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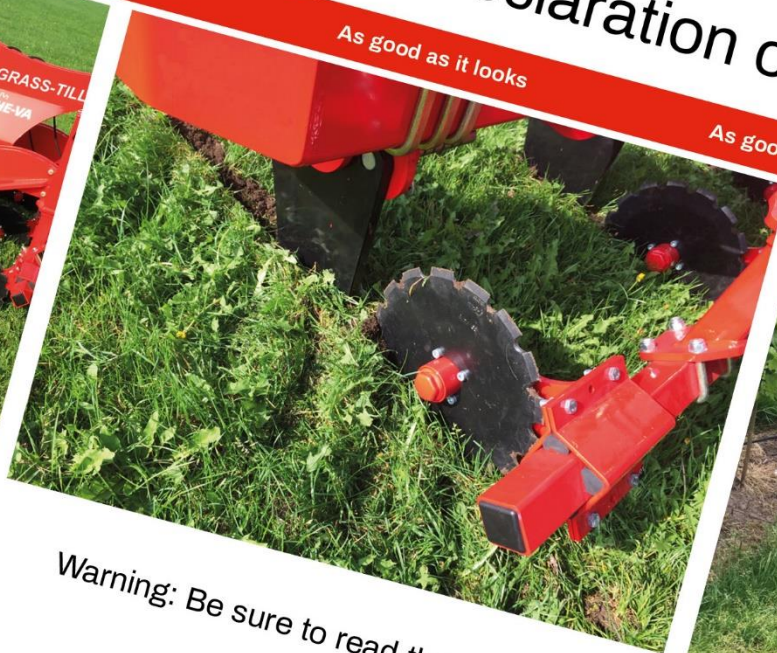
HE-VA

Operating Instructions
Spare Parts List
Declaration of Conformity

as it looks



As good as it looks



As good as it looks

As good as it looks



As good as it looks

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

Grass-Tiller

Rigid models: 2,50 - 3,00 - 3,50 m

 **HE-VA**

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EC DECLARATION OF CONFORMITY

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

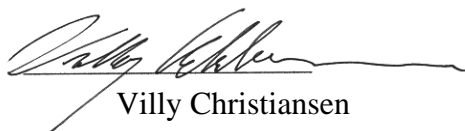
HE-VA ApS
N. A. Christensensvej 34,
DK-7900 Nykøbing Mors

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

The declaration comprises the following machine:

Grass-Tiller 1,8m - 2,5m – 3,0m – 3,5m

Nykøbing, April 1st 2015

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

Villy Christiansen

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

Delivery check

Upon delivery to the dealer/supplier as well as to the customer, check the Grass-Tiller for possible damages.

Machine Description

Range of Application

Grass-Tiller is a sub-soiler, especially suited for perennial grasslands. Grass-Tiller effectively loosens the structural damages caused by heavy machinery during cutting or slurry work. A serrated disc placed in front of each tine slices through the grass, allowing the tine to loosen the soil down to a depth of 60 cm.

Grass-Tiller is available with the Ø450/500 mm Star roller (synchronous or full width mounting) and with the Ø550 mm Square tube roller. The packer roller acts as depth control, for a uniform packing of grasslands. With infinitely variable tine adjustment, the spacing of the tines can be easily suited for all working conditions. Grass-Tiller applies to all soil types.

Grass-Tiller can be equipped with the HE-VA Multi-Seeder, allowing for till-seeding rape, grass or cover crops.

Grass-Tiller is mounted in the tractor's three-point suspension, and the hydraulic depth control via the packer roller is controlled by the hydraulic system of the tractor. In order to achieve optimum control you should be aware of the tractor wheel type. Under certain circumstances, a mounting of twin wheels is recommendable.

Technical specifications

Working width	Type of stone protection	No. of tines	Transport width m	Power requirement HP	Max HP	Weight kg		
						Star roller Ø450/500 (synchronously)	Star roller Ø450/500 (full width)	Square tube roller Ø550 mm
1,80 m rigid	Shear bolt	2	1,80	80-90	250	-	-	-
		3	1,80	120-130	250	-	-	-
	Quick-Push shear bolt	2	1,80	80-90	250	-	-	-
		3	1,80	120-130	250	-	-	-
	Hydr. auto release system	2	1,80	80-90	250	-	-	-
		3	1,80	120-130	250	-	-	-
2,50 m rigid	Shear bolt	3	2,50	90-120	250	1.425	1.840	1.270
	Quick-Push shear bolt	3	2,50	90-120	250	1.435	1.850	1.280
	Hydr. auto release system	3	2,50	90-120	250	1.485	1.900	1.330
3,00 m rigid	Shear bolt	3	3,00	90-120	250	1.465	2.050	1.340
		4	3,00	110-160	250	1.670	2.135	1.425
	Quick-Push shear bolt	3	3,00	90-120	250	1.475	2.060	1.350
		4	3,00	110-160	250	1.680	2.135	1.435
	Hydr. auto release system	3	3,00	90-120	250	1.565	2.150	1.440
		4	3,00	110-160	250	1.820	2.285	1.575
3,50 m rigid	Shear bolt	5	3,50	130-200	250	1.940	2.450	1.610
	Quick-Push shear bolt	5	3,50	130-200	250	1.960	2.470	1.630
	Hydr. auto release system	5	3,50	130-200	250	2.080	2.590	1.750

Grass-Tiller complies with DS/ISO 11001-1, three-point suspension.

Safety instructions for Grass-Tiller

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 staying in exposed positions during the operation.

* Person in exposed position: Any person who is staying wholly or partly within a hazardous area.

** Hazardous area: On and under the machine within a distance of 4 m 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 should 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.

ATTENTION !! Rotary parts and loose clothes are a dangerous combination.

IMPORTANT !! In connection with the risk of parts falling down, it may endanger the lives of persons staying on the base frame of the machine, when it is operated attached to a tractor.

Safety and Instructions on Hydraulics

1. The maximum working pressure is 225 bar.
2. It is advisable to label the attachment parts at hydraulic connections between the tractor and the tool in order to eliminate incorrect operation!
3. When checking for hydraulic leaks, use suitable safety wear (eye protectors, gloves, etc.)
High-pressure hydraulic oil may penetrate the skin and cause dangerous injuries.
In case of injury, consult a doctor immediately. **RISK OF INFECTION!**
4. Before operating the hydraulics, lower the machine to firm ground.
Relieve the hydraulics, stop the motor and remove the ignition key.
5. Check the hydraulic hoses on a regular basis, however, every six months as a minimum due to any cracks, wear and tear, etc. Replace any defective hoses immediately.

The life of hydraulic hoses is maximum 5 years.

New hydraulic hoses must meet the manufacturer's requirements.

Transport on public roads

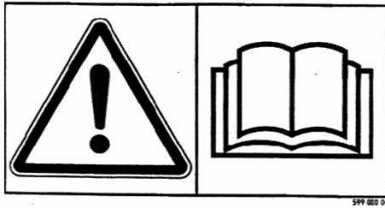
Check before transport on public roads that the attachment of the machine at the tractor is in accordance with the local rules and regulations in force (permitted total weight, permitted axle load, transport width, lights, warning signs, etc.).

