

Original instructions Reach truck

FM-4W 20 FM-4W 25



first in intralogistics

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Introduction

Operation and Maintenance Manual

These original instructions 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 manual before starting the truck for the first time.

The Operation and Maintenance Manual describes a truck with standard equipment, customer modifications may have been fitted.

All options that are described in the operation and maintenance manual are not suitable for all truck variants. Contact your truck supplier for information.

Our products are continuously being improved, we therefore reserve the right to make alterations without prior notice.

Quality, operational safety and innovation have given us a prominent role as a truck supplier across the globe.

Thank you for choosing us as your truck supplier.

Genuine Parts

The reliability that we promise is contingent upon using our original spare parts. Only our genuine replacement parts guarantee correct operation, long life and the right to a warranty.

Declaration of conformity

MLE AB (556083–6461), SE-435 82 Mölnlycke, Sweden, declares under its sole responsibility that the supplied products are in compliance with the relevant safety requirements of Machinery

Directives 2006/42/EC and EMC Directive 2014/30/EU, and furthermore declares that the following harmonized standards have been followed EN ISO 3691-1:2015, EN ISO 3691-1:2015/AC:2016, EN ISO 3691-1:2015/A1:2020, EN 16307-1:2013 +A1:2015 and EN 12895:2015 +A1:2019. The *Declaration of conformity* certificate accompanies every machine. This should always be kept with the truck.

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Conversion table for forklift truck models

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

Truck modification

Truck modification



NOTE

Unauthorized truck modification is not permitted.

No modifications or changes to powered industrial trucks that can affect areas such as capacity, stability or safety requirements for the truck may be made without advance written authorisation from the manufacturer, its authorised representatives or a successor to these. Contact your local authorised dealer before any modification or change is made to your industrial truck that may affect, for example, braking, steering, visibility and connection of separate load aggregates. Once permission has been granted by the manufacturer, authorised representative thereof or successor to these, the plate indicating the truck's capacity, decals, labels and operating and operation and maintenance manual must also be changed accordingly.

Only in the event that the manufacturer is no longer in business and there is no successor to the company's stakeholders may the user implement 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.
- If the truck, after the commissioning, is equipped with devices that are likely to emit non-ionising radiation, e. g. radio transmitters, RFID readers or data collection systems, it can cause harm to persons, in particular those with active or non-active implantable medical devices.

Environmental considerations

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.

We strive to minimise total energy consumption during production and recycling. This is done throughout the process, e.g. through design and choice of components.

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 local directives.

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.

The supervisor

Foreman's responsibility

- 1. It is the responsibility of the supervisor, on behalf of the company management, to ensure that the truck is operated and used correctly.
- 2. The supervisor is responsible for compliance with the requirements placed on the operator, see *Operator requirements page 5*.
- 3. It is the duty of the supervisor to instruct and to ensure that operator instructions are followed.
- The supervisor must supply, and the truck operator must sign for, the following relevant operation and maintenance manual.

The supervisor must also read and be familiar with the appropriate operation and maintenance manual.

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 operator 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 an authorized dealer who can offer a service agreement for continuous maintenance.

Conditions of use

The truck is designed to be driven under the following conditions:

- indoors
- under a canopy, see Climatic conditions page 103
- on a flat, hard and smooth surface
- with the maximum floor loading checked and not exceeded
- normal operating temperature, see *Climatic conditions page* 103
- · 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

Do not drive the truck over wet or dusty floors. Unclean floors covered with screws, nuts, bits of packaging etc. constitute a risk area.

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.

Truck Operator

Authorization to operate 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 an operator completes the appropriate truck driver training, both theoretical and practical, that corresponds to the work assignments the operator 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 operate the truck - as well as a written outline of the extent of his/ her duties.

Operator requirements

The truck operator shall have the mental and physical capacity required for the job. The operator 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 operator 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 operator in specific markets

The following apply in respect of the operator'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 operator 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*.
- · Any faults must be reported to the supervisor immediately.
- The truck must be kept clean and maintained so that it is always in good working order. It 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 genuine replacement parts!

Machine plates

Machine plate/Actual capacity plates

The machine plate and the actual capacity plate both contain important information that is vital for operating the machine. The operator must in all situations be aware of the limitations and conditions given in the plates.

Machine plate



Fig. 1. Machine plate

- 1 Model designation
- 2 Type designation
- 3 Type Serial No./Version (S= Special version)
- 4 Year of manufacture
- 5 Weight without battery

6 Minimum battery weight

- 7 Maximum battery weight
- 8 Battery voltage
- 9 Reference number (year and month of manufacture)

Actual capacity plate

In addition to the machine plate the truck has one actual capacity plate which stipulates the permissible combinations of lift heights, load weights and load centre distance.

The stated load limits assumes that the load is evenly distributed over the forks.



WARNING

The instructions on the actual capacity plate must be respected for the truck to meet stability requirements.

Actual capacity plate

The following actual capacity plate is used.



Fig. 2. Actual capacity plate

- D Load centre distance from fork back to the centre of gravity of the load
- Q Load capacity corresponding to each height H

Two different load centre distances can be given and are identified with a distance value on top of each of the two D columns

H Lift height over floor

Location of machine plates

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



Fig. 3. Location of machine plates

A Actual capacity plate B

3 Machine plate

Description of the truck

Four-way reach truck



Fig. 4. Four-way reach truck

The four-way reach truck is an electric truck specially adapted for handling long and bulky loads and different types of load carriers. Driving in four directions is possible due to the powered load wheel rotation design.

Driver environment Controls



Fig. 5. Foot control

- A Left-foot switch (safety function)
- B Brake pedal

- C Speed Controller
- D Battery lock for carriagemounted battery

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Fig. 6. Ergologic controls and dashboard

- A Display
- B Ergologic joystick
- C Emergency stop
- D Key switch (option)

- E Switch (see Switches table)
- F Handle for battery plug
- G Lever for battery changing system (optional)
- H 12 volt outlet

E1	Camera 1/2 (option) or wire guidance active indication light
E2	Floor lift/lower
E3	Floor spot (option)
E4	Work lighting (option)
E5	Camera on/off (option)

Rear view camera system for sideways driving (option)



Fig. 7. Rear view camera monitor

The four-way truck 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.

Floor spot (option)



Fig. 8. Floor spot

The truck can be equipped with a floor spot that projects bright light on to the ground to warn pedestrians or other truck operators that the truck is approaching.

Floor spot located centred on the overhead guard roof. The angle of the lamp is adjustable so as to project a spot of light on the ground at a distance of 2-4 metres from the truck. The warning light is only activated when the truck's direction control selector is in the forward position (opposite direction to the forks).

Floor spot can be switched on/off with a switch on the dashboard. Floor spot is not active when driving sideways.



WARNING

Do not look into the light source. Looking continuously, straight into, the floor spot from close-up may cause injury to the retina.

Hydraulic functions

Ergologic joystick



Fig. 9. Ergologic joystick



CAUTION

The fork spread function must not be operated with a load on the forks. The forks could bend and potentially cause damage to the truck and/or load. For the same reason, do not let the fork spread push against the straddle legs or other obstructions.



CAUTION

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

Reach truck / VNA reach truck				
Con- trols	Functionality		Movements	
A	Forks	Lower/Raise	Move the complete control away from, or towards, the driver	
В	Mast	Out/In	Move the complete control away from, or towards, the mast	

Reach truck / VNA reach truck				
Con- trols	Functionality		Movements	
С	Tilt	Up/Down	Move the control up or down	
D	Side shift	Pedal side/ Seat side	Move the control away from, or towards, the driver	
E	Fork spread (option)	Together/Apart	Move the control up/down	
F	Direction control switch (option)		Press the button to obtain the desired driving direction	
G	Horn		Press the button	
Н	Options		Options	
1	Options		Options	

7 DESCRIPTION OF THE TRUCK

Four-way reach truck				
Con- trols	Functio	onality	Movements	
A	Forks	Lower/Raise	Move the complete control away from, or towards, the driver	
В	Mast	Out/In	Move the complete control away from, or towards, the mast	
С	Tilt	Up/Down	Move the control up or down	
D	Turn the turning load wheel	Counter- clockwise/ clockwise	Move the control away from, or towards, the driver	
E	Fork spread (option)	Together/Apart	Move the control up/down	

Four-way reach truck				
Con- trols	Functionality		Movements	
F	Direction control switch (option)		Press the button to obtain the desired driving direction	
G	Horn		Press the button	
Н	Simultaneous turning of the drive and turning load wheel		Press the button and move control D away from/ towards the driver	
I	Options		Options	

Narrow reach truck				
Con- trols	Functio	onality	Movements	
A	Forks	Lower/Raise	Move the complete control away from, or towards, the driver	
В	Mast	Out/In	Move the complete control away from, or towards, the mast	
С	Tilt	Up/Down	Move the control up or down	
D	Side shift	Pedal side/ Seat side	Move the control away from, or towards, the driver	
E	Fork spread (option)	Together/Apart	Move the control up/down	

Narrow reach truck				
Con- trols	Functionality		Movements	
F	Direction control switch (option)		Press the button to obtain the desired driving direction	
G	Horn		Press the button	
н	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.

