Instructions

Impact 80-90-130-200
Emma 3/4

HOVMAND
LIFTING & MOVING TECHNOLOGY

Version 14

CE

Serial number: _____

HOVMAND
LIFTING & MOVING TECHNOLOGY

Declaration of conformity referring to: Directive for machines 2006/42/EC

Manufacturer:

HOVMAND A/S
Rustkammervej 10
DK-4180 Sorø
Denmark

Description of machine:

Compact Lifter
Emma/Easy-Lift
Impact Lifter
E-Series Lifter

Serial nr:_____

Regulations: 2006/42EC; 2004/108EC; 2006/95/EC; 2011/65/EC

Standards: EN-12100-1; EN-12100-2; EN-14121-1;
EN-60204-1; EN-61000-6-2; EN 55022:2010(Class A)
EN 60950-1:2006+A1:2010+A11:2009+A12:2011

RoHS: EN50581: 2012

The machines above are hereby assured to be in conformity with the essential requirements of the Directive for machines 2006/42/EC.

Signature:
Sorø 08/03-2013

Søren Hovmand
Managing Director
HOVMAND A/S

Contents

1. Specifications

		Low	Medium	High
Weight (kg)	Impact 80/Emma 3	30	33	36
	Impact 130/Impact 90/ Emma 4	36	39	42
	Impact 200	38	41	44
Max. load (kg)	Impact 80/Emma 3		80	
	Impact 90		90	
	Impact 130/Emma 4		130	
	Impact 200		200	
Protection class		IP41		
Batteries Type VRLA		24V, 9.0 Ah or 24V,18AH		
		(maintenance free)		
Charger		230V – 2 A or 230V – 3A		
Charging time		4-5 hours (80%)		8 hours (100%)
Sound pressure level	≤ 70 Db(A)			
Vibration strength	≤ 2.5 m/s^2			

For additional technical specifications and dimensions please refer to the attached dimensional drawings.

2. General safety precautions during use

No forklift license or other training is required to lawfully operate a lifter.

The following guidelines must be followed when using a Lifter:

- Under no circumstances should the lifter lift more than:
  - Impact 80 /Emma 3: 80 kilo 400 mm from the mast
  - Impact 90: 90 kilo 400 mm from the mast
  - Impact 130/Emma 4: 130 kilo 400 mm from the mast
  - Impact 200: 200 kilo 400 mm from the mast
- The lifter must not be used to lift persons.
- There shall be only one person in contact with the lifter while it is being operated.
- There should be no body parts near the sledge on the mast or other lifting equipment while the lifter is being operated.
- There must be no person or body part below the load.
- The lifter must be on a firm and level surface when lifting or transporting loads.
- When moving a load, the load shall be lowered to a low position and the load must be secured so that it cannot slide off.
- When leaving the lifter, ensure that the sledge is lowered completely, and that lifter is free of any load or cargo.
- The load's center of gravity should be behind the front wheels of the support legs.
- The platform should only be cleaned with a slightly damp cloth; otherwise water may get into the rocker switch in some models.
- According to the Danish Working Environment Service, the lifter, like other electro-mechanical handling equipment, must be inspected at least once a year by the manufacturer or a skilled technician.
- The timing belt should be replaced every 8 years.

2.1. Safety systems

The lifter is equipped with the following safety systems:

- One-way ball bearings on drive shaft that eliminate the risk of crushing when lowering.
- Overload sensor that disconnects the lifting function if the load is greater than the lifter's capacity or if the load is unevenly placed (this does not prevent overloading when the lifter is not lifting).
- The charger is protected with a fuse.

3. Application

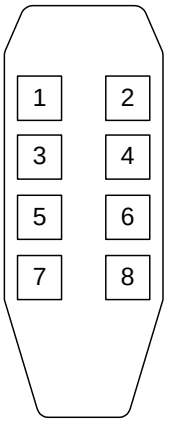
The lifter may only be used for lifting and handling goods.

4. Operating the Lifter

Some models are operated using the rocker switch located on the lifter's control panel on the mast:

⇑ The lifter will lift while the button is pressed
⇓ The lifter will lower while the button is pressed

If the lifter is delivered with lifting equipment, specific operating instructions are required. These are described in Chapter 8, Lifting Equipment.



Some models with electric tools are operated using a remote control with a spiral cord. The remote control may be equipped with a variable number of buttons depending on what equipment the lifter is delivered with.

Buttons 1 and 2 are used to operate the lifting and lowering functions.
Buttons 3 to 8 are used to operate the electric tools like gripping, turning and tipping.

The remote control of a standard lifter has 2 buttons with arrows (buttons 1 and 2), which operate as follows:

The lifter will lift while the button is pressed
The lifter will lower while the button is pressed

If the lifter is equipped with 2 speeds (normal and reduced), the remote control has 4 buttons (buttons 1 to 4): Buttons 1 and 2 activate the lifting and lowering functions at normal speed. Button 3 and 4 activate the lifting and lowering functions at decreased speed.

The remote control symbols

If the lifter is equipped with standard equipment the symbols in the table below is used on the remote control:

Button no. / Function	Symbol	Comments
1 Lifting		
2 Lowering		
(3) Reduced Speed lifting		optional by simple tool
(4) Reduced Speed lowering		optional by simple tool
3 Turning right (clockwise)		
4 Turning left (counter clockwise)		
3 Tipping forward / down		
4 Tipping backwards / up		
5+6 Gripping		2 buttons must be pressed at the same time
7+8 Opening		2 buttons must be pressed at the same time
5+6 Manipulator expanding		2 buttons must be pressed at the same time
7+8 Manipulator closing		2 buttons must be pressed at the same time

5. Batteries and charger

Battery indicator
The lifter is equipped with a battery status indicator that indicates the battery status when the lift button is activated.

- Red indicator: Batteries must be recharged immediately.
- Green indicator: The batteries are functionally charged.

The lifter is charged with a built-in 230V charger. The charger should be connected daily as total discharge can damage the batteries or shorten their lifespan.

Charger indicator
Lifters with 2A charger (peep hole at the bottom of the control box).

- Red indicator: the charger is connected to main power and charging.
- Green indicator: the batteries are functionally charged. The indicator changes to green after 1 to 5 hours, which corresponds to 80% charge. A full charge takes approximately 8 hours. The charger automatically charges the batteries and switches to maintenance charging when the batteries are fully charged.

Lifters with 3A charger (indicator at the top of the control box).

- The yellow LED indicates the charger is connected to main power.
- Green charging indicator: the batteries are functionally charged. The indicator changes to green after 1 to 5 hours, which corresponds to 80% charge. A full charge takes approximately 8 hours. The charger automatically charges the batteries and switches to maintenance charging when the batteries are fully charged.

6. Design

The mast is of aluminum profile (AlMg3)
The sledge, handlebar and base frame are made of powder-coated or electro-galvanized steel.

7. Residual risks

There are residual risks due to extraordinary wear, material or product failure and the sudden onset of defects on the lifter; e.g. a faulty wheel bearing as a result of a heavy collision.

8. Resolving faults

Fault type	**Check the following**	**Solve**
The timing belt jumps on the belt wheel (the belt is making crackling noises)	Is the belt slack?	Tighten the belt using the two screws at the top of the mast.
	Is the belt worn?	Replace the belt
The belt is skewed (the belt squeaks)	Is the belt running skewed in the track on the top cog wheel?	Adjust the screw at the top of the mast, on the side to which the belt is skewed.
	Is the belt worn?	Replace the belt
The sledge jerks	Is there dirt in the mast on which the sledge runs?	Remove the dirt and wipe with alcohol.
	Is there dirt on the sledge wheels?	Remove the dirt or replace the wheels.
The lifter does not respond	Check whether the ON/OFF button is activated	Release the ON/OFF button
	Check whether the item being lifted is heavier than the lifter's capacity	Remove the item
	Check the main fuse	Replace the main fuse
	Check that the batteries are charged	Connect the charger
The lifter works very slowly	Check the voltage of the batteries	Connect the charger
	Check the charging frequency. Does the charging light quickly change to green when the charger is connected?	If the charger quickly changes to green, this indicates that the batteries are worn out and should be replaced.

9. Lifting equipment

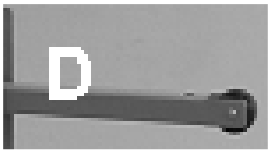
The lifting sledge is equipped with holes for mounting accessories as described below.

9.1.Forks and platforms

Application
The forks (G) can be in painted steel or stainless steel. Platforms can be in PEHD (KP) or stainless steel (EP).
Forks and platforms can be used to handle various items like boxes or sacks.

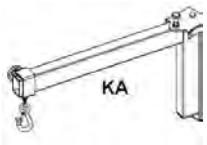
Safety when using forks or platforms
Items handled with the platform must not be substantially larger than the platform, as there is a risk of dropping the item. Likewise, boxes or pallets handled with forks must fit the forks.

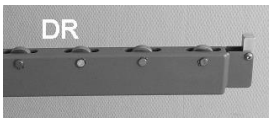
9.2.Boom and Crane arm



Application
The boom is used for handling reels or round items. The lifter can be equipped with different types of booms:

- Single booms (D) are used for lifting reels by the central hole.
- Double booms (DD) are used for lifting reels from beneath without the central hole being "blocked".
- A boom can be fitted with easy-running ball bearings (DR) to facilitate the removal and fitting of even very heavy reels.
- Crane arm (KA) is a boom with an adjustable hook.



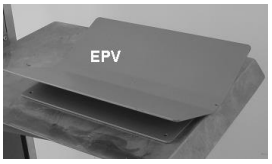


Safety when using boom or crane arm
Lifting must not begin before the reel is fully down on the boom.
The boom length should be at least 2/3 of the reel's length.
Booms with easy-running ball bearings (DR) are equipped with a safety latch to ensure that items do not unintentionally slip off the boom while handling or transporting.

