

XE15/18/20

USE AND MAINTENANCE



DESIGNED TO WORK



OM CARRELLI ELEVATORI S.p.A. SHANGHAI REP. OFFICE

737 German Center, 88 Keyuan Road, Zhangjiang Hi -
Tech Park, Pudong District, Shanghai, China 201203

www.om-china.com





XE15 • XE18 • XE20

USE AND MAINTENANCE

(EN) 4435 804 2701 07/2007

Thank you for choosing a forklift truck



We have prepared this manual so that you can fully appreciate the technical features and stylish design of your new truck.

The following pages contain instructions for using and maintaining the truck properly, as well as recommendations and directions for operating the truck efficiently and safely. We recommend that you read this manual and the attachment “Safety instructions for industrial forklift trucks”.

Sincerely

OM Carrelli Elevatori S.p.A.

The OM company began manufacturing forklift trucks in 1951 in Milan. Ten years later in 1961, the “Piccola Industria Meccanica sul Po” (PIMESPO) was established in Luzzara.

Currently, OM PIMESPO operates from three locations:

The corporate headquarters at Lainate (MI), the Modugno (BA) plant, and the Luzzara (RE) plant.



Modugno (BA) plant



Luzzara (RE) plant

Today, OM PIMESPO offers a complete range of forklift trucks and indoor materials handling systems. Customers can choose from the following list of products:

- DIESEL, ELECTRIC, AND LPG FRONT LOADING FORKLIFT TRUCKS RANGING FROM 0.8 TO 8 t.
- ELECTRIC FORKLIFTS AND TRUCKS WITH TILLER STEERING OR DRIVER ON BOARD
- ELEVATED OR GROUND ORDER PICKERS
- THREE-SIDED AND RETRACTABLE ELECTRIC FORKLIFT TRUCKS WITH DRIVER ON BOARD
- TRACTORS

CUSTOMER SERVICE DEPARTMENT / SUMMARY INFORMATION

- Contact your local dealer for any problems encountered with your forklift truck or spare parts needs.
- Use only genuine spare parts to repair your truck, thus keeping its technical features intact.
- Refer to the spare parts catalog, available from your local dealer, for ordering spare parts.
- We recommend that you copy the truck information in the table below so that you can provide it to the dealer when necessary.

Truck model

Serial N

Delivery date

EC Conformity Mark n°

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Chapter 1

INTRODUCTION - GENERAL INSTRUCTIONS

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1.1 - INTRODUCTION

1.1.a - General description



IMPORTANT: Carefully read the warnings below before operating the truck.

- Many accidents result from insufficient knowledge or because safety instructions were not observed while operating or maintaining the truck.
- The truck may only be operated by properly trained personnel. Contact your local dealer for personnel training needs.
- To operate the truck properly and avoid accidents, the user must read, understand, and observe all the precautions and warnings contained in this manual and in the attachment "Safety instructions for industrial forklift trucks", and on the plates attached to the truck.
- The truck may only be used in accordance with the regulations specified in its operating instructions.
- The manufacturer declines any responsibility for accidents or injuries caused to people or damage caused to objects resulting from users not observing the safety instructions described in this manual and in the attachment "Safety instructions for industrial forklift trucks".
- This manual and the attachment "Safety instructions for industrial forklift trucks" must be kept carefully on board the truck so that they can be quickly accessed.
- Some of the illustrations in this manual show the truck without its protective devices (guards, panels, etc.) in order to present the information more clearly. Do not use the truck without these protective devices. Maintenance operations must be performed by qualified technicians ONLY.

1.1.b - Customer service department

- For certain types of repair and maintenance work, contact your local dealer for a qualified technician with the appropriate equipment and genuine spare parts.

1.1.c - Spare parts

- Use only genuine spare parts supplied by the manufacturer. Using unauthorized spare parts will void the warranty and the user will assume full responsibility for any accidents caused by the inadequacy of unauthorized parts.

1.1.d - Warranty card

- Each truck comes with a Warranty Card containing a description of the standards that govern the services under warranty.

1.1.e - How to use the manual

- This manual is divided into chapters covering different topics. There is a table of contents at the beginning of each chapter to facilitate consultation, and the chapter number is repeated in the lower left or right corner of each page. The upper part of the page contains the title of the topic covered in the chapter.
- The following symbols are used to indicate the safety messages contained in the manual:



DANGER TO PEOPLE

Not observing some or all of the instructions indicated by this symbol might seriously compromise the safety of the driver or maintenance personnel.



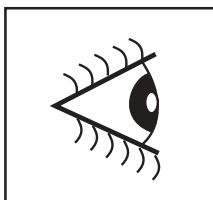
DANGER TO THE TRUCK

Not observing some or all of the instructions indicated by this symbol might cause serious damage to the truck, and in some cases void the warranty.



IMPORTANT INFORMATION

This symbol indicates important information for the driver.



SEE PARAGRAPH

This symbol indicates that the topic is covered in another paragraph.

1.2 - STANDARDS REFERENCES

This truck complies with 98/37/EEC Machine Directive for forklift trucks, together with standards EN 1726-1 (for trucks with a carrying capacity less than or equal to 10,000 kg and tractors with a carrying capacity less than or equal to 20,000 N). It also complies with 89/336/EEC Electromagnetic Compatibility Directive and subsequent amendments for forklift trucks, together with standard EN 12895.

It also complies with standard EN12053 regarding noise.

1.3 - POTENTIAL EXPLOSION AREAS

 **DANGER:** Never use the truck in areas where there is a risk of explosion from gases, vapors, or inflammable and explosive powders. Trucks operating in potential explosion areas must be specially equipped and accompanied by a special EC Conformity Mark and the appropriate use and maintenance manual.

1.4 - NORMAL USE AND AREAS OF APPLICATION

The forklift truck is intended for handling relatively stable loads only. Its forks can lift and carry any type of load whose weight and load center fall within the specific parameters (see the technical data).

The truck must be used for these operations only.

The following are considered normal operating conditions:

- Operating the truck (moving and/or lifting) on surfaces that are relatively firm, smooth, flat, and adequately prepared.
- Operating the truck with the load center more or less in the median longitudinal plane of the truck.
- Driving the truck with the mast tilted backward whenever possible, and the load lowered.

If the above conditions are not observed, the user assumes full responsibility for injuries caused to people and/or damage caused to objects, and the warranty will be voided.

The following examples are not considered normal operating conditions because they may cause the truck to accidentally overturn:

- Driving too quickly in bends.
- Making sudden turns at a high rate of speed.
- Driving with an elevated load.
- Turning and driving at an incline on sharp slopes and gradients.
- Transporting swinging loads or where the load center has shifted considerably from the median longitudinal plane of the truck.
- Carrying the load in the direction of the hill/slope on sharp slopes and gradients.
- A forward inclination of the mast with an elevated load.

- Driving on irregular routes (uneven surfaces, slopes, or soft ground).
- Overloading the truck.
- Bumping into fixed and/or moving installations.
- Misjudging the load center.

1.5 - USAGE PROHIBITIONS

- Do not operate the truck in dusty or powdery environments where there is a potential risk of explosion.
- Do not operate the truck in salty environments, which may, over time, cause the electrical or electronic components to malfunction due to corrosion.
- Do not operate the truck in difficult conditions (extreme climates, cold stores, strong magnetic fields, etc.), which may require special precautions, in which case contact your local dealer.
- Do not operate the truck without using the “protective wire screen” or “additional screen” whenever necessary, to prevent small objects from falling through the roof.
- Do not operate the truck outside the following climatic limits:
 - Maximum ambient temperature: +40°C
 - Minimum ambient temperature for trucks operating
in normal conditions inside: +5°C
 - Minimum ambient temperature for trucks operating
in normal conditions outside: -20°C
 - Altitude: up to 2000 m
 - Relative humidity: Between 30-95% (without condensation)

1.6 - TRUCK DESCRIPTION

This forklift truck model features a driver's seat and overhanging fork arms.

This model can also be equipped with the following attachments:

- Side shift devices
- Fork arm shift devices
- Pincers or pliers
- Tilting devices
- Load arms



IMPORTANT: To use an attachment, contact your local dealer who will install and test it, and update the carrying capacity plates. Mounting an attachment requires an additional carrying capacity plate. The attachment must also be equipped with an identification plate.



IMPORTANT: The “crane arm” modifies the original intended use of the truck, which cannot handle suspended loads that swing freely. Equipping the truck with a crane arm requires special authorization and EC conformity certification. Contact your local dealer.

1.6.a - Fastening attachments

- Fasten attachments in accordance with the instructions provided.

1.6.b - Modifying the truck

- Contact the dealer if the truck needs to be modified for non-standard uses.



IMPORTANT: NEVER modify the truck without prior authorization from the manufacturer, in which case contact the dealer.

1.7 - TRUCK DELIVERY

- The truck is tested and inspected by the manufacturer before it leaves the plant. The dealer must perform additional inspections before delivering the truck.
- Upon delivery, check that all the accessories ordered have been delivered together with the following documentation:
 - A. 1 Use and maintenance manual;
 - B. 1 "Safety instructions for industrial forklift trucks" manual;
 - C. 1 EC Conformity Mark;
 - D. 1 Warranty handbook.



IMPORTANT: If the truck is delivered with additional attachments and fittings, they must also be accompanied by the relative use and maintenance manuals.



IMPORTANT: Manuals **A-B-C-D** must be kept carefully so that they can accompany the truck throughout its lifetime.

After checking these requirements, confirm to the dealer that they have been delivered.

Chapter 2

SAFETY

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2.1 - SAFETY INSTRUCTIONS



IMPORTANT

Below is a partial list of safety instructions that must be observed. These rules form part of, and do not replace, the standards described in the “**Safety instructions for industrial forklift trucks**” manual that is provided with the truck.

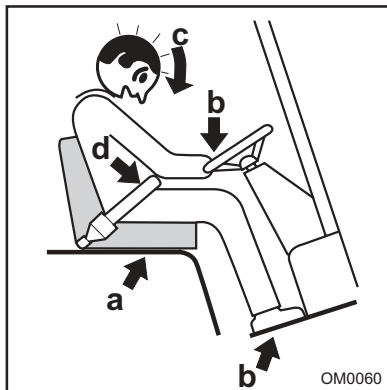
2.1.a - General safety instructions

- Do not allow the truck to be used by unqualified, untrained, or unauthorized persons.
- Do not install any attachment on the truck unless it has been supplied or approved by the manufacturer.
- Always maintain the truck in good condition, a prerequisite for minimizing risks.
- Keep the warning notices on the truck in good condition, and replace them if they are damaged.
- Carefully read and observe all the safety instructions on the truck.
- Make sure that there is enough free space available above the truck.
- Do not park the truck in front of fire extinguishers, emergency exit stairs, or anywhere where it can block traffic.
- Do not use the truck if it shows signs of damage or breakage and cannot be used safely, in which case stop the vehicle, park it, and notify the maintenance supervisor.
- Pay attention to the height of aerial high-tension wires. Observe the safe distances established by the responsible authorities.
- Never lift the load using one fork only.
- Place the load next to the fork carriage assembly, or so that its load center is as close as possible to the fork carriage assembly.
- Position the load so that its load center falls on the center line between the forks.
- Do not drive with off-center loads with respect to the median axis of the truck. Doing so might jeopardize the stability of the truck. Doing so might jeopardize the stability of the truck.
- Make sure that the surface on which the load is deposited is able to support the weight.
- Always wear protective clothing in accordance with current regulations.
- Do not drive over uneven or obstructed terrain or steps.
- Do not drive with loads elevated more than 300 mm from the ground and with the mast NOT tilted backward.
- Do not turn around or stack on slopes.
- Do not exceed the carrying capacity limits indicated on the appropriate plates.
- Always use the operator safety devices (for example, safety belt, etc.).

2.1.b - Safety instructions if the truck overturns

Carefully follow the instructions below if the truck starts to overturn due to incorrect maneuvers:

- a) Do not abandon the truck.
- b) Remain securely in the seat, grasp the steering wheel, and keep your feet firmly on the floor.
- c) Bend your head forward and move your body in the opposite direction to which the truck is tilting.
- d) If the truck overturns, wait until it has reached a stable position before climbing out.



2.1.c - Safety instructions for operating the truck

- Be confident that the truck is safe and reliable.
- The operator must get used to the truck so that you can accurately describe malfunctions and thus be of assistance to the maintenance technicians. Trained and authorized drivers must be familiar with the controls and functions of the truck.
- Report any malfunctions (unusual noises, leaks, etc.) immediately because they could result in damage of a much larger scale if ignored.
- Perform the inspections described in the chapter "Daily inspections".



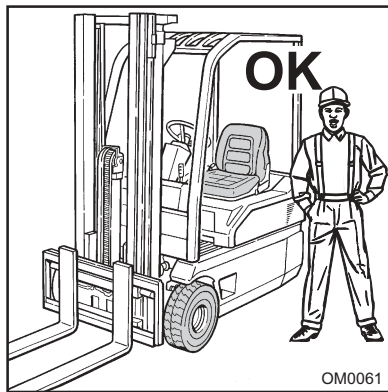
IMPORTANT:

Report any oil and/or battery liquid leaks because they are dangerous and highly polluting substances.



ATTENTION:

If there is a smell of burning, stop the truck, switch off the engine, and unplug the battery.



2.1.d - Safety instructions for supplies

Hydraulic oil

- Avoid contact with the skin.
- Do not inhale oil vapors.
- NEVER dispose of oils in the environment because they will pollute water. Collect them and take them in legally approved containers to a collection center.
- Always wear protective clothing when performing maintenance operations on the truck (gloves, glasses, etc.), to prevent oil from coming into contact with the skin.



DANGER:

It is extremely dangerous if hydraulic oil leaks under pressure and penetrates the skin. Consult a doctor immediately if this occurs.



DANGER:

**Oil squirting at high pressure can penetrate the skin.
Use a piece of cardboard to locate any leaks.**

Battery acid

- Do not inhale the vapor because it is toxic.
- Use appropriate protection to avoid contact with the skin.
- Rinse with plenty of water if contact with battery acid occurs because it is corrosive.
- Make sure that battery-charging areas meet all legal regulations due to the risk of mixing explosive gases.
- Do not smoke or use an open flame or light within a 2-meter radius of the battery while it is being charged, or in the battery-charging area.



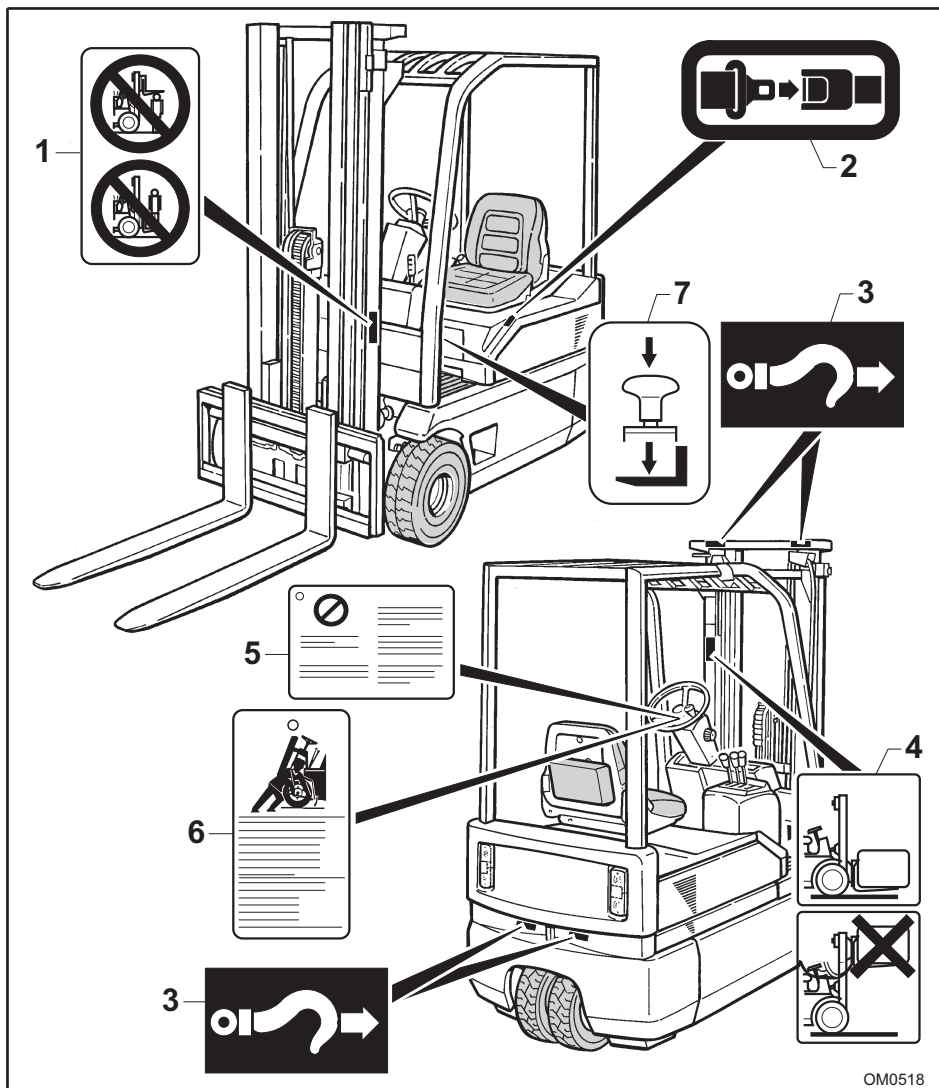
IMPORTANT:

See the battery manual equipped with the battery for further information.

2.1.e - Safety instructions for inflating tires

- Inspect tires in accordance with the scheduled maintenance operations chart provided by the manufacturer.
Check the pressure and wear and tear of the tires. Never exceed the pressure indicated. Always stand to the side, never in front, while tires are being inflated due to the risk of explosion.

2.2 - LOCATION OF THE WARNING PLATES



OM0518

Legend

- 1 Fork safety
- 2 Fasten the seat belt
- 3 Point for lifting the truck
- 4 Driving with load
- 5 Prohibited use
- 6 Warning to check the wheel nuts
- 7 Hydraulic emergency knob (Joystick version only)

2.2.a - Description of the plates



This symbol indicates that it is not permitted to remain or step under elevated forks or carry passengers.

Plate with white background, red prohibition symbol, black graphic.



This symbol indicates that the seat belt must be fastened while driving.

Plate with yellow background, black graphic.



This symbol indicates the fixing point for the ringbolt to lift the truck.

Plate with yellow background, black graphic.



This symbol indicates that it is not permitted to drive with an elevated load.

Plate with white background, black border and graphic, red x-sign.



This label is removed by the technician after putting the truck into operation.

It warns the user not to operate the truck until it has been put into operation by a technician from the manufacturer.

Plate with red background, black wording.



This label is removed by the technician after putting the truck into operation, and contains the following information:

The wheel nuts must be tightened in accordance with the following schedule:

Before the truck is put into operation

Every 10 operating hours until the first tune-up

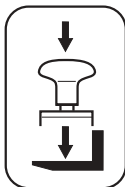
Every 100 operating hours after the tune-up

(See the service instructions for the torque values.)

Plate with white background, red wording.



This plate indicates that the forks must not be overloaded.
Refer to the carrying capacity table.
Plate with black background, white border and wording.



This plate indicates that the hydraulic emergency knob must be pushed to lower the forks in case of a malfunction in the hydraulic system.
Plate with yellow background and black graphic.

2.3 - TRUCK SAFETY

The truck has been designed to provide maximum safety to the driver and minimum risk of damage to the truck.

The truck includes the following safety devices:

2.3.a - Driver sensor

- The sensor is located on the seat and is activated when the driver sits in the driver's seat.
Activation of this sensor allows the truck to function.

2.3.b - Hand brake microswitch

- The microswitch prevents the truck from functioning by cutting off power to the motors when the hand brake is applied.

2.3.c - Operation sequence control

- The electronic system checks the sequence of operations. It sends an alarm signal if the truck is started with the accelerator pedal depressed and the lift lever activated.

