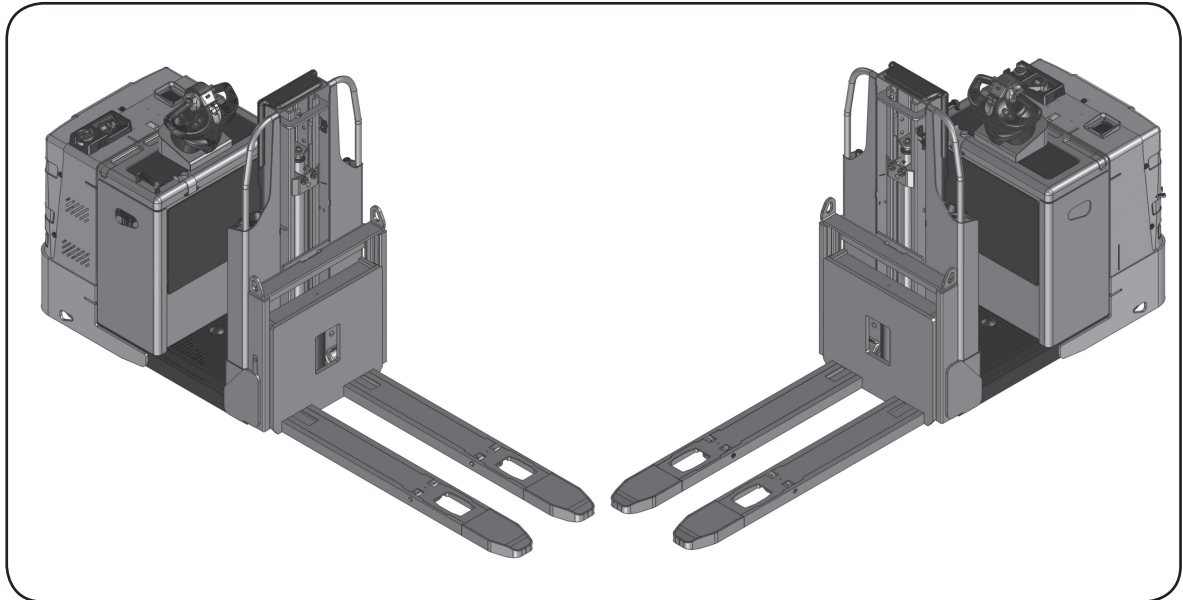


Technical information for Hyster customer care centres



This manual is addressed to the skilled technicians of Hyster service network.

D444.....

LO2.0

D444.....

LO2.0L

A939.....

LO2.0M



IMPORTANT

This manual contains detailed information about the routine and preventive maintenance, troubleshooting, disassembly/assembly of components, adjustment procedures for the following Hyster models: LO2.0

These procedures require specific technical knowledge and they must be carried out only by qualified and trained staff. Please read this manual carefully in order to prevent damage or accidents to people; it must be kept in good conditions so that it is always readable and complete in all its parts.

This manual is an integral part of the use and maintenance manual and it does not replace it.

HYSTER Product support group

NOTES:

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HOW TO USE THE MANUAL

ENCLOSED MANUALS

AC drive motor control	Part No. 1597106
DDI Display	Part No. 1597111
Steering motor control	Part No. 1597116
Motors	
Reduction gears	Part No. 2795708
ETACC "AC Controls Program"-	Part N° 2200 SRM 1058

SECTIONS

This manual is divided into the following sections:

Section 1:	Preface
Section 2:	Introduction
Section 3:	Installation and settings
Section 4:	Electric system
Section 5:	Diagnostics and measures
Section 6:	Hydraulic system
Section 7:	Frame mechanics
Section 8:	Mast-fork mechanics
Section 9:	Reduction gear
Section 10:	Braking system

Always refer to the index with the numbered black bands in order to go to the desired section.

WORDS AND SYMBOLS



It indicates the presence of a danger that can cause accidents to people or damage to the truck.



It indicates notes or important information to be taken into consideration.



It indicates that, in the electronic version of the manual, by clicking on this symbol it is possible to display a filmed sequence.

GENERAL SAFETY STANDARDS

PERSONAL SAFETY

- Always use the personal protective equipment when it is required.
- Pay attention to the squashing risks due to moving parts, oscillations, not correctly fastened materials when lifting operations are carried out or when the loads are moved.
- Do not wear rings, watches, jewels, unbuttoned or hanging clothes such as scarves, unbuttoned jackets or smocks with open zips that can get entangled in the moving parts.
- Never carry out cleaning, lubrication or maintenance operations when the battery is connected.
- If you use compressed air to clean the parts, wear glasses with lateral guards.

SAFETY IN THE WORKPLACE

- Make sure that all working tools are perfectly efficient and ready to use. Keep the working surfaces clean and free from the deposits that settle on the truck parts and cause damage.
- Keep sparks, free flames and cigarettes at a distance from fuels or flammable materials such as the gas of the batteries.
- Make sure that the working area is well ventilated, illuminated, dry and clean. Remove any water puddles or oil spots.
- Make sure that the lifting equipment, devices or machines can bear the load.
- Never use petrol, gas oil or other flammable liquids as detergents: use commercial non-toxic and non-flammable solvents.
- In case the interventions are carried out of the workshop, lay the truck flat and block it. If it is necessary to carry out the work on slopes, block the truck and bring it in a flat area as soon as possible within a certain safety limit.
- Disconnect the batteries and label all controls in order to indicate that an intervention is in progress. Block the truck and any equipment to be lifted.
- Do not carry out any intervention on the truck when the operators are controlling it, except that they are qualified operators and help to carry out the intervention.
- During towing operations use only the prescribed attachment points and make sure that the pins and/or bolts are tightly secured. Lift and move all heavy components by means of a lifting device of proper carrying capacity. Use the proper eyebolts. Make sure that nobody stays near the load to be lifted.
- Do not twist chains or metal ropes.
- Do not use damaged or bent chains or ropes: do not use them during lifting or towing operations. While handling them always wear safety gloves.
- Do not accumulate cloths soaked with grease or oil: they represent a risk of fire. Always put them in a closed metal container.
- The oil must be collected and not be let off in the drain pipes; the industrial oils must be disposed of by specialized companies under the protection of the law in force in every Country.

