Under Pallet Carrier Lagersystem

09.10

Operating instructions

GB

51179477

05.18

UPC P1
UPC P2
UPC P5
UPC P6

JUNGHEINRICH

A Correct Use and Application

1 Correct use and application of the underride shuttle

1.1 General

The compact warehouse system with UPC (**U**nder **P**allet **C**arrier) - consisting of the shuttle, the truck used for transport and the channel racking - allows for effective use of the storage area.

The underride shuttle described in the present operating instructions (UPC shuttle) is designed to be used in channel racking (hereafter referred to as racking) to transport loads on pallets. Loads can be stacked, retrieved or transferred on pallets in the pallet channel of the racking. The UPC shuttle is operated by radio remote control.

The UPC shuttle must be used, operated and serviced in accordance with the present instructions. Any other type of use is beyond the scope of application and may result in damage to personnel, the UPC shuttle or property.
In particular, avoid overloading the shuttle with loads which are too heavy or placed on one side. The data plate attached to the UPC shuttle or the capacity plate on the racking is binding for the maximum load capacity.

2.1.1 Requirements for the operation of the UPC shuttle

- All references in these operating instructions are to an operator (7) located at the channel start (8) in front of the racking.
- The UPC shuttle is placed on the rails of the respective rack at the channel start (8).
  - The rear (1) of the UPCshuttle is facing towards the channel start (8).
  - The front (6) of the UPCshuttle is facing towards the channel end (12).
- The start and target position (9) of the UPC shuttle before or after each storage operation is the channel start (8).
  If the UPCshuttle is not located at the channel start (8), this is detected by sensors. These sensors check if the rail holes (5) are detected at the expected time.
  - If the sensors do not detect the rail holes (5), the UPC shuttle stops and changes over into error status.
  - The UPC shuttle must then be moved manually to the channel start (8), see page 168.
- An order is needed for the UPC shuttle to perform a storage function. The operator (7) transmits the order through the radio remote control to the UPC shuttle.

Item		Description
17	●	Stop damper (two at the front and rear of the UPC shuttle respectively)
18	●	"Pallet positioning on lifting platform" sensor at the rear of the UPC shuttle
19	●	Lifting platform
20	●	Battery (2 off)
22	●	Battery cover
24	●	"Pallet positioning on lifting platform" sensor at the front of the UPC shuttle
25	●	Side rail guidance roller (two on either side of the UPC shuttle)
26	●	Drive wheel (two on either side of the UPC shuttle)
27	●	Guide rail to deploy the UPC shuttle securely in the pallet channel
28	●	"Rail hole detection" sensor (two on either side of the UPC shuttle)
29	○	Side protection during UPC shuttle transport (two at the front and rear of the UPC shuttle respectively)
30	●	Horizontal warning lights (two at the front and rear of the UPC shuttle respectively)
31	●	Collision sensor (two at the front and rear of the UPC shuttle respectively)
32	●	Operating status display
33	●	"UPC shuttle ON" button
34	●	"UPC shuttle OFF" button
35	●	Displays battery capacity
36	●	"Pallet detection" sensor (two at the front and rear of the UPC shuttle respectively)
37	●	Service diagnostic interface
38	●	Emergency Disconnect switch (two on either side of the UPC shuttle)
39	●	Key switch and key
40	●	Chassis of UPC shuttle
41	●	Emergency Disconnect bar at rear of UPC shuttle
--	●	Vertical guide lights underneath the UPC shuttle (not illustrated)

4.9 Electrical requirements

The manufacturer certifies compliance with the requirements for the design and manufacture of electrical equipment, provided the UPC shuttle is used according to its purpose, according to:

– DIN EN 1175-1 "Industrial Truck Safety - Electrical Requirements"
– DIN EN 1526 "Industrial Truck Safety - Additional Requirements for Automated Functions on Trucks"
– DIN EN 528 "Rack Operating Equipment - Safety Requirements"

3.4 Floor tolerances

The flatness of the warehouse floor must comply as a minimum with the structural engineering tolerances indicated in DIN 18202, table 3 as well as the racking classes indicated in DIN EN 15620 in the event of deviations.
The angles and flatness tolerances are restricted to 15 mm.
A surface ready floor is assumed unless otherwise agreed or indicated.

Surface ready floors for warehouse equipment

Measuring point distance	0,1 m	1 m	4 m	10 m	15 m
Flatness tolerance	2 mm	4 mm	10 mm	12 mm	15 mm

Non surface ready floors and bare concrete floors

Measuring point distance	0,1 m	1 m	4 m	10 m	15 m
Flatness tolerance	5 mm	8 mm	12 mm	15 mm	20 mm

3.5 Special load situations

Seismic loads are local additional loads that are of importance when calculating components. The applicable standard is FEM 10.2.08.
If racking systems are assembled in areas at risk of earthquakes, the builder / operating company must demonstrate the purpose of the system to enable the necessary measures to be taken.