CAUTION

The fork spread function must not be operated with a load on the forks. The forks could bend and potentially cause damage to the truck and/or load. For the same reason, do not let the fork spread push against the straddle legs or other obstructions.



CAUTION

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

Four-way reach truck

Lever	Away from the truck driver	Towards the truck driver
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.

Instrument panel and armrest

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 armrest.



Fig. 10. Hydraulic levers, four-way reach truck

Lever	Away from the truck driver	Towards the truck driver
1	Lower	Lift
2	Mast out	Mast in
3	Tilt down	Tilt up



Fig. 11. Adjustment of the dashboard and armrest

- A Press button A to adjust the complete dashboard forward or back (Reach truck, VNA reach truck and four-way reach truck).
- B Move lever B upwards to adjust the height of the armrest.

Operator 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 and 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.

T_B

Neck support (option).

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.

Fig. 12. Adjusting the head rest



Fig. 13. 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.

B. 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).



Fig. 14. Adjusting the midi-wheel

Stability Support System, S3

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

Trucks fitted with the S3 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 5 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 reach truck is moving sideways, S3 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 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 (option)

The S3-2 allows a high performance with faster driving speed with low load weight.



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.

Refer to the following table to see which of the truck models are or can be equipped with the S3-2 option. S3-1 option is required for S3-2.

Truck model	S3-2
Narrow reach truck	Options
Reach truck	Options

Weight indication (option)



Fig. 15. Load weight indication

This option shows the current load (A), rounded to a nearest 100 kg, in the operational screen. The weight is shown when the forks are raised at almost maximum speed for approximately 2 seconds. The weight is also updated after each time the load is lowered. To use weight functions see *Weight screen (option) page 43*.



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.



NOTE

Any modification of lift and/or lowering speed will result in less accuracy in the load weight calculation.

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 page 17*) 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 is shown on the truck display. To override the system and continue a fork movement, press the D function button on the multi function display, see *Operational screen page 39*.

Cab (option)

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



Fig. 16. 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.



Fig. 17. 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.



Fig. 18. Heating element

7 DESCRIPTION OF THE TRUCK



Fig. 19. 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.

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



Fig. 20. 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 in 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).



CAUTION

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



Fig. 21. Cab, functions

A Lighting

R

Inner handle

C Outer handle

Lift stop (option)

The lift stop option stops the forks at pre-set heights to avoid contact with the ceiling or other obstacles. When a lift stop height is reached the lift stop icon will be shown in the multi function

display, see *Symbols in the display page 46*. Up to two lift stop heights can be set for different height restrictions with the multi function display, for example different ceiling heights in a warehouse. The forks will stop at each lift stop level. To raise the forks to the next lift stop level press the lift stop override button on the multi function display, see *Fig. 33*. *Lift stop override icon, page 41*. If the forks are lowered above the lift stop heights, restart needs to be activated to be able to raise the forks again. If the forks are lowered below the lift stop height, no restart is necessary. The pre-set lift stop heights are set when the truck is ordered or can be changed by authorised service technician.

Level Assistance System, LAS (option)

LAS is a positioning system that helps the operator to position the forks when inserting a pallet into, or withdrawing a pallet from a rack. The LAS system is available for trucks with the multi function display. When the operator starts a lifting movement, the function keys of the multi function display shows letters for zone selection for a few seconds. There can be up to 4 different zones. While the letters are shown, a zone can be selected by pressing the corresponding function key. If no letters are visible then there is only one zone. When the operator requests a lifting speed that is lower than a pre-set speed, the lift motion will stop at the position of the next shelf. The selected level is visible in the operational screen with a letter between A and D and a number indicating the zone and level where the forks will stop. When the forks reach the selected height, the zone and level indication will turn green. There will be an audible alert when the forks reach the selected height.

The option has up to four zones with up to ten different height levels in each zone. The pre-set heights are set when the truck is ordered or by an authorized service technician. The zone selection will replace the function row icons for 4 seconds when raising the forks. The number of zones shown are 2, 3 or 4. If only 1 zone is available no zones are shown.



Fig. 22. Zone selection for level assistance system

Options

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

Options	Descriptions	Options	Descriptions	
Camera system	Colour system with a fork-mounted camera and a 7 inch LCD screen	Floor spot	Projects a bright spot of light on the ground to warn pedestrians or other	
Radio/CD/MP3			approaching.	
12 V DC outlet	Power supply, e.g. for a mobile telephone	Integral fork positioner/ side shift	Unit with integral fork positioner/ sideshift.	
48-12 V converter	5 A/60 W, located below the right armrest	End of Aisle (End Of Aisle)	The fork lift truck automatically slows down or stops when it reaches the	
Key switch entry	The truck is started using a key		end of an aisle.	
Smart Start	The truck is started using a card	Wire guidance	The fork lift truck is guided by a wire in the floor (only)	
	instead of a pincode.	Rail guidance	The fork lift truck is guided by rails on the floor (only)	
Work lighting	2 lamps mounted below the			
	overnead guard.	Weight indication	System that indicates load weights	
Accessory holder	Arm with holder for a terminal, for example	Fork Safe Zone System	Electronic system to protect the straddle legs from being damaged	
Writing desk	Adjustable writing desk suitable for		by the forks	
	A4 format, including accessory holder	360 degrees steering	As standard, the trucks have manually operated direction of travel	
Rear view camera system	Colour system with a mast-mounted camera and a 7 inch LCD display		selectors and 360 degrees steering	
Rear-view mirror	Wide angle mirror	NOTE		
Position light	Visual aid to locate the fork lift truck correctly in the aisle while stacking	The user instructive items are supplied	tions for possible additional equipment ed together with the equipment.	

Battery

Battery specification

For information regarding battery capacity (kWh) see battery name plate. Only use the manufacturer's approved battery tray.

Table 1. Batteries as standard

Truck model	Battery voltage and capacity (V/ Ah)	Weight min/max (kg)
UFW 200	48/465-930	712/1567
UFW 250	48/560-930	892/1567

Battery, general information

Battery servicing should only be carried out by specially trained personnel. Batteries may, however, be charged by other personnel provided that a battery connector 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 or with a Lithium-ion battery system, see *Lithium-ion battery page 29*. Only fully automatic charging units should be used.

Requirements of EN 1175:2020, Annex A and C as well as EN 50272-3/EN 62485-3 must be met. See the battery supplier's instruction book and the instruction handbook for the battery charger.

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

WARNING

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

WARNING

Always use protective glasses when working on or around the battery. Acid can cause serious burn injuries.

WARNING

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

WARNING

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

WARNING

The battery charger may only be connected to a grounded socket.



Charging the lead-acid battery

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

3



Fig. 23. Battery charging (STILL-unique battery plug)

Pull the battery plug out from the battery using the connector handle.

CAUTION

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

4 Ensure that the electrolyte level is correct, as per battery supplier instructions. The battery may be damaged if the cell plates are dry during charging. The battery electrolyte may overflow when charging if its level is too high.



NOTE

This does not apply to gel batteries.

Before charging, ensure that the plates are covered with battery acid, but not over the edge of the plates. The space above the plates is needed for charging as the fluid increases in volume.



NOTE

If the battery water needs to be filled more than once a week, it generally indicates that something is wrong. This applies to normal environment and normal use.

- 5 Connect the charger's connector to the battery plug.
- **6** Set the charging switch on the battery charger to on. Check that the battery charger is charging.
- 7 When the charging is completed, set the charging switch to off.
- 8 Disconnect the battery charger connector.
- **9** Check the battery water and, if necessary, fill to the correct level as per the battery manufacturer's instructions.

