

EJD 220

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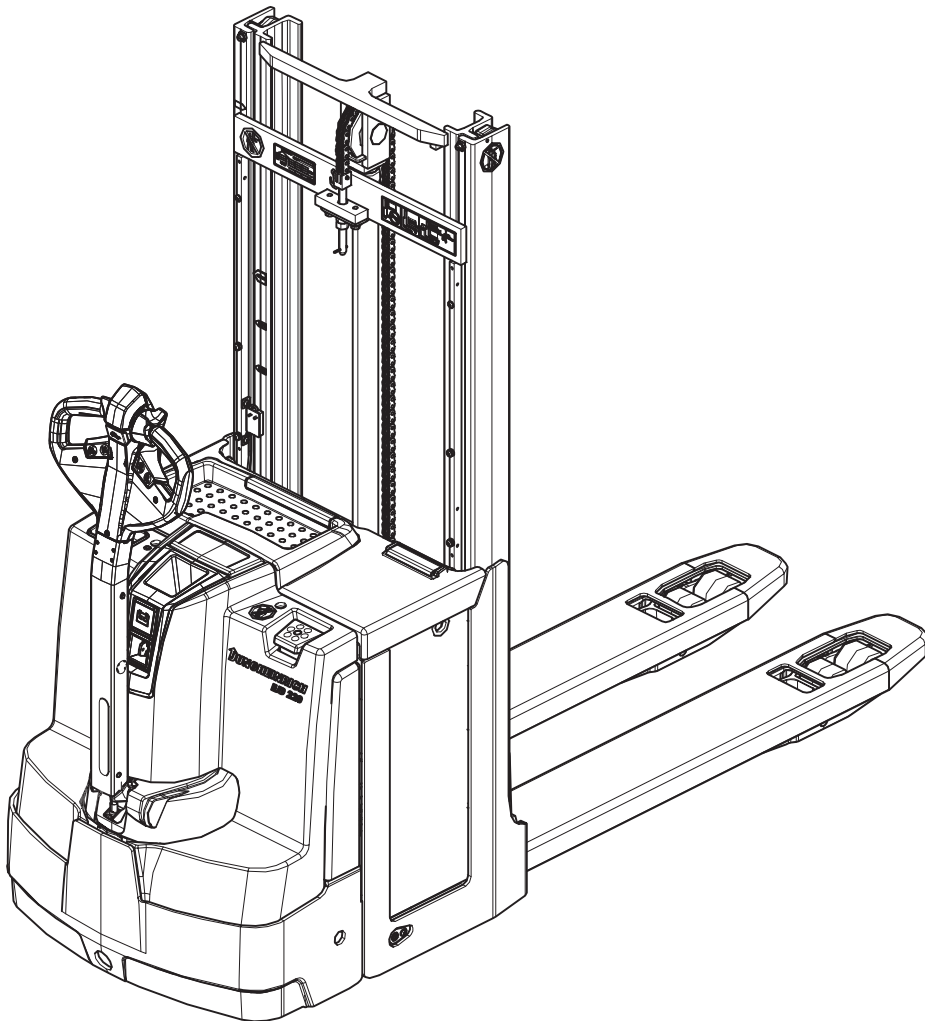
Operating instructions

GB

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EJD 220



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A Correct Use and Application

1 General

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

2 Correct application

NOTE

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 or be lifted by an attachment approved by the manufacturer.

The load must be fully raised, see page 84.

The following operations are permitted:

- Lifting and lowering loads.
- Stacking and retrieving loads.
- Transporting lowered loads.

The following operations are prohibited:

- Travelling with a raised load (>500 mm).
In double-deck operation, the load handler must not be raised higher than 1800 mm. The bottom load must be heavier than the top load.
- Carrying and lifting passengers^{a)}.
- Pushing or pulling loads.

a) Further information: see "Use of a work cage" on page 11.

2.1 Use of a work cage

Lifting passengers with a work cage may be permitted in some countries. This must be verified by the operating company on a case by case basis.