Front axle load

After the attachment of the machine and at maximum load, the driving properties of the tractor must be ensured. 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.

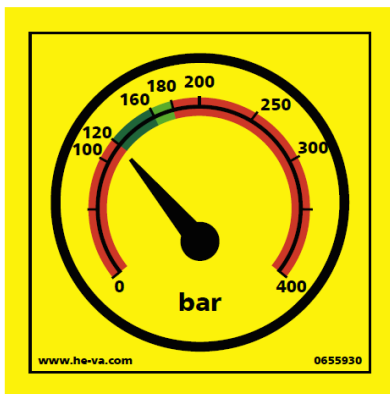
Labels on the machine



Study the Operating Instructions thoroughly before any operation of the machine and observe all safety instructions.



Plate with number and year of manufacture.



Correct hydraulic pressure on the release system.

Hydraulic systems.

Yellow: Hydraulic stone release system



Tighten up all bolts regularly. If this is not performed, our guarantee obligations will no longer apply.

Start-up of the machine

General information

The machine requires 1 double acting outlet.

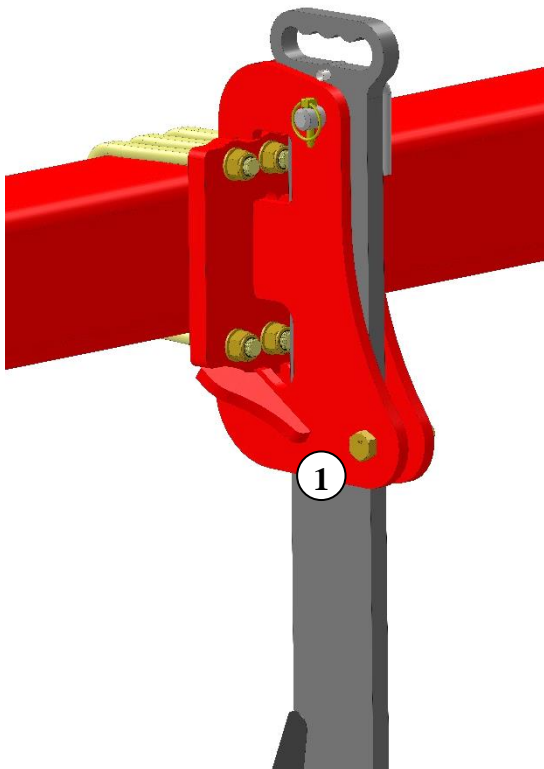
Attachment and uncoupling

1. Under normal circumstances, attach the tractor in the lowest lifting points of the machine both as regards the lifting arms and the top link.
2. When the machine is to be parked and uncoupled from the tractor, it is important, that the roller is placed in the lowest position, so that the machine is placed stably.
3. When uncoupling, relieve the tractor's oil outlet, and the machine's quick couplings can be uncoupled without pressure.

Settings and adjustment

Stone protection

Shear bolt



When the shear bolt has broken, and the tine has been released, the bolt must be replaced (Pos 1)

Use only original

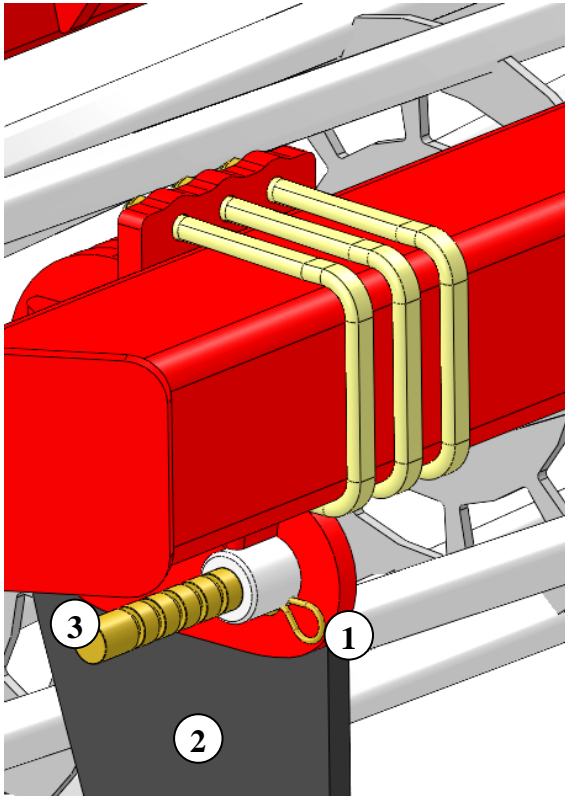


 **HE-VA** shear bolts

If this is not observed, the machine may be damaged, and our guarantee obligations will no longer apply.

Quick-Push shear bolt

When the shear bolt is broken and the tine has been released, place the shear bolt one notch forward before the machine can operate again.



Pull out the R-clip (Pos. 1).

Pull the tine back to normal working position (Pos. 2).

Push the shear bolt (Pos. 3) **one** notch forward to a new position in the tine. Do not push the bolt totally through (it may be necessary to remove soil etc. from the hole in the tine).

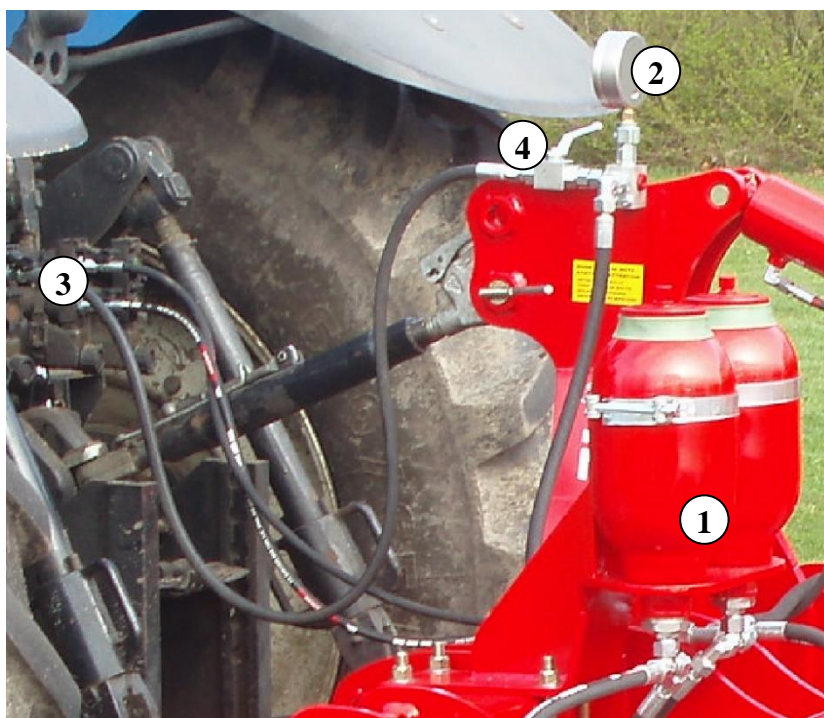
⚠ Important: It is not recommended to be under the machine while the shear bolt is being moved or replaced.