10 Connect the truck to the battery connector by turning the handle if the truck is fitted with one.

Maintaining and changing the battery (Lead Acid)

Battery on carrier

- 1. Press the battery fetch function button on the display 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 the battery fetch function button on the display 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** to go in. 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 the battery fetch function button on the display 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.

Lithium-ion battery

General information

- Battery service should only be carried out by specially trained personnel.
- Different battery types are not interchangeable. The battery type the truck was supplied with is the only battery type possible to use. For example, if a truck is equipped with a lithium-lon battery system it is not possible to exchange with a lead-acid battery, and vice versa.
- Only fully automatic charging units must be used. Charge the battery in accordance with this manual, with a certified charger suitable for the battery.
- Charging stations must comply with all standards, legislation and local regulations which may vary from region to region. For example, it is usually prescribed that safety equipment must be available.

 Requirements of EN 1175:2020, Annex A and C as well as EN 50272-3/EN 62485-3 must be met. See the battery supplier's instruction book and the instruction handbook for the battery charger.



WARNING

Only a certified charger installed by an authorized service technician should be used.



WARNING

The battery charger may only be connected to a grounded outlet.



WARNING

Disconnect the battery and mains connection prior to maintenance, troubleshooting or cleaning of the battery.



NOTE

Only use original lithium ion batteries. Please contact the truck manufacturer or authorised dealer for more information.

Nameplate

Each battery system is fitted with a corresponding nameplate containing the typical battery performance data and serial number.

Always give the serial number when making inquiries. See name plate for information about battery voltage, capacity and weight.

D-08371	Glauchau • Tel.: +49 3763 778	50 · E-Mail: Intol	triathion-bat	tterien.de	
					2
latterietyp: lattery Typ:	Lithium Ion	Series M	TRI1082		
lenspanning Iominal Voltage	24 V DC ==	Leistung: Performance:	6,64	kWh	
lezichnung: lesignation:	TC5207-05	Rapaditit CS Capacity: CS	260	Ah	
had -Datum had -Date:	45/2015	Gewicht 15% Weight 15%	364	kg	





WARNING Do not remove the nameplate.
Safety instructions



Read and follow the instruction and safety manual for the truck and battery provided.

Both the instruction and safety manual should always be accessible to the operator in their work area, for when questions arise.



The battery system must not be dismantled or modified. Maintenance on the battery system may only be carried out by your local service partner or supplier.

Do not operate the battery system in potentially explosive zones. Do not allow it to come in contact with fire or be shortcircuited. The system may only be charged with an approved charger.

If these regulations are not followed, escaping liquid or gas, a fire hazard or excessive heat generation can occur.



The terminals of the battery may be live. There is a short-circuit risk.

The battery system must be kept dry at all times.



Never attempt to open or dismantle the battery system. Doing so risks the possibility of coming into direct physical contact with the electrolyte, which is very caustic and is to be avoided at all times.





If electrolyte substance comes in contact with your skin or eyes, rinse with plenty of water and consult a doctor immediately. If your clothing becomes contaminated, remove without delay.





Return the battery system to the manufacturer for free of charge recycling, or certified recycling company.



Do not lift the battery system diagonally or unevenly. The battery must always remain upright.

Always use a battery lifting beam when lifting the battery system. Unplug the battery/load and charger connectors before lifting.

Description of the operating and display unit of the charger

The operating and display unit of the charger is equipped with a battery LED indicator, symbols, a graphic display and pause button.



Fig. 24. Operating and display unit of the charger.

A. Pause buttonB. Graphic display

- C. Battery LED indicator
- D. Warning symbol

To interrupt the charging process, press the **pause button** 0.

Table 2. Indication of the	operating state	via the battery	LED indicator.
----------------------------	-----------------	-----------------	----------------

Battery LED indicator	Operating state during charging
	No battery connected
	Main charge
	Back-up charge
	End of charge
	End of charge/Balancing

Table 2. Indication of the operating state via the battery LED indicator. (cont'd.)

Battery LED indicator	Operating state during charging
	Wrong battery connected, too high voltage for this charger (yellow LED flashes)
	Pause mode (LEDs flashing alternately)

Indication of the operating state via graphic display

The graphic display of the charger has a few different operating states, primarily:

- The start display indicates the set charging parameters.
- Battery charging indicator this display is shown during the entire charging process.



Fig. 25. Example of graphic display during charging.

- 1. Current battery voltage
- Charging time of the entire charger
 Charged Ampere hours
- 2. Battery charge indicator
- 3. Graph display for charging current (0–100%)

Charging

The lithium-ion battery system should be fully charged at least once a week and more often if possible, see *Battery maintenance and inspection page 35*.

The every day procedure for charging the lithium-ion battery system is referred to as "Opportunity charging" and is designed to benefit from intermittent, sporadic charging, at any given opportunity; even if only for a short time.

33



WARNING

Before charging ensure that there is no damage to either the battery, mains connector, the housing, charging and power cables, the charging plug and all exterior screw connections.



WARNING

Detected defects must be reported to a supervisor immediately. The defective charger must then be marked and decommissioned until rectified.



WARNING

A damaged or otherwise defect charger may cause personal injury and/or damage to property.

Start of charging



- 1. Connect the charger plug to the battery connector, located on the side of the battery.
- 2. Check that the charger activates, on either the battery LED indicator or the graphic display.

After charging

1. Stop the charger using the charger **pause button** ⁽¹⁾.



WARNING

There is a risk of severe personal injury and/or damage to property, when a running charging process is interrupted by pulling out the charging plug.

- 2. Disconnect the charger plug from the battery.
- 3. Start the truck using the normal log-in procedure, see *Starting the truck page* 53.

Discharging

If the battery is not used for a long period of time (>2 hours), the battery automatically switches to Sleep Mode. The battery can be reactivated by pressing the On-button on the battery display.

At a discharged level of 15% (85% of the battery system's capacity spent), the integrated alarm horn briefly sounds once. The battery should be charged as quickly as possible.

At a discharged level of <10%, the integrated alarm sounds, pulsing steadily. The battery has to be charged immediately.

At a discharged level of 0%, the battery is turned off.



WARNING

This should be avoided at all costs as the sudden cutoff of the battery can lead to damage and hazards.

After one minute the battery can be activated by pressing the Onbutton one more time in order to directly drive to the charger. After that, the battery remains turned off in order to avoid further damage.



WARNING

If the battery has shut off due to a low discharge level it must be charged immediately, as it can lead to **permanent damage** to the battery system. Long times at a fully discharged level must be avoided at all costs.

Battery maintenance and inspection

Battery balancing

At least once a week (more often preferably) the lithium-lon battery system need to perform a **battery balancing**. This is done through allowing the battery to charge to full.

To start the charging, follow the procedure of *Charging page 33* and let the battery remain charging until the battery LED indicator and the graphic display states 100%. The battery balancing should be left charging for a minimum of one hour. The certified chargers are designed to control and terminate the charging cycle automatically, once complete.

The battery system can become permanently damaged if it sits discharged for a lengthy period of time. The fully charged system can be put into storage for up to 6 months, before it must be recharged.

Battery service



NOTE

Only clean the battery system when the system is switched off.

If it's necessary to clean the battery tray, use a soft, clean cloth, but never use liquids (acidic or abrasive cleaning products).



CAUTION

Never use a pressure washer or steam to clean the outside of the battery.

Before each use, check the battery system for damage (loose plugin connections, defective cables, etc.). If a defect exists, contact your local service partner or supplier.



CAUTION

Battery and battery charger service may only be carried out by specially trained personnel. Do not under any circumstances attempt to repair the battery on your own.

Service and repair

The battery system require regular service inspections and maintenance as performed through an authorized service partner. If any errors are displayed or the unit malfunctions, immediately contact your local service partner or supplier.

Error Messages

When errors occur an error menu is accessible.

• The battery system will not start or it shuts down.

Necessary Action: Contact your service provider.

• The horn is pulsing steadily: maximum discharge of 90% was reached (10% remaining).

Necessary Action: Charging is required.

• The battery system shuts down: 100% discharge has been reached (0% remaining).

