



# Original instructions

## Reach truck

FM-4W 20  
FM-4W 25



first in intralogistics

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### Instruction Handbook

This Instruction Handbook contains information that you, as user of the truck, must be aware of in order to avoid/minimise the risk of injury/damage to yourself or the truck. You are also responsible to the company management, other people and objects in your environment. You should therefore carefully read all the way through this handbook before starting the truck for the first time.

The Instruction manual describes a truck with standard equipment, customer modifications may have been fitted.

It is not obvious that the options that are described in the Instruction Handbook are suitable for all truck models. Contact your truck supplier for information.

Our products are constantly being developed and renewed, we therefore reserve the right to make alterations without prior notice.

Thank you for choosing **UniCarriers Manufacturing Sweden AB** as your truck supplier.

#### UniCarriers Manufacturing Sweden AB

We have been manufacturing trucks since 1958. Quality, operational safety and innovation have made us a leading worldwide truck supplier.

#### UniCarriers Genuine Parts

To maintain the reliability that UniCarriers promises, insist on UniCarriers genuine replacement parts. Only UniCarriers

genuine replacement parts guarantee correct operation, long life and the right to a warranty.

#### Declaration of conformity

UniCarriers Manufacturing Sweden AB, SE-435 82 Mölnlycke, Sweden, declares under its sole responsibility that the supplied products are in compliance with the relevant safety requirements of Directives 2006/42/EC and 2004/108/EC. The risk analysis is based on ISO 3691-1. The Certificate for *Declaration of Conformity* accompanies every machine. It is important that this remains with the truck.

#### Manufactured by:

UniCarriers Manufacturing Sweden AB, Metallvägen 9, 435 82 Mölnlycke, Sweden, Telephone +46 (0) 31 98 40 00, e-mail: [info@atlet.se](mailto:info@atlet.se), Website: [www.atlet.com](http://www.atlet.com).

#### Sales and customer service via:

STILL GmbH, Berzeliusstrasse 4, 22113 Hamburg, Germany.

### Conversion table for forklift truck models

Commercial name	Model name
FM-4W 20	UFW 200
FM-4W 25	UFW 250

## Truck modification

**NOTE!**

Unauthorized truck modification is not permitted.

No modifications or alterations to a powered industrial truck, which may affect, for example, the capacity, stability or safety requirements of the truck shall be made without the prior written approval of STILL, its authorized representative, or a successor thereof. Contact an authorised STILL distributor before making any modification or alteration to your industrial truck that may affect, for example, braking, steering, visibility and the connection of separate load units. After approval has been given by STILL, its authorized representative, or a successor thereof, the plates, decals, tags and operation and maintenance handbooks stating the truck capacity shall also be changed appropriately.

Only in the event that STILL is no longer in business and there is no successor in the interest to the business, may the user perform a modification or alteration to a powered industrial truck. This applies on condition that the user:

- arranges for the modification or alteration to be designed, tested and implemented by one or more engineers who are experts in industrial trucks and their safety
- maintains a permanent record of the design, test(s) and implementation of the modification or alteration

- approves and makes appropriate changes to the capacity plate(s), decals, tags and Instruction Handbook
- affixes a permanent and readily visible label to the truck stating the manner in which the truck has been modified or altered, together with the date of the modification or alteration, and the name and address of the organization which performed the task.

### **We respect the environment**

The majority of our products consist of steel, and can be completely recycled.

#### **Environmental impact**

All products have an impact on the environment throughout their entire life cycle.

The consumption of energy when in use is one of the most important factors that influences the environment.

Through correct care, maintenance and use the consumption of energy can be reduced, thereby reducing the environmental impact.

#### **Waste**

Waste material in conjunction with repairs, maintenance, cleaning, or scrapping, must be collected and disposed of in an environment-friendly way and in accordance with the directives of respective countries.

Such work should only be carried out in areas intended for this purpose.

Recyclable material should be taken care of by specialised authorities.

Environmentally hazardous waste, such as oil filters, hydraulic oil, batteries and electronic equipment, can, if handled incorrectly, have a negative effect on the environment and human health.

## Foreman's responsibility

1. It is the responsibility of the supervisor, on behalf of the company management, to ensure that the truck is driven and used correctly.
2. The supervisor is responsible for compliance with the requirements placed on the driver, refer to *Driver requirements* page 11.
3. It is the duty of the supervisor to instruct and to ensure that driver instructions are followed.
4. The supervisor must supply, and the driver of the truck must sign for the following:
  - Instruction Handbook for STILL electric fork lift trucks
  - other necessary instruction handbooks.

The supervisor must also read and be familiar with the appropriate instruction handbooks.

The fork lift truck must be insured with at least third party insurance if this is a national authority requirement.

## Maintenance personnel



### NOTE!

The daily maintenance and certain service is to be carried out by the driver after he/she has received sufficient training in the construction and maintenance of the truck. Continuous regular servicing should be performed by an authorized servicing organization. To ensure efficient and satisfactory servicing of the truck, please contact the STILL service department or an authorized distributor. STILL can offer a service agreement for continuous maintenance.

## Conditions of use

The truck may be driven under the following conditions:

- indoors
- under a canopy, see: *Climatic conditions* page 78.
- on a flat, hard and smooth surface
- with the maximum floor loading checked and not exceeded
- normal operating temperature, refer to *Climatic conditions* page 78
- good visibility, adequate lighting and approved routes.
- use in still air. If draughts or wind are present, load handling and transportation must be adapted to suit the prevailing conditions.

**WARNING!**

A truck operating in an area where there is a risk of fire, explosion, or in any other high risk area, must be specially equipped for the purpose. Trucks are not normally equipped for these situations.

## Authorization to drive a truck

The employer must ensure that the employee has the required training and knows what must be observed in order to avoid risks while working. The employer must take into consideration an employee's suitability for the work in question. It is therefore necessary that a person engaged as a driver completes the appropriate truck driver training, both theoretical and practical, that corresponds to the work assignments the driver is expected to undertake after training. Further training may be required in the event of major changes in work assignments. The employer should give the employee written authorization to drive the truck - as well as a written outline of the extent of his/her duties.

## Driver requirements

The truck driver shall have the mental and physical capacity required for the job. The driver shall also be aware of everything that is relevant to the handling and manoeuvring of the truck, traffic regulations and any other relevant instructions. The driver shall have the permission of the supervisor to drive the type of truck in question and be specially trained for the work and the traffic conditions involved.

### The responsibilities of the driver in specific markets

The following apply in respect of the driver's responsibilities concerning the use of fork lift trucks:

- Australia: Users shall follow the requirements of AS 2359.2.
- North America: Users shall follow the requirements of the applicable part of ANSI/ITSDF B56.

## Inspection of the truck

- The driver of the truck is responsible to the supervisor, for ensuring that the truck is kept in good working order.
- Daily maintenance shall be carried out carefully before the start of each shift. See section *Maintenance of the truck* page 51.
- Any faults must be reported to the supervisor immediately.
- In order to remain in good working order, the truck shall be kept clean and properly maintained. The truck must be checked at regular intervals in accordance with the service instructions.
- Check that no safety equipment has been modified or put out of service.

For optimum performance and so as not to invalidate the warranty, use only UniCarriers genuine replacement parts!

## Explanation of machine plates

The Machine plate contains important information. Read it carefully! The permitted load shall not be exceeded.

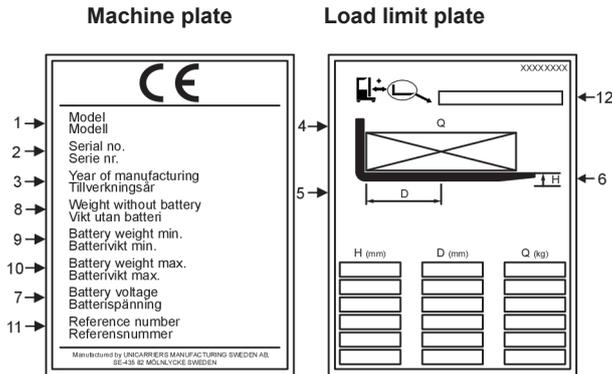


Figure 1. Machine plate and load limit plate

- |   |                               |
|---|-------------------------------|
| 1. Model designation                              | 7. Battery voltage            |
| 2. Type Serial No./Version<br>(S=Special version) | 8. Weight without battery     |
| 3. Year of manufacture                            | 9. Minimum battery weight     |
| 4. Actual capacity, Q                             | 10. Maximum battery weight    |
| 5. Load centre distance, D                        | 11. Reference number          |
| 6. Lift height for fork lift, H                   | 12. Unit designation (option) |

Total truck weight = Weight without battery + Battery weight + Load + Driver

## Location of machine plates

The machine plate is located behind the driving seat. The load limit plate is located on the overhead guard pillar, in front of the driver.

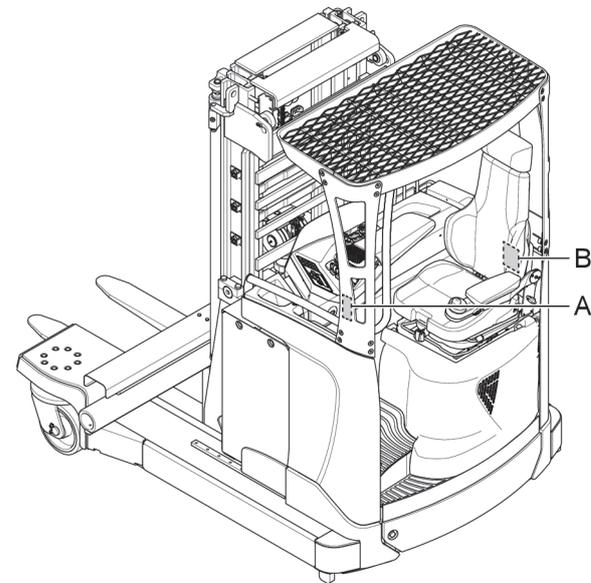


Figure 2. Location of machine plates

- A. Load limit plate                      B. Machine plate

## UFW Tergo four-way truck



UFW Tergo (U\*\* Tergo) is an electric four-way truck, specially adapted for handling long and bulky loads and different types of load carriers. Driving in four directions is possible due to load wheel rotation. The truck operates both with the load carried in front of the straddle legs and with the mast retracted for minimum aisle width. The truck is used for stacking in different storage systems and for transporting load carriers.

## Driver environment

### Functions

### Controls

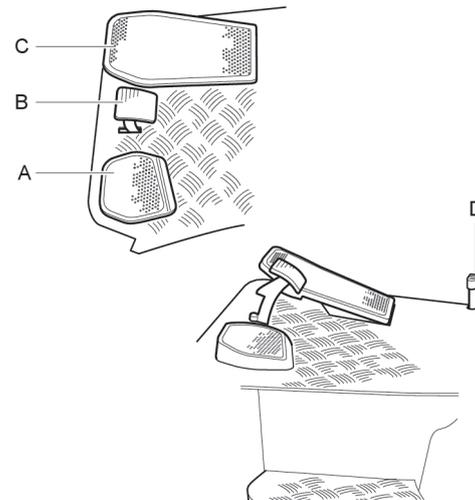


Figure 3. Foot control

- |                                       |  |
|---------------------------------------|--|
| A. Left-foot switch (safety function) | C. Speed Controller                          |
| B. Brake pedal                        | D. Battery lock for carriage-mounted battery |

## 07 DESCRIPTION OF THE TRUCK

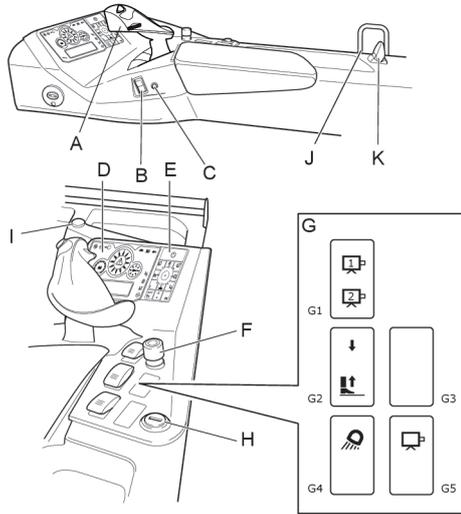


Figure 4. Controls, dashboard

- A. Ergologic joystick
- B. Hand operated driving direction selector (only in combination with hydraulic levers)
- C. Horn button (only in combination with hydraulic levers)
- D. Display
- E. Keyboard
- F. Emergency stop (safety function)
- G. Switch (see *Switches G.* page 14)
- H. Key switch (option) or button/indicator lamp to activate wire guidance (option)
- I. 12 Volt outlet (option)
- J. Handle for battery plug
- K. Lever for battery changing system (option)

Table 1. *Switches G.*

G1	Camera 1/2 (option)
G2	Floor lift/lower
G3	Options
G4	Work lighting (option)
G5	Camera on/off (option)

### Rear view camera system for sideways driving (option)

UFW four-way trucks can be equipped with a rear view camera system which gives the driver a better reverse view during sideways driving. The rear view camera gives increased visibility past a long load. Start the camera by pressing the switch (item G5), and then switch on the monitor by pressing the button.

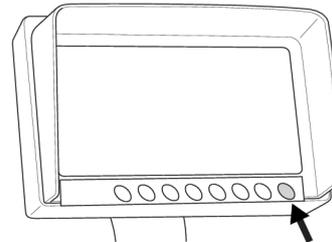


Figure 5. Rear view camera monitor

### Hydraulic functions

To use any of the hydraulic functions, the driver must be sitting in the driver's seat, so that the seat switch (safety function) is activated.

