

UK

HE-VA

Operating Instructions
Spare Parts List
Declaration of Conformity

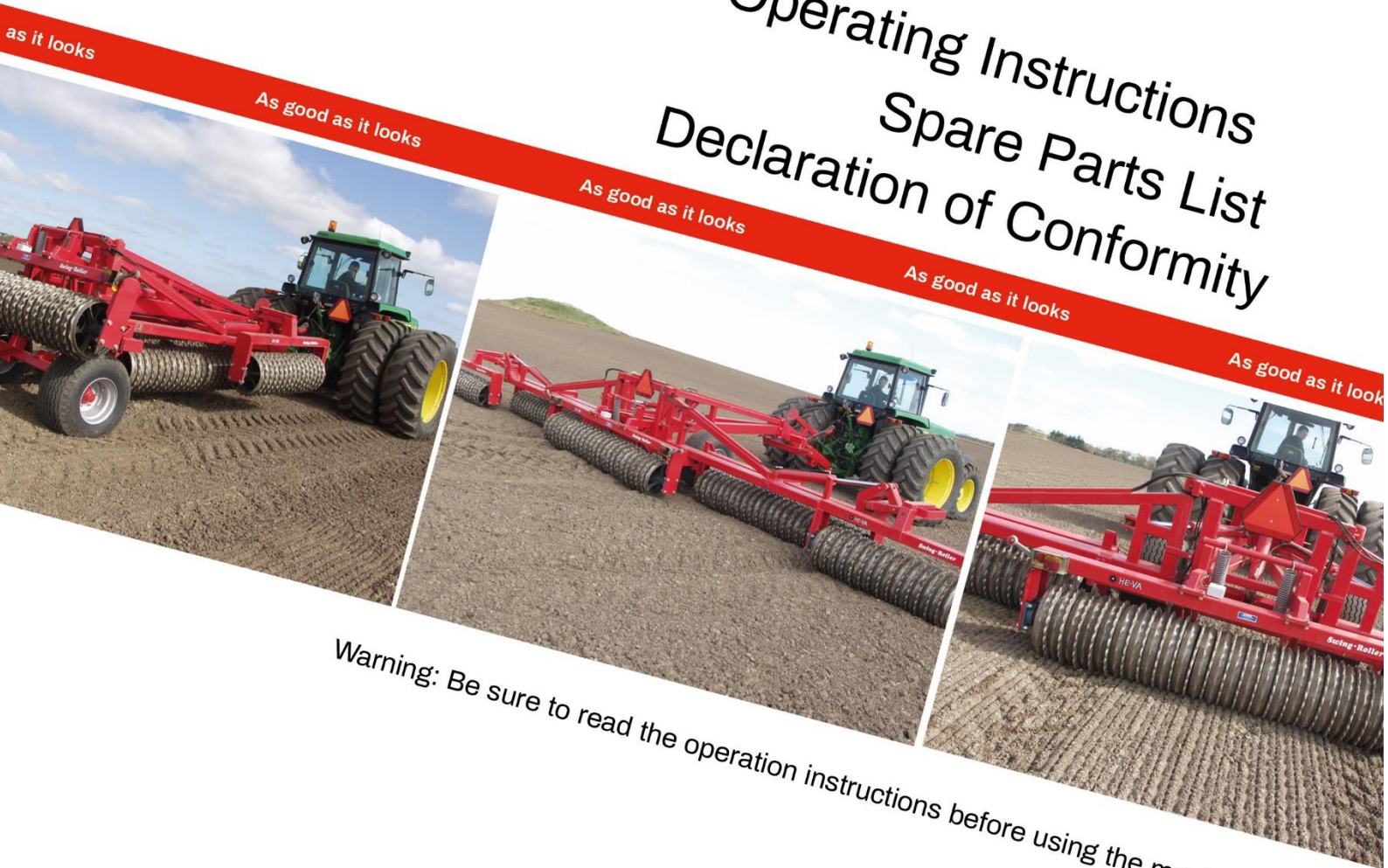
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Warning: Be sure to read the operation instructions before using the machine.

Swing-Roller

10,20 - 12,20 m. with 510 mm. Cambridge, 450/500 mm. Star rings, 485/530 mm. Crosskill rings and 500 mm. 2D Corrugated rings.

Manual nr. 8000471 071123



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Contents

EC-DECLARATION OF CONFORMITY	4
1. Delivery check	5
1.1 Fields of application.....	5
1.2 Delivery check	5
2. Machine Description.....	6
2.1 Technical Specifications	6
3. Mounting Instruction	7
3.1 Mounting of drawbar and roller blocks	7
Adjustment.....	8
3.2 Supporting Bar (First Adjustment)	8
3.3 Reversing Valves	8
4. Instruction Manual	9
4.1 Coupling and uncoupling Coupling	9
4.2 Folding out and folding.....	10
4.3 Rolling.....	11
4.4 Lubrication	11
4.5 Adjustment.....	12
Supporting Bar.....	12
4.6. Tightening up.....	12
4.7. Cleaning	12
5. Safety instructions.....	13
5.1 General information	13
5.2 Instructions on transport on public roads.....	13
5.3 Front axle load	13
Safety – and other markings on the machine	14
6.Spare part List	15
6.1. Drawbar, Towing eye and Supporting bar etc.	15
6.2 Hydraulic drawbar	17
6.3 Chassis	18
6.4 Wheel frame, standard	20
6.5 Wheel frame with brake (compressed air).....	21
6.6 Wheel frame with hydraulic brake.....	22

6.7 Weight transfer.....	23
6.8 Triangel and centre link	24
6.9 Inner wing, inner link, swing arm, spring link, outer wing	25
6.10 Outer link	27
6.11 Shaft and bearings.....	28
7. Roller rings.....	29
8. Hydraulics	31
8.1 Hydraulic Diagram.....	33
9. Extra equipment	34
9.1 Stone box set.....	34
9.2 Automatic protection of the wings during transport	35
9.3 Rubber sealed/non-lubricant ball bearing	36
10. Brakes	37
10.1 Hydraulic brakes	37
10.2 Compressed air brakes	38
11. LED - light	40
Led – Light set	40
Lighting set: Electric Diagram.....	41
Notes	42



EC-DECLARATION OF CONFORMITY

in accordance with the EU Machinery Directive 2006/42/EC
applicable as from December 29th 2009:

HE-VA ApS
N. A. Christensensvej 34,
DK-7900 Nykøbing Mors

hereby confirms that the following machine has been manufactured in accordance with the Council
Directive 2006/42/EC.

The declaration comprises the following machine:

Swing – Roller 10,2 m – 12,2 m

A handwritten signature in black ink, appearing to read 'Villy Christiansen', written over a horizontal line.

Nykøbing the 1th June 2011

Villy Christiansen

The undersigned is furthermore authorized to compile technical documentation for the above
machine.

1. Delivery check

1.1 Fields of application

Swing-Roller is a 5-sectional hydraulic roller. Swing-Roller packs the ploughed soils while consolidating it to press stones into the ground. Swing-Roller is available in working widths of 10.2 m or 12.2 m and with 6 different ring types

The independent centre-suspended sections ensure a flexible roller which follows the contours of the field – the centre section has the same flexible independent abilities.

5-section rollers have SAT system independent flotation on all 5 sections thanks to the additional spring system built into the end section pivots and centre roll. This ensures a uniform soil pressure in the entire working width.

Although designed to cope easily with bigger farms, and larger hp based systems, the 5 sections rollers are still easy to handle – simple to fold and capable of devouring many acres of work in the day.

1.2 Delivery check

Both upon receipt by the dealer/supplier and by the purchaser the roller is to be checked for damages.

Check the hydraulic hoses for cuts or squeezing damages. Check further that the other hydraulic components have not been damaged during transport.

Check that the frame construction has not been damaged. Furthermore, you should check that the roller blocks have not been exposed to impacts which may have damaged the cast roller rings or the double sealed ball bearings.

Finally check the air pressure in the tyres (approx. 3.8 bar/55 psi.)

2. Machine Description

5-link hydraulic wheel-mounted field roller with free movability in all links. Used for rolling of stones and packing of the top stratum of earth. The roller is available with working widths of 10.2 m or 12.2 m and with 5 different ring types: Cambridge rings, cam rings, Crosskill rings, plain and corrugated rings.

2.1 Technical Specifications

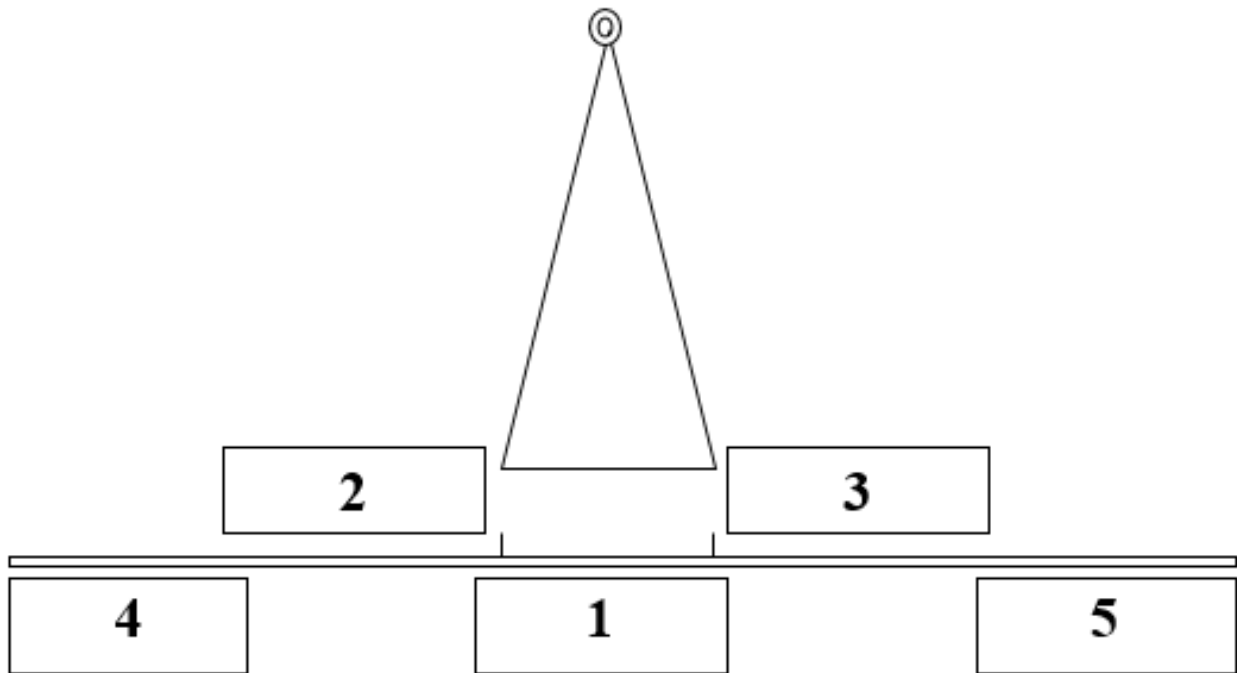
Technical Specifications	10,2 m		12,2 m	
Working width	10,2 m		12,2 m	
Total width (folded out)	10,5 m		12,5 m	
Length	5,8 m		5,8 m	
Transport width	2,8 m		2,8 m	
Transport height	2,0 m		2,0 m	
Pressure on towing eye in transport position (% of total weight)	Ca. 40%		Ca. 40%	
Wheel mounting, standard	400/60x15,5 – 14 PLY		400/60x15,5 – 14 PLY	
Tyre pressure	3,8 bar /55 psi		3,8 bar /55 psi	
Power requirements	Min 125 Hk/95 kW		Min 125 Hk/95 kW	
Requirements for the tractor hydraulics:				
Oil pressure	Min. 150 bar		Min. 150 bar	
Oil tap	2 double-acting		2 double-acting	
Quick couplings, standard	Sterlingtype E402		Sterling type E402	
Hydraulic oil: The system is filled with	Hydro Texaco HD32		Hydro Texaco HD32	
Ring type:	No of rings	Weight Kg	No of rings	Weight Kg
510 mm/21” Cambridge, 3 spokes	199	6010	235	6680
510 mm/21” Cambridge, 8 spokes	199	6330	235	7070
450/500 mm. Star ring	194	6120	230	6750
485-530 mm Crosskill	105	5960	125	6650
500 mm 2D-Corrugated	125	5500	150	6130

3. Mounting Instruction

To minimise the freight dimensions of the roller it will be supplied partly disassembled by the manufacturer. Therefore it must be assembled by the distributor before delivery to the purchaser.

3.1 Mounting of drawbar and roller blocks

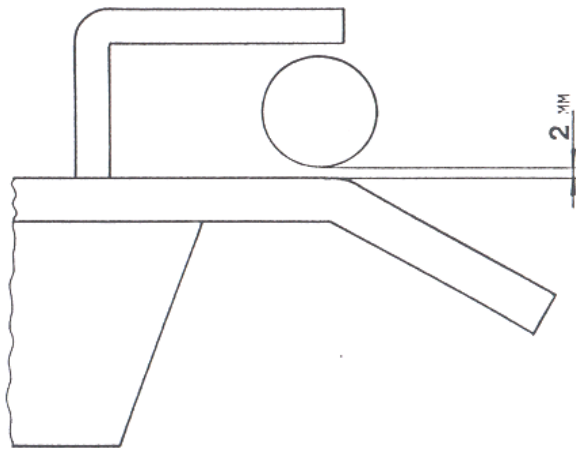
1. The drawbar is mounted (8 pcs of M20 x 65 mm quality 8.8).
The bolts are tightened with a moment of 380 Nm (38 kgm).
2. After the mounting of the drawbar, the roller is coupled to the tractor. **As the back part of the roller will be heavy** when folded out, the tractor must be provided with fork-shaped drawbar or protection above the draw hook (ref. Section 4.1. / page 9).
3. The roller is folded out to working position (ref. Section 4.2. / page 10). However, do not lift the wheel frame. This must be pushed **totally** to back position against the stop.
4. The roller blocks are lifted up under the frame and mounted in the order shown below.
5. Remember to tighten all bolts before use.



