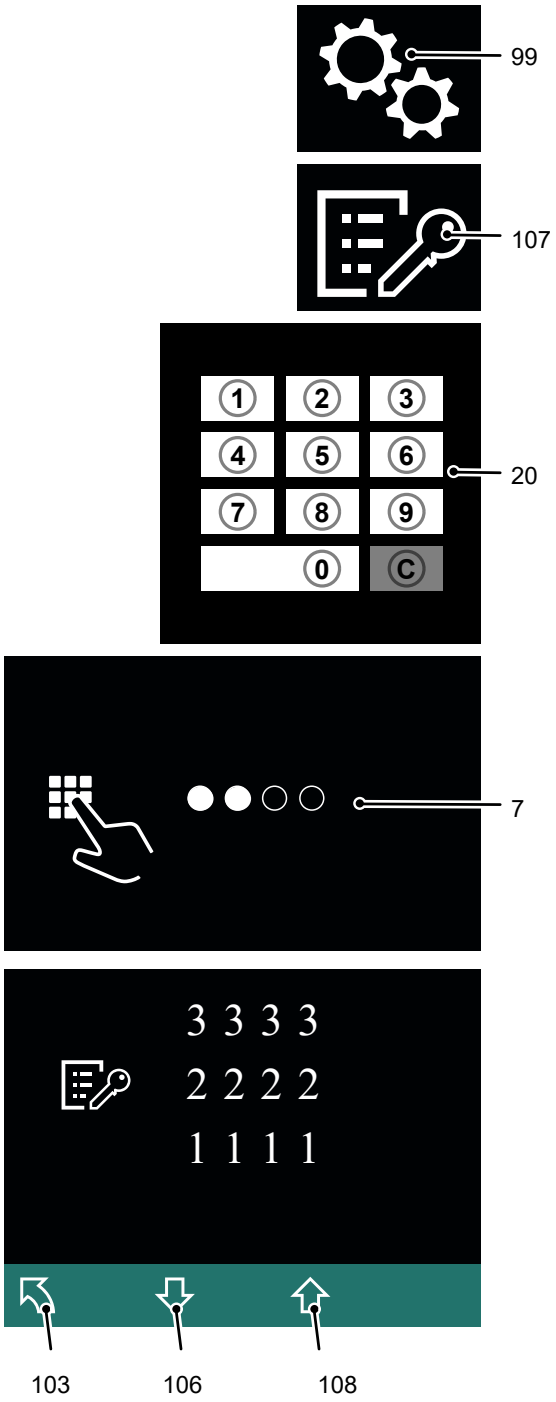
Requirements

– The truck is switched on, see page 114.

Procedure

- Press the key below the "Settings" symbol (99).
- Press the key below the "Log-in process" symbol (107).
- Enter the set-up code using the keypad (20).
  The set-up code entered is shown in the display unit (7) as filled-in circles.
- To scroll forward, press the button under the "Down selection" symbol (106) 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 (108) 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 (103).

The log-in process is displayed.



7.1.4 Operating the transponder reader

NOTICE

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

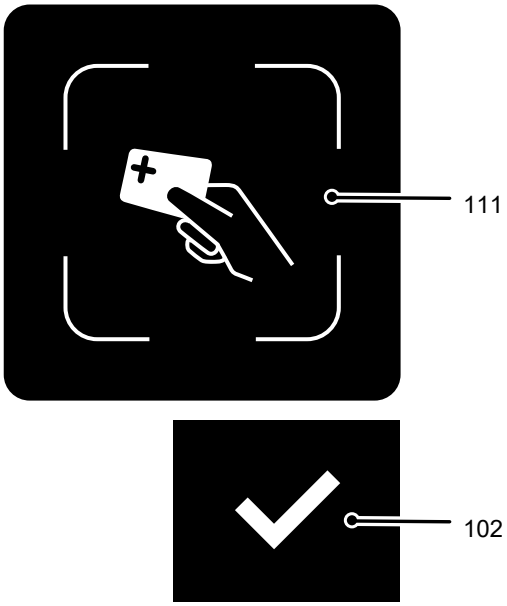
7.1.4.1 Switching on the truck with a transponder

Procedure

- Release the Emergency Disconnect switch, see page 86.
- Hold the transponder in front of the transponder reader (111).

  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 (102).

The truck is switched on.



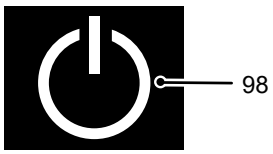
The truck can only be switched on when the display unit (7) is lit. If the display unit is in standby the code or transponder will not be recognised. Pressing any key cancels standby mode.

7.1.4.2 Switching off the truck

Procedure

- Press the key under the "Switch off" symbol (98) in the display unit.
- Press the Emergency Disconnect switch, see page 86.

The truck is switched off.



7.1.4.3 Changing the set-up transponder

Requirements

– The truck is switched on, see page 119.

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 (111).

  The code of the set-up transponder is shown on the display unit (7).
- Press the key below the "Delete" symbol (101).

  A dashed line is shown.
- Place the new set-up transponder on the transponder reader (111).

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

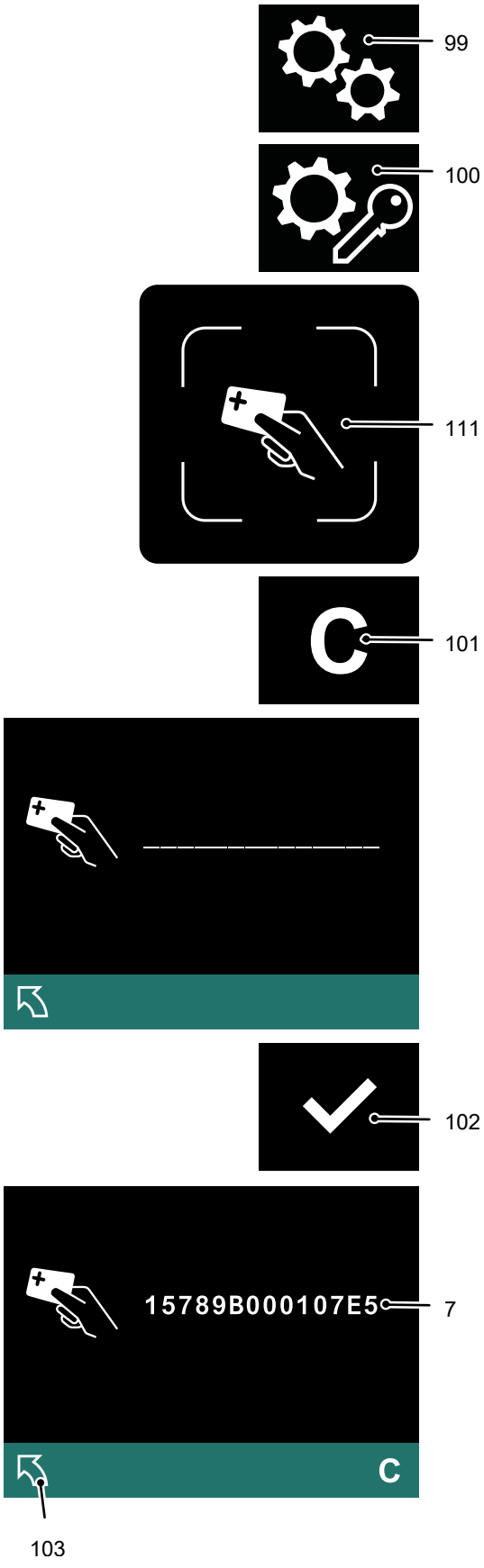
- Press the key below the "Confirm" symbol (102).