4 Conditions of use

The racking is designed for normal operating conditions without special written agreements. The racking must only be erected in completely closed rooms.

– Operation in industrial and commercial environments.
– Permissible temperature range of the racking: - 30 °C to + 40 °C.

Securing the UPC shuttle for transport

Requirements

– Load the UPC shuttle correctly onto the van, lorry or trailer, see page 57.

Tools and Material Required

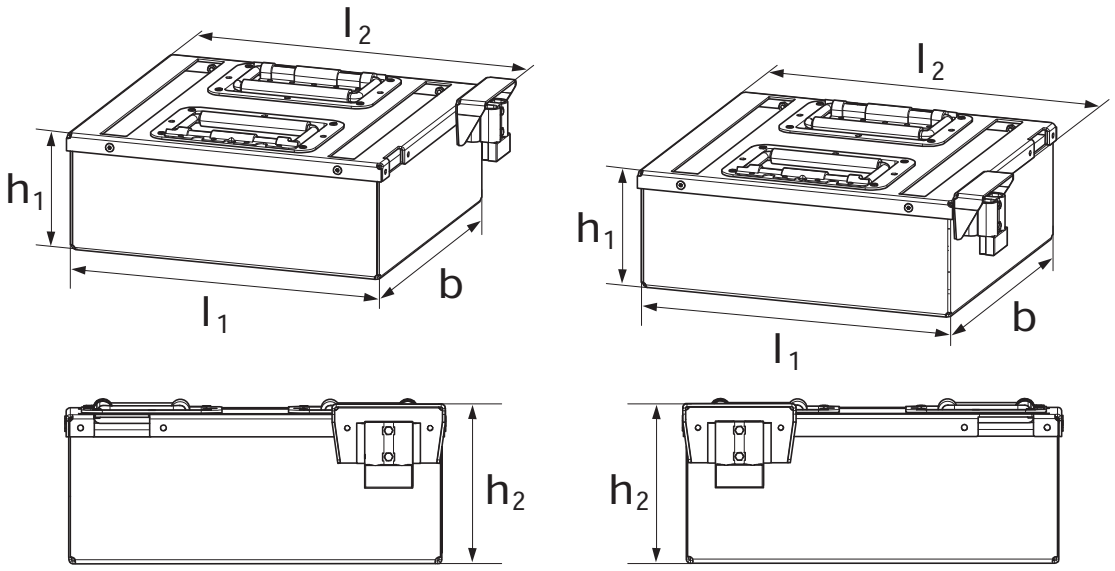
– Lashing straps

Procedure

- Route the lashing straps (91,94) over the transport pallet (89).
- Secure the lashing strap (91,94) to the lashing rings (92,93) on both sides.
- Tighten the lashing straps (91,94) with their tensioners.

The UPC shuttle is now secured for transport.

2.1.2 Battery tray dimensions



Length (l_1)	Length (l_2)	Width (b)	Height (h_1)	Height (h_2)
298 mm	330 mm	275 mm	110 mm	117 mm

Preparing the shuttle for operation after charging

Requirements

– The batteries (20) are fully charged.

Procedure

- Switch off the charger; refer to the charger's operating instructions.
- Remove the connectors (100,102) of the Y charging cable and battery connectors (99) from the batteries (20).
- Disconnect the connector (101) of the Y charging cable (105) and the connector (103) of the charging cable (104) from the charger.
- Wind the Y charging cable (105) and charging cable (104) of the charger and store them so that nobody can get caught on them.
- Check all cables and plug connections for visible signs of damage.
- To install batteries (20) in the UPC shuttle, see page 74.
- Close the battery cover (22), see page 72.

When the battery has been charged, the UPC shuttle is ready for operation.

Racking component requirements

It is essential that each system component is in good working order and suitable for the task at hand, in order to ensure smooth operation of this type of system.

