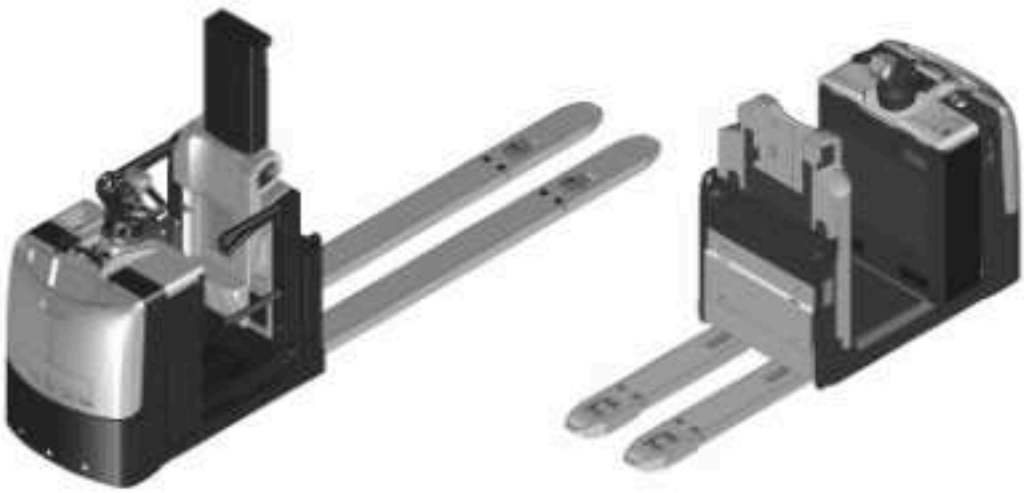
SERVICE MANUAL

LO2.5 (E444)



Rev. 07/13

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Belt capacity table

	Colour				
Working load capacity (kg)	purple	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	Track (mm)				
Working load capacity (kg)	black	35	500	1000	700	400
	purple	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

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Suspension element capacity table

	Colour				
Working load capacity (kg)	purple	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 load capacity: the working load capacity is calculated with an angle at the centre of 90°

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TORQUE SETTINGS FOR SCREWS, NUTS AND FITTINGS

Before disassembling the various parts and nuts and bolts, read the following carefully.

To make the threaded matings secure, *LOCTITE 270* is used for tightening the screws.

If it is not possible to unscrew the bolts because this product has been used, avoid applying extensions to the tools, instead slightly heat the area (at most 50°C) so as to eliminate the *LOCTITE 270* effect.

In the cases described, reapply *LOCTITE 270* during installation in a moderate quantity (30% of the mating surface).

The torque setting used for tightening the threaded couplings is extremely important to make the coupling secure and the machine safe.

The tables on this page give the classes of bolts normally used with the relevant torque settings.

Nominal diameter	TORQUE SETTING Nm	
	Class 8	Class 10
M3	4	5.2
M4	7	9.15
M5	12.14	14.8
M6	17.2	20.9
M8	31.8	38.1
M10	50.5	60.3
M12	74.2	88.5
M14	101.2	120.8
M16	138.2	164.9
M18	176.6	203.5
M20	225.4	259.7
M22	278.8	321.2
M24	324.8	374.2
M27	422.3	486.5
M30	516.1	594.7

					TORQUE SETTING Nm					
				Pre-load N	Class 5.8		Class 8.8		Class 10.9	
M4	0.7	7	3	2400	1.92	1.44	3.07	2.3	4.17	3.13
M5	0.8	8	4	3880	3.88	2.91	6.2	4.65	8.43	6.33
M6	1	10	5	5490	6.58	4.94	10.5	7.9	14.3	10.8
M8	1.25	13	6	9990	16	12	25.6	19.2	34.8	26.1
M8	1	13	6	10700	17.1	12.8	27.4	20.5	37.3	27.9
M10	1.5	16	8	15825	31.7	23.8	51	38	69	52
M10	1.25	16	8	16700	33.4	25.1	53	40.1	73	55
M12	1.75	18	10	23025	55	41.4	88	66	120	90
M12	1.25	18	10	25150	60	45.3	96	72	130	98
M14	2	21	12	31400	88	66	140	105	190	145
M14	1.5	21	12	34125	96	72	155	115	210	155
M16	2	24	14	42850	135	105	220	165	300	225
M16	1.5	24	14	45600	145	110	235	175	320	240
M20	2.5	30	17	66875	270	200	430	320	580	435
M20	1.5	30	17	74250	295	225	475	355	650	485