<u>Necessary Action:</u> Acknowledge that the battery is in a state of deep discharge. After one minute, press the ON/OFF button and immediately drive slowly back to the charging station and put the battery on charge to prevent battery damage.



WARNING

This should be avoided at all costs as the sudden cutoff of the battery can lead to damage and hazards.

WARNING

If the battery has shut off due to a low discharge level, it must be charged immediately. Long sitting times of discharged batteries are to be avoided at all costs. Nonobservance can lead to battery damage. • The battery does not switch on — possibly no communication with the charger or vehicle.

Necessary Action: Check the plug and cable (contact problems).

• External display does not respond.

Necessary Action: Check the plug and cable (contact problems).

Any other errors or faults, the service partner or supplier must be notified immediately.

Technical specifications

Further performance data of the battery system is given on the respective nameplate, that can be found on the battery and in the operation and maintenance manual for the truck.



WARNING

The lithium-ion battery system is not compatible with cold store environments.

Operating temperature range

 -28° C to + 55° C (discharge)

-28° C to + 55° C (charge)

Nominal operating temperature 25° C

Storage temperature -20° C to + 45° C

Self-discharging

<u><</u> 3 % per month at 25° C

Multi function display

Multi function display

The truck is equipped with a multi function display that enables the operator to interact with the control system and receive relevant information.



Fig. 26. Multi function display

Overview of multi function display



Fig. 27. Multi function display, overview

- A. Display area
- B. Function key identifier row
- C. Function keys

D. Dedicated keys

The dedicated keys are from left to right, arrow left, arrow right, backspace, enter.

Start the truck by logging on using the multi function display

After the initialization is finalized and the display is ready to receive operator authentication data the logon screen is displayed.



Fig. 28. Logon screen

- A. Parking brake icon
- B. Function key identifier row
- C. Function keys
- D. Dedicated keys

- E. Time field
- F. Operator ID input field
- G. Operator password input field

Start the truck by logging on:

 Enter Operator ID by entering numbers with the function keys (pos C) corresponding to numbers in the function key identifier row (pos B). When the operator ID has been entered the cursor will automatically move to the operator password input box. It is an option to not have the operator ID as a required input field and only use operator password. This is available as an option when ordering the truck or by a service technician.

The default function key set-up is [1 2 3 4]. Press the "*Arrow right*" key to change function key set-up to [5 6 7 8] then [8 9 menu.]. To reverse press the left arrow.

To change digits that has been entered, use the "*Back space*" key to erase one position with each activation.

2. Enter **Operator password** by entering numbers with the function keys (pos C) corresponding to numbers in the function key identifier row (pos B). If incorrect code is entered a red X will appear over the logon screen.

The default function key set-up is [1 2 3 4]. Press the "*Arrow right*" key to change function key set-up to [5 6 7 8] then [8 9 menu.i]. To reverse press the left arrow.

To change digits that has been entered, use the "*Back space*" key to erase one position with each activation.

If the truck is equipped with a key switch and multi function display then the key switch acts as logon and start function, see *Key switch logon for multi function display page 39*. The menu screen is accessible from the logon screen, see *Menu screen multi function display page 48*.

Key switch logon for multi function display

When using the key switch authorization a key symbol is shown on the display. Using the key switch will login and load the main screen.

Operational screen

If the operator is identified and the password combination is valid, the main screen is presented and the truck starts.



Fig. 29. Operational screen

- A. Centre indicator
- B. Battery discharge indicator (BDI)
- C. Function key indication row
- D. Arrow keys
- E. Multi-purpose indicator
- F Load wheel indicator
- Centre indicator (A) shows steering direction. The centre indicator can show warnings, Step off and Hands off if needed. If the truck has the options wire or rail guidance, those symbols will be shown in the centre indicator when activated.
- The battery discharge indicator (B) graph shows the battery level.
- The function indication row (C) shows which functions are available.
- The arrow keys (D) switches between the functions available.
- The load wheel indicator (F) shows the wheel orientation.



Fig. 30. Load wheel orientation

- A Longitudinal orientation
- B Lateral orientation
- C Intermediate orientation
- D Deviating orientation warning



Fig. 31. Function description

- A Performance selection
- B Activate/deactivate wire guidance or rail guidance
- C Weight screen
- D Log off
- E Level selector
- F Activate centring mode



Fig. 32. End of aisle override

If the truck is equipped with end of aisle option, the log off function key (D) is replaced with End of aisle override until normal drive function is activated.



Activate/deactivate low speed

Battery fetch. Override reach

retract limit to dock to battery

Multi-purpose indicator toggle

180/360 steering screen

Menus screen

G

Н

J

Κ

Fig. 33. Lift stop override icon

If the truck is equipped with a lift stop function and a lift stop height has been reached, a lift stop override key will be activated in position D. This will allow the load to be lifted higher.



Fig. 34. Override fork safe zone

If the truck is equipped with a fork safe zone option and the forks have reached a safe zone limit, a fork safe zone override key will be activated in position D. This will allow the forks to shift further.

- Press function button (A) to change Performance category. From left to right, Power mode, Eco mode, Easy mode (reduced performance can be set as only option for specific operators).
- Press function button (B) to activate or deactivate wire guidance or the rail guidance system.
- Press function button (C) to open the weight screen.
- Press the Log off button (D) to log off.
- Press the level selector button (E) to open the level selector screen.
- Press the active centring button (F) to activate centring mode.
- Press function button (I) to open 180/360 steering screen.
- Press button (J) to open the menu screen.
- The multi-purpose indicator (K) can show either temperature or power consumption.

- Press the low speed button (G) to activate or deactivate low speed.
- Press fetch battery button (H) to activate fetch battery.

Battery discharge indicator (BDI)

This function shows the state of charge of the battery, see figure *Operational screen page 39.* If the truck is configured with a standard battery, the colour of the bar graph is white. If the truck is configured with a litium-ion battery, the graph is blue. When Eco mode is selected, BDI is in eco green and with a eco leaf, see *Symbols in the display page 46.*

Centre indicator

The centre indicator shows the trucks status regarding driving mode and safety features, such as operator presence detection. In normal operating status the steering angle indicator is shown, see *Steering angle indicator page 45*. If operator or truck is in a position that stops the truck from moving it will be shown in the centre indicator. If the "No hands" or "Step off" icon is shown in the centre indicator then the operator should release the controls, release all pedals or step off the truck. For more information see *Symbols in the display page 46*.

Weight screen (option)



- A Add current weight to accumulated weight (only with high accuracy measurement)
- B Reset accumulated weight
- C Current weight on forks
- D Accumulated weight since last reset
- E Return to main menu
- F Tare current weight (only with high accuracy measurement)

The weight (C) shows the current weight on the forks, rounded of to the nearest 10 kg. The weight + icon shows accumulated weight since last reset. Reset of accumulated weight is done by pressing function key "Zero" for 1 second. Tare of current weight can be performed with the TAR-function key. The current weight is added to the accumulated weight with the weight + function key by pressing the key for one second.

A high accuracy measurement (+/-50kg) is achieved when the load becomes stationary below 0.5m after a fork lowering movement. When the forks are raised or when the forks are above 0.5m, a measurement is still performed but with lower accuracy (+/-100kg). This is indicated by a (~) in front of the weight value. If a load weight cannot be established three lines (- - -) are shown. <100 kg is shown if the load weight is below 100 kg.

Level selector screen (option)



Fig. 35. Level selector screen

- A Selected zone
- B Level selections
- C Insert load
- D Withdraw load
- E Zone selector toggle

Access the Level selector screen by pressing the Level selector screen button on the operational screen, see *Operational screen page 39*.

The zone is chosen by pressing the zone selection toggle function key (E).

Once a zone is selected the desired shelf level can be selected by using the arrow keys to highlight the shelf level then pressing the return button. Up to 10 shelf levels can be preset. The second and third function keys are insert (C) and withdraw keys (D). Select the desired shelf level by pressing insert (C), withdraw (D) or thee return button. The return button selects the last selected insert or withdraw function. Once the level is selected, press the back key to return to the operational screen. The level is visible in the operational screen with a letter between A and D and a number indicating the zone and level that is currently selected. The forks will now stop automatically at the selected height, the selected zone and level indication will turn green.