### Ergologic joystick

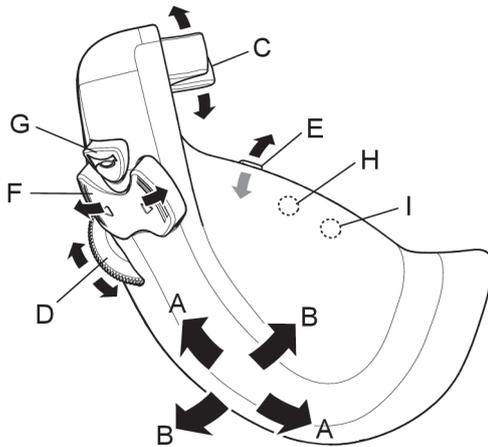


Figure 6. Ergologic joystick

Table 2. Control functions

Four-way trucks			
Control s	Functionality		Movements
A	Forks	lower/raise	Move the complete control away from/ towards the driver
B	Mast	out/in	Move the complete control towards/ away from the mast
C	Tilt	up/down	Move the control up/down
D	Turning the steered wheel	clockwise/ counterclockwise	Move the control away from/ towards the driver
E	Fork spreading	together/apart	Move the control up/down
F	Direction control switch	forwards/ backwards	Press the button to obtain the desired driving direction
G	Horn		Press the button

Four-way trucks		
Control s	Functionality	Movements
H	Simultaneous turning of the drive and steered wheels	Press the button and move control D away from/ towards the driver
I	Options	Options

### Hydraulic levers (option)

Lever 1 is located closest to the operator.

### Four-way trucks

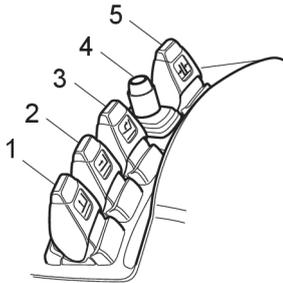


Figure 7. Hydraulic levers, four-way truck

Table 3. Lever-operated four-way truck

Lever	Away from the truck driver	Towards the truck driver
1	Lower	Lift
2	Mast out	Mast in
3	Tilt down	Tilt up
4*	Steered wheel assembly counterclockwise	Steered wheel assembly clockwise
5	Forks apart	Forks together

\* Holding down the button located above the lever positions the drive wheel in the same direction as the steered wheel.



#### CAUTION!

The fork spread function must not be used with any load on the forks. The forks may misalign and damage the boom. For the same reason, do not use this function when the forks are against the supports. Lift the forks up first.



#### CAUTION!

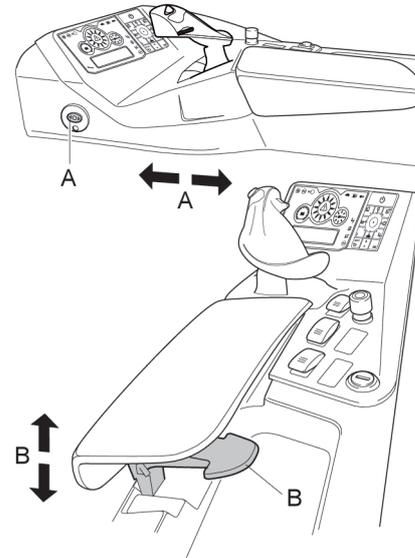
The fork spread function is not intended to be used to clamp a load between the forks.

**NOTE!**

If the truck is equipped with the wider fork spreading unit, it projects 213 mm out on each side of the truck.

**Settings****Instrument panel and arm rest**

In order to increase comfort and driver ergonomics, there are a number of adjustment options. For the operating procedures, refer also to the instructions in the pocket under the right side arm rest.

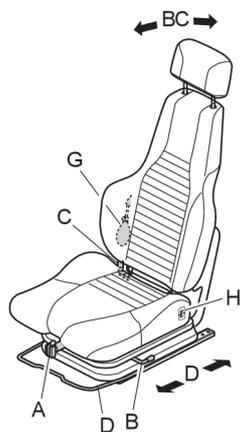


*Figure 8. Adjustment of the dashboard and arm rest*

- A. Press button A to adjust the complete dashboard forward or back.      B. Move lever B upwards to adjust the height of the arm rest.

**Driver seat**

The driving seat can be adjusted to suit the driver's weight, size and seating posture. The adjustments can be performed as follows.



### A. Weight adjustment

Fold out the crank on the weight adjustment control A and turn it until the green marking points upwards while the driver is sitting in the seat. The springing is then set to suit the weight of the driver.

### B. Locking the backrest tilt

The backrest may be set either to its moving tilt position or its locked position. Lower lever B to its vertical position to lock the backrest tilt. The backrest can be locked in any tilt position over its whole travel.

### C. Backrest tilt

When the backrest is in its tilt position (i.e. the lever is horizontal), its tilt can be adjusted to one of three positions using lever C. Tilt the backrest back, pull out the lever and place it in the desired position. Release the backrest. For a more upright position, move the lever so that it points downwards. So that the backrest shall be angled more in the non-tilted state, move the lever so that it is horizontal.

### D. Forwards/backwards adjustment

The seat can be moved forwards or backwards by lifting the handle beneath the seat upwards and at the same time moving the seat.

### G. Lumbar support

The lumbar support is adjusted by pumping up the bladder. Release air by pressing the button on the bladder.

### H. Seat heating (option)

Seat heating is switched on and regulated by rolling the wheel, located to the left of the seat cushion, up or down.

### Neck support (optional for)

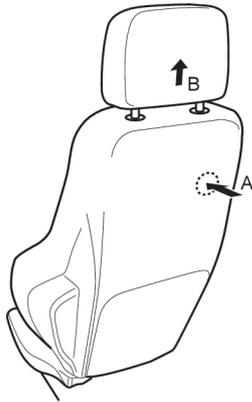


Figure 9. Adjusting the head rest

The neck support B can be adjusted up or down in steps. To remove the neck support from the seat backrest, press in latch A at the rear of the seat back while at the same time pulling up the neck support. To find the latch, follow the neck support strut down along the seat back.

### Mini-wheel

If the truck is equipped with a mini steering wheel, place the entire palm of your left hand upon the small knob on the mini steering wheel, supporting your arm on the armrest. The armrest is adjusted in accordance with the movements you make. In order to facilitate getting in and out, the armrest can be lifted up.

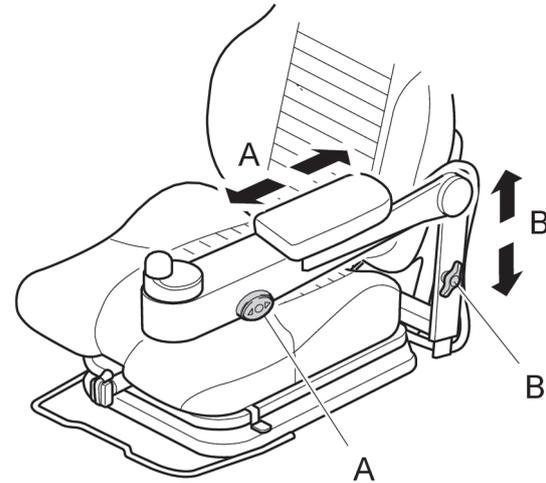


Figure 10. Mini steering wheel, armrest adjustment

### A. Adjusting the armrest forwards and backwards

The armrest can be adjusted forwards and backwards by pressing button A and moving the armrest to the desired position.

### A. Adjusting the armrest height

The height of the armrest can be adjusted by releasing the knob B and moving the armrest to the desired position. The armrest is locked into position by tightening the knob.

### Midi-wheel (option)

The midi-wheel can be adjusted in three directions, height, horizontally and turning. All these adjustments are made by releasing the knob (A).

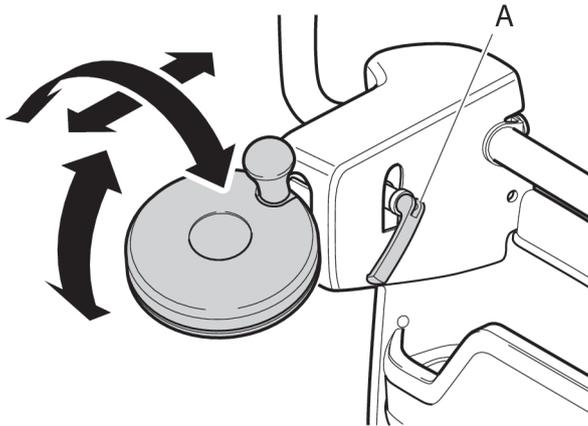


Figure 11. Adjusting the midi-wheel

### Stability Support System, S3-1

S3 alternative 1 (S3-1) is an electronic auxiliary and monitoring system that improves stability and safety when loading and driving.

Trucks fitted with the S3-1 system have the maximum speed for driving reduced and certain hydraulic functions limited,

depending on the height of the forks above the floor, the position of the reach carriage, and in cases where the drive wheel is turned more than 3 degrees in either direction. If the truck is started with the forks raised or the reach carriage extended, an instruction is given on the truck computer display to lower the forks or to retract the reach carriage. If this is not done, the truck speed is limited. The speed of operation with the second and third control levers is also reduced when the forks are raised.



#### NOTE!

When a four-way truck is moving sideways, S3-1 does not limit the speed during a turn.

### Reducing the risk of tipping sideways

A. When the driver increases speed too quickly or is driving too fast in combination with sharp turns there is a risk of tipping. The S3-1 system “thinks ahead” and can immediately compensate by reducing speed and acceleration.

B. The speed is also reduced when the forks are raised and the mast pushed out.

### Improved control at top speeds

Since the truck is more difficult to steer in the direction of the forks at high speed, the speed is reduced in this situation.

### Reducing the risk of tipping over

Tipping forces are generated when loads are handled at high heights and when the mast is pushed out and tilted, especially in combination with the truck moving over the floor. In this

situation, the S3-1 system immediately takes action by giving new instructions to the control system for operation of the mast.

- At high load heights, S3-1 limits the number of operations that can be done at the same time. The speed of the operations is also limited to further enable precise and safe handling.
- Simultaneous lever functions are permitted at low and medium load heights, but even here the system guarantees minimum abruptness and prevents undesirable movements.

## Stability Support System, S3-2

S3 alternative 2 (S3-2) is comprised of the sub-systems S3-2 speed and S3-2 weight.

### S3-2 speed

The S3-2 is a system that measures the load weight during and/or directly after lifting the forks, in order to obtain the optimal braking effect and/or to permit higher speed for low load weights. S3-2 permits higher performance than S3-1.

### S3-2 weight

The S3-2 is a system that measures the load weight during and/or directly after lifting the forks, in order to indicate the weight to the operator, to allow for comparison with the truck's load limits.

The load weight is rounded off to the nearest 100 kg.



#### NOTE!

The result of the weight measurement during lifting can be affected if the oil temperature of the truck is different from the oil temperature during weight calibration.

## Weight indication

### Introduction



#### NOTE!

This system does not meet the legal requirements in order to be valid as a scale.

If the weight indicator is activated, a load weight measurement will start automatically after each time the load is lowered and stop under the transport position switch.



#### NOTE!

Note that this occurs regardless of whether the operator has requested measurement or not.

The operator can decide if the load weight is shown on the display by pressing the button according *Current load weight* page 42. If no valid measurement reading is found at the time of the measurement, the truck's computer will ask the operator whether the forks are to be moved in order to get a reading – this result will be shown on the display.

The load weight reading is rounded off to the nearest 10 kg/lb. The minimum load weight is 100 kg/220 lb.

### Premises and requirements

A measurement can only be taken when the forks have been lowered and stopped between the transport position switch and floor level. The forks must be stationary for approx. 2 seconds.

It is important that the entire load is borne by the forks and does not, for example, rest on the floor or other objects – otherwise the reading will be incorrect.

For best accuracy, the forks must be stopped quickly after lowering, at a relatively rapid speed. Ensure that the load is secure on the forks when doing this.

The minimum load weight is 100 kg.



#### **NOTE!**

The result of the weight measurement during lifting can be affected if the oil temperature of the truck is different from the oil temperature during weight calibration.

### Accuracy, weight indication

The system's weight indication has a nominal accuracy of +/- 50 kg. The measurement reading can however differ more than this if the forks are lowered slowly.

### Functions

The weight indicator system is comprised of a number of functions. For specification and use of the various functions, see *Weight indication* page 42

### Dynamic Curve Control (DCC)

Dynamic Curve Control (DCC) is an electronic auxiliary system which reduces the risk of tipping accidents. When the driver increases speed too quickly, or is driving too fast, in combination with sharp turns, the system compensates by reducing the speed and acceleration.

Trucks which are equipped with S3 (see *Stability Support System, S3-1* page 20) have Dynamic Curve Control built in.

### Active Spin Reduction, ASR (option)

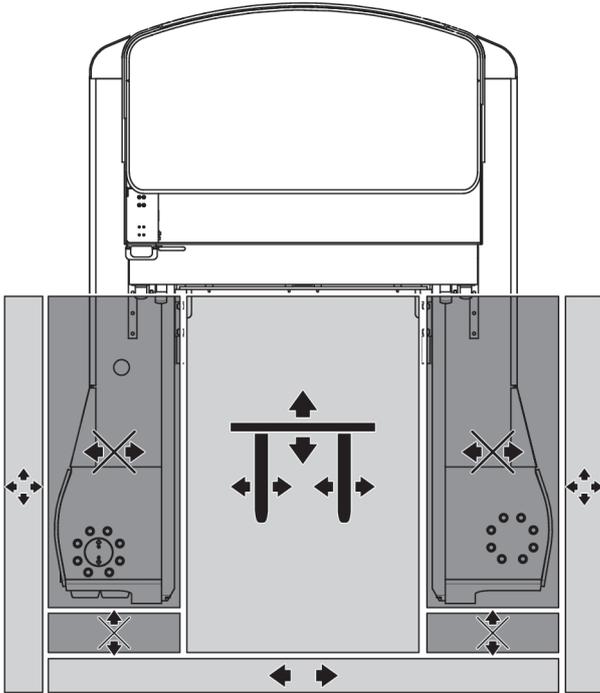
If the truck drive wheel slips on the floor surface a warning lamp flashes in the middle of the display and the speed is reduced to a crawl. After 2 seconds, if grip is regained, the truck gradually accelerates to normal speed.



#### **NOTE!**

ASR does not operate in the case of a four-way truck travelling sideways.

## Fork Safe Zone System (option)



Fork Safe Zone System is an electronic auxiliary system which stops the forks before they come into contact with the truck's straddle legs. This minimises damage to the forks/fork carriage.

The system is active when the forks are in transport mode (under 0.5 m).

When the system prevents a fork movement, the symbol  flashes on the truck display. To override the system and continue a fork movement, depress button 5 on the truck keypad.

## Cab (option)

For the comfort of the driver, trucks used under canopies can be equipped with a cab.