Adjustment

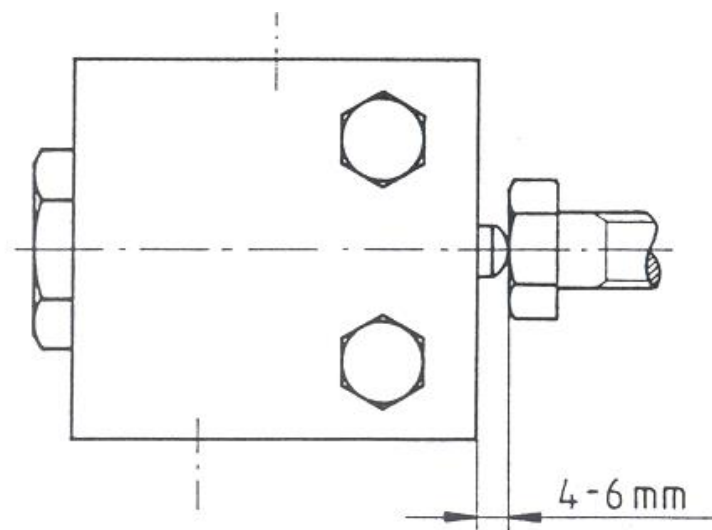
3.2 Supporting Bar (First Adjustment)

After having mounted the roller blocks the roller is folded into transport position (ref. Section 4.2.), and then the supporting bar is adjusted as shown on the sketch below. When the roller has been folded out and folded a few times, the pins will be arranged on the supporting bar and thus carry the side sections during transport.



3.3 Reversing Valves

The reversing valve at the wheel frame is adjusted with the roller in folded condition, and the reversing valve at the left inner wing is adjusted with the roller folded out.



4. Instruction Manual

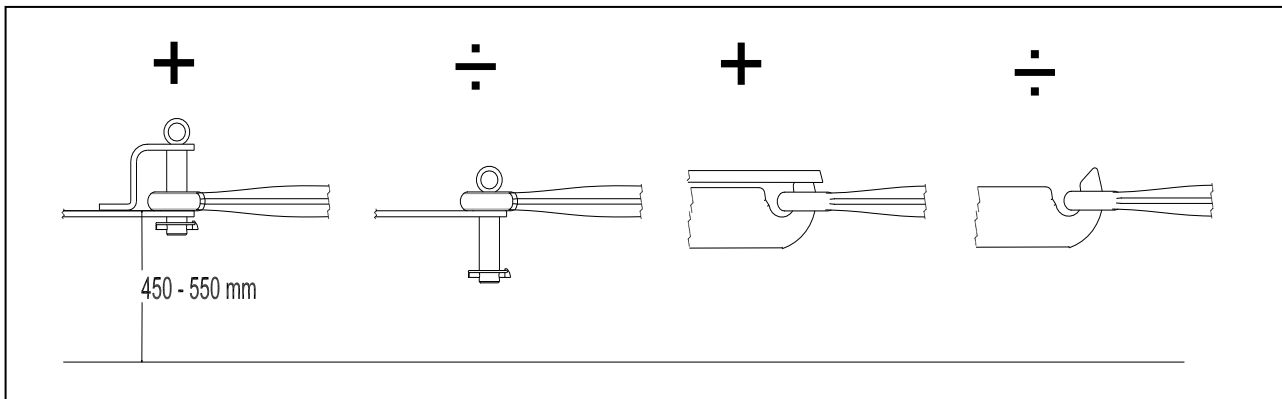
4.1 Coupling and uncoupling

Coupling

The manufacturer delivers the roller in transport position. When coupling the roller it must be checked that the drawbar height is 450-550 mm. Back the tractor to the roller, put in the towing bolt and fasten.

WARNING !

As the back part of the roller will be heavy when folding and folding out the roller, the roller must be coupled in **fork-shaped drawbar** or with a **protection above the draw hook**.



The support leg is turned up and placed in the transport mountings on top of the pole. Now the 4 hydraulic hoses must be mounted. The roller requires 2 double-acting oil taps.

Red dust caps: Folding out/folding of the side sections and lifting/lowering of wheel frame.

Blue dust caps: Folding out/folding of outer links.

IMPORTANT !

Check that the quick couplings mounted by the manufacturer fit in the tractor quick couplings.

Uncoupling

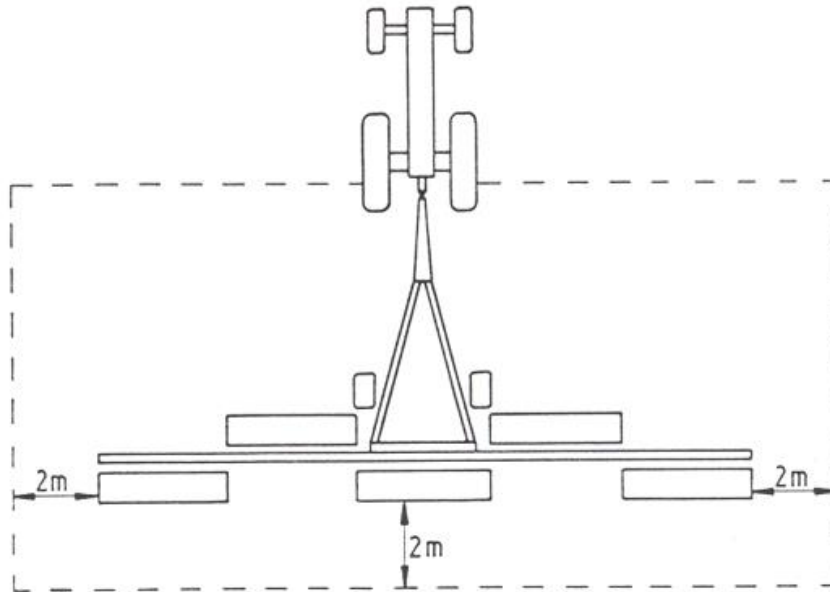
When uncoupling the roller, remove the hydraulic hoses at first. **REMEMBER** to mount the dust caps. The supporting leg is moved from the transport mountings to the mountings under the pole and turned down. Finally remove the towing bolt.

4.2 Folding out and folding

When folding out and folding the roller, the tractor must be stopped on a horizontal surface. When the wheel frame is lifted and lowered, the tractor must be capable of rolling freely.

IMPORTANT !

Before folding out/folding the roller make sure that no persons are standing within the safety zone shown.



Folding Out

First remove the safety pins from the supporting bar.

Then turn the side sections to the back against the stop (red dust caps). When the side sections are in position, the oil flow will automatically change to the wheel frame which is pulled forwards and upwards.

When the wheels have been pulled up, the other oil tap is activated (blue dust caps), and the outer links are lifted into working position. When the outer link cylinders have been pushed totally out, the roller is ready for use.

Folding

First lift the outer links from working position to transport position (blue dust caps). Then the wheel frame is activated (red dust caps) which will move downwards and backwards to the stop. The oil flow will now automatically change to the side sections which are turned forwards and in position in the supporting bar mountings.

REMEMBER to mount the safety pins.

4.3 Rolling

Speed: max. 10 km/h.

When turning, the driving should as far as possible be made in large curves. The turning should not be so sharp that all roller rings cannot still rotate forward.

The wheels may only be lowered in connection with folding into transport position.

Do not drive over large and earthfast stones.

4.4 Lubrication

After every approx. 10 hours of operation the following must be lubricated:

- the suspension of the individual roller links (2 places per link except for the centre link. Totally 8 places)
- the hinging of the outer wings on the inner wing (4 places)

After every approx. 30 hours of operation the following must be lubricated:

- the bottom of the spring link (2 places)
- the swing arm between the inner wings and the outer wings (2 places)
- the vertical hinge of the inner wings (4 places)
- the ball bearings (10 places)
- the cylinders (10 places)
- the hinging of the wheel frame on the chassis (2 places)

Once a year the following must be lubricated:

- the supporting leg (2 places)

IMPORTANT !

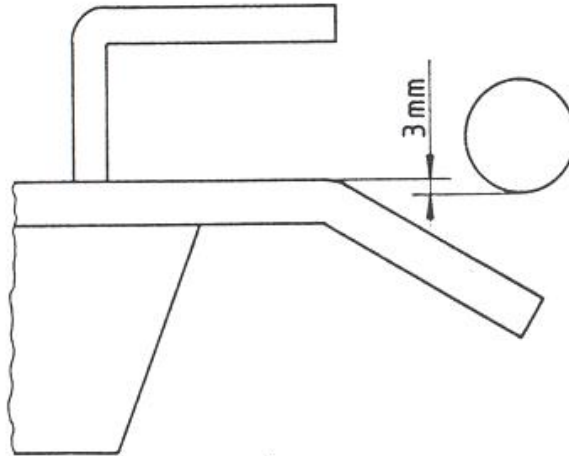
The ball bearings should only be lubricated with 1-2 strokes as the sealing rings could otherwise be pressed out.

The adjusting screws and supporting bar surfaces must be greased.

4.5 Adjustment

Supporting Bar

When the roller is delivered, the supporting bar is adjusted as described in Section 3.2. After a few hours of use the pins will be arranged on the supporting bar and thus carry the side sections during transport. After every 100 hours of operation or as a minimum once a year, the supporting bar must be adjusted as shown below:



Reversing Valve

After every 100 hours of operation or as a minimum once a year the reversing valves must be adjusted as described in Section 3.2.

4.6. Tightening up

After the first approx. 10 hours of operation and then after every 100 hours of operation, all bolts, wheels, ball bearings and stop rings must be tightened up. Hoses, fittings and cylinders must be checked for possible leaks and further tightened.

4.7. Cleaning

After the season the roller should be cleaned. This is easily done with a high-pressure cleaner. Make sure that all earth and dirt particles are removed. Do not use high-pressure water directly on ball bearings, cylinders, lubricating nipples and link connections as this may cause water to penetrate these items. After the washing all lubricating points must be lubricated and the wheel frame cylinder greased. When the roller is dry it can be sprayed with oil.

REMEMBER !

Correct use, lubrication, adjustment, cleaning and storage will contribute to extending the life of the roller and will result in a higher resale price.

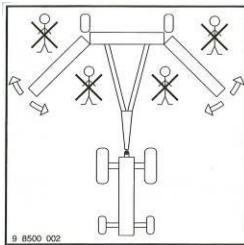
5. Safety instructions

5.1 General information

Do not start-up the machine if there are persons in exposed positions* within a hazardous area**.

When persons are in exposed positions (e.g. in connection with adjustment, maintenance, attachment and uncoupling), the following conditions must be observed:

1. The machine must be lowered to firm ground.
2. The hydraulics must be relieved.
3. The tractor must be stopped and the key removed from the ignition switch.
4. The driver must ensure that no persons are in exposed positions during the operation.



***Persons in exposed positions: Any person who is wholly or partly within a hazardous area.**
****Hazardous area: On and under the machine within a distance of 2m. from the machine.**

Most accidents that happen in connection with the operation, transport and maintenance of machines are caused by non-compliance with the most elementary safety conditions.

Therefore it is vital that anybody working at the machine carefully complies with the safety instructions as well as other instructions applying to the machine. The machine may only be operated, maintained and repaired by persons, who are familiar with this work and who are further familiar with the possible elements of danger with this particular machine.

5.2 Instructions on transport on public roads

Check before transport on public roads that the attachment of the machine at the tractor is in accordance with the local rules and regulations in force (permitted total weight, permitted axle load, transport width, lights, warning signs, etc.).

The transport wheels and construction of the Swing-Rollers were designed for maximum speeds of 30 km/h.

If this speed is exceeded, all warranty claims are repealed.

5.3 Front axle load


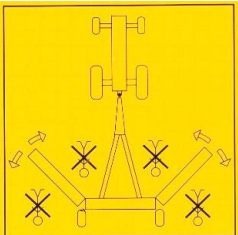
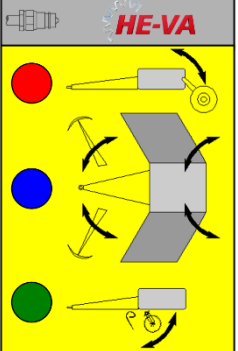

After the attachment of the machine and at maximum load, the driving properties of the tractor must be checked. Check that the front axle is sufficiently loaded. As a minimum, the front axle load must be 20% of the tractor weight. Permitted axle load and permitted total weight for the tractor must always be observed.

NB! The driving, controlling and braking properties are affected by the attached machine combination.

Several markings are located at your machine, which contains **safety regulations** and other instructions to inform about correct operating.

Please read these instructions carefully, and make the driver aware about the markings and **safety regulations** in this Operating Instructions. Keep the markings clean and readable. If they are not, they must be replaced.