  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 (103).

The set-up transponder has been changed.



7.1.4.4 Adding a new transponder

Requirements

– The truck is switched on, see page 119.

Procedure

- Press the key below the "Settings" symbol (99).
- Press the key below the "Edit transponder" symbol (104).

  The set-up transponder is requested.
- Place the set-up transponder on the transponder reader (111).

  All transponder codes are shown on the display unit (7).
- Press the key below the "Add" symbol (105).
- Place the new transponder on the transponder reader (111).

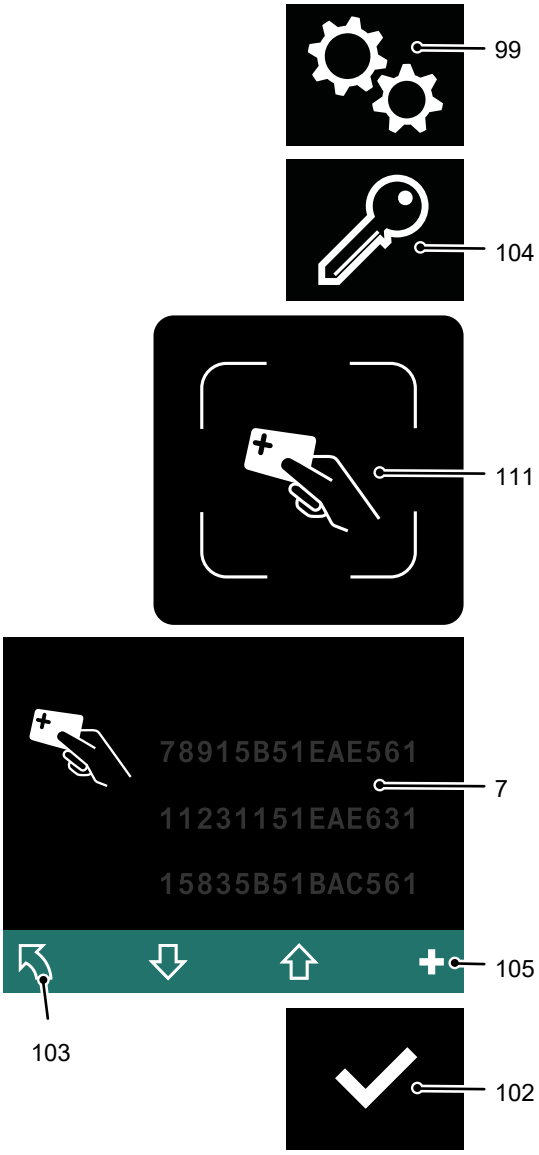
➔ The new transponder code must be different from existing transponder codes.

- Press the key below the "Confirm" symbol (102).

  The new transponder code is displayed.

➔ If the wrong transponder has been used, delete it, see page 122, and add a correct transponder.

To return to the main menu, press the key below the "Back" symbol (103).



A new transponder has been added.

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

7.1.4.5 Deleting a transponder

Requirements

– The truck is switched on, see page 119.

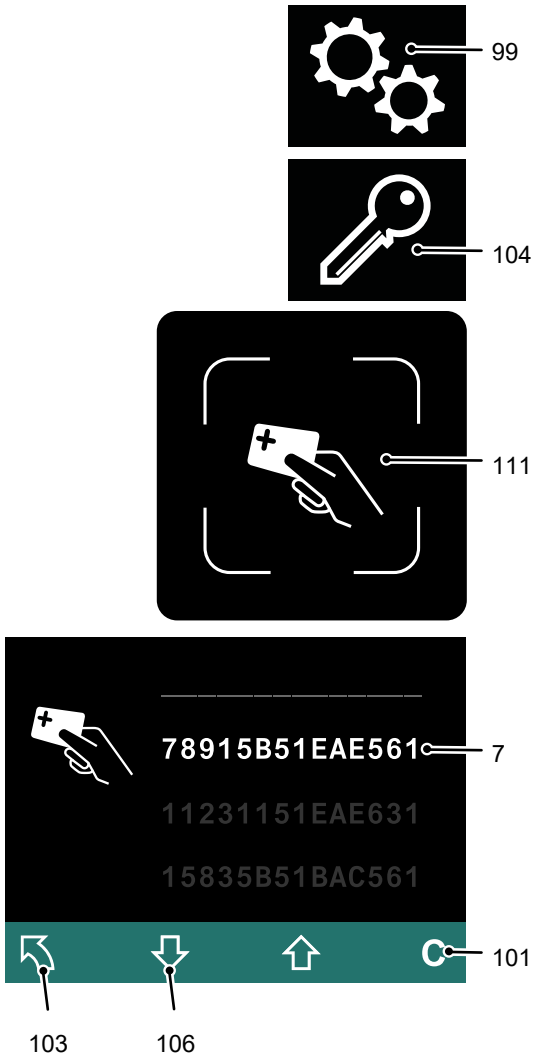
Procedure

- Press the key below the "Settings" symbol (99).
- Press the key below the "Edit transponder" symbol (104).

  The set-up transponder is requested.
- Place the set-up transponder on the transponder reader (111).

  All transponder codes are shown on the display unit (7).
- Select the transponder code to be deleted using the key below the "Down selection" symbol (106).
- 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 (103).



7.1.4.6 Displaying the log-in history

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.

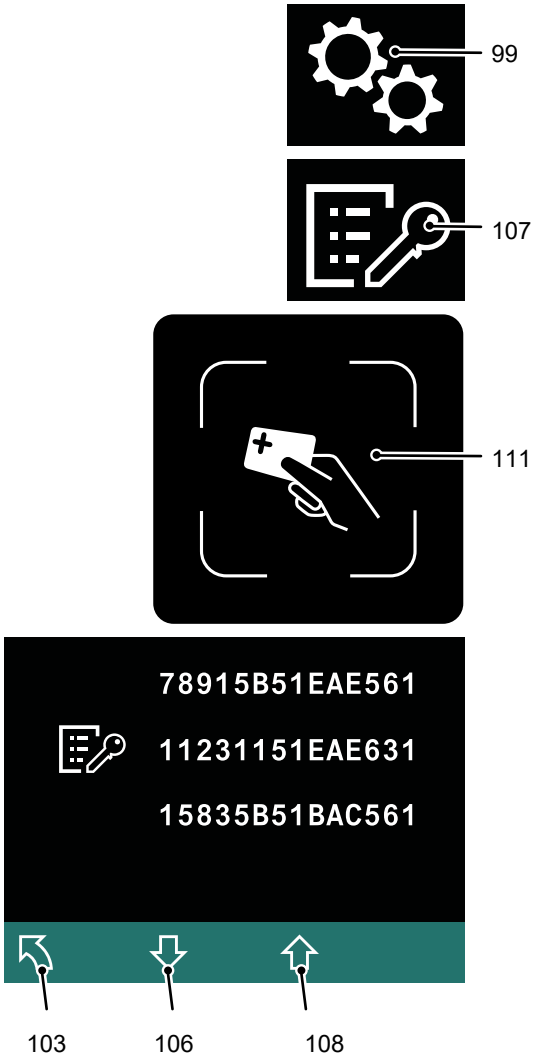
Requirements

– The truck is switched on, see page 114.