Push back the R-clip (Pos. 1), so that it locks the shear bolt in place, and the machine is ready for operation.

When the shear bolt is broken for the 8th time, it is used up. Note that the shear bolt must **never** be shorter than 65 mm.

When a new shear bolt is mounted it is important that it is placed correctly. The 40 mm end (Pos. 3) must turn away from the tine.

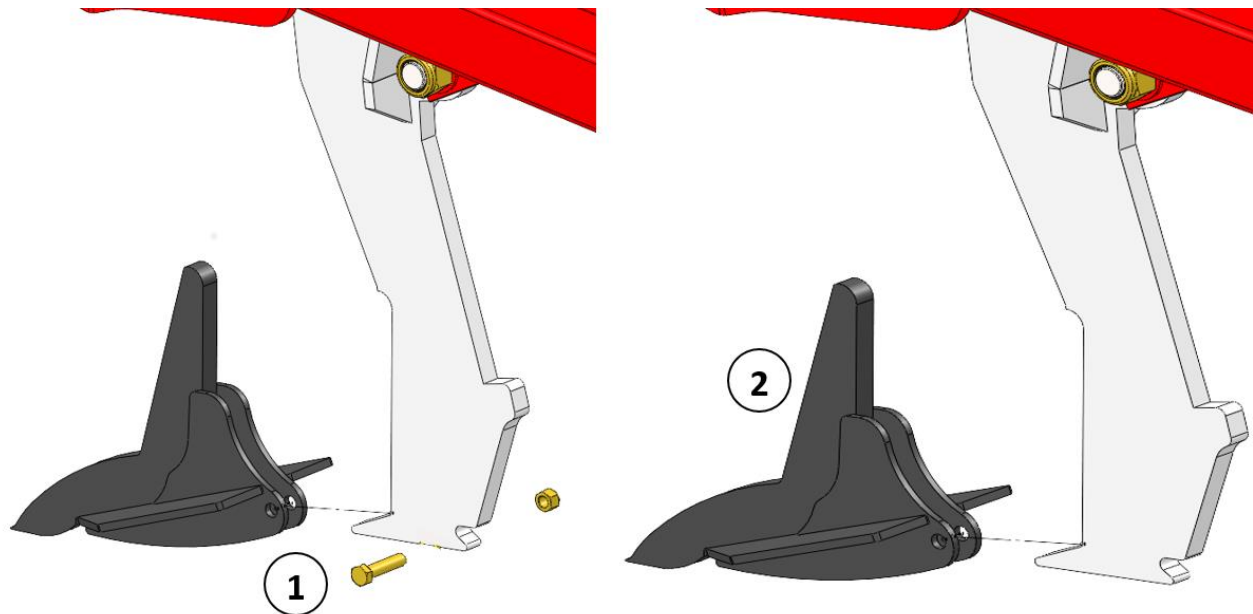
Hydraulic auto-release system



1. Before each season, check that the gas pressure of the accumulators (Pos.1) is at 110 bar.
⚠ This requires special tools and can only be performed by an authorized dealer.
2. Before start-up of the machine, check the hydraulic pressure in the closed hydraulic stone protection system on the machine's pressure gauge (Pos. 2). The pressure should be **minimum 120 bar** (from machine no 35314) and must not exceed 160 bar.
3. **IMPORTANT** – check the hydraulic pressure continuously, to ensure that it stays above 120 bar.
4. If there is a need to adjust the working pressure, follow these instructions:
 - a. Mount the quick coupling of the hydraulic hose (Pos. 3) in the tractor oil outlet.
 - b. Turn on the ball valve (Pos. 4), and the working pressure can now be adjusted up or down with the tractor's oil outlet.
 - c. When the desired pressure is achieved, turn the ball valve off again (Pos. 4), and the tractor's hydraulic system is relieved before the quick coupling (Pos. 3) is dismantled and placed in the parking device of the machine.
5. During operation of the machine, the tine swings automatically to the rear if it meets an obstacle. In normal circumstances, the tine will automatically return to working position again after having passed the obstacle. At extreme obstacles and/or soil conditions, it might be necessary to stop and eventually lift the machine from the soil.


It is important that no persons are near to the machine, as the tine returns to working position at high speed and might throw soil and stones.

Replacement of wearing point



Before working with the wearing points, the machine must be secured. This can be performed by placing trestles under the main frame or by supporting the roller.

The wearing point might fall off when the shear bolt is removed - risk of foot or leg injury!

1. Dismount bolt (Pos. 1) by means of 2 pcs. spanners.
2.  The wearing point might fall off, when the shear bolt is removed – risk of foot or leg injury.
3. Dismount the wearing point by pushing it forward. This might be difficult due to entrance of soil, and it might be a good idea to use a hammer.
4. Check the bolt for any damages and replace if required. **Reorder the original bolt by replacing. It is a special bolt that secure that the wings isn't tightened**
5. Mount the bolt (Pos. 1), lubricate and tighten it to 20 Nm.
Be careful not to tighten the bolt too much, as it might damage the wearing point!

Maintenance

- After 10 hours of operation, retighten the machine.
Check hydraulic hoses, fittings and cylinders for leaks and retighten. See table below.
- Furthermore, check on a regular basis that all bolts are tightened.

Maximum torque in Nm. w/lubricated thread			
Metric thread	Quality 8.8	Quality 10.9	Quality 12.9
M12x1,75	81	114	136
M14x2,0	128	181	217
M16x2,0	197	277	333
M18x2,5	275	386	463
M20x2,5	385	541	649
M22x2,5	518	728	874
M24x3,0	665	935	1120
Wheel bolt M18x1,5 fine thread		433 Nm	
Wheel bolt M22x1,5 fine thread		803 Nm	

Lubrication

Typically, the lubrication points are located by the spring release, by the roller bearings, by the cylinders and the wing sections hinges.

The machine must be lubricated after 10 working hours as well as after cleaning in order to press out any water and dirt.

For lubrication, maintenance and repair, lower the Grass-Tiller, activate the tractor brakes, and stop the motor.