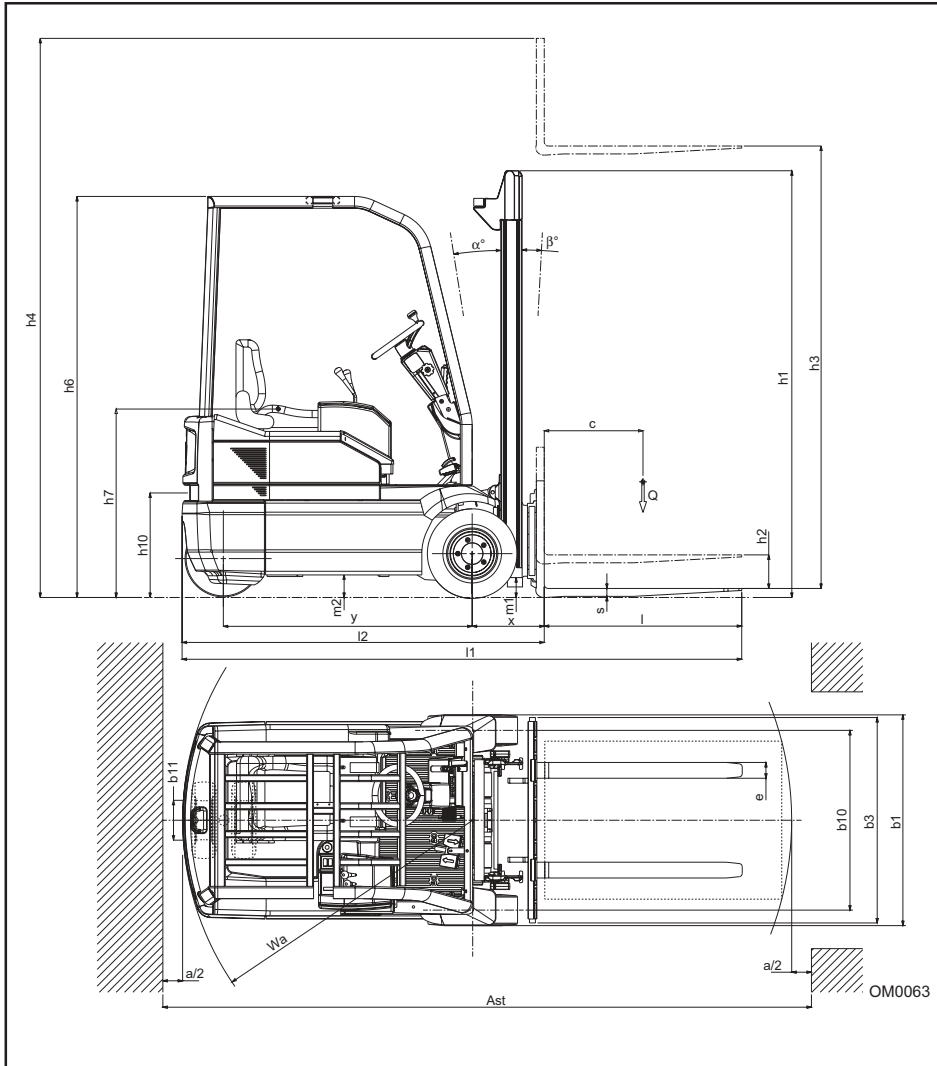
Chapter 3

TECHNICAL DATA TRUCK IDENTIFICATION

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3.1 - OVERALL DIMENSIONS OF 3/12 - 3/15 - 3/15 H - 3/18 - 3/20 TRUCKS



3.2 - TECHNICAL DATA FOR 3-WHEELED TRUCK WITH A CARRYING CAPACITY OF 1200kg

Specification	1.3	Type of drive: Electric - Diesel - Petrol - GPL - Network Power (Electric)		Electric
	1.4	Operation Type: Tow by Hand - Walk-by - Stand-on - Ride-on		Ride-On
	1.5	Load Capacity	Q (t)	1.2
	1.6	Load Barycenter Distance	c (mm)	500
	1.8	Distance of the Fork Arms Plane from the Front Axle	x (mm)	365 ³⁾⁴⁾
	1.9	Wheel Base	y (mm)	1152
Weights	2.1	Service Weight	kg	2620
	2.2	Axle Weight with Rated Load	kg	3323 / 497
	2.3	Axle Weight Unladen	kg	1222 / 1398
Wheels and Tyres	3.1	Tyres: SE = Superelastic PN = Pneus		SE / SE ¹⁾
	3.2	Front Tyres Size		18x7-8 ¹⁾
	3.3	Rear Tyres Size		15x4.5-8 ¹⁾
	3.5	Tyres: Number of Front / Rear Tyres (x = drive)		2x / 2
	3.6	Front Track Width	b10 (mm)	910 ⁵⁾
	3.7	Rear track Width	b11 (mm)	202
Dimensions and Overall Sizes	4.1	Lifting Assembly Tilting	forward / backward	Grad 3° / 9° ²⁾
	4.2	Mast Minimum Overall Height	h1 (mm)	2210 ⁵⁾
	4.3	Free Height	h2 (mm)	150
	4.4	Lift Height	h3 (mm)	3350
	4.5	Mast Maximum Overall Height	h4 (mm)	3905
	4.7	Overhead Guard Height	h6 (mm)	2024
	4.8	Seat Height	h7 (mm)	939
	4.12	Drawbar Height	h10 (mm)	523
	4.19	Overall Length	l1 (mm)	2726 ³⁾⁴⁾
	4.20	Overall Length Including Fork Arms	l2 (mm)	1726 ³⁾⁴⁾
	4.21	Overall Width	b1/b2 (mm)	1067 ⁹⁾
	4.22	Fork Arms Dimensions	s/e/l (mm)	40/80/1000
	4.23	Fork Carriage in Compliance with DIN 15173 Class / Form A, B		2A
	4.24	Fork Carriage Width	b3 (mm)	1040 ¹⁰⁾
	4.31	Mast Ground Clearance (laden)	m1 (mm)	95 ⁹⁾
Performance	4.32	Chassis Ground Clearance (laden) [middle of the chassis]	m2 (mm)	104
	4.33	Aisle Width with Pallet 1000x1200 and Fork Arms Pitch 1200	Ast (mm)	3052 ³⁾⁴⁾
	4.34	Aisle Width with Pallet 800x1200 and Fork Arms Pitch 800	Ast (mm)	3176 ³⁾⁴⁾
	4.35	Turning Radius	Wa (mm)	1361
	4.36	Turning Point Minimum Distance from the Truck Center Line	b13 (mm)	-
	5.1	Drive Speed	laden / unladen	km/h 14 / 14
	5.2	Lifting speed	laden / unladen	m/s 0.41 / 0.58
	5.3	Lowering speed	laden / unladen	m/s 0.55 / 0.50
	5.5	Drawbar Pull Tractive Effort (S2 60 min)	laden / unladen	N 2390 / 2320
	5.6	Maximum Drawbar Pull Tractive Effort (S2 5 min)	laden / unladen	N 6060 / 5860
Electric Motor	5.7	Gradeability (S2 30 min)	laden / unladen	% 7.2 / 10.1
	5.8	Maximum Gradeability (S2 5 min)	laden / unladen	% 16 / 22.5
	5.9	Acceleration Time (10 m)	laden / unladen	s 4.5 / 4.2
	5.10	Service Brake		Electric/Mechanic.
	6.1	Drive Motor, Power S2 60 min	kW	4 x 2
	6.2	Lifting Motor, Power S3 15%	kW	9
Miscellaneous	6.3	Battery in Compliance with DIN 43531/35/36 A,B,C, NO		43531A
	6.4	Voltage, Battery Capacity K _s	V / Ah	48 / 360 ¹¹⁾
	6.5	Battery Weight	kg	590 ¹¹⁾
	6.6	Power Consumption According to VDI - Cycle	kWh/h	-
	8.1	Drive Control Type		Chopper
	8.2	Service Pressure for Attachments	bar	154 ⁷⁾
	8.3	Oil Flow rate for Attachments (max. available)	l/min	25
	8.4	Noise at Operator's Ear	dB (A)	69
	8.5	Drawbar, Modell / Type DIN		-

1) For alternative tyres see relevant table
2) Standard-masts with h₃ ≥ 4530 mm 3° / 5°
All Duplex and Triplex masts 3° / 5°
3) With Side Shift + 25 mm
4) With Triplex masts + 20 mm
5) With free lift 150 mm
6) For all configurations
7) 183 bar (DX) - 174 bar (TX)
8) 945 mm with tyres 200/50-10 and 875mm with 18x5x12 1/8" (vulkollan)
9) 1150.5 mm with tyres 200/50-10 and 1002mm with 18x5x12 1/8" (vulkollan)
10) with integrated side shift = 980 mm
11) Optional batteries (capacity/weight): 300Ah/549±5%Kg; 345Ah / 580±5% Kg; 375Ah / 590±5% Kg.
12) Optional batteries (capacity/weight): 400Ah/709±5%Kg; 460Ah / 765±5% Kg; 500Ah / 780±5% Kg.
13) Optional batteries (capacity/weight): 575Ah/915±5%Kg; 625Ah / 930±5% Kg.

The values indicated are for informational purpose only and non-binding, and refer to standard equipment.

3.3 - TECHNICAL DATA FOR 3-WHEELED TRUCK WITH A CARRYING CAPACITY OF 1500kg

Specification	1.3	Type of drive: Electric - Diesel - Petrol - GPL - Network Power (Electric)		Electric
	1.4	Operation Type: Tow by Hand - Walk-by - Stand-on - Ride-on		Ride-On
	1.5	Load Capacity	Q (t)	1.5
	1.6	Load Barycenter Distance	c (mm)	500
	1.8	Distance of the Fork Arms Plane from the Front Axle	x (mm)	365 ^(3,4)
Weights	1.9	Wheel Base	y (mm)	1260
	2.1	Service Weight	kg	2875
	2.2	Axle Weight with Rated Load	front / rear	3842 / 533
Wheels and Tyres	2.3	Axle Weight Unladen	kg	1313 / 1562
	3.1	Tyres: SE = Superelastic PN = Pneus		SE / SE ⁽¹⁾
	3.2	Front Tyres Size		18x7-8 ⁽¹⁾
	3.3	Rear Tyres Size		15x4.5-8 ⁽¹⁾
	3.5	Tyres: Number of Front / Rear Tyres (x = drive)		2x / 2
	3.6	Front Track Width	b10 (mm)	910 ⁽⁸⁾
	3.7	Rear track Width	b11 (mm)	202
Dimensions and Overall Sizes	4.1	Lifting Assembly Tilting	forward / backward	Grad 3° / 9° ⁽²⁾
	4.2	Mast Minimum Overall Height	h1 (mm)	2210 ⁽³⁾
	4.3	Free Height	h2 (mm)	150
	4.4	Lift Height	h3 (mm)	3350
	4.5	Mast Maximum Overall Height	h4 (mm)	3905
	4.7	Overhead Guard Height	h6 (mm)	2024
	4.8	Seat Height	h7 (mm)	939
	4.12	Drawbar Height	h10 (mm)	523
	4.19	Overall Length	l1 (mm)	2834 ^(3,4)
	4.20	Overall Length Including Fork Arms	l2 (mm)	1834 ^(3,4)
	4.21	Overall Width	b1/b2 (mm)	1067 ⁽⁹⁾
	4.22	Fork Arms Dimensions	s/e/l (mm)	40/80/1000
	4.23	Fork Carriage in Compliance with DIN 15173 Class / Form A, B		2A
	4.24	Fork Carriage Width	b3 (mm)	1040 ⁽¹⁰⁾
	4.31	Mast Ground Clearance (laden)	m1 (mm)	95 ⁽⁶⁾
Performance	4.32	Chassis Ground Clearance (laden) [middle of the chassis]	m2 (mm)	104
	4.33	Aisle Width with Pallet 1000x1200 and Fork Arms Pitch 1200	Ast (mm)	3160 ^(3,4)
	4.34	Aisle Width with Pallet 800x1200 and Fork Arms Pitch 800	Ast (mm)	3284 ^(3,4)
	4.35	Turning Radius	Wa (mm)	1469
	4.36	Turning Point Minimum Distance from the Truck Center Line	b3 (mm)	-
	5.1	Drive Speed	laden / unladen	km/h 14 / 14
	5.2	Lifting speed	laden / unladen	m/s 0.38 / 0.58
Electric Motor	5.3	Lowering speed	laden / unladen	m/s 0.55 / 0.50
	5.5	Drawbar Pull Tractive Effort (S2 60 min)	laden / unladen	N 2320 / 2270
	5.6	Maximum Drawbar Pull Tractive Effort (S2 5 min)	laden / unladen	N 6020 / 5810
	5.7	Gradeability (S2 30 min)	laden / unladen	% 6.1 / 9.0
	5.8	Maximum Gradeability (S2 5 min)	laden / unladen	% 13.8 / 20.3
	5.9	Acceleration Time (10 m)	laden / unladen	s 4.6 / 4.2
	5.10	Service Brake		Electric/Mechanic.
Miscellaneous	6.1	Drive Motor, Power S2 60 min	kW	4 x 2
	6.2	Lifting Motor, Power S3 15%	kW	9
	6.3	Battery in Compliance with DIN 43531/35/36 A,B,C, NO		43531A
	6.4	Voltage, Battery Capacity K ₅	V / Ah	48 / 480 ⁽⁷²⁾
	6.5	Battery Weight	kg	780 ⁽⁷²⁾
	6.6	Power Consumption According to VDI - Cycle	kWh/h	-
	8.1	Drive Control Type		Chopper
	8.2	Service Pressure for Attachments	bar	180 ⁽⁷⁾
	8.3	Oil Flow rate for Attachments (max. available)	l/min	25
	8.4	Noise at Operator's Ear	dB (A)	69
	8.5	Drawbar, Modell / Type DIN		-

1) For alternative tyres see relevant table

2) Standard-masts with h₃ ≥ 4530 mm 3° / 5°
All Duplex and Triplex masts 3° / 5°

3) With Side Shift + 25 mm

4) With Triplex masts + 20 mm

5) With free lift 150 mm

6) For all configurations

7) 210 bar (DX) - 200 bar (TX)

8) 945 mm with tyres 200/50-10 and 875mm with 18x5.12 1/2" (vulkollan)

9) 1150.5 mm with tyres 200/50-10 and 1002mm with 18x5.12 1/2" (vulkollan)

10) with integrated side shift = 980 mm

11) Optional batteries (capacity/weight): 300Ah/549±5%Kg; 345Ah / 580±5% Kg; 375Ah / 590±5% Kg.

12) Optional batteries (capacity/weight): 400Ah/709±5%Kg; 460Ah / 765±5% Kg; 500Ah / 780±5% Kg.

13) Optional batteries (capacity/weight): 575Ah/915±5%Kg; 625Ah / 930±5% Kg.

The values indicated are for informational purpose only and non-binding, and refer to standard equipment.

3.4 - TECHNICAL DATA FOR 3-WHEELED TRUCK WITH A CARRYING CAPACITY OF 1500kg H

Specification	1.3	Type of drive: Electric - Diesel - Petrol - GPL - Network Power (Electric)		Electric
	1.4	Operation Type: Tow by Hand - Walk-by - Stand-on - Ride-on		Ride-On
	1.5	Load Capacity	Q (t)	1.5
	1.6	Load Barycenter Distance	c (mm)	500
	1.8	Distance of the Fork Arms Plane from the Front Axle	x (mm)	365 ³⁾⁴⁾
Weights	1.9	Wheel Base	y (mm)	1260
	2.1	Service Weight	kg	2875
	2.2	Axle Weight with Rated Load	front / rear	kg 3842 / 533
	2.3	Axle Weight Unladen		kg 1313 / 1562
Wheels and Tyres	3.1	Tyres: SE = Superelastic PN = Pneus		SE / SE ¹⁾
	3.2	Front Tyres Size		18x7-8 ¹⁾
	3.3	Rear Tyres Size		15x4.5-8 ¹⁾
	3.5	Tyres: Number of Front / Rear Tyres (x = drive)		2x / 2
	3.6	Front Track Width	b10 (mm)	910 ⁸⁾
	3.7	Rear track Width	b11 (mm)	202
	3.7	Rear track Width	b11 (mm)	202
Dimensions and Overall Sizes	4.1	Lifting Assembly Tilting	forward / backward	Grad 3° / 9° ²⁾
	4.2	Mast Minimum Overall Height	h1 (mm)	2210 ⁵⁾
	4.3	Free Height	h2 (mm)	150
	4.4	Lift Height	h3 (mm)	3350
	4.5	Mast Maximum Overall Height	h4 (mm)	3905
	4.7	Overhead Guard Height	h6 (mm)	2024
	4.8	Seat Height	h7 (mm)	939
	4.12	Drawbar Height	h10 (mm)	523
	4.19	Overall Length	l1 (mm)	2834 ³⁾⁴⁾
	4.20	Overall Length Including Fork Arms	l2 (mm)	1834 ³⁾⁴⁾
	4.21	Overall Width	b1/b2 (mm)	1067 ⁹⁾
	4.22	Fork Arms Dimensions	s/el (mm)	40/80/1000
	4.23	Fork Carriage in Compliance with DIN 15173 Class / Form A, B		2A
	4.24	Fork Carriage Width	b3 (mm)	1040 ¹⁰⁾
	4.31	Mast Ground Clearance (laden)	m1 (mm)	95 ⁹⁾
	4.32	Chassis Ground Clearance (laden) [middle of the chassis]	m2 (mm)	104
	4.33	Aisle Width with Pallet 1000x1200 and Fork Arms Pitch 1200	As1 (mm)	3160 ³⁾⁴⁾
	4.34	Aisle Width with Pallet 800x1200 and Fork Arms Pitch 800	As1 (mm)	3284 ³⁾⁴⁾
Performance	4.35	Turning Radius	Wa (mm)	1469
	4.36	Turning Point Minimum Distance from the Truck Center Line	b13 (mm)	-
	5.1	Drive Speed	laden / unladen	km/h 14 / 14
	5.2	Lifting speed	laden / unladen	m/s 0.38 / 0.58
	5.3	Lowering speed	laden / unladen	m/s 0.55 / 0.50
	5.5	Drawbar Pull Tractive Effort (S2 60 min)	laden / unladen	N 2320 / 2270
	5.6	Maximum Drawbar Pull Tractive Effort (S2 5 min)	laden / unladen	N 6020 / 5810
	5.7	Gradeability (S2 30 min)	laden / unladen	% 6.1 / 9.0
	5.8	Maximum Gradeability (S2 5 min)	laden / unladen	% 13.8 / 20.3
	5.9	Acceleration Time (10 m)	laden / unladen	s 4.6 / 4.2
Electric Motor	5.10	Service Brake		Electric/Mechanic.
	6.1	Drive Motor, Power S2 60 min	kW	4 x 2
	6.2	Lifting Motor, Power S3 15%	kW	9
	6.3	Battery in Compliance with DIN 43531/35/36 A,B,C, NO		43531A
	6.4	Voltage, Battery Capacity K ₆	V / Ah	48 / 480 ¹²⁾
	6.5	Battery Weight	kg	780 ¹²⁾
Miscellaneous	6.6	Power Consumption According to VDI - Cycle	kWh/h	-
	8.1	Drive Control Type		Chopper
	8.2	Service Pressure for Attachments	bar	180 ⁷⁾
	8.3	Oil Flow rate for Attachments (max. available)	l/min	25
	8.4	Noise at Operator's Ear	dB (A)	69
	8.5	Drawbar, Modell / Type DIN		-

1) For alternative tyres see relevant table
2) Standard-masts with h₃ ≥ 4530 mm 3° / 5°
All Duplex and Triplex masts 3° / 5°
3) With Side Shift + 25 mm
4) With Triplex masts + 20 mm
5) With free lift 150 mm
6) For all configurations
7) 210 bar (DX) - 200 bar (TX)
8) 945 mm with tyres 200/50-10 and 875mm with 18x5x12 1/8" (vulkollan)
9) 1150.5 mm with tyres 200/50-10 and 1002mm with 18x5x12 1/8" (vulkollan)
10) with integrated side shift = 980 mm
11) Optional batteries (capacity/weight):300Ah/549±5%Kg; 345Ah / 580±5% Kg; 375Ah / 590±5% Kg.
12) Optional batteries (capacity/weight):400Ah/709±5%Kg; 460Ah / 765±5% Kg; 500Ah / 780±5% Kg.
13) Optional batteries (capacity/weight):575Ah/915±5%Kg; 625Ah / 930±5% Kg.

The values indicated are for informational purpose only and non-binding, and refer to standard equipment.

3.5 - TECHNICAL DATA FOR 3-WHEELED TRUCK WITH A CARRYING CAPACITY OF 1800kg

Specification	1.3	Type of drive: Electric - Diesel - Petrol - GPL - Network Power (Electric)		Electric
	1.4	Operation Type: Tow by Hand - Walk-by - Stand-on - Ride-on		Ride-On
	1.5	Load Capacity	Q (t)	1.8
	1.6	Load Barycenter Distance	c (mm)	500
	1.8	Distance of the Fork Arms Plane from the Front Axle	x (mm)	365 ^(3) 4)
	1.9	Wheel Base	y (mm)	1368
Weights	2.1	Service Weight	kg	3067
	2.2	Axle Weight with Rated Load	front / rear	kg 4369 / 498
	2.3	Axle Weight Unladen	front / rear	kg 1431 / 1636
Wheels and Tyres	3.1	Tyres: SE = Superelastic PN = Pneus		SE / SE ¹⁾
	3.2	Front Tyres Size		18x7-8 ¹⁾
	3.3	Rear Tyres Size		15x4.5-8 ¹⁾
	3.5	Tyres: Number of Front / Rear Tyres (x = drive)		2x / 2
	3.6	Front Track Width	b10 (mm)	910 ⁸⁾
	3.7	Rear track Width	b11 (mm)	202
	3.7	Rear track Width	b11 (mm)	202
Dimensions and Overall Sizes	4.1	Lifting Assembly Tilting	forward / backward	Grad 3° / 9° ²⁾
	4.2	Mast Minimum Overall Height	h1 (mm)	2210 ⁵⁾
	4.3	Free Height	h2 (mm)	150
	4.4	Lift Height	h3 (mm)	3350
	4.5	Mast Maximum Overall Height	h4 (mm)	3973
	4.7	Overhead Guard Height	h6 (mm)	2024
	4.8	Seat Height	h7 (mm)	939
	4.12	Drawbar Height	h10 (mm)	523
	4.19	Overall Length	l1 (mm)	2942 ^{3) 4)}
	4.20	Overall Length Including Fork Arms	l2 (mm)	1942 ^{3) 4)}
	4.21	Overall Width	b1/b2 (mm)	1067 ⁵⁾
	4.22	Fork Arms Dimensions	s/e/l (mm)	40/100/1000
	4.23	Fork Carriage in Compliance with DIN 15173 Class / Form A, B		2A
	4.24	Fork Carriage Width	b3 (mm)	1040 ¹⁰⁾
	4.31	Mast Ground Clearance (laden)	m1 (mm)	95 ⁶⁾
	4.32	Chassis Ground Clearance (laden) [middle of the chassis]	m2 (mm)	104
	4.33	Aisle Width with Pallet 1000x1200 and Fork Arms Pitch 1200	Aa1 (mm)	3268 ^{3) 4)}
	4.34	Aisle Width with Pallet 800x1200 and Fork Arms Pitch 800	Aa1 (mm)	3392 ^{3) 4)}
	4.35	Turning Radius	Wa (mm)	1577
	4.36	Turning Point Minimum Distance from the Truck Center Line	b13 (mm)	-
Performance	5.1	Drive Speed	laden / unladen	km/h 14 / 14
	5.2	Lifting speed	laden / unladen	m/s 0.35 / 0.58
	5.3	Lowering speed	laden / unladen	m/s 0.55 / 0.50
	5.5	Drawbar Pull Tractive Effort (S2 60 min)	laden / unladen	N 2280 / 2240
	5.6	Maximum Drawbar Pull Tractive Effort (S2 5 min)	laden / unladen	N 6020 / 5780
	5.7	Gradeability (S2 30 min)	laden / unladen	% 5.4 / 8.3
	5.8	Maximum Gradeability (S2 5 min)	laden / unladen	% 12.4 / 18.9
	5.9	Acceleration Time (10 m)	laden / unladen	s 4.6 / 4.2
	5.10	Service Brake		Electric/Mechanic.
	5.10	Service Brake		Electric/Mechanic.
Electric Motor	6.1	Drive Motor, Power S2 60 min	kW	4 x 2
	6.2	Lifting Motor, Power S3 15%	kW	9
	6.3	Battery in Compliance with DIN 43531/35/36 A,B,C, NO		43531A
	6.4	Voltage, Battery Capacity K _s	V / Ah	48 / 600 ¹³⁾
	6.5	Battery Weight	kg	930 ¹³⁾
	6.6	Power Consumption According to VDI - Cycle	kWh/h	-
Miscellaneous	8.1	Drive Control Type		Chopper
	8.2	Service Pressure for Attachments	bar	213 ⁷⁾
	8.3	Oil Flow rate for Attachments (max. available)	l/min	25
	8.4	Noise at Operator's Ear	dB (A)	69
	8.5	Drawbar, Modell / Type DIN		-

1) For alternative tyres see relevant table
2) Standard-masts with h₃ ≥ 4530 mm 3° / 5°
All Duplex and Triplex masts 3° / 5°
3) With Side Shift + 25 mm
4) With Triplex masts + 20 mm
5) With free lift 150 mm
6) For all configurations
7) 235 bar (DX) -230 bar (TX)
8) 945 mm with tyres 200/50-10 and 875mm with 18x5x12 1/8" (vulkollan)
9) 1150.5 mm with tyres 200/50-10 and 1002mm with 18x5x12 1/8" (vulkollan)
10) with integrated side shift = 980 mm
11) Optional batteries (capacity/weight): 300Ah/549±5%Kg; 345Ah / 580±5% Kg; 375Ah / 590±5% Kg.
12) Optional batteries (capacity/weight): 400Ah/709±5%Kg; 460Ah / 765±5% Kg; 500Ah / 780±5% Kg.
13) Optional batteries (capacity/weight): 575Ah/915±5%Kg; 625Ah / 930±5% Kg.

The values indicated are for informational purpose only and non-binding, and refer to standard equipment.