Procedure

- Press the key below the "Settings" symbol (99).
- Press the key below the "Log-in process" symbol (107).
- Place the set-up transponder on the transponder reader (111).
- To scroll forward, press the button under the "Down selection" symbol (106) 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 (108) 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 (103).

The log-in process is displayed.



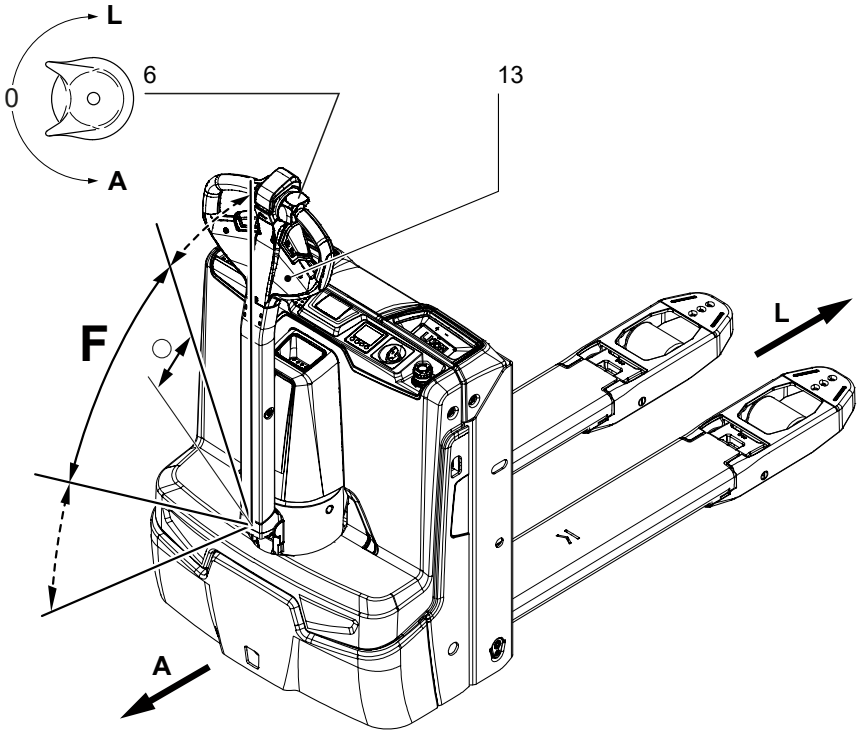
7.2 Parameters

These parameters can be adjusted by the manufacturer's customer service department.

7.3 Fleet Management System

Description of the Jungheinrich Fleet Management System optional equipment – see the "Jungheinrich Fleet Management System" operating instructions.

7.4 Foot Protection Tiller (○)



When the tiller is slightly deflected (range ○), the operator is very close to the truck. In this case the speed of the industrial truck is reduced, thus increasing safety for the operator.

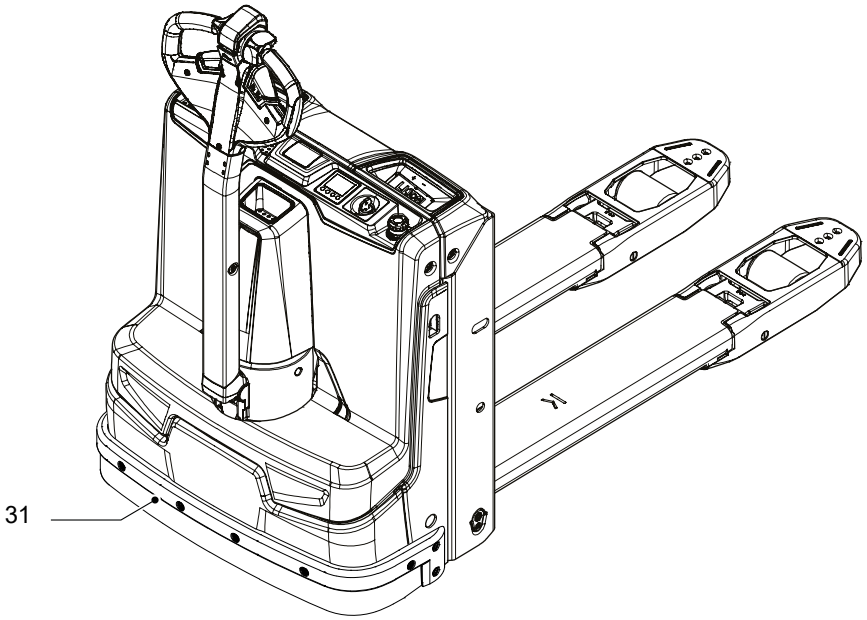
The display unit shows the "slow travel" symbol in yellow.

As soon as the tiller is deflected more, normal travel speed is enabled and the symbol goes out.

Display symbols

Symbol	Meaning	Colour	Function
	Slow travel (foot protection tiller)	Yellow	Illuminates when speed reduction has been activated by the "foot protection tiller" assistance system.

7.5 Foot protection strip (○)



If the foot protection strip (31) is touched while travelling in drive direction, the travel direction of the truck is reversed. The truck brakes, moves a few centimetres in load direction (max. 5s) and then stops. Injury to the operator's foot is avoided.

Display symbols

Symbol	Meaning	Colour	Function
	Foot protection strip	Yellow	Lights up when the foot protection strip needs to be triggered for a function test.
			Flashes when the foot protection strip has been triggered and the truck is moving a few centimetres in load direction until the contact is clear again.

F 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 34.

The inspections and maintenance tasks listed in chapter "Maintenance, Inspection and Changing of Maintenance Parts Requiring Replacement" must be performed according to the defined service intervals – see page 155.

The manufacturer recommends the replacement of the maintenance parts also listed in chapter "Maintenance, Inspection and Changing of Maintenance Parts Requiring Replacement" according to the specified replacement intervals – see page 155.

⚠ WARNING!

Risk of accidents and component damage

Any modification to the truck is prohibited.

▶Safety equipment must not be modified.

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 150.

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 138.

Settings

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

3.1 Welding

⚠ WARNING!

Fire hazard

Welding operations on the truck can damage or ignite components.

▶ Do not performing welding operations on the truck.

3.2 Working on the electrical system

⚠ WARNING!