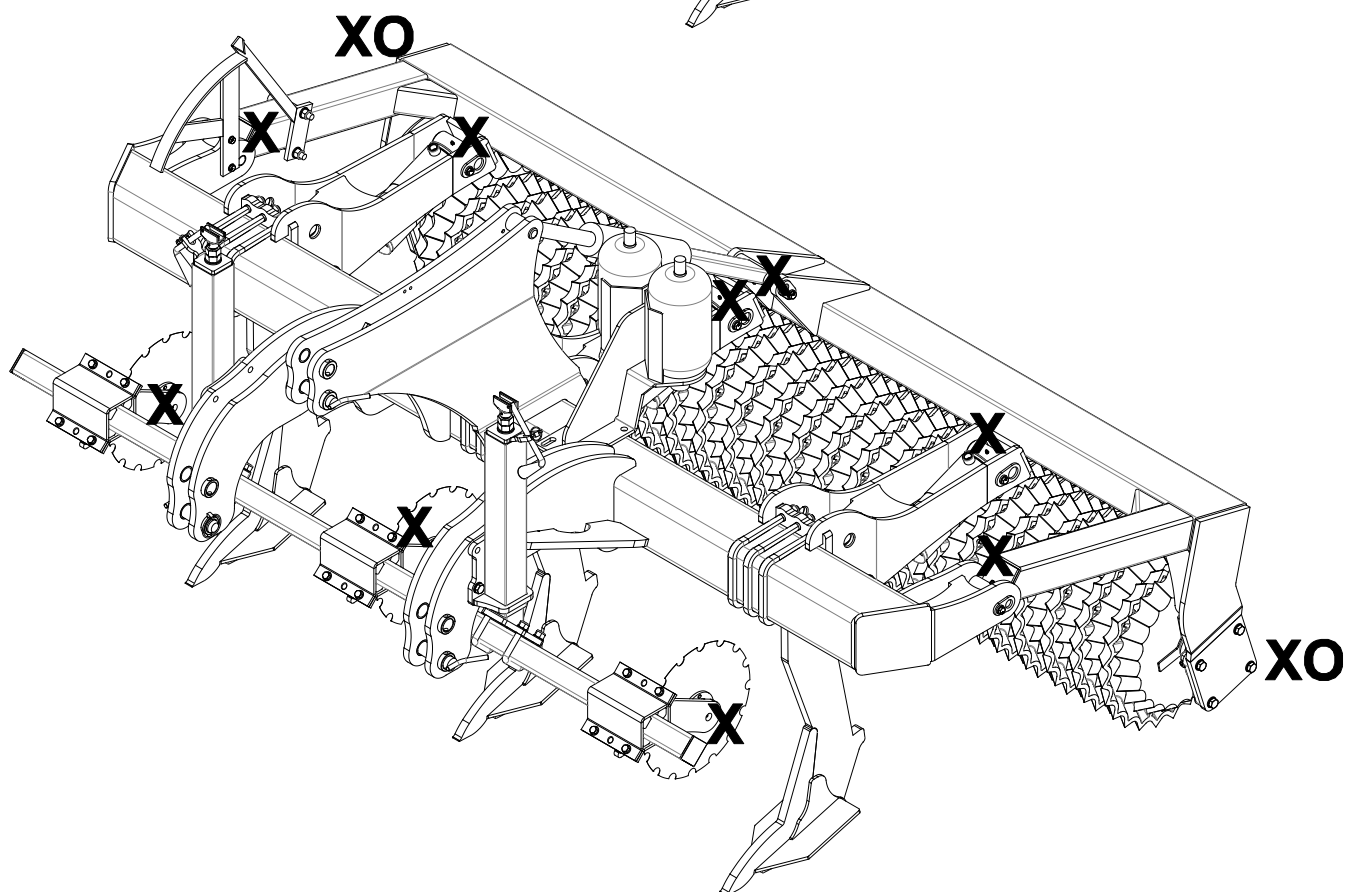
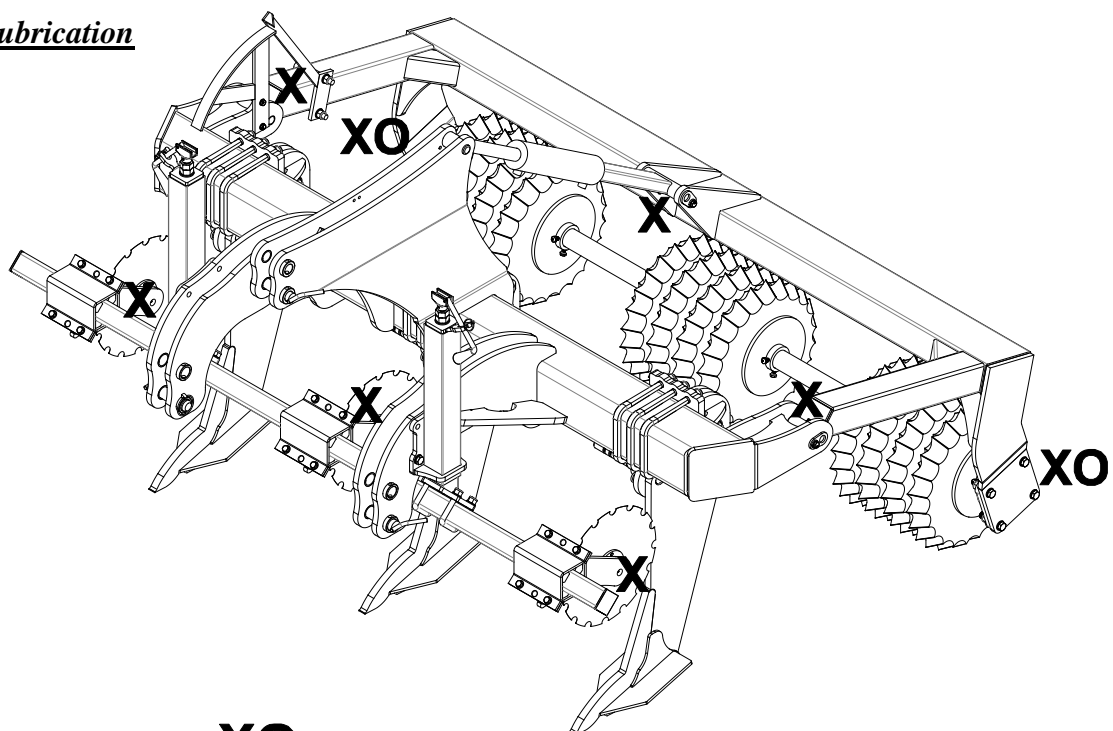
Note! XO

The double-sealed ball bearings in the roller should only be lubricated every 20 working hours and by 1-2 strokes so that the sealing rings are not pressed out.

Important:

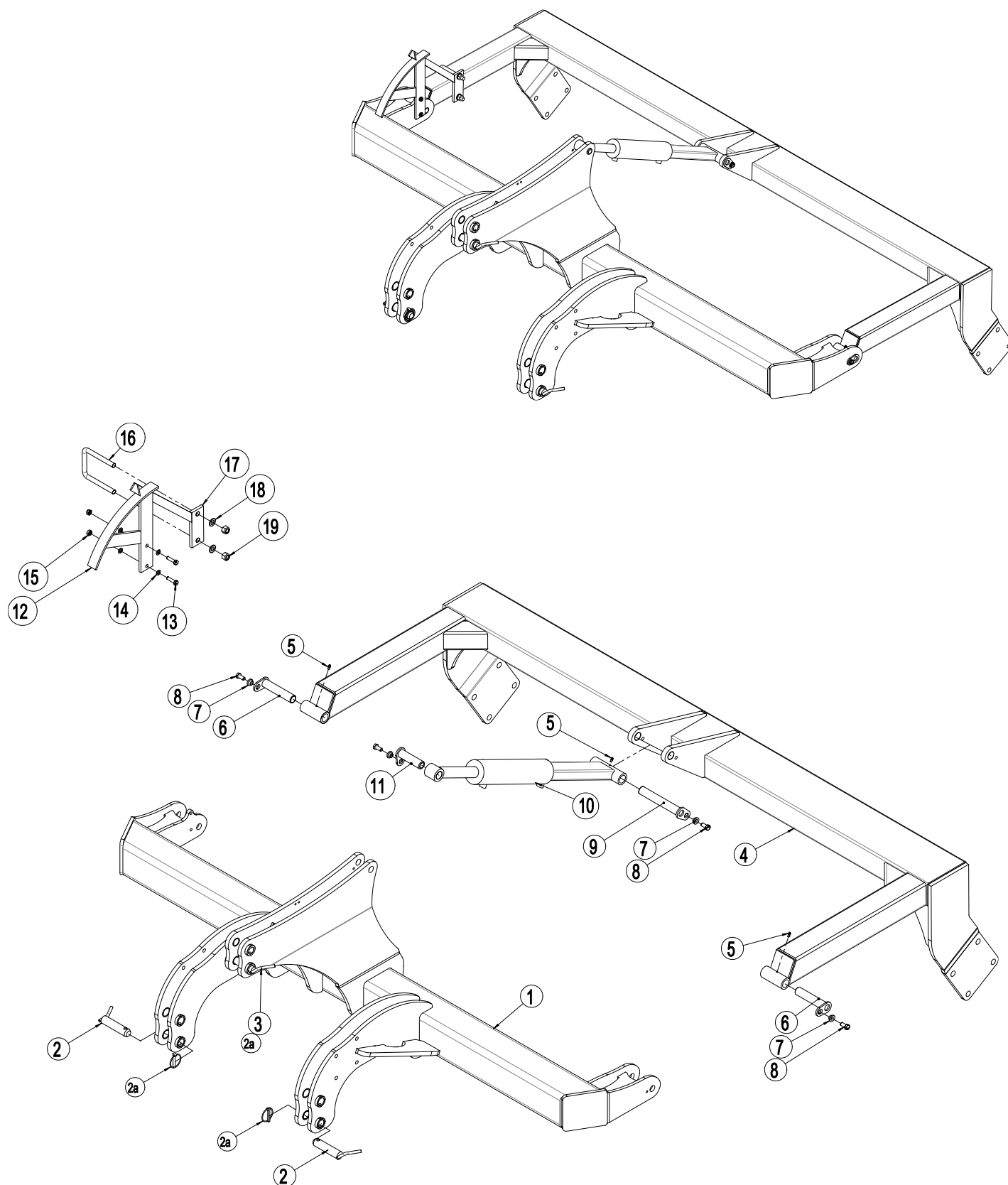
The hydraulic system is filled with oil type Hydro Texaco HD32