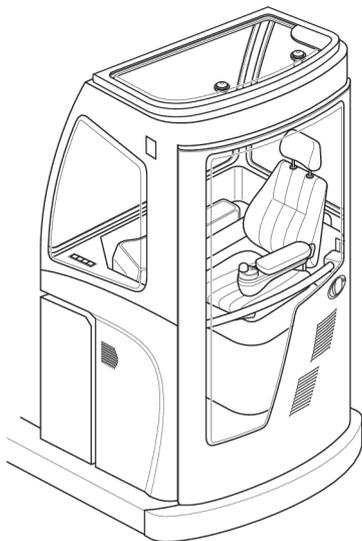


Figure 12. Cabin

### Cover

The roof hatch can be opened from both the inside and the outside and is used as an emergency exit. The hatch can be opened slightly and then completely unhooked.

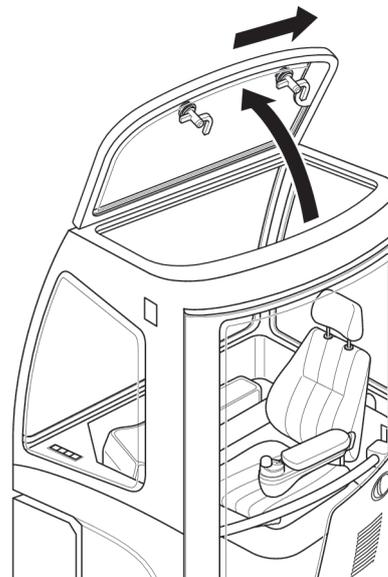


Figure 13. Cover



### CAUTION!

The roof hatch may only be used as an emergency exit.

### Heating element

The truck is equipped with one or two heaters and adjustable vents which distribute the hot air inside the cab and to the

windows. The distribution of air outside and inside the cab can be adjusted by means of a control on the heater.

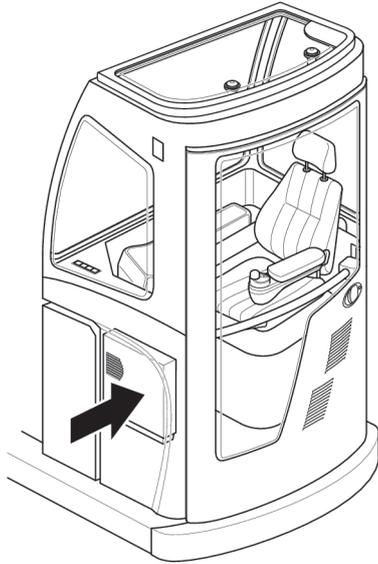


Figure 14. Heating element

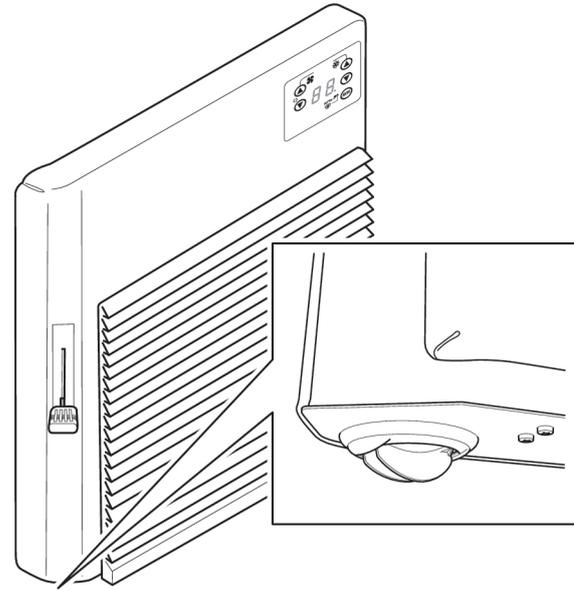


Figure 15. Heating element, flap

Beneath the heating element there is a flap which directs air to the floor level in the cab.

### Heating element functions

The heater is started in its automatic setting when the truck is started. The automatic function automatically regulates the temperature and blower speed.

## 07 DESCRIPTION OF THE TRUCK

There is a panel directly in front of the driver with a display and control buttons that control the heater.

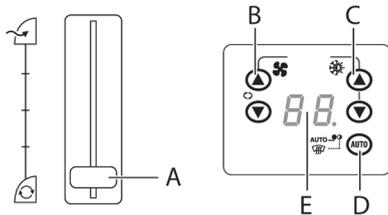
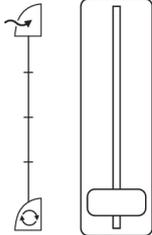
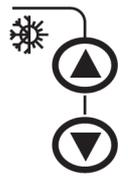


Figure 16. Heating element functions

- A. Control for distributing the air
- B. Operating buttons for fan speed
- C. Operating buttons to set the temperature
- D. ON/OFF + button for automatic or manual control
- E. Display showing the preset temperature. If the indication lamp is lit, automatic operation is activated.

	Move the control down to close the flap. The air then circulates inside the cab. Move the control up to open the flap. Air is then drawn in from outside. If the control is set somewhere in between its end positions, the cab receives a mixture of air from outside and inside.
	Press on the arrow up to increase or arrow down to decrease the blower speed. If the blower speed is adjusted while automatic operation is activated, the automatic mode is switched off.
	Press on the arrow up to increase or arrow down to decrease the temperature. LO indicates that all heating is turned off. HI indicates that full heating is turned on.
	Press the auto button to switch the heater on or off. The auto button is also used to start automatic operation (starts automatically when the truck is started).
	<b>CAUTION!</b> The cab heater must not be covered.

**WARNING!**

The cab heater's casing gets hot during operation. To avoid burns, do not touch the heater.

**WARNING!**

If there is ice or misting up on the cab that reduces visibility, the truck must not be driven.

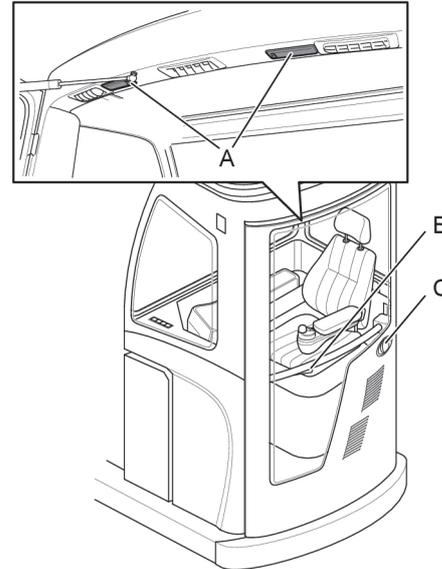
**Other functions**

Figure 17. Cab, functions

- A. Lighting
- B. Inner handle
- C. Outer handle

**Options**

The truck may be equipped with optional equipment. Among other things, there are the following possibilities:

## 07 DESCRIPTION OF THE TRUCK

Options	Descriptions
Camera system	Colour system with a fork-mounted camera and a 7 inch LCD screen
Radio/CD/MP3	
12 V DC outlet	Power supply, e.g. for a mobile telephone
48-12 V converter	5 A/60 W, located below the right armrest
key switch	The truck is started using a key instead of a pincode.
Smart Start	The truck is started using a card instead of a pincode.
Work lighting	2 lamps mounted below the overhead guard.
Accessory holder	Arm with holder for a terminal, for example
Writing desk	Adjustable writing desk suitable for A4 format, including accessory holder
Rear view camera system	Colour system with a mast-mounted camera and a 7 inch LCD display
Reversing mirror	Wide angle mirror
Fork Safe Zone System	Electronic system to protect the straddle legs from being damaged by the forks
360 degrees steering	As standard, the trucks have manually operated direction of travel selectors and 360 degrees steering.



### NOTE!

The user instructions for possible additional equipment items are supplied together with the equipment.

Information concerning options that are connected to the truck computer is in *Trucks equipped with options* page 38.

## Specifications

### Specifications

Table 4. Battery as standard

Truck model	Remaining battery capacity (V/Ah)	Weight kg
UFW 200	48 / 465-930	712-1567
UFW 250	48 / 560-930	892-1567

## Battery charging

Battery servicing should only be carried out by specially trained personnel. Batteries may, however, be charged by other personnel on the assumption that the battery plug is used to connect the battery to the charging unit. The battery is charged in accordance with the recommendation from the battery manufacturer, with a charger that is suitable for the battery. The truck is designed for use with lead-acid batteries. Only fully automatic charging units should be used.

Comply with local legislation and safety instructions when charging batteries. Areas where batteries are charged should be labelled and have good ventilation. An eye douche, washing facilities, fire extinguisher and protective glasses should be available.



### WARNING!

Always use protective glasses. Acid can cause serious burn injuries.



### WARNING!

Explosive gas is generated during charging! Smoking or a naked flame can cause an explosion!



### WARNING!

Remove all rings, bracelets, necklaces and similar items before handling batteries.

### Before charging

1. Switch off the truck.
2. Turn the handle to release the battery plug if the truck is fitted with one.



### WARNING!

Specific gravity checks should only be performed by an authorised service technician.

3. Pull the battery plug out from the truck with the aid of the battery plug handle.



### CAUTION!

Do not pull out the battery plug by pulling on its cables.

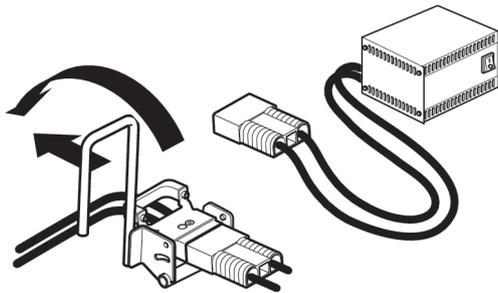


Figure 18. Battery charging

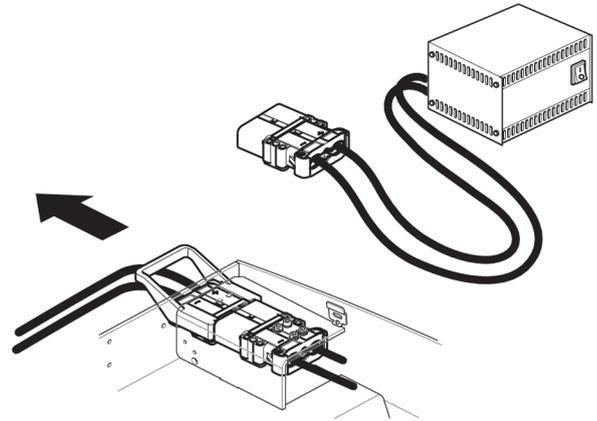


Figure 19. Battery charging (STILL-unique battery plug)

4. Check that the battery electrolyte level is not above or below the cell plates.

The battery can be damaged if the cell plates are dry during charging. The battery electrolyte may overflow during charging if its level is too high.

5. Connect the battery plug to the charger's connector.
6. Set the charging switch on the battery charger to on.
7. Check that the ammeter shows a normal indication.

### After charging

1. Check that charging is completed.
2. Set the charging switch to off.

3. Disconnect the battery charger connector.
4. Top up to the correct level with distilled water.
5. Dry off the battery to prevent leakage current and self discharging.
6. Connect the battery plug by turning the handle if the truck is fitted with one.

## Maintaining and changing the battery

### Maintaining and changing the battery

#### Battery on carrier

1. Press button 4  on the keyboard at the same time as operating the “mast in” lever.
2. Press down the foot pedal which releases the battery latch. Keep the pedal pressed down while “mast out” lever is operated.
3. Move the battery out for better access during inspection or replacement.
4. Pull out the battery plug.
5. In the case of replacement; place the battery on the charging/storage structure and lift in the new battery.
6. Fit the battery plug.
7. To move in and lock the new battery: Sit in the driving seat and only activate the “mast in” lever until the reach stops and the battery is locked.



#### CAUTION!

Ensure that the battery wiring does not get trapped or incorrectly routed while inserting the battery.

#### Battery on rollers

1. Pull out the battery plug.
2. Lift up the battery lock on the side where you want to pull the battery out, by slackening the screw and pulling the axle up to its uppermost position. Then lower the axle in the fork direction.
3. Slacken the screw for the other battery lock slightly.
4. Roll the battery out on to the charging/storage structure.
5. Roll in the new battery.
6. Fit the battery plug.
7. To push in and secure the new battery: Sit in the driving seat and operate only the “mast in” lever until the reach stops, then press button 4  on the keyboard and continue to operate the “mast in” lever until the reach stops again and the battery is at its innermost position.
8. Lift up the battery lock.
9. Lock the battery in place by tightening the screws.



#### CAUTION!

Ensure that the battery wiring does not get trapped or incorrectly routed while inserting the battery.

### Battery on motor-powered rollers

1. Position the truck.
2. Extend the mast completely and then switch off the truck.
3. Pull out the 48 V battery plug.
4. Release the battery locks on both sides.
5. Connect an external 24 V battery plug and move the battery out to the charged battery with the aid of the joystick.
6. Fit the jumper. Drive in the opposite direction until the discharged battery is completely on the opposite side. Remove the jumper.
7. Lift up the battery lock on the side where the battery **will not** enter. Drive the battery to the lock.
8. Pull out the 24 V battery plug.
9. Insert the 48 V battery plug.
10. To move in and lock the new battery: Sit in the driving seat and operate only the “mast in” lever until the reach stops, then press button 4  on the keyboard and continue to operate the “mast in” lever until the reach stops again and the battery is at its innermost position.
11. Lift up the other battery lock. Lock the battery in place by tightening the screws.



#### CAUTION!

Ensure that the battery wiring does not get trapped or incorrectly routed while inserting the battery.



#### WARNING!

take care while driving the battery out or in, as there is a risk of pinching.

### Battery servicing



#### WARNING!

Battery and battery charger servicing may only be carried out by specially trained personnel.



#### WARNING!

Avoid short circuits, which can cause explosion or fire.

## General

The truck is fitted with a truck computer. In these cases, information is transmitted to the truck via the keyboard and is displayed on a panel. The truck is not equipped with a manual start key (option) as standard, but is started and stopped by pressing the ON/OFF buttons on the keyboard. The driver will need a user ID number and a password to start the truck.