Risk of accidents due to electrical current

Make sure the electrical system is voltage-free before starting work on it. The capacitors in the control unit 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 operate 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 80).
- ▶ Remove any rings, metal wristbands etc.

⚠ CAUTION!

Risk of fire due to use of flammable cleaning agents

Using flammable cleaning agents increases the risk of fire.

- ▶ Do not use any flammable cleaning agents when cleaning.
- ▶ Disconnect the battery before starting cleaning work.
- ▶ Before cleaning, take necessary safety measures to prevent spark formation (e.g. due to short circuits).

3.3 Consumables and used parts

⚠ CAUTION!

Consumables and used parts represent an environmental hazard

- ▶ Dispose of used operating materials and used parts in accordance with the applicable environmental protection regulations.
- ▶ Oil changes may only be performed by the manufacturer's customer service department.
- ▶ Note the safety regulations when handling these substances.

3.4 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 127.

3.5 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 defective truck and take out of service.
- ▶ Do not return the industrial truck to service until you have identified and rectified the fault.
- ▶ Remove any spilled hydraulic 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 in the event of an injury.
- ▶ Do not touch pressurised hydraulic hoses.
- ▶ Report any defects immediately to your supervisor.
- ▶ Mark defective truck and take it out of service.
- ▶ Do not return the industrial truck to service until you have identified and rectified the fault.

NOTICE

Checking and replacing hydraulic hoses

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

- ▶ Check the hydraulic hoses at least once per year and replace if necessary.
- ▶ In the case of heavy-duty operation, the inspection intervals must be reduced accordingly.
- ▶ Under normal operating conditions, preventive 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.

3.6 Energy saving components

⚠ CAUTION!

Risk of accident due to high pre-tension

The tiller tube contains a gas strut with high pre-tension. Incorrect opening may result in accidents.

▶ The gas strut must only be installed and removed by authorised service personnel.

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.

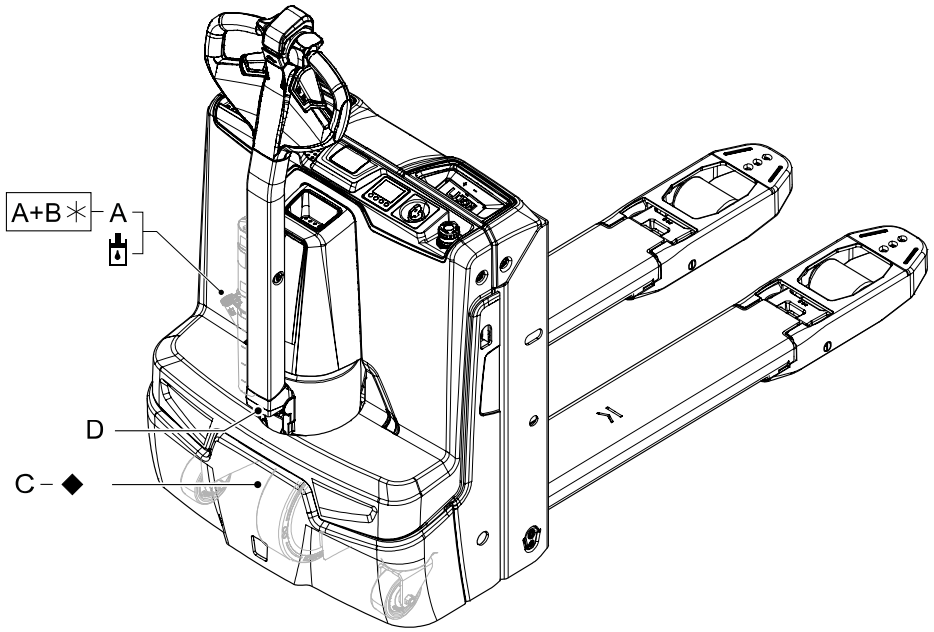
⚠ CAUTION!

Consumables and used parts represent an environmental hazard

- ▶ Dispose of used operating materials and used parts in accordance with the applicable environmental protection regulations.
- ▶ Oil changes may only be performed by the manufacturer's customer service department.
- ▶ Note the safety regulations when handling these substances.

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	51132826[1]	1.0 l	Jungheinrich hydraulic oil	Hydraulic system	0.9 l
	51132827[1]	5.0 l			
B	51037497	5.0 l	Renolin Lift 22	Cold store hydraulic system	See note
	51081875	5.0 l	Cold store hydraulic oil ISO15		
C	52030273	5.0 l	Titan Supergear 80W-90	Transmission	1.1 l
D	51119442	100 g	Copper paste	Tiller mount retainer[2]	-

*1) *The trucks are delivered ex-works 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.*

2) Before lubricating: Clean the retainer of the gas strut at the bottom of the tiller mount.

For applications in cold stores and fresh food areas, the manufacturer hydraulic oil (A) and the cold-store hydraulic oil (B) must be mixed in a 1:1 ratio.

5 Maintenance and repairs

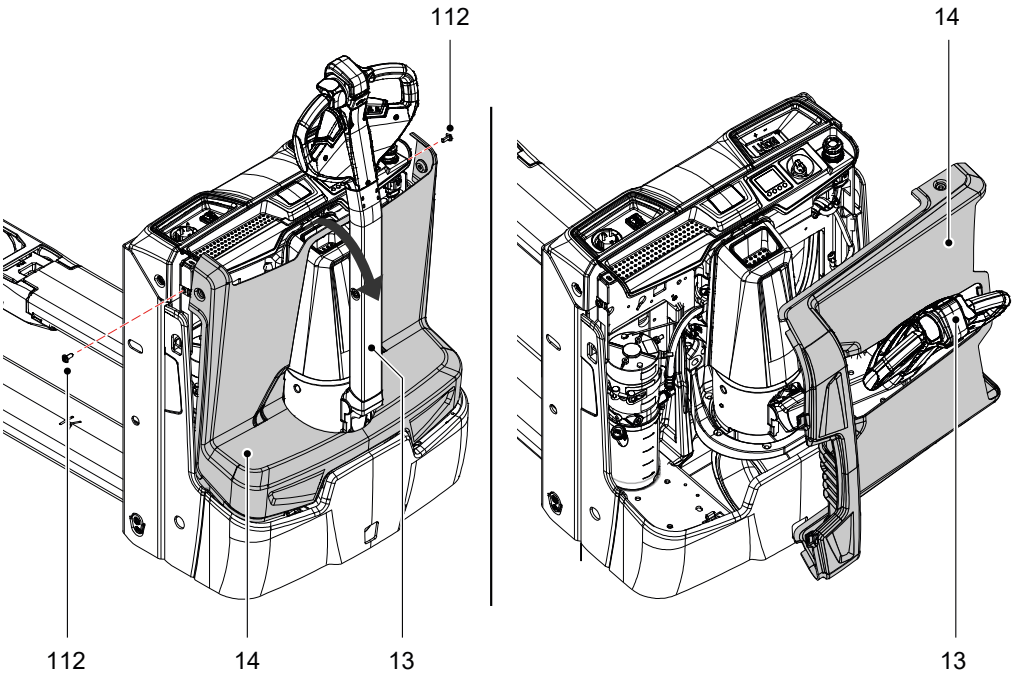
5.1 Preparing the truck for maintenance and repair work

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

Procedure

- Park the forklift truck securely – see page 80.
- A truck that is undergoing maintenance or repairs must be clearly marked as such.
- Secure the truck against unintentional activation.