Points of lubrication



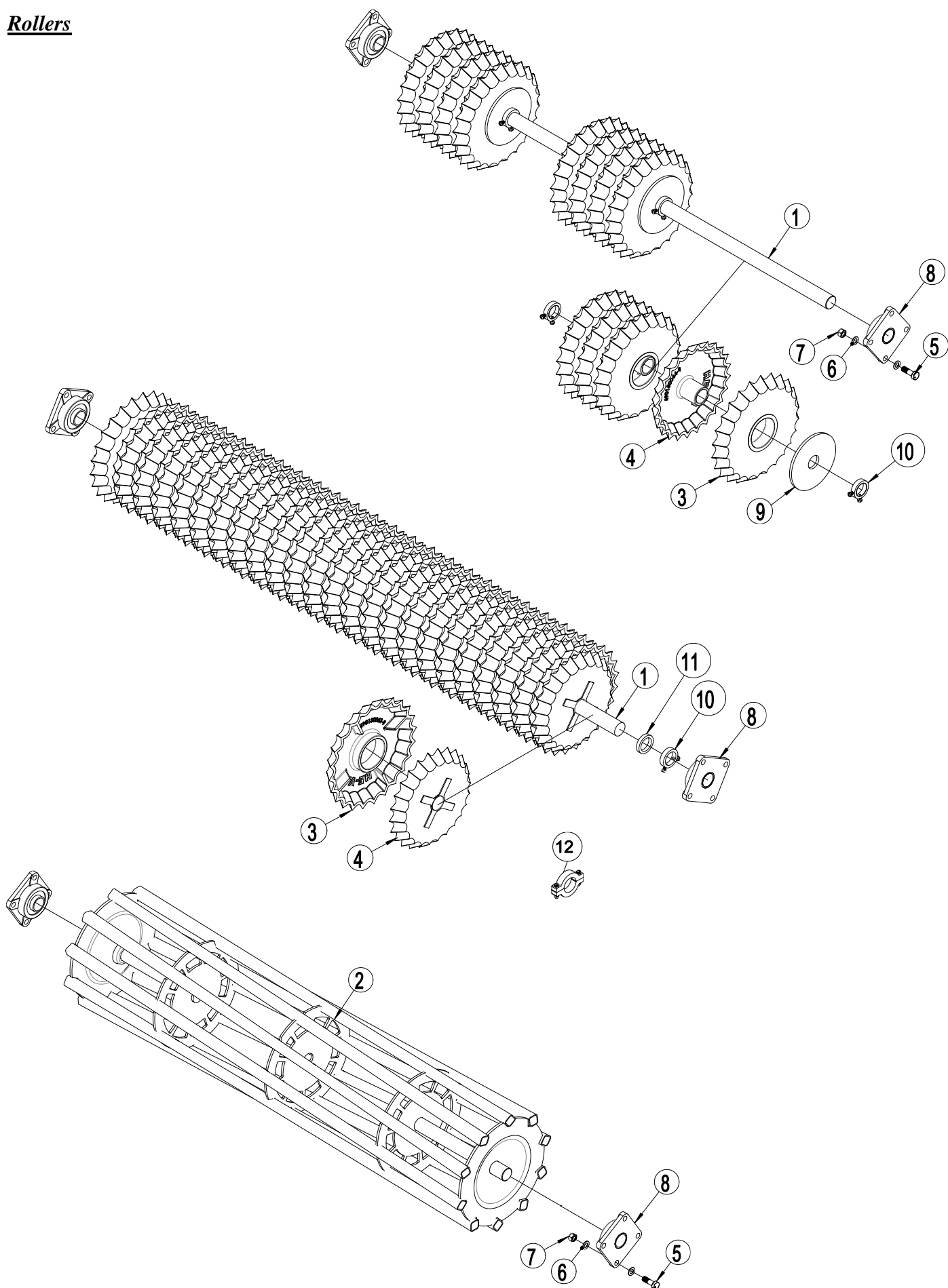
Spare parts list

Frame 1,8 - 2,5 - 3,0 - 3,5 m



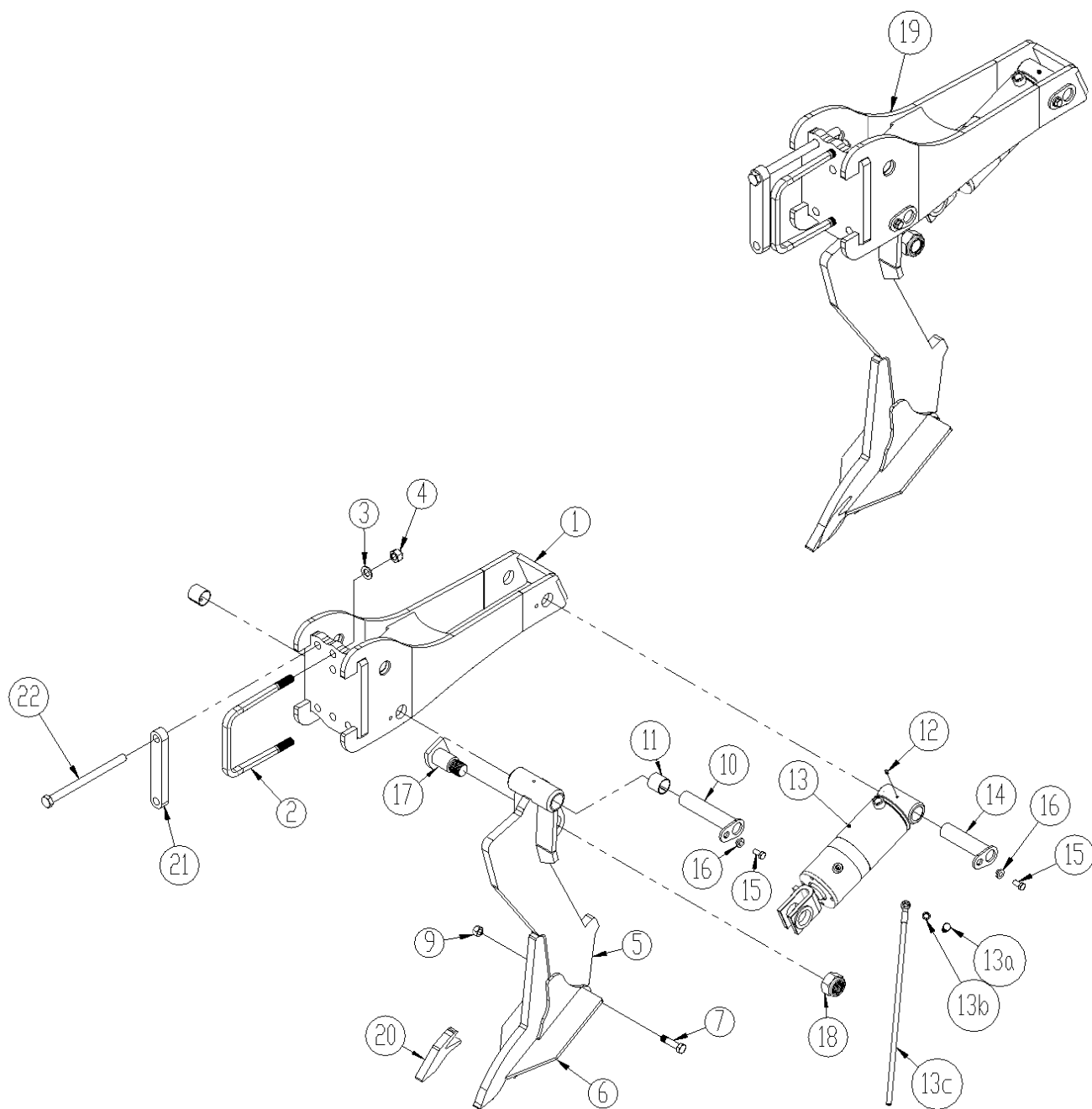
Pos.	Item no.	Designation	1,8m	2,5 m	3,0 m	3,5 m
1	1280004	Frame 1,8 m	1			
1	645440028	Frame 2,5 m		1		
1	645440010	Frame 3,0 m			1	
1	645440030	Frame 3,5 m				1
2	69519220C	Pin Ø19/Ø25 L=220 Cat I/II	2			
2	69537129B	Pin for top link Cat. III Ø37 L=129 w/handle and cotter slot		2	2	2
2a	690134008	Ring pin Ø11,5		3	3	3
3	69522233C	Pin Ø22/Ø28 L=233 Cat I/II	3			
3	69532129B	Pin for top link Cat. III Ø32 L=129 w/handle and cotter slot		1	1	1
4	1250006	Roller bar 1,8 m	1			
4	645000153	Roller bar 2,5 m		1		
4	645000027	Roller bar 3,0 m			1	
4	645000156	Roller bar 3,5 m				1
5	690136029	Lubricating nipple M8		2	2	2
6	69430145G	Pin Ø30 L=145		2	2	2
7	630532600	Lock bush for pin head		4	4	4
8	690101101	Bolt M12x25 8.8		4	4	4
9	69430200G	Pin Ø30 L=200		1	1	1
10	645410007	Cylinder for depth adjustment 80/40x280	1	1	1	1
10a	690200143	Gasket set 80/40 (Laizhou)				
11	69430107G	Pin Ø30 L=107		1	1	1
12	645000162	Scale for depth control		1	1	1
13	690103076	Bolt M10x40 8.8 (set bolt)		2	2	2
14	690117012	Facet plate Ø10		4	4	4
15	690113005	Self-locking nut M10		2	2	2
16	690110101	U-bolt M16 100x100x100		1	1	1
17	645000165	Pointer for depth control		1	1	1
18	690117013	Facet plate Ø16		2	2	2
19	690113008	Self-locking nut M16		2	2	2

Rollers



Pos.	Item no.	Designation	1,8m	2,5m	3,0m	3,5m
1	1250001	Axle, 1790 mm (ST60)	1			
1	678672435	Axle, 2435 mm (CrNiMo6)		1		
1	678672935	Axle, 2935 mm (CrNiMo6)			1	
1	678673435	Axle, 3435 mm (CrNiMo6)				1
2	xxx	Square tube roller Ø550 1,8 m	1			
2	1048210	Square tube roller Ø550 2,5 m		1		
2	1048240	Square tube roller Ø550 3,0 m			1	
2	1048280	Square tube roller Ø550 3,5 m				1
3	690150064	Star ring Ø450 w/neck Ø60 GGG50				
4	690150063	Star ring Ø500, center Ø135 GGG50				
5	690103147	Bolt M20x65 8.8		8	8	8
6	690117005	Facet plate Ø20		16	16	16
7	690113009	Self-locking nut M20		8	8	8
8	690140808	Bearing UCF 312 Ø60		2	2	2
9	690150112	Round plate Ø235		1 per section		
10	671040400	Stop ring 20mm with 2 bolts M10x25 8.8		2 per section		
10	671040400	Stop ring 20mm with 2 bolts M10x25 8.8		2	2	
10	630651200	Stop ring 27mm with 2 bolts M10x25 8.8				2
11	671040402	Shim 15 mm		2	2	
11	671040403	Shim 47 mm				2
12	695150095	Shim 15 mm incl. bolts etc.				
12	695150099	Shim 20 mm incl. bolts etc				
12	695150091	Shim 25 mm incl. bolts etc				