- Germany: DGUV information 208-031 (BGI/GUV- 5183) Use of Working Platforms on Industrial Trucks with Mast
- Australia: AS 2359.1 Powered Industrial Trucks, General Requirements; AS 2359.2 Powered Industrial Trucks, Operations

Mast

The high strength steel sections are narrow, enabling excellent visibility of the load handler. The lift rails and the load handler run on permanently-lubricated and hence maintenance-free angled rollers.

Load backrest (○)

A load backrest is recommended as an additional protective mechanism to move low or small item loads above the mast protection frame or grille (○). The load backrest is mounted on the load handler and protects the operator and truck against falling loads.

- The extended mast height (h4) increases according to the load backrest mounted on the load handler.

WARNING!

Risk of injury from falling loads

Low or small item loads moved above the mast protection pane or grille (○) and protruding over the load backrest can fall, endangering the operator and truck.

- Secure low or small item loads protruding over the load backrest, e.g. by wrapping them in film.
-

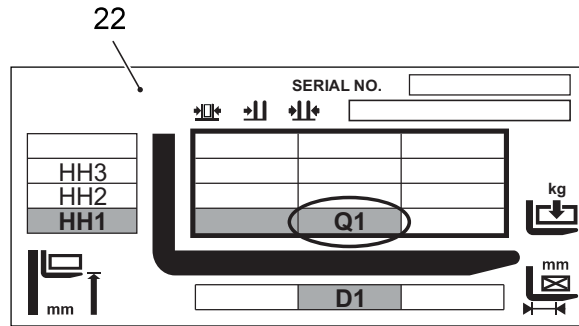
3.2.1 Hourmeter

- Prepare the truck for operation, see page 67 or see page 104.

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

- Tiller in travel zone "F", see page 75.
- "Slow travel button", see page 78.
- "Lift" button, see page 82.
- "Lower" button, see page 83.

5.3 Truck capacity plate



The capacity plate (22) indicates the maximum capacity Q (in kg) for a given load centre distance D (in mm) and corresponding lift height H (in mm) for the truck when raising a load.

Example of how to calculate the maximum capacity:

The maximum capacity is $Q1$ at a load centre G within the load centre distance $D1$ and a lift height up to $HH1$.

D Battery - Servicing, Recharging, Replacement

1 Safety Regulations Governing the Handling of Lead-Acid Batteries

Maintenance personnel

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

Fire Protection

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

CAUTION!

The use of unsuitable fire protection equipment can result in scalding

Extinguishing fires with water can cause a reaction with the battery acid. This can result in scalding from the acid.

- ▶ Use powder extinguishers.
 - ▶ Never extinguish a burning battery with water.
-

Battery maintenance

The battery-cell covers must be kept dry and clean. The terminals and cable lugs must be clean, secure and have a light coating of terminal grease.

WARNING!