There is an optional function called Smart Card, which means that the driver has to log on with a card instead of entering a user ID number and password.

## Symbols and characters on the display

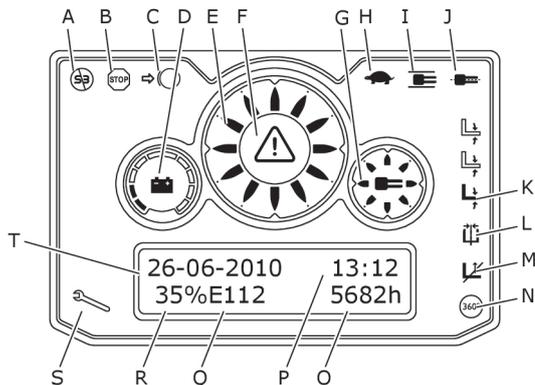


Figure 20. Symbols and characters on the display

- A. Auxiliary system S3 inactivated
- B. Drive stop
- C. Parking brake applied
- D. Battery indicator
- E. Steering wheel position and selection of direction
- F. Error. Lit when an error code is received. Flashes when ASR is activated (option)
- G. Steered wheel position
- H. Creep speed activated
- I. Truck steered by guide rails (option)
- J. Truck on guide wire (option)
- K. Tilt centred (option)
- L. Side shift centred (option)
- M. The lift stop (option)
- N. 360 degrees steering
- O. Running time in hours
- P. Time
- Q. Error code
- R. Remaining battery capacity
- S. Servicing alarm (option)
- T. Date

## Keyboard

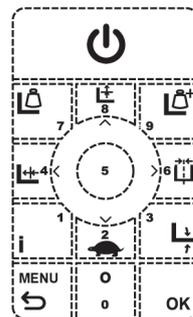


Figure 21. Keyboard

The keyboard consists of 13 keys with the following functions:

	Numeric key 0 and selection of level for picking out pallets (height preselection)
	Numeric key 1 and selection of level for depositing pallets (height preselection)
	Numeric key 2, stepping down in the menu, and creep speed on/off
	Numeric key 3 and tilt centring
	Numeric key 4 and fetch battery
	Numeric key 5
	Numeric key 6 and side shift centring

	Numeric key 7 and weight indication
	Numeric key 8, stepping up in the menu and restarting after a lift stop
	Numeric key 9 and weight indication sum
	ON/OFF - logging on and off to the truck
	Menu selection or exit menu
	OK/Enter

## Battery indicator

The truck has a battery indicator to check that the battery capacity does not fall too low. The capacity is shown in 10 segments, where all segments lit represents a fully charged battery.



Figure 22. Battery indicator

- When the last yellow segment extinguishes, (~25%), the text is shown  

Low battery

in the display. As an option, an audible signal can also be added.
- When the battery capacity reaches ~20% the lifting function is switched off, the red segment flashes and the warning triangle is lit.

In the logged off condition, the battery capacity is shown as a percentage as the battery indicator is not lit.



### NOTE!

The percentages are default values, but can be altered by authorised service personnel.

## Error messages

### Error codes

-- 14 27  
 85% E55  h

All error messages will be shown on the lower row of the display. An error message will be presented in the form of a code consisting of the letter E and a numerical code, such as 55,

and the symbol  is lit. When an E-code is displayed, the truck will enter the “failsafe mode”, meaning the truck’s functions are prevented from operating. Certain error conditions are corrected automatically, or by logging off and then back on. The error code is then extinguished.

**CAUTION!**

The error code is retained in the case of serious faults. If this occurs, contact authorised service personnel.

## Warnings

There are a number of different warnings used to catch the driver's attention in the case of, for example, an operational error. Certain of the truck's systems will also not be operable until the driver has followed the command on the display.

- The driver is instructed to lower the forks to the bottom position.
- The driver is instructed to retract the mast to its innermost position.
- The driver is asked to position the speed lever in neutral.
- The driver is asked to set all hydraulic levers to their neutral positions.
- The driver is asked to spin the steering wheel to synchronize steering.

- The driver has the left foot switch activated during start up.
- The truck's battery is not correctly secured (option).

Other warning messages are shown if, for example, a system in the truck is beginning to overheat. If the warnings do not disappear even when the driver has followed the instructions on the display, contact service technicians.

## Functions

The truck computer has a number of different functions that are available in different menus. All the menus and their functions can be reached by pressing .

**NOTE!**

Most of these functions are only available to authorised personnel.

## Change language

The truck computer can present text and information in four different languages, English, Swedish, German and French. Use the "Choose Language" function to select the language. This function is in the "Service" menu.

- 1) Press . You are now in the Service menu.

```
Service menu
```

```
0: Exit
```

- 2) Press  to step down through the menu. Press  in the submenu 1 “Choose Language”.

```
Service menu
```

```
1: Set language
```

- 3) Browse through the menu with  and .

The desired language is selected by . The following languages are available:

- 1: English
- 2: Swedish
- 3: German
- 4: French

5 and 6 may also be available.

```
Select language
```

```
0: Exit
```

- 4) When you are ready, select “0: Exit”  followed by  twice to leave the menu.

## Driver parameters



### NOTE!

All operator parameters that concern the lift hydraulics return to the factory settings if any of the system's weight indication, S3-2 speed or S3-2 weight are activated. This is to ensure that all operators can attain maximum lift and lowering speeds, which are essential for an accurate reading.

Each driver can set his/her own performance profile; under the condition that individual driver IDs are used. The performance profile is activated each time the driver starts the truck.

Enter a performance profile as follows:

- 1) With the battery plug connected, but in the “logged off” mode, press .

```
Service menu
```

```
0: Exit
```

- 2) Select “6: Driver param.” by stepping with . Press .

```
Service menu
```

```
6: Driver param
```

- 3) Enter your unique id.

User id:  
?

- 4) Enter your unique start code.

Code :  
????

- 5) Use  to scroll down in the parameters menu. Press  for parameters that are to be changed, and the numeric keys to change the value. Save the selections with .

Maximum speed  
100

Parameter	Description	Instr. range
<i>Maximum speed</i>	Maximum permitted drive speed	[20 - 100%]
<i>Acceleration dri</i>	Maximum acceleration	[0 - 100%]
<i>Reduc.brakes dri</i>	Motor braking when the speed controller is released	[0 - 100%]
<i>Reverse braking</i>	Motor braking when the direction changes	[50 - 100%]
<i>Soft Hydraulics</i>	Gentler hydraulic control	[0/1] (off/on)



### NOTE!

It is only possible to set the parameters for the normal direction. The parameters for sideways driving cannot be altered.

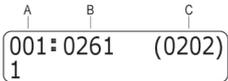
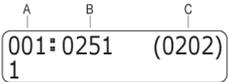
- 6) When all the parameters have been gone through, press  and  to exit the Service menu.
- 7) Log on to the truck and test drive.

## Trucks equipped with options

### Height preselection

#### Basics

The height pre-set function can be used as an aid when one often loads in and out of pallet racks with one or more height levels. By using pre-set height levels it is easy to lift the forks to an exact height that suits the pallet rack's positions. When the driver is to withdraw a pallet from the pallet rack, the forks are lifted to the selected level using the height pre-set function. When the driver is to place a pallet, the forks are lifted 10 centimetres higher than the corresponding collection level.

Placement	
	<p>A. Selected level.</p> <p>B. The selected level's height (as standard 10 cm higher than when withdrawal is selected)</p> <p>C. The actual height of the forks.</p>
Withdrawal	
	<p>A. Selected level.</p> <p>B. The height of the selected level.</p> <p>C. The actual height of the forks.</p>

### Operation

- 1) To select withdrawal, press  or for depositing press "I".
- 2) The display reads "Select level". Press the number for the required level.

```
Select level:
1
```

- 3) Operate the lifting control until the forks stop. The display shows the current lift height. Now let the control return to the neutral position. The forks first go past the selected level and are then lowered to the correct level.

Interrupting the lift and then continuing is possible without losing the selection.

```
001:0261 (0202)
```

```
1
```

- 4) When the control is in the neutral position and the level is reached the display shows "Level reached!!".

```
001:0261 (0260)
```

```
Level reached!!
```

### Error messages

- ```
Bad level!!
100% 305h
```

If the forks are above the selected level (or a level that has not been preset) the error message "Incorrect level!" is shown and the selection is not approved.

- ```
Sys. not zeroed!
100% 305h
```

If the forks have not activated the resetting sensor after logging on, the display shows "Syst. not reset" and the height preset cannot be activated. Lower the forks to the floor.

### Cancel

- 1) To cancel/reset a selection, move the lifting lever to lowering for a moment. The display shows "Level CANCELLED".

```
001:0261 (0202)
Level CANCELLED
```

## Ex.1: Retrieving a load

The driver shall collect a load on level 3.

- 1) The driver presses  for the collection level.
- 2) To select height level 3, the driver presses  + .

```
Select Level:
3
```

- 3) When the driver pulls the lift control, the display shows the selected level, and the height of the selected level. The current height of the forks is also shown.

```
003:0300 (0200)
3
```

- 4) The driver actuates the lift control until the forks stop and the display shows that the desired level has been reached.

```
003:0300 (0299)
Level reached !!
```

## Ex.2: Just logged on

The driver has just logged on, the forks are above the resetting level and the driver shall deposit the load on level 5.

- 1) The display shows "Lower to floor!"
- 2) The driver presses "I" for depositing. The display shows "Syst. not reset" for one second and then returns to "Lower to floor!".

```
Sys. not zeroed!
100% 305h
```

```
Lower to floor!
100% 305h
```

- 3) The driver lowers the forks to the resetting level. "Lower to floor!" is removed from the display.
- 4) The driver presses "I" again for depositing, and then  and .

When the driver pulls the lift control, the display shows the selected level, and the height of the selected level. The current height of the forks is also shown.

```
Select level:
5
```

```
005:0360 (0202)
5
```

- 5) The driver actuates the lift control until the forks stop and the display shows that the desired level has been reached.

```
005: 0360 ( 0359)
Level reached!!
```

### Ex.3: Placing the load

The forks are on level 2 Depositing and driver needs to place the pallet in the pallet rack.

- 1) The forks are at level 2 Placement.

```
002: 0290 ( 0289)
100% 305h
```

- 2) The driver presses  for collection.
- 3) The driver presses  when the level is correct.

```
Select level:
2
```

- 4) 

```
002: 0280 ( 0279)
Level reached!!
```

The forks are now lowered automatically to the collection level if the difference in height is less than 60 cm. Otherwise, "Incorrect level!" is shown.

### Level Assistance System, LAS

LAS is a positioning system that helps the driver to find the correct level for the forks. If the driver reduces the lift lever

movement to less than approx. 80% of the maximum speed, the forks will automatically stop rising at the next pre-programmed level. When the truck reaches this state there are two short

audible signals and the symbol  flashes on the display. If the driver increases the lift lever movement to more than 80% of the maximum speed, the forks will rise beyond the next pre-programmed level. The system is only active in the main stroke of the mast.

The bottom row on the display also shows the next level, with its height and the height of the forks in centimetres.

```
001: 0460 ( 0355)
```

The levels can be set by authorised service personnel.

### Tilt centring

The tilt centring function can only be used when the truck is logged onto.

- 1) The forks are adjusted to the horizontal position when button  is held pressed in.

The symbol  is shown on the display when the forks are in their horizontal position.

### Side-shift centring

The side-shift centring function can only be used while the operator is logged on to the truck.

- 1) The forks are centred to the middle when button  is held pressed in.

The symbol  is shown on the display when the forks are in their middle position.

### Lifting stop

If the truck is equipped with a lift stop, the lift movements will be stopped at a pre-set height and the symbol  is shown on the display. If the truck is also equipped with restart, the lift function can be restarted if the button  is pressed.

### Weight indication

#### Current load weight

The operator can press the button  on the button panel during normal operations to see the current load weight. The result, rounded off to the nearest 10 kg/lb, will be shown on the display for 5 seconds. If a weight reading cannot be shown within 4 seconds, a "timeout" message will be shown instead.

If the alternative "*Feet inch height*" is activated, the weight is shown in pounds (lb) and otherwise in kilograms (kg).

Example: Weight in kg

780 kg

### Use the function accumulated total weight, Weight indication

The operator can add the current load weight to an accumulated total of the load weight and view the total result in the display. This is done by pressing the button  briefly (less than 1.5 seconds) under normal operation.

The total, rounded to the nearest 10 kg/lb, will be shown on the display for 5 seconds. If a weight reading cannot be shown within four seconds, a "timeout" message will be shown instead.



#### NOTE!

Note that even if the total is rounded to the nearest 10 kg/lb when this is shown on the display, each individual load weight will be added to the total without being rounded.

In order to be able to differentiate from the measurement of the current load weight, a symbol "+=" is added before the total. The plus symbol represents the effect of adding the current weight, whilst the equals symbol shows that it is a total that is shown.

The total shown can vary between 0 kg/lb and 99,999,999 kg/lb.

Example: Weight in kg

+= 1230 kg

### Shows the accumulated total weight, Weight indication

The operator can see the accumulated load weight total by pressing and holding down the button  for longer than 1.5 seconds during normal operation. The total, rounded to the nearest 10 kg/lb, will be shown on the display for 5 seconds.

In order to be able to differentiate from the display of the current load weight, a symbol "=" is added before the total. The equals symbol shows that it is a total that is shown.

The indicated total can vary between 0 kg/lb and 99,999,999 kg/lb.

Example: Weight in kg

= 4550 kg

### Resetting the accumulated total weight, Weight indication

The operator can reset the accumulated load weight total to zero by pressing the buttons  and  at the same time, during normal operation. The total, = 0 kg/lb, will be shown on the display for 5 seconds.

Example: Weight in kg

= 0 kg

### Tare, Weight indication

In certain situations, e.g. when transporting bulk materials in one container, it may be desirable to measure the net load

weight by subtracting the weight of the container from the total weight.

To activate tare weight:

1. Press the  button on the button panel.  
780 kg
2. Whilst the weight is indicated, press and hold the button  on the button panel. Press  to accept the indicated tare weight or enter the desired tare weight on the button panel and press .

Tare ? (kg)  
780



#### NOTE!

It is possible to delete numbers by pressing the menu button when editing.