**Thanks very much for your reading,
Want to get more information,
Please click here, Then get the complete
manual**

JustClickHere 

NOTE:

**If there is no response to click on the link above,
please download the PDF document first, and then
click on it.**

**Have any questions please write to me:
admin@servicemanualperfect.com**

- When welding operations are carried out, it is necessary to use proper accident-prevention protections: protective glasses, helmet, overalls, shoes. The protective glasses must be worn also by the people who do not carry out the works if they stay near a welding area.
- Before using the batteries, make sure that the cables are connected to the terminals as described: (+) with (+) and (-) with (-).
- Do not short-circuit the terminals.
- The gas emanated during a recharge is highly flammable. During the recharge of the battery leave the battery compartment uncovered in order to use a more efficient ventilation and remove the plugs.
- Do not check the condition of the battery charge by means of "jumpers" obtained by placing metal objects on the terminals.
- Before any intervention check if there are no short-circuit elements.
- Disconnect the batteries before acting on the electric system.
- For the battery chargers and similar equipment, use only auxiliary electric power supply sources in order to avoid any electric shocks.
- A fluid passing through a very small hole can be almost invisible but strong enough to penetrate into the skin; in these cases check the fluid by means of a card or a piece of wood.
- To check the pressure of the plant use the proper devices.

BANDS, ROPES AND HANGING ROPES: SUGGESTIONS FOR THE USE

- Register all used hanging ropes, whose features and data are shown on the identification plate.
- Do not use bands, ropes or hanging ropes, whose identification plate has been lost.
- Always use bands, ropes or hanging ropes of proper dimensions. As far as the hanging ropes are concerned, take into consideration the lifting angle and the unbalance of the load.
- The hooks of the hanging ropes must have a proper size according to the hook of the bridge crane and they must move freely.
- Position the load in the hook mouth.
- Do not place the load on the point of the hook.
- During lifting, do not carry out sudden operations that could tear the ropes and the bands.
- Do not carry out lifting operations with twisted ropes and bands.
- Knots are forbidden.
- Always protect the ropes and the bands when they are near sharp edges.
- During the movements without load in order to avoid unintentional collisions or hooking, fasten the hooks to the proper seats and lock them.

Use of hanging ropes with unbalanced load

If unbalanced loads must be lifted it is advisable to reduce the carrying capacity of the hanging ropes:

- Slings with 2 arms, consider them as the slings with 1 arm.
- Slings with 3 and 4 arms, consider them as the slings with 2 arms.





Suggestions for maintenance

Check the bands, the ropes and the hanging ropes according to the law in force in order to determine their working conditions.



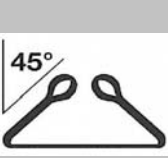

Carry out the replacement in the following cases:

- When the components are deformed, cut or when there are cracks, hollows, notches or abrasions on them.
- When the wear of the components is higher than 10% of the initial dimensions.
- When the sling is overloaded.





Band capacity table

	Colour				
Working capacity (kg.)	violet	1000	2000	1400	800
	green	2000	4000	2800	1600
	yellow	3000	6000	4200	2400
	grey	4000	8000	5600	3200
	red	5000	10000	7000	4000
	brown	6000	12000	8400	4800
	blue	8000	16000	11200	6400
	orange	10000	20000	14000	8000
	orange	12000	24000	16800	9600
	orange	15000	30000	21000	12000
	orange	20000	40000	28000	16000
	orange	25000	50000	35000	20000
	orange	30000	60000	42000	24000
Coefficient		1	2	1.4	0.8

Rope capacity table





	Colour	Width (mm.)				
Working capacity (kg.)	black	35	500	1000	700	400
	violet	50	1000	2000	1400	800
	black	50	1500	3000	2100	1200
	green	60	2000	4000	2800	1600
	yellow	75	3000	6000	4200	2400
	grey	120	4000	8000	5600	3200
	red	150	5000	10000	7000	4000
	brown	180	6000	12000	8400	4800
	blue	240	8000	16000	11200	6400
	orange	300	10000	20000	14000	8000
Coefficient			1	2	1.4	0.8

Hanging rope capacity table

	Colour				
Working capacity (kg.)	violet	1000	1400	2100	2100
	green	2000	2800	4200	4200
	yellow	3000	3800	6300	6300
	grey	4000	5600	8400	8400
	red	5000	6600	9800	10500
Coefficient		1	1.4	2.1	2.1

Working capacity: the working capacity is calculated with an angle of 90° in the centre

Hanging rope capacity table

	Colour				
Working capacity (kg.)	violet	1000	1400	2100	2100
	green	2000	2800	4200	4200
	yellow	3000	3800	6300	6300
	grey	4000	5600	8400	8400
	red	5000	6600	9800	10500
Coefficient	1		1.4	2.1	2.1



Working capacity: the working capacity is calculated with an angle of 90° in the centre

NOTES:

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

DRIVING TORQUE OF SCREWS, NUTS AND CONNECTORS



Before the disassembly of the various parts and of the bolts and screws, read carefully the instructions below.