Fig. 36. Level indication

- A Zone and level indication
- B Level selector

Steering angle indicator



Fig. 37. Steering angle indicator

- A Acceleration away from forks
- B 180 steering indication
- C Acceleration towards forks
- D 360 steering indication

The inner circle indicates if 180 degree steering or 360 degree steering is selected and which travel direction is chosen, towards or away from forks. Before a steering option is selected, the inner circle is not visible. The outer circle indicates which direction the steering wheel is pointing at.

180/360 steering selection screen (option)



Fig. 38. Steering selection screen

In the steering selection screen the operator can select between 180 degree or 360 degree steering. 360 steering allows the steering wheel to be turned without stopping. The selected steering is highlighted with a blue background and is changed with the arrow keys. Use the enter key to confirm selection. The selection is saved for the next time the operator logs on to the truck.

Symbols in the display

The truck uses various symbols, colours and error codes in the display to communicate with the operator. Examples of symbols in the display are shown below.



Fig. 39. Symbols in the display

1. Icon row

Icons and positions may differ between different truck types. Symbols that can be displayed are:

Symbol	Description
STOP	Indicates that drive stop is active.
	Parking brake is active.
	Eco mode is active.
	The truck is equipped with regenerative braking. When the brake system is charging the battery, the arrow symbol is displayed.
$\overline{\mathbb{C}}$	Reversed steering.

9 MULTI FUNCTION DISPLAY

Symbol	Description
_	Lower to the floor.
	Lift stop.
$\langle \mathcal{L} \rangle$	Operators left foot not placed on operator presence detection pedal.
	Operator not seated.
	Temperature.

Symbol	Description
Ρ	Power consumption.
~	Low speed. Activate by pressing low speed function button.

Audible alert

The display features a buzzer to call attention of the operator to the display, when significant information is shown, such as errors.

Menu screen multi function display



Brightness adjustment



In the menu screen, use the arrow keys to choose one of the icons and select by pressing the enter key. The screen corresponding to the selection is displayed. The options available are brightness adjustment, hour/trip meter, time/date adjustment, operator session log and versions readout. Exit the menu screen by pressing the back button. Change the brightness with the arrow keys, to increase brightness by moving the cursor to the right and to decrease the brightness by moving the cursor to the left. Save and exit to menu by pressing the enter button.

Hour/Trip meter



- A. Trip screen
- B. Reset trip meter

The hour screen shows total accumulated operating time. The trip screen shows the current operating time. To reset the trip meter press and hold the reset trip meter function key for one second. Exit to menu by pressing the back button.

Change time/date



Highlight the desired section by pressing the arrow key. The numbers can then be increased or decreased with the corresponding function key. When the desired number is reached, press the enter key to save and exit edit mode. 12/24 h format can be changed with external service tool. Exit to the menu screen by pressing the enter button. Press the back button to disregard changes made and exit to the menu screen.

Operator session log

Versions



In the operator session log is a list of dates and times of when operators were logged on. The format is YYMMDD hh:mm. The left column shows operator logon time, the middle column shows operator logoff time and the right column shows the operator ID. Scroll up in the list with the left arrow key and down with the right arrow key. Exit to the menu by pressing the back button. The versions screen shows the current software versions installed on the trucks electric system devices. C (A) shows the screen for the copyright for the font used. Exit to menu by pressing the back button.

Multi function display warnings

There are a number of different warnings used to attract the truck operator's attention in the case of e.g. an operational error. Some of the truck's systems will also not be operable until the operator has followed the instructions on the display. Other warning messages are displayed if any system in the truck is not working or starts to overheat. An audible alert will sound if there is a system error or warning. If the warnings do not disappear even though the operator has followed the instructions on the display, contact an authorised service technician.

Table 3. Warning messages in the display

Warning	Descriptions	Operator actions
N/	No Hands symbol.	Release all hand controls.
	Step off symbol.	Release all foot controls. If symbol remains step out of truck.
	Weight overload.	Lower the load or remove load.
	Temp warning.	Temperature in truck is high and reductions in performance may occur automatically. Allow truck to cool down.

Table 3. Warning messages in the display (cont'd.)

Warning	Descriptions	Operator actions
~	Service due.	Contact authorized service engineer.
	Low battery. Warning indication and low battery indicated in battery discharge indicator. Low battery is indicated by the bar changing colour to orange and when a critical level is reached, to red.	Charge the battery. Critical level may damage the battery.

Table 3. Warning messages in the display (cont'd.)

Warning	Descriptions	Operator actions
	System error warning. There are two levels of system error warnings, yellow and red. Yellow: System error that may impede some functions. Red: system error that will impede normal truck operation.	In the event of a persistent warning triangle, cut power to the truck by disconnecting the battery or press the emergency stop button. Restart after 10 seconds. If error message remains contact service technician.
R	Limp home. A system error has caused truck to enter Limp Home mode. Driving performance is reduced.	Drive to service area and contact service technician.
	Battery restraint not locked	Lock battery restraint

Table 3. Warning messages in the display (cont'd.)

Warning	Descriptions	Operator actions
	Swivel forks not in home position	Return forks to home position
	Delivery mode or remote controlled service mode activated.	Deactivated once normal operation resumes. Contact authorised service technician.
O	Personnel protection system has detected personnel in aisle.	Make sure no person or object is in the aisle.
K	Fork safe zone limit reached.	Move forks to position that is not at the fork safe limit or override the fork safe zone limit.

Driving instructions

Starting the truck

1. Connect the battery connector. Check that the emergency stop function is disengaged. The drive wheel is automatically centred at power-up. If the truck is equipped with lithium ion

battery, the truck is started by pressing the on/off button 4.

2. Ensure that no controls are affected.



NOTE

A safety function prevents the truck from starting if any of the controls are activated while attempting to start the truck.

- 3. The fork lift truck is started in one of the following ways:
 - Display with key switch entry:

a. Turn the start key to the position I.

- Multi function display with password:
 - a. Enter operator ID, see *Multi function display page 38*. Note that there must be as many characters as there are character positions.
 - b. Enter your password.
 - c. If a valid operator ID and password have been entered, the truck is ready to be driven.



WARNING

Please ensure the truck has come to a complete standstill before leaving the truck.

Driving instructions

- 1. Start the truck, see Starting the truck page 53.
- 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 .
- 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 affect the steering.

If the truck is driven in the direction of the forks and steered clockwise, the truck will turn counterclockwise. 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 or 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.

Four-way reach 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, see *Hydraulic functions page 10.* 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 four-way reach 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

The truck is switched off in one of the following ways:

• Truck with key switch entry:

Turn the start key to the position 0.

• Multi function display:

Press the log off button pressed for approximately two seconds until the log on screen is visible, see function description in *Operational screen page 39* (D).

If the truck is equipped with lithium ion battery, the truck is switched off by pressing the on/off button **(2)**.

In the case of a lengthy stop, pull out the battery connector.

NOTE

Always turn off the truck in accordance with the above instructions before the battery connector is disconnected to avoid locking the program or damaging the truck computer system.



NOTE

Emergency stop must not be used to switch off the truck.

Normal or low speed

Normal mode has no symbol. Low speed has a symbol. Activate low speed by pressing the low speed function button, see *Operational screen page* 39. It is possible to manually activate low speed during operations. Low speed is set to 40% of the predefined maximum speed. This setting can be altered by an authorised service technician.

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

General loading and unloading information

Responsibility for the load

The operator 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 operator of the truck has the right and duty to refuse to carry any load that is a clear safety hazard. Refer to the actual capacity 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 truck operator has the right and duty to see that these directives are followed.

Maximum load

The maximum lifting capacity of the truck must not be exceeded (refer to the fork lift truck machine plate). Note the effect of the load centre distance 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.

Check the load centre distance of the load. See actual capacity plate

Do not drive with the load lifted.

CAUTION Check the load capacity plate.

Stacking

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.

Maintenance of the truck

Daily inspection (before each shift)

Responsibility: Truck operator



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 signal horn by activating the controls while the truck is logged in.
- 5 Check the braking capacity on the main brake and parking brake, see section *Driving instructions page 53*.
- 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 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 5 Truck Operator page 5.

Daily inspection (after each shift)

Responsibility: Truck operator

Battery charging

Check the battery voltage on the battery discharge indicator.

Charge the battery if necessary. Only an original charger suited to the battery may be used.

Refer to section 8 Battery page 26 for the charging procedure.