= with lubricant

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ALARM	troubleshooting
"Safety steer" Cause: The EPS AC0 safety relay output is connected to the COMBI AC1 module. This error message informs that the signal detected is low.	• Check the cable that connects the EPS AC0 output to the COMBI AC1 module input. • Using a multimeter check the status of the input of the COMBI AC1 module. If it is high (VBATT), the module's input circuit is most probably damaged and the module should be replaced.
"Vacc out of range" Even if this alarm is present, it should never appear.	If the alarm shows, then the problem is inside the module. Replace the module.
"Tiller open" Cause: The tiller is at rest, after a set stand-by period (30 seconds) the remote control switch opens.	The traction warning disappears with the next request.
"Pos aux short" Cause: The output incorporated in the Smart Driver, which feeds the positive pole of the electromagnetic brake coil is high when the steering wheels safety micros' are open.	• It is advisable to check the micro safety cables, and to make sure that a positive is connected to the output of the Smart driver. • If by disconnecting the circuit from the terminal board, the output still shows high values, the problem is inside the module and the Smart Driver has probably shorted out.
"Inc. st. back rv" Cause: It's an incorrect start sequence alarm.	The possible causes for this alarm are (use the "TESTER MENU" to make fault detection easier): • A reverse traction request from the backing function active on switching on Check cabling. Check the microswitches. It could even be ascribed to an operator sequence error. A fault in the card could be possible; if no malfunction is detected, replace the module.
"Coil short hw ko" Cause: Problems on the hardware circuits which manage the guard against the main remote control switch and electromagnetic brake short circuit.	If the alarm shows, then the problem is inside the module. Replace the module.
"Wrong setpoint" Cause: Safety test. The main processor has detected a problem on the secondary processor during a hydraulic function.	If the alarm shows, then the problem is inside the module. Replace the module.
"Power mos short" Cause: Before closing the remote-control switch, the software checks the power section: it turns on the Mosfets alternatively and waits until the phase voltage drops down to -BATT. If the voltage of the phases does not follow the commands, this alarm appears.	This kind of failure is not connected to external components; replace the module.