When moving the lifter, the crane arm should be lowered as far as possible and must be moved carefully so that the item swings as little as possible. The hook should be as close to the mast as possible and secured so that it cannot slide on the crane arm while being moved.

9.3. V-block and WAVE

Application
The V-block is used for handling reels where the reel is subsequently transferred to an axel or boom on a packaging machine or similar machines.



Operation
The V-block (EPV) is inserted into the central hole of the lifter's standard platform. The V-block can be rotated to ensure the correct loading and unloading of the reel.

Safety when using the V-block
It is important that the item is placed in the middle of the V-block in the longitudinal direction, as the load may become unbalanced on the lifter during the subsequent rotation of the item.
Reels handled with V-blocks should not be more than 500mm in diameter, due to the risk of dropping the reel.

9.4.Boom with V-block

Application
Boom with V-block (DVB) is used for handling reels which are both lifted by their central hole and from beneath.

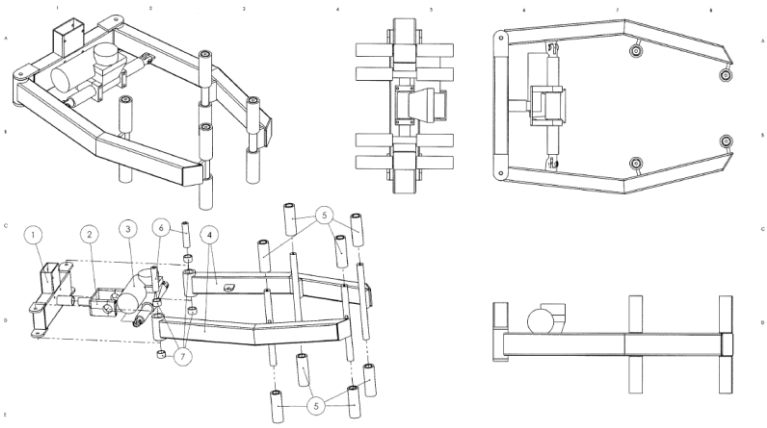
Operation
The boom is equipped with a wheel at the front to facilitate the loading of the reels. When the V-block is used it is placed into the hole of the boom. The V-block can be rotated to ensure the correct loading and unloading of the reel.

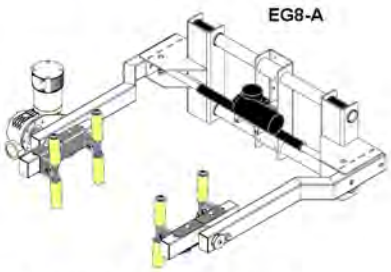
Safety when using the V-block
It is important that the reel is placed in the middle of the V-block in a longitudinal direction in order to prevent uneven loading or the reel falling off.
Reels handled with V-blocks should not be more than 500mm in diameter; otherwise, there is a risk of dropping the reel.

9.5.The gripping device QC – EG

Application

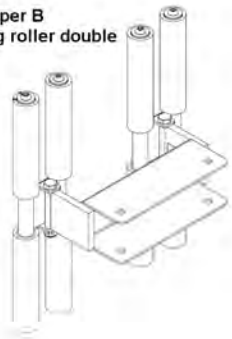
The gripping device is used to handle items which, due to their shape, are difficult to handle. These may typically be containers, vessels or drums.
The gripping unit is used in combination with a turning device or a tipping device.
QC6 = Quick clamp with turning unit
EG6 = linear clamp with turning unit
EG8 = linear clamp with tipping unit



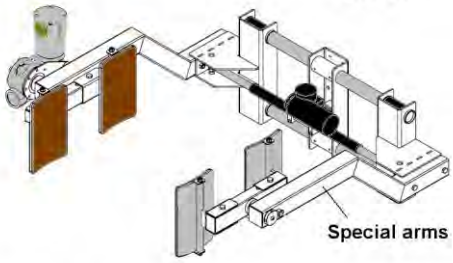


Clamping unit with grippers A
4 long rollers

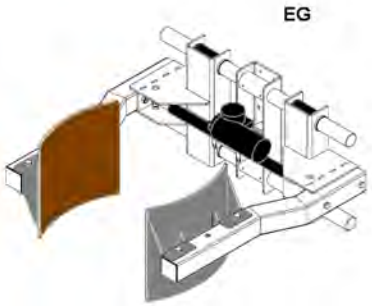
Gripper B
Long roller double



Different grippers can be mounted on the gripping arms



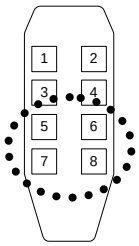
Clamping unit with grippers C
4 articulated plates with rubber



Clamping unit with gripper D
2 fixed plates with rubber

Operation

The gripping device is available with manual or electrical functionality.
Buttons 5, 6, 7 and 8 are used to operate the electrical griping function.
Buttons 5 and 6 activate the closing function; buttons 7 and 8 activate the opening function.
When combined with a turning or tipping device, use buttons 3 and 4 for the turning/tipping function

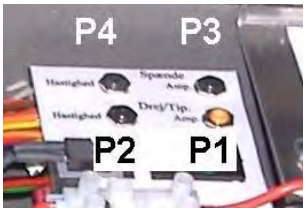


Safety when using the gripping device

Due to the risk of dropping the load through improper operation of the remote control, the opening and closing functions are operated with two buttons; i.e. both buttons must be activated in order to perform the desired movement.
Caution: there is a risk of clamping if the safety instructions for using the lifter (see section 1) are not observed.

Adjusting reel manipulators

Expanding parameters should only be adjusted by skilled technicians, as improper procedures may lead to insufficient gripping power and/or irreversible motor damage.



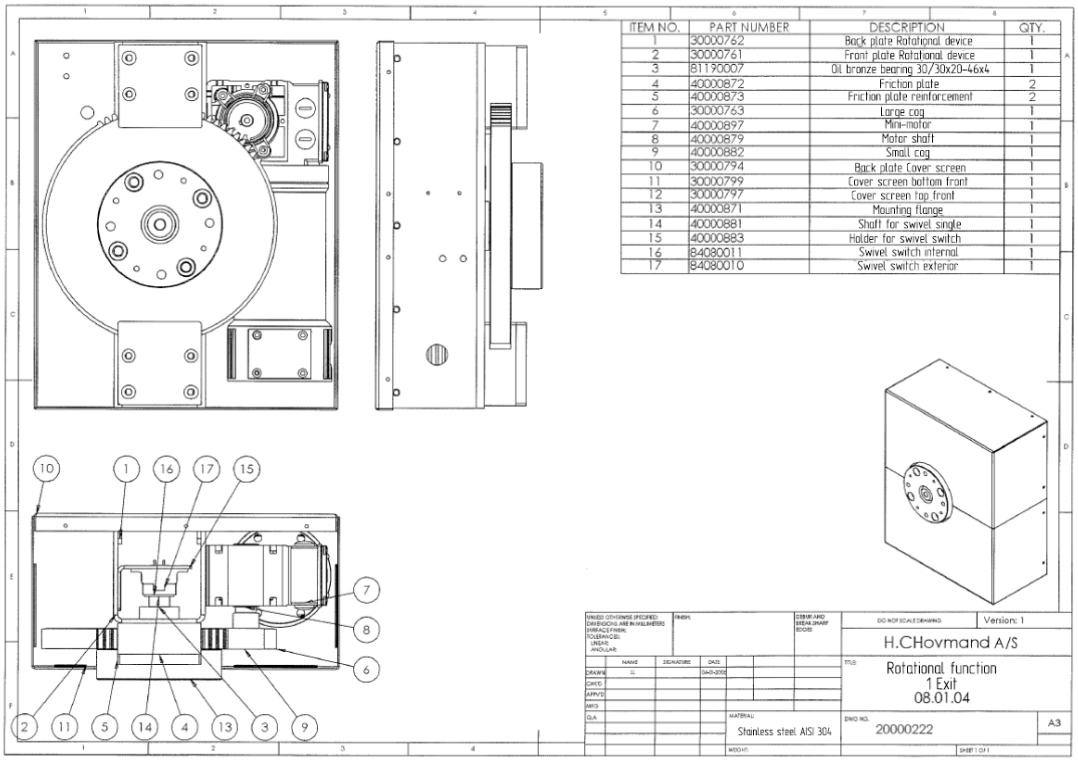
The following parameters may be adjusted in the control box:

Amps: P3 is used to adjust the expander motor's power, for example, if the item to be lifted risks being damaged by being handled with the reel manipulator. Similarly, problems holding items with smooth surfaces by their center may be resolved by increasing the power. If the speed of the expander is adjusted simultaneously, it is important that this is adjusted **before** the amps are adjusted.

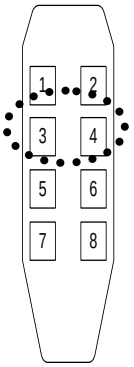
Expander speed: P4 is used to adjust the speed of the motor, and hence the speed at which the expander function opens and closes.

9.6. Turning device

Application
The turning device is used to rotate an item. It is often used in combination with a gripping device QC or EG.



Operation
The turning device is available as an electrical rotational function. Optional with electronic stop at 0° and 180°
To operate the electrical turning function, buttons 3 and 4 on the remote control are used for left and right rotation respectively.



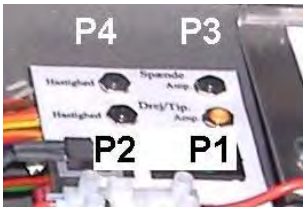
Safety when using the turning device
Before the turning function is activated, it is advisable to check that the item is properly secured in the clamping grippers so that the item is not dropped during subsequent rotation. It is also important to ensure that the item is sufficiently lifted from floor and away from other obstacles so that the item does not collide with the lifter's legs or surroundings during rotation.