Safety – and other markings on the machine

	<p>Study the Operating Instructions thoroughly before any operation of the machine and observe all safety instructions</p> <p>Item number: 1305028</p>
	<p>Take care that no persons are within the machine's hazardous area during the unfolding and folding procedure</p> <p>Item number: 1305029</p>
	<p>Indification Label for the machine's hydraulic systems</p> <p>Item number: 1305031</p>
	<p>Tighten up the bolts regularly. If this is not performed, our warranty obligations will no longer apply.</p> <p>Item number: 1305030</p>

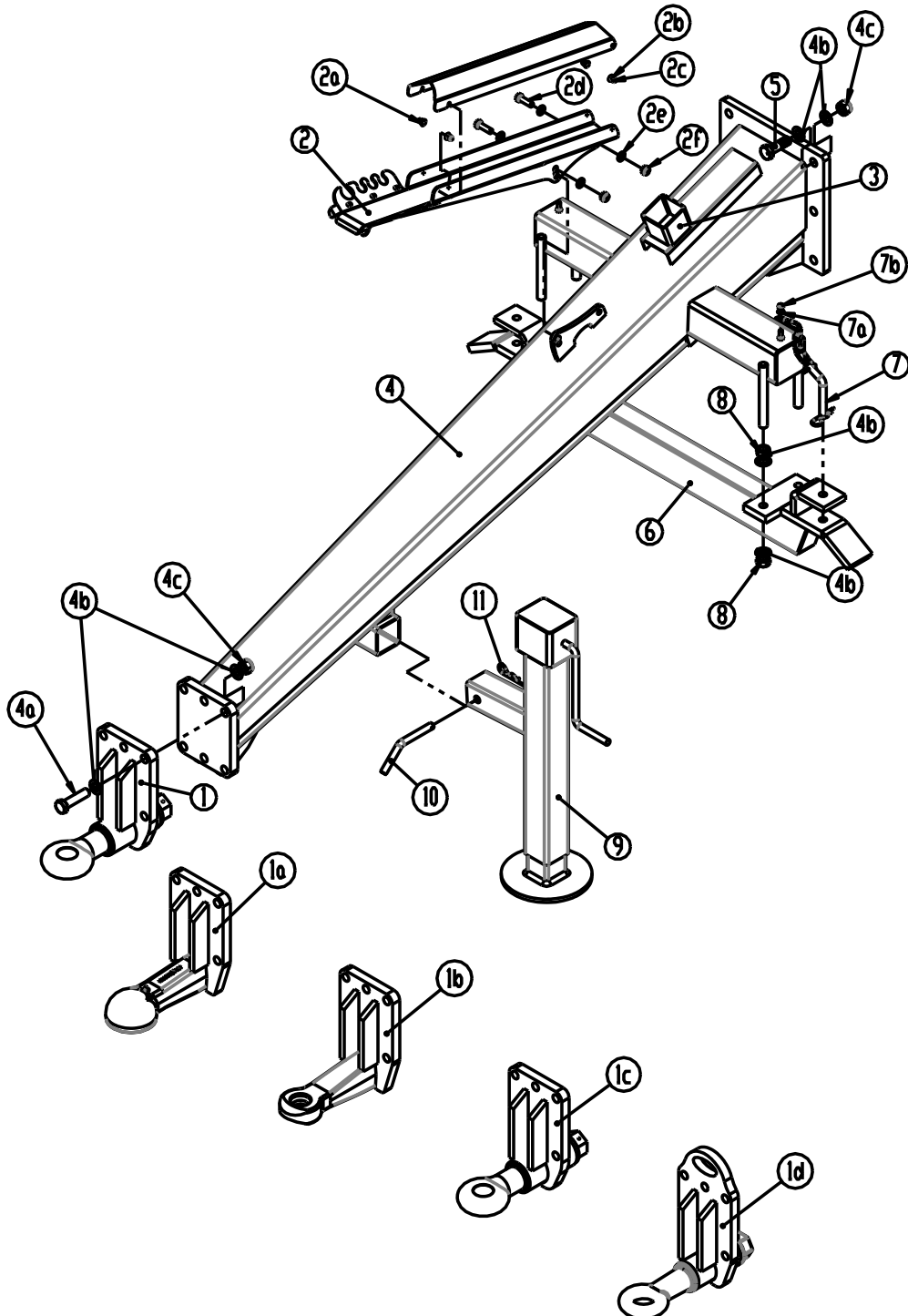
Maximum torque in Nm. w/lubricated thread			
Metric thread	Quality 8.8	Quality 10.9	Quality 12.9
M12	81	114	136
M14	128	181	217
M16	197	277	333
M18	275	386	463
M20	385	541	649
M22	518	728	874
M24	665	935	1120

OBS: The spare parts list is shown on following way: Drawings are always inserted before/above the belonging spare part list.

6.Spare part List

6.1. Drawbar, Towing eye and Supporting bar etc.

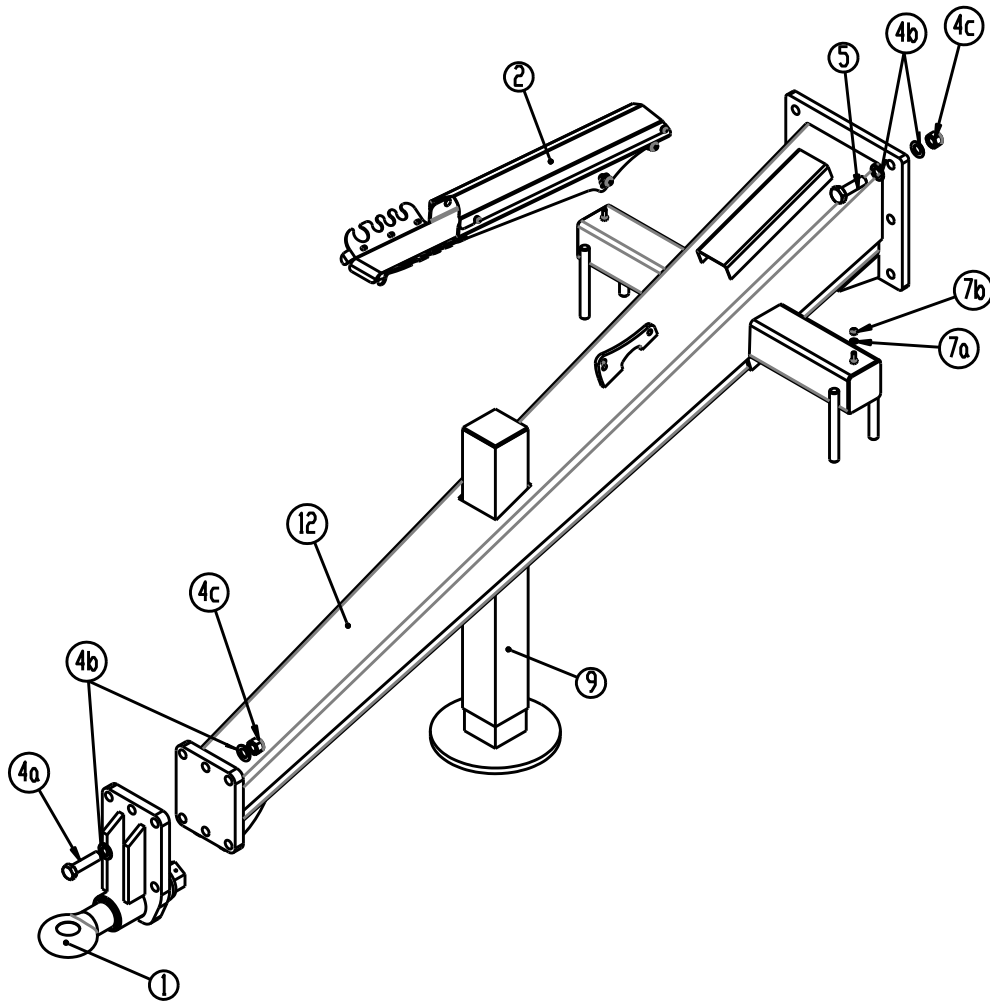
From machine number 344111



Pos.	Art. No.	Designation	10,2m	12,2m
1	630757017	Complete towing eye, Ø50 pivoted M20 bolts	1	1
1a	630757023	Complete towing eye ball type	1	1
1b	630757030	Complete towing eye, Ø40 solid, strong model M20 bolts	1	1
1c	630757046	Complete towing eye, 35CRM04	1	1
1d	630757043	Drawbar pivoted M16 bolts, homologated	1	1
2	7345010	Holder for hoses (8 pc)	1	1
2a	0246060	Bolt (carrier bolt) M6x16 FZB DIN603	4	4
2b	0272240	Facet washer 6mm, fzb	4	4
2c	0264040	Self locking nut M6, fzb DIN985	4	4
2d	0235360	Bolt M12x40mm, 8.8 fzg	2	2
2e	0272270	Facet washer Ø12 mm	1	1
2f	0264070	Self locking nut M12	2	2
3	630980312	Parking for the supportleg	1	1
4	630980300	Drawbar	1	1
4a	0236170	Bolt M20x80 8.8	6	6
4b	0272310	Facet washer Ø20, fzb	36	36
4c	0264110	Self locking nut M20, fzb	14	14
5	0236150	Bolt M20x70 8.8	8	8
6	630980105	Supporting bar	1	1
7	69516094Q	Safety pins with chain	2	2
7a	0272250	Facet washer, ø6	2	2
7b	0264050	Self locking nut M6	2	2
8	0261410	Nut, M20	8	8
9	690141102	Supporting leg	1	1
10	69516094A	Supporting leg pin	1	1
11	690133005	Split-pin	1	1

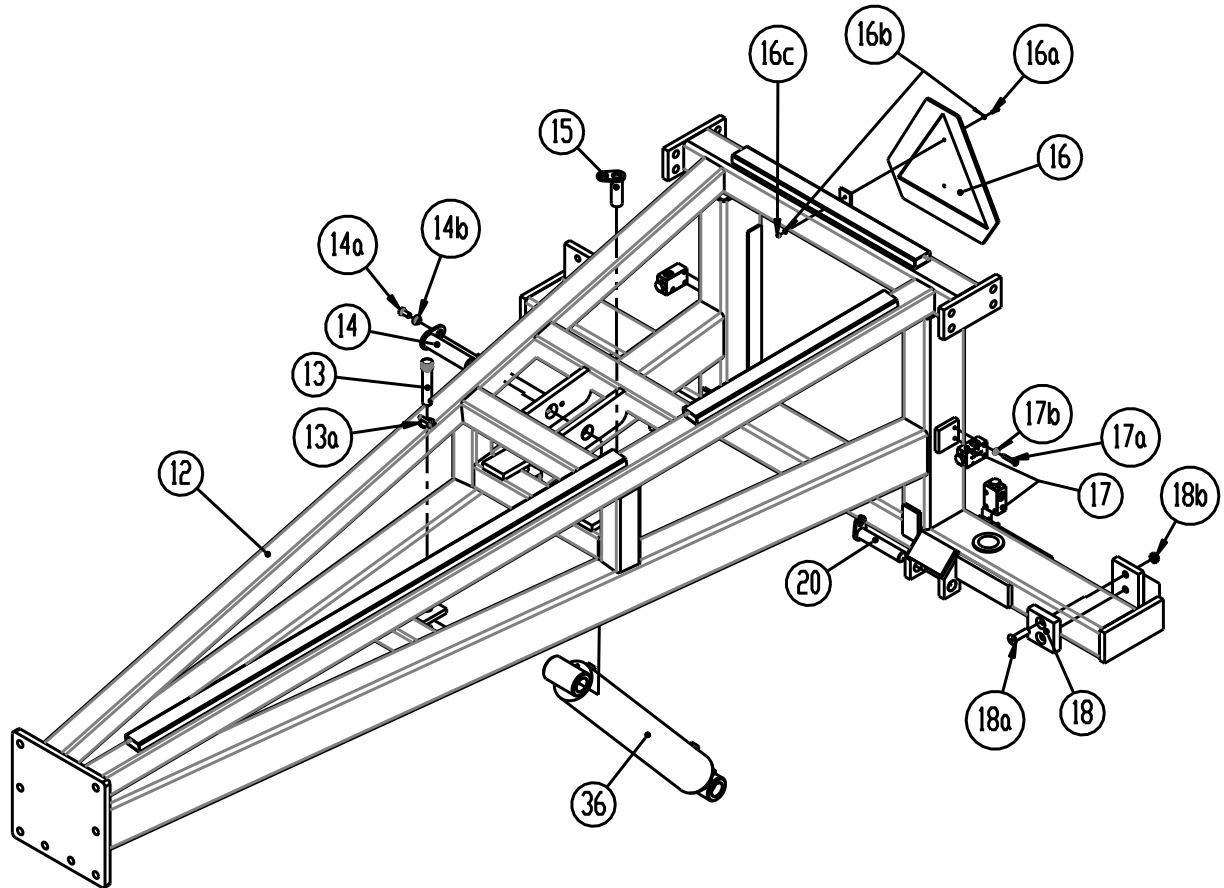
6.2 Hydraulic drawbar

From machine number 344111



Pos.	Art. No.	Designation	10,2m	12,2m
1	630757017	Look at page 16	1	1
2	7345010	Look at page 16	1	1
4a	0236170	Look at page 16	6	6
4b	0272310	Look at page 16	36	36
4c	0264110	Look at page 16	14	14
5	0236150	Look at page 16	8	8
7a	0272250	Look at page 16	2	2
7b	0264050	Look at page 16	2	2
9	690141098	Hydraulic supporting leg 4300 kg	1	1
12	1220243	Drawbar w/centermounted supporting leg	1	1