To avoid damaging the stability of the rack and loads, the following requirements must be met:

- The size and type of pallets used must be suitable for the racking.
- No clearly unsuitable loads are to be stored (e. g. damaged pallets, small pallets, overloaded pallets, unsuitable containers).
- Euro and industrial pallets must comply with DIN EN 13698-1/2 and VCI/APME.
- Chemical pallets (CP3,CP8,CP9) must comply with VCI/APME.
- The maximum permissible sag of the Euro and industrial pallets used for storage must not exceed 25 mm.
- The maximum permissible sag of the chemical pallets used for storage (CP3,CP8,CP9) must not exceed 20 mm.
- The pallet runners must not be broken, cracked or partly missing.
- No nails must protrude from the pallets.
- The pallets must be dust-free and not damp.
- The goods on the pallets must be adequately secured.
- Stretch wrap must not hang down or be caught around the runners.
- The fork tips of the truck used for transporting must not extend beyond the picked-up pallet. However, the fork tips must reach below the rear crossboard.
- The fork spread of the truck used for transporting must be set to match the picked-up pallet.
- The racking must be equipped with secured, level travel rails with sufficient capacity.
- Make sure there are no obstacles or shrink wrap along the travel area of the UPC shuttle.
- The safety equipment (mechanical end stops, travel rails and rail holes) must be in good working order.

Item	Control / Display		Function
28	"Rail hole detection" sensor	●	– Determines the position of the UPC shuttle in the pallet channel. – Speed reduction of the UPC shuttle at the start or end of the channel: • When travelling towards the channel end: Ensures that the UPC shuttle will stop reliably in front of the mechanical end stops at the channel end. • When travelling towards the channel start: Ensures that the UPC shuttle will stop reliably in front of the mechanical end stops at the channel start.
30	Horizontal warning indicators	●	– Warning indicators permanently on: • The UPC shuttle is operational. • The UPC shuttle is not performing travel or lifting operations. • Warning indicators show the current position of the UPC shuttle in the pallet channel. – Warning indicators flash (frequency = 2 Hz): • The UPC shuttle is operational. • The UPC shuttle is performing travel and/or lifting operations. • Warning indicators show the current position of the UPC shuttle in the pallet channel. – Warning indicators go off briefly and then on again: • The UPC shuttle is operational. • The UPC shuttle has received an order from the radio remote control.
31	Collision sensor	●	– The UPC shuttle uses this sensor to detect if there are any obstacles in the pallet channel. – For a description of the reaction of the UPC shuttle when an obstacle has been detected, see page 272.
32	"Operating status" display	●	– Displays the operating status, see page 112.

Sensors, controls and displays at the front of the UPC shuttle

Item	Control / Display		Function
112	Vertical warning indicators	●	– Warning indicators permanently on: • The UPC shuttle is operational. • The UPC shuttle is not performing travel or lifting operations. • Warning indicators show the current position of the UPC shuttle in the pallet channel. – Warning indicators flash (frequency = 2 Hz): • The UPC shuttle is operational. • The UPC shuttle is performing travel and/or lifting operations. • Warning indicators show the current position of the UPC shuttle in the pallet channel. – Warning indicators go off briefly and then on again: • The UPC shuttle is operational. • The UPC shuttle has received an order from the radio remote control.
113	Collision sensor	●	– The UPC shuttle uses this sensor to detect if there are any obstacles in the pallet channel. – For a description of the reaction of the UPC shuttle when an obstacle has been detected, see page 272.
114	"Pallet detection" sensor	●	– The UPC shuttle uses this sensor to detect the pallets stored in the pallet channel.
115	Emergency Disconnect switch	●	– Disconnects the main and control circuits. – All travel and lifting operations switch off.
116	Emergency Disconnect bar	●	– When the Emergency Disconnect bar is pressed: • All travel and lifting operations are switched off. • The main circuit is disconnected. • The control circuit is interrupted.

– "Signal strength" section (131):
  – Displays the signal strength (131) between the radio remote control and the UPC shuttle.
    The more bars are displayed, the stronger the signal.
– "Shuttle number" section (132):
  – Displays the set ID of the UPC shuttle, see page 139.
– "Battery charge status" section (133):
  This section of the display (121) shows the battery charge status (133) for the radio remote control.
  – The more bars are displayed, the higher the battery charge.
    Two bars: The battery is fully charged.
    No bars: The battery must be charged immediately.
  – Flashing bars:
    Radio remote control batteries are being charged in the docking station.

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.

The load supports (pallets) must only be stacked and retrieved crosswise in the pallet channel of the racking, see page 158.

NOTE

The maximum load is indicated on the data plate of the UPC shuttle and the capacity plate of the racking. These limits must not be exceeded. For safety reasons the minimum load that can be lifted is 200 kg.

▶Data plate of the UPC shuttle, see page 46.

▶Capacity plate of the racking, see page 54.