Adjusting the PLC parameters
Expanding parameters should only be adjusted by skilled technicians, as improper procedures may lead to insufficient clamping power and/or irreversible motor damage.

The following parameters may be adjusted in the control box:

Amps: P1 is used to adjust the motor's power, and hence the pressure on the item. If the speed of the rotational device is adjusted simultaneously, it is important that this is adjusted **before** the amps are adjusted.

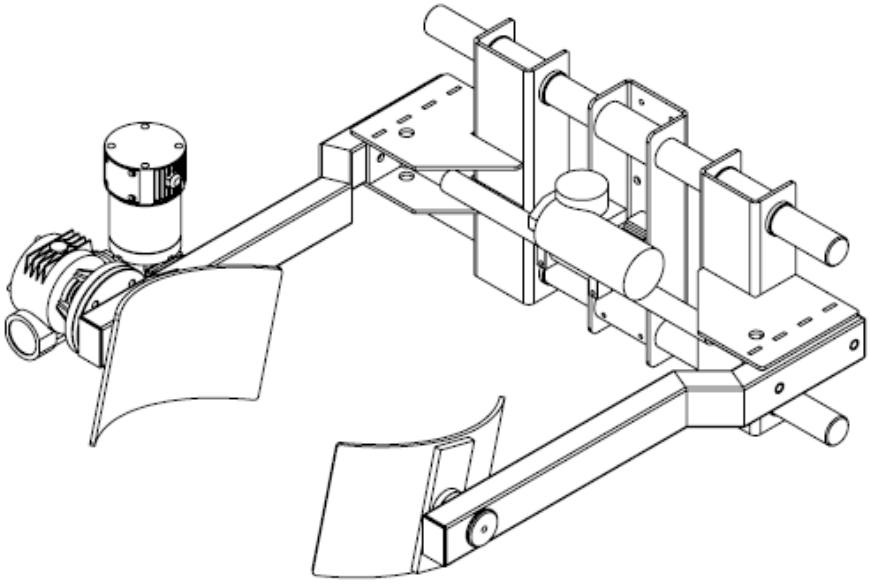
Speed: P2 is used to adjust the speed of the rotary motor, and hence the speed of the equipment's movement.



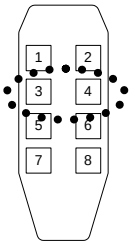
9.7.

9.7.Tipping Device

Application
The tipping device is used to empty or tip items in a forward direction, typically for pouring liquids from containers or tanks. It is often used in combination with a gripping device like the EG8.



Operation
The tipping unit has an electrical tipping functionality. To operate the electrical tipping function, buttons 3 and 4 on the remote control are used for forward and reverse rotation respectively.



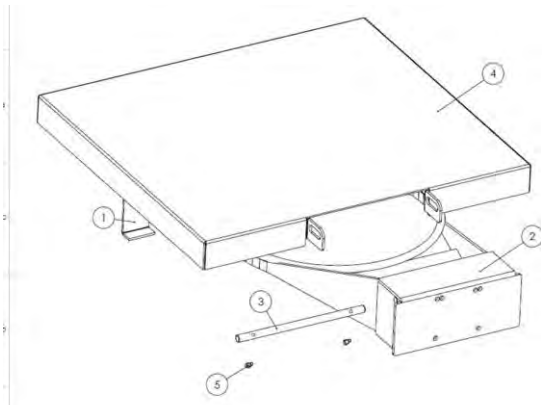
Setting speed and power: see section 8.7 – adjustment.

9.8. Bowl handling

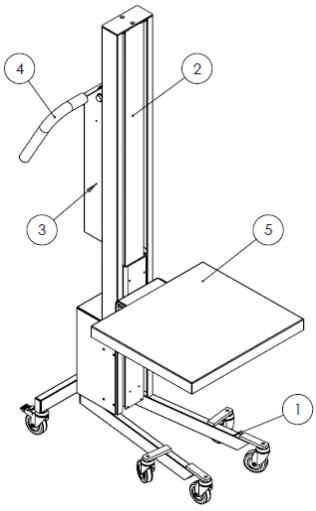
Application
The bowl gripper with platform is used to handle large pots/bowls for mixers.

- Emma 3 is used for pots of 30 - 60 liters (type no. 6010170010)
- Emma 4 is used for pots of 80 - 140 liters (type no. 6010170050)

Note that the legs of Emma 3 and 4 are different from the standard legs of the Impact-series



ITEM NO.	PART NUMBER	DESCRIPTION	Default/ QTY	Revision
1	40001644	Support plate Kitchen Lift	2	2
2	40001668	Rear profile with fork	1	1
3	40001669	Shaft for plate	1	1
4	30003207	Plate weld Kitchen Lift	1	1
5	81010425	Screw M4x10 CH A2	2	



9.9. Tube

Application
Tube is used for handling rolls of stretch wrap machines.
The mandrel is lowered into the Roll. Make sure that the mandrel is completely down.

Safety when using Tube
Do not allow personnel immediately in front of Tube when there are rolls on.
The lifter must always be operated from behind.

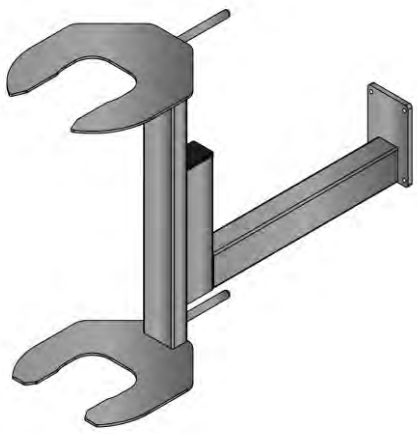
Tube

9.10. Reel Handler

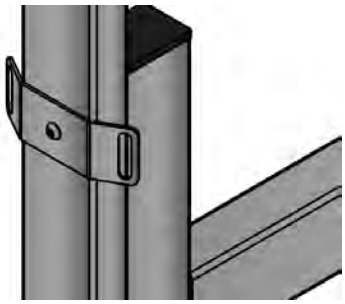
Application
The Reel Handler is used to handle rolls of stretch wrap machines.
The forks are leveled vertically to fit the top and bottom of the roll with stretch film which can be taken from both the pallet and the floor.
The truck is pushed forward so that the fork gets hold of the roll. The roll can then be transported.
The roller can be turned using the handles. Use both handles for easy turning.
The roller can be deposited either up or down on the mandrel depending on the stretch wrap machine design.

An optional extra transport security can be purchased. The cord is tightened around the roller when the extra safety is wanted. Additional transport security is only recommended when the lifter must pass rolling terrain with roller loaded. The transport lock is mounted with a screw.

Safety when using the Reel Handler
Check that both forks are passed so far through the roll as possible before the roll is lifted.
When the reel is turned, the driver stand behind the forks so that any damage caused by the roll does not hit the driver. Do not allow personnel immediately in front of the fork when scrolling in the fork.