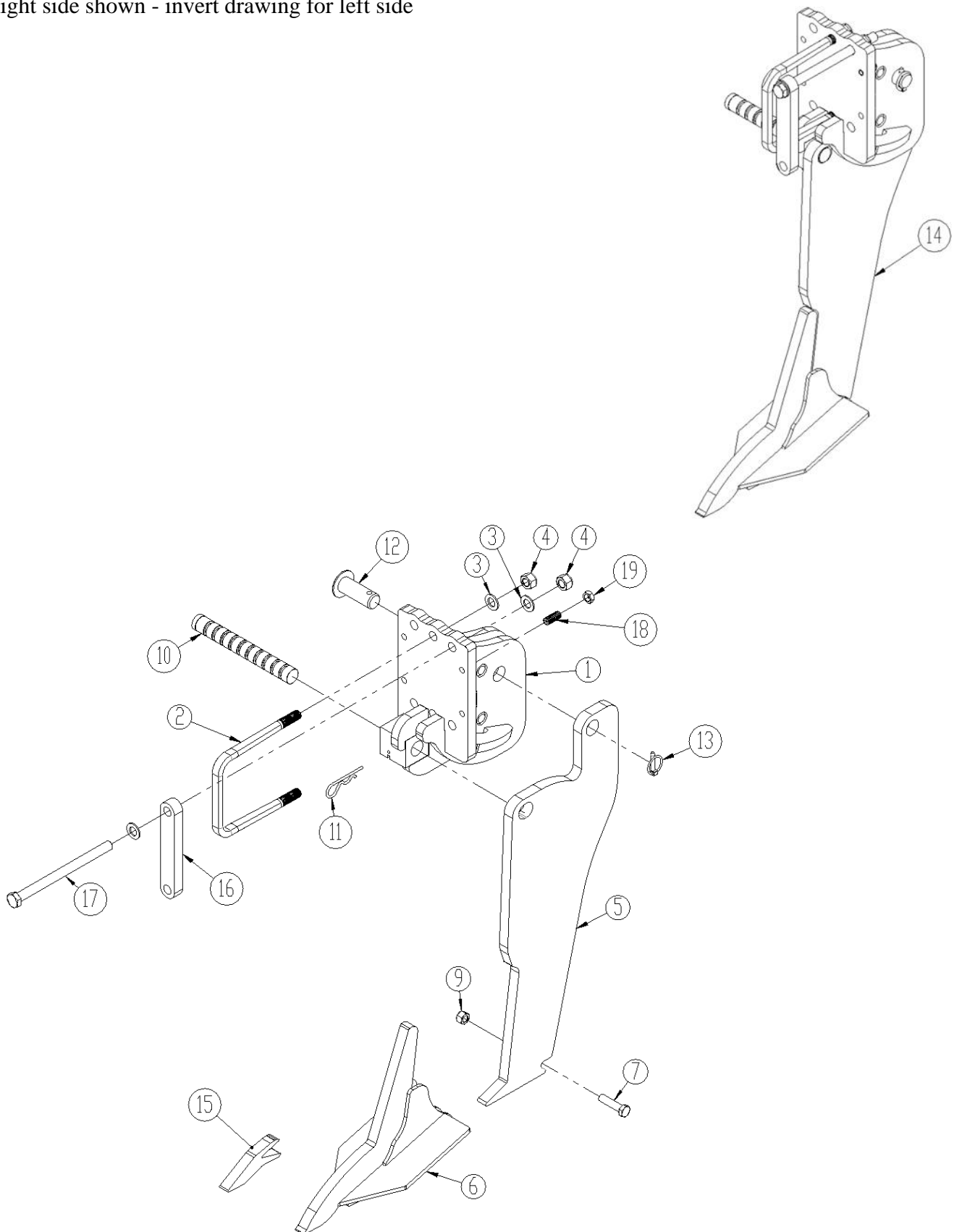
Tine w/hydraulic auto-release system



Pos.	Item no.	Designation	Per tine
1	645410001	Tine bracket, complete (short)	1
	1250048	Tine bracket, complete (long)	
2	690110500	U-bolt M20x180x180x180 mm (Ø20/14x24,5 mm)	3
3	0272310	Facet plate Ø20	6
4	0264110	Self-locking nut M20	6
5	645000086	Tine for hydraulic automatic release system	1
	645001100	Tine for hydraulic automatic release system w/ 1 hardmetalplate	
	1240001	Tine for hydraulic automatic release system w/ 2 hardmetalplate	
	645000557	Tine for hydraulic automatic release system (+100mm)	
6	645000043	Wearing point w/120 mm wing share	
	645000044	Wearing point w/200 mm wing share	
	645000044T	Wearing point w/200 mm wing share w/hardmetal	
	645000063	Wearing point w/350 mm wing share	
7	0235852	Bolt M16x65	1
9	0264090	Self-locking nut M16	1
10	69440195G	Pin Ø40 L=195	1
11	0475100	Slide bush Ø40/Ø44 L=40	2
12	0432523	Lubricating nipple M8x1,25 90°	1
13	0467402	Cylinder Ø110/50x165 w/fork, hole Ø45 (until 31/12 2018)	1
	0467405	Cylinder Ø110/50x165 w/fork, hole Ø45 (from 1/1 2019)	
	690200313	Gaset set for 0467402	
	0467470	Gaset set for 0467405	
13a	0444950	Banjo bolt ¼"	1
13b	0449050	Bonded seal ¼" PP45B	2
13c	0451700	Hydraulic hose ¼" x 1500 mm – w/banjo coupling	1
14	69440165G	Pin Ø40 L=165	1
15	0235330	Bolt M12x25 8.8	2
16	630532600	Bush for pin head	2
17	645000500	Wearing pin, cpl. for hydraulic tine	1
18	0264190	Self-locking nut M36	1
19	645000114	Complete tine, short (pos 1-18)	
	1250052	Complete tine, long (pos 1-18)	
20	645000045	Wearing point for surface welding	
21	645410052	Flange (from machine nr 34680)	2
22	0236315	Bolt M20x280	4