Short circuits can result in fire

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

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

Battery disposal

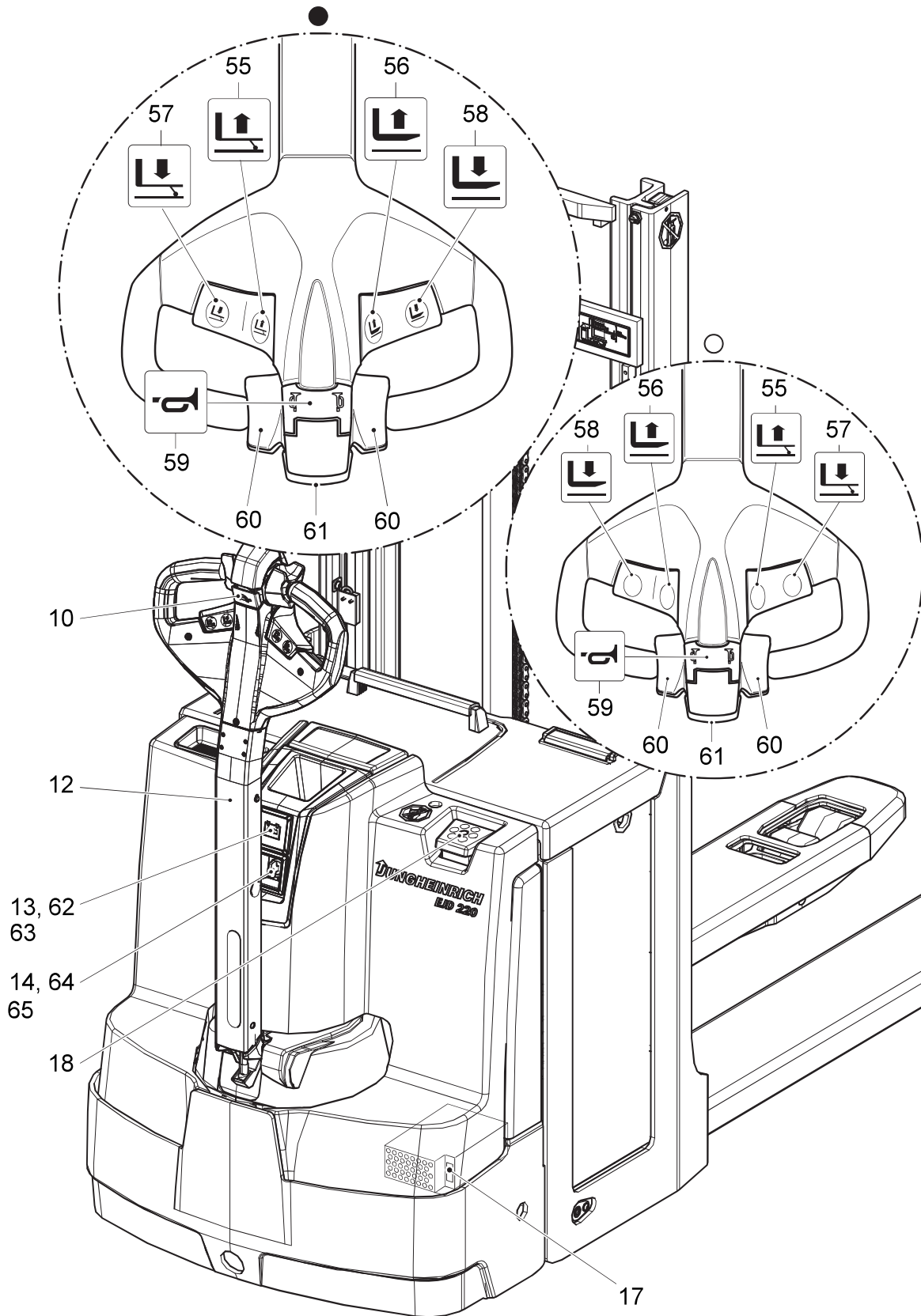
Batteries may only be disposed of in accordance with national environmental protection regulations or disposal laws. The manufacturer's disposal instructions must be observed.

Flashing sequence/charging curve assignment (ELH 2415/2425/2435)

Flashing sequence	Charging curves (characteristics)	ELH 2415	ELH 2425	ELH 2435
0	Truck without battery	*	*	*
1	PzS 100 - 300 Ah	*	*	*
	PzM to 179 Ah	*	*	*
2	Pulse characteristic			
	PzS 200 - 400 Ah	*	*	*
	PzM 180 - 400Ah	*	*	*
3	PzV 100 - 150 Ah		*	*
4	PzV 151 - 200 Ah		*	*
5	PzV 201 - 300 Ah			*
6	PzV 301 - 330 Ah			*
7	Cold-store characteristic, pulse characteristic PzS 5°C			
	PzS 200 - 400 Ah	*	*	*
	PzM 180 - 400 Ah	*	*	*
8	Not for use			
9				
10				
11				
12	Nexsys Bloc +5°C			
	Nexsys Standard 140 - 177 Ah			*
13	Nexsys Bloc +15 °C			
	Nexsys Standard 140 - 177 Ah			*
14	Nexsys Bloc +30 °C			
	Nexsys Standard 140 - 177 Ah			*
15	Not for use			
16				
17				