To tighten the screws use the product *LOCTITE 270* in order to ensure the safety of the threaded couplings.










If it is not possible to loosen the screws because this product is used, do not add extensions to the tools, but heat the area (maximum 50° - XXX farehnheit degrees) in order to eliminate the effect of *LOCTITE 270*.

In the above-mentioned cases use a small quantity of *LOCTITE 270* in the assembly phase (30% of the connection surface).

The driving torque with which the threaded couplings are tightened is very important to ensure the safety of the truck connection.

The bolts and nuts and the corresponding driving torques are shown in the tables on this page.

Nominal diameter	DRIVING TORQUE Nm	
	Class 8	Class 10
M 3	4	5.02
M 4	7	9,15
M 5	12.14	14.8
M 6	17.2	20.9
M 8	31.8	38.1
M 10	50.5	60.3
M 12	74.2	88.5
M 14	101.2	120.8
M 16	138.2	164.9
M 18	176.6	203.5
M 20	225.4	259.7
M 22	278.8	321.2
M 24	324.8	374.2
M 27	422.3	486.5
M 30	516.1	594.7

					Preloading N	 DRIVING TORQUE Nm					
						Class 5.8		Class 8.8		Class 10.9	
											
M 4	0.07	7	3	2400	1.92	1.44	3.07	2.3	4.17	3.13	
M 5	0.08	8	4	3880	3.88	2.91	6.2	4.65	8.43	6.33	
M 6	1	10	5	5490	6.58	4.94	10.5	7.9	14.3	10.8	
M 8	1.25	13	6	9990	16	12	25.6	19.2	34.8	26.1	
M 8	1	13	6	10700	17.1	12.8	27.4	20.5	37.3	27.9	
M 10	1.05	16	8	15825	31.7	23.8	51	38	69	52	
M 10	1.25	16	8	16700	33.4	25.1	53	40.1	73	55	
M 12	0,09375	18	10	23025	55	44.1	88	66	120	90	
M 12	1.25	18	10	25150	60	45.3	96	72	130	98	
M 14	2	21	12	31400	88	66	140	105	190	145	
M 14	1.05	21	12	34125	96	72	155	115	210	155	
M 16	2	24	14	42850	135	105	220	165	300	225	
M 16	1.05	24	14	45600	145	110	235	175	320	240	
M 20	2.05	30	17	66875	270	200	430	320	580	435	
M 20	1.05	30	17	74250	295	225	475	355	650	485	



= with lubricant

CORRECT METHOD TO APPLY THE FEMALE CONNECTORS

To ensure an optimum connection between the female connectors and the adapters mentioned in this manual, it is necessary to carry out the following procedure, which is different from the one for the assembly of the rigid pipes.

Female connectors without gasket (metal/metal connection)

Screw the nut manually and then tighten 1/4 turn by means of a spanner.

Female connectors with O-RING

Screw the nut manually and then tighten 1/4 turn by means of a spanner.

In any case make sure that the pipe is correctly aligned before tightening the nut to the adapter.

DRIVING TORQUES

ROTARY METRIC FEMALE CONNECTOR			
Thread UNF	Pipe outside diameter	Driving torque Nm	
		Nominal torque	min. / max.
M 12x1.5	6	20	15 - 25
M 14x1.5	8	38	30 - 45
M 16x1.5	8	45	38 - 52
	10		
M 18x1.5	10	51	43 - 85
	12		
M 20x1.5	12	58	50 - 65
M 22x1.5	14	74	60 - 88
	15		
M 24x1.5	16	74	60 - 88
M 26x1.5	18	105	85 - 125
M 30x2	20	135	115 - 155
	22		
M 36x2	25	166	140 - 192
	28		
M 42x2	30	240	210 - 270
M 45x2	35	290	255 - 325
M 52x2	38	330	280 - 380
	42		

ROTARY FEMALE CONNECTOR BSP		
Thread UNF	Driving torque Nm	
	Nominal torque	max.
G1/4	20	15 - 25
G3/8	34	27 - 41
G1/2	60	42 - 76
G5/8	69	44 - 94
G3/4	115	95 - 135
G1	140	115 - 165
G1.1/4	210	140 - 280
G1.1/2	290	215 - 365
G2	400	300 - 500

ROTARY FEMALE CONNECTOR jic 37°			
Thread UNF	Dimension	Driving torque Nm	
		Nominal torque	min. / max.
7/16-20	-4	15	9 - 21
1/2-20	-5	20	13 - 27
9/16-18	-6	30	18 - 42
3/4-16	-8	50	30 - 70
7/8-14	-10	69	44 - 94
1.1/16-12	-12	98	63 - 133
1.3/16-12	-14	118	73 - 163
1.5/16-12	-16	140	90 - 190
1.5/8-12	-20	210	135 - 285
1.7/8-12	-24	290	200 - 380
2.1/2-12	-32	450	300 - 600

ROTARY FEMALE CONNECTOR ORFS			
Thread UNF	Dimension	Driving torque Nm	
		Nominal torque	max.
9/16-18	-4	14	16
11/16-16	-6	24	27
13/16-16	-8	43	47
1-14	-10	60	68
1.3/16-12	-12	90	95
1.3/16-12	-14	90	95
1.7/16-12	-16	125	135
1.11/16-12	-20	170	190
2-12	-24	200	225
2-1/2-20	-32	460	490



The values shown in the tables refer to galvanized steel connectors. Different values correspond to connectors of different materials.