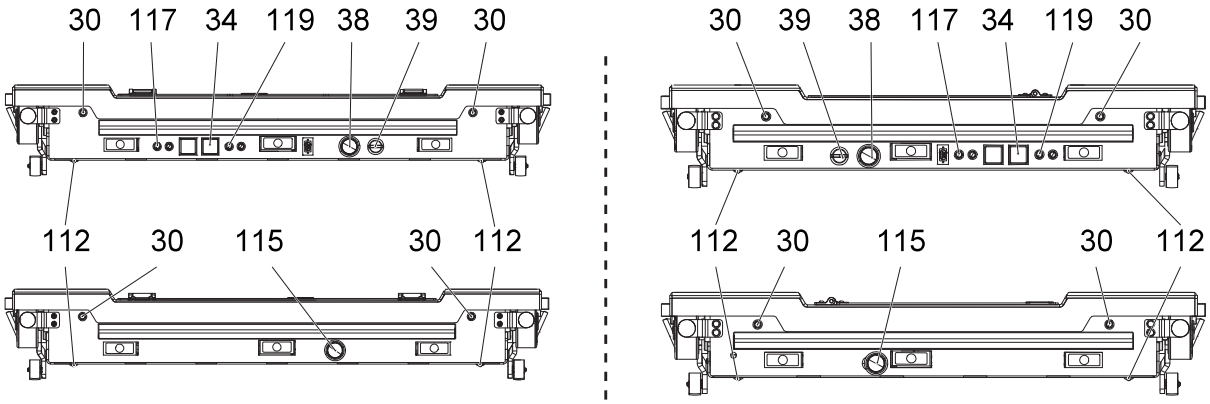
Requirements for the load supports (pallets) to be used:

– Euro and Industrial pallets to be stored must comply with DIN EN 13698-1/2 unless the order confirmation indicates otherwise.
– Chemical pallets to be stored must comply with VCI/APME unless the order confirmation indicates otherwise.
– Maximum permissible deflection in pallet centre:
  – Euro pallet / industrial pallet: 25 mm
  – Chemical pallet (CP3,CP8,CP9): 20 mm

For possible load supports (pallets) depending on the UPC shuttle versions, see page 38.

5.5 Switch off the UPC shuttle

5.5.1 Switch off the UPC shuttle with the controls on the UPC shuttle



Requirements

– The UPC shuttle is operational, see page 140.

Procedure

- Press the "UPC shuttle OFF" button (34).
  All LEDs (30,112,117,119) go out.
- Turn the key in the key switch (39) anti-clockwise as far as the stop and remove the key.
- Press the Emergency Disconnect switch (38,115).

The UPC shuttle is switched off.

NOTE

When the UPC shuttle has been switched off automatically and / or with the radio remote control with the "UPC shuttle OFF" button (34) the batteries discharge through internal consumers. To avoid battery discharge the UPC shuttle must be switched off with the key switch (39) and by pressing the Emergency Disconnect switch (38,115).

▶Switch off the UPC shuttle manually, see page 141.

⚠ WARNING!

Operating with an open battery cover can result in collision and falling

If you operate the UPC shuttle with an open battery cover, the shuttle can collide with the goods in the pallet channel. This collision can cause the goods and the UPC shuttle to fall.

▶The battery cover must be closed during operation.

NOTE

Risk of material damage on entering the pallet channel

When entering the pallet channel, the following must be observed to avoid material damage to the load, the load handler or the racking:

▶Avoid contact with the loads that have already been stored.

▶Avoid contact with the end stops of the travel rails at the start and end of the channels.

▶Avoid contact with the racking component (racking uprights, travel rails, rack bearing rails, etc.).

⚠ WARNING!

Unevenly distributed loads in the racking can be hazardous

The racks are structurally designed for evenly distributed loads. Point loads are not taken into account and require special structural dimensioning. They are not permitted!

▶The load must be evenly distributed throughout the rack.

In addition, local regulations and guidelines governing racking system proprietors must be observed.

Requirements

– The UPC shuttle is operational, see page 140.
– The UPC shuttle is being used in the pallet channel, see page 152.
– The radio remote control is switched on, see page 138.
– The UPC shuttle is connected to the radio remote control, see page 139.
– "Manual operation of the UPC shuttle" submenu has been selected, see page 168.

Procedure

- Reverse the UPC shuttle towards the start of the channel:
  - Press the "Retrieval" button (122).

  The UPC shuttle travels at reduced speed (manual speed) towards the channel start while the "Retrieval" (122) is pressed.

- Move the UPC shuttle forward towards the end of the channel:
  - Press the "Storage" button (123).

  The UPC shuttle travels at reduced speed (manual speed) towards the channel end while the "Storage" (123) is pressed.

The travel movement of the UPC shuttle is displayed as follows:

- The vertical warning indicators flash at a frequency of 2 Hz.
- The horizontal warning indicators flash at a frequency of 2 Hz.
- The red LED for the operational status flashes at a frequency of 2 Hz.