* = Charging curve can be used

2 Displays and Controls



Negotiating slopes and inclines

Negotiating slopes and inclines up to 15% is only permitted when they are recognised lanes. The slopes and inclines must be clean, have a non-slip surface, and negotiating them safely must be within the technical specifications of the truck. The truck must always be driven with the load facing uphill. The industrial truck must not be turned, operated at an angle or parked on inclines or slopes. Inclines must only be negotiated at slow speed, with the driver ready to brake at any moment.

Negotiating lifts, loading ramps and docks

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

Type of loads to be carried

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

WARNING!

Electromagnetic influence can result in accidents

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

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

4.8 Load handler raise/lower

WARNING!

Accident risk when lifting and lowering

Other people can be injured in the truck's hazardous area.

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

Apart from the driver (in the normal operating position) there should be no other people in the truck's hazardous area.

- ▶ 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.
 - ▶ If people do not leave the hazardous area despite the warning, prevent the truck from being used by unauthorised people.
 - ▶ Only carry loads that have been secured and positioned in accordance with regulations. Use suitable precautions to prevent parts of the load from tipping or falling down.
 - ▶ Never exceed the maximum loads specified on the capacity plate.
 - ▶ Never stand underneath a raised load handler.
 - ▶ Do not stand on the load handler.
 - ▶ Do not lift other people on the load handler.
 - ▶ Never reach or climb into moving truck parts.
 - ▶ Do not climb onto parts of the building or other trucks.
-

NOTE

Adapt a slower speed when stacking and retrieving.



Hydraulic function lock: The new software version (from February 2014) has a presetting that only enables lifting when the tiller is in the travel range (F) or when the "slow travel" button is pressed. This does not affect lowering. The presetting can be changed via a parameter, see page 128.

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4.9.5 Transporting two palletised loads above each other

CAUTION!

Risk to operational stability

In order not to jeopardize the operational stability, pay attention to the weight when transporting two pallets so that the truck does not tip over.

- ▶ In order not to jeopardize the operational stability, the heavier pallet should always be transported underneath.

Requirements

- Load raised correctly.
- Load handler lowered as far as possible but without touching the lower load.
- 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.
- Watch out for other traffic at crossings and passageways.
- Always travel with a lookout at blind spots.
- On slopes and inclines always carry the load facing uphill, never approach at an angle or turn.

7 Load handler emergency lowering

WARNING!

Load handler emergency lowering

- ▶ Instruct other people to move out of the hazardous area of the truck during emergency lowering.
- ▶ Never step or stand underneath a raised load handler.
- ▶ Only operate the emergency lowering valve when standing next to the truck.
- ▶ When the load handler is in the racking, emergency lowering is not permitted.
- ▶ 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.

Load handler emergency lowering

Requirements

- Load handler is not in the rack.

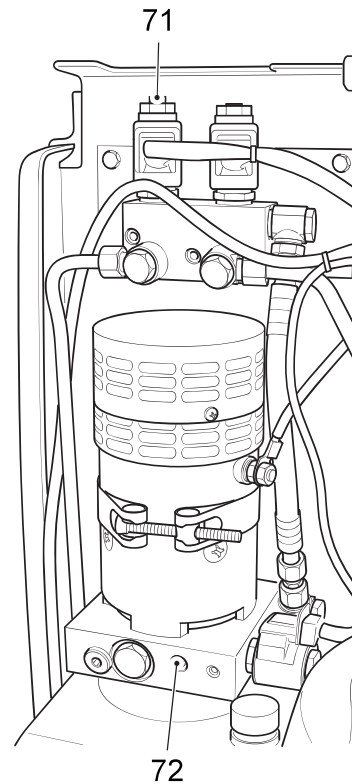
Tools and Material Required

- 3 mm diameter pin, tool etc.
- Allen key 5 mm

Procedure

- Park the truck securely, see page 69.
- Open the front panel, see page 173.
- Unscrew the valve screw 2 turns (72) as far as the stop.
- Push the valve screw (71) in gradually and keep it pressed down.