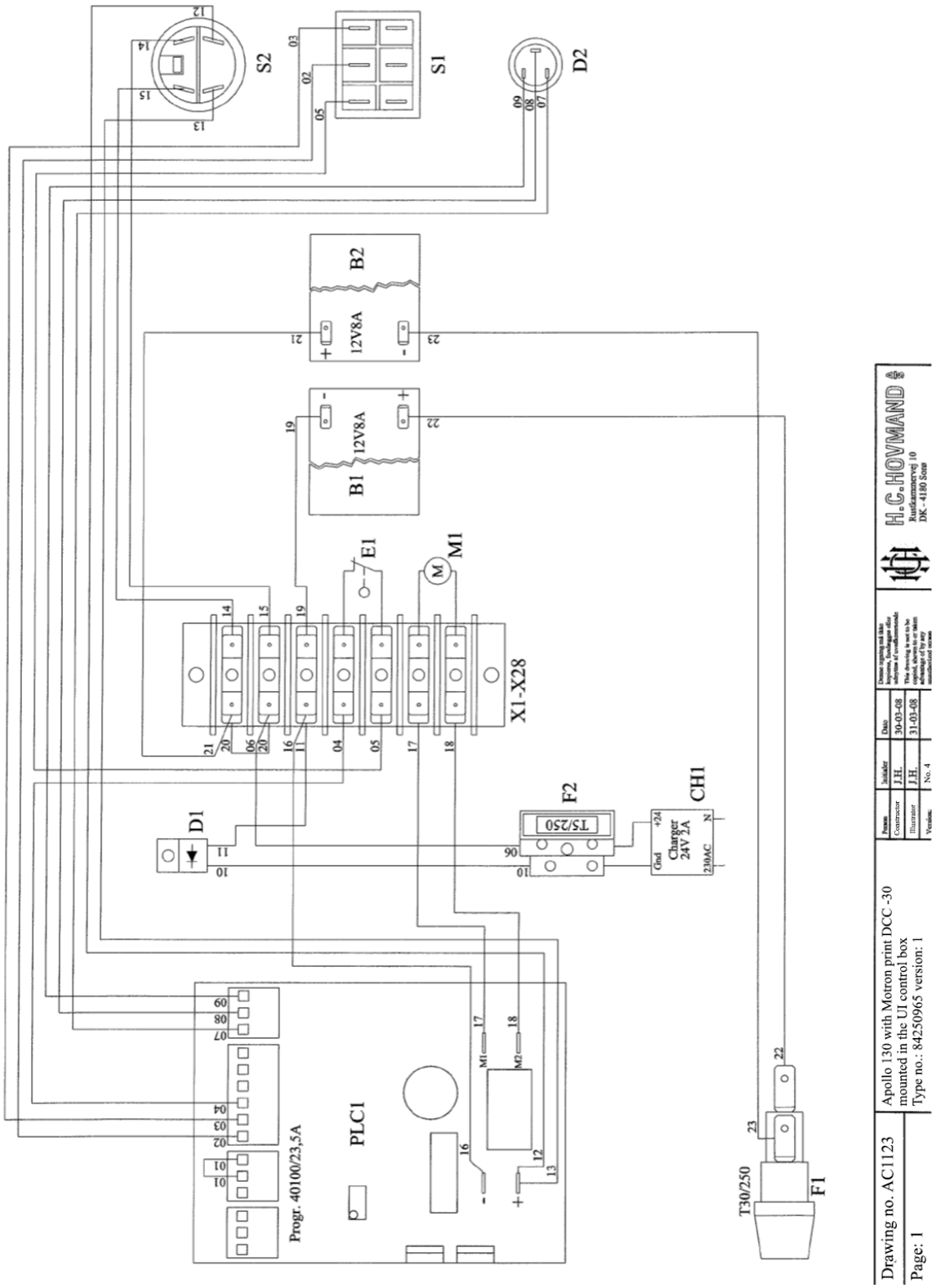
Reel Handler



Extra equipment: Transport security

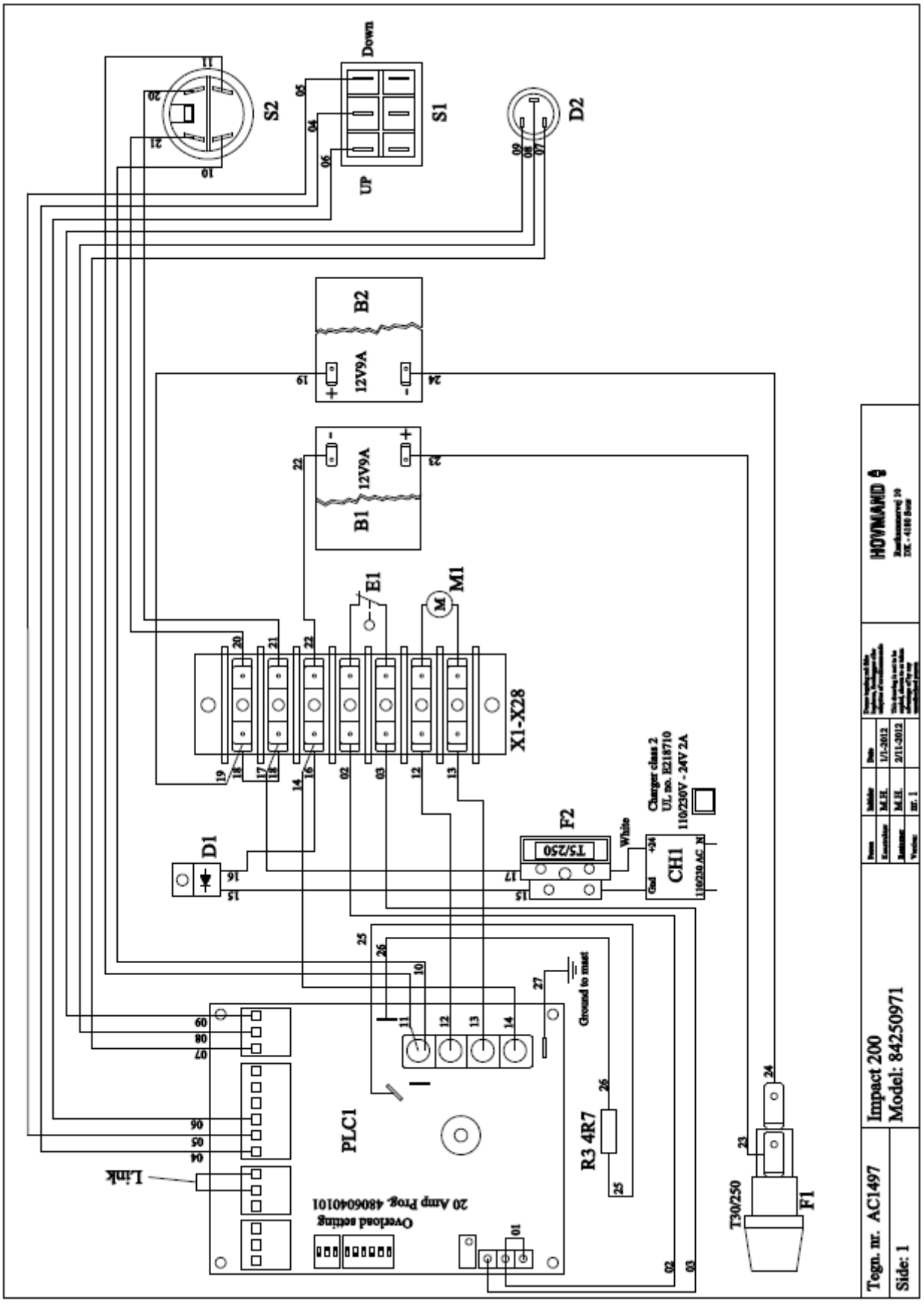
10. Wiring Chart Impact 80/130

The wiring diagrams of the Impact 80 and 130 are identical except for the PCB PLC1: Impact 80, item no. 84042050, and Impact 130 no. 84042060.