INSTRUCTIONS FOR THE INSTALLATION OF HOSES AND CONNECTORS

Visual check of hoses and connectors: if one of the following conditions occurs, the hose must be immediately disconnected and replaced:

- movement of the connector on the hose;
- there are damage, cuts or abrasions on the surface;
- hardening or stiffness of the hose, burned parts or cracks due to heat;
- cracks, damage or corroded parts on the connector;
- leakages from the hose or connector;
- the hose has permanent folds, squashed or twisted parts;
- presence of bubbles, softening and wear of the external surface.

Pre-installation inspection: before installing a hose it is necessary to check the conditions of the pipes. First of all check if the type, the size, the reference code and the length are correct and then make sure that there are no impurities, obstructions, bubbles, external layer peeling-off or other visible defects.

Installation:

Do not twist the hose, otherwise it could break due to pressure.

Consider a proper radius of curvature in order to avoid the bending or breaking. If the radius of curvature is lower than the minimum radius of curvature allowed, the life of the hose is considerably reduced.

The pressure can change the length of the hose, up to + 2%. Therefore it is advisable to consider a length which is higher than the required one in order to compensate for such changes.

SPECIAL EQUIPMENT



INTRODUCTION

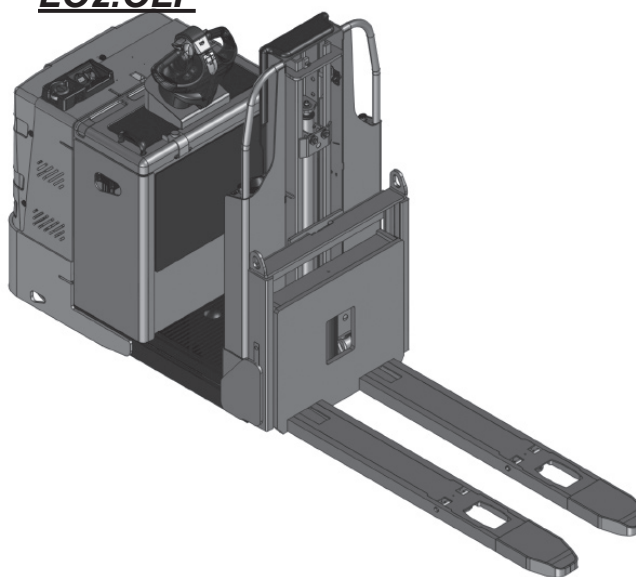
PRESENTATION OF THE VARIOUS MODELS.....	3
TRUCK IDENTIFICATION DATA	4
STAMPING OF THE TRUCK SERIAL NUMBER MOD. ALL MODELS WITH SCOOTER.....	4
PLATE POSITIONING MODEL ALL MODEL	5
STAMPING OF THE TRUCK SERIAL NUMBER MOD. ALL MODELS.....	5
CONFIGURAZION MODEL LO2.0 - LO2.0L	6

PRESENTATION OF THE VARIOUS MODELS



LO2.0
LO2.0L
LO2.0F
LO2.0LF



LO2.0LF



LO2.0
LO2.0L
LO2.0F
LO2.0LF

TRUCK IDENTIFICATION DATA

TRUCK IDENTIFICATION DATA PLATE



 20990 Masato (MI) - Italy - Via Confalonieri, 2 Tel. +39 02953891 Fax. +39 0295781091			
MODEL MODEL MODELLO			
SERIAL NUMBER NUMERO DE IDENTIFICACION MATRICOLA			
MASSA SENZA BATTERIA MASS WITHOUT BATTERY MASA SIN BATERIA POIDS SANS BATERIA		ANNO DI COSTRUZIONE YEAR OF CONSTRUCTION ANNEE DE FABRICATION AÑO DE FABRICACION	
MASSA BATTERIA BATTERY MASS MASA BATERIA POIDS DE LA BATERIA		PERSONE A BORDO PERSONS ON BOARD PERSONES A BORDO PERSONAS A BORDO	
BATTERIA BATTERY BATERIA BATERIA		PORTATA NOMINALE NOMINAL CAPACITY CARGA NOMINAL CAPACIDAD NOMINAL	

The identification plate provides the following data:

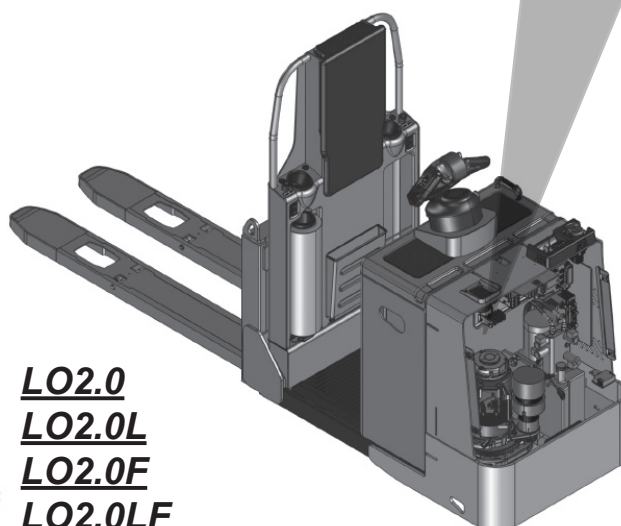
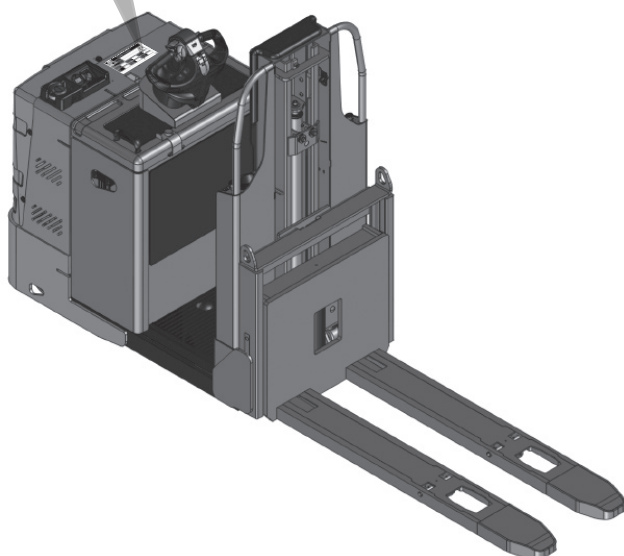
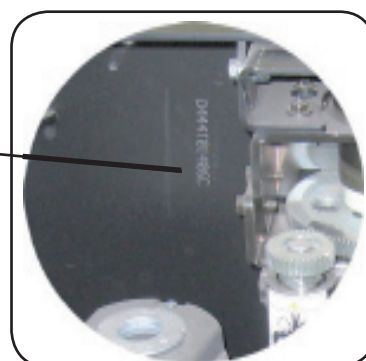
- Manufacturer's trade name
- Model
- Serial number
- Weight without battery
- Year of manufacture
- Max battery weight
- Min battery weight
- Battery voltage
- Nominal capacity
- Persons on board