3.6 - TECHNICAL DATA FOR 3-WHEELED TRUCK WITH A CARRYING CAPACITY OF 2000kg

Specification	1.3	Type of drive: Electric - Diesel - Petrol - GPL - Network Power (Electric)		Electric
	1.4	Operation Type: Tow by Hand - Walk-by - Stand-on - Ride-on		Ride-On
	1.5	Load Capacity	Q (t)	2.0
	1.6	Load Barycenter Distance	c (mm)	500
	1.8	Distance of the Fork Arms Plane from the Front Axle	x (mm)	380 ^(3,4)
	1.9	Wheel Base	y (mm)	1513
Weights	2.1	Service Weight		3184
	2.2	Axle Weight with Rated Load	front / rear	kg 4793 / 494
	2.3	Axle Weight Unladen	front / rear	kg 1579 / 1658
Wheels and Tyres	3.1	Tyres: SE = Superelastic PN = Pneus		SE / SE ⁽¹⁾
	3.2	Front Tyres Size		200/50-10
	3.3	Rear Tyres Size		140/55-9
	3.5	Tyres: Number of Front / Rear Tyres (x = drive)		2x / 2
	3.6	Front Track Width	b10 (mm)	945
	3.7	Rear track Width	b11 (mm)	176
Dimensions and Overall Sizes	4.1	Lifting Assembly Tilting	forward / backward	Grad 3° / 9° ⁽²⁾
	4.2	Mast Minimum Overall Height	h1 (mm)	2260 ⁽⁵⁾
	4.3	Free Height	h2 (mm)	150
	4.4	Lift Height	h3 (mm)	3350
	4.5	Mast Maximum Overall Height	h4 (mm)	3925 ⁽⁵⁾
	4.7	Overhead Guard Height	h6 (mm)	2024
	4.8	Seat Height	h7 (mm)	939
	4.12	Drawbar Height	h10 (mm)	523
	4.19	Overall Length	l1 (mm)	3102 ^(3,4)
	4.20	Overall Length Including Fork Arms	l2 (mm)	2150 ^(3,4)
	4.21	Overall Width	b1/b2 (mm)	1100 ⁽⁹⁾
	4.22	Fork Arms Dimensions	s/e1 (mm)	45/100/1000
	4.23	Fork Carriage in Compliance with DIN 15173 Class / Form A, B		2A
	4.24	Fork Carriage Width	b3 (mm)	1040 ⁽¹⁰⁾
	4.31	Mast Ground Clearance (laden)	m1 (mm)	95 ⁽³⁾
Performance	5.1	Drive Speed	laden / unladen	km/h 14 / 14
	5.2	Lifting speed	laden / unladen	m/s 0.38 / 0.54
	5.3	Lowering speed	laden / unladen	m/s 0.50 / 0.43
	5.5	Drawbar Pull Tractive Effort (S2 60 min)	laden / unladen	N 2240 / 2215
	5.6	Maximum Drawbar Pull Tractive Effort (S2 5 min)	laden / unladen	N 5990 / 5776
	5.7	Gradeability (S2 30 min)	laden / unladen	% 5.0 / 7.8
	5.8	Maximum Gradeability (S2 5 min)	laden / unladen	% 11.5 / 17.8
	5.9	Acceleration Time (10 m)	laden / unladen	s 4.8 / 4.4
	5.10	Service Brake		Electric/Mechanic.
	6.1	Drive Motor, Power S2 60 min	kW	4 x 2
Electric Motor	6.2	Lifting Motor, Power S3 15%	kW	9
	6.3	Battery in Compliance with DIN 43531/35/36 A,B,C, NO		43531A
	6.4	Voltage, Battery Capacity K _s	V / Ah	48 / 750
	6.5	Battery Weight	kg	1055
Miscellaneous	6.6	Power Consumption According to VDI - Cycle	kWh/h	-
	8.1	Drive Control Type		Chopper
	8.2	Service Pressure for Attachments	bar	200
	8.3	Oil Flow rate for Attachments (max. available)	l/min	25
	8.4	Noise at Operator's Ear	dB (A)	69
	8.5	Drawbar, Modell / Type DIN		-
1) For alternative tyres see relevant table 2) Standard-masts with h ₃ ≥ 4530 mm 3° / 5° All Duplex and Triplex masts 3° / 5° 3) With Side Shift + 25 mm 4) With Triplex masts + 22 mm 5) With free lift 150 mm 6) For all configurations 7) 235 bar (DX) - 230 bar (TX) 8) 945 mm with tyres 200/50-10 and 875mm with 18x5x12 1/8" (vulkollan) 9) 1150.5 mm with tyres 200/50-10 and 1002mm with 18x5x12 1/8" (vulkollan) 10) with integrated side shift = 980 mm 11) Optional batteries (capacity/weight):300Ah/549±5%Kg; 345Ah / 580±5% Kg; 375Ah / 590±5% Kg. 12) Optional batteries (capacity/weight):400Ah/709±5%Kg; 460Ah / 765±5% Kg; 500Ah / 780±5% Kg. 13) Optional batteries (capacity/weight):575Ah/915±5%Kg; 625Ah / 930±5% Kg. 14) Fork carriage assembly with 4 rollers:3905 mm - piastra a 6 rulli:3973 mm 15) Fork carriage assembly with 4 rollers:3925 mm - Fork carriage assembly with 6 rollers:4046 mm				

The values indicated are for informational purpose only and non-binding, and refer to standard equipment.

The technical drawing illustrates the dimensions of a counterbalanced forklift from two perspectives:

- Side View (Top):** Shows the profile of the machine. Key dimensions include overall height (H), wheelbase (L_1), front overhang (L_2), and various heights at different points ($h_6, h_7, h_{10}, h_1, h_2$). It also indicates mast tilt angles (α, β) and load capacity parameters (C, Q, S, l).
- Top View (Bottom):** Shows the machine from above. Dimensions include overall width (B), wheel track (b_1), and specific width measurements at the rear (b_{11}), operator's compartment ($a/2$), and fork area (b_{10}, b_{13}). The weight distribution point is labeled W_a .

3.8 - TECHNICAL DATA FOR 4-WHEELED TRUCK WITH A CARRYING CAPACITY OF 1500kg

Specification	1.3	Type of drive: Electric - Diesel - Petrol - GPL - Network Power (Electric)		Electric
	1.4	Operation Type: Tow by Hand - Walk-by - Stand-on - Ride-on		Ride-On
	1.5	Load Capacity	Q (t)	1.5
	1.6	Load Barycenter Distance	c (mm)	500
	1.8	Distance of the Fork Arms Plane from the Front Axle	x (mm)	365 ³⁾⁴⁾
	1.9	Wheel Base	y (mm)	1280
Weights	2.1	Service Weight	kg	2852
	2.2	Axle Weight with Rated Load	front / rear	kg 3809 / 543
	2.3	Axle Weight Unladen	front / rear	kg 1295 / 1557
Wheels and Tyres	3.1	Tyres: SE = Superelastic PN = Pneus		SE / SE ¹⁾
	3.2	Front Tyres Size		18x7-8 ¹⁾
	3.3	Rear Tyres Size		15x4.5-8 ¹⁾
	3.5	Tyres: Number of Front / Rear Tyres (x = drive)		2x / 2
	3.6	Front Track Width	b10 (mm)	910 ⁵⁾
	3.7	Rear track Width	b11 (mm)	874
Dimensions and Overall Sizes	4.1	Lifting Assembly Tilting	forward / backward	Grad 3° / 9° ²⁾
	4.2	Mast Minimum Overall Height	h1 (mm)	2210 ⁵⁾
	4.3	Free Height	h2 (mm)	150
	4.4	Lift Height	h3 (mm)	3350
	4.5	Mast Maximum Overall Height	h4 (mm)	3905
	4.7	Overhead Guard Height	h6 (mm)	2024
	4.8	Seat Height	h7 (mm)	939
	4.12	Drawbar Height	h10 (mm)	523
	4.19	Overall Length	l1 (mm)	2910 ³⁾⁴⁾
	4.20	Overall Length Including Fork Arms	l2 (mm)	1910 ³⁾⁴⁾
	4.21	Overall Width	b1/b2 (mm)	1067 ⁹⁾
	4.22	Fork Arms Dimensions	s/e/l (mm)	40/80/1000
	4.23	Fork Carriage in Compliance with DIN 15173 Class / Form A, B		2A
	4.24	Fork Carriage Width	b3 (mm)	1040 ¹⁰⁾
	4.31	Mast Ground Clearance (laden)	m1 (mm)	95 ⁵⁾
	4.32	Chassis Ground Clearance (laden) [middle of the chassis]	m2 (mm)	104
	4.33	Aisle Width with Pallet 1000x1200 and Fork Arms Pitch 1200	Ast (mm)	3325 ³⁾⁴⁾
	4.34	Aisle Width with Pallet 800x1200 and Fork Arms Pitch 800	Ast (mm)	3525 ³⁾⁴⁾
	4.35	Turning Radius	Wa (mm)	1760
	4.36	Turning Point Minimum Distance from the Truck Center Line	b13 (mm)	596
Performance	5.1	Drive Speed	laden / unladen	km/h 14 / 14
	5.2	Lifting speed	laden / unladen	m/s 0.38 / 0.58
	5.3	Lowering speed	laden / unladen	m/s 0.55 / 0.50
	5.5	Drawbar Pull Tractive Effort (S2 60 min)	laden / unladen	N 2330 / 2280
	5.6	Maximum Drawbar Pull Tractive Effort (S2 5 min)	laden / unladen	N 6030 / 5810
	5.7	Gradeability (S2 30 min)	laden / unladen	% 6.2 / 9.1
	5.8	Maximum Gradeability (S2 5 min)	laden / unladen	% 13.9 / 20.5
	5.9	Acceleration Time (10 m)	laden / unladen	s 4.6 / 4.2
	5.10	Service Brake		Electric/Mechanic.
Electric Motor	6.1	Drive Motor, Power S2 60 min	kW	4 x 2
	6.2	Lifting Motor, Power S3 15%	kW	9
	6.3	Battery in Compliance with DIN 43531/35/36 A,B,C, NO		43531A
	6.4	Voltage, Battery Capacity K ₅	V / Ah	48 / 480 ¹¹⁾
	6.5	Battery Weight	kg	780 ¹¹⁾
	6.6	Power Consumption According to VDI - Cycle	kWh/h	-
Miscellaneous	8.1	Drive Control Type		Chopper
	8.2	Service Pressure for Attachments	bar	180 ¹⁾
	8.3	Oil Flow rate for Attachments (max. available)	l/min	25
	8.4	Noise at Operator's Ear	dB (A)	69
	8.5	Drawbar, Modell / Type DIN		-

1) For alternative tyres see relevant table

2) Standard-masts with h₃ ≥ 4530 mm 3° / 5°

All Duplex and Triplex masts 3° / 5°

3) With Side Shift + 25 mm

4) With Triplex masts + 20 mm

5) With free lift 150 mm

6) For all configurations

7) 210 bar (DX) -200 bar (TX)

8) 945 mm with tyres 200/50-10 and 875mm with 18x5x12 1/2" (vulkollan)

9) 1150.5 mm with tyres 200/50-10 and 1002mm with 18x5x12 1/2" (vulkollan)

10) with integrated side shift + 980 mm

11) Optional batteries (capacity/weight): 300Ah/549±5%Kg; 345Ah / 580±5% Kg; 375Ah / 590±5% Kg.

12) Optional batteries (capacity/weight): 400Ah/709±5%Kg; 460Ah / 765±5% Kg; 500Ah / 780±5% Kg.

13) Optional batteries (capacity/weight): 575Ah/915±5%Kg; 625Ah / 930±5% Kg.

The values indicated are for informational purpose only and non-binding, and refer to standard equipment.

3.9 - TECHNICAL DATA FOR 4-WHEELED TRUCK WITH A CARRYING CAPACITY OF 1500kg H

Specification	1.3	Type of drive: Electric - Diesel - Petrol - GPL - Network Power (Electric)		Electric
	1.4	Operation Type: Tow by Hand - Walk-by - Stand-on - Ride-on		Ride-On
	1.5	Load Capacity	Q (t)	1.5
	1.6	Load Barycenter Distance	c (mm)	500
	1.8	Distance of the Fork Arms Plane from the Front Axle	x (mm)	365 ³⁾⁴⁾
Weights	1.9	Wheel Base	y (mm)	1280
	2.1	Service Weight	kg	3065
	2.2	Axle Weight with Rated Load	front / rear	kg 3903 / 662
Wheels and Tyres	2.3	Axle Weight Unladen	front / rear	kg 1389 / 1676
	3.1	Tyres: SE = Superelastic PN = Pneus		SE / SE ¹⁾
	3.2	Front Tyres Size		18x7-8 ¹⁾
	3.3	Rear Tyres Size		15x4.5-8 ¹⁾
	3.5	Tyres: Number of Front / Rear Tyres (x = drive)		2x / 2
Dimensions and Overall Sizes	3.6	Front Track Width	b10 (mm)	910 ⁸⁾
	3.7	Rear track Width	b11 (mm)	874
	4.1	Lifting Assembly Tilting	forward / backward	Grad 3° / g° ²⁾
	4.2	Mast Minimum Overall Height	h1 (mm)	2210 ⁵⁾
	4.3	Free Height	h2 (mm)	150
	4.4	Lift Height	h3 (mm)	3350
	4.5	Mast Maximum Overall Height	h4 (mm)	3905
	4.7	Overhead Guard Height	h6 (mm)	2139
	4.8	Seat Height	h7 (mm)	1054
	4.12	Drawbar Height	h10 (mm)	523
	4.19	Overall Length	l1 (mm)	2910 ³⁾⁴⁾
	4.20	Overall Length Including Fork Arms	l2 (mm)	1910 ³⁾⁴⁾
	4.21	Overall Width	b1/b2 (mm)	1067 ⁹⁾
	4.22	Fork Arms Dimensions	s/e/l (mm)	40/80/1000
	4.23	Fork Carriage in Compliance with DIN 15173 Class / Form A, B		2A
	4.24	Fork Carriage Width	b3 (mm)	1040 ¹⁰⁾
	4.31	Mast Ground Clearance (laden)	m1 (mm)	95 ⁶⁾
	4.32	Chassis Ground Clearance (laden) [middle of the chassis]	m2 (mm)	104
	4.33	Aisle Width with Pallet 1000x1200 and Fork Arms Pitch 1200	Aa (mm)	3325 ³⁾⁴⁾
	4.34	Aisle Width with Pallet 800x1200 and Fork Arms Pitch 800	Aat (mm)	3525 ³⁾⁴⁾
	4.35	Turning Radius	Wa (mm)	1760
	4.36	Turning Point Minimum Distance from the Truck Center Line	b13 (mm)	596
Performance	5.1	Drive Speed	laden / unladen	km/h 14 / 14
	5.2	Lifting speed	laden / unladen	m/s 0.38 / 0.58
	5.3	Lowering speed	laden / unladen	m/s 0.55 / 0.50
	5.5	Drawbar Pull Tractive Effort (S2 60 min)	laden / unladen	N 2300 / 2240
	5.6	Maximum Drawbar Pull Tractive Effort (S2 5 min)	laden / unladen	N 6000 / 5780
	5.7	Gradeability (S2 30 min)	laden / unladen	% 5.8 / 6.4
	5.8	Maximum Gradeability (S2 5 min)	laden / unladen	% 13.2 / 19.0
	5.9	Acceleration Time (10 m)	laden / unladen	s 4.6 / 4.2
Electric Motor	5.10	Service Brake		Electric/Mechanic.
	6.1	Drive Motor, Power S2 60 min	kW	4 x 2
	6.2	Lifting Motor, Power S3 15%	kW	9
	6.3	Battery in Compliance with DIN 43531/35/36 A,B,C, NO		43531A
	6.4	Voltage, Battery Capacity K ₆	V / Ah	48 / 640
	6.5	Battery Weight	kg	970
Miscellaneous	6.6	Power Consumption According to VDI - Cycle	kWh/h	-
	8.1	Drive Control Type		Chopper
	8.2	Service Pressure for Attachments	bar	180 ⁷⁾
	8.3	Oil Flow rate for Attachments (max. available)	l/min	25
	8.4	Noise at Operator's Ear	dB (A)	69
	8.5	Drawbar, Modell / Type DIN		-
1) For alternative tyres see relevant table 2) Standard-masts with h ₃ ≥ 4530 mm 3° / 5° All Duplex and Triplex masts 3° / 5° 3) With Side Shift + 25 mm 4) With Triplex masts + 20 mm 5) With free lift 150 mm 6) For all configurations 7) 210 bar (DX) -200 bar (TX) 8) 945 mm with tyres 200/50-10 and 875mm with 18x5x12 1/8" (vulkollan) 9) 1150.5 mm with tyres 200/50-10 and 1002mm with 18x5x12 1/8" (vulkollan) 10) with integrated side shift = 980 mm 11) Optional batteries (capacity/weight): 300Ah/549±5%Kg; 345Ah / 580±5% Kg; 375Ah / 590±5% Kg. 12) Optional batteries (capacity/weight): 400Ah/709±5%Kg; 460Ah / 765±5% Kg; 500Ah / 780±5% Kg. 13) Optional batteries (capacity/weight): 575Ah/915±5%Kg; 625Ah / 930±5% Kg.				

The values indicated are for informational purpose only and non-binding, and refer to standard equipment.

3.10 - TECHNICAL DATA FOR 4-WHEELED TRUCK WITH A CARRYING CAPACITY OF 1800kg

Specification	1.3	Type of drive: Electric - Diesel - Petrol - GPL - Network Power (Electric)		Electric
	1.4	Operation Type: Tow by Hand - Walk-by - Stand-on - Ride-on		Ride-On
	1.5	Load Capacity	Q (t)	1.8
	1.6	Load Barycenter Distance	c (mm)	500
	1.8	Distance of the Fork Arms Plane from the Front Axle	x (mm)	365 ³⁾⁴⁾
	1.9	Wheel Base	y (mm)	1388
Weights	2.1	Service Weight	kg	3045
	2.2	Axle Weight with Rated Load front / rear	kg	4337 / 508
	2.3	Axle Weight Unladen front / rear	kg	1416 / 1629
Wheels and Tyres	3.1	Tyres: SE = Superelastic PN = Pneu		SE / SE ¹⁾
	3.2	Front Tyres Size		18x7-8 ¹⁾
	3.3	Rear Tyres Size		15x4.5-8 ¹⁾
	3.5	Tyres: Number of Front / Rear Tyres (x = drive)		2x / 2
	3.6	Front Track Width	b10 (mm)	910 ⁸⁾
	3.7	Rear track Width	b11 (mm)	874
Dimensions and Overall Sizes	4.1	Lifting Assembly Tilting forward / backward	Grad	3° / 9° ²⁾
	4.2	Mast Minimum Overall Height	h1 (mm)	2210 ⁵⁾
	4.3	Free Height	h2 (mm)	150
	4.4	Lift Height	h3 (mm)	3350
	4.5	Mast Maximum Overall Height	h4 (mm)	3973
	4.7	Overhead Guard Height	h6 (mm)	2024
	4.8	Seat Height	h7 (mm)	939
	4.12	Drawbar Height	h10 (mm)	523
	4.19	Overall Length	l1 (mm)	3018 ³⁾⁴⁾
	4.20	Overall Length Including Fork Arms	l2 (mm)	2018 ³⁾⁴⁾
	4.21	Overall Width	b1/b2 (mm)	1067 ⁹⁾
	4.22	Fork Arms Dimensions	s/e/l (mm)	45/100/1000
	4.23	Fork Carriage in Compliance with DIN 15173 Class / Form A, B		2A
	4.24	Fork Carriage Width	b3 (mm)	1040 ¹⁰⁾
	4.31	Mast Ground Clearance (laden)	m1 (mm)	95 ⁶⁾
	4.32	Chassis Ground Clearance (laden) [middle of the chassis]	m2 (mm)	104
	4.33	Aisle Width with Pallet 1000x1200 and Fork Arms Pitch 1200	Ast (mm)	3443 ³⁾⁴⁾
	4.34	Aisle Width with Pallet 800x1200 and Fork Arms Pitch 800	Ast (mm)	3643 ³⁾⁴⁾
Performance	4.35	Turning Radius	Ws (mm)	1878
	4.36	Turning Point Minimum Distance from the Truck Center Line	b13 (mm)	646
	5.1	Drive Speed laden / unladen	km/h	14 / 14
	5.2	Lifting speed laden / unladen	m/s	0.35 / 0.58
	5.3	Lowering speed laden / unladen	m/s	0.55 / 0.50
	5.5	Drawbar Pull Tractive Effort (S2 60 min)	N	2290 / 2240
	5.6	Maximum Drawbar Pull Tractive Effort (S2 5 min)	N	6020 / 5790
	5.7	Gradeability (S2 30 min)	%	5.5 / 8.4
	5.8	Maximum Gradeability (S2 5 min)	%	12.5 / 19.0
	5.9	Acceleration Time (10 m) laden / unladen	s	4.6 / 4.2
Electric Motor	5.10	Service Brake		Electric/Mechanic.
	6.1	Drive Motor, Power S2 60 min	kW	4 x 2
	6.2	Lifting Motor, Power S3 15%	kW	9
	6.3	Battery in Compliance with DIN 43531/35/36 A,B,C, NO		43531A
	6.4	Voltage, Battery Capacity K _S	V / Ah	48 / 600 ¹²⁾
	6.5	Battery Weight	kg	930 ¹²⁾
	6.6	Power Consumption According to VDI - Cycle	kWh/h	-
Miscellaneous	8.1	Drive Control Type		Chopper
	8.2	Service Pressure for Attachments	bar	213 ¹⁾
	8.3	Oil Flow rate for Attachments (max. available)	l/min	25
	8.4	Noise at Operator's Ear	dB (A)	69
	8.5	Drawbar, Modell / Type DIN		-
1) For alternative tyres see relevant table 2) Standard-masts with h₃ ≥ 4530 mm 3° / 5° All Duplex and Triplex masts 3° / 5° 3) With Side Shift + 25 mm 4) With Triplex masts + 20 mm 5) With free lift 150 mm 6) For all configurations 7) 235 bar (DX) -230 bar (TX) 8) 945 mm with tyres 200/50-10 and 875mm with 18x5x12 1/8" (vulkollan) 9) 1150.5 mm with tyres 200/50-10 and 1002mm with 18x5x12 1/8" (vulkollan) 10) with integrated side shift = 980 mm 11) Optional batteries (capacity/weight): 300Ah/549±5%Kg; 345Ah / 580±5% Kg; 375Ah / 590±5% Kg. 12) Optional batteries (capacity/weight): 400Ah/709±5%Kg; 460Ah / 765±5% Kg; 500Ah / 780±5% Kg. 13) Optional batteries (capacity/weight): 575Ah/915±5%Kg; 625Ah / 930±5% Kg.				

The values indicated are for informational purpose only and non-binding, and refer to standard equipment.