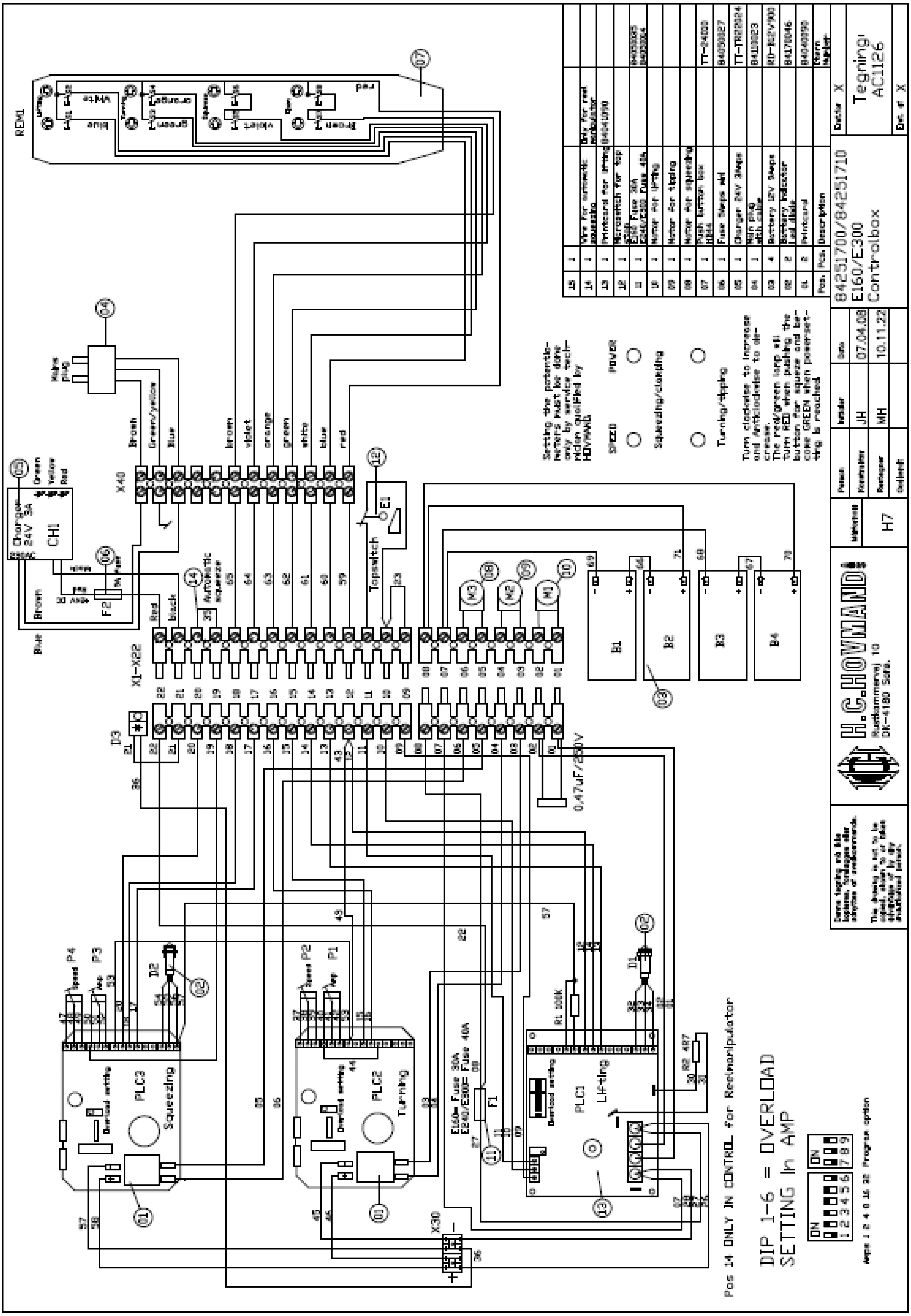


Note! The batteries 12V 9AH are identical, item no. 84010068

10.1. Control panel Impact 200

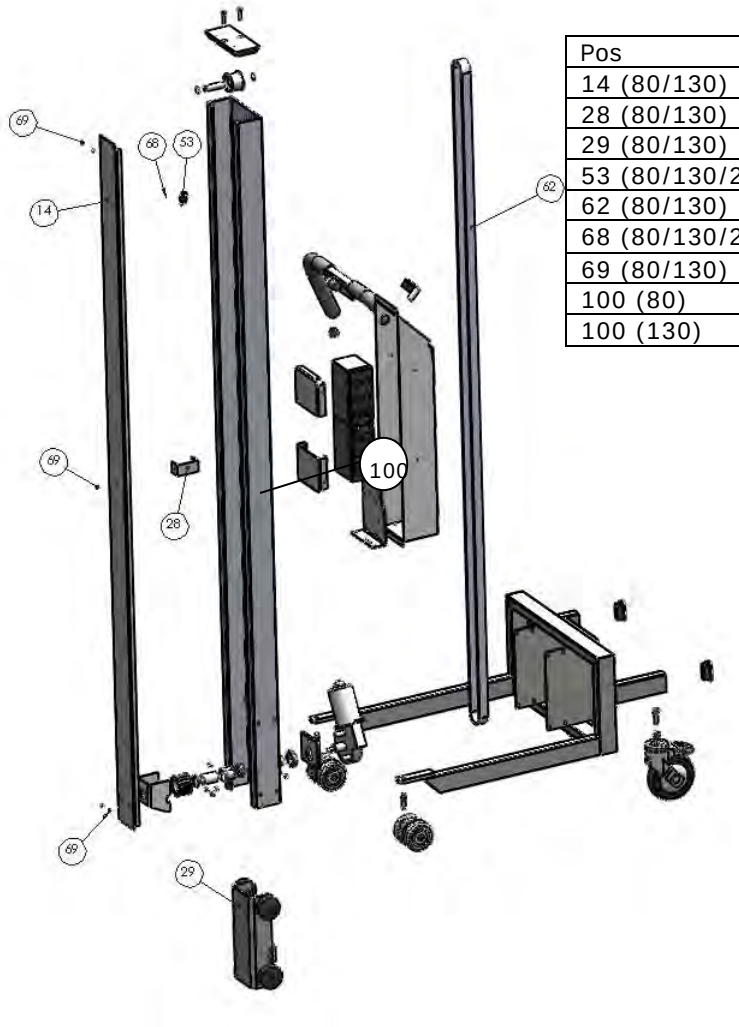


Special diagram for supplied electric tool is located in the control box.


DIP 1-6 = OVERLOAD
SETTING In AMP
Pos 14 ONLY IN CONTROL for Reelmanipulator
PLC1
Lifting
PLC2
Turning
PLC3
Squeezing
X1-X22
X40
X30
REM1
Charger 24V 3A
CH1
0,47uF/250V
B1
B2
B3
B4
H.G.HOVMAND
84251700/84251710
E160/E300
Controlbox
Tegning
AC1126
H7

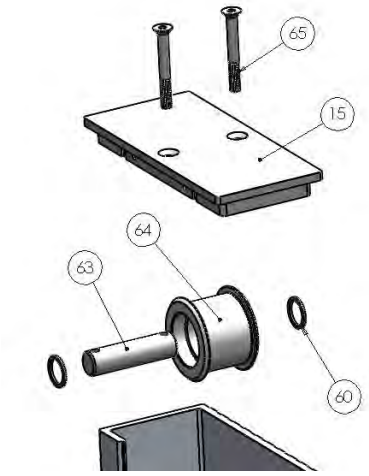
11. Spare parts

11.1. Mast - Impact 80/130



Pos	80 Low	80 Medium	80 High
14 (80/130)	30000415	30000428	30000429
28 (80/130)		40000701	40000701
29 (80/130)	81160090	81160090	81160090
53 (80/130/200)	84080016	84080016	84080016
62 (80/130)	81220026	81220027	81220028
68 (80/130/200)	81010317	81010317	81010317
69 (80/130)	81010328	81010328	81010328
100 (80)	30000433	30000434	30000435
100 (130)	30000436	30000437	30000438

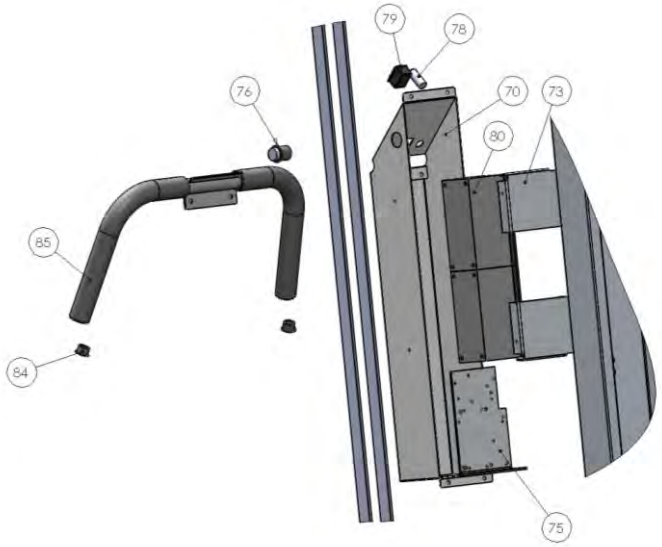
11.2. Top of mast Impact 80/130



Pos	80/130 L/M/H
15 (80/130)	40000665
60 (80/130)	81030086
63 (80/130)	40000157
64 (80/130)	40001894
65 (80/130)	81010361

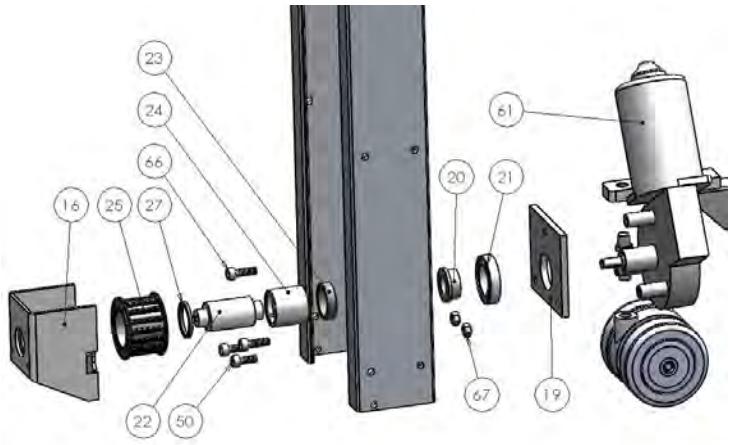
11.3. Control panel Impact 80/130

Also used for Impact 200 when functions only are up/down



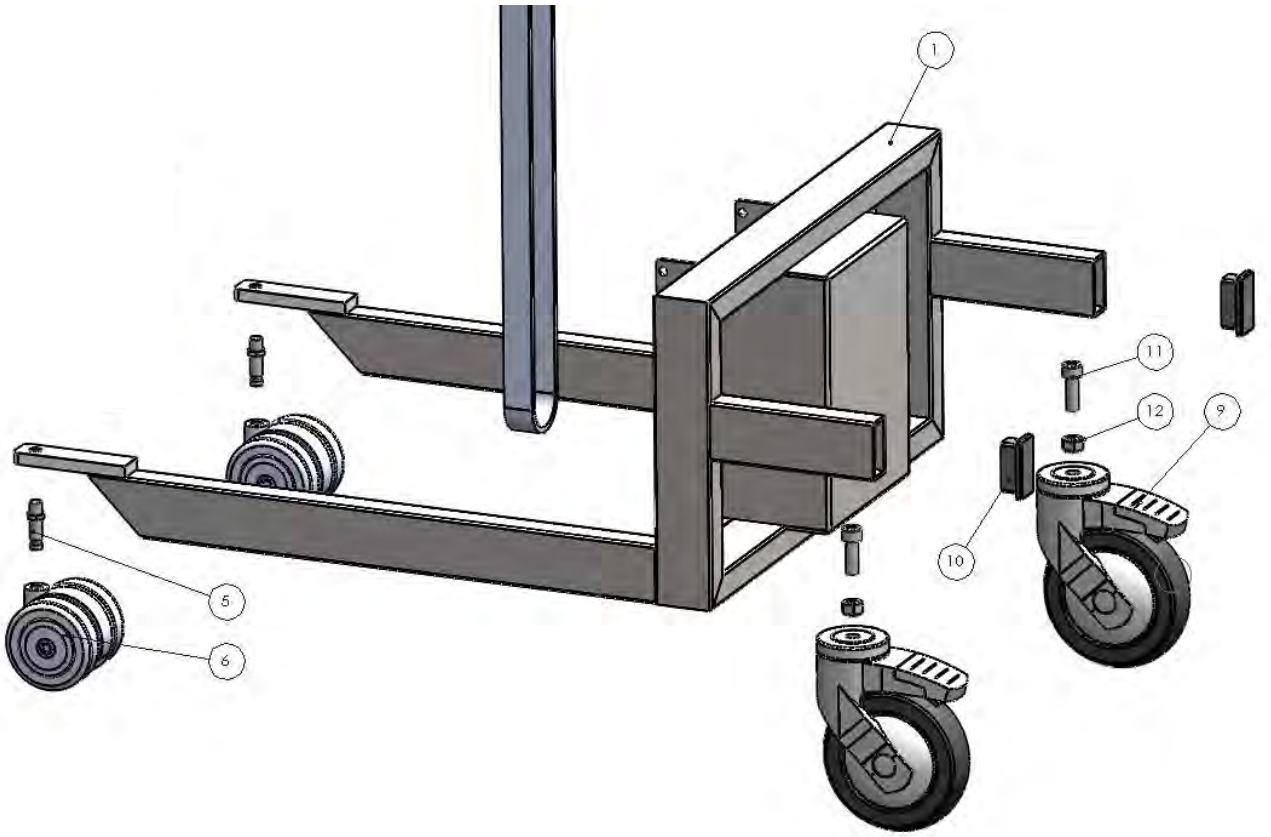
Pos	80/130/200 L/M/H
70 (80/130)	30000866
73 (80/130)	30000914
75 (80/130)	30000882
76 (80/130)	84100092
78 (80/130)	84170046
79 (80/130)	84100062
80 (80/130)	84010068
84 (80/130)	81140027
85 (80/130)	81170102