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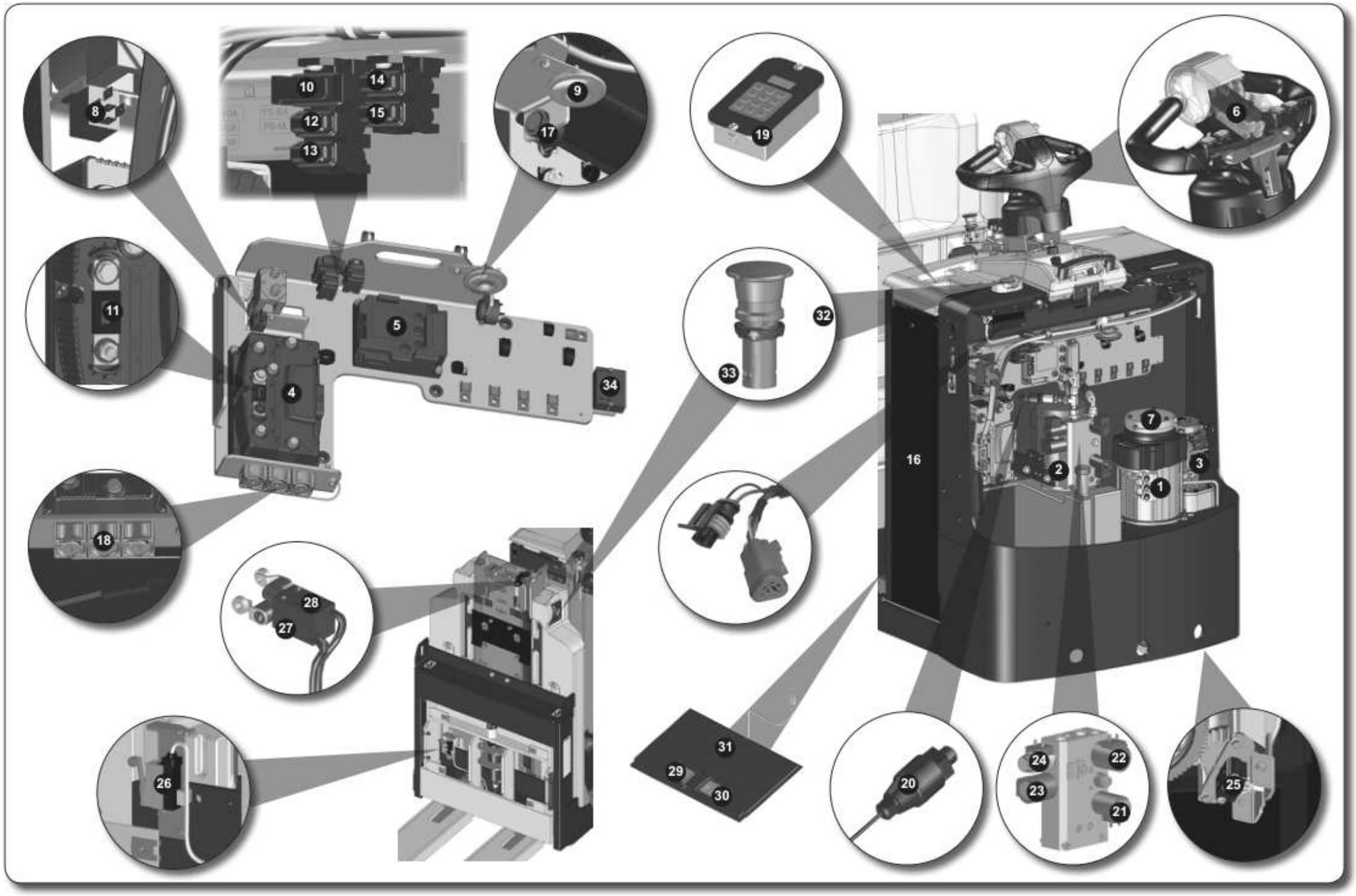
STANDARD VERSION WITH PLATFORM LIFTING TO 980 mm

Ref.	Description	Ref. wiring diagram
1	Traction motor	M2
2	Pump motor	M3
3	Steering motor	M1
4	COMBI AC1 pump-traction controller module	A2
5	EPS AC0 steering control module	A1
6	Tiller board	A3
7	Electromagnetic brake	R3
8	Horn relay	K3
9	acoustic buzzer	P1
10	Power fuse 40A	F1
11	Power fuse 350A	F2
12	Key switch fuse - 5A	F3
13	Horn relay fuse - 3A	F4
14	Reversing buzzer fuse - 5A	F5
15	Battery charge level indicator fuse - 1A	F6
16	Battery	C1
17	Reversing buzzer (optional)	P2
18	Cooling fans (optional)	G1 - G2 - G3
19	Key Pad (optional)	A5
20	Pressure switch	B3
21	Platform/fork lowering proportional solenoid valve	Q1
22	Platform lowering solenoid valve	Q2
23	Platform lifting solenoid valve	Q3
24	Fork lifting/lowering solenoid valve	Q4
25	Steering potentiometer	R2
26	Fork limit stop microswitch	S12
27	Platform microswitch at 200 mm	S13
28	Platform limit stop microswitch	S14
29	Platform lifting sensor	S15
30	Platform lower sensor	S17
31	Operator on platform presence sensor	S16
32	Emergency button	S1
33	Emergency button	S20 - S21
34	DC/DC converter (optional)	T1

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- The batteries belong to the counterweight system of the lift truck. When installing a battery that is too small, the lift truck might not have enough weight for the nominal load. When replacing a battery, see the truck identification data plate to check that the battery has the rated capacity and correct dimensions. See "TRUCK AND LOAD CAPACITY IDENTIFICATION DATA" in the "PRESENTATION" section for the exact battery specifications for the lift truck at issue.
- Do not work under a raised carriage. Lower the carriage or use a safety chain to prevent the carriage from lowering during maintenance work on the mast and on the lifting chains.
- Never repair damaged forks using heat or welding. The forks are made of steel that is hardened with special procedures. Replace damaged forks.
- Before servicing the hydraulic system you must eliminate any residual pressure inside it.
  Close the valves at the end of the maintenance work.

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