5.2 Disassembling or assembling the front panel



Removing the front panel

Requirements

– Truck parked securely, see page 80.

Tools and Material Required

– Torx insert T45
– Torque wrench

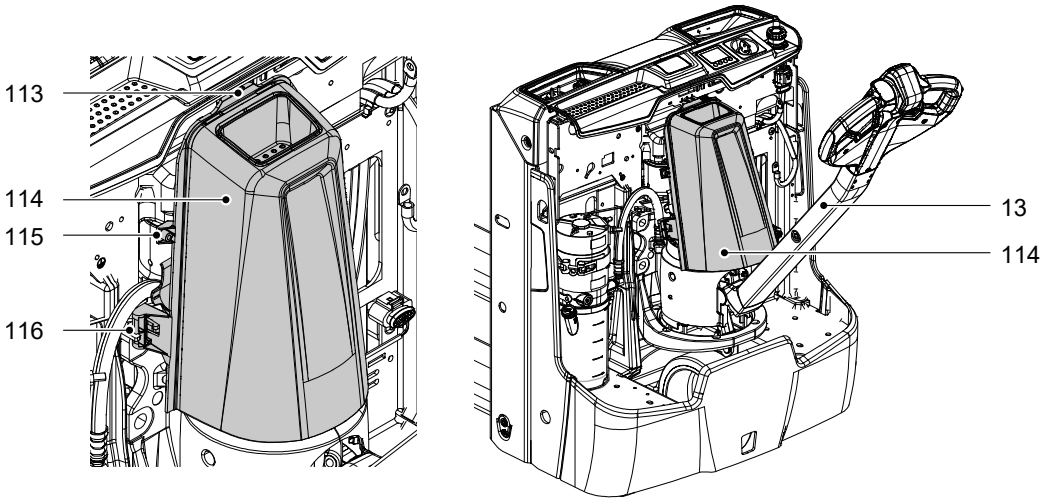
Procedure

- Remove the 2 flanged button head bolts M8 x 20 (112).
- Tilt the front panel (14) slightly and release the panel (14) from the lower guides.
- Lift the front panel (14) over the tiller (13) and set it down.

The front panel has been removed.

Proceed in reverse order to install the front panel (14). Tighten the flanged button head bolts (112) to a torque of (3 Nm).

5.3 Disassembling or assembling the dome



Removing the cover

Requirements

– The truck is parked securely, see page 80.
– The front panel has been disassembled – see page 139.

Tools and Material Required

– Cable tie
– Diagonal pliers

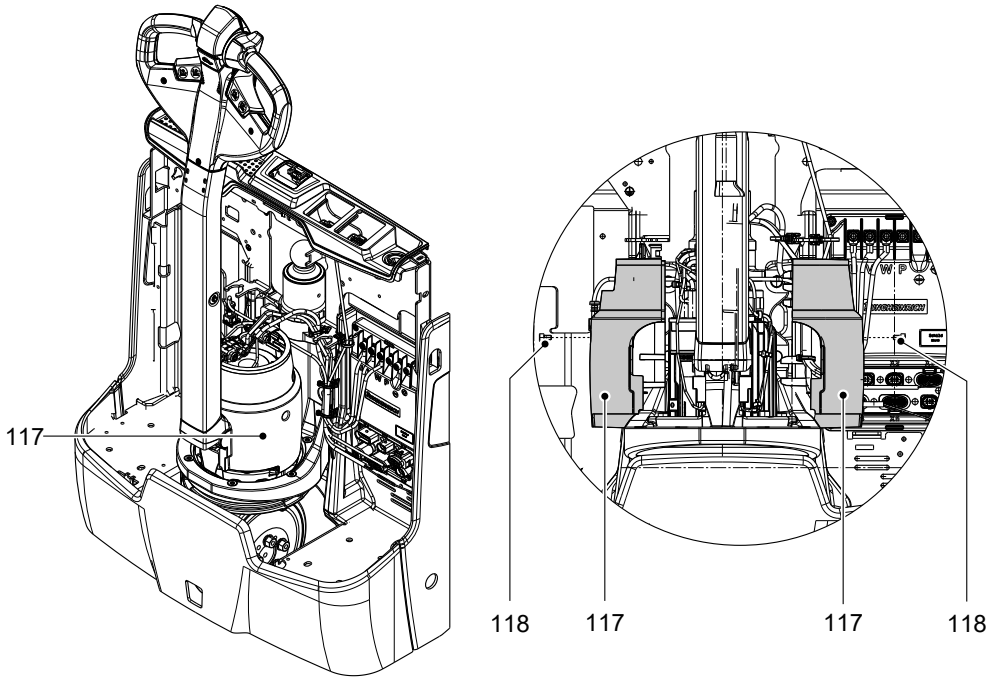
Procedure

• Cut the cable tie (115) with the diagonal pliers.
• Remove the cover (114) from the side latching points (116).
• Guide the cover (114) downwards, tilt slightly and remove.

The cover has been removed.

Proceed in reverse order to install the cover (114). Secure the cover with cable ties (115).

5.4 Disassembling or assembling the drive panel



➔ The drive panel consists of two parts.

Removing the drive panel

Requirements

– The truck is parked securely – see page 80.
– The front panel has been disassembled – see page 139.

Tools and Material Required

– Torque wrench (7 Nm)
– Hexagon socket insert, width across flats 4 mm

Procedure

- Remove two flat-head screws (118).
- Pull apart the two halves of the drive panel (117) and lift off.

The drive panel is now disassembled.

Drive panel assembly

Procedure

- Bring together the two halves of the drive panel (117) as shown.
- Tighten two flat-head screws (118) with a torque of 7 Nm.

The drive panel is now assembled.

5.5 Lifting and jacking up the truck safely

⚠ WARNING!

Risk of accident when working under the load handler or truck when not correctly secured

Failure to secure the raised load handler or truck correctly can result in uncontrolled lowering of the load handler or can cause the truck to tip or slip, which in turn can lead to fatal injuries.

- ▶ Secure the raised load handler or truck such that no lowering, tipping or slipping is possible.
- ▶ The prescribed instructions must be followed when raising the truck – see page 37.
- ▶ When working on the parking brake: Secure the truck to prevent it rolling away accidentally (e.g. using chocks).