11.4. Bottom of mast Impact 80



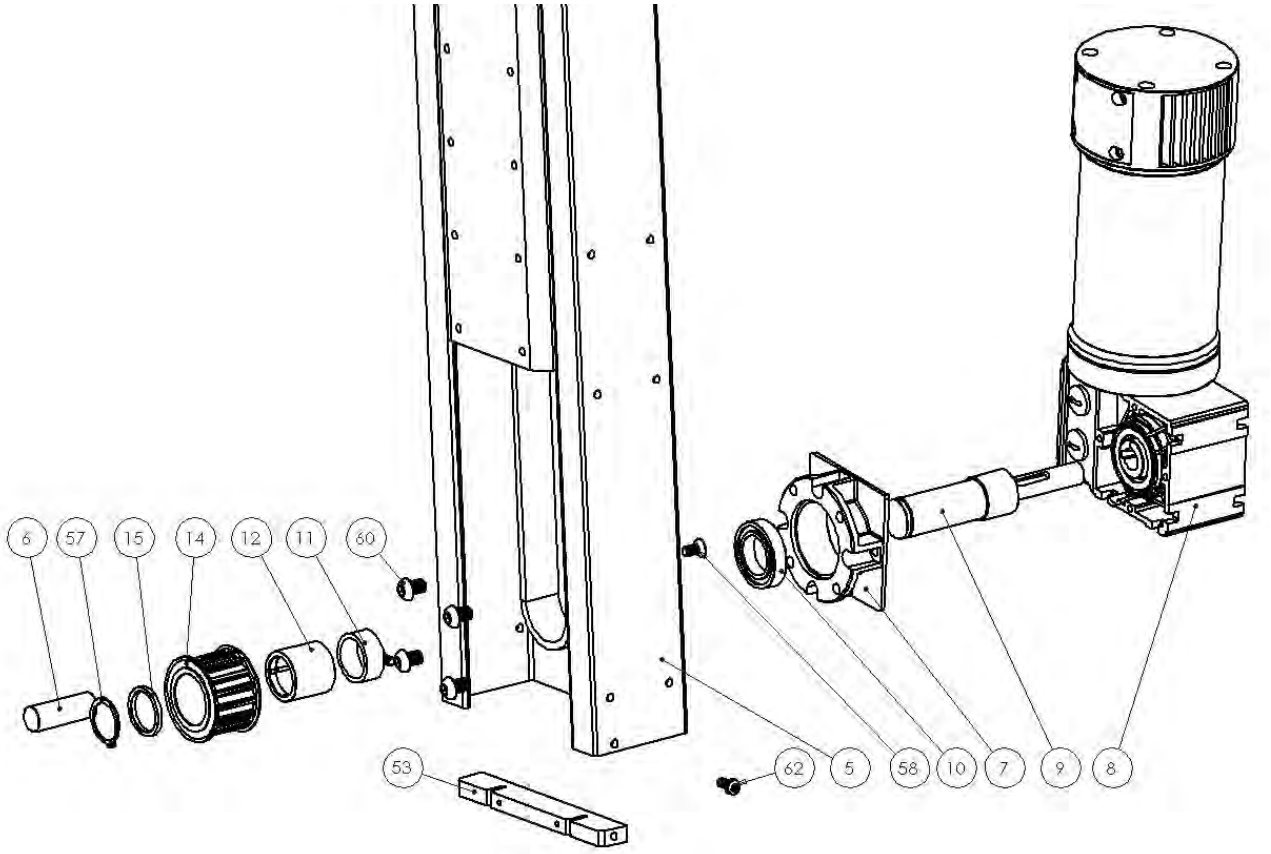
Pos	80 L/M/H
16 (80)	30000478
19 (80)	40000719
20 (80)	40000720
21 (80)	81190092
22 (80)	40000729
23 (80)	40000730
24 (80)	81190095
25 (80)	40000163
27 (80)	40000699
50 (80)	81010118
61 (80)	85020022
66 (80)	81010119
67 (80)	81010022

11.5. Legs Impact 80/130



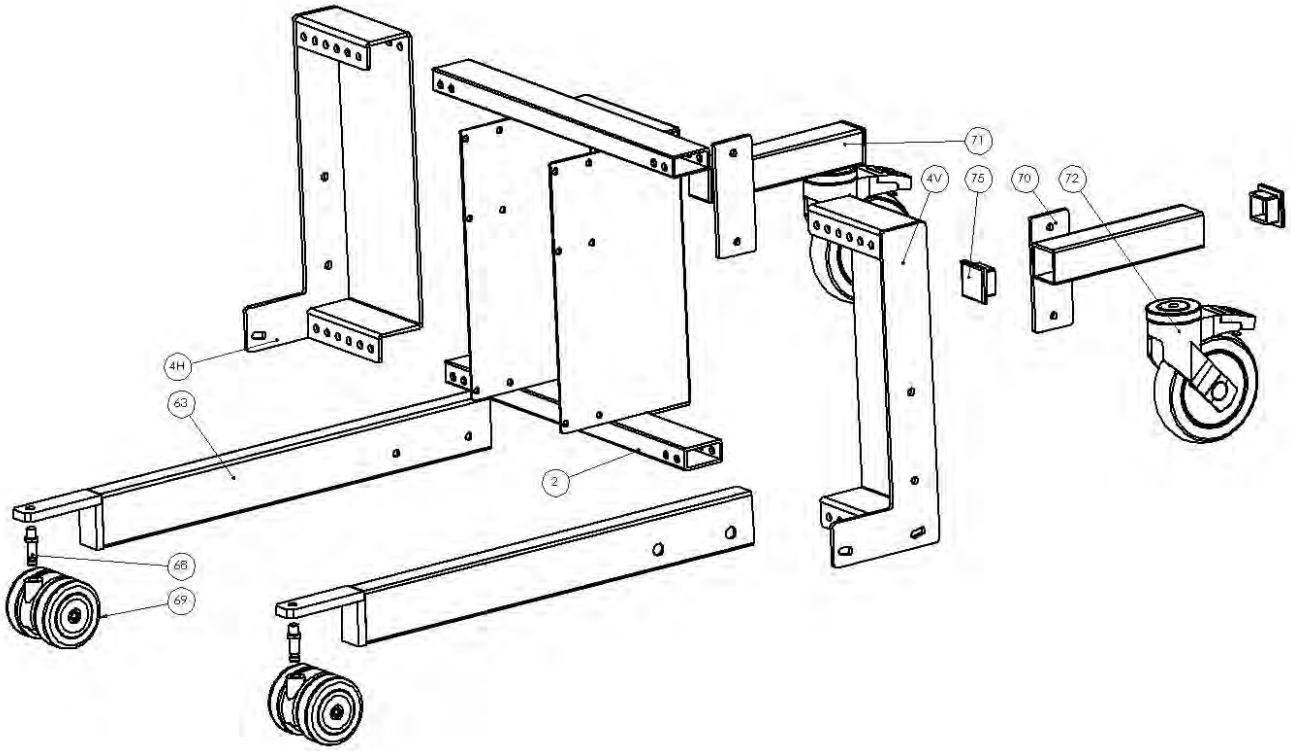
Pos	80/130 L/M/H
1 (80)	30000440
1 (130)	30000441
5 (80)	81200072
6 (80)	81200045
9 (80)	81200044
10 (80)	81140025
11 (80)	81010130
12 (80)	81020025

11.6. Bottom of mast Impact 130



Pos	130 Low	130 Medium	130 High
5 (130)	30000436	30000437	30000438
6 (130)	40000737	40000737	40000737
7 (130)	85020021	85020021	85020021
8 (130)	40000897	40000897	40000897
9 (130)	40000684	40000684	40000684
10 (130)	81190092	81190092	81190092
11 (130)	40000700	40000700	40000700
12+14 (130)	40000163	40000163	40000163
15 (130)	40000699	40000699	40000699
53 (130)	40000705	40000705	40000705
57 (130)	81100002	81100002	81100002
58 (130)	81010083	81010083	81010083
60 (130)	81010127	81010127	81010127
62 (130)	81010296	81010296	81010296

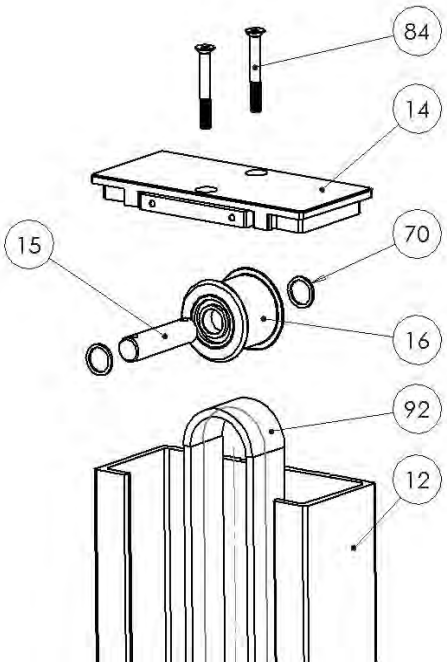
11.7. Flex leg Impact 80/130



Pos	80/130 L/M/H
2 (80/130)	30001534
4H (80/130)	30005054
4V(80/130)	30005055
63 (80/130) L:450	30001096/30001097
63 (80/130) L:600	30001098/30001099
63 (80/130) L:450	30001100/30001101
68 (80/130)	81200072
69 (80/130)	81200045
70 (80/130)	30002376
70 (80/130) CB R	40001267
71 (80/130) CB L	40001267
71 (80/130)	30002375
72 (80/130)	81200044
72 (80/130) CB	81200014
70 (80/130)	30002376
75 (80/130)	40001151
75 (80/130) CB	81140021
Brake bar CB	30003892