3.11 - TECHNICAL DATA FOR 4-WHEELED TRUCK WITH A CARRYING CAPACITY OF 2000kg

Specification	1.3	Type of drive: Electric - Diesel - Petrol - GPL - Network Power (Electric)		Electric
	1.4	Operation Type: Tow by Hand - Walk-by - Stand-on - Ride-on		Ride-On
	1.5	Load Capacity	Q (t)	2.0
	1.6	Load Barycenter Distance	c (mm)	500
	1.8	Distance of the Fork Arms Plane from the Front Axle	x (mm)	380 ^(3,4)
	1.9	Wheel Base	y (mm)	1498
Weights	2.1	Service Weight	kg	3250
	2.2	Axle Weight with Rated Load	front / rear	kg 4727 / 523
	2.3	Axle Weight Unladen	front / rear	kg 1552 / 1698
Wheels and Tyres	3.1	Tyres: SE = Superelastic PN = Pneus		SE / SE ¹⁾
	3.2	Front Tyres Size		200/50-10
	3.3	Rear Tyres Size		140/55-9
	3.5	Tyres: Number of Front / Rear Tyres (x = drive)		2x / 2
	3.6	Front Track Width	b10 (mm)	945
	3.7	Rear track Width	b11 (mm)	873
Dimensions and Overall Sizes	4.1	Lifting Assembly Tilting	forward / backward	Grad 3° / 9° ⁽²⁾
	4.2	Mast Minimum Overall Height	h1 (mm)	2260 ⁽⁵⁾
	4.3	Free Height	h2 (mm)	150
	4.4	Lift Height	h3 (mm)	3350
	4.5	Mast Maximum Overall Height	h4 (mm)	3925 ⁽⁴⁾
	4.7	Overhead Guard Height	h6 (mm)	2024
	4.8	Seat Height	h7 (mm)	939
	4.12	Drawbar Height	h10 (mm)	523
	4.19	Overall Length	l1 (mm)	3143 ^(3,4)
	4.20	Overall Length Including Fork Arms	l2 (mm)	2143 ^(3,4)
	4.21	Overall Width	b1/b2 (mm)	1150
	4.22	Fork Arms Dimensions	s/e/l (mm)	45/100/1000
	4.23	Fork Carriage in Compliance with DIN 15173 Class / Form A, B		2A
	4.24	Fork Carriage Width	b3 (mm)	1040 ⁽¹⁰⁾
	4.31	Mast Ground Clearance (laden)	m1 (mm)	95 ⁽⁸⁾
	4.32	Chassis Ground Clearance (laden) [middle of the chassis]	m2 (mm)	104
	4.33	Aisle Width with Pallet 1000x1200 and Fork Arms Pitch 1200	Aa1 (mm)	3578 ^(3,4)
	4.34	Aisle Width with Pallet 800x1200 and Fork Arms Pitch 800	Aa1 (mm)	3778 ^(3,4)
Performance	5.1	Drive Speed	laden / unladen	km/h 14 / 14
	5.2	Lifting speed	laden / unladen	m/s 0.38 / 0.54
	5.3	Lowering speed	laden / unladen	m/s 0.50 / 0.48
	5.5	Drawbar Pull Tractive Effort (S2 60 min)	laden / unladen	N 2240 / 2215
	5.6	Maximum Drawbar Pull Tractive Effort (S2 5 min)	laden / unladen	N 5990 / 5776
	5.7	Gradeability (S2 30 min)	laden / unladen	% 5.0 / 7.8
	5.8	Maximum Gradeability (S2 5 min)	laden / unladen	% 11.5 / 17.8
	5.9	Acceleration Time (10 m)	laden / unladen	s 4.8 / 4.4
	5.10	Service Brake		Electric/Mechanic.
Electric Motor	6.1	Drive Motor, Power S2 60 min	kW	4 x 2
	6.2	Lifting Motor, Power S3 15%	kW	9
	6.3	Battery in Compliance with DIN 43531/35/36 A,B,C, NO		43531A
	6.4	Voltage, Battery Capacity K _s	V / Ah	48 / 750
	6.5	Battery Weight	kg	1055
	6.6	Power Consumption According to VDI - Cycle	kWh/h	-
Miscellaneous	8.1	Drive Control Type		Chopper
	8.2	Service Pressure for Attachments	bar	200
	8.3	Oil Flow rate for Attachments (max. available)	l/min	25
	8.4	Noise at Operator's Ear	dB (A)	69
	8.5	Drawbar, Modell / Type DIN		-
1) For alternative tyres see relevant table 2) Standard-masts with h ₃ ≥ 4530 mm 3° / 5° All Duplex and Triplex masts 3° / 5° 3) With Side Shift + 25 mm 4) With Triplex masts + 22 mm 5) With free lift 150 mm 6) For all configurations 7) 235 bar (DX) -230 bar (TX) 8) 945 mm with tyres 200/50-10 and 875mm with 18x5x12 1/8" (vulkollan) 9) 1150.5 mm with tyres 200/50-10 and 1002mm with 18x5x12 1/8" (vulkollan) 10) with integrated side shift = 980 mm 12) Optional batteries (capacity/weight): 400Ah/709±5%Kg; 460Ah / 765±5% Kg; 500Ah / 780±5% Kg. 13) Optional batteries (capacity/weight): 575Ah/915±5%Kg; 625Ah / 930±5% Kg. 14) Optional batteries (capacity/weight): 400Ah/709±5%Kg; 460Ah / 765±5% Kg; 500Ah / 780±5% Kg. 15) Optional batteries (capacity/weight): 575Ah/915±5%Kg; 625Ah / 930±5% Kg.				

The values indicated are for informational purpose only and non-binding, and refer to standard equipment.

3.12 - TIRE PROPERTIES FOR 3/12 - 3/15 - 3/15 H - 3/18 - 3/20 TRUCKS

WHEELS						
Type	Superelastic		Pneumatic		Vulkolan/Superelastic	
	Front	Rear	Front	Rear	Front (Vulkolan)	Rear (SE)
3/12	18x7-8 (SX-DX-TX)	15x4.5-8	18x7-8/16p.r. (SX-DX)	15x4.5-8/12p.r.	18x5x12 ¹ / ₈ "(SX-DX-TX)	15x4.5-8
3/15						(S.E white)
3/15 H						
3/18	18x7-8 (SX-DX)	15x4.5-8	18x7-8/16p.r. (SX-DX)	15x4.5-8/12p.r.	18x5x12 ¹ / ₈ "	15x4.5-8
	200/50-10 (TX)	15x4.5-8				(S.E white)
3/20	200/50-10	140/55-9				

3.13 - TIRE PROPERTIES FOR 4/15 - 4/15 H - 4/18 - 4/20 TRUCKS

WHEELS						
Type	Superelastic		Pneumatic		Vulkolan/Superelastic	
	Front	Rear	Front	Rear	Front (Vulkolan)	Rear (SE)
4/15	18x7-8 (SX-DX-TX)	15x4.5-8	18x7-8/16p.r. (SX-DX)	15x4.5-8/12p.r.	18x5x12 ¹ / ₈ "(SX-DX-TX)	15x4.5-8
4/15 H						(S.E white)
4/18	18x7-8 (SX-DX)	15x4.5-8	18x7-8/16p.r. (SX-DX)	15x4.5-8/12p.r.	18x5x12 ¹ / ₈ "(SX-DX-TX)	15x4.5-8
	200/50-10 (TX)	15x4.5-8				(S.E white)
4/20	200/50-10	140/55-9				

3.14 - FEATURES OF ALTERNATIVE MASTS

				Standard (Simplex)				
3/12 - 3/15 3/15 H 4/15 - 4/15 H fork carriage 4 ROLLERS (*)	Lift Height	h3	mm	3330	3630	4030	4530	5030
	Minimum Overall Height	h1	mm	2210	2360	2560	2810	3060
	Maximum Overall Height	h4	mm	3905	4205	4605	5105	5605
	Free Lift	h2	mm	150	150	150	150	150
3/18 - 4/18 fork carriage 6 ROLLERS	Lift Height	h3	mm	3350	3650	4050	4550	5050
	Minimum Overall Height	h1	mm	2210	2360	2560	2810	3060
	Maximum Overall Height	h4	mm	3973	4273	4673	5173	5673
	Free Lift	h2	mm	150	150	150	150	150
3/20 - 4/20 fork carriage 4 ROLLERS (°)	Lift Height	h3	mm	3370	3670	4070	4570	5070
	Minimum Overall Height	h1	mm	2260	2410	2610	2860	3110
	Maximum Overall Height	h4	mm	3925	4225	4625	5125	5625
	Free Lift	h2	mm	150	150	150	150	150

(*) with optional fork carriage (6 rollers) h4 = h4 + 68 mm (SX)

(°) with optional fork carriage (6 rollers) h4 = h4 + 121 mm (SX)

				Duplex			
3/12 - 3/15 3/15 H 4/15 - 4/15 H fork carriage 4 ROLLERS (*)	Lift Height	h3	mm	2975	3275	3575	3975
	Minimum Overall Height	h1	mm	1960	2110	2260	2460
	Maximum Overall Height	h4	mm	3350	3850	4150	4550
	Free Lift	h2	mm	1362	1512	1662	1862
3/18 - 4/18 fork carriage 6 ROLLERS	Lift Height	h3	mm	2995	3295	3595	3995
	Minimum Overall Height	h1	mm	2010	2160	2310	2510
	Maximum Overall Height	h4	mm	3643	3943	4243	4643
	Free Lift	h2	mm	1362	1512	1662	1862
3/20 - 4/20 fork carriage 4 ROLLERS (°)	Lift Height	h3	mm	2990	3290	3590	3990
	Minimum Overall Height	h1	mm	2010	2160	2310	2510
	Maximum Overall Height	h4	mm	3545	3845	4145	4545
	Free Lift	h2	mm	1455	1605	1755	1955

(*) with optional fork carriage (6 rollers) h4 = h4 + 43 mm (DX-TX)

h2 = h2 + 43 mm (DX-TX)

(°) with optional fork carriage (6 rollers) h4 = h4 + 101 mm (DX-TX)

h2 = h2 + 10 mm (DX-TX)

				Triplex					
3/12 - 3/15 3/15 H 4/15 - 4/15 H fork carriage 4 ROLLERS (*)	Lift Height	h3	mm	4470	4770	5220	5770	6370	6970
	Minimum Overall Height	h1	mm	2010	2110	2260	2510	2710	2910
	Maximum Overall Height	h4	mm	5045	5345	5795	6345	6945	7545
	Free Lift	h2	mm	1412	1512	1662	1912	2112	2312
3/18 - 4/18 fork carriage 6 ROLLERS	Lift Height	h3	mm	4490	4790	5240	5770	6390	6990
	Minimum Overall Height	h1	mm	2060	2160	2310	2560	2760	2960
	Maximum Overall Height	h4	mm	5138	5438	5888	6438	7038	7638
	Free Lift	h2	mm	1412	1512	1662	1912	2112	2312
3/20 - 4/20 fork carriage 4 ROLLERS (°)	Lift Height	h3	mm	4500	4800	5250	5700	6330	6900
	Minimum Overall Height	h1	mm	2060	2160	2310	2460	2660	2860
	Maximum Overall Height	h4	mm	5055	5355	5805	6255	6855	7455
	Free Lift	h2	mm	1505	1605	1755	1905	2105	2305

(*) with optional fork carriage (6 rollers) h4 = h4 + 43 mm (DX-TX)

h2 = h2 + 43 mm (DX-TX)

(°) with optional fork carriage (6 rollers) h4 = h4 + 101 mm (DX-TX)

h2 = h2 + 10 mm (DX-TX)

3.15 - SLOPES

CLIMBABLE SLOPE

		Climbable slope (1 volta / 20')		
	Wheels	Length of ramp (m)	Forward drive loaded (%)	Reverse drive unloaded (%)
3/12	S.E.S. / PNS	135	16.0	22.5
		360	10.0	14.0
3/15 - 3/15 H 4/15 - 4/15 H	S.E.S. / PNS	135	14.0	20.5
		360	8.5	13.0
3/18 - 4/18	S.E.S. / PNS	135	12.5	19.0
		360	7.5	12
3/20 - 4/20	S.E.S. / PNS	135	11.5	18.0
		360	7.0	11

3.16 - TIRE INFLATION PRESSURE

AXLE	MEASUREMENT	PRESSURE
Front	18x7 - 8/16 p.r.	10 bar
Rear	15x4 $\frac{1}{2}$ - 8/12 p.r.	10 bar

3.17 - LIGHTS

Indicators and brake lights	24V - 5W / 21W 2-filament bulb
Reversing lights	24V -21W bulb

3.18 - NOISE

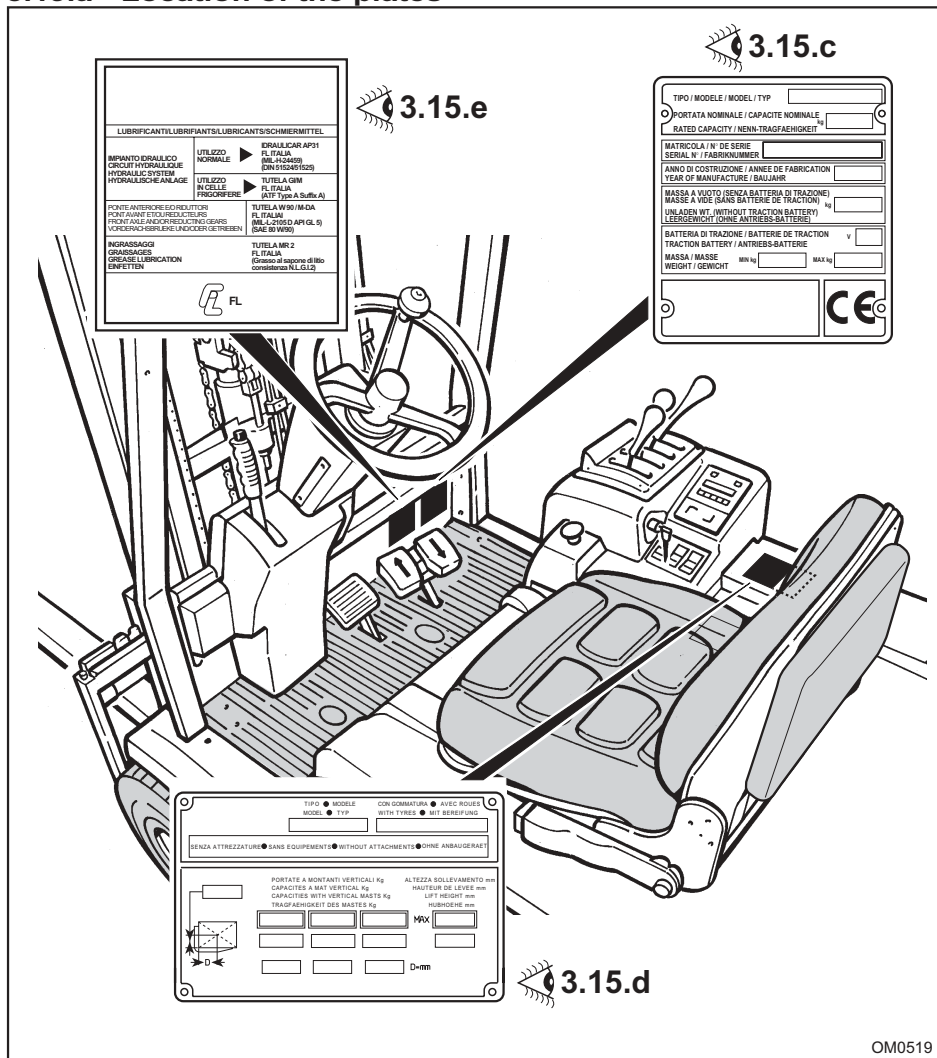
Noise level at the operator's seat	$L_{paz} = 69.8 \text{ db (A)}$
Uncertainty factor	$k_{pa} = 4 \text{ db(A)}$

The above value has been measured according to the testing cycles of EN12053 ("Measurements of forklift truck noise") and is based on the weighted values of the "driving", "lifting" and "idling" operations.

3.19 - TRUCK IDENTIFICATION

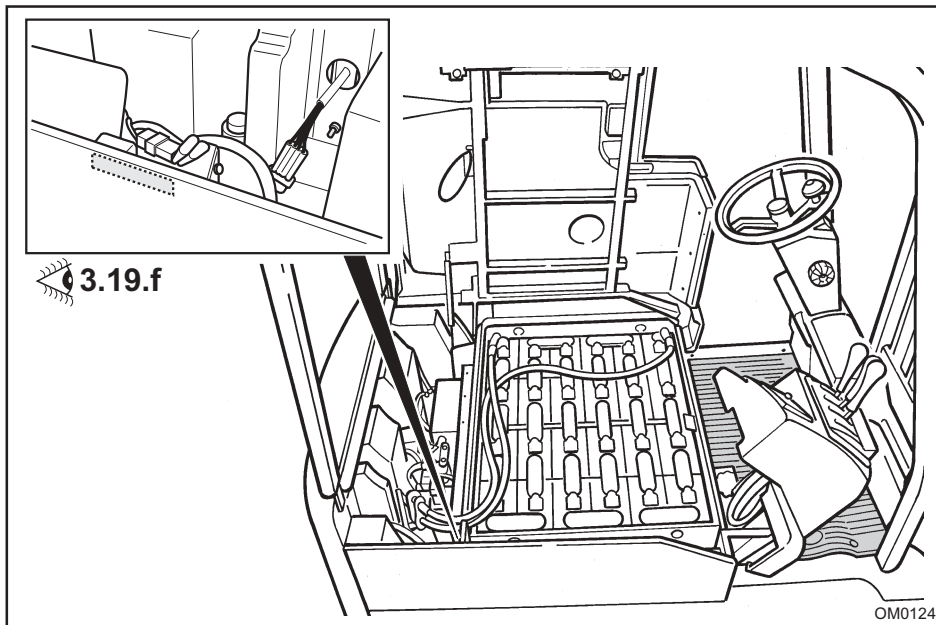
- The forklift truck and its main components all have serial numbers so they can be identified.
- The serial numbers must be provided to the dealer for maintenance or spare parts needs.

3.19.a - Location of the plates



OM519

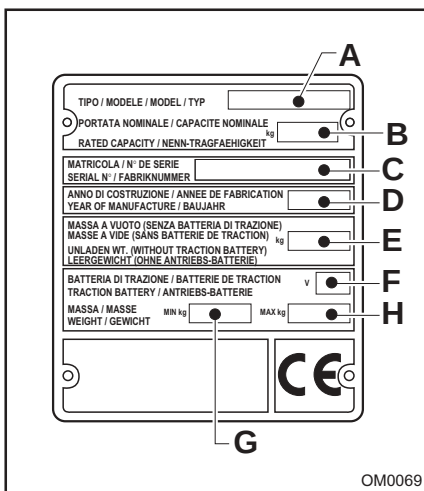
3.19.b - Chassis marking



3.19.c - Truck identification plate

The following information is contained on the identification plate:

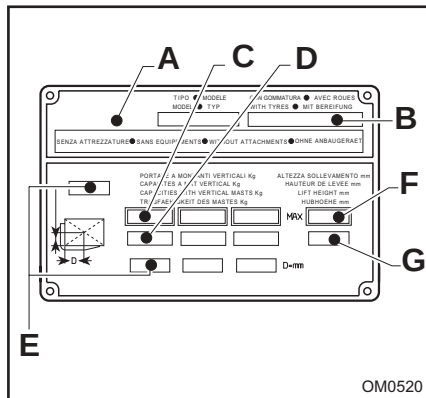
- A** = Truck model
- B** = Rated capacity (1200 Kg.-1500 kg etc.)
- C** = Serial number
- D** = Year of manufacture
- E** = Unladen weight without traction battery
- F** = Traction battery voltage
- G** = Minimum weight of traction battery
- H** = Maximum weight of traction battery



3.19.d - Carrying capacity plate

The following information is contained on the mast plate:

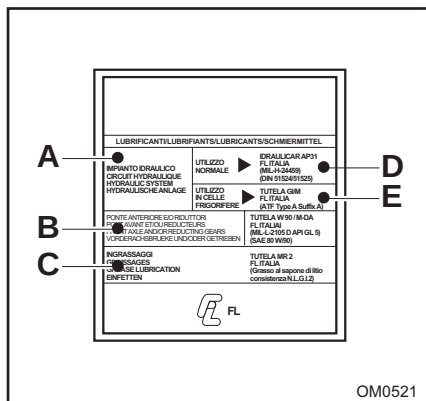
- A** = Type of truck
- B** = Type of tires (pneumatic, superelastic, vulkanol)
- C** = Carrying capacity in kg with respect to the maximum lift height
- D** = Carrying capacity in kg with respect to the nominal lift height
- E** = Load center
- F** = Maximum lift height
- G** = Nominal lift height



3.19.e - Lubricants plate

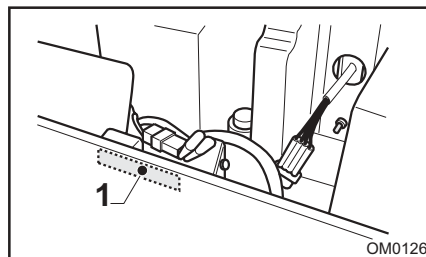
The following information is contained on the mast plate:

- A** = Hydraulic system
- B** = Front axles and/or reducing gears
- C** = Brake system
- D** = Lubricants
- E** = Use in normal operating conditions



3.19.f - Chassis marking

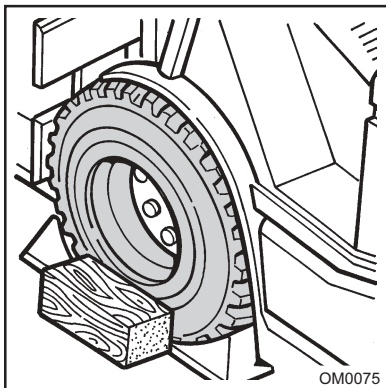
The chassis number (1) is stamped onto the chassis of the truck on the bulkhead between the electric panels and the battery.



3.20 - TRANSPORTING AND LIFTING THE TRUCK

3.20.a - Transporting the truck

The truck is usually transported by road or rail complete with mast. If the truck is bigger than the permissible limits, it must be disassembled and reassembled by the dealer. Make sure that the truck is adequately secured during transport, with blocks placed under the wheels to prevent any chance movements.



3.20.b - Environmental conditions for transporting and storing the truck

Transport and store the truck protected from the weather, and make sure that it is adequately protected in salty environments.

3.20.c - Loading and unloading the truck

Load and unload the truck by means of a ramp or mobile platform. If the truck is not operational or not equipped with a battery, follow the instructions below to lift the truck.

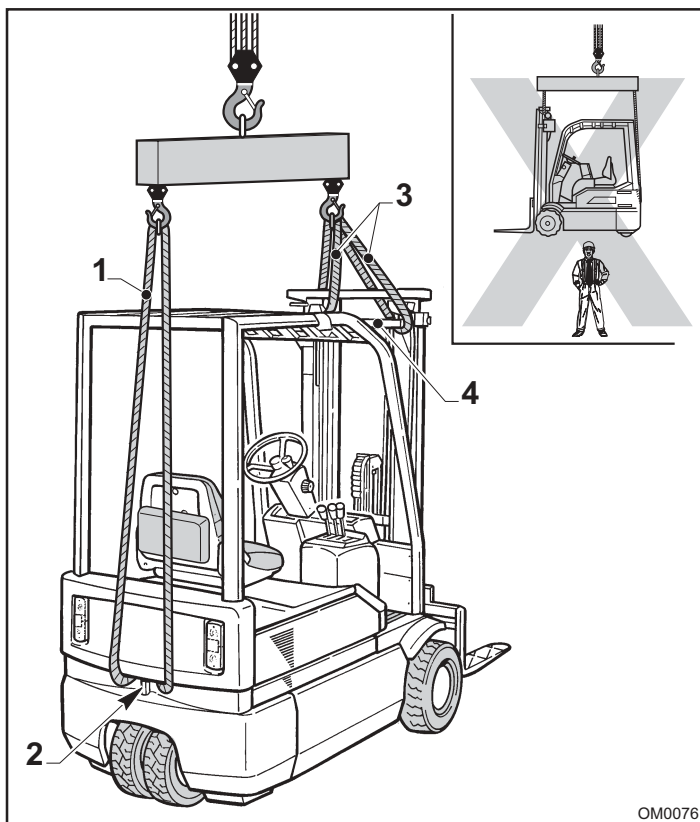
⚠ DANGER:
Use a crane that is big enough to handle the weight of the truck, indicated on the information plate.
Include the weight of the battery if it has been mounted onto the truck, which is indicated on the identification plate. Make sure that the truck is lifted by qualified personnel only.
Do NOT stand within the radius of action of the crane or under the raised truck.
Use NON-METALLIC cables. Make sure the cables can support the weight of the truck.