 Always refer to the carrying capacity plate to ensure to load the allowed load.

STAMPING OF THE TRUCK SERIAL NUMBER MOD. ALL MODELS WITH SCOOTER

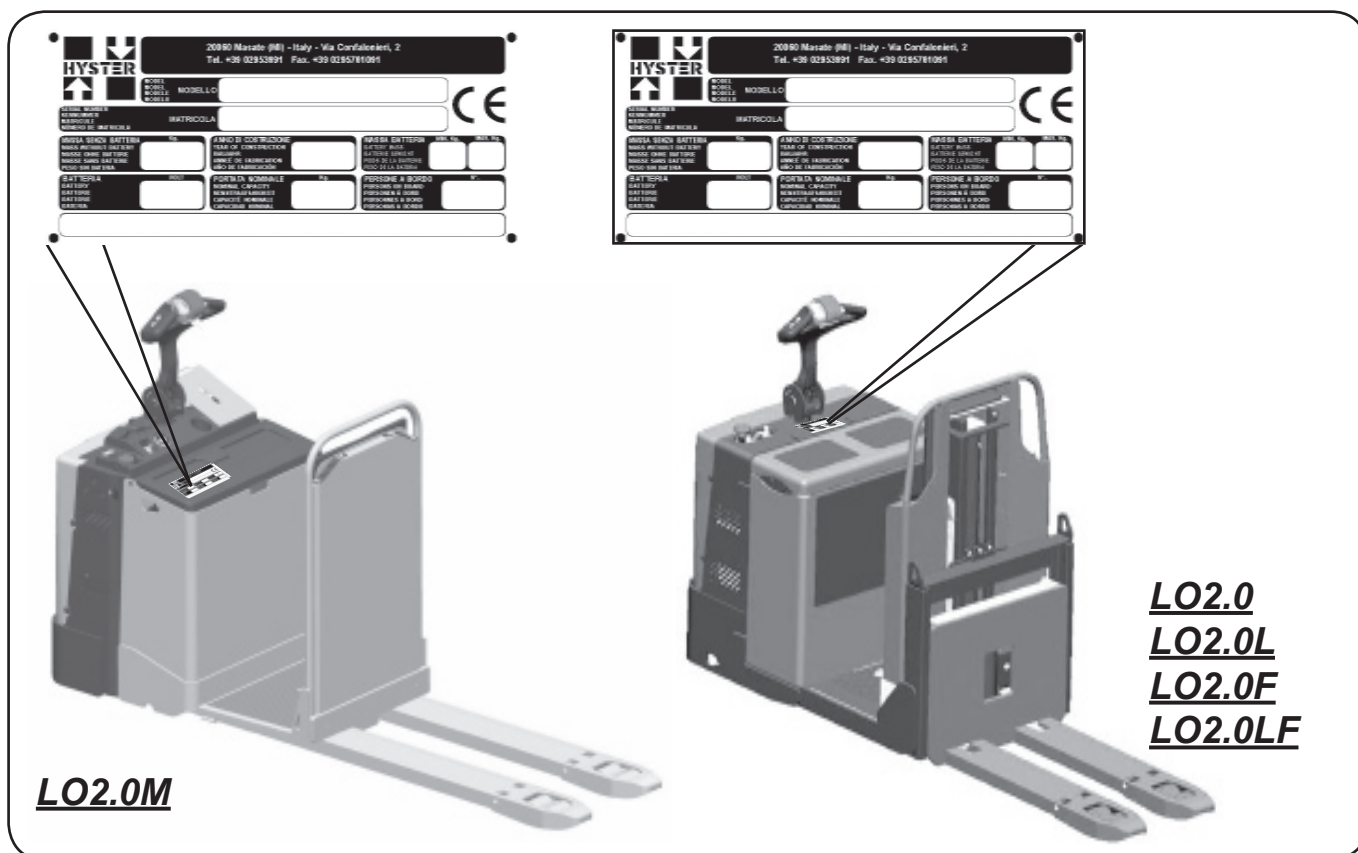
 20990 Masato (MI) - Italy - Via Confalonieri, 2 Tel. +39 02953891 Fax. +39 0295781091			
MODEL MODEL MODELLO			
SERIAL NUMBER NUMERO DE IDENTIFICACION MATRICOLA			
MASSA SENZA BATTERIA MASS WITHOUT BATTERY MASA SIN BATERIA POIDS SANS BATERIA		ANNO DI COSTRUZIONE YEAR OF CONSTRUCTION ANNEE DE FABRICATION AÑO DE FABRICACION	
MASSA BATTERIA BATTERY MASS MASA BATERIA POIDS DE LA BATERIA		PERSONE A BORDO PERSONS ON BOARD PERSONES A BORDO PERSONAS A BORDO	
BATTERIA BATTERY BATERIA BATERIA		PORTATA NOMINALE NOMINAL CAPACITY CARGA NOMINAL CAPACIDAD NOMINAL	