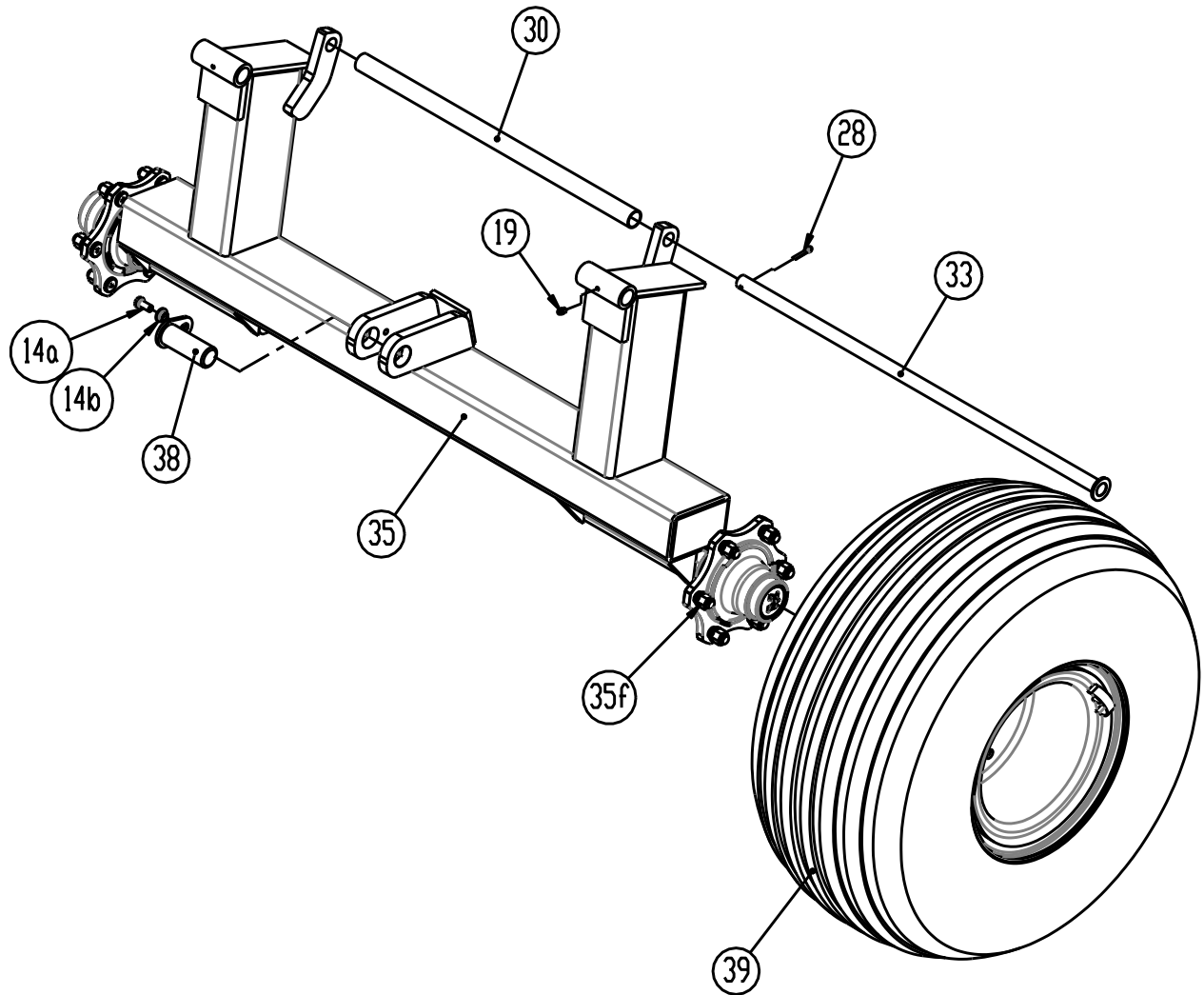
6.3 Chassis



Pos.	Art. No.	Designation	10,2m	12,2m
12	630980500	Chassis	1	1
13	69525097J	Pin, $\varnothing 25$, l=102 mm	1	1
13a	690134004	Ring cotter pin	1	1
14	1145304	Pin, $\varnothing 40$, l=160 mm	1	1
14a	0235330	Set screw, M12 x 25kval. 8,8 (by all pinheads)	5	5
14b	630532600	Bushing, $\varnothing 17/\varnothing 13$, l=6,5 mm (by all pinheads)	5	5
15	69430090G	Pin $\varnothing 30$ L=90	2	2
16	690142001	Warning triangle	1	1
16a	0233860	Bolt, M5x20	2	2

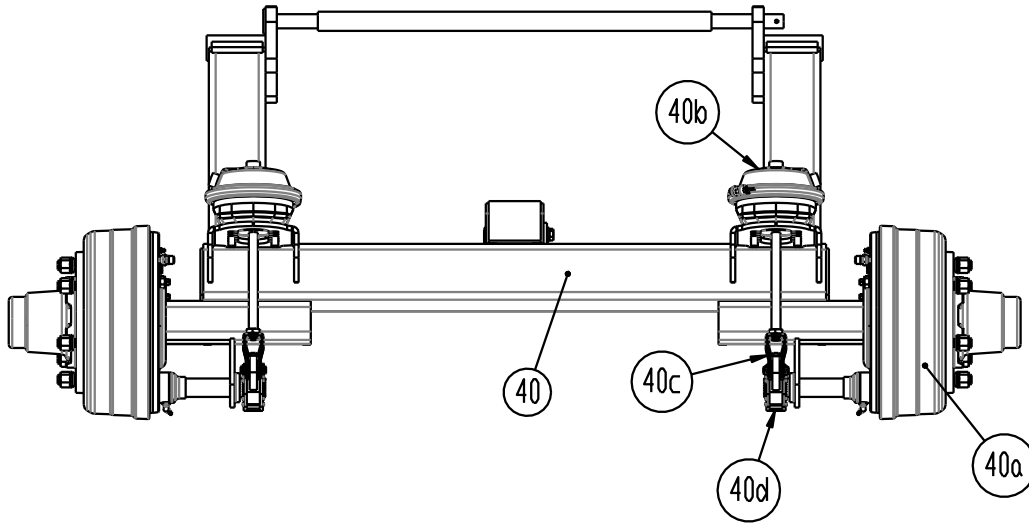
Pos.	Art. No.	Designation	10,2m	12,2m
16b	0272230	Faceted plate, $\phi 5$	2	2
16c	690113002	Self-locking nut, M5	2	2
17	690207101	End stop valve, FC 10	3	3
17a	0234800	Bolt M8x45	6	6
17b	690119004	Spring washer, $\phi 8$	6	6
18	630981600	Stop block	2	2
18a	690103004	Bolt M16x60 DIN7991 Submerged unbrako	4	4
18b	0261392	Clamping nut M16	4	4
20	630983500	Pin $\phi 30$ L=160 (for wheel frame)	2	2
36	690200113	Cylinder $\phi 115 / 100 / 50-600$ (for wheel frame)	1	1

6.4 Wheel frame, standard



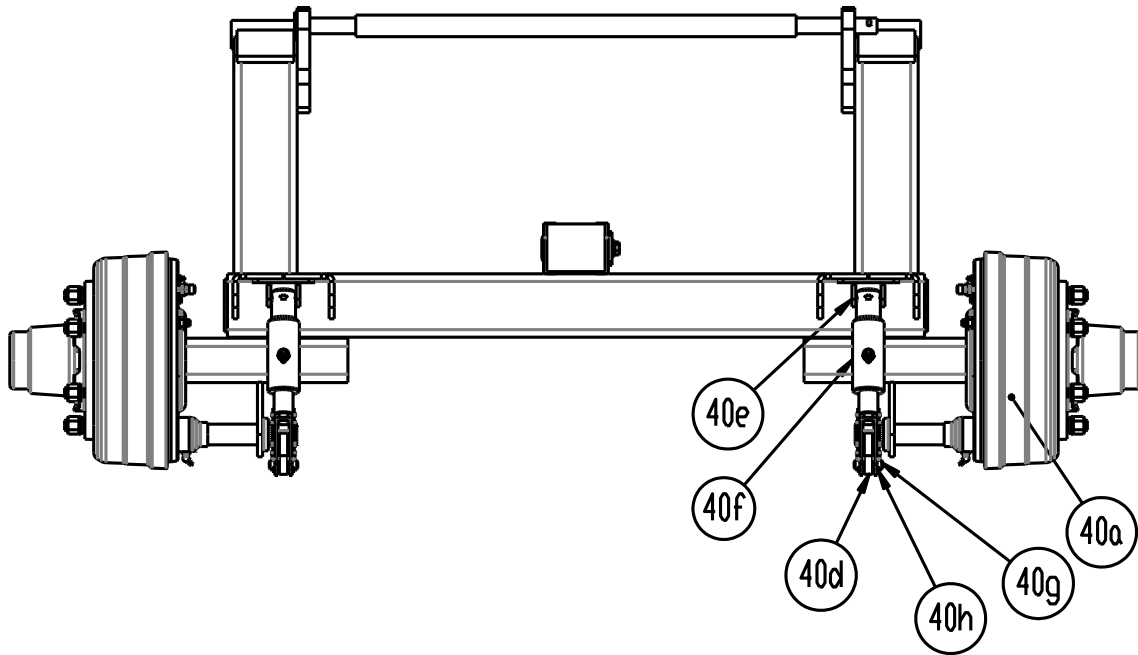
Pos.	Art. No.	Designation	10,2m	12,2m
14a	0235330	Look at page 18	1	1
14b	630532600	Look at page 18	1	1
19	0432510	Lubricating nipple, M8 x 1,25	2	2
28	690132046	Iron cotter pin, $\varnothing 6 \times 40$	1	1
30	630980700	Tube, $\varnothing 34 \times \varnothing 3,1$ for weight transfer	1	1
33	630980900	Locking shaft	1	1
35	630980610	Wheel frame without brakes	1	1
35a	690141110	Wheel hub, 6 / 160 / 205	2	2
35f	690141114	Wheel bolts, M18 x 1,5, l=49mm	12	12
35g	690141115	Wheel nuts, M18	12	12
38	630983400	Pin, $\varnothing 40$, l=105 mm	1	1
39	0396330	Wheel 400/60 x 15.5 16pr, Right	1	1
39	0396370	Wheel 400/60 x 15.5 16pr, Left	1	1

6.5 Wheel frame with brake (compressed air)



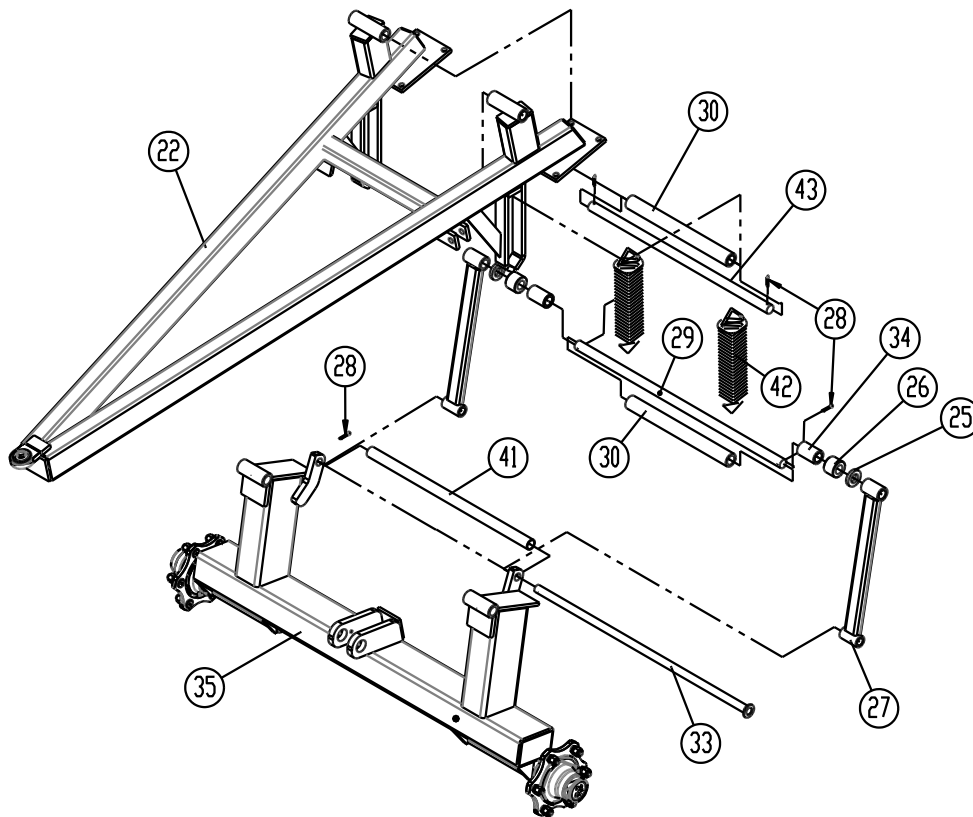
Pos.	Art. No.	Designation	10,2m	12,2m
40	30980700	Wheel frame with brake	1	1
40a	7297529	Wheel hub, w/brake TVZ (3700 kg)	2	2
40b	690190001	Compressed air brake (Wabco)	2	2
40c	690190010	Mounting set, short fork	2	2
40d	7297582	Brakingarm, TVZ	2	2