The load handler is lowered.



After lowering the load handler, tighten the screw (72) again.

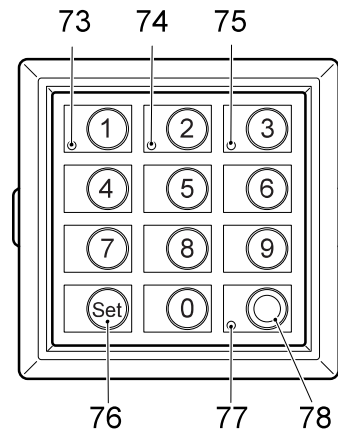
8.2.6 Change operator code

Requirements

- To prepare the truck for operation, see page 106.

Procedure

- Press the O key (78).
- Enter the valid master code with the digit keys.
When you enter the valid master code the LED (77) flashes green.



- Enter the parameters 0-0-2 with the digit keys.
- Confirm with the SET key (76).
The LEDs (73,77) flash green.
- Enter the user code to be changed with the digit keys.
- Confirm with the SET key (76).
The LEDs (74,77) flash green.

- Enter the new user code with the digit keys.
→ The length (4-6 digit) of the new user code must be the same as that of the previously entered master code. The new user code must also be different from the existing master code.

- Confirm with the SET key (76).
The LEDs (75,77) flash green.
- Enter the new user code again with the digit keys.
- Confirm with the SET key (76).
Wait until the LED (77) flashes green. The setting is saved.

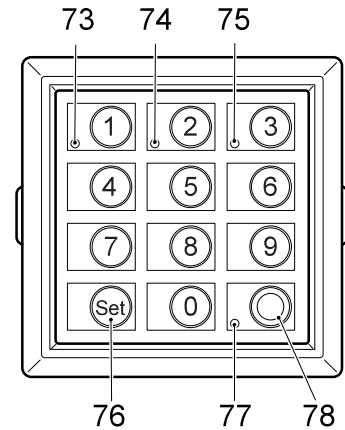
- Press the O key (78).
The truck is switched off and the LED (77) is lit red.

- Check the new user code:
 - Switch on the truck with the new user code, see page 106
After entering the valid user code the LED (77) lights up green, the travel program setting is shown by the illumination of the corresponding LEDs (73,74,75) and the truck is switched on.
 - Press the O key (78).
The truck is switched off and the LED (77) is lit red.

Adapting the travel program configuration to the user code

Procedure

- Press the O key (78).
- Enter the valid master code with the digit keys.
When you enter the valid master code the green LED (77) flashes green.
- Enter the parameters 0-2-4 with the digit keys.
- Confirm with the SET key (76).
The LEDs (73,77) flash green.
- Enter the valid user code with the digit keys.
- Confirm with the SET key (76).
The LEDs (74,77) flash green.
- Enter the configuration code (4 digit) for the travel programs.
- Confirm with the SET key (76).
The LEDs (75,77) flash green.
- Enter the configuration code (4 digit) for the travel programs again using the digit keys.
- Confirm with the SET key (76).
Wait until the LED (77) flashes green. The travel programs are now assigned to the user code.
- Press the O key (78).
The truck is switched off and the LED (77) is lit red.
- Checking the travel program configuration to the user code:
 - Switch on the truck with the configured user code, see page 106
After entering the valid user code the LED (77) lights up green, the travel program setting is shown by the illumination of the corresponding LEDs (73,74,75) and the truck is switched on.
 - Press the O key (78).
The truck is switched off and the LED (77) is lit red.
- If necessary, repeat the procedure for other user codes.