serial number stamped on the truck

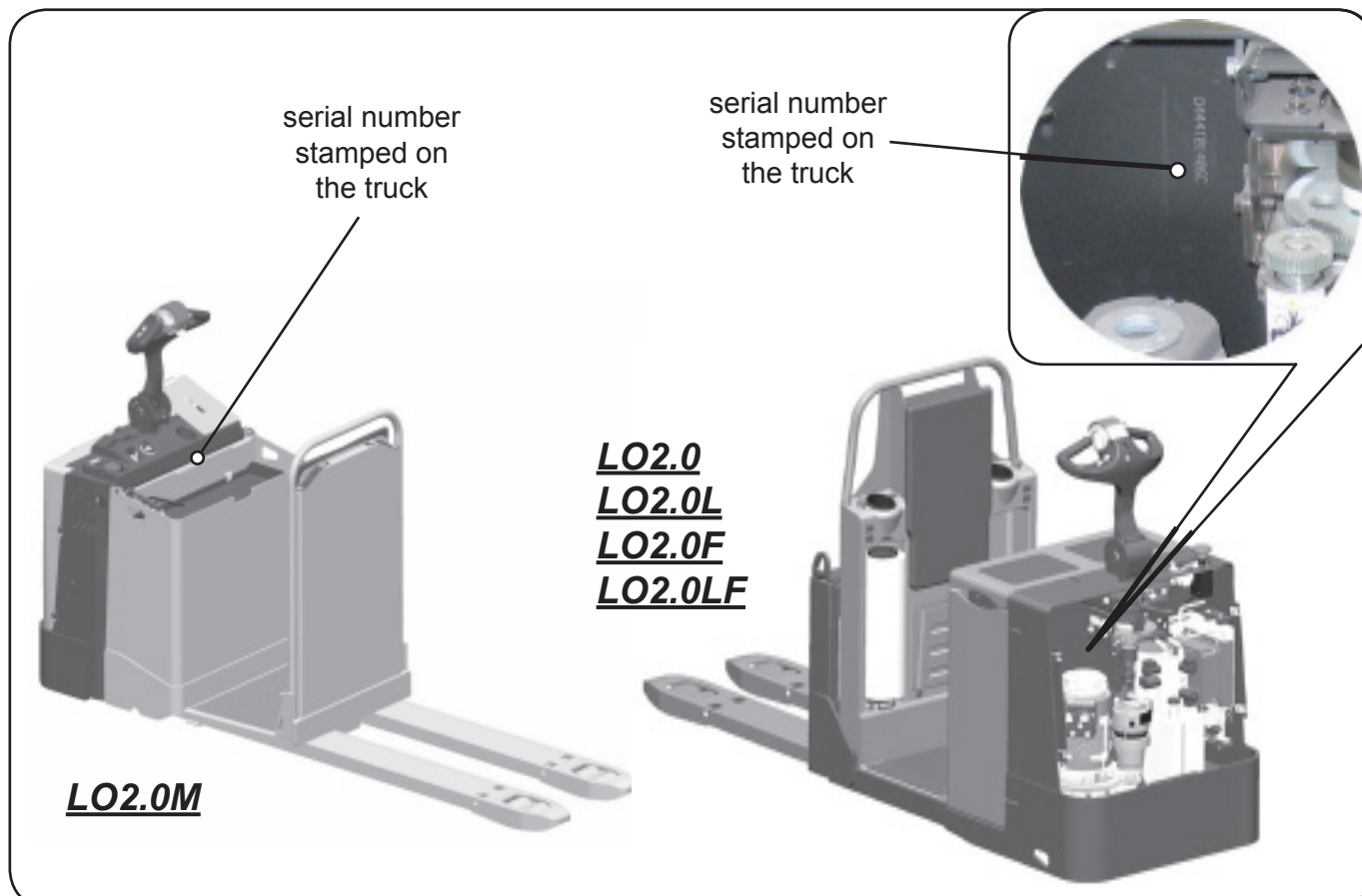


LO2.0
LO2.0L
LO2.0F
LO2.0LF

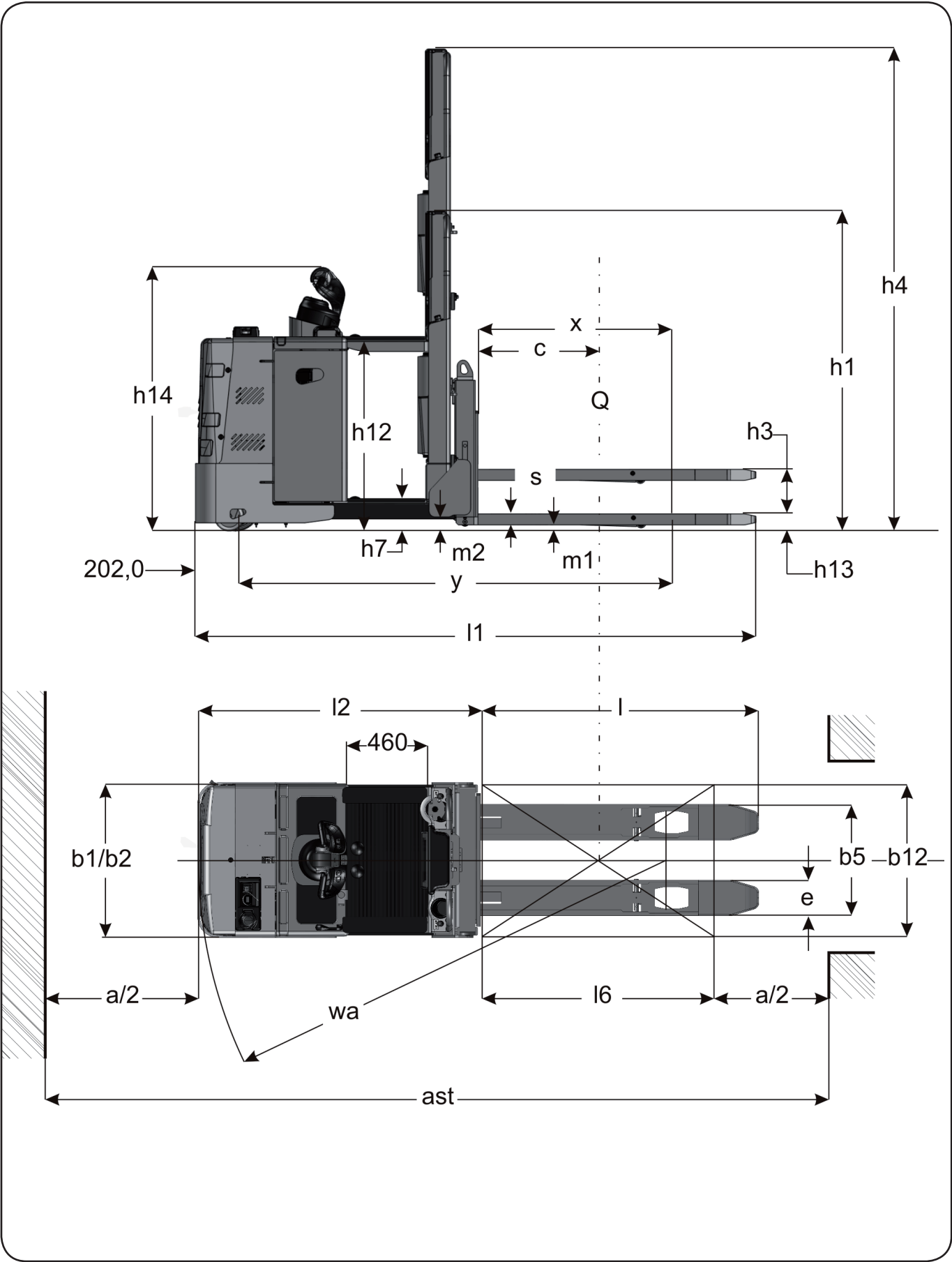
PLATE POSITIONING MODEL ALL MODEL



STAMPING OF THE TRUCK SERIAL NUMBER MOD. ALL MODELS



CONFIGURAZION MODEL LO2.0 - LO2.0L

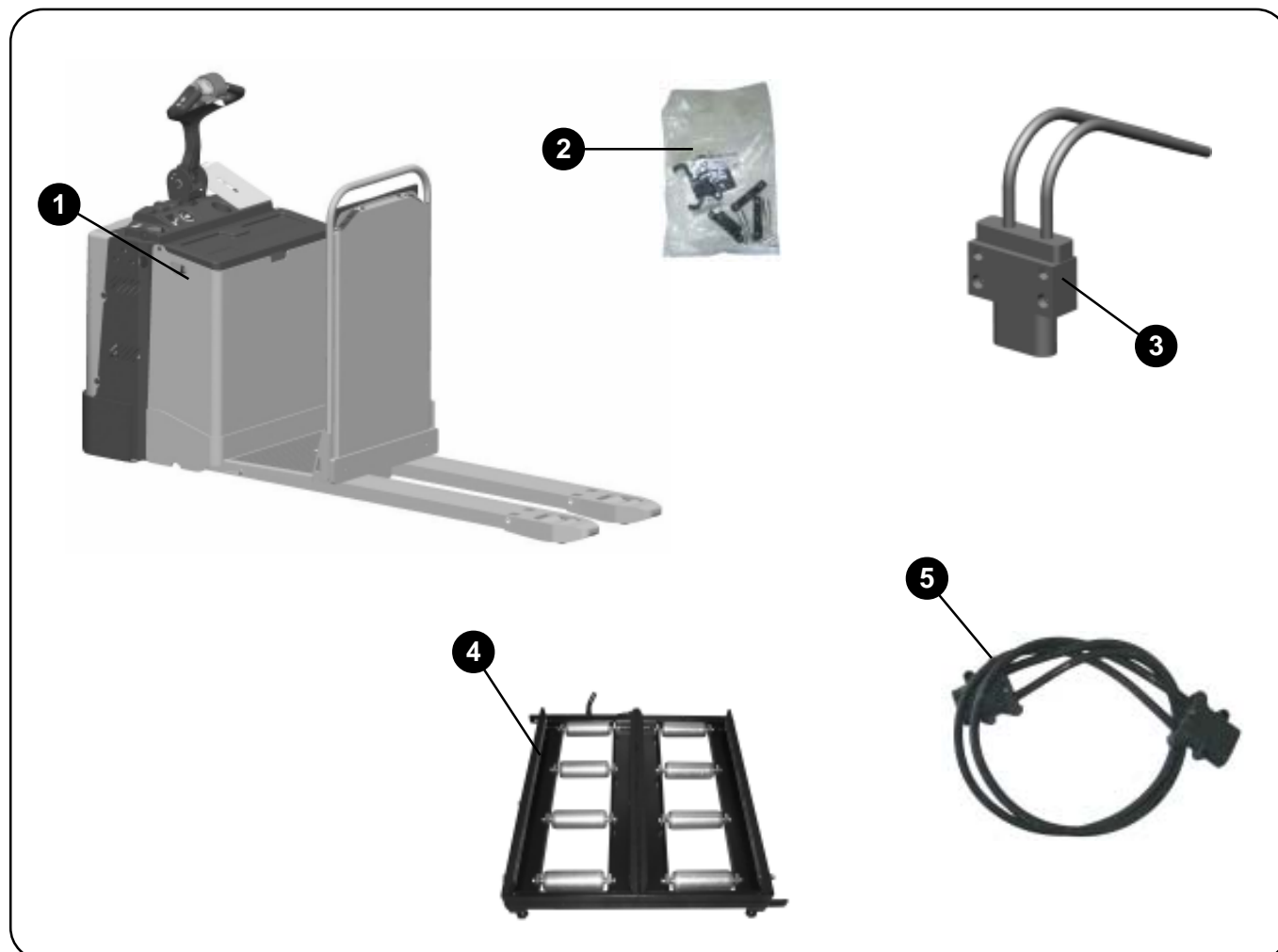


CHARACTERISTICS	1.1	Manufacturer		Hyster	Hyster
	1.2	Model designation	Hyster	D444_LO2.0	D445_LO2.0L
	1.3	Power: battery,diesel, LPG, electric mains		Battery	Battery
	1.4	Operation: manual, pedestrian, stand-on, seated, orderpicker		Orderpicker	Orderpicker
	1.5	Load capacity	Q (t)	2 2	2 2
	1.6	Load centre	c (mm)	600	600
	1.8	Load distance	x (mm)	965	965
	1.9	Wheelbase	y (mm)	2191	2191
WEIGHT	2.1	Unladen weight	kg	820	910
	2.2	Axle loading with load, front/rear	kg	1085 / 1735	1120 / 1790
	2.3	Axle loading without load, front/rear	kg	580 / 240	610 / 300
WHEELS AND TYRES	3.1	Tyres: rubber, polyurethane front/rear		Vulkollan	Vulkollan
	3.2	Tyre size, front		ø 254 x 90	ø 254 x 90
	3.3	Tyre size, rear		ø 85 x 94	ø 85 x 94
	3.4	Additional wheels (dimensions)		ø 150 x 75	ø 150 x 75