- Final tasks:
  - Park the UPC shuttle at the first pallet location at the channel start.
  - Fully lower the lifting platform, see page 172.
  - Exit the "Manual operation of the UPC shuttle" submenu, see page 169.

Step 1: Transmit the "LIFO retrieval of the complete pallet channel" to the UPC shuttle

Procedure

- Specify "LIFO" storage function:
  - Press the "FIFO / LIFO" button(124) until the "LIFO" storage function(147) is shown in the display (121) of the radio remote control.
- Press the "Retrieval" button (122) for at least 3 seconds.

  An audible signal sounds. In the display (121) of the radio remote control "OK" (148) appears for 3 seconds. The horizontal and vertical warning indicators go out for a short period of time.

Step 4: Final run to channel start

Procedure

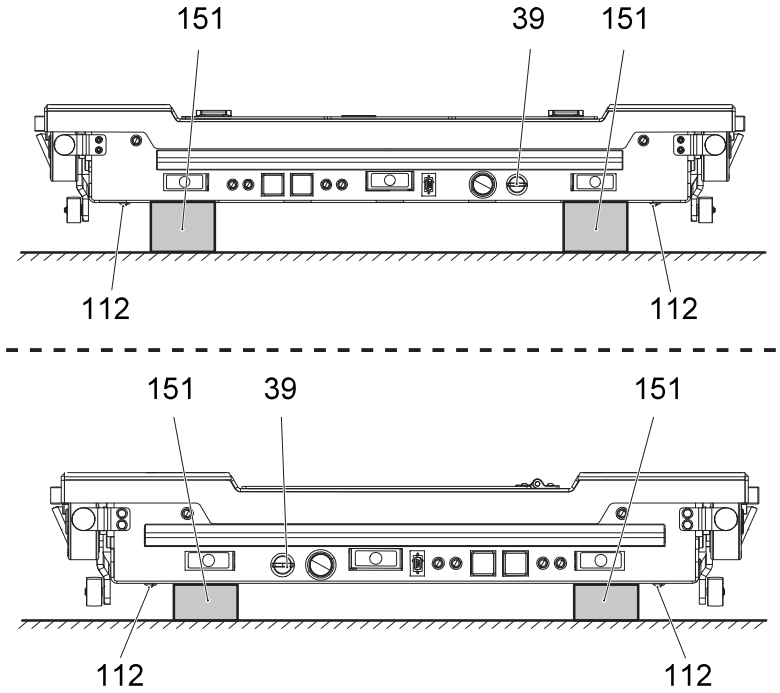
- The UPC shuttle accelerates and moves towards the start of the channel.

➔ The sensors of the UPC shuttle detect the first pallet location and the channel start. This ensures that the UPC shuttle will stop reliably in front of the mechanical end stops at the channel start.

- Before reaching the first pallet location, the UPC shuttle reduces speed.
- When the first pallet location is reached, the UPC shuttle stops.

The UPC shuttle is back at the start of the channel. In the display (121) of the radio remote control "READY" appears for 3 seconds. A new order can be transmitted to the UPC shuttle.

5.17.2 Parking the UPC shuttle outside the rack



Requirements

– Two hard wooden blocks with identical dimensions.

Procedure

- Remove the UPC shuttle from the pallet channel, see page 156.

NOTE

Material damage when setting down

When setting down the UPC shuttles on the hard wooden blocks (151), pay attention to the following:

▶ Do not set the UPC shuttle down on the vertical warning indicators (112).

▶ The UPC shuttle must be located entirely on the hard wooden blocks (151).

▶ Ensure that the UPC shuttle cannot slide or tip over.

- Set the UPC shuttle down on hard wooden blocks (151).
- Switch off the UPC shuttle, see page 141.
- Remove the key from the key switch (39).

The UPC shuttle is securely parked outside the rack.

Fault	Possible cause	Corrective measures
9757.01	– UPC shuttle does slow down at channel start or end	– Press the "STOP" button on the radio remote control. – Manually move the UPC shuttle to the channel start (see page 170). – Transmit the order again to the UPC shuttle.
9758.01	– Incorrect evaluation of rail holes in the travel rails (unexpected rail holes detected)	– Press the "STOP" button on the radio remote control. – Manually move the UPC shuttle to the channel start (see page 170). – Clean lens of "rail hole" sensors (see page 295). – Check the travel rails in the pallet channels you intend to use for faults (e.g. number of rail holes, contaminated rail holes, etc.) and rectify the faults if necessary. – Transmit the order again to the UPC shuttle.