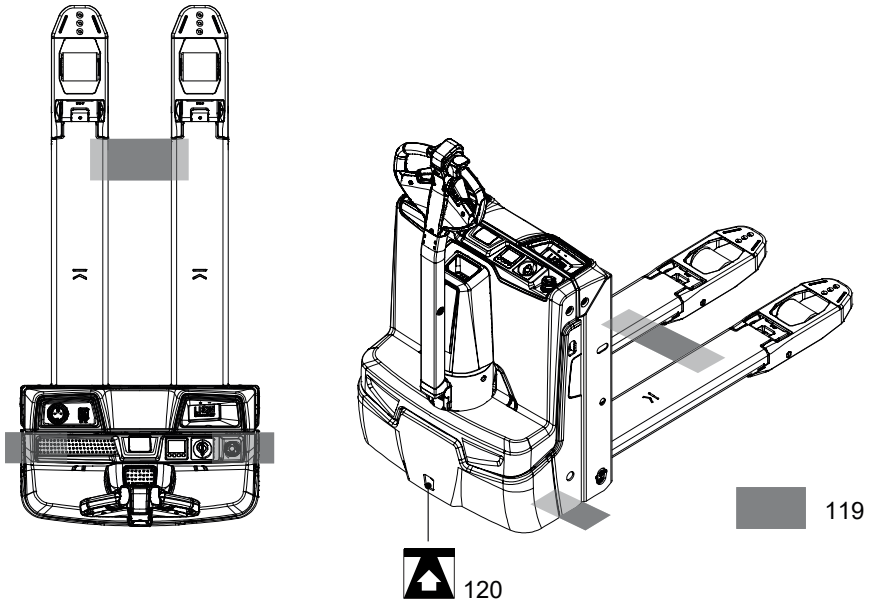
⚠ WARNING!

Risk of injury when lifting and jacking up the truck

When lifting and jacking up the truck, there is a risk of the truck unexpectedly tipping or slipping.

- ▶ Jack up the truck on level ground.
- ▶ Secure the truck against unintentional movement.
- ▶ Use a jack with sufficient capacity.
- ▶ When lifting the truck, secure the lifting accessories to the attachment points specially provided for this purpose – see page 37.
- ▶ When jacking up, use suitable means (chocks, wooden blocks) to prevent the truck from slipping or tipping.

5.5.1 Lifting and Jacking up with a Jack



The symbol (120) indicates the point at which the jack must be applied.

Lifting and jacking up the truck by jack

Requirements

– Truck parked on a level surface.

Tools and Material Required

– Jack
– Hard wooden blocks

Procedure

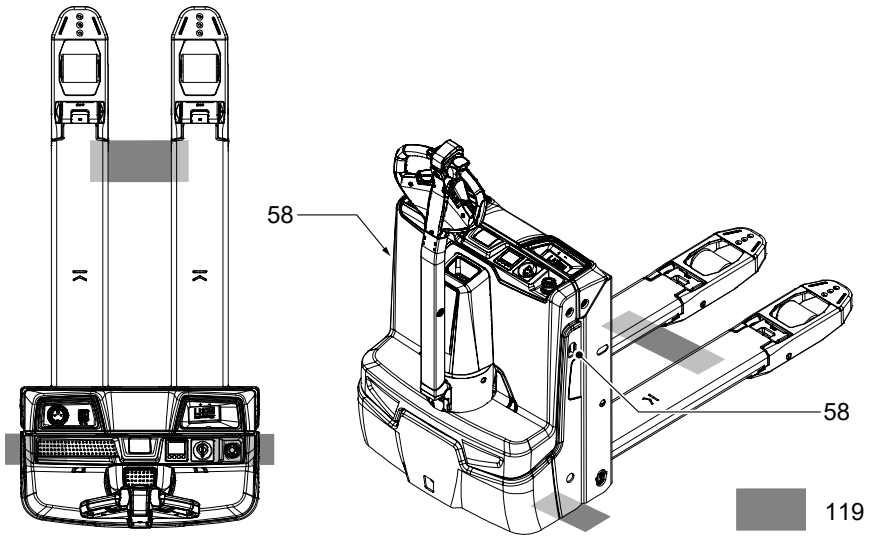
- Raise the load handler.
- Secure the load handler with wooden blocks (119).
- Lower the load handler.
- Switch off the truck.
- Place the jack against the jacking point (120).
- Raise the truck.
- Support the truck with wooden blocks at the marked positions (119).
- Remove the jack.

The truck is now securely raised and jacked up.

Lowering the truck

- To lower the truck, proceed in reverse order.

5.5.2 Lifting and Jacking up with a Crane



Lifting and jacking up the truck by crane

Requirements

– Truck prepared for maintenance and repair work – see page 138.

Tools and Material Required

– Lifting equipment/crane lifting gear
– Wooden blocks

Procedure

- Apply the crane lifting gear to the attachment points (58) – see page 37.
- Raise the truck.
- Support the truck with wooden blocks at the marked positions (119).
- Lower the truck.
- Remove the crane lifting gear.

The truck is jacked up.

Lowering the truck

- To lower the truck, proceed in reverse order.

5.6 Cleaning

5.6.1 Cleaning the truck

⚠ CAUTION!

Risk of fire due to use of flammable cleaning agents

Using flammable cleaning agents increases the risk of fire.

▶ Do not use any flammable cleaning agents when cleaning.

▶ Before cleaning, take necessary safety measures to prevent spark formation (e.g. due to short circuits).

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 (controls, sensors, motors etc.) before cleaning the truck with a high-pressure cleaner.

▶ Do not hold the jet of the high-pressure cleaner at marking points to avoid damaging them – see page 33.

▶ Do not clean the truck with a steam jet.

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

Cleaning the truck

Requirements

– Truck prepared for maintenance and repair work, see page 138.

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 150).

The truck is now clean.

5.6.2 Cleaning the electrical system assemblies

NOTICE

Risk of electrical-system damage

Cleaning the electronic system assemblies (controllers, sensors, motors etc.) 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 a non-conductive, anti-static brush.

Cleaning the electrical system assemblies

Requirements

– Truck prepared for maintenance and repair work – see page 138.

Tools and Material Required

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

Procedure

- Expose the electrical system – see page 139.
- 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 cover – see page 139.
- Carry out all the tasks listed in the section "Recommissioning the truck after cleaning or maintenance work" – see page 150.

The electrical-system assemblies are now clean.

5.7 Checking the hydraulic oil level and refilling the hydraulic oil

⚠ WARNING!

Leaky hydraulic systems can result in accidents

Hydraulic oil can escape from leaky and faulty hydraulic systems.