6.6 Wheel frame with hydraulic brake



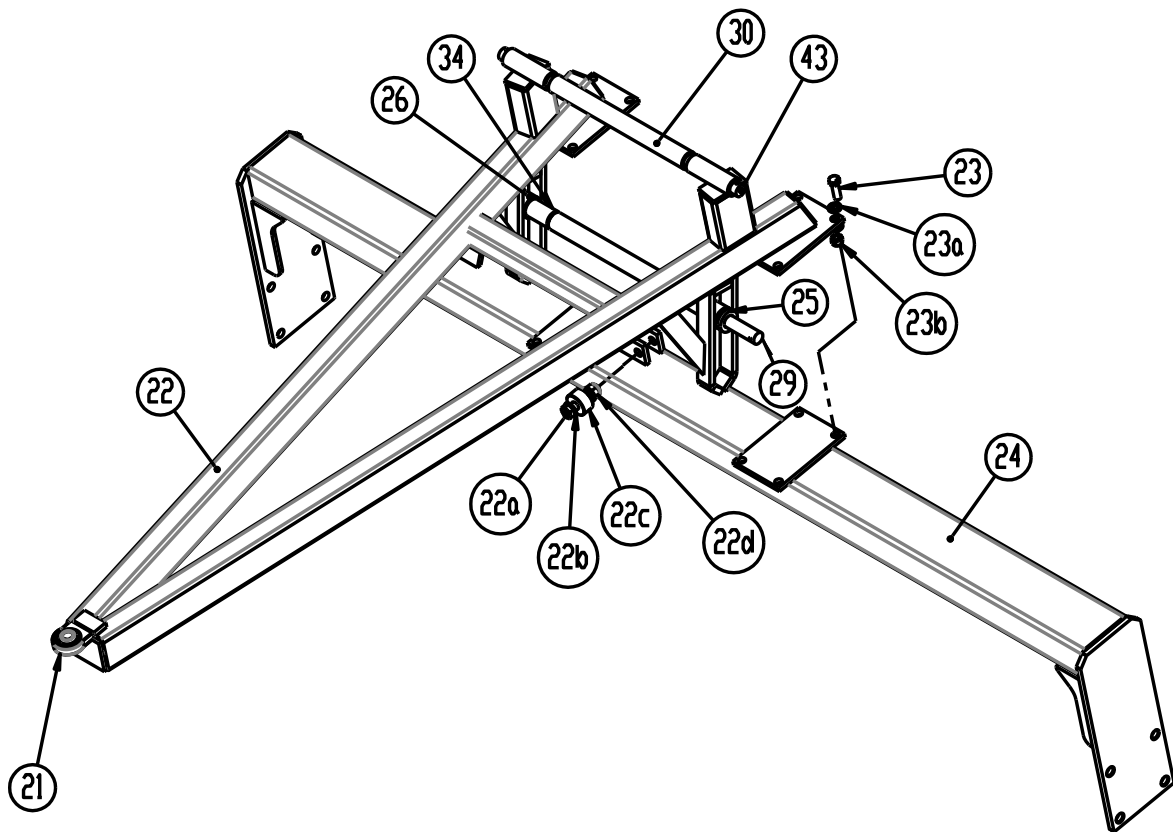
Pos.	Art. No.	Designation	10,2m	12,2m
40	30980700	Wheel frame with brake	1	1
40a	7297529	Wheel hub, w/brake TVZ (3700 kg)	2	2
40d	7297582	Brakingarm, TVZ	2	2
40e	7297519	Bracket for cylinder	2	2
40f	7345015	Brakingcylinder BR30SL	2	2
40g	690190010-002	Pin for mounting set, short fork	2	2
40h	690190010-003	Iron cotter pin $\varnothing 4 \times 40$ mm.	4	4

6.7 Weight transfer



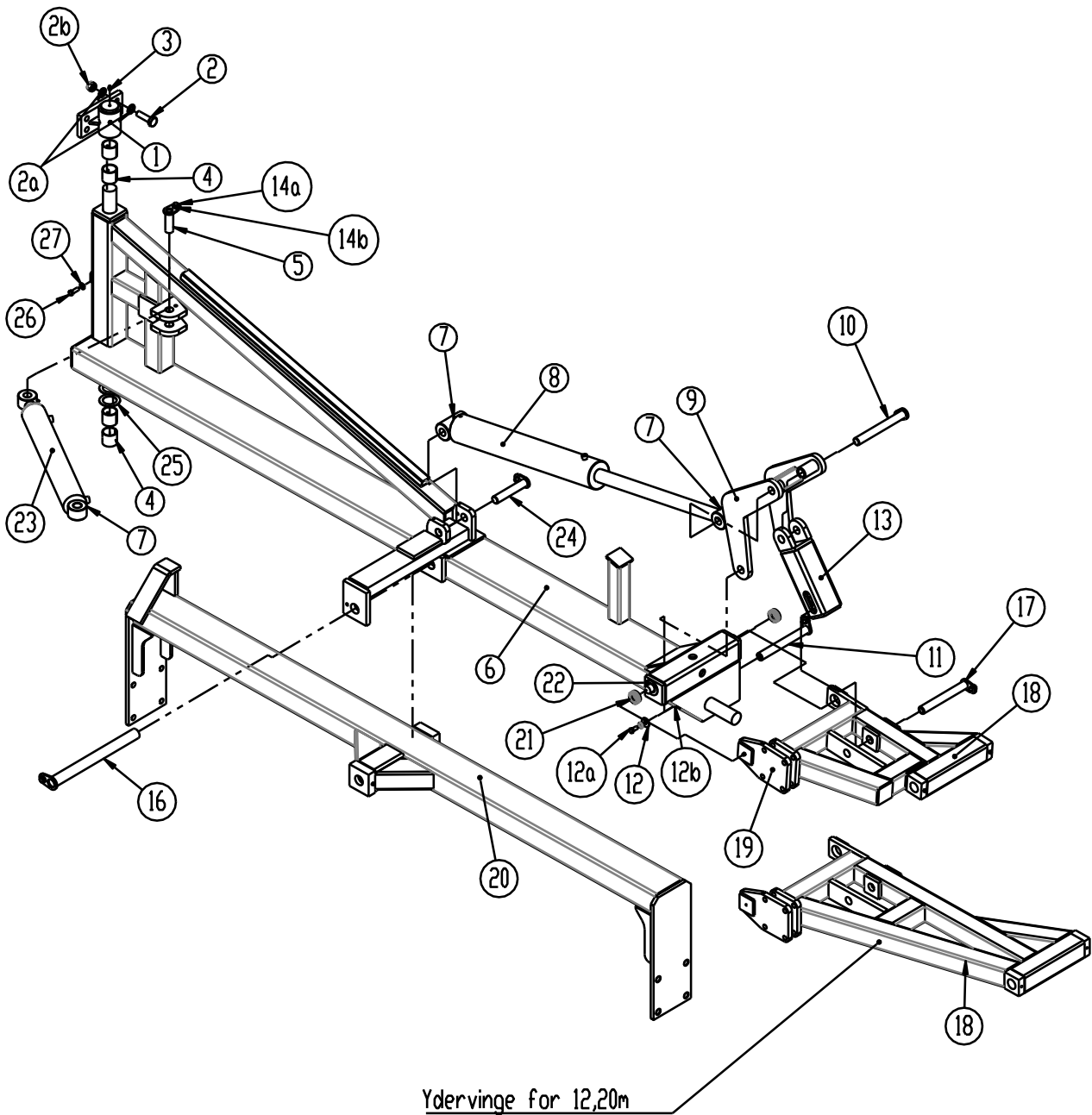
Pos.	Art. No.	Designation	10,2m	12,2m
22	630984501	Look at page 24	1	1
25	630981000	Plate, $\varnothing 31 / \varnothing 55$ L= 10mm	2	2
26	630984503	Track guide roller $\varnothing 54/\varnothing 30,5$ L=40	2	2
27	630980800	Connecting rod	2	2
28	690132046	Look at page 20	5	5
29	630981100	Pin, $\varnothing 30$ L=890 mm	1	1
30	1220213	Tube $\varnothing 31,9 / \varnothing 44,5$ L=435 mm ST52	2	2
33	630980900	Pin, $\varnothing 25$ L=915 mm	1	1
34	1220214	Tube $\varnothing 39,9/\varnothing 44,5$ L=70 mm	2	2
35	630980610	Look at page 20		
41	630980700	Tube $\varnothing 34 \times 3,1$ L=695 mm	1	1
42	0431670	Tension spring	2	2
43	1220219	Shaft, Compre. $\varnothing 30$ L= 775 mm	1	1

6.8 Triangel and centre link



Pos.	Art. No.	Designation	10,2m	12,2m
21	690302104	Ball joint for welding Ø25	1	1
22	630984501	Triangel with weight transfer	1	1
22a	690103151	Bolt M20x90 qual.8.8	2	2
22b	0272310	Facet washer, Ø20 DIN125B	4	4
22c	630984502	Side guide roller Ø56/Ø20,5 L=30	2	2
22d	0264110	Self-locking nut, M20	2	2
23	690103127	Bolt M16x50	8	8
23a	0272290	Facet washer Ø16 - DIN125B	16	16
23b	0264090	Self-locking nut M16	8	8
24	630981400	Centre link	1	1
25	630981000	Look at page 23	2	2
26	630984503	Look at page 23	2	2
29	630981100	Look at page 23	1	1
30	1220213	Look at page 23	2	2
34	1220214	Look at page 23	2	2
43	1220219	Look at page 23	1	1

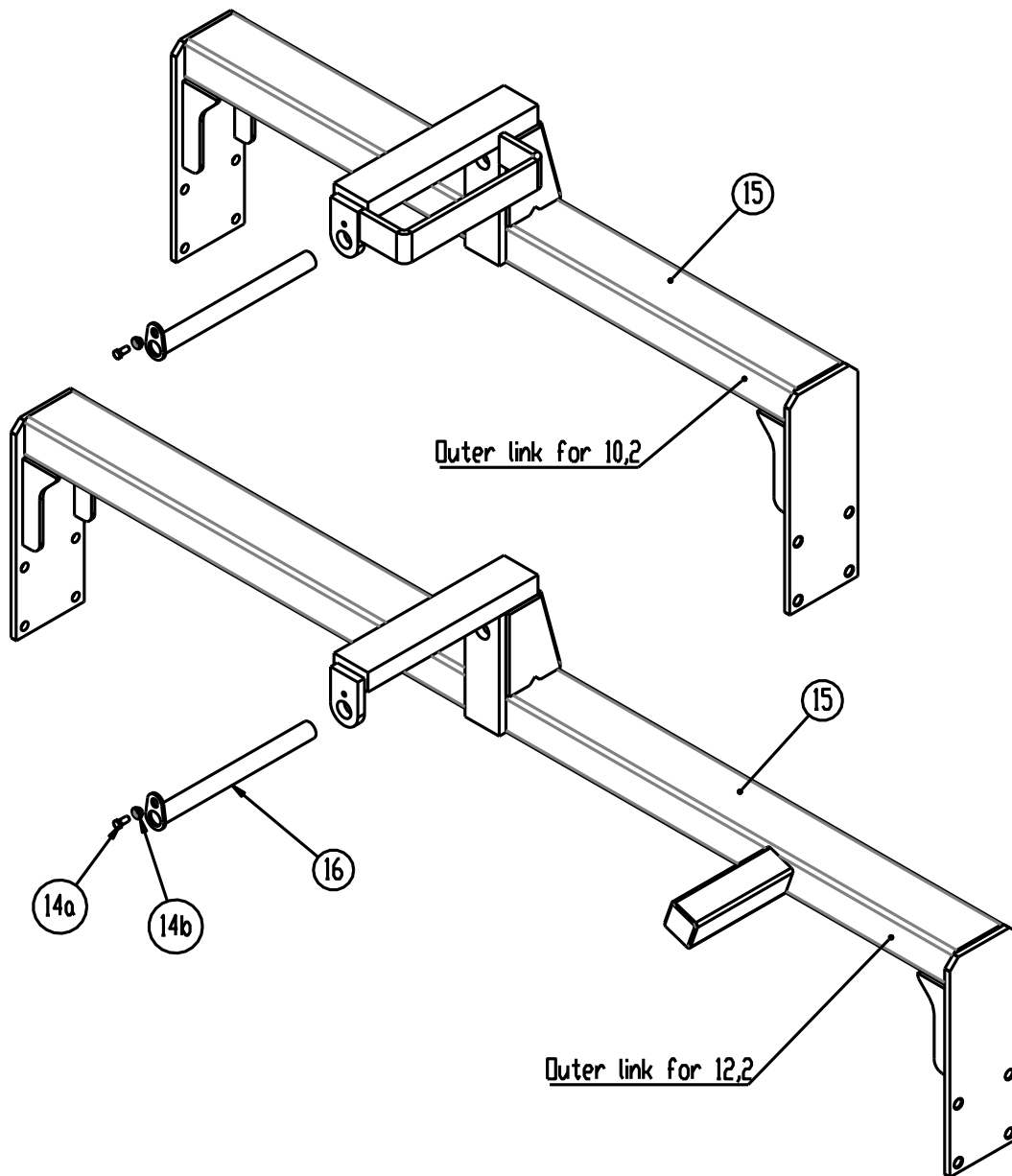
6.9 Inner wing, inner link, swing arm, spring link, outer wing



Pos.	Art. No.	Designation	10,2m	12,2m
1	630981500	End bracket for inner wing	2	2
2	0236150	Bolt, M20 x 70 qual. 8.8	8	8
2a	0272310	Faceted plate Ø20 DIN125B	16	16
2b	0264110	Self-locking nut, M20	8	8
3	0432500	Look at page 20 pos 19	18	18
4	690140710	Bearing bushing, $\phi 50/\phi 55$, l=50 mm	4	4