6.2.3 Checks and operations to be performed before starting the recovery vehicle

⚠ WARNING!

Damage and other defects to the recovery vehicle can result in accidents

If damage or other defects are discovered on the recovery vehicle, it must not be used until it has been repaired.

▶ Report any defects immediately to your supervisor.

▶ Tag out and decommission a faulty recovery vehicle.

▶ Only return the recovery vehicle to service when you have identified and rectified the fault.

Overview of recovery vehicle wheels

Procedure

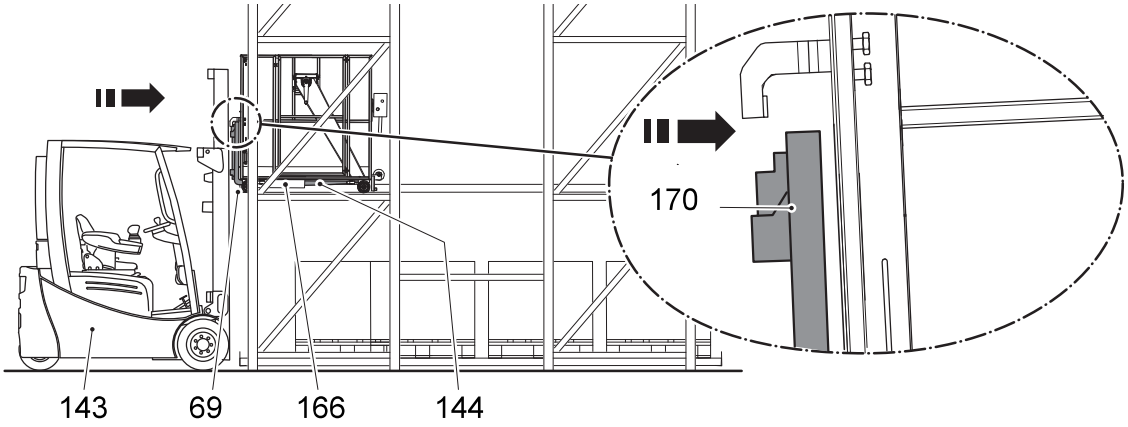
- Check the drive wheels run evenly and check for wear and damage.
- Check the running wheels run evenly and check for wear and damage.
- Check the rail guidance rollers run evenly and check for wear and damage.

Visually inspect the whole of the recovery vehicle exterior for damage (such as cracks, wear, deformation etc.).

Procedure

- Check the operator platform of the recovery vehicle for damage.
- Check the chassis of the recovery vehicle for damage.
- Check the fork shoes underneath the recovery vehicle are present and check for damage.
- Check the mechanical lock of the recovery vehicle is present, test it and check for damage.
- Check the guide of the mechanical lock of the recovery vehicle is present, test it and check for damage.
- Check the height-adjustable back wall of the recovery vehicle is present, test it and check for damage.
- Check the protective windows are present and not damaged.
- Check the "drive" crank of the recovery vehicle for damage and test it.
- Check the crank of the recovery vehicle rope winch for damage.
- Test the rope winch and check for damage.
- Check the recovery rope and eye hooks of the recovery vehicle for damage.
- Check the pulley of the recovery vehicle for damage.
- Check the door of the recovery vehicle for damage.
- Check the door lock of the recovery vehicle for damage.
- Check labels are legible and complete.

- Release the lever (173) and engage the crank (158).



Lifting the recovery vehicle in the pallet channel with a lift truck

Requirements

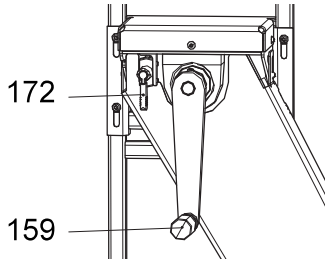
– The rear of the recovery vehicle is located at the start or end of the channel.

Procedure

- Position the lift truck (143) in front of the rack so that it is aligned centrally with the pallet channel.
- Set the mast of the industrial truck (143) upright.
- Raise the load handler of the truck (143) until the forks (144) are able to enter the fork shoes (166) unhindered.
- Drive the truck (143) forward slowly and bring the forks (144) into the fork shoes (166) of the recovery vehicle.
- Continue driving the truck (143) forward until the recovery vehicle is touching the fork carriage (170).

Manually retrieving pallets in front of a faulty UPC shuttle

Procedure



- Move the recovery vehicle forward in the pallet channel up to the height of the faultyUPC shuttle:
  - Release the bolt (172) securing the "Drive" crank (159).
  - Turn the "Drive" (159) crank clockwise.
- Secure the "Drive" crank (159) with the bolt (172) to prevent accidental movement.
- Insert the second UPC shuttle in the pallet channel of the faulty UPC shuttle, see page 152.
- Retrieve pallets in this pallet channel **manually** from the recovery vehicle with the second UPC shuttle up to the height of the faulty UPC shuttle, see page 168.