11.8. Top Impact 200

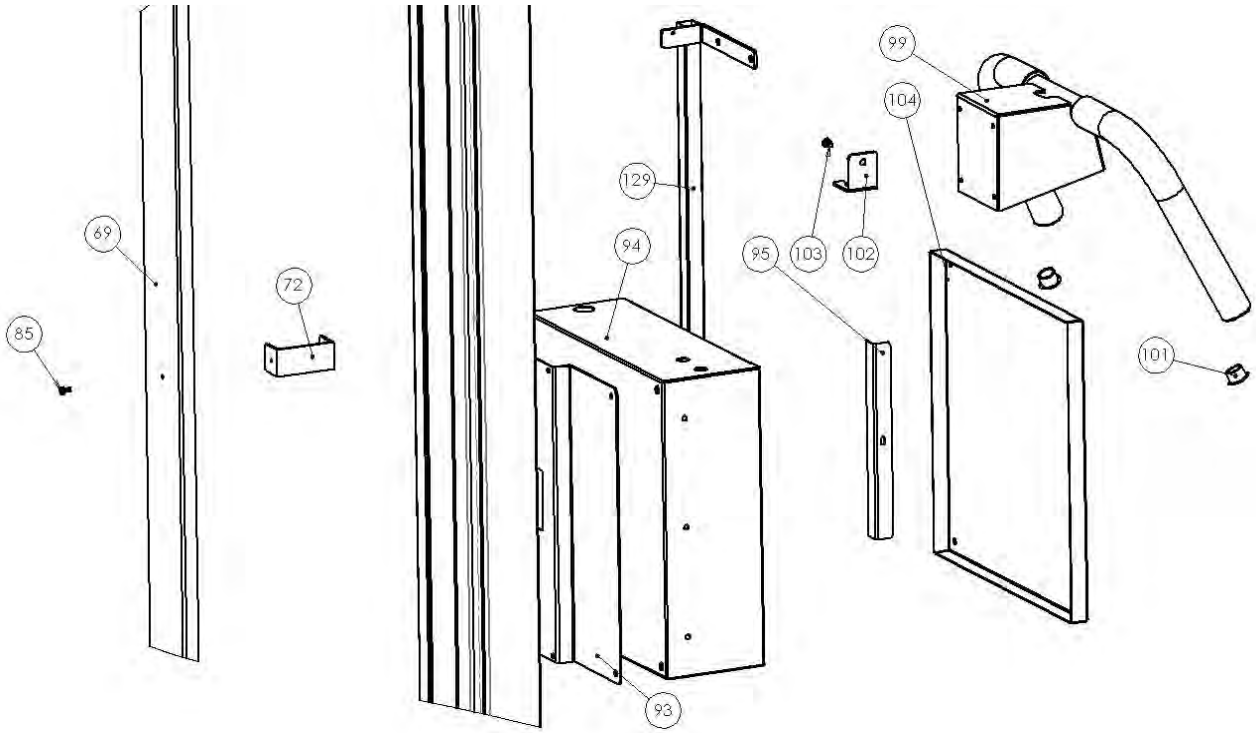
11.9.



Pos	200 Low	200 Medium	200 High
12	40002911	40002542	40002916
14	40002546	40002546	40002546
15	40002543	40002543	40002543
16	40002545	40002545	40002545
70	81030086	81030086	81030086
84	81010361	81010361	81010361
92	40002912	40002788	40002917

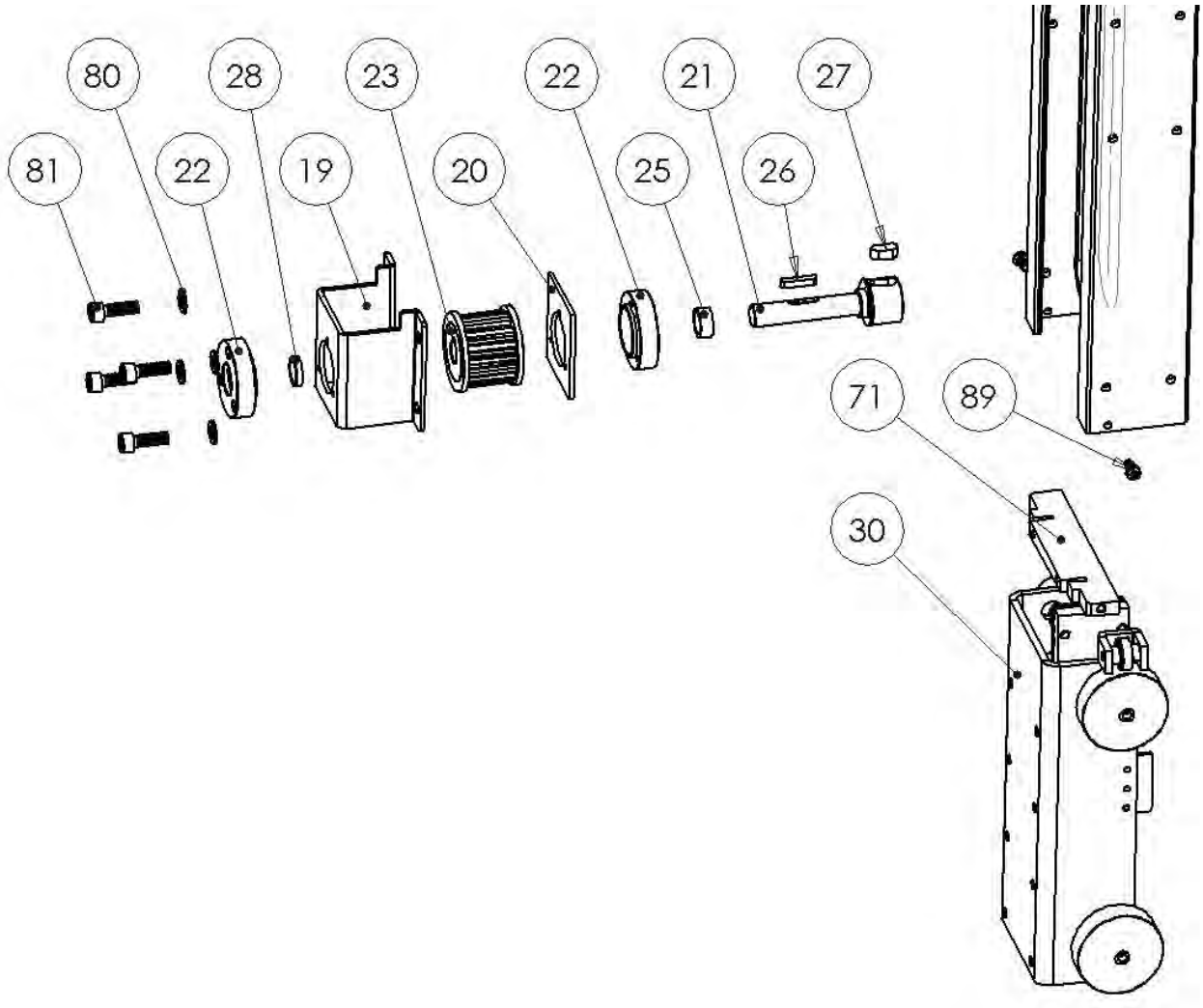
11.9. Middle Impact 200

For models with electric operated tools



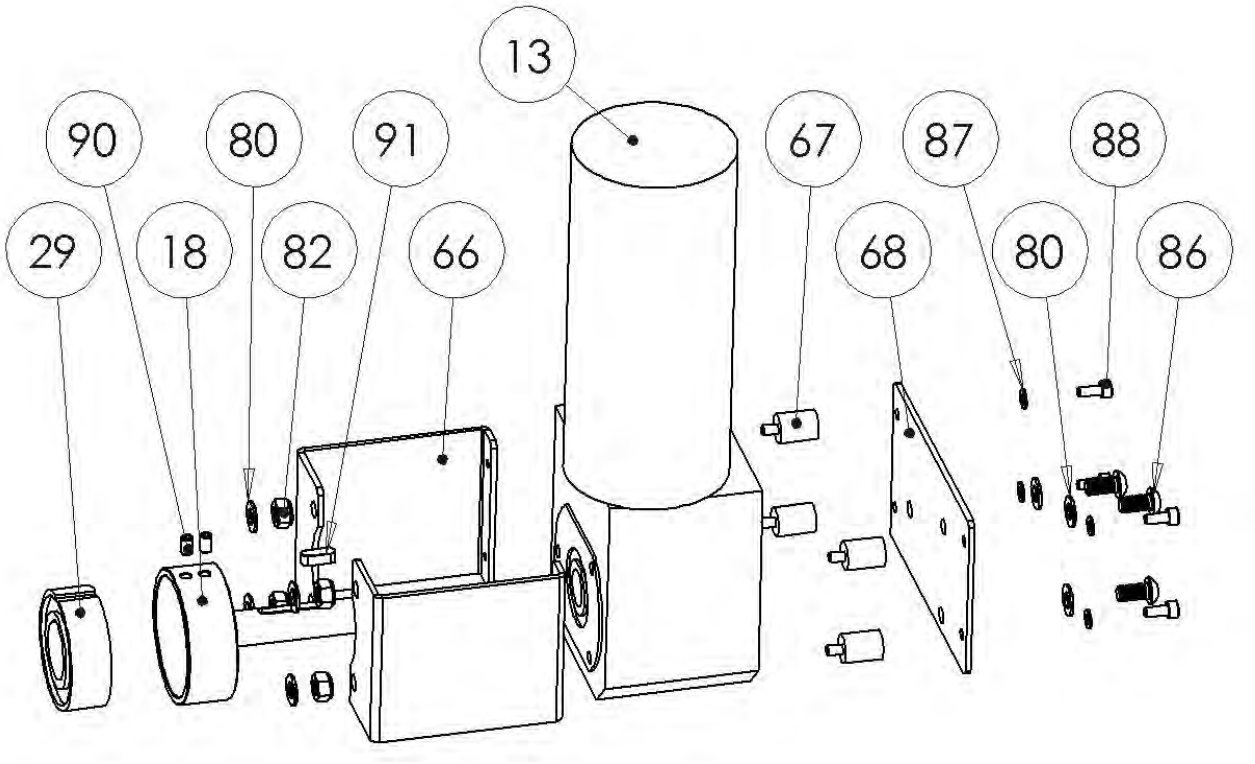
Pos	200 Low	200 Medium	200 High
69	40002913	40002541	40002918
72		40002548	40002548
85	81010296	81010296	81010296
93	40002555	40002555	40002555
94	40002549	40002549	40002549
95	40002551	40002551	40002551
99	40002558	40002558	40002558
101	81140027	81140027	81140027
102	81170017	81170017	81170017
103	81010380	81010380	81010380
104	40002550	40002550	40002550
129	40002940	40002940	40002940