If there is damage

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

Weekly inspection

Responsibility: Truck operator

- 1 Clean the battery; see the battery manufacturer's maintenance instructions.
- 2 Check the oil level in the hydraulic system by pushing all the hydraulic cylinders to their end positions. Then, control that the fork assembly reaches the maximum lifting height without the pump sucking air.
- 3 Check that the wheels are intact.
- 4 Check that magnetic dust or similar waste has not stuck to the outside of the rotating wheel brake. If this happens, the brake in the rotating wheel must be cleaned according to chapter *Cleaning the steered wheel brake on four-way reach truck page* 77.
- 5 The outside of the truck should be cleaned. Vacuum clean, and wipe with moist cloth in the operator 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 manufacturer's warranty.



Fig. 40. Four-way reach truck

- A safety bolts for carriage in the chassis
- B safety bolts for the lift protection in the intermediate mast

6

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.

Servicing and maintenance

Service technician



NOTE

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

To achieve the best result from your truck investment, we encourage you to contact your service organisation to sign an active maintenance agreement with continuing service.

Safety instructions for maintenance

Working at height

Comply with local safety instructions when working at height.

Precautionary measures during repairs

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



WARNING

The battery connector should be pulled out before working on the truck.



WARNING

Do not touch non-insulated electrical connections without the battery being disconnected for at least two minutes.

- Ensure that the drive wheel is off the ground before troubleshooting. Secure the truck with blocks.
- To prevent crushing injuries, the battery connector 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 must be shut off and the forks down.
- The battery should always be protected during grinding work.
- When changing a fuse, the controllers must be thoroughly discharged. (Remove the battery connector and wait for two minutes before fuses are changed, otherwise there a risk of arcing.)
- Great caution must be observed when removing gas springs. They contain compressed gas and may explode.

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.

Symbol key lubrication chart

Sym- bol	Explanation	Sym- bol	Explanation
\bigcirc	Hydraulic oil		Hydraulic oil and oil filter, air filter, change
\bigcirc	Gearbox oil	-	Gearbox oil, change
	Grease	ightarrow	Oil filter and air filter, change
\bigtriangledown	Chain spray/oil	*	Only cold store version

Applicable in general for the symbols:

Unfilled symbol, check lubrication.

Filled symbol – Change.

Lubrication chart, four-way reach truck



Fig. 41. Lubrication chart, four-way reach truck

Table 4. Lubrication points

Pos	Lubrication points
А	Mast profile roller surfaces and slide surfaces
В	Swivel wheel bearings and steered wheel bearings *)
С	Battery lock, slide surfaces and springs
D	Reach and tilt cylinders
Е	Mast bearing, support rollers
F	Chain pulley
G	Lift chains, all lift chains in the mast, height measurement chain
Н	Seat suspension
I	Slide rails
J	Hydraulic tank
К	Stearing bearing
L	Gearbox
	*) Steered wheel must be turned 45° in order to reach the grease nipple.



Fig. 42. Lubrication chart, fork carriage for four-way reach truck

Pos	Lubrication points
А	Gear shaft
В	Slide surfaces for fork carriage and forks
С	Thrust rollers
D	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.



Fig. 43. Lubrication chart for cab

Table 5. Lubrication points for cab

Pos	Lubrication points
А	Door hinge
В	Cover hinge
С	Heater hinge
D	Lock

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.

Designa- tions	(A)	Use
F1	7.5	B+ VCM
F2*		Power fuse TMC
F3*		Power fuse PMC
F4	40	EPS power fuse
F6	7.5	DC/DC 48/12
F7	7.5	Hydraulic valves

Designa- tions	(A)	Use
F9	7.5	Hydraulic valves and fans
F10	5	Logic supply VCM
F11	3	Fans
F12	7.5	Key input TMC
F14	5	Main contactor fuse
F18	5	EPS logic power
F20	5	Coil supply K2
F21	5	TMC/PMC selection
F24	5	Seat heater
*Should be changed by an authorised service technician		

Table 6. Options

Designa- tions	(A)	Use
F13*	80	Main fuse cabin
F15	5	Radio/interior light
F17	5	Floodlight
F21a	35	Power battery bed

Table 6. Options (cont'd.)

Designa- tions	(A)	Use
F22	5	Power battery bed logic
F25	15	Fans in cabin
F26	5	Heaters in cabin
F27	25	Heater in cabin
F28	25	Heater in cabin
F29	25	Heater in cabin
F30	25	Heater in cabin
*Should be changed by an authorised service technician		

choud be changed by an autionsed service technic

Servicing, type and frequency General

Before service, the truck should be test driven, in order to test its functions. Any errors should be corrected before servicing the truck.

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. Your authorised service organisation can help you assess this.

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

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

X Obligatory

O Not obligatory

Chassis		
Description	Service	
Signs/Decals	Х	
Covers and panels	Х	
Overhead guard	Х	
Battery stop, Lock, Rollers	Х	
Chassis		
----------------------------	---------	--
Description	Service	
Rubber mat	Х	
Chassis	Х	
Lubrication	Х	
Driver seat	Х	
Caster wheel/steered wheel	Х	
Microswitch	Х	
Colour	Х	
Finger protection	Х	
Stabilizing lugs	Х	
Machine plate	Х	

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

Mast system		
Description	Service	
Chains	Х	
Forks, fork carriage	Х	
Bearings/Rollers	Х	
Lubrication	Х	
Mast profile	Х	
Reach carriage	Х	
Fork locking	Х	

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

Hydraulic system		
Description	Service	
Hydraulic oil level	Х	
Hoses	Х	
Couplings	Х	
Pump motor	Х	
Hydraulic pump	Х	
On/off valve proportional valve	Х	

Lift cylinders		
Description	Service	
Cylinders	Х	

Electrical system		
Description	Service	
Cables, Switches	Х	
Contactors	Х	
Battery	Х	
Drive motor controllers	Х	
Horn	Х	

Electrical system		
Description	Service	
Speed Controller	Х	
Brake pedal	Х	
Level selector	0	
Mast sensor/switch	Х	
Fuses	Х	
Battery plug	Х	
Video camera	0	
Cooling fan	Х	
Truck computer	Х	
Emergency stop	Х	
Lift switch	0	
Left-foot switch	Х	
Hour meter	Х	
Operator presence sensor	Х	
Battery indicator	Х	
Key switch	0	
Warning light	Х	
Weight indication system	Х	

Brake system		
Description	Service	
Brake function	Х	
Parking brake	Х	
Brake disc	Х	

Consumable materials

Only consumables (oils, grease, lubricants, etc.) that have been approved by our genuine spare parts department may be used for servicing and maintenance of the truck. See *Genuine replacement parts page 69*.

Maintenance instructions

Genuine replacement parts

Genuine Parts

The reliability that we promise is contingent upon using original spare parts. Only our genuine replacement parts guarantee correct operation, long life and the right to a warranty.

Basic troubleshooting

If the truck does not work after action has been taken in accordance with the following table, contact an authorised service technician. Further action should only be carried out by specially assigned and trained servicing technicians. If an error code is shown on the diver's display, this must be reported to an authorised service technician.

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



Fig. 44. Panels

Remove the motor cover (A) by grasping it and carefully easing it upwards.

3 Refit in the reverse order.

Dismantling and assembling the front housing

- 1 Move the mast a little forward.
- 2



Slacken the screw (item 1) 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 70.*
- **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 71*.



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 *Dismantling and assembling the motor cover page 70*), 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.



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, we recommend that wheel changes only be carried out by an authorised service technician.

WAR

WARNING

For optimum performance and so as not to invalidate the warranty, use only our genuine replacement parts! Otherwise, we are unable to guarantee stability and brake function.

WARNING

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

Remove steered wheels on four-way reach truck



WARNING

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

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 on four-way reach truck

- 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 Contact a service technician to use TruckTool.
- 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 Lower the truck towards the wheel unit.



WARNING

Crush hazard when lowering the truck.

- 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 four-way reach truck

- 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 Remove the bolts and open the rear cover.
- 2 Loosen the drive wheel bolts somewhat.

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 Remove the drive wheel.



Fig. 45. Tightening torque of 300 Nm is indicated by a decal

Refit in the reverse order.



5

NOTE

When replacing a drive wheel, the wheel bolts must also be replaced. New wheel bolts are included with the drive wheel.