NOTE

When retrieving pallets manually, make sure that the second UPC shuttle does not strike the faulty UPC shuttle. If they come into contact both UPC shuttles are switched off by the Emergency Disconnect connecting strips.

The path to the faulty UPC shuttle is clear.

- Remove the second UPC shuttle from the pallet channel, see page 156.
- Reverse the recovery vehicle up to the mechanical end stops (69) of the pallet channel:
  - Release the bolt (172) securing the "Drive" crank (159).
  - Turn the "Drive" crank (159) anti-clockwise.
- Secure the "Drive" crank (159) with the bolt (172) at the mechanical end stops (69) to prevent accidental movement.

- Slowly reverse the truck until the entire load handler is in front of the support frame.
- Lower the load handler of the truck until it is clear of the ground.

The UPC shuttle has been removed from the support frame.

7.2.4 Compact at channel start (○)

"Compact at channel start" storage function

Using the "Compact at channel start" storage function, the pallets in the pallet channel are transferred so that after the second pallet location the pallets are placed one behind the other at the channel start.

➔ The first pallet location is not occupied, meaning that the UPC shuttle can be removed from the pallet channel again when the order is complete, see page 156.

Requirements

- The UPC shuttle is operational, see page 140.
- The UPC shuttle is in the pallet channel and is positioned at the first pallet location, see page 152.
- The radio remote control is switched on, see page 138.
- The UPC shuttle is connected to the radio remote control, see page 139.
- The first pallet location at the channel start is not occupied.

➔ The sensors of the UPC shuttle detect the last pallet location as well as the channel end. This ensures that the UPC shuttle will stop reliably in front of the mechanical end stops at the channel end.

- When the last pallet location is reached, the UPC shuttle stops.
- The UPC shuttle then accelerates and moves towards the start of the channel.

➔ The sensors of the UPC shuttle detect the first pallet location and the channel start. This ensures that the UPC shuttle will stop reliably in front of the mechanical end stops at the channel start.

- Before reaching the first pallet location, the UPC shuttle reduces speed.
- When the first pallet location is reached, the UPC shuttle stops.
- The number (179) of pallets counted in the pallet channel is shown in the display (121) of the radio remote control.

➔ In the example this is 24 pallets (>> 24 <<).

- Press the "STOP" button until the symbol (178) "Count pallets" or the text "OPTION 4" appears in the display (121) of the radio remote control.

The UPC shuttle is back at the start of the channel. A new order can be transmitted to the UPC shuttle.

Quitting the "Optional storage functions" submenu

Procedure

- Press the "OPTION" button (127) until the menu (147) appears in the display (121) of the radio remote control.

The "Optional storage functions" submenu has been left.

2 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.

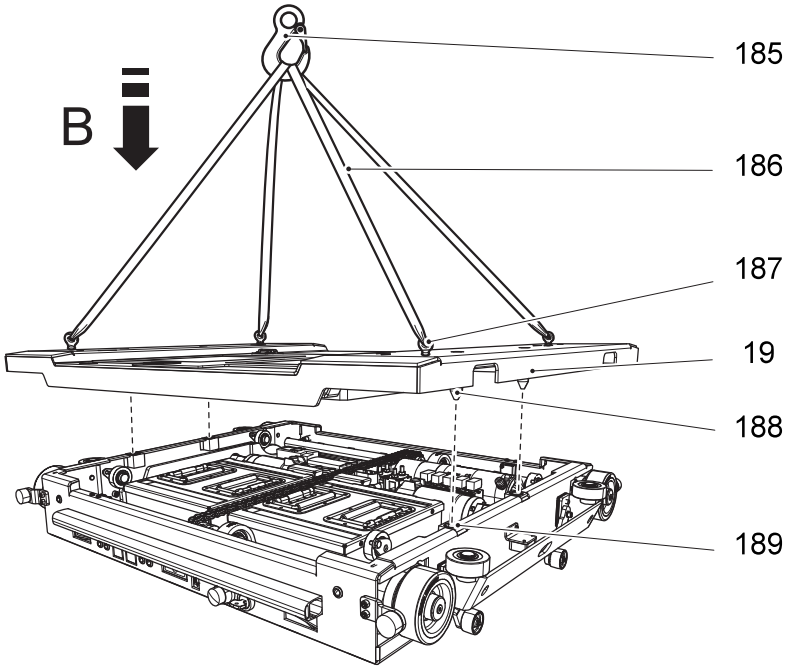
UPC shuttle maintenance and repair work and the changing of maintenance parts requiring replacement must only be carried out by specialist personnel. The activities to be carried out are divided into the following target groups.