Procedure

- Press the O key (78).
- Enter the master code.
- Enter the four-digit parameter number "1377" and confirm with the Set key.
- Enter sub index "2" and confirm with the Set key.

The parameter with subindex are displayed alternately with the current reading.
E.g. (1377-2<->0000-2--corresponds to the "dry - maintenance-free" battery type.

- Press the O key.

The parameter has now been checked.

8.10.1 Activating the keypad

Procedure

- Release the emergency disconnect switch, see page 72.
- Enter the default code 1-2-3-4 using the keys below the display unit (63).

The truck is switched on.

- Press the key below the "Settings" symbol (94).
- Press the key below the "Change set-up code" symbol (95).
- Enter the set-up code 2-4-1-2 using the keypad (65).

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 (96).

The set-up code is deleted.

- Enter the new set-up code using the keypad (65).
- Press the key below the "Confirm" symbol (97).

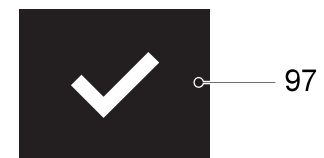
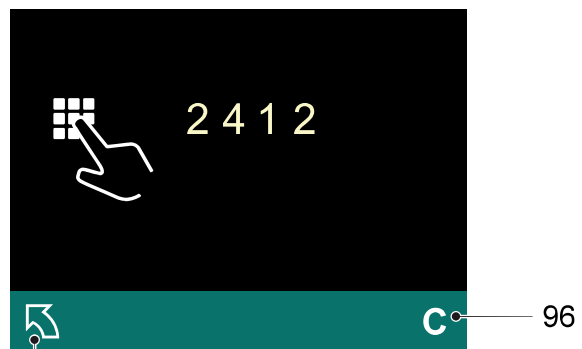
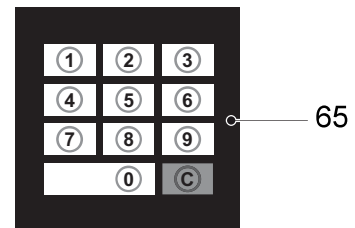
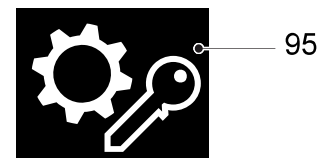
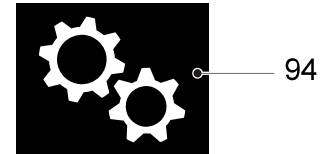
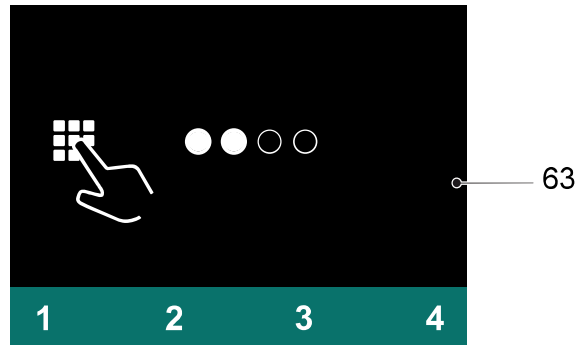
The new set-up code is displayed.



If the new set-up code was entered incorrectly, the procedure can be repeated using the key below the "Delete" symbol (96).

- To return to the main menu, press the key below the "Back" symbol (98).
- Delete the default code, see page 151.
- Create access codes, see page 150.

The keypad is active.



8.12.5 Deleting an access code

Requirements

- The truck is switched on, see page 148.

Procedure

- Press the key below the "Settings" symbol (94).
- Press the key below the "Edit access code" symbol (100).

The set-up code is requested.