TORQUE

Correct tightening torque for the drive wheel bolts is **300 Nm**. The truck is provided with a decal stipulating the tightening torque, see figure 45. Tightening torque of 300 Nm is indicated by a decal page 76.



WARNING

It is recommended to use a tool in good condition due to the high tightening torque. Ideally a six sided socket is preferable.

6 Adjust the distance between wear lugs and floor according to .

Cleaning brakes

Cleaning the steered wheel brake on four-way reach truck

The load wheel brake uses permanent magnets to activate the braking power in the event of a loss of power and for emergency brake parking.

The magnetic field created by permanent magnets means that magnetic swarf/particles become attached to the outer part of the brakes.

In order to prevent the ingress of swarf and similar which will attach to the outer part of the brakes, there is a rubber seal between the brakes and the wheel. There is also an O-ring between the outer and inner magnets to prevent the ingress of swarf between these faces. Clean the brakes during normal services. Service intervals will be determined by the environment in which the truck is used. Check for the presence of magnetic particles on the brakes during the first service at during subsequent service intervals.

During cleaning, the load wheel must be raised and the load wheel brake released. Release the brake in the truck's computer. Contact an authorised service technician to access the function using TruckTool.

This facilitates cleaning as the permanent magnets are then partially de-magnetised and the wheel can be rotated.

Use a magnet/rag or similar to remove the particles from the brake.



NOTE

Do not use an air gun to remove the particles as this may blow them into the brake components.



NOTE

If the truck is used in an environment with a lot of magnetic particles, we recommend that cleaning is carried out more frequently (half or third intervals).



NOTE

If magnetic particles do enter the brake components, this will not jeopardise the brake's function or cause a hazard; however, it may lead to metallic scraping noises on braking.

Removal and installation of the mast system



WARNING

Removal and installation of the mast must for safety reasons only be carried out by an authorised service technician.

A truck with a removed mast must be driven in delivery mode.

Raising the mast after transport

1



Fig. 46. Release the tension band

Secure a lifting device to the top of the mast and lift it far enough to place the lifting equipment under tension.



WARNING

Ensure that the lifting equipment has sufficient capacity to lift the mast, see Weight page 109.

Release the tension band (1) that is keeping the mast held against the transportation support or the overhead guard.

- 2 Remove the cover plate from the carriage.
- 3 Make sure that the tilt cylinders/adjustment linkages (see *Fig. 48. Tilt cylinder fixing screws, page 80*, pos 4) are positioned so they are not damaged when the mast is raised.



4

Fig. 47. The mast is vertical

Lift the mast up and move the lifting equipment towards the truck straddle legs until the mast is vertical.



WARNING

The mast may swing rapidly as its centre of gravity changes.



WARNING

Do not remove the lifting equipment until the mast has been secured in the tilt cylinders or adjustment linkages.



Fig. 48. Tilt cylinder fixing screws

1 Screw 2 Lock plate

5

Screw Tilt cylinder

3

4



TORQUE

Tighten the screws (see 48. Tilt cylinder fixing screws page 80, pos 3) in the tilt cylinders (pos. 4) to **114 Nm**.

<₽

TORQUE

Fit the lock plate (pos. 2) and tighten its screws (pos. 1) to **9.8 Nm**.

- 6 Secure the hydraulic hoses and electrical cabling with cable ties.
- 7 Thread the solenoid switch bracket through the hole in the cover plate and fit the cover plate to the carriage. Fit the solenoid switch bracket to the cover plate.

- 8 If the mast has been leaning against a support bar:
 - a. Fit the finger protection.
 - b. Unscrew the support bar and lift it off the truck.
 - c. Slightly undo the screw for the instrument panel without removing it and fold the instrument panel upwards.
 - d. Undo the screws and remove the front cover.
 - e. If the truck is equipped with an option located in the overhead guard, thread any electrical wiring that may be present up through the handrail.
 - f. Fit the handrail.
 - g. Refit the front cover and dashboard.
 - h. With the aid of lifting equipment lift up the overhead guard roof and hold it in the correct position.



Fig. 49. Overhead guard

Secure the overhead guard roof using M12x35 bolts, i. Nord-Lock washers and nuts.



TORQUE

Tighten the nuts to 114 Nm and fit the covering caps.

Open the machine housing cover and remove the temporary 9 steel plate.



NOTE

Keep the support bar and the temporary steel plate in case the truck will be transported in the future.

10



TORQUE

Close the cover and tighten the screw to 80 Nm.

NOTE

The delivery mode in the truck computer must be inactivated by an authorised service technician after the mast has been raised. When this has been done, continue with the following steps:

11



Fig. 50. Tension band

Release the tension band between the mast cylinders and the mast stay.

12 With the aid of the mast reach facility, move the mast towards the battery.

Attach any extra/loose equipment.

- **13** Perform a daily inspection in accordance with the instruction book.
- 14 Lowering of the mast is carried out in the reverse order.

Driving in delivery mode and platform mode



Fig. 51. Truck with lowered mast

Activating delivery mode and platform mode

Before the truck can be driven with a lowered mast, delivery mode must be activated in TruckTool by an authorised service technician. Delivery mode is deactivated in TruckTool.

If the mast is to lean against a support bar, platform mode must also be activated.



NOTE

Platform mode is only accessible in the menu if delivery mode has first been activated.



WARNING

It is not safe to drive the truck with the mast down unless delivery mode has been activated in TruckTool.

Ensure that the steered wheel is at 0 degrees! The truck cannot be driven if the truck is not put in the normal position.

Driving in delivery mode



WARNING

Bear in mind the overhang of the mast when in its lowered position. The mast can project beyond the chassis and therefore require more space when turning.



NOTE

The hydraulic functions are deactivated in delivery mode.

The drive controls are used in the same way as in normal mode with the truck operator in the driver seat. The truck speed is reduced to max 2 km/h.



- A Left-foot switch (safety function)
- B Brake pedal

- C Speed control (max. 2 km/h)
- D Hand operated driving direction selector (press once for the desired driving direction)



A Midi-wheel

B Mini steering wheel (option)

Driving in platform mode



WARNING

In order to drive the truck in the platform mode, the driver must stand on a temporary steel plate.



WARNING

It is only permitted to drive the truck in accordance with the instructions.



WARNING

Bear in mind the overhang of the mast when in its lowered position. The mast can project beyond the chassis and therefore require more space when turning.

D NC

NOTE

The hydraulic functions are deactivated in platform mode.

Steering and manual manoeuvring with the driving direction selector operate in the same way as in the delivery mode. The foot control is altered as follows:



- A Speed control (max. 1.5 km/h)
- B Brake pedal

C Deactivated in this mode

Safety Regulations

The authority and obligations of the truck operator

The truck operator 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.
- The truck has been repaired, altered or adjusted without the changes being approved by the supervisor.
- The truck operator's physical or psychological condition is such that they can be considered a safety hazard.

The operator has the authority to:

- prevent unauthorised persons from using the truck for which they are responsible. An unauthorised 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.

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 Climbing on the truck is not permitted.

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 truck operator and adjacent people.

Passengers

Passengers are not permitted.

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 operator, the overhead guard, 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 truck operator). The operator must be able to escape. Park inside the lift so that the operator 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. Engage a helper if free vision cannot be attained.

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



NOTE

Accessories on the truck may restrict the view.

Transports



Fig. 52. Transport mode, four-way truck

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

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 secured 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.



NOTE

The maximum speed is restricted to 6 km/h when the mast is raised more than 400 mm over the closed mast height.

Driving space

Ensure that you have sufficient space for the truck – both the operator 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

The pushing of material that is on the floor out of the way using the truck's chassis is not permitted.

Load backrest



Fig. 53. Load backrest

The truck may be equipped with load backrest if it is to handle small objects that are at risk of falling down and injuring the operator or the truck while the load is raised.



WARNING

Remember that the load backrest requires extra lifting space!

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 ramp

Before the truck is driven from a loading bay and onto the platform of a lorry or trailer you must always check the maximum load capacity of the ramp. There must also be devices that prevent the ramp 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 on the total weight of the truck, refer to the 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 *54. Normal driving on slopes page 91.*



Fig. 54. Normal driving on slopes

When driving sideways, the truck is normally driven in the direction the driver is facing, see illustration *55. Sideways driving on slopes page 91.*



Fig. 55. 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 vicinity when operating the truck.