3. The system will then show the net load weight excluding tare. The indicated reading shown can be a negative number.  
T 0 kg
4. To reset the tare, repeat the above procedure and enter 0 (kg) as tare.

When tare is activated, "T" is indicated on the furthest left side of the display.

Tare is reset on logging out or after each restart of the system, e.g. when the emergency stop button has been pressed.

### Other display messages

The following messages can also be displayed:

Measur. timeout!

Lift forks!

Lower forks!

### Collision sensor

On trucks that are equipped with collision sensors, the speed is monitored. Sudden and rapid reductions in speed are interpreted as various grades of collision. The program has five presettable levels. If any of the five levels are exceeded, one or more of the following functions are activated:

1. A warning message is shown on the display
2. The truck's normal horn is activated and sounds an intermittent signal.
3. The truck flashing lights are activated and begin to flash
4. The truck logs off
5. The truck logs off and needs to be unlocked by means of a code

### Service alarm

When the truck is in need of servicing a spanner symbol appears on the display and an audible signal sounds. The service interval can be set between 1 and 10,000 hours. The basis setting is 1,000 h.

## Starting the truck

- 1) Connect the battery plug. Check that the emergency stop function is disengaged.
- 2) Ensure that no pedals / controls are affected.
- 3) The fork lift truck is started in one of the following ways:
  - Code: Press .
  - Key switch (option): Turn the key.
  - Smart card (option): Hold the card over the symbol  below the display where the card reader is located, and then press "OK".

Press 1 2222  
5682h

- 4)  **NOTE!** The following steps (4, 5 and 6) only apply when starting via the code (.

A request to state the operator identification will be displayed. Enter your current user number. The truck is delivered with the user number "1". This should then be changed so that each driver receives an unique user number.

User ID:  
?

- 5) The text "Enter code" will now be displayed. Enter your user password. The truck is delivered with the password "2222". This should then be changed so that each driver receives an unique password.

Code:  
????

- 6) The truck is now ready for use.

Truck on Cl  
????

## Driving instructions

1. Start the truck in accordance with *Starting the truck* page 45.
2. Keep your right hand beside the hydraulic levers and your left foot on the foot rest (furthest to the left) so that the left foot switch is depressed. Place your right foot on the brake pedal (in the centre). Remember to keep your whole body inside the truck perimeter to avoid crushing injuries.
3. Check that the truck is in its transport mode (see *Transports* page 69).

4. When you place your left foot on the left foot pedal, select a driving direction and press the speed controller, the parking brake is released. There is no conventional parking brake with a lever.



**WARNING!**

If the left foot is lifted during travel, the truck will be braked to a standstill (safety function).

5. The truck is started when the direction of travel has been selected and the accelerator pedal (furthest to the right) has been activated. The further the accelerator pedal is pressed, the higher the speed. The truck must be started and accelerated gently to spare the drive unit and the carried loads.

Steering is progressive, i.e. the slower the truck moves, the more each turn of the steering wheel affects the turning wheel. Extremely slow movements of the steering wheel do not effect the steering.

If the truck is driven in the direction of the forks and steered clockwise, the truck will turn anticlockwise. If the truck is driven in the opposite direction to the forks and steered clockwise, the truck will turn clockwise.



**CAUTION!**

Do not steer the truck using a pincer grip, i.e with the steering knob between the thumb and index finger. If the truck is equipped with a mini steering wheel, the arm must rest on top of the arm rest and steering must be carried out using the palm of the hand, to avoid industrial injury.



**CAUTION!**

The truck may be equipped with 180 degree steering, which means that the steering wheel can turn further even though the steered wheel has reached its end position. If the steering wheel is turned in the opposite direction, steering begins in that direction immediately.

**CAUTION!**

The truck may be equipped with 360 degree steering, which means that when the steering wheel is turned the direction of travel may be opposite to that originally selected by means of the button. The steering wheel indicator on the display always shows the actual direction of travel when accelerating.

6. There are several ways to brake the truck:
  - The truck is equipped with an automatic brake function (motor brake), activated when pressure on the acceleration pedal is reduced. This ensures smooth braking and should be the method generally used.
  - Release the acceleration pedal, select opposite direction of travel and press the acceleration pedal again for required braking effect (reverse brake).
  - Release the accelerator pedal and press the brake pedal. Only to be used when another brake is not available (emergency brake).
7. Always keep your left foot on the foot support so that the left foot switch is pressed and press the acceleration, resp. braking pedal with the right foot.

8. The truck is equipped with a system which feeds power back to the battery when the motor brake is activated in the case of lower pressure on the acceleration pedal. You should work with minor movements on the acceleration pedal to achieve smooth driving.

Trucks are always equipped with 360° steering. During sideways driving the steered wheel on the seat side is turned 90° by means of the steered wheel control in accordance with *Hydraulic functions* page 15 (Four-way truck). If the steered wheel button is pressed at the same time, the drive wheel automatically follows the direction of the steered wheel. Since the truck only has one drive wheel, it may careen during hard acceleration or braking. The truck must therefore be started and stopped smoothly.

**NOTE!**

If the drive wheel and steered wheel are not aligned in the same direction, the UFW four-way truck may make an unexpected turn.

9. If the main power needs to be disconnected in an emergency: Press the emergency stop button, or pull out the battery plug.

## Switching off the truck

- 1) Press  or turn the key.
- 2) In the case of a lengthy stop, pull out the battery plug.

When the truck is logged out, the display will shut down. If any of the keyboard keys is pressed, the LCD display will start up

again. If no keyboard key is pressed within 30 seconds, the display will shut down again.

**NOTE!**

THE EMERGENCY STOP MUST NOT BE USED TO SWITCH OFF THE TRUCK.

**Trucks equipped with automatic logging off**

If the truck is equipped with automatic logging off, the power supply is switched off and the driver is automatically logged off if the truck has not been used for a certain length of time. The default value is 5 minutes, but the time can be set to between 1 and 999 minutes by an authorised service technician.

### Normal or crawler mode

**Normal mode**

There is no symbol for the normal mode.

**Crawler mode**

It is possible to manually activate crawl speed during operations. The crawl speed is, to begin with, set to 40% of the pre-defined maximum speed. This setting can be altered by authorised service personnel.



The speed is selected by means of the numeric key 2 . The button has an ON/OFF function. When crawl speed is activated, a tortoise symbol is shown on the display.

**Trucks equipped with speed reduction**

When a truck equipped with speed reduction lifts above a certain height (the default setting being 500 mm), its speed is reduced to the crawl speed.

## Responsibility for the load

The driver of the truck is responsible for the load that is being carried during transport. There must not be any risk of the load tipping or sliding off during transport. The driver of the truck has the right and duty to refuse to carry any load that is a clear safety hazard. Refer to the load limit plate to see the permitted maximum load for the truck.

## Responsibility for others

Operate the truck so that there is no risk of an accident. No one may pass or stand under the raised forks, whether they are carrying a load or not. The driver has the right and duty to see that these directives are followed.

## Maximal load

The maximum lifting capacity of the truck must not be exceeded (refer to the fork lift truck load limit plate). Note the effect of the centre of gravity on the lifting capacity. Check carefully if the lifting capacity of the truck has been changed due to the attachment of extra equipment.

## Picking up a load

Always pick up a load so that it comes to rest as close to the mast as possible.



### CAUTION!

Do not drive with the load lifted.



### CAUTION!

Check the location of the centre of gravity of the load.

### **General**

- 1) Approach the stack with the load in the lowered position.
- 2) Lift the load sufficiently high that it clears the stack or shelf and then drive towards the stack.
- 3) When the load is in a suitable position, lower it onto the stack.
- 4) Lower the forks so that they release the load/pallet, and check that no-one is behind the truck before reversing away from the stack.
- 5) Lower the forks to their transport position.
- 6) When fetching a load from a stack, carry out these movements in reverse order.

### **Trucks with reach capability**

- 1) Approach the stack with the load in the lowered position.
- 2) Lift the load sufficiently high that it clears the stack or shelf and then drive towards the stack.
- 3) Extend the mast to move the load outwards until it is directly above the stack or shelf.
- 4) Lower the forks so that they release the load.
- 5) Retract the mast and check that there is no-one behind the truck before reversing away from the stack.
- 6) Lower the forks.

- 7) When fetching a load from a stack, carry out these movements in reverse order.

### **Trucks with mast tilt**

- 1) Approach the stack with the load in a lowered position and the mast tilted backwards.
- 2) Move the mast to its vertical position. Lift the load sufficiently high that it clears the stack or shelf.
- 3) Drive towards the stack and then lower the load onto it.
- 4) It is easier to release the forks if the mast is tilted forwards. Lower the forks so that they release the load. Check that the area behind the truck is empty before reversing away from the stack.
- 5) Lower the forks to their driving position and tilt the mast so they are horizontal.
- 6) The mast must be retracted to its innermost position for transport.
- 7) When fetching a load from a stack, carry out these movements in reverse order.

## Daily maintenance (before each shift)

**Responsibility: Fork lift truck driver**



### CAUTION!

Naked flames or smoking are prohibited when working on or near to the battery.



### CAUTION!

Loading ergonomics must be observed during battery change or battery check.

- 1) Check that the battery cables, connections and plugs are connected correctly and not damaged.
- 2) Check that the battery is properly secured in its compartment.
- 3) Check that the truck is not leaking oil.
- 4) Check the transport mode signal and horn by activating the controls while the truck is running.
- 5) Check the braking capacity on the main brake and parking brake.
- 6) Check for external damage or excessive wear on the wheels.
- 7) Check that there are no error messages or warnings on the truck computer display.

- 8) Check that the securing arrangements for the finger protection are intact and that there is a good view through the protection.



### WARNING!

There is the danger of personal injury if the truck is operated without having the finger protection in place.



### WARNING!

There is a danger to life if the truck is driven with insufficient visibility through the finger protection.



### CAUTION!

Errors detected during daily inspection must be reported to a foreman/supervisor. See section *Truck Driver* page 11.

- 9) Check the height measuring system reflector surface.
- 10) Trucks with gates: check the gate switches.

## Daily Service (after each shift)

**Responsibility: Fork lift truck driver**

### Battery changing

1. Check the battery voltage on the battery indicator.
2. Charge the battery as necessary. The battery is charged in accordance with the recommendation from the battery manufacturer. Only fully automatic charging units should be used.

Refer to *Battery charging* page 29 for the charging procedure.

### If there is damage

Any damage that has occurred must be reported to the supervisor.

## Weekly inspection

### Responsibility: Fork lift truck driver

- 1) Clean the battery; see the battery manufacturers maintenance instructions.
- 2) Check the oil level in the hydraulic system by pushing all the hydraulic cylinders to their end positions. Then check that the fork carriage go all the way up to maximum lifting height without the pump sucking air.
- 3) Check that the wheels have not separated – tread/hub.
- 4) The outside of the truck should be cleaned. Vacuum clean, and wipe with moist cloth in the driver cab. Electrical panels and printed circuit boards must always be protected from liquids. Damage to the truck caused by liquids in

contact with electrical components is not covered by the factory guarantee.

- 5) Manually check that the following bolts are not loose:



### **WARNING!**

If any of the bolts are not tight, immediately contact an authorised service technician to rectify the fault before the truck is used.

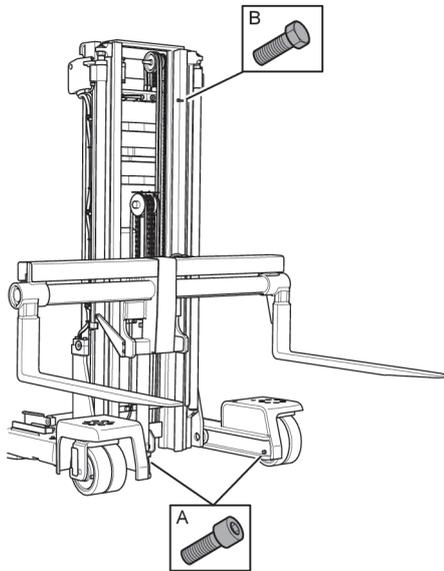


Figure 23. UFW

- A. Safety bolts for the reach carriage in the chassis
- B. Safety bolts for the lift protection in the intermediate mast

## Preventive maintenance



### NOTE!

Preventive maintenance must be carried out by specially appointed and trained personnel with a good working knowledge of the function and maintenance of the truck.

To obtain the best results from your truck investment, we advise you to contact your service organisation and take out a service agreement for preventive maintenance.

### Service personnel

**NOTE!**

Servicing and maintenance must be carried out by specially appointed and trained personnel with a good working knowledge of the function and maintenance of the truck.

To obtain the best results from your truck investment, we advise you to contact your service organisation and take out a service agreement for continuous maintenance.

### Safety instructions for maintenance

#### Working at height

Comply with local safety instructions when working at height.

#### Precautionary measures during repair

Extreme importance must be placed on precautionary measures to avoid accidents during all work on the truck.

-  **WARNING!** The battery plug should be pulled out before working on the truck.
- Ensure that the drive wheel is off the ground before trouble shooting. Secure the truck with blocks.
- To prevent injuries caused by crushing the battery plug should always be removed when working on and around the mast and hydraulic unit.

- When dismantling parts of the hydraulic system the system must not be pressurised, e.g. the pump motor is shut off and the forks are down.
- The battery should always be protected during grinding work.
- When changing a fuse the controllers must be thoroughly discharged. (Remove the battery plug and wait for two minutes before fuses are changed, otherwise there is a risk of arcing.)
- Great caution must be observed when removing gas springs.