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 288.

Customer Service

The customer service personnel have been specifically trained to work on the UPC shuttle and are able to carry out maintenance and repairs independently. The customer service personnel are aware of the relevant standards, guidelines and safety regulations necessary to carry out this work.



Installing the lifting platform

Tools and Material Required

– Four M10 eye bolts (187).
– Lifting slings (186)
  Capacity, see page 289.

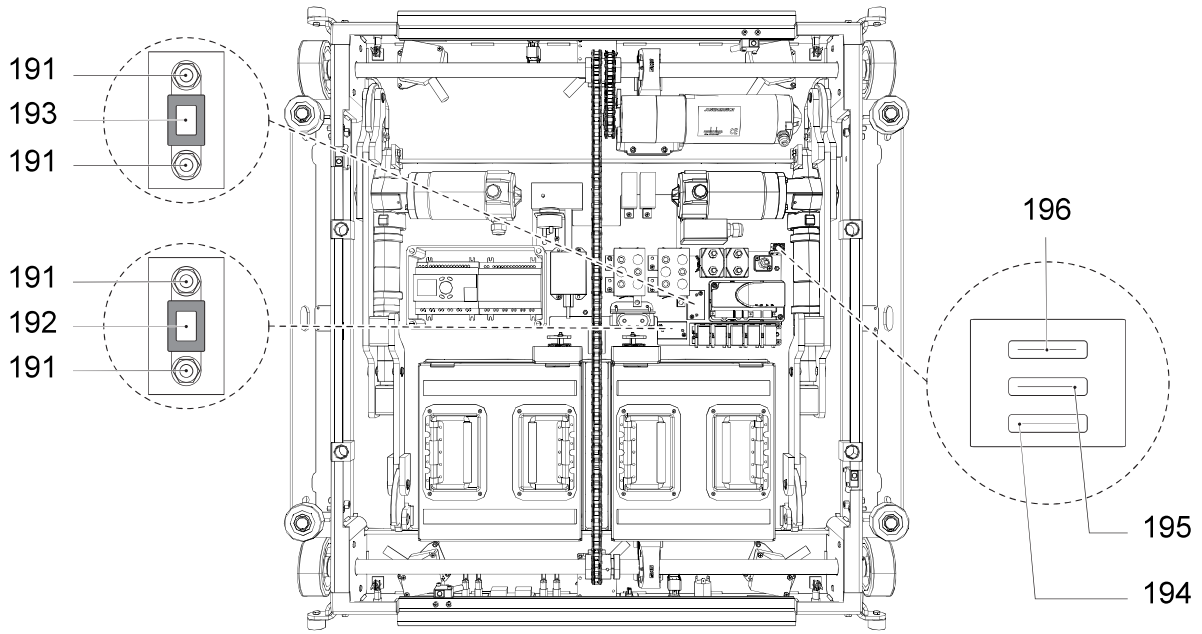
Procedure

- Insert the four eye bolts (187) fully into the lifting platform (19).
- Pull the lifting slings (186) through the eye bolts (187) and secure them to a crane / lift truck (185).
- Raise the lifting platform (19).
- Position the lifting platform (19) over the UPC shuttle.

➔ The guide bolts (188) must be located exactly above the holes (189) in the chassis of the UPC shuttle.

- Lower the lifting platform (19) slowly and carefully (see arrow direction "B").
- Remove the lifting slings (186).
- Remove the eye bolts (187) from the lifting platform (19).
- Carry out all the tasks in the section "Recommissioning the UPC shuttle after cleaning or maintenance work", see page 304.

4.5.2 Fuse Arrangement and Ratings of the UPC P2 Shuttle and UPC P5 Shuttle (Combi Shuttle)



Item		Component	Electric circuit	Rating
192	●	2F19	Lift / lower main current fuse (strip fuse)	30 A
193	●	1F1	Drive motor main current fuse (strip fuse)	80 A
194	●	F1	Overall control circuit fuse (flat type fuse)	10 A
195	●	1F9	Traction / lift electronics control fuse (flat type fuse)	10 A
196	○	F14	Cold store conditioning option: Motor controller heating control fuse (flat type fuse)	10 A
●	Indicates standard equipment			
○	Indicates optional equipment			

NOTE

Tighten the M8 nuts (191) of the main current fuses 2F19 (192) and main current fuses 1F1 (193) to a torque setting of 5 Nm.