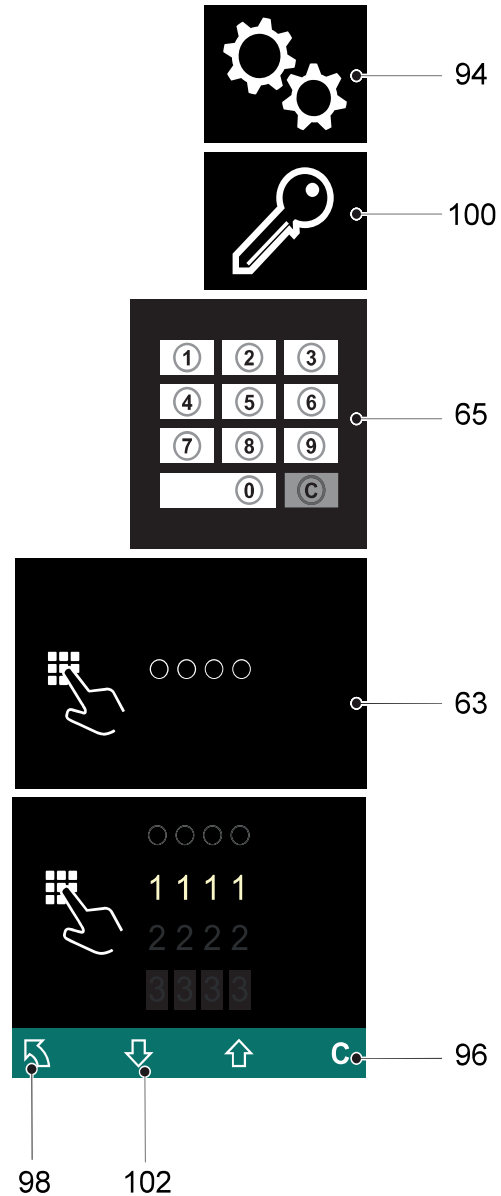
- Enter the set-up code using the keypad (65).

All access codes are shown on the display unit (63).

- Select the access code to be deleted using the key below the "Down selection" symbol (102).
- Press the key below the "Delete" symbol (96).

The access code has been deleted.

- To return to the main menu, press the key below the "Back" symbol (98).



2.1 Working on the electrical system

WARNING!

Electrical current can cause accidents

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

Before starting maintenance on the electrical system:

- ▶ Only suitably trained electricians may work on the truck's electrical system.
 - ▶ Before working on the electrical system, take all precautionary measures to avoid electric shocks.
 - ▶ Park the truck securely (see page 69).
 - ▶ Disconnect the battery.
 - ▶ Remove any rings, metal wristbands etc.
-

2.2 Consumables and used parts

CAUTION!

Consumables and used parts are an environmental hazard

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

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

2.3 Wheels

WARNING!

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

The quality of wheels affects the stability and driving characteristics of the truck.

Uneven wear affects the truck's stability and increases the stopping distance.

- ▶ After replacing wheels, make sure the truck is not skewed.
 - ▶ Always replace wheels in pairs, i.e. the left- and right-hand wheels at the same time.
-



When replacing wheels fitted at the factory, only use the manufacturer's original spare parts. Otherwise the manufacturer's specification will not be adhered to.

Cleaning the truck

Requirements

- Prepare the truck for maintenance and repairs (see page 168).

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.
- In particular, clean the following areas:
 - Window(s)
 - Oil filler ports and their surroundings
 - Grease nipples (before lubrication)
- 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 180).

The truck is now clean.

5 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 169.

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

5.1 Prior to decommissioning

Procedure

- Thoroughly clean the truck, see page 170.
- Prevent the truck from rolling away accidentally.
- Check the hydraulic oil level and replenish if necessary, see page 175.
- Apply a thin layer of oil or grease to any non-painted mechanical components.
- Lubricate the truck according to the lubrication schedule, see page 166.
- Charge the battery, see page 45.
- Disconnect the battery, clean it and grease the terminals.

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

5.2 Action to be taken during decommissioning

NOTE

Full discharge can damage the battery

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

▶ Charge the battery at least every 2 months.

→ Charge the battery, see page 45.

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