11.10. Bottom front Impact 200



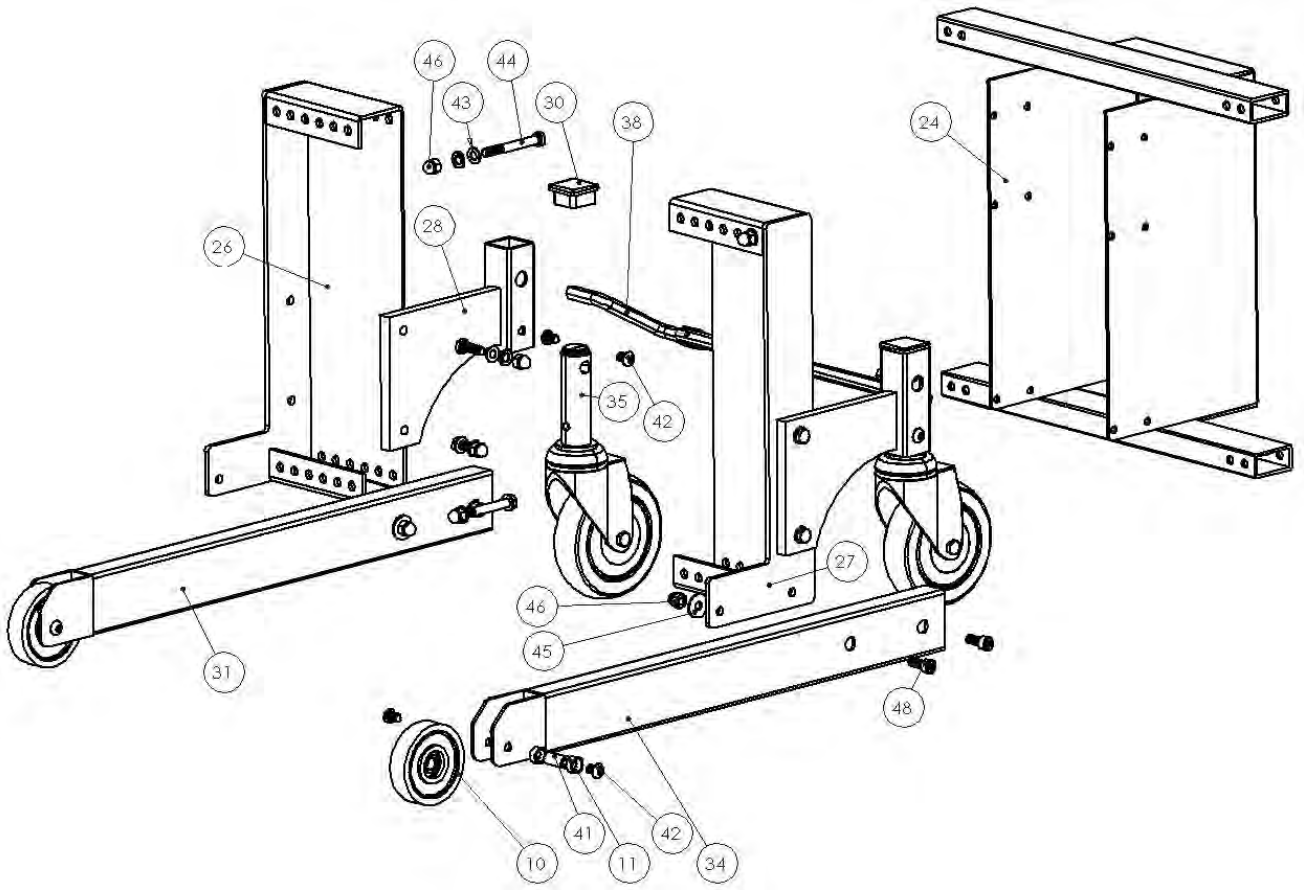
Pos	200
19+20	40002522
21	40002518
22	40002517
23	40002527
25	40002563
26	81350004
27	40002565
28	40002750
30	40002534
71	40002547
80	81030007
81	81010433
89	81010296

11.11. Bottom rear Impact 200



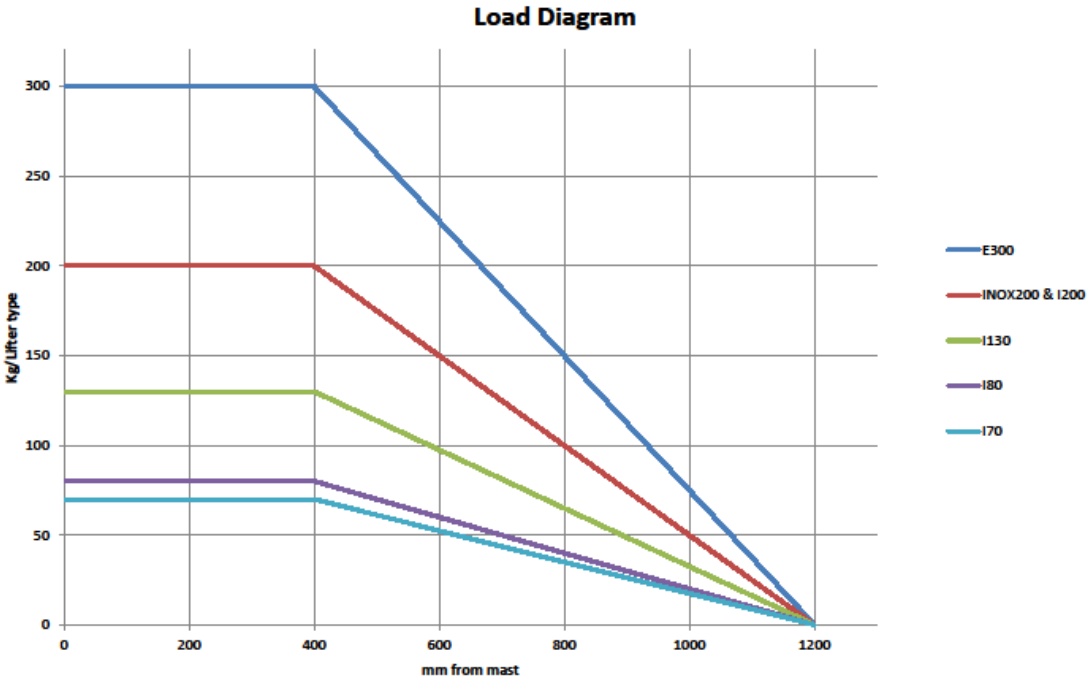
Pos	200
13	40002568
18	40002520
29	40002519
66	40002524
67	40002525
68	40002526
80	81030007
82	81020024
86	81010135
87	81030005
88	81010346
90	81010292
91	40002317

11.12. Legs Impact 200 Flex



Pos	I200
10	81200060
11	40001531
24	40002791
26	40002794
27	40002797
28	40001267
30	81140021
31 L:500mm – R	30001154
31 L:650mm – R	30001156
31 L:850mm – R	30001158
34 L:500mm – L	30001155
34 L:650mm – L	30001157
34 L:850mm – L	30001159
35	81200014
38	30003892
41	40001530
42	81010134
43	81030007
44	81010042
45	81030042
46	Rg-m8toppr
48	81010302

12. Load diagram



Emma 3/4

13. Final inspection

Type: _____

Serial no.: _____

The following tests have been conducted:

- ☐ The lifter matches the specifications stated on the purchase order.
- ☐ The lifter is adjusted so that the mast and equipment comply with the tolerances for straightness with and without weight.
- ☐ All relevant labels and signs are affixed.
- ☐ The lifter has undergone a visual inspection for surface finish and correct assembly.
- ☐ The lifter's battery, charger and LED indicators function correctly.
- ☐ The lifter's capacity and speeds meets the required specifications.
- ☐ The function of the overload tested and approved
- ☐ Functional testing and adjustments is conducted on the following:
  - ☐ Toothed belt
  - ☐ Sledge
  - ☐ Top and bottom limit switches
  - ☐ Driving ability and brake
- ☐ The function of motor controller (PCB).
- ☐ The following equipment has been checked and functions correctly:

Equipment:

☐ W1	☐ D2	☐ DD2	☐ EP3	☐ QC6
☐ W2	☐ D3	☐ DD3	☐ EP4	☐ EG6
☐ W3	☐ D4	☐ DD4	☐ EPV	☐ EG8
☐ W4	☐ DVB1	☐ KA1	☐ MRP	☐ VER
☐ KP1	☐ DVB2	☐ KA2	☐ WAVE	
☐ KP2	☐ TUBE	☐ KA3	☐ G1	
☐ KP3	☐ Wave	☐ KA4	☐ G3	
☐ D1	☐ DD1	☐ EP1	☐ PF1	
☐ Leveret uden udstyr		☐ EP2	☐ RH1	

Battery & charge

☐ 2A charger ☐ 24V 9Ah battery
☐ 3A charger ☐ 24V 18Ah battery

Date: _____

Controller: _____