Lift the truck as follows:

- Insert a non-metallic cable (1) through the rear tow hook (2) of the truck. Make sure that the cable lies in the upper portion of the hollow in the ballast.
- Insert two cables (3), one for each side, through the upper crossbar (4) of the fixed upright of the mast.
- Attach the ends of the cables to the crane hook and lift the truck without jolting it.



ATTENTION: The cables should be long enough that they do not touch the roof or other equipment while the truck is being lifted. Use a swinging bar if necessary. Pull the cables vertically.



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3.21 - BATTERIES

MODEL	Voltage [V]	Capacity [Ah]	Weight [kg] ± 5%
load capacity 1200 kg	48	300 (315)	549
		345	580
		360	590
		375	590
load capacity 1500 kg	48	400 (420)	709
		460	765
		480	780
		500	780
load capacity 1800 kg	48	500 (525)	853
		575	915
		600	930
		625	930

ATTENTION
THE BATTERY MINIMUM WEIGHT SHALL BE ENSURED.

Chapter 4

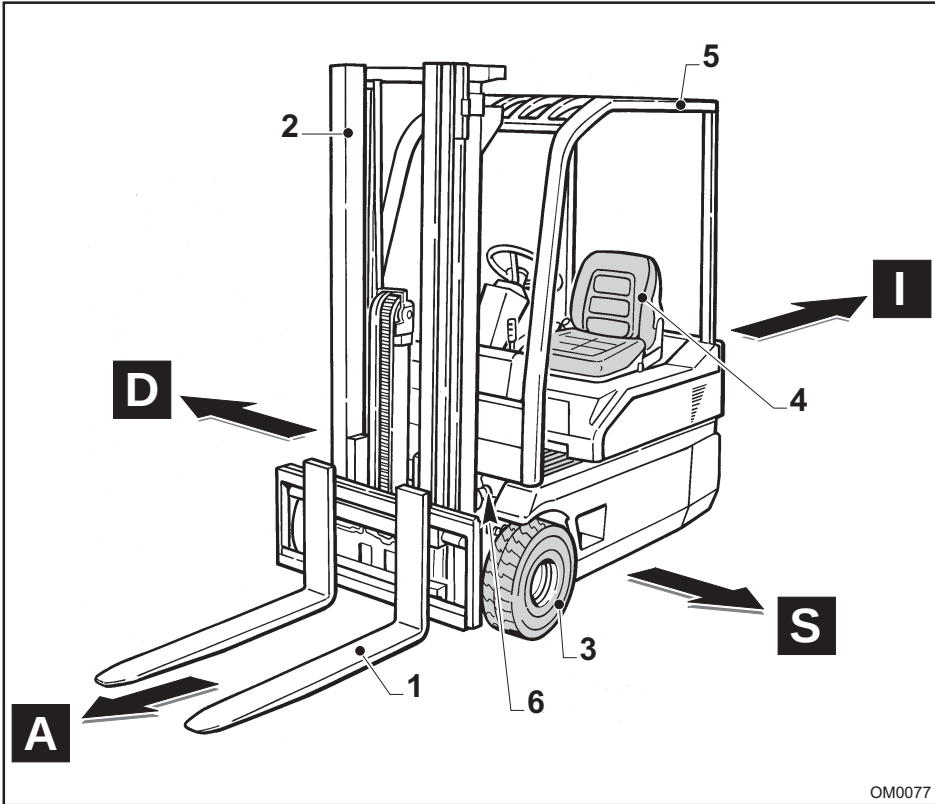
TRUCK INFORMATION

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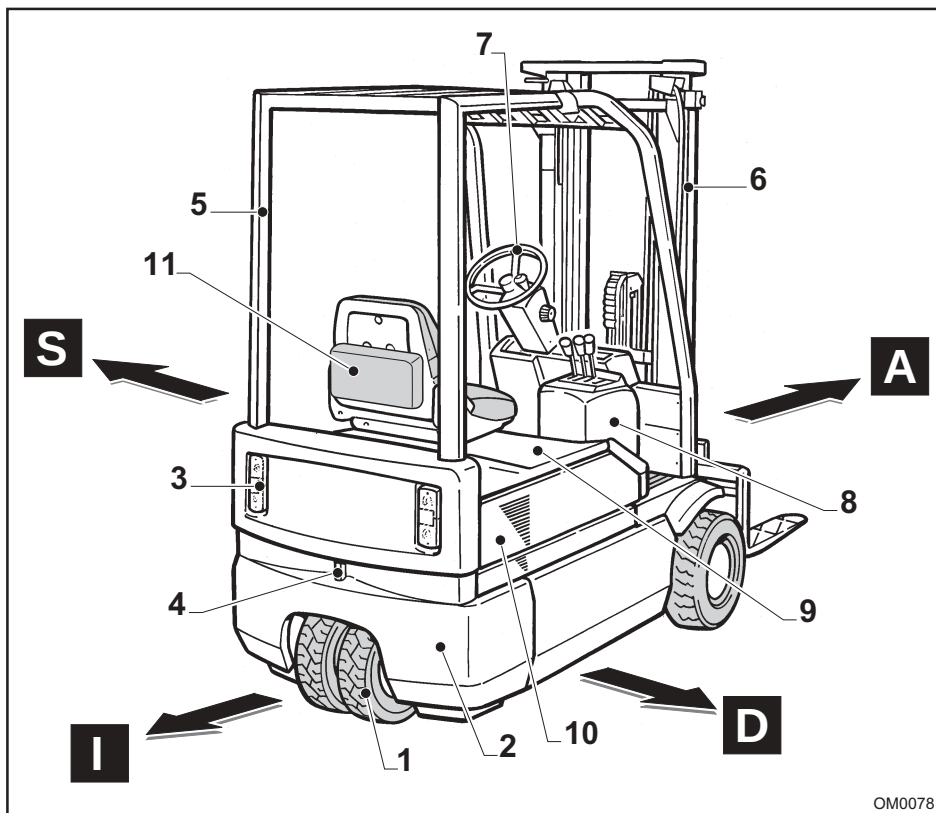
4.1 - OVERALL VIEWS

4.1.a - Overall front view



- 1 - Forks
- 2 - Mast
- 3 - Front wheels
- 4 - Seat
- 5 - Protective roof
- 6 - Tilting cylinders
- A - Front
- D - Right
- I - Back
- S - Left

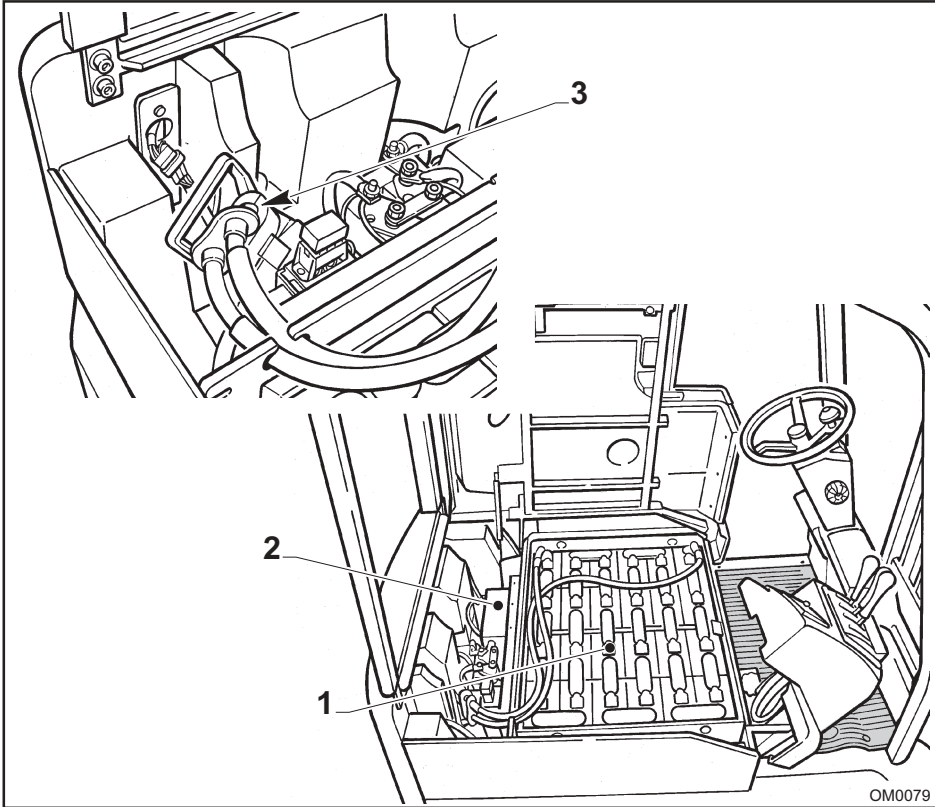
4.1.b - Overall rear view



OM0078

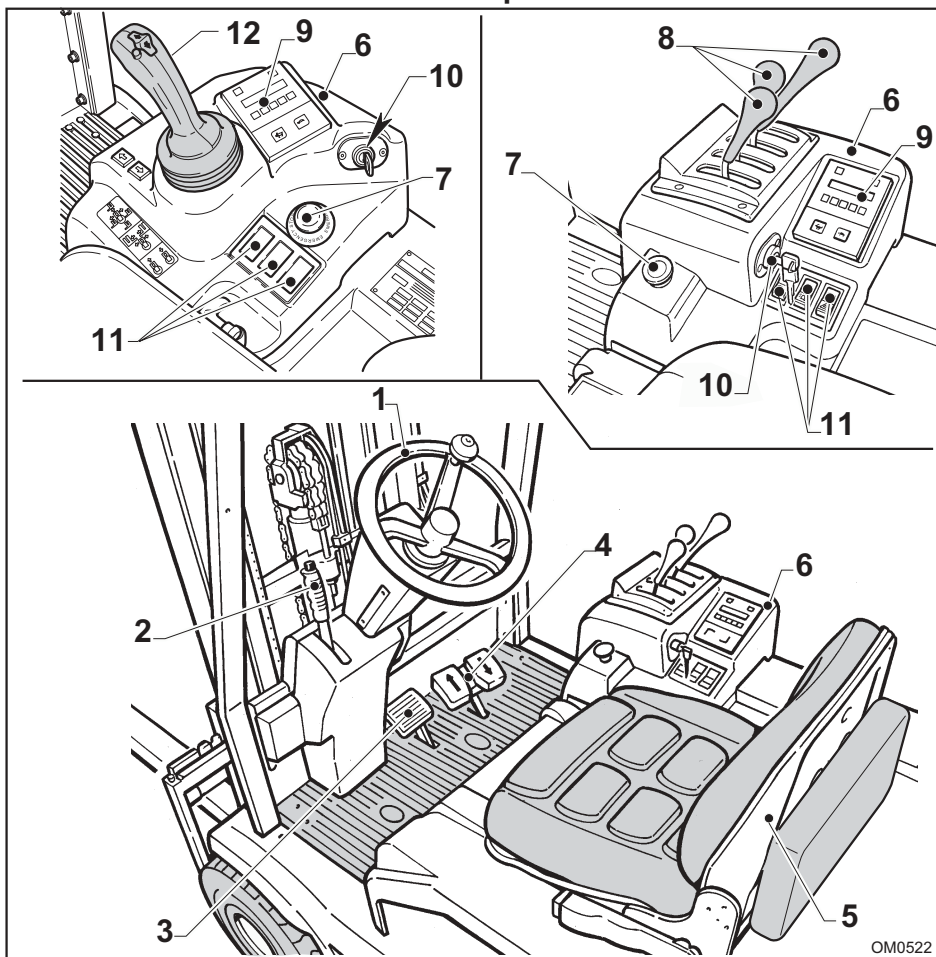
- 1 - Rear wheel
- 2 - Ballast
- 3 - Rear lights
- 4 - Tow hook
- 5 - Protective roof
- 6 - Mast
- 7 - Steering wheel
- 8 - Control panel
- 9 - Battery compartment
- 10 - Detachable side panel
- 11 - Glove compartment
- A - Front
- D - Right
- I - Back
- S - Left

4.1.c - Internal view



- 1 - Battery
- 2 - Electronic system
- 3 - Battery plug and socket

4.1.d - Overall view of the control panel



- 1 - Steering wheel
- 2 - Parking brake
- 3 - Service brake pedal
- 4 - Drive pedal
- 5 - Seat
- 6 - Control panel
- 7 - Emergency stop button
- 8 - Mast control levers
- 9 - Multifunction display
- 10 - Start/stop switch
- 11 - Accessories buttons
- 12 - Joystick (optional)

4.2 - INSTRUMENTS AND CONTROLS

4.2.a - Stop/start switch

The switch (1) can be in one of two positions:

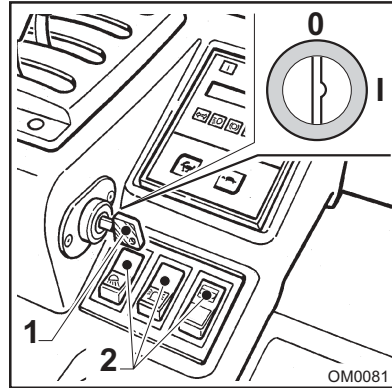
0 = The machine is switched off.
(The key is removed)

I = The machine is switched on.

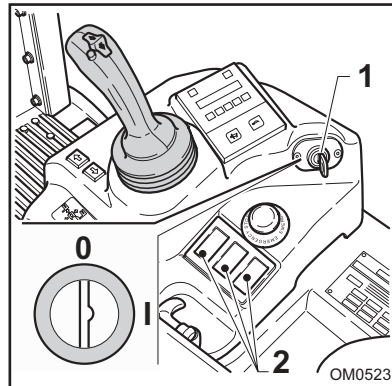
4.2.b - Optional accessories buttons (2)

- One or more buttons may be activated if an optional accessory is installed:
 - Front head lights
 - Rear head lights
 - Beacon

Standard



Joystick



4.2.c - Emergency stop button (3)

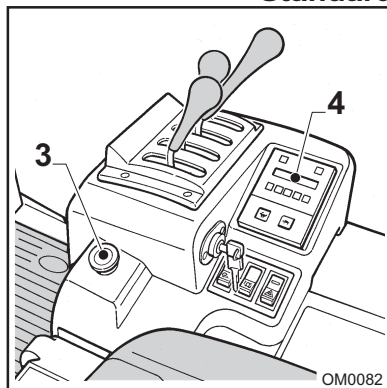
- Press the button (3) to cut the power from the moving parts of the truck.



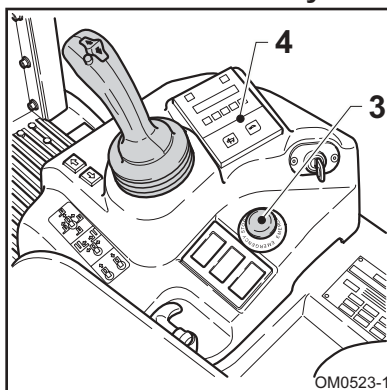
ATTENTION: Use this button only when necessary; repeated use of this button may cause the electronic system to malfunction.

- Press the button to cut the power from the moving parts of the truck. The message “Emergency” will be displayed (4).
- Establish and rectify the cause of the emergency.
- Restart the truck as follows:
 - Turn the switch (1) into the “0” position.
 - Release the button (3) by turning it in a clockwise direction.
 - Turn the switch (3) into the “1” position.
- Contact the Customer Service Department if the truck still malfunctions or alarm messages are displayed when the truck is restarted.

Standard



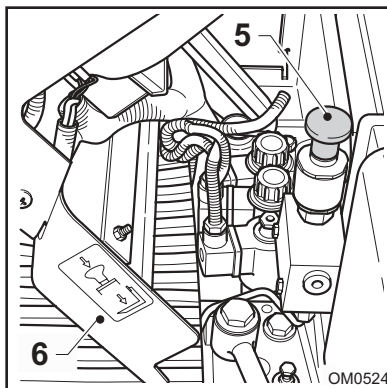
Joystick



4.2.d - Hydraulic EMERGENCY button (5)

Joystick version only

- Push the button (5) located under the dashboard to lower the forks in case of a malfunction in the hydraulic system.
- Proceed as described in chapter 4.4 to lift the dashboard (6).



4.2.e - Mast control levers

Lift control lever (1)

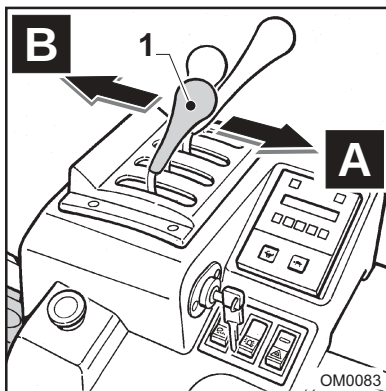
This lever controls the lifting of the forks and must be activated to raise or lower the load from and to the ground.



Move it into position "A" to raise the forks.



Move it into position "B" to lower the forks.



Control lever to tilt the mast (2)

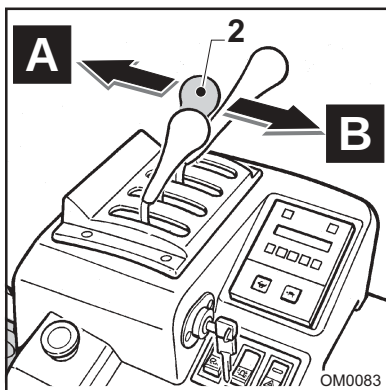
This lever controls the tilting of the mast and thus the forks.



Move it into position "A" to tilt the mast forward.



Move it into position "B" to tilt the mast backward.



Lateral movement control lever (optional) (3)

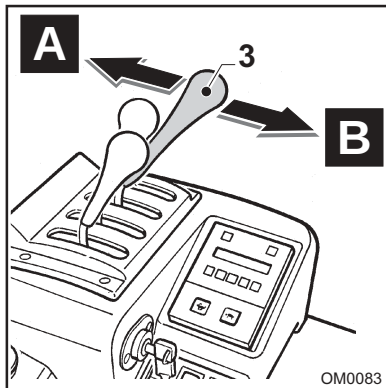
This lever controls the lateral movement of the forks. It is used to position the forks for engaging or disengaging loads.



Move it into position “A” to move the forks to the left.

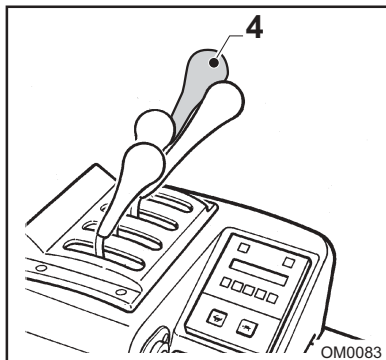


Move it into position “B” to move the forks to the right.



Additional attachment control lever (optional) (4)

This lever controls additional attachments. Instructions for use are contained on the appropriate stickers.



4.2.f - Mast control Joystick (optional)

The Joystick functions are indicated on the plate (1) located on the dashboard.

Lifting the forks

- Move the Joystick lever (2) to the  to lift the forks.

Forks down

- Move the Joystick lever (2) to the  to lower the forks.

Tilting the mast

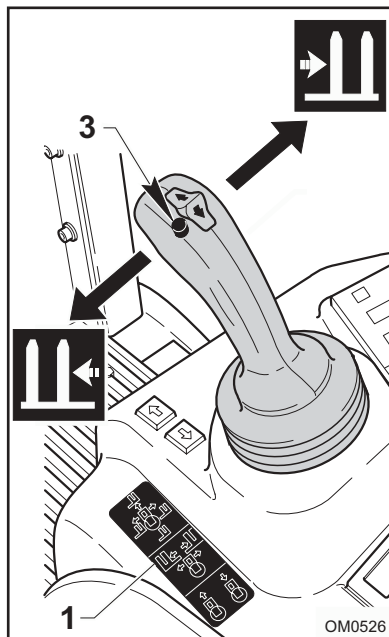
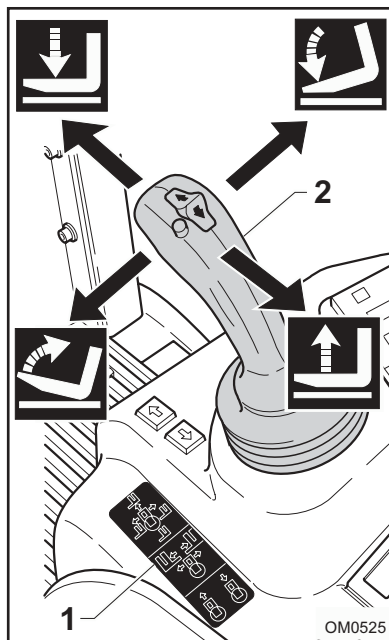
- Move the Joystick lever (2) to the  to tilt the mast forward.
- Move the Joystick lever (2) to the  to tilt the mast backward.

Shifting the fork carriage assembly to the side

- Shift to the left
Press the button (3) and move the Joystick lever (2) to the 
- Shift to the right
Press the button (3) and move the Joystick lever (2) to the 

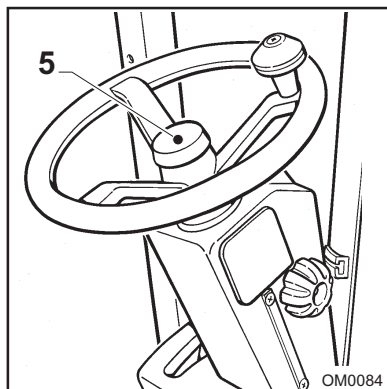
Tool control buttons

- Buttons (4) and (5) control the extra tools. Operational instructions are contained on the appropriate stickers.



4.2.g - Acoustic warning signal

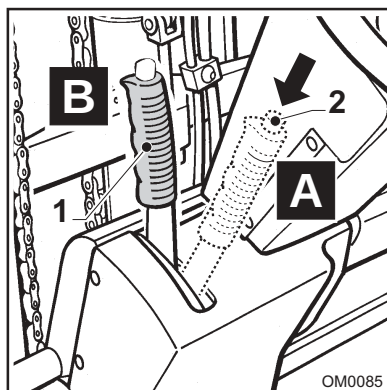
This device allows the driver to signal his presence when necessary. Press the button (5) in the middle of the steering wheel to sound the signal.



4.2.h - Parking brake

The parking brake must be applied whenever the driver leaves the truck.

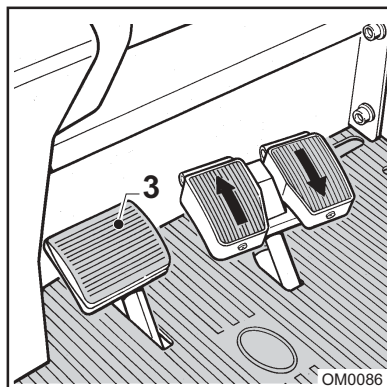
- Apply it by pulling the lever (1) into position “A”.
- Release it by pulling the lever into position “A” again, pressing the button (2) and keeping it depressed while moving the lever into position “B”.



4.2.i - Service brake (3)

The service brake pedal (3) is located next to the drive pedals.

Press the pedal (3) to bring the truck slowly to a stop.