### Maintenance intervals

#### Recommended replacements

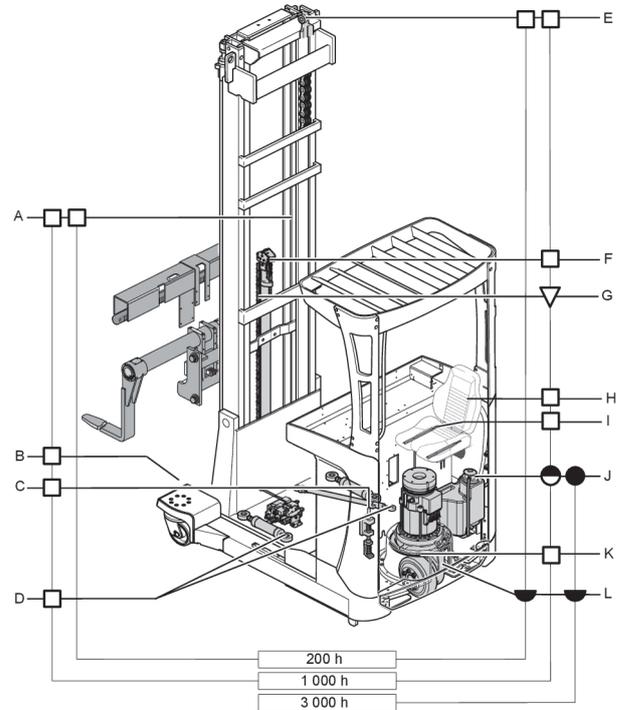
**NOTE!**

To ensure correct operation, use only original spare parts.

- The hydraulic oil filter and air filter should be changed annually or every 1,000 hours of operation.
- The hydraulic oil should be changed every three years or every 3,000 hours of operation.
- Environmental/Food classified hydraulic oil must be changed annually or every 1,000 hours of operation.

- The gearbox oil should be changed every three years or every 3,000 hours of operation.
- Hoses should be replaced after 5 years, since they are perishable.

**Lubrication chart UFW**



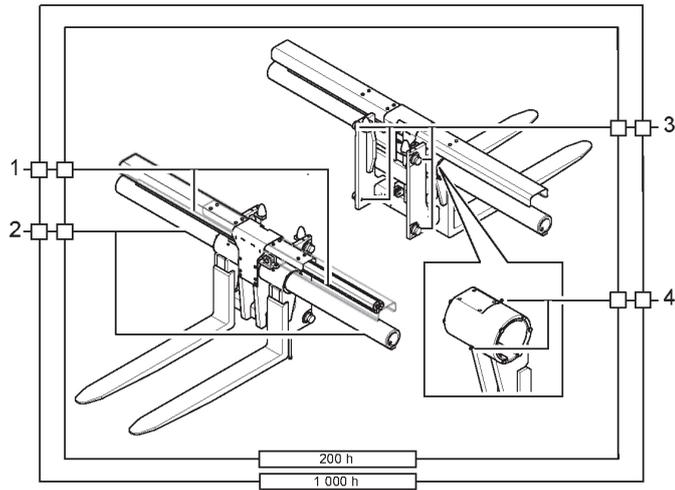


Figure 24. Lubrication chart, UFW fork carriage

Pos	Lubrication points
1	Gear shaft
2	Slide surfaces for fork carriage and forks
3	Thrust rollers
4	Fork attachment bearing

## Cab lubrication schematic diagram (option)

The door hinge, cover and heater, along with the lock, must be lubricated at every routine service.

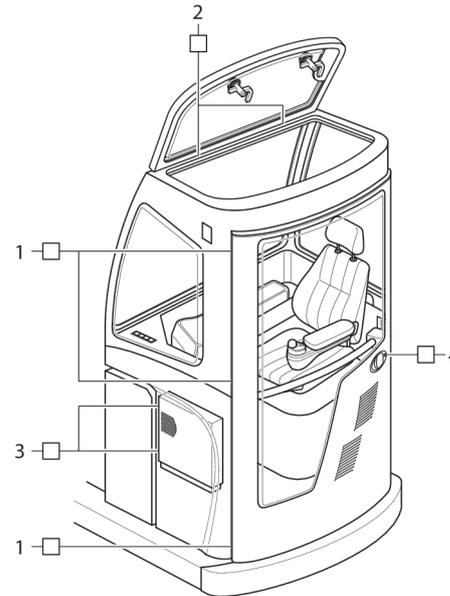


Figure 25. Lubrication chart for cab

- 1. Door hinge
- 2. Cover hinge
- 3. Heater hinge
- 4. Lock

**Symbol key lubrication chart**

Symbol	Explanation	Symbol	Explanation
	Hydraulic oil		Hydraulic oil, oil filter and air filter, change
	Gearbox oil		Gearbox oil, change
	Grease		Oil filter and air filter, change
	Chain spray/oil		Only cold store version

Applicable in general for the symbols:

Unfilled symbol, check lubrication.

Filled symbol – Change.

Table 5. Lubrication points

UFW	
Pos	Lubrication points
A	Mast profile roller surfaces and slide surfaces
B	Swivel wheel bearings and steered wheel bearings *)
C	Battery lock, slide surfaces and springs
D	Reach and tilt cylinders
E	Mast bearing, support rollers
F	Chain pulley

UFW	
Pos	Lubrication points
G	Lift chains, all lift chains in the mast, height measurement chain
H	Wheel tracks, springing
I	Slide rails
J	Hydraulic tank
K	Guide ring, torsion ring bearing
L	Gearbox
	*) Steered wheel must be turned 45° in order to reach the grease nipple.



**NOTE!**

All torsion springs in the machine should be lubricated during each service.

**Fuses**



**NOTE!**

When replacing the fuse the battery connector must be disconnected.

Fuses F2, F3 and F19 are located underneath the driving seat. Other fuses are located underneath the dashboard.

Designations	(A)	Use
F2*	300	Power fuse TMC
F3*	300	Power fuse PMC
F6	10	B+ 3; Hydraulic valves; fans; DC/DC converter; electrically adjustable floor; camera
F7	10	B+ 4; heated seat; work lighting; load wheel brakes; radio
F8	5	Fan motor
F9	10	ATC
F10	5	ATC ref
F12	10	Logic supply TMC/PMC
F14	5	Emergency stop circuits
F17	5	Headlamp
F18	5	Logic supply EPS, emergency brake
F19	30	Power fuse EPS
F23	5	LCD heater (only cold store version)
*Should be changed by authorized service personnel.		

Table 6. Options

Designations	(A)	Use
F13*	80	Main supply cold storage cab
F15	5	Radio and internal cab lighting
F21	35	Power feed, battery changing system
F22	5	Logic supply, battery changing system
F25	15	DC/DC converter, cab heater
F26	5	Check the cab heating voltage
*Should be changed by authorized service personnel.		

### Servicing, type and frequency

#### General

A complete operations test must be performed before the inspection. Faulty functions must be rectified before the inspection.

#### Service intervals

Service must be carried out regularly, once a year or after 1000 hours of operation with normal use of the truck. The planned servicing includes operations such as test driving, functional tests, and the changing of filters and oils, etc.



**NOTE!**

In the case of demanding and/or dusty environments with humid or corrosive air, it is advisable to perform maintenance more often. Reduce the periods between maintenance by one half (or one third).

**First service (200 hours)**

During the first service, the gearbox oil and hydraulic oil filter must be changed. The play in the mast must be checked and if necessary adjusted, and the mast is to be lubricated.

**Service points, UFW**

Planned service inspections are implemented in accordance with the following points:

**X** Obligatory

**O** Not obligatory

Chassis	
Description	Service
Signs/Decals	X
Covers and panels	X
Overhead guard	X
Battery stop, Lock, Rollers	X
Rubber mat	X
Chassis	X

Chassis	
Description	Service
Lubrication	X
Driver seat	X
Caster wheel/steered wheel	X
Microswitch	X
Colour	X
Finger protection	X
Stabilizing lugs	X
Machine plate	X

Drive unit	
Description	Service
Gearbox	X
Traction motor	X
Drive wheel	X
Drive shaft	X
Gearbox oil level	X

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Mast system	
Description	Service
Lift chains	X
Forks, fork carriage	X
Bearings/Rollers	X
Lubrication	X
Mast profile	X
Reach carriage	X
Fork locking	X

Steering	
Description	Service
Servo motor	X
Steering servo unit	X
Steering wheel/Steering wheel sensor	X
Steering gearbox	X
Sliding bearing	X

Hydraulic system	
Description	Service
Hydraulic oil level	X
Hoses	X

Hydraulic system	
Description	Service
Couplings	X
Pump motor	X
Hydraulic pump	X
On/off valve proportional valve	X

Lift cylinders	
Description	Service
Cylinders	X

Electrical system	
Description	Service
Cables, Switches	X
Contactors	X
Battery	X
Traction motor controllers	X
Horn	X
Speed Controller	X
Brake pedal	X
Level selector	O
Mast sensor/switch	X

Electrical system	
Description	Service
Fuses	X
Battery plug	X
Video camera	O
Cooling fan	X
Truck computer	X
Emergency stop	X
Lift switch	O
Left-foot switch	X
Hour meter	X
Driver presence sensor	X
Battery indicator	X
key switch	O
Warning light	X
Weight indication system	X

Brake-System	
Description	Service
Brake function	X
Parking brake	X
Brake disc	X

### Consumable materials

Only consumable materials (oils, grease, lubricants, etc.) that have been approved by UniCarriers should be used for engineering and maintaining trucks. See UniCarriers Genuine Parts.

## Maintenance instructions

### Genuine replacement parts

#### UniCarriers Genuine Parts

To maintain the reliability that UniCarriers promises, insist on UniCarriers genuine replacement parts. Only UniCarriers genuine replacement parts guarantee correct operation, long life and the right to a warranty.

### Basic trouble shooting

If the truck does not work after action has been taken in accordance with the following table, contact your service organisation. Further action must only be carried out by specially assigned and trained servicing personnel. If an error

## 14 SERVICING AND MAINTENANCE

code is shown on the diver's display, this must be reported to your service organisation.

Truck condition	Possible cause	Procedure
The truck does not start	The battery plug has not been inserted	Insert the battery plug
	The emergency stop button has been pressed	Pull up the button for the emergency stop
	The battery capacity is too low	Charge the battery
	Fuse defective	Change the defective fuse
	The key switch is set to "0" or the truck is not logged on	Turn the key switch to position "I" or enter the appropriate Operator ID and password
The truck cannot be driven	The truck is not ready for use	Carry out all the actions under the heading "The truck will not start"
	The left foot switch has not been pressed in	Press in the left foot switch
	Drive fuse defective	Change the defective drive fuse

Truck condition	Possible cause	Procedure
The truck will not lift the load	The truck is not ready for use	Carry out all the actions under the heading "The truck will not start"
	The hydraulic oil level is too low	Check the level and top up the hydraulic oil
	The battery capacity is below 20%	Charge the battery
	Pump fuse defective	Change the defective pump fuse
	The load is too heavy	Reduce the load Refer to the maximum permitted weight on the load limit plate
	The driving seat switch is not activated	Sit in the driving seat while operating the levers

### Dismantling and assembling the panels

#### Dismantling and assembling the motor cover

- 1) Adjust the seat so that it is locked in its rearmost position. If the footplate is adjustable, it should be in its central position.
- 2) Remove the motor cover (A) by grasping it and carefully easing it upwards.
- 3) Refit in the reverse order.

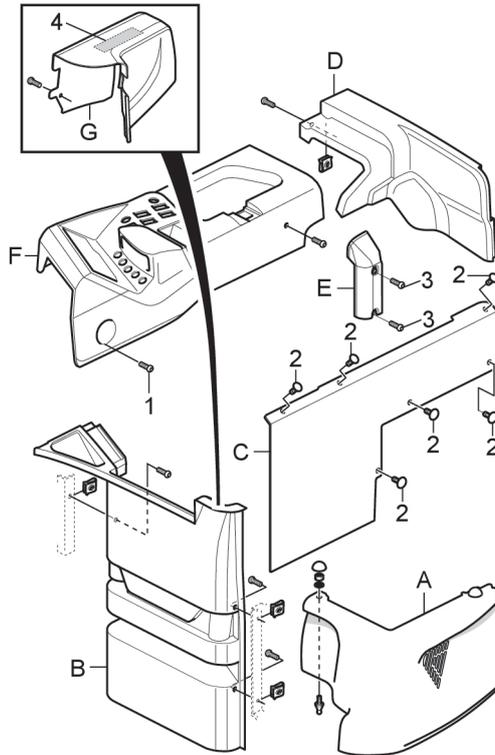


Figure 26. Panels

### Dismantling and assembling the front housing

- 1) Move the mast a little forwards.

- 2) Slacken the screw (item 1), refer to *Panels* page 63 on the instrument panel (F). The screw does not need to be removed completely.
- 3) Lift up the dashboard and secure it with the support strut.
- 4) Remove the footplate (if the footplate is adjustable, it should be in its lowest position). On trucks with midi steering wheels, the midi steering wheel cover (G) must be removed (2 screws).



#### NOTE!

The cover is also secured by Velcro (item 4).

- 5) Take hold of the front housing (B), lift and remove it.
- 6) Refit in the reverse order.

### Dismantling and assembling the panel against the battery partition

- 1) Remove the motor housing, refer to *Dismantling and assembling the motor cover* page 62.
- 2) Remove the two screws that hold the driving seat plate, and swing it out.
- 3) Open the instrument panel and secure it with the support strut, refer to *Dismantling and assembling the front housing* page 63.
- 4) Remove the front housing, (B).
- 5) Remove the rear housing (D) and the cable protection (E).

- 6) Pull or roll out the battery (depending on the type of battery).
- 7) Using pliers, squeeze the clips (item 2, 6 off) and push them out.
- 8) Grasp the panel (C), refer to *Panels* page 63), lift it up and remove it.
- 9) Refit in the reverse order.

### **Dismantling and assembling the rear housing and cable protection**

The rear housing is secured by Velcro on the underside.

- 1) Open the instrument panel and secure it with the support strut.
- 2) Peel up the Velcro and lift up the rear housing (D).
- 3) If necessary slacken the 2 screws (item 3) securing the cable protection (E). The screws do not need to be removed completely.
- 4) Pull up the cable protection so that it is released from its holder.
- 5) Refit in the reverse order.

### **Dismantling and assembling wheels**

#### **Safety regulations concerning wheel change**



#### **WARNING!**

For safety reasons, UniCarriers recommends that wheel changing is only carried out by authorised service personnel.



#### **WARNING!**

For optimum performance and so as not to invalidate the warranty, use only UniCarriers genuine replacement parts! Otherwise, UniCarriers cannot guarantee stability and the braking function.



#### **WARNING!**

Take care while lifting and securing the truck with a block, as there is a risk of crushing injury.

#### **Removing steered wheels (UFW)**



#### **WARNING!**

Removal and installation of steered wheels should, for safety reasons, only be carried out by authorised service personnel.