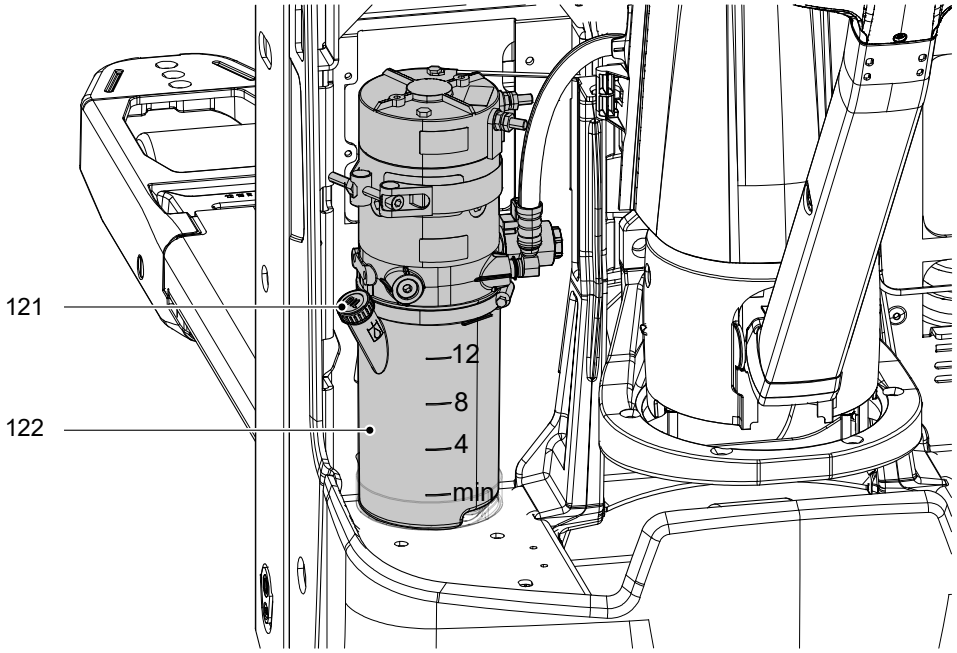
▶ Report any defects immediately to your supervisor.

▶ Mark defective truck and take out of service.

▶ Do not return the industrial truck to service until you have identified and rectified the fault.

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

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



Check the hydraulic oil level

Requirements

– Load handler lowered.
– Truck prepared for maintenance and repair work, see page 138.

Procedure

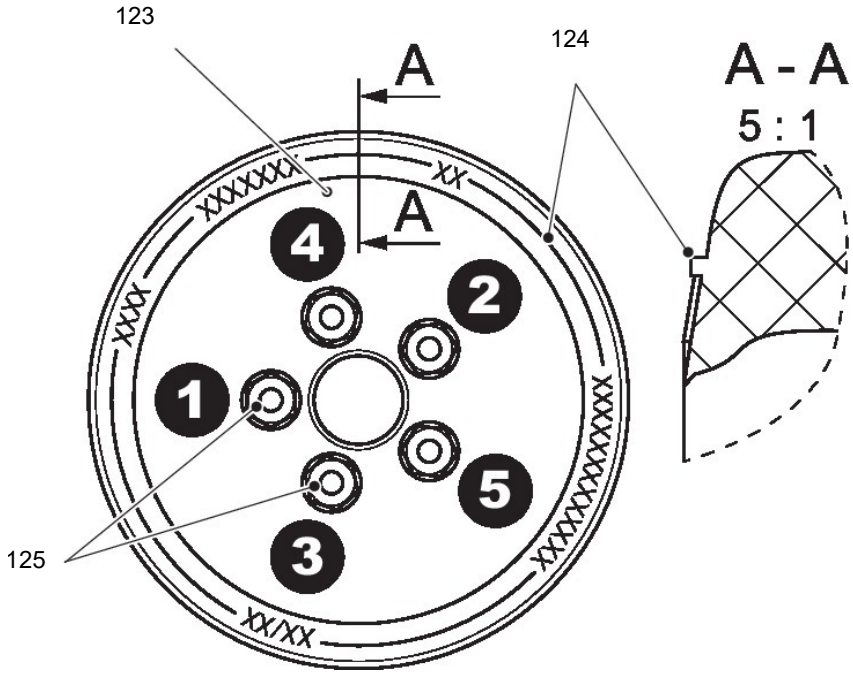
• Remove the front panel – see page 139.
• Check the oil level in the hydraulic reservoir (122).

➔ 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 137, via the filler neck (121) .

The hydraulic oil level has been checked.

5.8 Checking the attachment and wear of the wheels



➔ Replace the wheels if the wear limit (124) has been reached.

➔ Early replacement of the drive wheel is required if it is heavily worn or brittle, or if there is insufficient traction.

➔ The wheel nuts on the drive wheel must be re-tightened in accordance with the maintenance intervals indicated in the maintenance checklist, see page 138.

Tightening the wheel nuts

Requirements

– Prepare the truck for maintenance and repair work, see page 155.

Tools and Material Required

– Torque wrench

Procedure

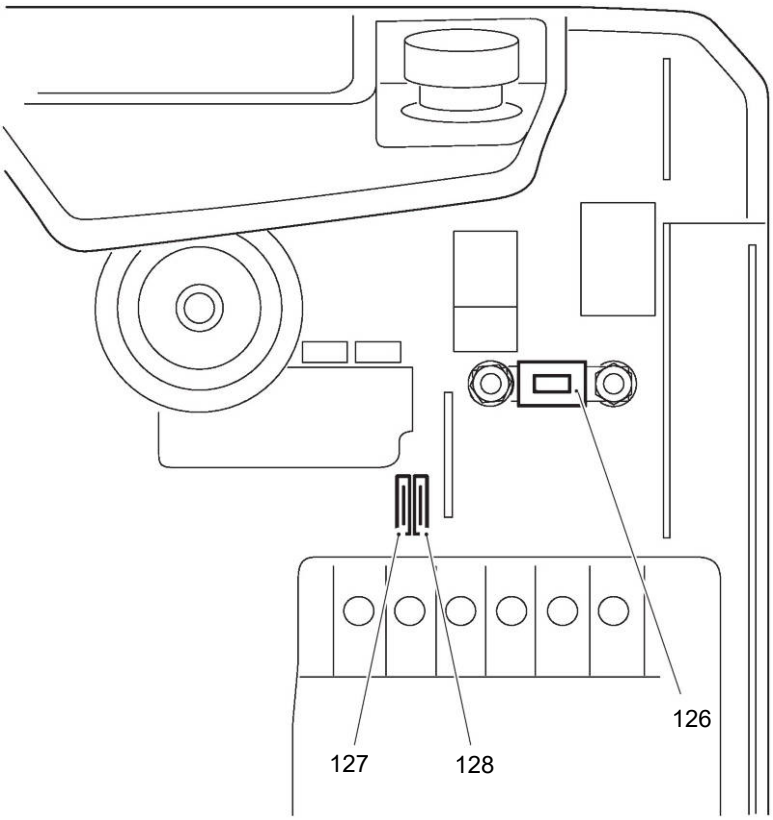
- Position the drive wheel (123) perpendicular to the longitudinal axis of the truck.
- Tighten all wheel nuts (125) using the torque wrench through the opening in the chassis.

  To do this, tighten the wheel nuts in the indicated order
  - initially to 10 Nm
  - then to 150 Nm.

The wheel nuts have now been tightened.

➔ The drive wheel must only be replaced by authorised service personnel.

5.9 Checking the electrical fuses



Checking fuses

Requirements

– Truck prepared for maintenance and repair work, see page 138.
– Front panel removed, see page 139.

Procedure

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

The fuses have been checked.