	3.5	Wheels, number front/rear (x = driven)		1x+1/4	1x+1/4
	3.6	Track width, front	b10 (mm)	495	495
	3.7	Track width, rear	b11 (mm)	340	340
DIMENSIONS	4.2	height of mast, lowered	h1(mm)	1384	1384/1604
	4.4	Lift height	h3 (mm)	120	120
	4.5	height of mast, extended	h4(mm)	-	2214/2434
	4.8	Height of seat/platform	h7 (mm)	150	150
	4.9	Height of tiller arm in working position min./max.	h14(mm)	1230/1495	1230/1495
	4.14	height of platform	h12(mm)	-	980 / 1200
	4.15	Lowered height	h13 (mm)	85	85
	4.19	Overall length	l1 (mm)	2584 1	2584 1
	4.20	Length to face of forks	l2 (mm)	1428 1	1428 1
	4.21	Overall width	b1/b2 (mm)	780/770	780/770
	4.22	Fork dimensions	s/e/l	55/180/1156	55/180/1156
	4.25	Outside fork width	b5 (mm)	520	520
	4.32	Ground clearance centre of wheelbase	m2 (mm)	60	60
	4.33	Aisle width with pallets 1000 x 1200 crossways	Ast (mm)	2650 1	2650 1
	4.34	Aisle width with pallets 800 x 1200 lengthwise	Ast (mm)	2850 1	2850 1
PERFORMANCE	4.35	Turning radius	Wa (mm)	2415 1	2415 1
	5.1	Travel speed with/without load		km/h	10.5/11 4
	5.2	Lift speed with/without load	m/s	0.03/0.04	0.03/0.04
	5.3	Lowering speed with/without load	m/s	0.05/0.045	0.05/0.045