- 1) Unload the steered wheel and secure the truck using blocks.

**WARNING!**

Ensure that the truck is unable to move while work is in progress.

- 2) Release the battery plug
- 3) Undo the screws for the hydraulic cylinder next to the steered wheel.
- 4) Disconnect the wiring for the electric brake next to the steered wheel.
- 5) Undo the screws on the top of the straddle leg.
- 6) Lift the truck from the wheel unit.
- 7) Unscrew the plate where the end position sensors are fixed.
- 8) Remove the cable clips for the electric brake.

**CAUTION!**

Ensure that the wiring is not damaged.

- 9) Remove the shaft locking.
- 10) Fit a sliding hammer and tap out the wheel axle.
- 11) Undo the electric brake retaining bolts using an Allen key, size 7.
- 12) Detach the wheels from the wheel fork and roll them out.

**Fitting steered wheels (UFW)**

- 1) Roll the wheel unit into the wheel fork and secure it.
- 2) Connect the service wiring to release the brake.
- 3) Connect the battery plug to supply power to the truck.
- 4) Log on to Truck computer ATC and select *Auth. service » Tests & calib. » Drive menu » Brake tests » Load wheel br..*
- 5) Release the brake using the service cabling.
- 6) Fit the electric brake retaining bolts (eight on each side) using an Allen key, size 7.
- 7) Fit the wheel axle.
- 8) Fit the shaft locking.
- 9) Fit the cable clips for the electric brake.

**CAUTION!**

Ensure that the wiring is not damaged.

- 10) Secure the plate where the end position sensors are fixed.
- 11) Disconnect the service wiring.
- 12) Release the battery plug.
- 13)

**WARNING!**

Crush hazard when lowering the truck.

Lower the truck towards the wheel unit.

- 14) Tighten the screws (eight pcs) on the top of the straddle leg.
- 15) Fit the wiring for the electric brake.
- 16) Connect the hydraulic cylinder for the steered wheel.
- 17) Connect the battery plug.

### Dismantling and assembling the castor wheel (UFW)

- 1) Undo the screws for the guard and remove it.
- 2) Move the safety washer tabs away from the locking nut.
- 3) Remove the locking nut and safety washer.
- 4) Undo the lock plate securing screws and remove it.
- 5) Pull out the axle.
- 6) Remove the old wheel from the load wheel fork together with ball bearings and washers.
- 7) Install in the reverse order.



#### **Torque**

Tighten the screws for the lock plate and guard to **24 Nm**.



#### **NOTE!**

In connection with a wheel change, the locking washer should also be replaced.

### Dismantling and assembling the drive wheel

The drive wheel must be replaced if its diameter is less than 320 mm.

- 1) Undo the bolts and open the rear cover.
- 2) Slacken the drive wheel nuts.
- 3) Lift up the truck so that the drive wheel becomes free. Secure with wooden blocks.



#### **WARNING!**

Ensure that the truck is unable to move while work is in progress.

- 4) Dismantle the drive wheel.
- 5) Refit in the reverse order.



#### **Torque**

The nuts on the drive wheel must be tightened to **150 Nm**.

### Removal and installation of the mast system



#### **WARNING!**

Removal and installation of the mast system must for safety reasons only be carried out authorised service personnel.

## The authority and obligations of the truck driver

The driver has the authority and the responsibility to refuse to drive the truck in the following cases:

- The truck constitutes a clear safety hazard.
- The load constitutes a clear safety hazard.
- If the truck has been repaired, altered or adjusted without the changes being approved by the supervisor.
- If the truck driver's physical or psychological condition is such that he/she can be considered a safety hazard.

The driver has the authority to:

- prevent unauthorized persons from using the truck for which he/she is responsible. An unauthorized person is someone who has not received permission from the supervisor and/or someone who lacks training
- prevent anyone from walking or standing under a raised lift, whether this is loaded or unloaded.



### WARNING!

Take great care in the machinery compartment, beware of hot surfaces, etc.

## Getting in and out

Be careful when getting in and out. Use the handle if one is installed and take into account the height difference between the floor and the truck.



### WARNING!

It is not permitted to climb on to the truck.

## Driving the truck

### Driving in public areas

The truck must not be driven on public roads outside a private area.

### Distance between vehicles

Remember that the vehicle in front of you may stop suddenly. Keep a reasonable distance. Remember that any load on the forks affects the braking distance.

### Pinch risk



### WARNING!

Always be careful when using the truck to be aware of the risk of pinching, both in respect of the driver and adjacent people.

### Passengers

Passengers must not ride on the truck unless otherwise indicated on the truck.

### Mast reach



#### **WARNING!**

Before using the mast reach function, ensure that neither yourself nor anyone else is at risk of being crushed between the mast and the rest of the truck.

### Clearance height

Bear in mind that the truck cannot be used where the clearance height of an opening is less than the height of the drivers cab, the load or the mast.

### The truck in an industrial lift

The truck can only be driven into an industrial lift if this has been authorised. Make sure that the capacity of the industrial lift is never exceeded (the total weight of the truck including the weight of the driver). The driver must be able to escape. Park inside the lift so that the driver is beside the door. Never place the truck or the load within the industrial lift's risk zones. Ensure that the truck's brakes have been engaged before the industrial lift is started!

### Floor load

Carefully check notices or other instructions concerning the maximum floor load or maximum wheel pressure to ensure that these are not exceeded. For the truck's total weight, see the machine plate.

### Signalling

Use the signal horn to attract attention.

### Reduced vision

Slow down when approaching crossings and other places where the line of vision is reduced. Avoid driving in the same direction as the forks if the load in front of you obstructs your sight. Find someone to help you, if your vision is blocked.

In order to facilitate the work and to improve visibility from the truck there are a rear view mirror and a camera system as options.



#### **NOTE!**

Accessories on the truck may restrict the view.

## Transports

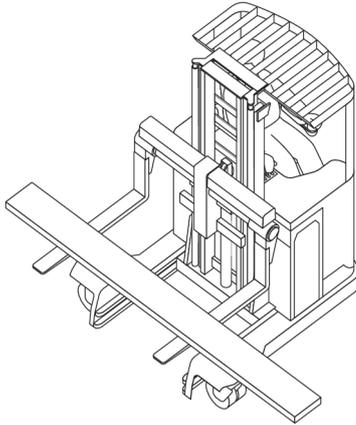


Figure 27. Transport position, four-way truck

During normal driving, the truck transport position must be taken into account. Driving with the forks is forbidden except whilst lifting or lowering a load from a shelf, etc. and if the load is being transported.

### Reach trucks

The mast must be at its innermost position, nearest to the driver.

### Tilt

The mast must be tilted back somewhat towards the driver.

When transporting loads, the truck should, if possible, be driven in the opposite direction to the direction the forks are pointing. This ensures that the driver has a better view if the load is high, and makes the truck easier to manoeuvre. When driving in the direction of the forks the truck is sensitive to sharp turns. (Compare with reversing a car.) Only drive the truck with covers and housings closed and locked in place.

### Speed

Adjust the speed according to the floor conditions, the line of sight and operational safety. Avoid rapid acceleration, sudden braking and cornering at speed; there is a risk for overturning or that the load will fall off.

### Driving space

Ensure that you have sufficient space for the truck - both the driver and the load - in narrow aisles. Narrow door openings that will not permit two-way traffic must be entered through the centre of the opening. Remember that the rear of the truck requires extra room when turning. Follow the truck paths marked within the driving area. If the truck has a left foot switch, keep your left foot on it at the truck floor to ensure that this foot is kept inside the outer edge of the truck while driving. Remember to keep your whole body inside the truck perimeter to avoid crushing injuries.



#### **WARNING!**

It is not permitted to push material that is on the floor out of the way by means of the truck's chassis.

### Risk zones

Do not drive near the edges of loading bays, gangways, etc. where there is a risk of the truck going over an edge. Be careful when operating close to colour marked risk zones.

### Overturning

Keep hold of the steering wheel or a handle if the truck overturns. Do not jump!

### Trucks on another vehicle's loading platform or on a gangway

Before the truck is driven from a loading bay and onto the platform of a lorry or wagon you must always check the maximum load capacity of the gangway. There must also be devices that prevent the gangway from sliding. You must also remember to check the maximum load capacity of any vehicle that you intend to drive onto. There must also be devices (e.g. brake chocks) that prevent movement of the vehicle being driven on to. For information about the truck's total weight, see the truck's machine plate.

### Direction of travel when driving on slopes

#### Four-way trucks

The truck is normally driven with the forks facing towards the top of an incline, the load lowered and the mast tilted towards the driver, see illustration *Normal driving on slopes* page 70.

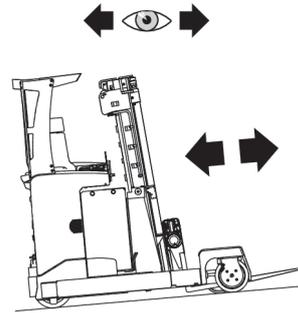


Figure 28. Normal driving on slopes

When driving sideways, the truck is normally driven in the direction the driver is facing, see illustration *Sideways driving on slopes* page 71.

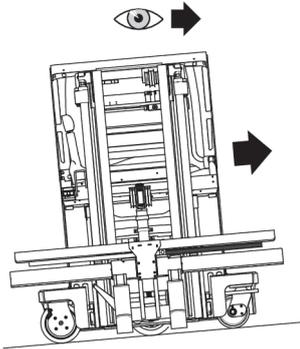


Figure 29. Sideways driving on slopes



### WARNING!

Take extra care when driving the truck sideways on an incline, as this can affect braking properties and steering. Always try to keep a steady speed. Maintain a slow speed when driving down slopes.

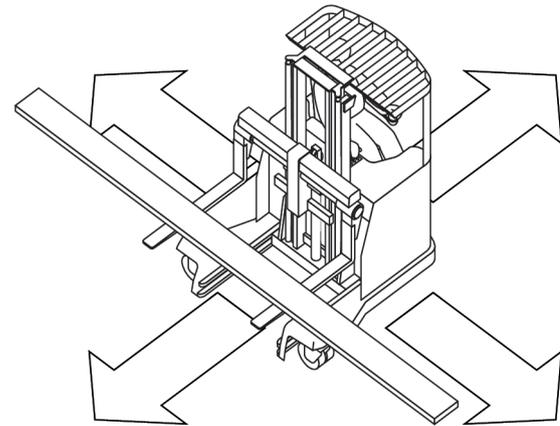
Avoid standing on an upwards incline as it may be difficult to start moving again. If it is essential to stop on an upwards incline, it may be safer to back down to a level surface and start up again from there.

Ensure that the ends of the load are clear of the ground when handling long items.

### Awareness!

Always be aware of personnel in the neighbourhood when operating the truck.

### Speed (UFW)



Driving Direction	Conditions	Maximum speed
		13 km/h
	Load < 1,500 kg	11.3 km/h
	Load > 1,500 kg	8 km/h

Driving Direction	Conditions	Maximum speed
↖	Reach function in home position	6 km/h
	Reach function not in home position	4 km/h
↘	Reach function in home position	9.6 km/h
	Reach function not in home position	4 km/h

Other limitations apply in all driving directions:

- Max. speed 4.2 km/h when the steered wheel is not 0 or 90 degrees.
- At speeds of > 4 km/h, the steered wheel cannot be turned.

## Transportation security

When a truck is to be transported, it must be secured at the defined transportation points. The truck can also be restrained by straps. Chocks can be placed against the chassis in every direction to prevent rolling or sliding.

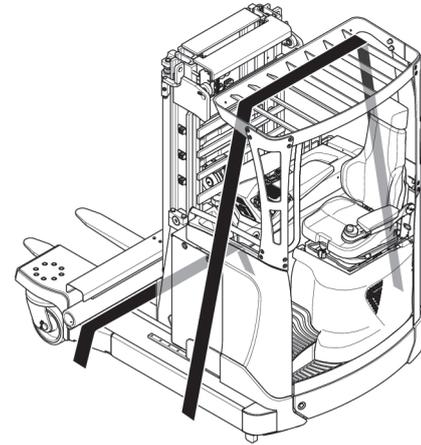


Figure 30. Transportation security UFW

If the mast is too high for the truck to be safely transported, the mast must be taken off and transported separately according to *Transportation security, mast, UFW* page 73. The fork carriage is transported separately according to illustration *Transportation security, fork carriage, UFW* page 73.



### CAUTION!

Take care so that none of the truck parts are damaged when the straps are tightened.

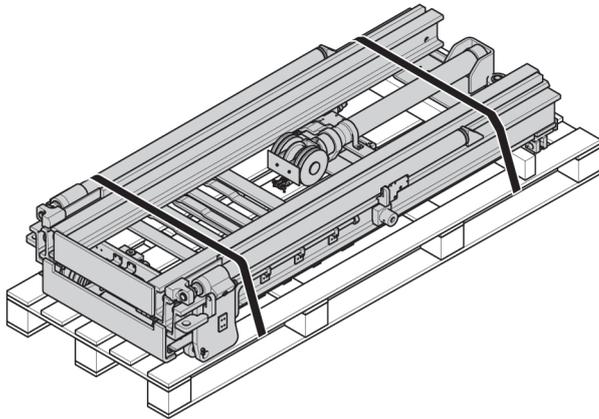


Figure 31. Transportation security, mast, UFW

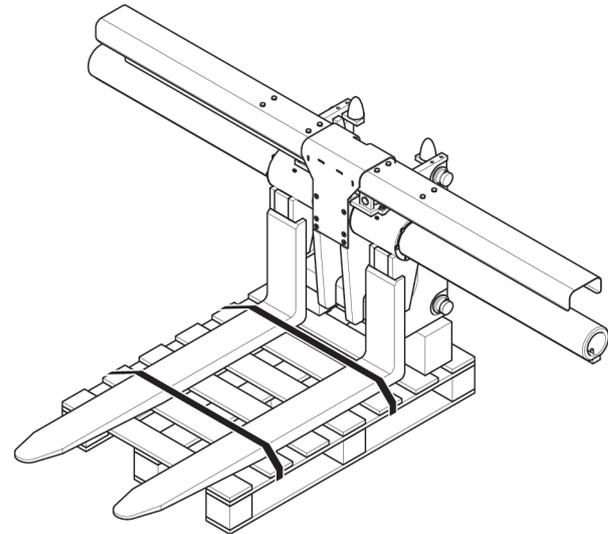


Figure 32. Transportation security, fork carriage, UFW

### **Moving the forks (UFW)**

See control E in table *Control functions* page 15.