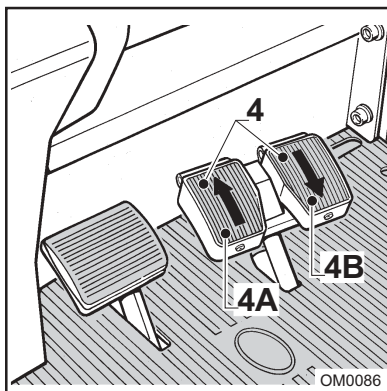


4.2.1 - Drive pedals (4)

These pedals move the truck forward and backward.

Press the pedal (4A) to move the truck **"FORWARD"**.

Press the pedal (4B) to move the truck **"BACKWARD"**.

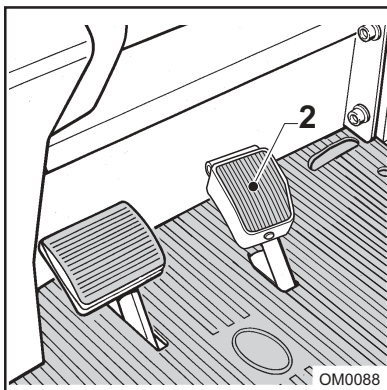
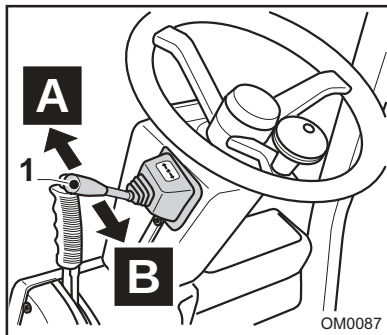


4.2.m - Reverse drive function on the steering wheel and single drive pedal (optional) (1)

Reverse the direction of the truck by moving the lever (1) on the steering wheel and pressing the drive pedal (2).

Move the lever into position **"A"** to move the truck **"FORWARD"**.

Move the lever into position **"B"** to move the truck **"BACKWARD"**.



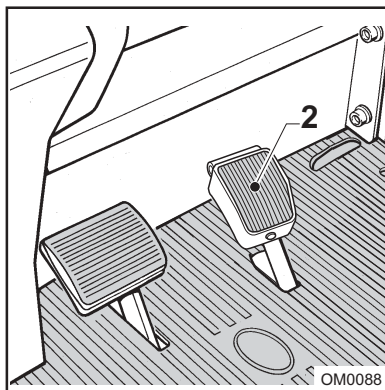
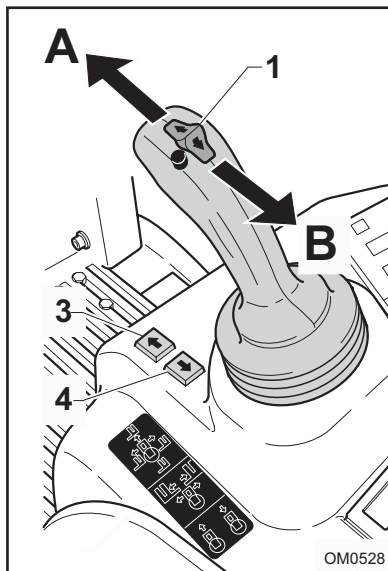
4.2.n - Travel direction selector switch on the Joystick (optional).

Choose the direction of travel by means of the selector switch (1) on the Joystick and pressing the accelerator pedal (2).

In position **A**, the truck will move **FORWARD** and the warning light (3) will come on.

In position **B**, the truck will move **BACKWARD** and the warning light (4) will come on.

In the middle position, the truck will idle.

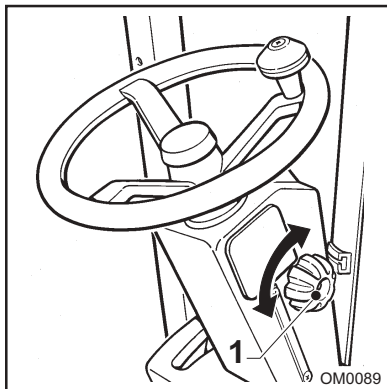


4.2.o - Steering wheel adjustment

Tilt the steering wheel by loosening the adjustment knob (1), adjusting the wheel until it is in the desired position, then tightening the knob (1).



ATTENTION: Perform this operation when the truck is at a standstill.



4.2.p - Seat adjustment

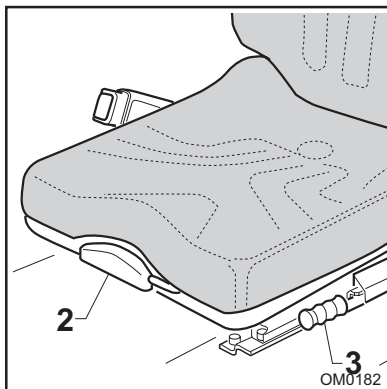
The seat can be adjusted as follows: the seat back can be tilted backward or forward, the spring of the seat can be adjusted, and the seat can be moved backward or forward.

Seat back adjustment:

Tilt the seat back by lifting the lever (2) and moving forward or backward in the seat until you have reached the desired position.

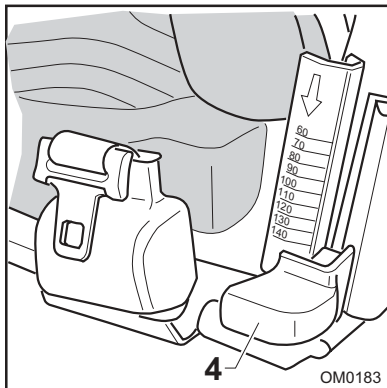
Forward/backward adjustment:

Move the seat forward or backward by releasing the lever (3) located at the side of the seat.



Spring adjustment:

Adjust the spring of the seat by pressing the lever (4) and releasing when it corresponds to the weight of the driver indicated on the chart.



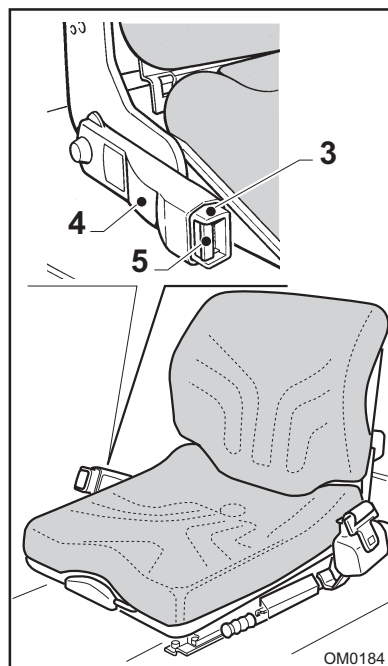
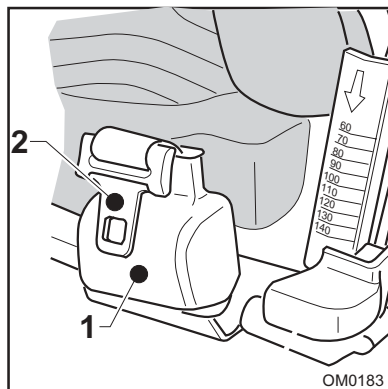
4.2.q - Safety belt

- Fasten the safety belt by pulling the hook (2) evenly from the belt winder (1) and bringing it to the buckle (3) of the fastener (4).
- Insert the hook (2) into the buckle (3) until it clicks.

 **IMPORTANT:** Make sure that the belt is not twisted and that the belt winder takes up any slack. If the winder locks before the hook has been inserted into the buckle, do not persist but completely retract the belt and repeat the operation. Once the belt is fastened, pull on it quickly to check that the belt winder has locked it into place. If the belt does not lock, have it checked by a qualified technician.

 **DANGER:** Do not pass the belt over hard or fragile objects contained in pockets because they may pose a hazard. Do not place objects between the body and the belt. Do not pass the belt over rough or sharp surfaces.

- Release the belt by pressing the red button (5) on the buckle and holding the belt while it automatically retracts.

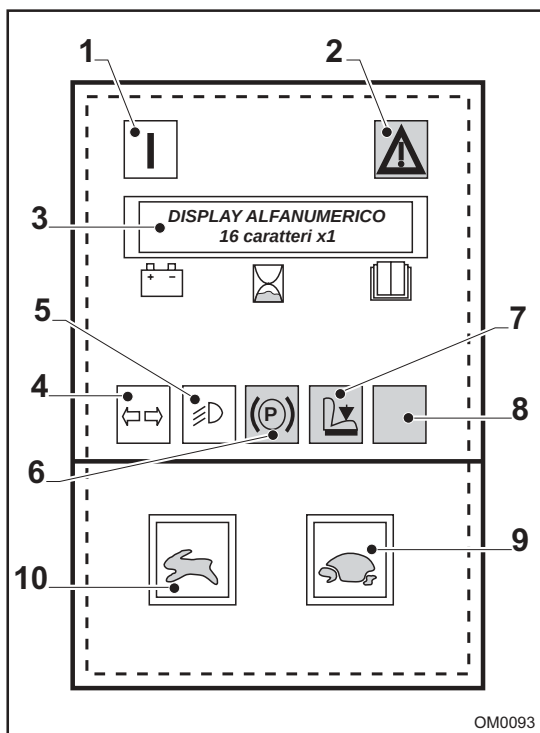


4.3 - MULTIFUNCTION DISPLAY

The multifunction display serves as the interface between the truck and the driver. It displays information on the panel and allows the driver to perform certain adjustments by activating the appropriate buttons.

IMPORTANT: The display panel may not function properly below 0 °C. This does not prevent the truck from functioning normally, but the alarms will not be displayed.

- 1 "Power on" LED
- 2 "Alarms" LED
- 3 Display
- 4 "Optional" turn signals LED
- 5 "Optional" lights LED
- 6 Parking brake LED
- 7 Seat sensor LED
- 8 Not used
- 9 Decrease speed button
- 10 Increase speed button



"Power on" LED (1)

This LED lights up when the ignition key is in the "I" position.

"Alarms" LED (2)

This LED lights up if an alarm is activated or the driver performs an unauthorized operation. See the appropriate paragraph for the list of alarms displayed.

Display (3)

The display lights up when the ignition key is in the "I" position.

The symbols below display the following information on the panel:



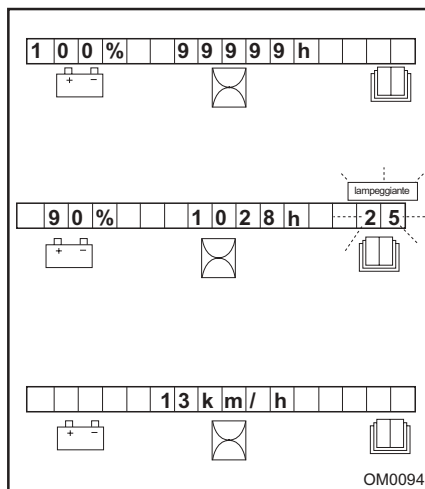
Indicates the status of the battery expressed in percentages.



Indicates the hours of operation.



Flashes the number of the alarm if it is activated.



“Optional” turn signals LED (4)

This LED is activated if turn signals have been installed on the truck, and lights up intermittently when activated.

“Optional” lights LED (5)

This LED is activated only if lights have been installed on the truck, and is illuminated when the lights are turned on.

Parking brake LED (6)

This LED lights up when the parking brake is applied.

Seat sensor LED (7)

This LED lights up if the sensor located under the seat is not activated.

Decrease speed button (9)

If this button is pressed while the truck is at a standstill, the speed entered will be displayed, and when pressed again the speed will be decreased by 1 km/h.

If this button is pressed together with button (10), the last speed maintained will be displayed.

Increase speed button (10)

If this button is pressed while the truck is at a standstill, the speed entered will be displayed, and when pressed again the speed will be increased by 1 km/h.

If this button is pressed together with button (9), the last speed maintained will be displayed.

4.3.a - Alarms

Alarms may be automatically activated while the truck is operating, some of which can be deactivated by the driver.

The LED lights up and the alarm number is displayed on the panel.



Below is a list of alarms that can be deactivated by the driver:

Alarm 20 = Battery discharged

This alarm is activated when the battery is operating on “RESERVE”, which means that the functions of the truck will slow down.

 **IMPORTANT:** Do not use the truck under these circumstances. Recharge the battery as described in the relative chapter.

Alarm 21 = Wrong battery

This alarm is activated if the battery has been replaced with a lower voltage battery than specified in the technical data, which means that the truck will not function.

Alarm 50 = Parking brake applied

This alarm is activated when the parking brake has been applied. Release the parking brake to use the truck.

Alarm 52 = Drive pedal activated

This alarm is activated when the ignition key is turned into position “I” and one of the drive pedals is already depressed.

Release the depressed pedal to deactivate the alarm.

Alarm 53 = Distributor lever activated

This alarm indicates that when the ignition key is turned to position I, one of the distributor levers or the Joystick lever (Joystick version) has been moved, or one of the buttons has been pressed.

Release the lever to deactivate the alarm.

Temperature alarms



ATTENTION:

If this alarm is activated, bring the truck to an immediate stop because the component indicated by the alarm number has reached its maximum operating temperature. Do not move the truck until the alarm has been deactivated.

Alarm 80 = The electronic system has overheated

Alarm 81 - 82 = The traction motors have overheated

Alarm 83 = The pump motor has overheated

Worn brushes alarm



ATTENTION: If any of these alarms is displayed, the truck is still operable but contact your local dealer immediately for technical assistance to avoid damaging the truck.

Alarm 90 = Right traction motor brushes are worn

Alarm 91 = Left traction motor brushes are worn

Alarm 92 = Pump motor brushes are worn



DANGER:

Contact the Customer Service Department for any alarms not listed above.

4.4 - ACCESS TO THE INSIDE OF THE TRUCK

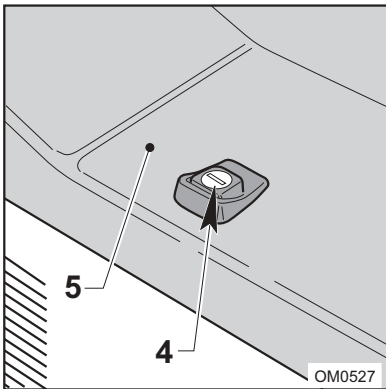
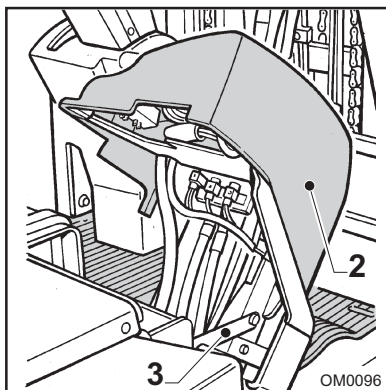
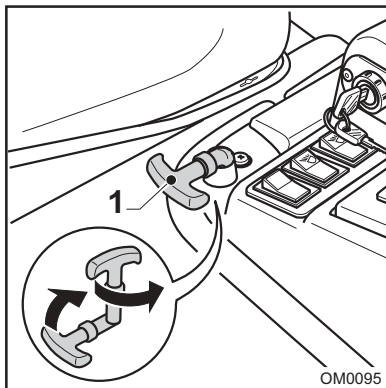
Proceed as follows to access the inside of the truck (battery, electronic parts):

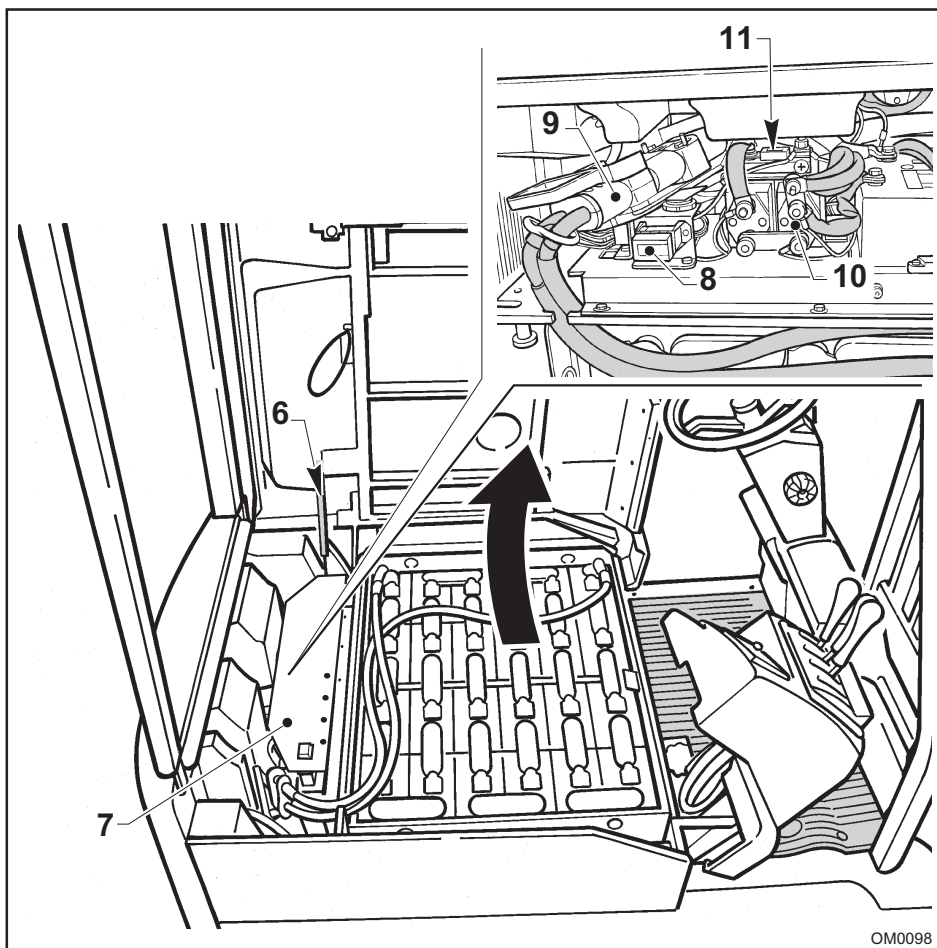
- Lift and turn the handle (1) and lift the panel (2), keeping it in place with the catch (3).
- Insert the key in the lock and press the button (4) to release the cover (5). Lift the cover (5).



IMPORTANT: The battery compartment cover is kept open by a gas damper (6).

- Close the battery compartment and panel by following the procedure above in reverse.





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4.5 - LOCATION OF THE FUSES

- Access the fuses by lifting the battery compartment cover as described above.
- Remove the protective cover (7) from the electronic system.
- The fuse box (8) is located next to the battery power socket/plug (9), and the power fuse (11) is located next to the remote control switches (10).

Chapter 5

TRUCK OPERATIONS

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5.1 - INSPECTIONS BEFORE DAILY START UP



ATTENTION:

It is a good rule to perform the daily inspections listed below to maintain the truck in good condition.

These checks are part of, and do not replace, regular maintenance operations.

- Visually check that the various parts of the truck are properly in place: forks, protective roof.
- Check that the safety belt is working properly.
- Check that the driver sensor microswitch is working properly.
- Check that the brakes are working properly and effectively.
- Check that the warning signal is working properly.
- Check the pressure and wear and tear of the tires.
- Check that the lights are working properly.
- Visually check that the chains are taut.

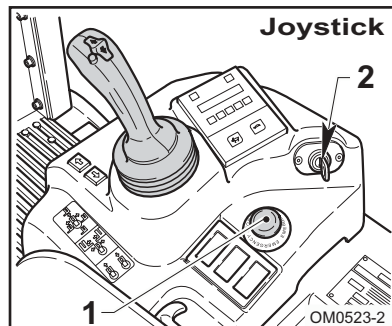
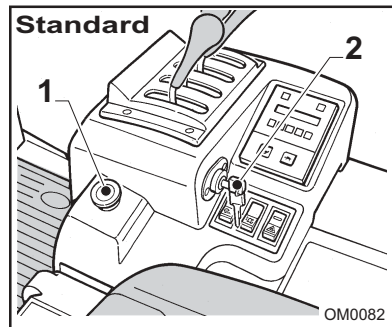


ATTENTION: If something on the truck is malfunctioning or you are not sure that it is working properly, do NOT use the truck but contact the Customer Service Department.

5.2 - TRUCK OPERATIONS

Proceed as follows after performing the daily inspections above:

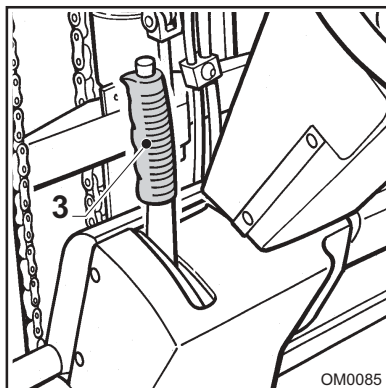
- Climb into the truck and sit in the seat.
- Fasten the safety belt.
- Make sure that the manual reverse lever, if there is one, is in the middle (neutral) position.
- Make sure that the EMERGENCY button (1) is not depressed.
- Insert the ignition key (2) and turn it to position "I". The LED  will light up indicating that the electrical systems are operating.



5.2.a - Driving

- Release the parking brake (3), which will switch off the relative LED .

 **IMPORTANT:** Always check that the forks are raised at least 5 cm from the ground and that the mast is tilted backward whenever the truck is being driven.



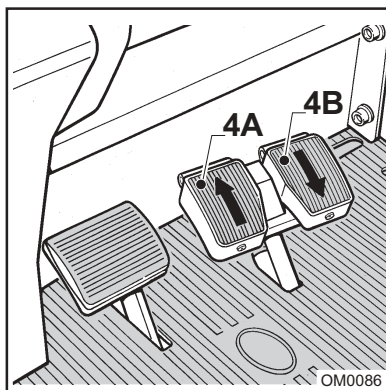
- Press one of the pedals (4) to start the truck:
Pedal (4A) drive **FORWARD**
Pedal (4B) drive **BACKWARD**

Version with reverse function on the steering wheel

Move the lever in the desired direction of travel then press the accelerator pedal (see paragraph 4.2.m).

Version with Joystick

Move the selector switch in the desired direction of travel then press the accelerator pedal (see paragraph 4.2.n).



- When reversing, the reversing lights switch on automatically and the reversing buzzer sounds.

 **IMPORTANT:** If the truck does not start easily, check first that no alarms have been activated, do not persist in starting the truck but determine why it will not start.

5.2.b - Reversing direction

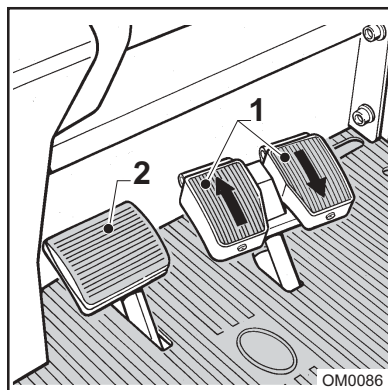
Driving without a load

- If the truck is being driven without a load, the driver can quickly reverse direction without having to use the service brake.
To do this, press the pedal for the opposite direction. The truck will come to a forceful but gradual stop, and then continue in the opposite direction.
- For trucks with the reverse drive function located on the steering wheel, the driver can quickly reverse direction without having to use the service brake.
To do this, move the lever from the current direction of travel into the other direction.