Item	Protection	Rating
126	Drive motor / pump motor	150 A
127	Magnetic brake main contactor control fuse	4 A
128	Horn/tiller head/key/access systems (fleet management system, transponder, display unit, keypad) control fuse	4 A

The number of fuses varies depending on the option installed.
The rated currents of the fuses are marked near the fuse carriers.

5.10 Restoring the truck to service after maintenance and repairs

Procedure

- Thoroughly clean the truck, see page 145.
- Lubricate the truck according to the lubrication diagram, see page 136.
- Charge the battery, see page 49.
- Start up the truck, see page 77.

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 142.

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

NOTICE

Damage to the lithium-ion battery due to discharge

If the lithium-ion battery undergoes a long period of non-use or storage, damage may occur due to deep discharge of the battery cells. Take the following actions to avoid damage due to deep discharge:

▶ Truck parked securely – see page 80.

▶ Fully charge the lithium-ion battery before extended periods of non-use or storage.

▶ Fully charge the lithium-ion battery every 3 months to protect against deep discharge.

Procedure

- Thoroughly clean the truck, see page 145.
- Prevent the truck from rolling away accidentally.
- Check the hydraulic oil level and replenish if necessary, see page 147.
- Apply a thin layer of oil or grease to any non-painted mechanical components.
- Lubricate the truck according to the lubrication diagram, see page 136.
- Charge the battery, see page 41.

6.2 Action to be taken during decommissioning

NOTICE

Damage to the lithium-ion battery due to discharge

If the lithium-ion battery undergoes a long period of non-use or storage, damage may occur due to deep discharge of the battery cells. Take the following actions to avoid damage due to deep discharge:

▶ Truck parked securely – see page 80.

▶ Fully charge the lithium-ion battery before extended periods of non-use or storage.

▶ Fully charge the lithium-ion battery every 3 months to protect against deep discharge.

- Charge the battery – see page 41.

6.3 Restoring the truck to service after decommissioning

Procedure

- Thoroughly clean the truck – see page 145.
- Lubricate the forklift truck according to the lubrication schedule – see page 136.
- Charge the battery – see page 54.
- Start up the truck – see page 76.

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.

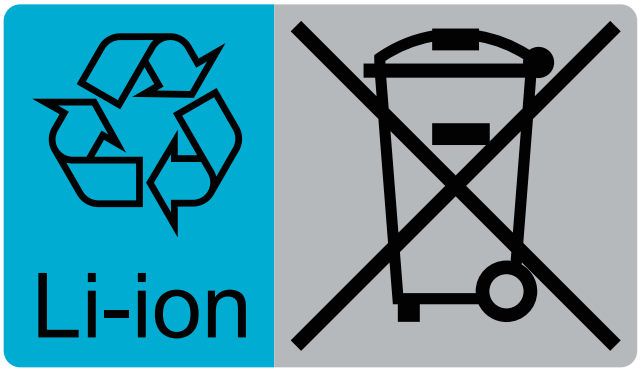
The operating company is responsible for ensuring that faults are rectified immediately.

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.

8.1 Disposal of a Lithium-Ion Battery



Used lithium-ion batteries are recyclable commodities. These 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.

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.

Instructions for disposal
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.

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, Inspection and Changing of Maintenance Parts Requiring Replacement

⚠ 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 Maintenance Contents EJE 114i/116i/118i/120i

Issued on: --

1.1 Owner

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

1.1.1 Maintenance contents

1.1.1.1 Standard equipment

Brakes
Test the brake.

Hydraulic operations
Correct the hydraulic-oil level.

Steering
Test the tiller return function.

1.1.2 Inspection contents

1.1.2.1 Standard equipment

The following points must be checked:

Electrical system
Warning and safety equipment in accordance with the operating instructions
Functionality of display and controls
Test emergency disconnect switch and check for damage

Power supply
Battery connector for secure fit, functionality and damage

Travel
Collision safety switch for functionality and damage
Check wheels for wear and damage

Chassis/structure
Industrial truck for damage and leaks
Check labels for legibility, completeness and plausibility
Check doors or covers for damage

Hydraulic operations
Test hydraulic system
Check fork arms or load handler for wear and damage

Battery charger
Mains plug and mains cable for damage

1.1.2.2 Optional Equipment

The following points must be checked:

1.2 Customer Service

In accordance with the EJE 114i/116i/118i/120i service interval, to be performed every 1000 service hours, but at least once a year.

1.2.1 Maintenance contents

1.2.1.1 Standard equipment

Brakes
Test the brake with the tiller in the maximum vertical and horizontal positions.
Measure the air gap of the magnetic brake.

Electrical system
Perform insulation inspection.

Chassis/structure
Check that the panels and covers as well as mounting brackets are secure. Ensure they function correctly and are safe.

Hydraulic operations
Correct the hydraulic-oil level.
Test the pressure relief valve.

Agreed services
Carry out a test run with the rated capacity or a customer-specific load.
Lubricate the truck according to the lubrication schedule.
Demonstration after maintenance.

Steering
Test the tiller return function.

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

1.2.1.2 Optional Equipment

Radio data

System components
Clean the scanner and terminal.

1.2.2 Inspection contents

The following points must be checked:

1.2.2.1 Standard equipment

Electrical system
Cables and motor for secure fit and damage
Warning and safety equipment in accordance with the operating instructions
Functionality of display and controls
Test emergency disconnect switch and check for damage
Check electrical wiring for damage (insulation damage, connections) and check whether the fuse ratings are correct

Power supply
Battery latch and battery attachment for correct function and damage
Battery cable for damage
Battery connector for secure fit, functionality and damage

Travel
Drive system bearings for wear and damage
Transmission for noise and leaks
Check wheels for wear, damage and secure mounting
Check wheel bearings and mounting of wheels for wear and damage

Chassis/structure
Industrial truck for damage and leaks
Check chassis connections and screw connections are securely attached and check for damage
Check labels for legibility, completeness and plausibility

Hydraulic operations
Test hydraulic controls and check their labels for legibility, completeness and plausibility
Lift mechanism for wear, functionality and damage
Check cylinders and piston rods are securely attached and check for damage
Test hydraulic system
Check fork arms or load handler for wear and damage
Tie/plunger rods for uniform adjustment, wear and damage
Check the hoses, pipes and connections are securely attached and check for wear, leaks, damage, blisters and kinks

Steering
Tiller for lateral play
Steering components for play and damage

Battery charger
Mains plug and mains cable for damage
Fan for correct functionality and damage
Cables and electrical connections for secure fit and damage

1.2.2.2 Optional Equipment

Shock sensor/data recorder

Electrical system
Check shock sensor/data recorder is securely attached and check for damage

Radio data

System components
Scanner and terminal for secure fit, functionality and damage

Access module

Electrical system
Check access module is securely attached, test and check for damage

Entry skids/rollers

Hydraulic operations
Check entry skids or entry rollers for damage and wear, and test their function

Pre-Op_Check

Electrical system
Check access module is securely attached, test and check for damage

1.2.3 Maintenance parts

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

1.2.3.1 Standard equipment

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