Four-way reach truck



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

Driving Direction	Conditions	Maximum speed
5	Reach function in home position	6 km/h
	Reach function not in home position	4 km/h
2	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.



Fig. 56. Transportation security four-way reach truck

If the mast system is removed from a four-way truck, this must be transported separately according to the illustration 57. *Transportation security, mast page 93.* The fork carriage is transported separately according to the illustration 58. *Transportation security, fork carriage page 93.*



CAUTION

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



Fig. 57. Transportation security, mast



Fig. 58. Transportation security, fork carriage



NOTE The battery must be

The battery must be disconnected if it is sent together with the truck.

Lifting the forks



Fig. 59. Lifting the forks

Unsecured forks may be lifted by means of a strop intended for the purpose, as in the illustration. The forks are fitted and removed by being balanced on a piece of wood and pulled or pushed by hand off or on to the truck.



NOTE

On trucks equipped with fork spread, the forks cannot be lifted off.

Moving the forks

Lift up the lever to release the lock. Slide the fork into the desired position. Lower the lever so it locks.

Moving the forks

See control E in table Hydraulic functions page 10.

Manual fork spread, option

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.



Fig. 60. Manual fork spread, option

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 normal conditions, 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 correspondingly.

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. Parking must always be done on a level floor. 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 *Switching off the truck page 55*.

If the truck is equipped with a key-operated ignition switch, the key must be taken out when leaving the truck so that unauthorised persons cannot use it. At the end of the shift, the conditions of the local 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 connector 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. The 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

Ensure that all lifting aids are classed for the intended weight. Weights are specified under section Weight page 109.



WARNING

Lifting the truck should only be carried out by an authorised service technician.



WARNING

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



Fig. 61. Incorrect lifting

When lifting the truck

Four-way reach truck



Fig. 62. Lifting the four-way reach 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.

Towing/moving non-powered four-way reach truck

1 Remove any loads from the forks.



NOTE

Towing should be avoided to the extent possible. If this is impossible, the following applies.

2 Lower the forks to the bottom position.

Ensure that the mast is pulled in towards the battery, so that the truck will be as stable as possible and to minimise the pressure on the load wheel (support leg wheel). If the hydraulics cannot be used, the carriage must be moved manually. Hoses for the reach cylinder are disconnected and placed in a convenient container.



NOTE

Loosen the hydraulic hose to the "reach" cylinder if required and secure the mast.

NOTE

Collect the oil from the cylinder and hoses if these are disconnected.

3 Ensure that the truck cannot move while work is in progress.

i

NOTE Chock the wheels if required.

4 Remove the motor cover.



5

Fig. 63. Release of the emergency brake

Release the parking brake manually by screwing down two M6x40 screws on the traction motor brake.



WARNING

If the brake is released manually there will be no functioning parking or emergency brake. Never leave a machine standing with a manually released brake.



Fig. 64. Fixing the drive wheel

Unbolt the gear sensor furthest forward on the travelling gear bell housing and replace it with an M8x1x50 bolt (item A) found in the plastic bag, affixed to the hydraulic plate (pos. C).

- 7 Lift up the truck with a jack and secure the truck with blocks. Turn the gears with a crowbar or manually so that the screw can lock against the cam (item B) and the wheel is straight (or straight across if towing sideways). The drive wheel should be kept in this position by the bolt.
- 8



TORQUE

Turn the bolt with your fingers until it bottoms out against the cam. Tighten the bolt to **5 Nm**.

9 Lower the truck to the floor.



Fig. 65. Lifting point, wheel housing

Use another truck, and a hook and lifting strap (or similar), to lift the steered wheel up from the floor. Lifting in the wheel housing.



NOTE

The truck and other lifting equipment must have a minimum capacity of 2000 kg.



NOTF

Lift the truck sufficiently so that the steered wheel is free from the floor - no higher than this.

11 Remove any blocks.



WARNING The truck may move.

12 Tow the truck to a more convenient place.



WARNING

Move the truck with care.

13



WARNING

Apply the parking brake before leaving the truck!

Assembling and putting into service

WARNING

Assembling/dismantling and putting the truck into service may only be carried out by an authorised service technician.

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 inspection* (before each shift) page 58.
- 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 104*.

Subsequent mounting of radio equipment

If equipment emitting an electromagnetic field, such as radio transmitters, RFID readers or data collection systems, are connected after delivery, all such equipment must be CE marked. Carefully follow warnings and installation instructions from the equipment manufacturer. If there is a risk that the equipment can harm people, e.g. with medical implants, the machine must be fitted with decals warning of this hazard. See also *Truck modification page 2*.

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 *Charging the lead-acid battery page 27*, for lead-acid battery or *Charging page 33*, for lithium-ion battery.
- 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 59*.



WARNING

The truck should only be put back into service by an authorised service technician.

Moving an inoperable truck

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

In consultation with the authorised service organisation, the responsible supervisor must ensure that the move 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. The truck should be lifted by the specified lifting points, see section *When lifting the truck page 97*.



WARNING

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

Hanging load

The truck is not intended for hanging loads that may swing.

Fixed load centre

The truck is designed to be used with loads with a fixed gravitational load centre, as indicated in the actual capacity plate section.

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 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).



NOTE

The average magnitude of hand-arm vibration during operation of industrial trucks, operated in the specified conditions, will stay below 2.5 m/s².

Four-way reach truck

 $a_{w,z}$ S = 0.79 m/s², measuring accuracy Cv 0.064

Climatic conditions

The normal operating temperature for which the truck is intended is within the range of +1°C to +25°C in humidity up to 95%, provided non-condensing conditions.

If temperatures exceeding $+25^{\circ}$ C are combined with long term heavy duty operation, overheating tendencies may gradually increase up to the maximum ambient temperature of $+40^{\circ}$ C

If the truck is used below $+1^{\circ}C$, condensation, ice and thawing risks may consequently increase. If condensation occurs, the truck must

be allowed to fully dry. If condensation is avoided, $\mbox{-}10^\circ\,\mbox{C}$ is permissible.

A truck kept at working temperature can be used short term down to -25° C. If the truck is specified for use in refrigerated rooms, the temperature range for continual operation is expanded to -35° C. Special equipment is required if the truck is used continuously in environment with extreme temperature or condensing air conditions.

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

Removing the overhead guard from a truck which is equipped with one is not permitted.

Protective shoes

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

Work Light

Work lights facilitate work in poor light conditions. Work lights are available as options 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, an authorised representative of the truck manufacturer must be contacted. Before the truck is assembled, it must have been approved by its manufacturer, see 2 *Truck modification page 2*.

Floor spot (option)

The truck can be equipped with a spot light that projects bright light on to the ground to warn pedestrians or other truck operators that the truck is approaching. Floor spot is available in red and blue light.



WARNING

Do not look into the light source. Looking continuously straight into the light of the floor spot and from close-up may cause injury to the retina.

Laser equipment

If the truck is equipped with laser equipment, e.g. for positioning, the following applies:



WARNING Laser radiation!

Do not look into the beam.

Class 2 Laser Product.

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





Crushing risk between moving parts



Do not stand between the mast and the battery



Do not stand under

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



Do not stand on

the forks

```
Warning for the
Floor spot - light
source.
Do not look into the
lamp.
```



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

Dimensions



Fig. 66. Dimensions Four-way reach truck



NOTE

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

Table 7. Truck type and dimensions in mm

Measurements	UFW200	UFW250
h1	2170-3554	2370-4104
h3	4300-8450	4450-9650
Н	4350-8500	4500-9700
h4	5078-9228	5228-10428
h6	2215	2215
l1	2473	2555
b1	1744 / 1498	1744 / 1498

Cab dimensions (option)



Fig. 67. Cab dimensions

Table 8. Cab and dimensions in mm

Measurements	Cold storage cab
Н	2400
W	1000
D	830

Weight

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 9. Weight, standard truck

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

Table 10. Mast weights

Model	Maximum mast weight (kg)
UFW	1450 (without fork carriage)
	1840 (with fork carriage)



NOTE

The table shows the maximum mast weights. The mast in question may weigh less, depending on the type.

Ordering Handbooks and Manuals

Replacement Parts Manual

The parts manual can be downloaded via the WebShop by locating the truck model and selecting download. If you have any questions regarding the parts manual, please contact your local distributor.