Driving with a load

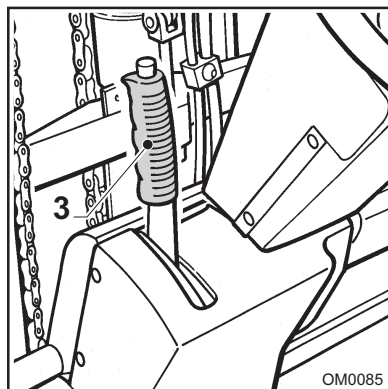
- If the truck is being driven with a load, the driver can reverse direction by releasing the drive pedal (1) (or accelerator), then pressing the service brake pedal (2) until the truck comes to a complete stop.
- Reverse by pressing the appropriate pedal or moving the reverse lever or the selector switch on the Joystick depending upon the version, and pressing the accelerator pedal.

! DANGER: If the driver reverses direction while driving with a load and does not bring the truck to a complete stop, the load may fall off.



5.2.c - Truck braking/stop

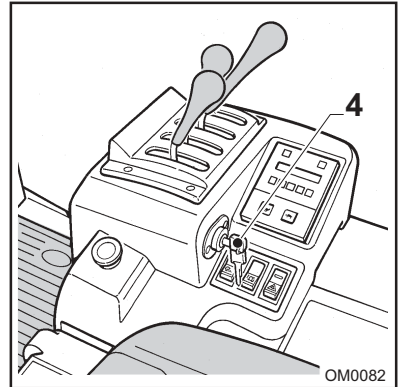
- Bring the truck to a stop by releasing the drive pedal (1) or accelerator.
- Move the manual reverse lever (if there is one) into the middle position.
- Slowly press the service brake pedal (2) until the truck comes to a complete stop.
The rear brake lights will light up.
- Apply the parking brake (3).



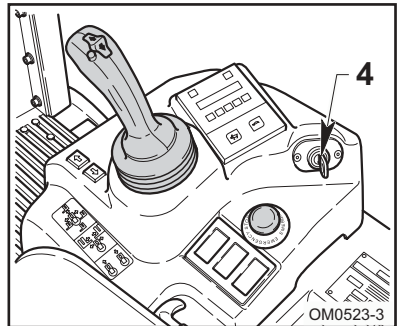
5.2.d - Stopping for long periods

- If the truck is going to be stationary for a long period of time, lower the forks to the ground but keep the mast chains taut.
- Apply the parking brake (3).
- Turn the key (4) into the "0" position and remove it to switch off the truck.

Standard



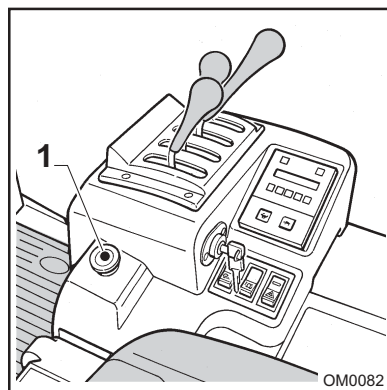
Joystick



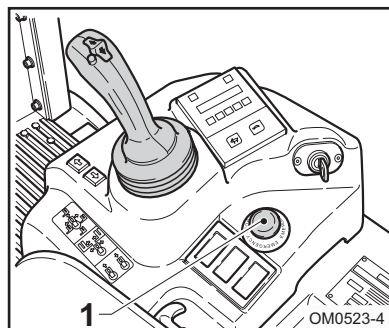
5.2.e - Stopping in an EMERGENCY

- Press the button (1) in an emergency, which will cause the truck to go into neutral if it is moving. Press the brake pedal to bring it to a complete stop.
- Proceed as described in paragraph 4.2.c after activating the emergency stop button

Standard



Joystick



5.2.f - Operating in cold stores

The truck can be used on a continuous basis at a minimum temperature of -20 °C, and intermittently at -40 °C.

Observe the following precautions when operating the truck in cold stores:

- Always park outside the cold area.
- If the truck is being operated both inside and outside the cold stores, make sure that it either remains outside long enough to allow the condensation to evaporate (at least 30 minutes), or that it does not remain outside long enough to allow condensation to form (at most 10 minutes).



ATTENTION: NEVER enter the cold stores if there is condensation on the truck.

5.3 - BATTERY CHARGING



ATTENTION: Batteries must be charged in areas that meet all current legal regulations.

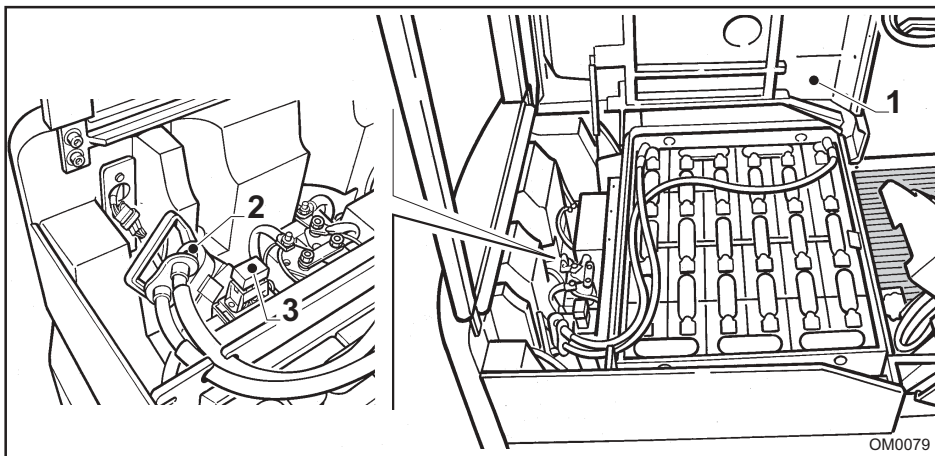


IMPORTANT: See the battery and battery-charging manuals for instructions on how to charge the battery, check the level of charge, etc., making sure that the voltage is correct.



IMPORTANT: See the battery manual and paragraph 2.1 for the relevant safety precautions.

- Park the truck as described in paragraph 5.2.d.
- Raise the battery compartment cover (1).
- Remove the battery plug (2) from the socket (3) of the electronic system.
- Remove the caps from the elements if the battery is not equipped with a central topping up device.
- Insert the plug (2) into the battery charger to start charging the battery.
- When the battery has been charged, repeat the operations in reverse to operate the truck, making sure that the battery plug is securely inserted in the electronic system socket.



5.4 - ENGAGING THE LOAD

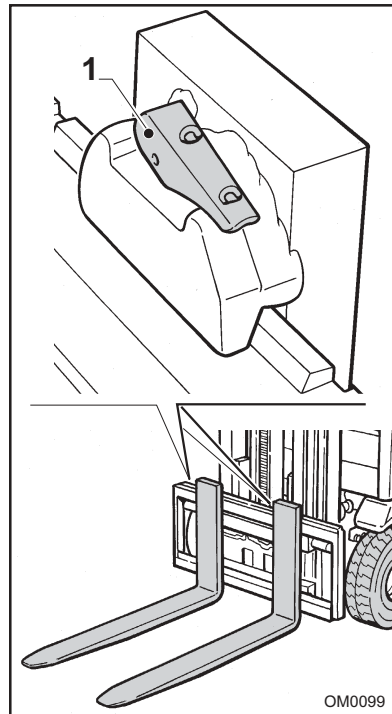
⚠ DANGER: Before engaging the load, make sure that the truck can handle its size and weight as indicated in the “TECHNICAL DATA” chapter and on the carrying capacity plate.

5.4.a - Adjusting the distance of the forks

- Before engaging the load, adjust the distance between the forks so that they are aligned with the lifting points of the load.
- Adjust the fork arms by raising the lever (1), moving the arms manually in and out, and then releasing the lever (1) into one of the notches on the fork support plate.

⚠ DANGER: For better load stability, the forks must be as far apart as possible with respect to the lifting points of the load so that the load center is in the middle of the forks.

⚠ DANGER: For better load stability, the forks must be positioned as symmetrically as possible with respect to the center of the fork support plate.



5.4.b - Engaging the load

- Approach the load as carefully and closely as possible.
- Bring the mast into a vertical position.
- Raise the forks to the necessary height for engaging the load.
- Slowly bring the truck toward the load until it touches the back of the forks.
- Slowly lift the load from the support surface.
- Tilt the mast BACKWARD.
- Reverse the truck as far as necessary so that it can maneuver freely.
- Lower the forks with enough ground clearance to be able to drive.



DANGER: Make sure that no one is under the elevated load or standing within the operating area of the truck.

5.4.c - Disengaging the load

- Approach the area where the load is to be deposited.
- Raise the forks to the necessary height.
- Bring the mast into a vertical position so that the load is horizontal.
- Bring the truck to the stack.
- Slowly lower the forks, deposit the load in the desired area, and withdraw the forks from the load.
- Withdraw the truck from the area.



DANGER: Do not leave the truck while it has an elevated load.



IMPORTANT: See the enclosed “**Safety instructions for using industrial trucks**” manual for further instructions about operating the truck.

5.4.d - Towing the load

The truck is not equipped for towing loads.

5.5 - TOWING THE TRUCK

If the truck breaks down, it can be towed by means of the tow hook (1).

Before towing, check the following:

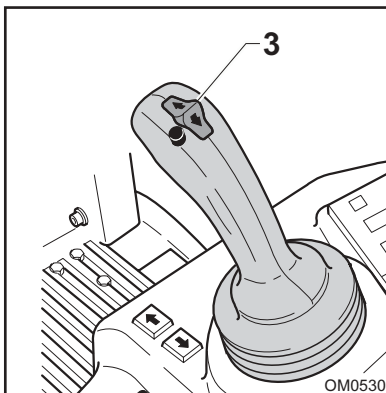
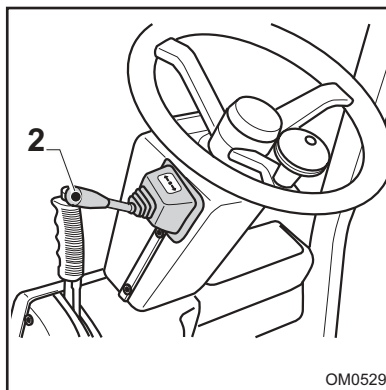
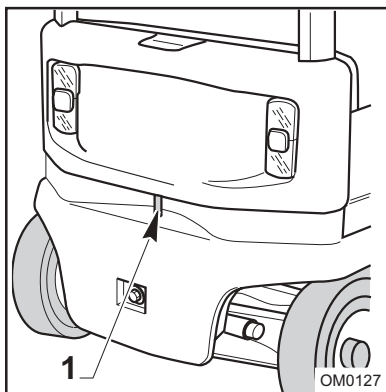
- The lever (2) is in the middle position for models with the reverse function on the steering wheel.
- The selector switch (3) is in the middle position for models with the Joystick.

Use non-metallic cables for towing the truck.



ATTENTION:

The driver must be on board the truck to steer and brake it while it is being towed.



Chapter 6

MAINTENANCE

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6.1 - MAINTENANCE OPERATIONS

The following pages contain the information on maintenance of the lift truck. Follow the instructions in order to maintain the lift truck in good working order.

Besides the maintenance operations described in this chapter, there are other operations that must be performed by qualified technicians from the dealer. We recommend that you contact the dealer to draw up an adequate maintenance contract for your truck.

There are two types of maintenance operations:

SERVICING

SCHEDULED MAINTENANCE



DANGER: Trucks may only be maintained by qualified and authorized personnel. Always observe the safety requirements for handling supplies and the instructions described in chapters “1” and “2”. Work in maintenance-dedicated area or border an area around the truck with proper signs indicating that work is in progress.



WARNING:

Strictly keep to the scheduled maintenance table in order to guarantee proper functioning and efficiency of the lift truck and to benefit from the conditions of guarantee.

6.1.a - Preliminary maintenance operations

Proceed as follows before performing any maintenance operations:

- Place the truck on a level surface and make sure that it cannot make any chance movements.
- Lower the forks to the ground.
- Apply the parking brake.
- Switch off the truck and remove the key.



DANGER: Always unplug the battery before performing any maintenance operations on the electrical system.

6.2 - SERVICING

Servicing is performed on an as needs basis, and includes operations such as cleaning the truck, repairing or replacing a worn or broken part, such as a punctured tire or a burned out light bulb, etc.

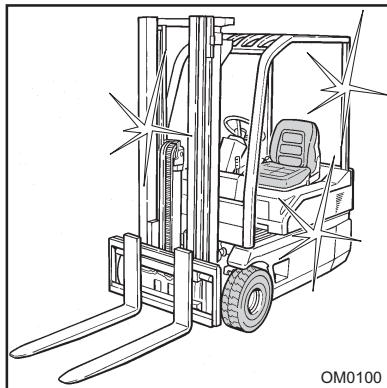
6.2.a - Cleaning the truck

The frequency with which the truck is cleaned depends upon how and where the truck is used. If the truck comes into contact with harsh substances such as salty water, fertilizers, chemical products, cement, etc., it must be thoroughly cleaned after every use.

Use compressed air and detergents in cold water to wash the body of the truck, and a wet cloth to clean the components.



ATTENTION: Do not aim jets of water directly onto the truck, and do NOT use solvents or gasoline-based products because they could damage the electrical and plastic parts.



6.2.b - Replacing a light bulb

Before replacing a light bulb, check that the fuse is still intact (see the paragraph "Replacing fuses").

Make sure that the replacement bulb has the same features as the burned-out bulb (see the chapter "Technical data").

Rear lights

Replace a rear light bulb as follows:

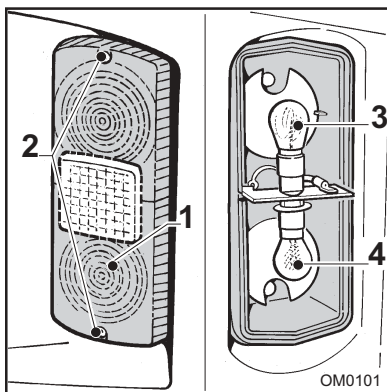
- Take off the transparent cover (1) by removing the two screws (2).
- Gently push in and turn the burned-out light bulb until it comes out of the socket.

Replace it as follows:

Light bulb (3) for the reverse lights

Light bulb (4) for the brake lights

- Replace the transparent cover (1).

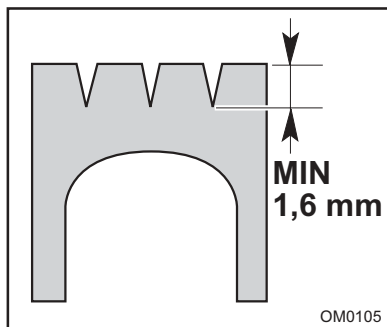


6.2.c - Replacing a wheel

Replace worn or punctured tires as follows:

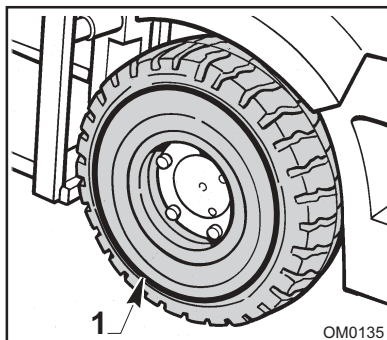
PNEUMATIC tires

Replace if the tread is equal to or less than 1.6 mm thick.



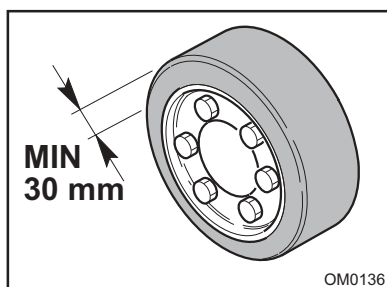
SUPERELASTIC tires

Replace when they have reached the permitted maximum amount of wear, which is indicated by a line (1) placed on the side of the tire by the manufacturer. If the truck is used on wet or slippery surfaces, replace the tire before the thickness of the tread goes below 1 mm.



VULKOLAN tires

Replace when the height of the tire is equal to or less than 30 mm.



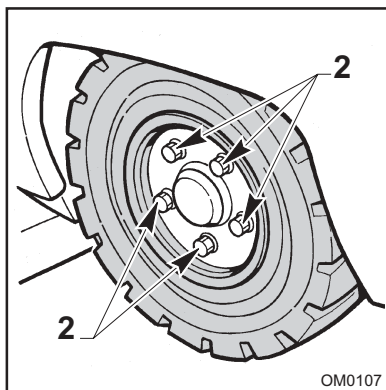
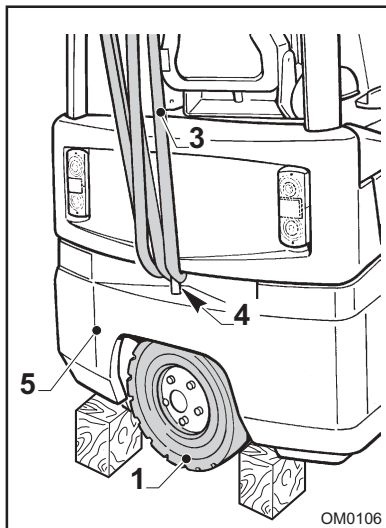
 **DANGER:** In order to maintain the stability of the truck, which is essential for operating it safely, replace both tires on the same axle simultaneously with tires of the same type and from the same manufacturer only.

 **DANGER:** Place solid, stable supports between the lower part of the truck (chassis, fixed uprights, or ballast) and the ground, and place blocks under the wheels that remain on the ground while the others are being replaced.

 **DANGER:** When replacing pneumatic tires, completely deflate the tire to be replaced before removing it.

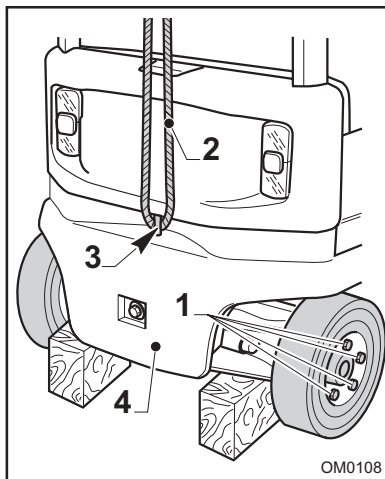
Replacing a rear wheel (3-wheeled truck)

- Position the rear wheel (1) so that the wheel nuts are accessible.
- Switch off the truck and perform the preliminary maintenance operations.
- Partially loosen the wheel nuts (2).
- Insert a cable (3) through the tow hook (4) and hook the other end to a crane that is big enough to lift the truck.
- Lift the back of the truck and place supports under the ballast (5).
- Lower the truck onto the supports, keeping the cable taut.
- Completely unscrew the nuts (2) and remove the wheel.
- Mount the new wheel, making sure that the air valve, if there is one, is facing the outside.
- Tighten the wheel nuts in the sequence shown in paragraph 6.3.c in the following three successive phases:
 - Partially tighten the nuts until the wheel is firmly in place against the hub.
 - Tighten the nuts to 50% of the specified torque.
 - Lift the truck off the supports.
 - Remove the supports.
 - Lower the truck to the ground.
 - Tighten the fastening screws.
 - Completely tighten the nuts to the specified torque (see paragraph 6.3.c).
- Inflate pneumatic tires to the correct pressure.



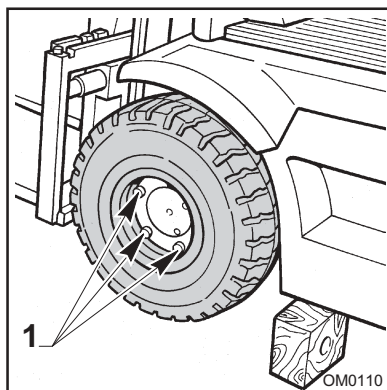
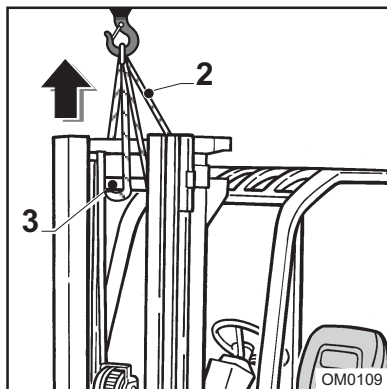
Replacing a rear wheel (4-wheeled truck)

- Switch off the truck and perform the preliminary maintenance operations.
- Partially loosen the wheel nuts (1).
- Insert a cable (2) through the tow hook (3) and hook the other end to a crane that is big enough to lift the truck.
- Lift the back of the truck and place supports under the ballast (4).
- Lower the truck onto the supports, keeping the cable taut.
- Completely unscrew the nuts (1) and remove the wheel.
- Mount the new wheel, making sure that the air valve, if there is one, is facing the outside.
- Tighten the wheel nuts in the sequence shown in paragraph 6.3.c in the following three successive phases:
 - Partially tighten the nuts until the wheel is firmly in place against the hub.
 - Tighten the nuts to 50% of the specified torque.
 - Lift the truck off the supports.
 - Remove the supports.
 - Lower the truck to the ground.
 - Tighten the fastening screws.
 - Completely tighten the nuts to the specified torque (see paragraph 6.3.c).
- Inflate pneumatic tires to the correct pressure.



Replacing a front wheel

- Switch off the truck and perform the preliminary maintenance operations.
- Partially loosen the wheel nuts (1).
- Pass a cable (2) over the upper crossbar (3) of the mast and hook the other end to a crane that is big enough to lift the truck.
- Lift the front of the truck and place supports under the wheel to be replaced (5).
- Lower the truck onto the supports, keeping the cable taut.
- Completely unscrew the nuts (1) and remove the wheel.
- Mount the new wheel, making sure that the air valve, if there is one, is facing the outside.
- Tighten the wheel nuts in the sequence shown in paragraph 6.3.c in the following three successive phases:
 - Partially tighten the nuts until the wheel is firmly in place against the hub.
 - Tighten the nuts to 50% of the specified torque.
 - Lift the truck off the supports.
 - Remove the supports.
 - Lower the truck to the ground.
 - Tighten the fastening screws.
 - Completely tighten the nuts to the specified torque (see paragraph 6.3.c).
- Inflate pneumatic tires to the correct pressure.

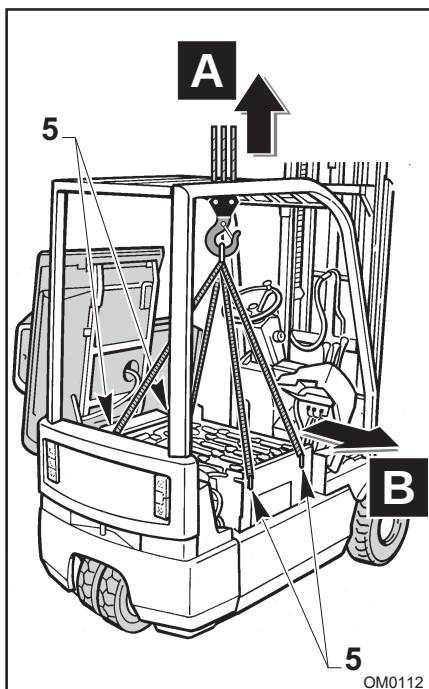
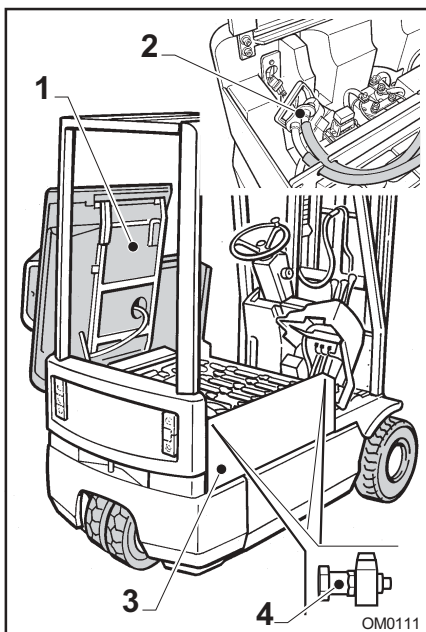


6.2.d - Replacing the battery

- Switch off the truck and perform the preliminary maintenance operations.
- Raise the battery compartment cover (1) as described in chapter 4.
- Disconnect the plug (2) and place it on top of the battery.
- Remove the side panel (3) by unhooking the latches (4).
- Hook the battery at each of the four points (5) with a cable or a chain.
- Lift the battery approximately 40 cm with a crane harness big enough to support the weight of the battery as indicated on the plate ("A").
- Slide the battery sideways toward the right ("B").
- Mount the new battery following the above procedure in reverse.