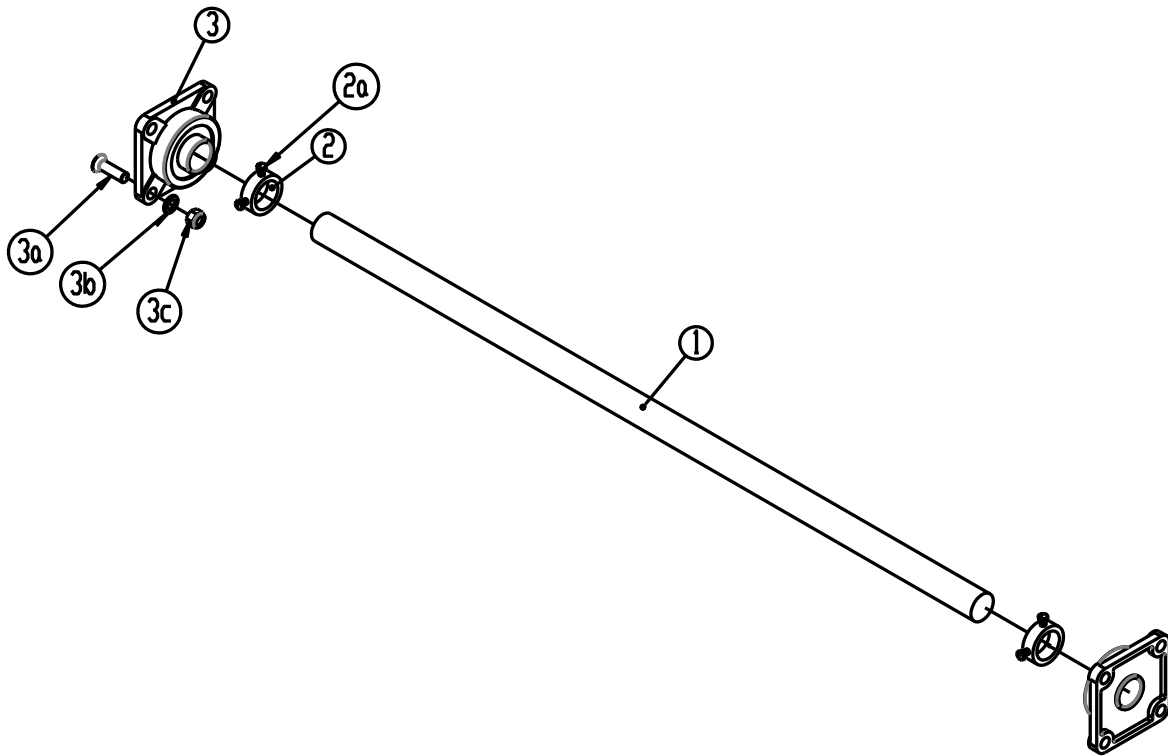
Pos.	Art. No.	Designation	10,2m	12,2m
5	69430090G	Pin, $\varnothing 30$, l=90	2	2
6	630984700	Innerwing, right for 12,2m		1
6	630984800	Innerwing, left for 12,2m		1
6	630971100	Innerwing, right for 10,2m	1	
6	630971200	Innerwing, left for 12,2m (shown)	1	
7	690136001	Lubricating nipple, $\varnothing 6$	8	8
8	690200110	Cylinder 100/50-600, $\varnothing 30 / \varnothing 30$	2	2
9	630982400	Swing arm for outerwing, right	1	1
9	630982300	Swing arm for outerwing,, left (shown)	1	1
10	630983900	Pin, $\varnothing 30$, l=252 mm	2	2
11	630983800	Pin, $\varnothing 30$, l=252 mm, thread at the end	2	2
12	690120007	Plate, $\varnothing 13 / \varnothing 37$, t=3 mm	2	2
12a	0235330	Set screw, M12 x 25	2	2
12b	690119006	Spring washer, $\varnothing 12$	2	2
13	630984600	Spring link	2	2
14a	0235330	Look at page 18	6	6
14b	630532600	Look at page 18	6	6
16	69440450G	Pin, $\varnothing 40$ L=450mm	2	2
17	630984000	Pin, $\varnothing 30$ L=235mm	2	2
18	630970400	Outer wing, right for 10,2m	1	
18	630970300	Outer wing, left for 10,2, (shown)	1	
18	630982700	Outer wing, right for 12,2m		1
18	630982600	Outer wing, left for 12,2m (shown)		1
19	630982601	Bearing fittings for outer wing	4	4
20	630982000	Inner link, left, $\varnothing 60$ shaft	1	1
20	630982200	Inner link, right, $\varnothing 60$ shaft	1	1
21	690140761	Link bearing GE30ES	4	4
22	690140713	Sliding plate, $\varnothing 38/\varnothing 62 \times 2$	4	4
23	690200050	Cylinder 80x40x500	2	2
24	630983500	Pin $\varnothing 30$ L= 160mm	2	2
25	690140712	Sliding plate, $\varnothing 52/\varnothing 78 \times 2$	4	4
26	0235350	Set screw, M12x35 qual. 8.8	2	2
27	0272270	Faceted plate 12mm, DIN 125B	2	2

6.10 Outer link



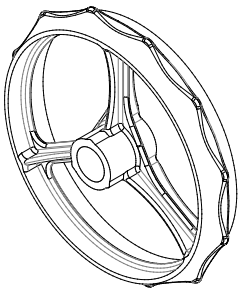
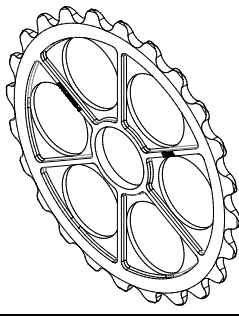
Pos.	Art. No.	Designation	10,2m	12,2m
14a	0235330	Look at page 18	2	2
14b	630532600	Look at page 18	2	2
15	630970600	Outer link, Left, for 10,2 with Ø60 shaft (shown)	1	
15	630970800	Outer link, Right, for 10,2 with Ø60 shaft	1	
15	630983000	Outer link, Left for 12,2 with Ø60 shaft (shown)		1
15	630983200	Outer link, Right for 12,2 with Ø60 shaft		1
16	69440450G	Look at page 26	2	2

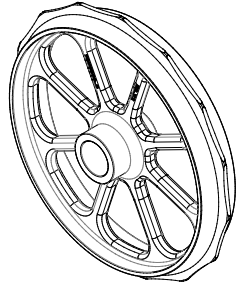
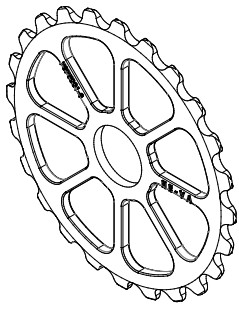
6.11 Shaft and bearings

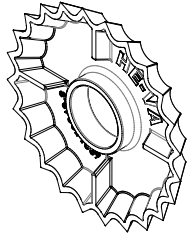
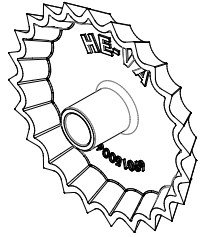



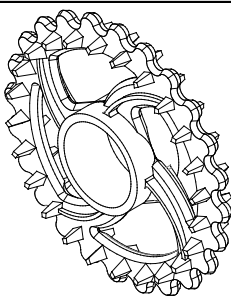
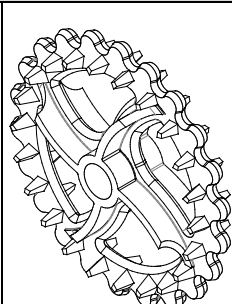

Pos.	Art No.	Description	10,2m	12,2m
1	678641770	Shaft L= 1770mm Ø60 (ST70)	2	0
1	678642720	Shaft L= 2720mm Ø60 (ST70)	3	5
2	630651200	Stop ring with 2x M10 bolts - for Ø60 shaft L=27	10	10
2a	0235040	Bolt M10x25 8.8	20	20
3	0478971	Bearing UCF 312 (Ø60)	10	10
3a	0229250	Submerged hexagon M20x70 UH DIN 7991	40	40
3b	0272310	Faceted plate Ø20 DIN125B	40	40
3c	0264110	Self-locking nut, M20	40	40

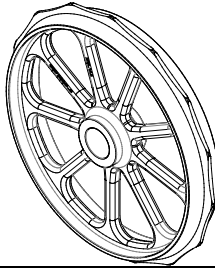
7. Roller rings

Cambridge rings Ø510 mm with 3 spokes		Description	Quality	Part no.
		Pos. 3 Hub 104 mm	GG25	690150030
		Pos. 3 Hub 104 mm	GGG50	690150088
		Pos. 3 Hub 80 mm	GGG50	690150087
		Pos. 4		690150032
Pos. 3 510 mm Lenient (3 spokes)	Pos. 4 510 mm Breaker			

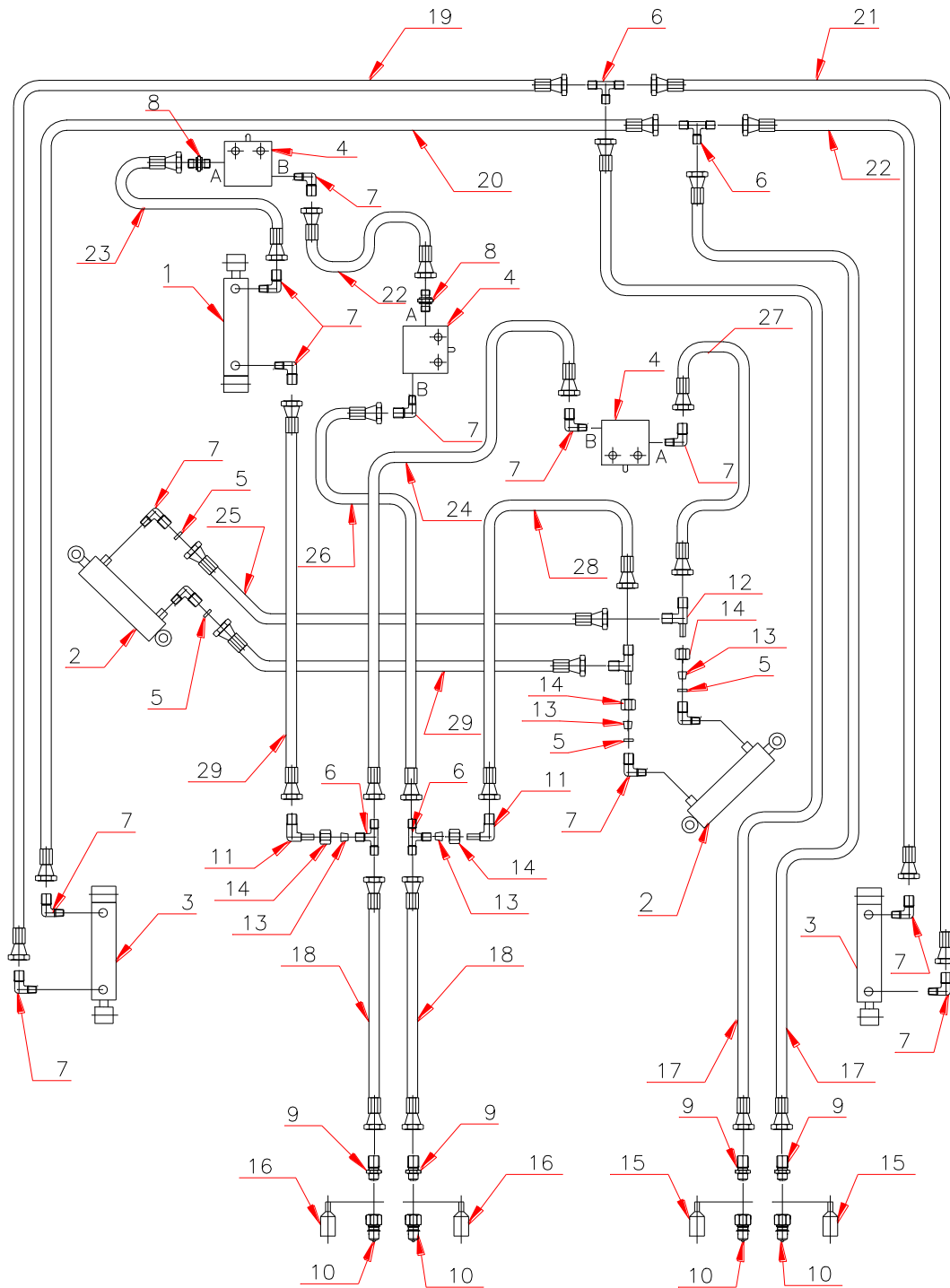
Cambridge rings Ø510 mm with 8 spokes		Description	Quality	Part no.
		Pos. 8 Hub 104 mm	GG25	7375003
		Pos. 8 Hub 104 mm	GGG50	7375010
		Pos. 8 Hub 80 mm	GG25	7375004
		Pos. 8 Hub 80 mm	GGG50	7375008
		Pos. 9	GG25	7375001
		Pos. 9	GGG50	7375013
Pos. 8 510 mm Lenient (8 spokes)	Pos. 9 510 mm Breaker (8 eger)			

Star ring Ø450/Ø500 mm			Description	Quality	Part no.
			Pos. 17 Ø500/Ø135	GGG50	690150063
			Pos. 18 Ø485	GGG50	690150064
			Pos. 19 Mountingplate		690150112
Pos. 17 500 mm	Pos. 18 485 mm	Pos. 19 235 mm			

Crosskill 485/530 mm – 550/600 mm			Description	Quality	Part no.
			Pos. 22 530 mm	GG25	690150011
			Pos. 23 485 mm	GG25	690150034
			Pos. 22 600 mm	GG25	690150075
			Pos. 23 550 mm	GG25	690150074
			Pos. 24 Hub Ø104		690150076
Pos. 22 Loose Crosskill	Pos. 23 Fixed Crosskill	Pos. 24 Hub			

2D Rings		Description	Quality	Part no.
		Pos. 15 Ø500	GG25	7375004
		Pos. 15 Ø510	GGG50	7375008
Pos. 15 2D rings (8-9-10 spokes)				

8. Hydraulics



Attention:

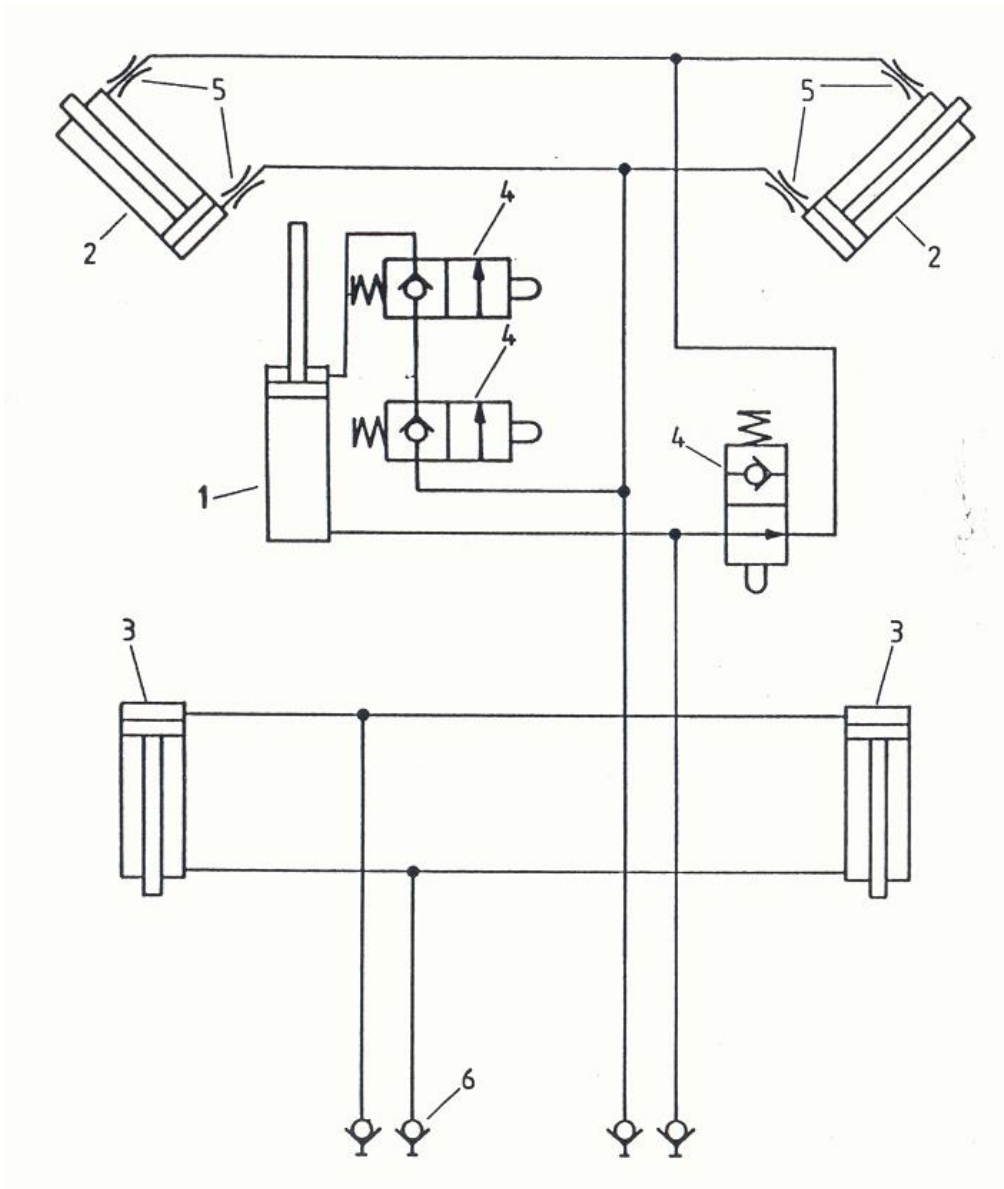
The number of hoses and hose lengths can vary – dependent on the machine type, therefore check measurements and number before ordering the spare parts.

Pos.	Part no.	Description	Stk.
1	690200113	Cylinder for wheel frame, 100/50 x 600, $\phi 40/\phi 40$	2
2	690200050	Cylinder for inner wing, 80/40 x 500, $\phi 30/\phi 30$	2
3	690200110	Cylinder for outer wing, 100/50 x 600, $\phi 30/\phi 30$	2
4	690207101	End stop valve, FC 10	3
5	690207901	Throttle valve, 1 mm	4
6	690203015	T-header, T10L without DM	4
7	690203006	Angle screwing in, VA10 LK 3/8 without DM	14
8	690203002	Straight screwing in, GA10 LK 3/8 without DM	2
9	690203003	Straight screwing in; GA10 LR 2 without DM	4
10	690203001	Quick coupling, male, Sterling type E402	4
11	690203009	Adjustable angle, SV10L without DM	2
12	690203016	Adjustable L-screwed conn., SL10L, without DM	2
13	690203010	Cutting ring, $\phi 10$	4
14	690203011	Screwed cap, $\phi 10$	4
15	690210001	Dust cap, C51, blue	2
16	690210002	Dust cap, C51, red	2
17	690201028	Hydraulic hose 1/4", l=6700 mm	2
18	690201026	Hydraulic hose 1/4", l=5670 mm	2
19	690201023	Hydraulic hose 1/4", l=3750 mm	1
20	690201022	Hydraulic hose 1/4", l=3140 mm	1
21	690201060	Hydraulic hose 1/4", l=3000 mm	1
22	690201021	Hydraulic hose 1/4", l=2300 mm	2
23	690201013	Hydraulic hose 1/4", l=1770 mm	1
24	690201016	Hydraulic hose 1/4", l=1830 mm	1
25	690201019	Hydraulic hose 1/4", l=1500 mm	1
26	690201018	Hydraulic hose 1/4", l=1460 mm	1
27	690201032	Hydraulic hose 1/4", l=1130 mm	1
28	690201014	Hydraulic hose 1/4", l=400 mm	1
29	690201009	Hydraulic hose 1/4", l=370 mm	2

Attention:

The number of hoses and hose lengths can vary – dependent on the machine type, therefore check measurements and number before ordering the spare parts.

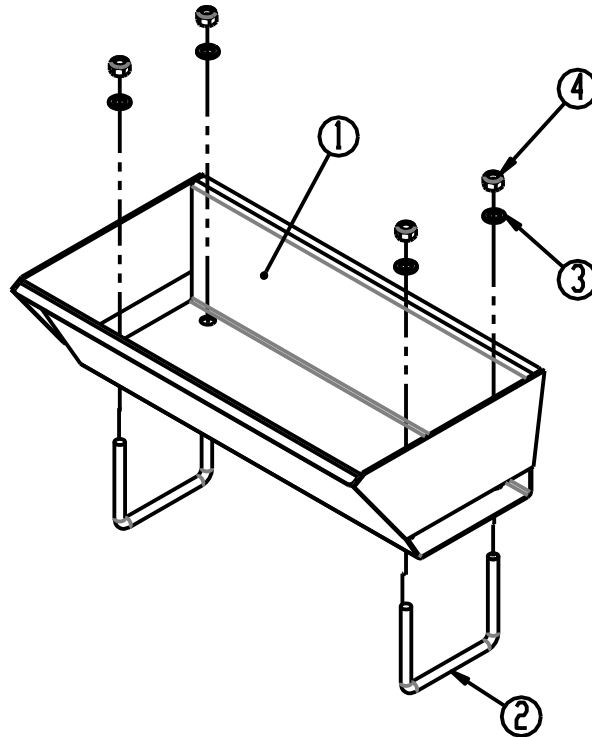
8.1 Hydraulic Diagram



Pos.	Part No.	Description	Qty.
1	690200113	Cylinder for wheel frame, 100/50 x 600, $\phi 40/\phi 40$	1
2	690200050	Cylinder for inner wing, 80/40 x 500, $\phi 30/\phi 30$	2
3	690200110	Cylinder for outer wing, 100/50 x 600, $\phi 30/\phi 30$	2
4	690207101	End stop valve, FC 10	3
5	690207901	Throttle valve, 1 mm	4
6	690203001	Quick coupling, male, Sterling type E402	4

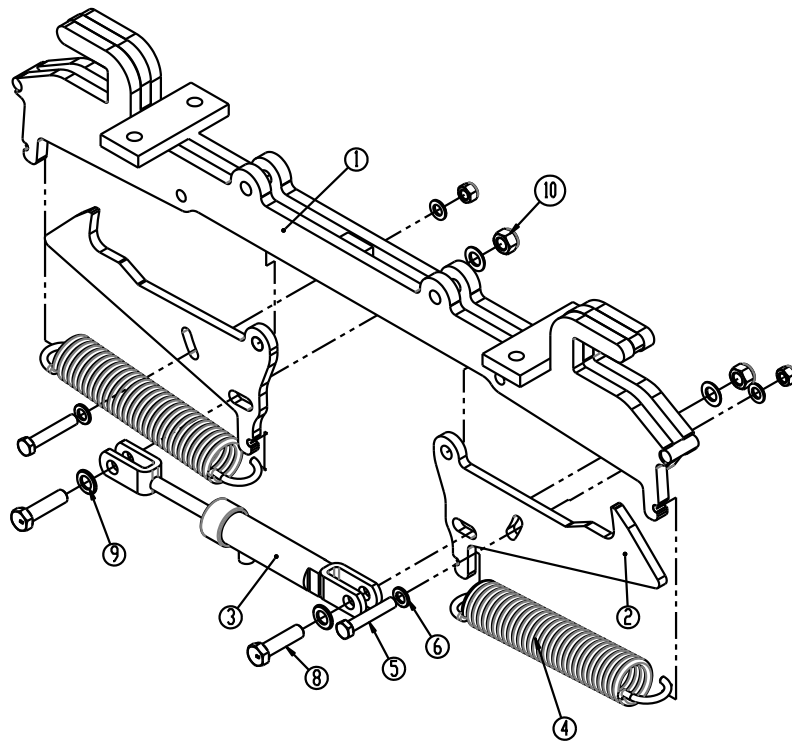
9. Extra equipment

9.1 Stone box set



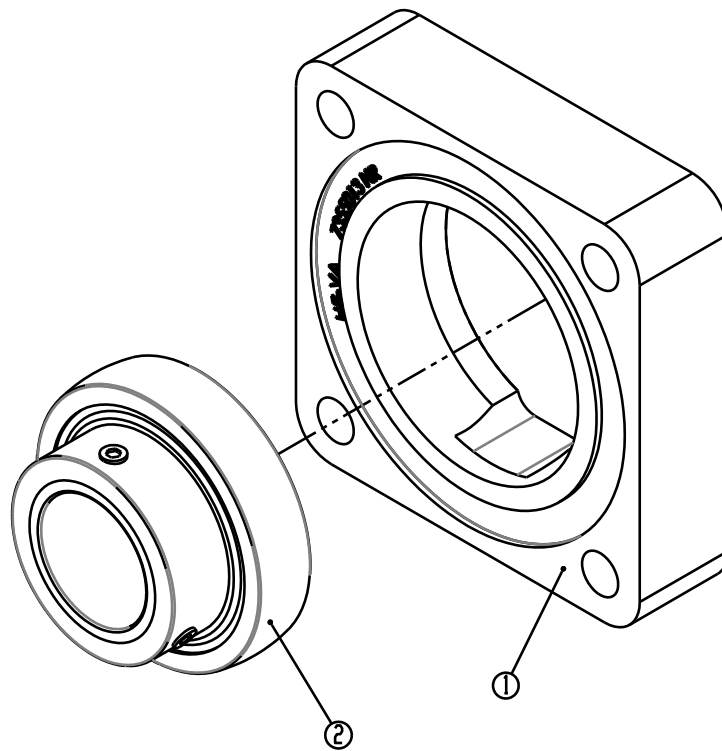
Pos.	Part.no.	Description	10,2m	12,2m
1	630555001	Stone box set	2	2
2	0382800	U-bolt M16x100x150x100	4	4
3	0272290	Facet washer \varnothing 16 DIN125B	4	4
4	0264090	Self locking nut M16	4	4

9.2 Automatic protection of the wings during transport



Pos.	Part no.	Description	10,2m	12,2m
1	63098-05	Hydraulic locking system	1	1
2	1220156	Lock pawl	2	2
3	7315000	Adapted cylinder 40/20 x 99mm 2x1/4"	1	1
4	690139001	Spring for fasten	2	2
5	0235890	Bolt M16x90mm 8.8	2	2
6	0272290	Facet washer Ø16	4	4
7	0264090	Self locking nut M16	2	2
8	0236160	Bolt M20x75mm, 8.8	2	2
9	0272310	Facet washer Ø20	4	4
10	0264110	Self locking nut M20	2	2