#### **Manual fork spread, option, UFW**

If the forks are in a position where the locking pin is in a hole in the boom, the pin must be lifted using the eye so that the fork can be moved.



### CAUTION!

The forks should not be moved to positions that are different distances from the centre.

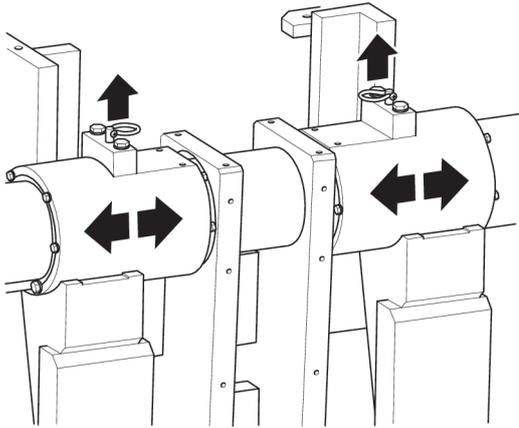


Figure 33. Manual fork spread, option, UFW

### Normal operating conditions

Stacking must be carried out with the frame vertical and the forks horizontal on firm, clean and level ground.

### Exceptional operating conditions

When the operating conditions differ from the normal conditions above, the following steps must be taken:

- If the working conditions are of a permanent nature, an agreement must be drawn up with the supervisory authority and any other party concerned.
- If the working conditions are of a temporary nature, take suitable measures, such as using a larger truck, or reducing the load appropriately.

### Work in hazardous environments

A truck operating in an area where there is a risk of fire, explosion, or in any other high risk area, must be specially equipped for the purpose.



### WARNING!

A truck is not normally equipped for these situations.

### Parking

The truck must not be left unattended other than in specified parking areas. The truck must always be parked on a level surface. The parking brake must always be applied. The forks must be lowered to their lowest position, so that no one can accidentally trip over them. Always shut down the truck so that it cannot be operated. If the truck has a PIN code, it should be "logged off" requiring a new code to restart, preventing unauthorised use. See section . If the truck is equipped with a key-operated ignition switch, the key must be taken out when leaving the truck, so that unauthorized persons cannot use it. At the end of the shift the conditions of the fire insurance determine whether the key is removed from the ignition or not. Check!

If the truck is left unused for a prolonged period without it being recharged, e.g. between two shifts, the battery plug must be disconnected.

**CAUTION!**

Do not block access to fire fighting equipment or fire doors by parking the truck or placing goods in front of them.

## When lifting the truck

### General

The truck must only be lifted using the lifting eyes intended for this purpose. Figure shows where the permitted lifting points are located on the truck. The lifting points are marked with a decal representing a lifting hook.

When the truck is to be lifted using a jack, make sure it is secured by blocks. The truck must not rest on the jack, while work is carried out.

**WARNING!**

Lifting of the truck should only be carried out by authorised service personnel.

**WARNING!**

If the truck is lifted incorrectly, parts may be damaged by being subjected to excessive force.



Figure 34. Incorrect lifting

### When lifting the truck

#### UFW

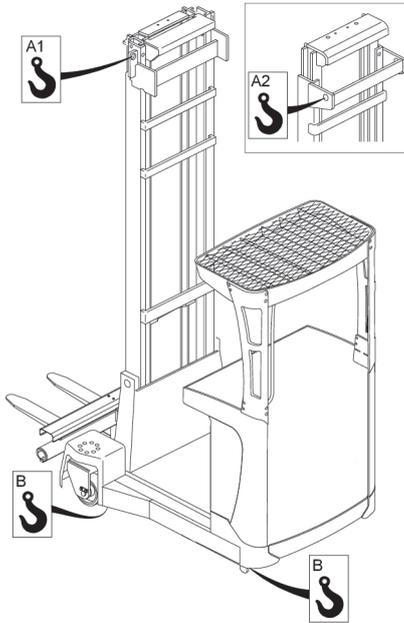


Figure 35. Lifting the UFW truck



#### CAUTION!

If the whole truck is to be lifted, lift points B must be used. Lift points A1 and A2 are used for stabilisation or when only the mast frame is to be lifted.

### Assembling and putting into service



#### WARNING!

Assembling, dismantling and putting the truck into service may only be carried out by authorised service personnel.

The following actions are to be taken in order to make the truck ready for use.

- Charge the battery.
- Perform an inspection in accordance with *Daily maintenance (before each shift)* page 51.
- Visually inspect the truck, including the forks and reach carriage, for signs of damage.
- Check that the safety and warning signs are in place and are legible. See *Safety and warning signs* page 79.

### Temporarily taking the truck out of service

#### Storage

If the truck is to be taken out of service for more than a month, it should be stored indoors in dry and frost-free premises.

### Actions before storage

- 1) Clean the truck.
- 2) Clean and charge the battery in accordance with the battery manufacturer's maintenance instructions.
- 3) Check the oil level in the hydraulic system by looking at the markings on the truck, or alternatively by pushing all the hydraulic cylinders to their fully extended positions. Top up the oil if necessary.
- 4) Check the braking effect on the main brake and parking brake.
- 5) Lubricate the truck in accordance with the lubrication chart.
- 6) Disconnect the battery plug.

### Actions during storage

- 1) Charge the battery and check the cell electrolyte levels about every second month.

### Putting back into service after storage

- 1) Clean the truck.
- 2) Clean and charge the battery in accordance with *Battery charging* page 29.
- 3) Check the gearbox and hydraulic oil levels.
- 4) Lubricate the truck in accordance with the lubrication chart.
- 5) Connect the battery plug.

- 6) Carry out a weekly inspection in accordance with *Weekly inspection* page 52.



#### **WARNING!**

Putting the truck into service may only be carried out by authorised service personnel.

### Taking the truck out of service

If the truck is out of action and cannot be operated from the driver's seat using normal driving controls, contact the supervisor immediately.

In consultation with the authorised service organisation, the responsible supervisor is to ensure that movement of the truck can take place in a controlled manner so that there is no risk of an accident. The truck is to be moved with the aid of another truck which has sufficient capacity to a suitable location where it can be repaired. Trucks must be lifted at the assigned lifting points, see *When lifting the truck* page 76.



#### **WARNING!**

Ensure that the truck cannot fall over or slide off the forks while being moved.

### Swinging loads

The truck is not equipped to handle hanging loads that may start to swing.

### Installing the fire extinguisher

The fire extinguisher is to be installed in a suitable location so that it is easily accessible without interfering with the view or becoming a collision hazard in the case, for example, of severe braking.



#### **WARNING!**

It is not permitted to drill into the overhead guard pillars or the overhead guard itself.

### In the event of accidents

Report all accidents or incidents immediately to the supervisor. If possible, leave the truck where it is. If possible, take action to lessen the damage or harm, especially if there are people hurt. Avoid actions that might hinder accident investigation. In general, you must await the decision of the supervisor.

### Noise/Sound levels

Noise levels at the driving position are lower than 70 dB(A) measured in accordance with European standard EN 12053.

### Vibrations

Vibration data for truck models (tested in accordance with EN 13059+A1:2008).

UFW

$a_{w,z}S = 0.79 \text{ m/s}^2$ , measuring accuracy Cv 0.064

### Climatic conditions

The normal operating temperature in which the truck is designed to operate in is in the range of +1°C to +25°C. Max short term temperature +40°C, min short term temperature -25°C. If the truck has been specified for use in a cold store, the temperature range is extended for continuous operation to -35°C.

If the truck is specified for use under canopies or in cold storage areas (cold storage performance), it may, with continuous operation, be used at temperatures as low as -35°C, but must not be left standing unused in temperatures below zero. Charging or long-term parking must be at temperatures of a minimum of +1°C.



#### **NOTE!**

The operation and characteristics of the truck can be negatively affected by starting in temperatures below zero. Bear in mind that the truck may still be frozen, even if the ambient temperature has risen above zero.

### Work platforms

When temporarily lifting persons with a truck without driver lifting, national regulations and recommendations for working with work platforms must be complied with.

## Overhead guard

It is not permitted to remove the overhead guard from a truck which is equipped with one.

## Protective shoes

Protective shoes must be worn when working with trucks according to applicable national standards.

## Lighting

Work lighting facilitates work in poor light conditions. Work lighting is available as accessory for many models.

## Additional units/Trailers

If, after delivery, it is decided to equip the truck with additional units, towing hitch equipment for trailers or other accessories which could influence the stability or braking capacity of the truck, STILL or its authorised representative must be contacted. Before the truck is assembled, it must have been approved by UniCarriers Manufacturing Sweden AB, see *Truck modification* page 7.

## Safety and warning signs

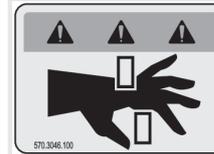
### General



#### NOTE!

There are a number of warning signs on the truck. Always replace signs that are damaged or missing.

### Explanation of symbols, UFW



Crushing risk  
between moving parts



Do not stand under  
the forks



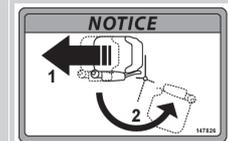
Do not stand on the  
forks



Do not stand between  
the mast and the  
battery

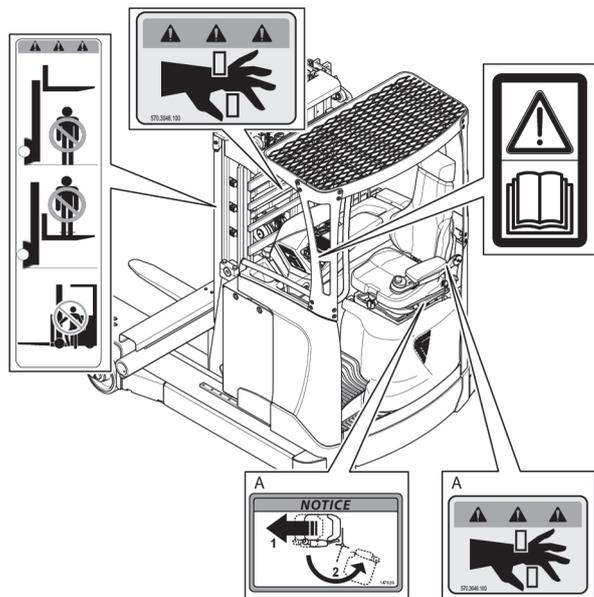


Read and comply with  
the Instruction  
Handbook before  
operating the truck.



Pull the seat to its  
furthest forward  
position before  
angling it outwards.

## Locations of safety and warning signs



- A. If the truck is equipped with a mini steering wheel.

## Dimensions



**NOTE!**

The following dimensional information applies to trucks equipped with the smallest possible battery and a fork length of 1150 mm.

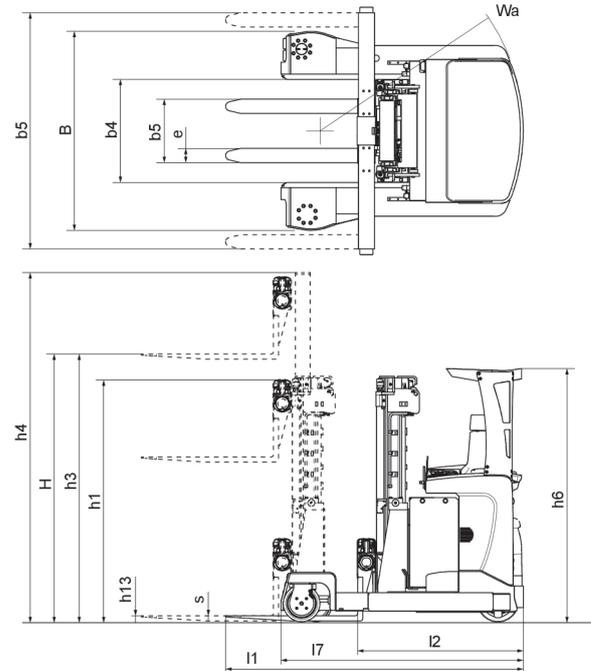


Figure 36. Dimensions UFW

Measurements	UFW200	UFW250
H	4350 - 8500	4500 - 9700
h4	H+700	H+700

## 16 DIMENSIONS

Measurements	UFW200	UFW250
h3	4300-8450	4450-9650
h1	H/3+700	H/3+850
h13	50	50
h6	2215	2215
s x e	45 x 125	45 x 125
l1	2473	2555
l2	1323	1405
l7	1942	2102
Wa	1772	1932
B	1744/1498	1744/1498
b4	903	903

### Cab dimensions (option)

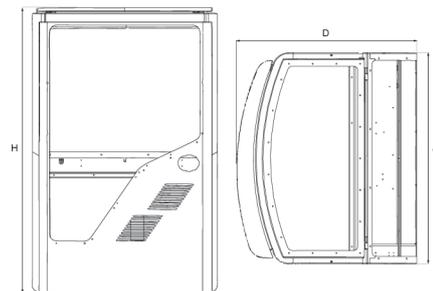


Figure 37. Cab dimensions

Table 7. Cab and dimensions in mm

Measurements	Cold storage cab
H	2400
W	1000
D	830

## Weight

**NOTE!**

The following weights apply to standard trucks, including the smallest possible battery.

If the truck has extra equipment fitted, there may be deviations from the table. Refer to the machine plate for the weight information for a particular truck.

*Table 8. Weight, standard truck*

Truck model	Weight kg
UFW 200	4520 (H=8500)
UFW 250	4940 (H=9700)

### **Ordering a Spare Parts Catalogue**

STILL does not automatically send out spare parts catalogues with delivery of your truck. It is possible to order a Master Manual via your local distributor, for a fee. Delivery time is estimated at around three weeks.

UniCarriers Manufacturing Sweden AB  
SE-435 82 Mölnlycke  
Phone +46 (0)31 98 40 00  
[info@atlet.se](mailto:info@atlet.se)  
[www.atlet.com](http://www.atlet.com)

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