ATTENTION: Use NON-METALLIC cables.



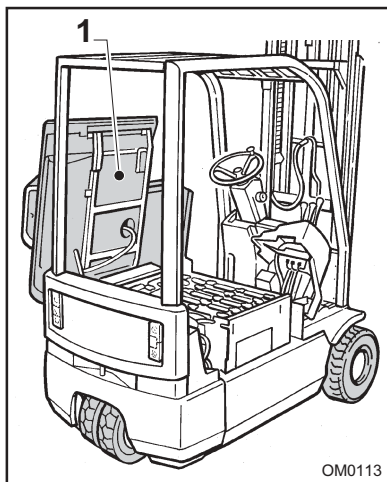
6.2.e - Replacing a fuse

- Switch off the truck and perform the preliminary maintenance operations.



ATTENTION: Before replacing the fuse, rectify the reason that caused it to burn out. Replace the burned-out fuse by another with the same amperage. Do not tamper with the electric system of the truck.

- Lift the battery compartment cover (1) as described in chapter 4.
- Remove the protective cover from the electronic system.



- The power fuse (2) is located on the electronic panel (3), while the service fuses are located in the fuse box (4).

Power fuse (2)

- Remove the screws (5), replace the fuse (2), then replace the screws (5).

Service fuses (4)

- Remove the cover and replace the burned-out fuse, then replace the cover.

Fuse values

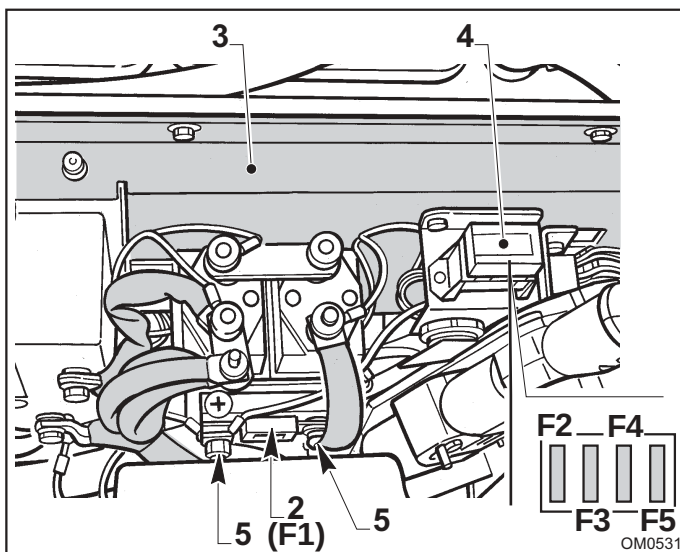
F1 = 500A power fuse (2)

F2 = 5A switch fuse (key)

F3 = 5A acoustic signal fuse

F4 = 20A light unit fuse

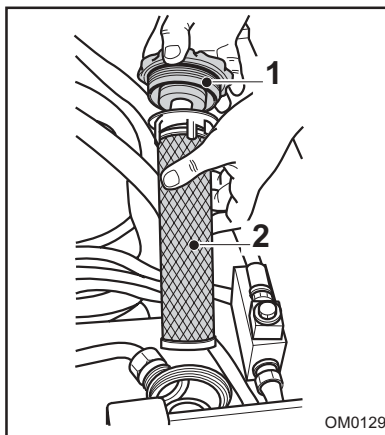
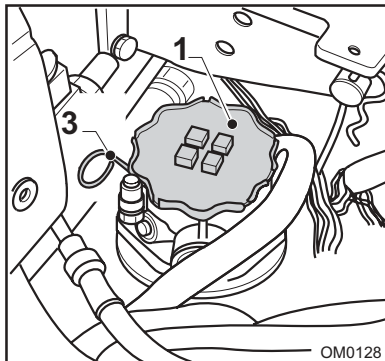
F5 = Optional accessories fuse



6.2.f - Replacing the oil filter cartridge

- Remove the rubber mat.
- Unscrew the driver platform from the chassis and remove it.
- Unscrew the filter cap (1) and remove it.
- Replace the oil filter cartridge (2) following the procedure above in reverse.

 **IMPORTANT:** Check the level of oil with the dipstick (3), and top it up if necessary.



6.3 - SCHEDULED MAINTENANCE

Some scheduled maintenance operations can be performed by the company technician, while others must be performed by the Customer Service Department.

See the maintenance operations table for the operations to be performed.



ATTENTION: If the truck is used in dusty environments, temperatures below zero, or demanding conditions, the scheduled maintenance operations must be performed more frequently.

6.3.a - Maintenance operations table

Operation	hours								qualified personnel	
	10	100	200	400	500	1000	1500	3000	T	CA
Check the tire pressure	●								●	
Check the wheel nuts	▲	●							●	
Check the service brake				●						●
Check the parking brake		●							●	
Check and adjust the tension of the chains		●							●	
Check and maintain the chains *				●						●
Check of the oil level in the hydraulic tank		●							●	
Cleaning of the electronic panel		●							●	
Cleaning of the motors		●							●	
Lubrication of the 4-wheel steering axle			●						●	
Greasing of the ways of the fork-holding plate			●						●	
Check of the gear-motors oil level				●						●
Greasing of the rear wheels bearings				●						●
Check of the locking system of the safety belt				●						●

TA = Company technician
CA = Authorized service center
▲ = Frequency of maintenance until the end of the running in period
***** = As per current standards

[illegible]

EVERY 10 HOURS

6.3.b - Checking tire pressure

Check the pressure of the tires, referring to the table in chapter 3 "TECHNICAL DATA". See chapter 2 "SAFETY" for the safety measures that must be observed when performing this operation.

EVERY 100 HOURS

6.3.c - Checking the tightness of the wheels (performed every 10 hours during the running in period)

- Perform this operation at the frequency specified in the above maintenance operations table, and whenever a wheel is replaced.
- See the appropriate chapter for instructions on how to replace a wheel.
- The figures opposite show the order in which the wheel nuts must be tightened.
- The table below indicates the torque values for tightening the nuts.

A = Front wheels

200 Nm / ~ 20 kgm

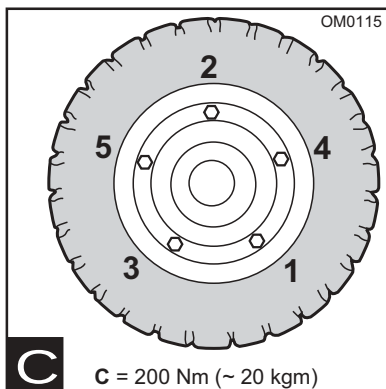
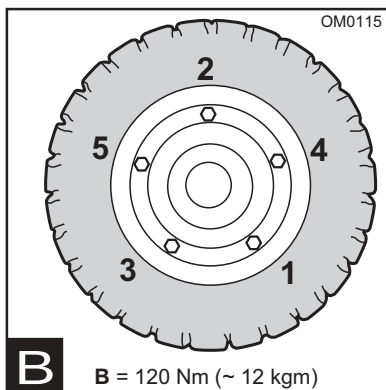
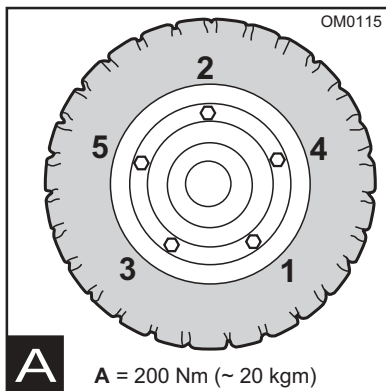
B = Rear wheels (4-wheeled trucks)

120 Nm / ~ 12 kgm

C = Rear wheels (3-wheeled trucks)

200 Nm / ~ 20 kgm

 **IMPORTANT:** the indicated fastening torques are intended for clean, degreased and lubricant-free screws.



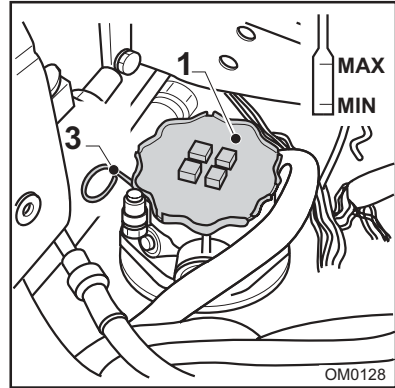
6.3.d - Checking the level of hydraulic oil



ATTENTION: Before checking the level of hydraulic oil, place the truck on a flat surface, raise the forks to the maximum height, and tilt the mast forward.

- Remove the rubber mat.
- Unscrew the driver platform from the chassis and remove it.
- Take out the dipstick (1) and check whether the level of oil is between the “MAX” and “MIN” marks.

Remove the filter cap (2) and top up the oil if necessary.

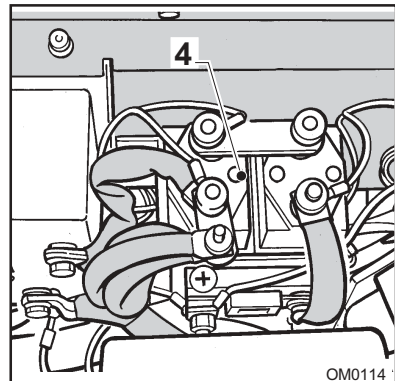
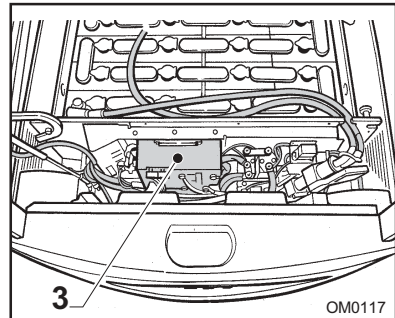


IMPORTANT: See the “Supplies” table at the end of this chapter for the type of oil to use.

Replace the driver platform and mat after checking and topping up the oil.

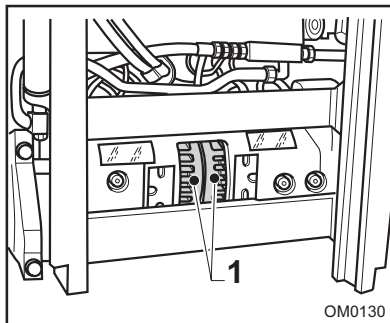
6.3.e - Cleaning the electronic panel

- Lift the battery compartment cover as described in the relative paragraph to access the electronic panel (3).
- Carefully clean the remote control switches (4) with a puff of dry air at low pressure.



6.3.f - Cleaning the motors

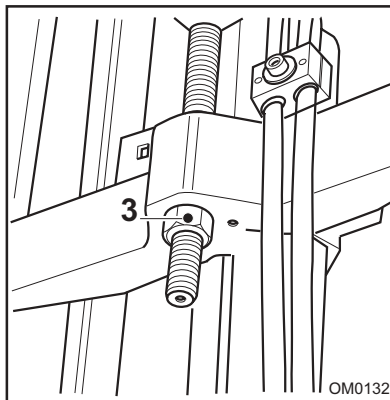
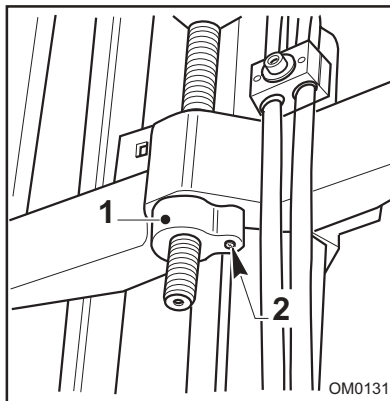
- Raise the forks to approximately 2 m.
- Place the truck on a flat surface and make sure that it cannot move sideways.
- Apply the parking brake.
- Switch off the truck and remove the key.
- Clean the motor through the cooling vents (1) with a puff of dry air at low pressure.



6.3.g - Checking and adjusting the tension of the chains

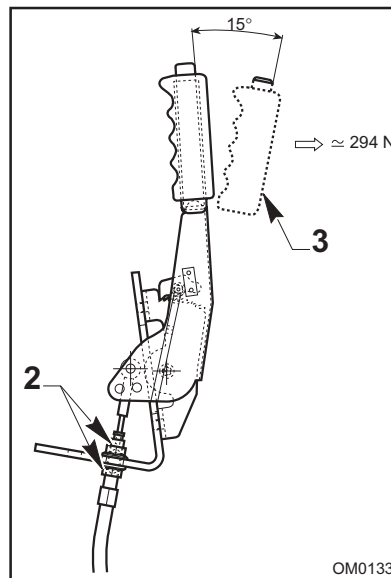
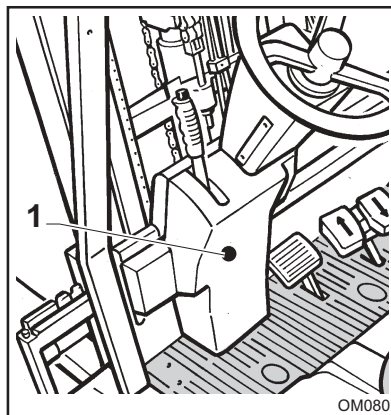
Check that the chains are equally taut, and adjust them as follows if necessary:

- Take off the hood (1) by removing the screw (2).
- Adjust the tension of the chain by means of the nut (3).



6.3.h - Checking and adjusting the parking brake

- Remove the hood (1) by unscrewing the screws (2).
- Adjust the tension of the sheath by means of the nuts (2), making sure that the lever (3) is positioned in the 3rd tooth of the ratchet.
- Raise the front of the truck as described in paragraph 6.2.c (for replacing the front wheel) and make sure that the wheels turn freely.
- Replace the hood (1).

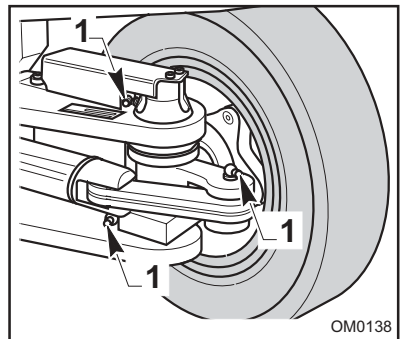
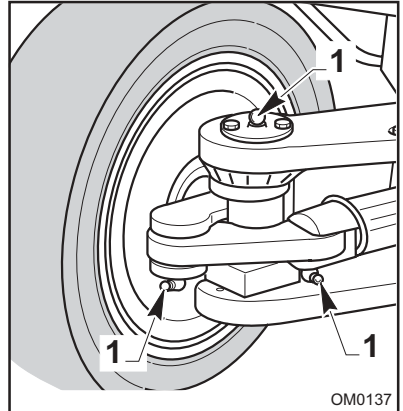


EVERY 200 HOURS

6.3.i - Greasing the drive axle of 4-wheeled trucks

- Grease the axle by means of the nipples (1) until the grease leaks from the bearings.

 **IMPORTANT:** See the “Supplies” table at the end of this chapter for the type of grease to use.

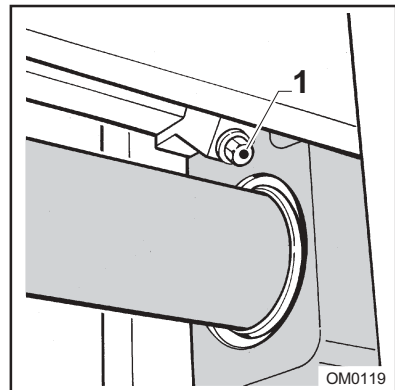
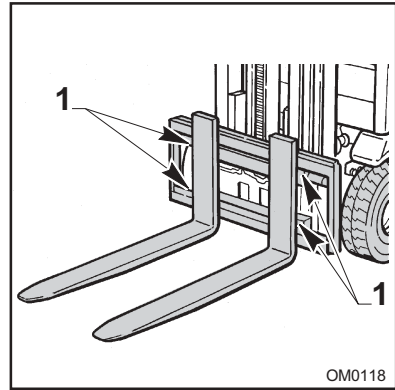


6.3.1 - Greasing the fork support plate tracks

 **IMPORTANT:** Clean the nipple heads before greasing the tracks.

- Grease the tracks by means of the nipples (1).

 **IMPORTANT:** See the “Supplies” table at the end of this chapter for the type of grease to use.



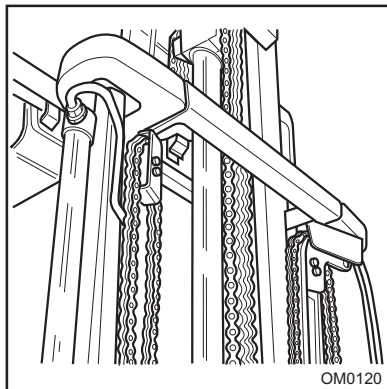
EVERY 400 HOURS

6.3.m - Lubricating the mast chains

 **IMPORTANT:** If the truck is used in harsh environments, it is a good idea to lubricate the chains with a water-resistant grease in addition to the regular lubricants.

- Spray the lubricant onto the chains.

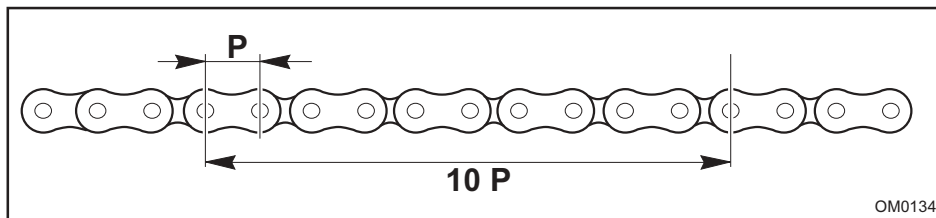
 **IMPORTANT:** See the “Supplies” table at the end of this chapter for the type of lubricant to use.



6.3.n - Inspecting and maintaining the chains

 **IMPORTANT:** The chains must be inspected every 3 months, or as often as legally required.

- Wash the chains, and check each link for wear and tear before lubricating them. Check also for any signs of breakage on the plates.
- Measure the elongation of the chains over several sections of 10 pitches. If the greatest elongation found exceeds 2%, replace the chain.
However, it is important to verify whether the elongation is due to fatigue, in which case the chain may have to be replaced because it could give due to fatigue without showing any appreciable elongation due to wear and tear.
This occurs particularly with trucks that operate on uneven terrain.
- Carefully check the tie rods of the chain, including both the coupling comb and the threaded stem.
- Replace them, together with the nuts and washers if the chains are replaced.



EVERY 1000 HOURS

6.3.o - Replacing the oil filter cartridge.

Remove the oil filter cartridge as described in paragraph **6.2.f**.

6.4 - SUPPLIES TABLE

Part requiring supplies	Quantity dm ³ kg	Fiat lubricants	Special international lubricants
Hydraulic system and hydraulic drive	19	IDRAULICAR AP46 TUTELA GI/M (●)	MIL-L-24459-DIN 52524/51525 ATF Type A - Suffix A (●)
Reducers	2X0,4 -	TUTELA W90	API GL5 SAE 80 W/90
Bearings and nipples	- 1	TUTELA MR2	Lithium grease Consistency N.L.G.I.2

● For use in cold environments and cold stores.

Chapter 7

OUT OF SERVICE

CONTENTS

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7.1.b Checks and inspections after a lengthy immobilization period	2
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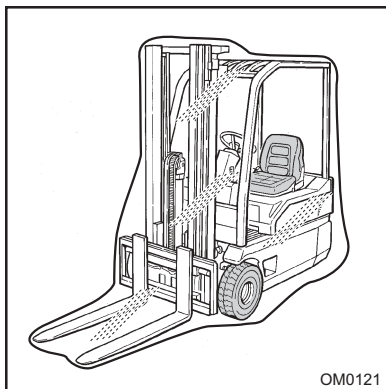
7.1 - GENERAL DESCRIPTION

This chapter describes the measures to be taken for “Lengthy immobilization periods” and “Scrapping the truck”.

7.1.a - Lengthy immobilization periods

Proceed as follows if the truck is not going to be used for a long period of time:

- Clean the truck as described in the “Maintenance” chapter, and store it in a dust-free and dry location.
- Lower the fork support plate and place it on a support. Loosen the chains.
- Lightly wipe the unpainted parts with oil or grease.
- Perform the greasing operations as described in the “Maintenance” chapter.
- Remove the battery and store it in a location where there is no danger of freezing. Charge the battery at least once a month.
- Jack-up the truck so that the wheels do not touch the ground.
Bring the pressure of the tires to 1 bar.
- Cover the truck with a tarpaulin that is NOT made of plastic.



7.1.b - Checks and inspections after a lengthy immobilization period

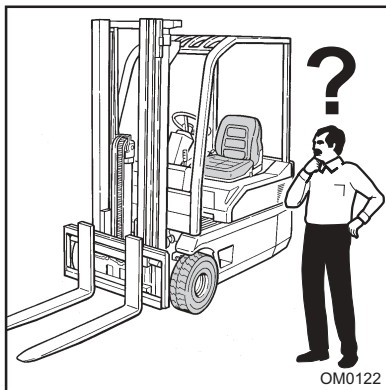


ATTENTION: Proceed as follows before operating the truck again:

- Clean the truck thoroughly.
- Check that the battery is charged, mount it in the truck, and grease the terminals with vaseline.
- Check the pressure of the tires and lower the truck to the ground.
- Grease all the parts that have lubrication nipples and the chains.
- Check the levels of the liquids.



DANGER: See the “Maintenance” chapter for the operations described above.

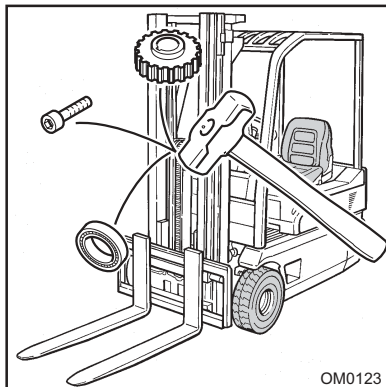


7.1.c - Scrapping the truck

Proceed as follows if scrapping the truck:

⚠ DANGER: The truck must be dismantled by a qualified technician only.

- Dismantle as many of the truck parts as possible (panels, lights, battery, chains, motors, etc.), and separate them according to the nature of the material (for example, hoses, rubber parts, lubricants, aluminum, iron, etc.).
- Notify the appropriate authorities in writing in accordance with the regulations in force in the respective countries before scrapping the truck.
- Scrap the parts in accordance with the regulations in force after receiving permission from the appropriate authorities.



7.1.d - Disposal of toxic substances

- Check the regulations in force for the disposal of toxic substances such as lubricants, batteries, etc., and proceed as required.

👉 IMPORTANT: The customer is fully responsible for any irregularities with respect to the regulations in force before, during, and after scrapping and disposing of truck parts, and for interpreting and applying the regulations in force.