	5.8	Max. gradeability, with/without load	%	8 / 8 5	8 / 8 5
	5.9	Acceleration time (over 10 mt) , with / without load		6 / 5 4	6 / 5 4
MOTORS	5.10	Service brake		el.magnetic	el.magnetic
	6.1	Drive motor,S2 60 minute rating		kW	4.0
	6.2	Lifting motor, S3 10% rating	kW	2	2
	6.3	Battery DIN 43531/35/36 A,B,C, no	43535	B	B
	6.4	Battery voltage/capacity at 5 hour rate	V/Ah	24/480	24/480
	6.5	Battery weight +/- 5% (depending on manufacturer)	kg	410	410
	6.6	Energy consumption according to VDI cycle	Kwh/h	0,81	0,81
	8.1	Drive control		AC - MOSFET	AC - MOSFET
	84	Noise peak at operator's ears	dB(A)	< 70	< 70
		Vibrations	m/sec	0,5	0,5

INSTALLATION AND SETTINGS

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1.00 TRUCK ASSEMBLY

LIST OF THE MATERIALS RECEIVED BY THE DEALER
TRUCK SUPPLIED WITHOUT BATTERY

Ref.	Description
1	Lift truck
2	Battery charger connector
4	Battery connector
4	Roller track for battery side extraction (on request)
5	Battery plug extension (for trucks with battery side extraction)

The materials received by the dealer can vary according to the presence or absence of optional equipment.