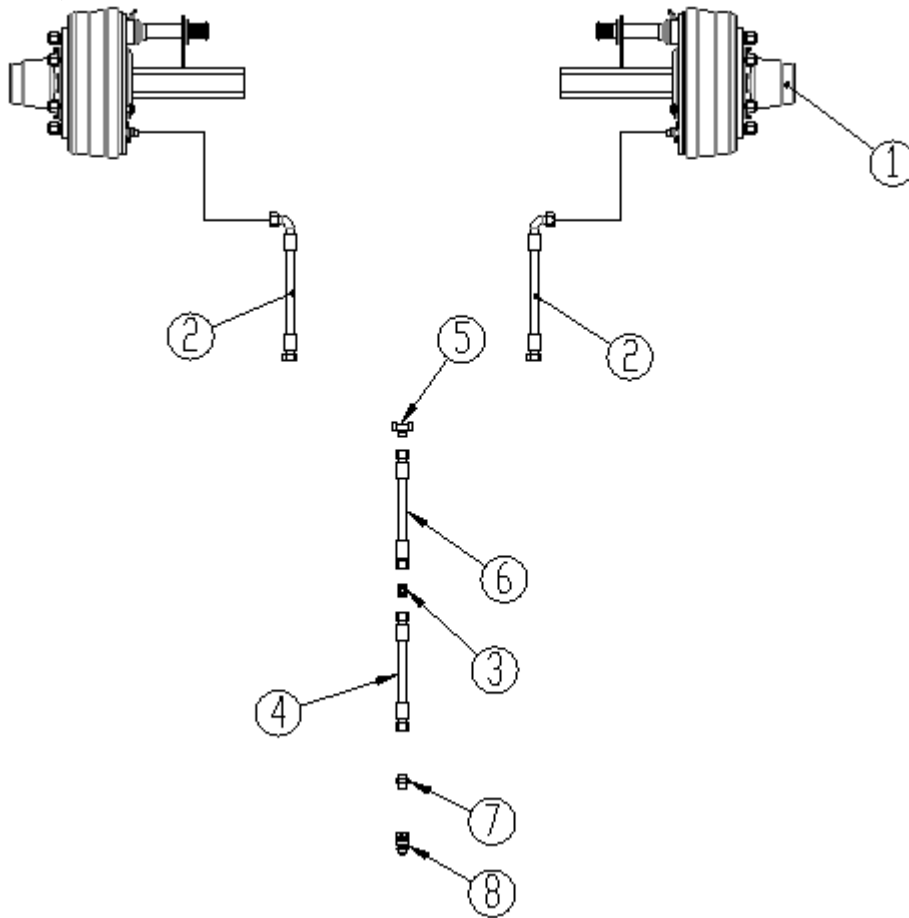
9.3 Rubber sealed/non-lubricant ball bearing



Pos.	Part No.	Description	10,2m	12,2m
1	7355013	Bearing house UCRSF 312 with cast PVC ring	10	10
2	690140116	Bearing UC 312 R6	10	10

10. Brakes

10.1 Hydraulic brakes

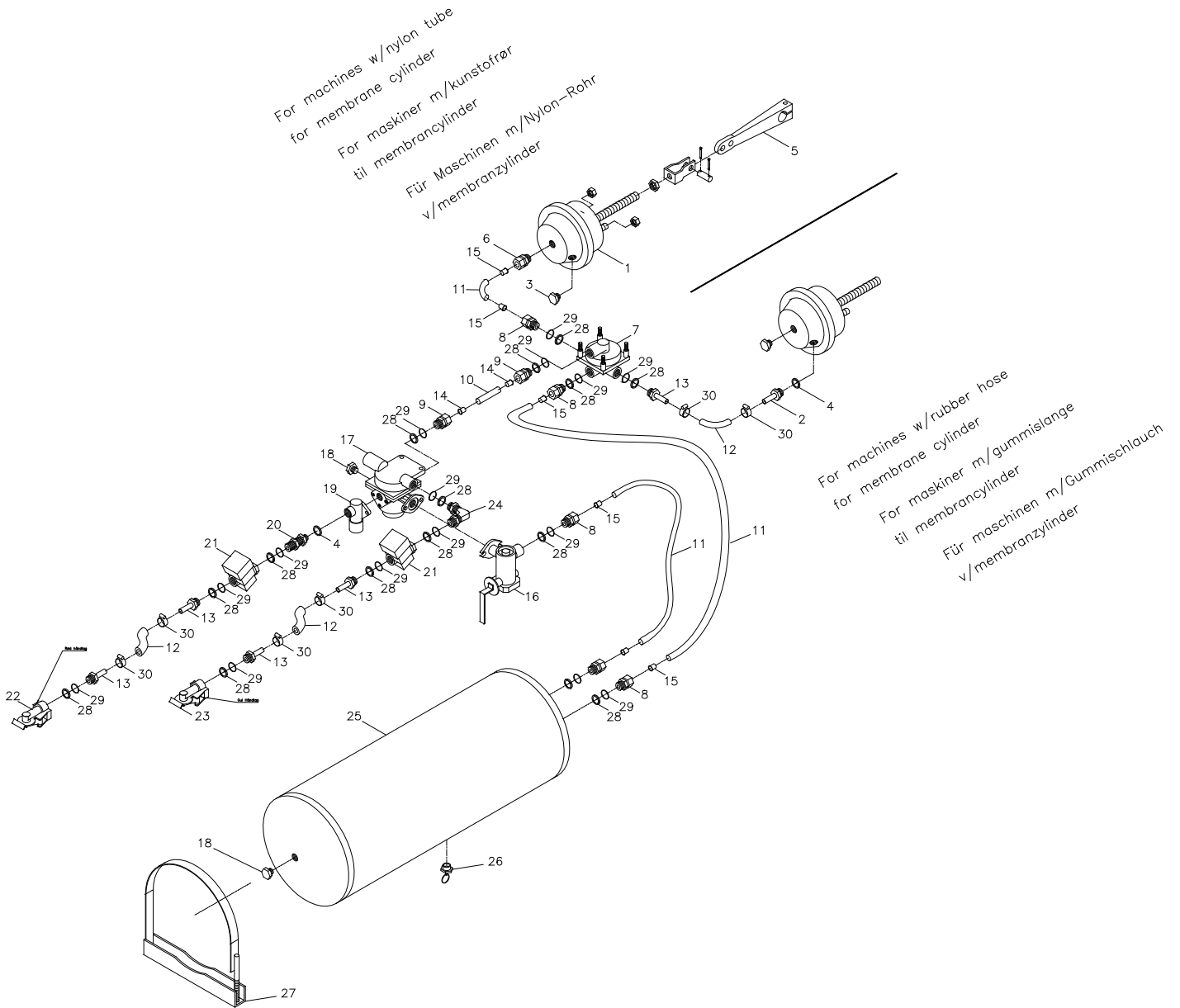


Pos.	Part No.	Description	10,2m	12,2m
1	7297529	Hub with brake 3700 kg TVZ	2	2
2	690201071	Hydraulic hose 500mm ¼" st/90	2	2
3	690203018	Fitting 10mm	1	2
4	690201015	Hydraulic hose 710mm ¼" st/st	1	2
5	690203015	Fitting T10	1	1
6	690201043	Hydraulic hose 6340mm ¼" st/st	1	1
7	690203003	Fitting, straight 10-1/2" BSP	1	1
8	690203001	Quick coupling, male E402 ½"	1	1

Attention:

The number of hoses and hose lengths can vary – dependent on the machine type, therefore check measurements and number before ordering the spare parts.

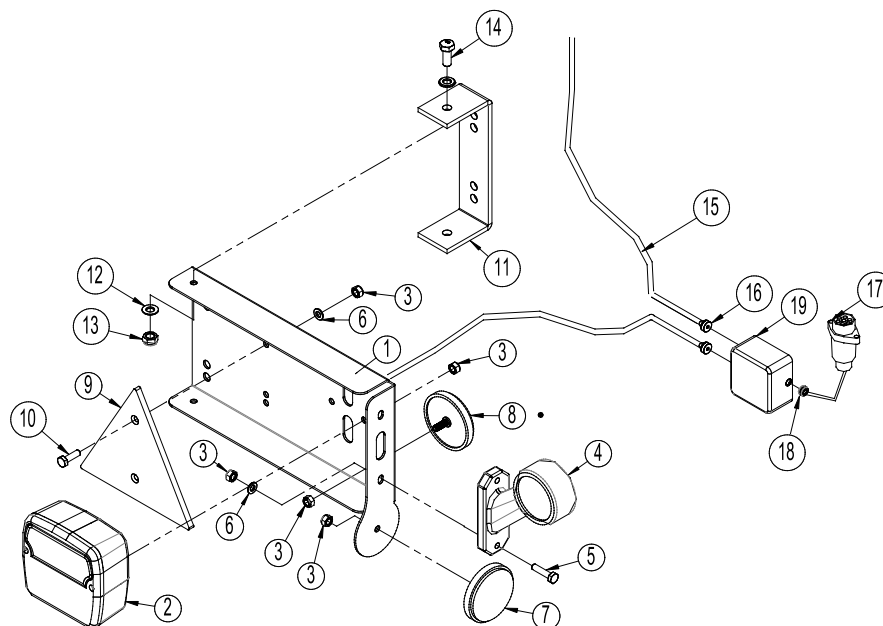
10.2 Compressed air brakes



Pos.	Art. No.	Description	10,2m	12,2m
1	690190001	Membrancylinder 16"	2	2
2	690190070	Hose fitting M16x1,5 m/ Ø12 fitting	0	2
3	690190005	Test fitting, straight M16x1,5	2	2
4	690208102	Bonded seal PP 45-12	1	3
5	690190010	Mounting set, short U-bracket	2	2
6	690202930	Fitting, straight, lige M16x1,5, Ø15 hose	2	0
7	690190015	Relay valve M22x1,5	1	1
8	690202941	Fitting, straight M22x1,5, Ø15 hose	6	4
9	690202940	Fitting, straight M22x1,5, Ø10 hose	2	2
10	690190080	Nylon tube Ø10x1mm	1	1
11	690190085	Nylon tube Ø15x1,5mm	4	2
12	690190105	Hose Ø14,5x5mm	2	4
13	690190073	Hose fitting M22x1,5, m/Ø12 fitting	4	6
14	690190090	Support bushing for tube Ø10x1,5mm	2	2
15	690190095	Support bushing for tube Ø15x1,5mm	8	4
16	690190020	Brake power regulator M22x1,5	1	1
17	690190025	Trailer air brake valve M22x1,5	1	1
18	690190026	Plug	2	2
19	690190035	Relief valve	1	1
20	690203420	Fitting, straight M16x1,5+M22x1,5	1	1
21	690190040	Filter M22x1,5	2	2
22	690190045	Hose coupling M22x1,5 (red)	1	1
23	690190046	Hose coupling M22x1,5 (yellow)	1	1
24	690190030	V-Fitting M22x1,5	1	1
25	690190050	Air receiver 40ltr	1	1
26	690190051	Drainage valve	1	1
27	690190052	Suspension for air receiver	2	2
28	690190060	Pressure ring M22x1,5	15	15
29	690190065	O-ring M22x1,5	15	15
30	690109305	Clamp 15-24 mm	4	8

11. LED - light

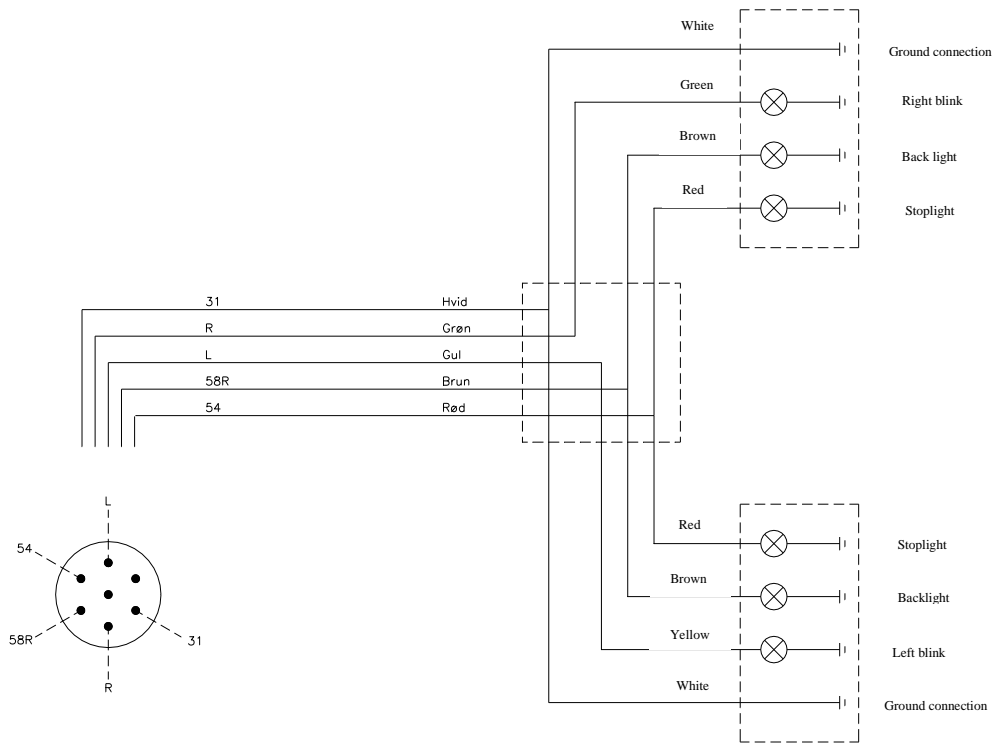
Led – Light set



Pos.	Varenr.	Betegnelse	Antal
1	7357505	Lightbox (L)	1
	7357508	Lightbox (R)	1
2	7357504	Rear lights	2
3	0264030	Locking nut M5	16
4	7357507	Marking light (L)	1
	7357509	Marking light (R)	1
5	0234340	Bolt M5x25	4
6	0272240	Facet washer Ø5	8
7	0656240	Reflex, yellow	2
8	0656250	Reflex, white	2
9	0521030	Reflex, red	2
10	0233860	Bolt M5x20	4
11	7357516	Bracket	2
12	0234330	Facet washer Ø6	16
13	0264040	Locking nut M6	8
14	0234330	Bolt M6x20	4
15	690160080	Cabel 5 x 1mm ² (inform about lenght by ordering sparepart)	
16	7357545	Rutaseal nippel M20 8-12mm Grey RAL7001	2
17	690160070	Plug 7 poles DIN 72 577-ISO 1724	1
18	7357546	Rubberbushing Nr. 38A Ø10/3 black	1
19	0520492	Junction box 105x105x60	1

Note: Check number and measurements of all cables before ordering the spare parts.

Lighting set: Electric Diagram



Notes

as it looks
As good as it looks
As good as it looks
As good as it looks
As good as it looks



The design is subject to modification without notice.