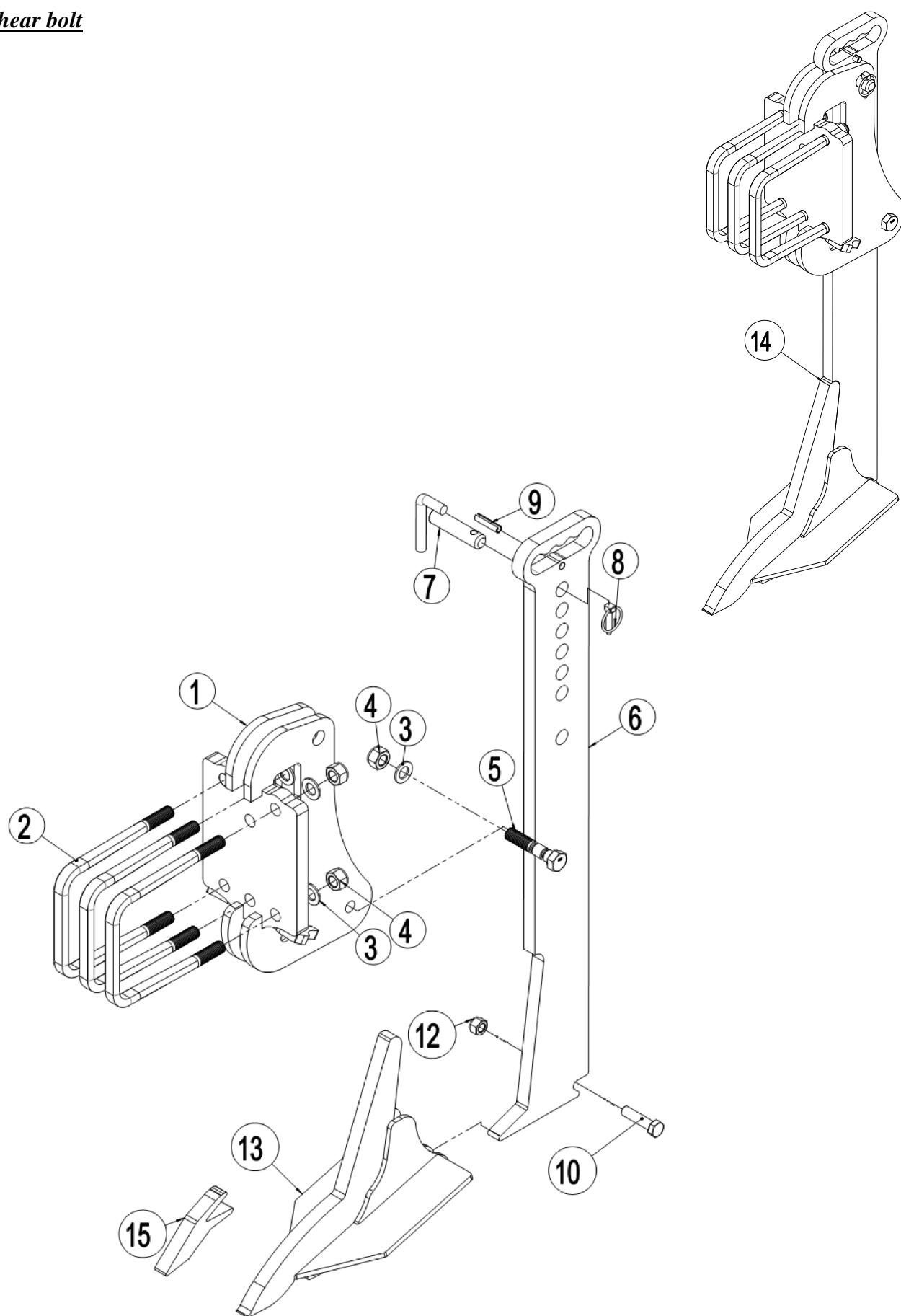
Tine w//Quick-Push shear bolt

Right side shown - invert drawing for left side



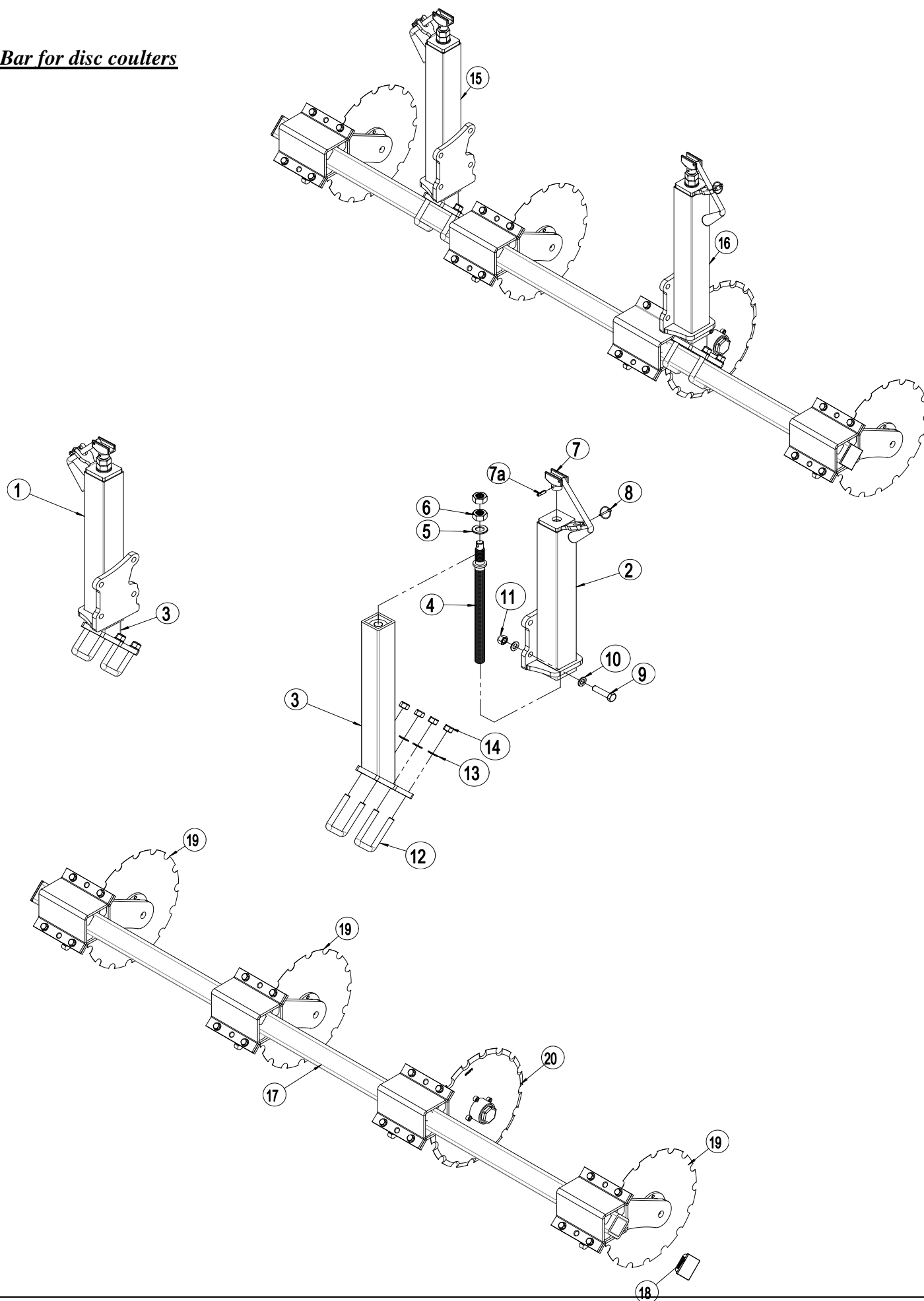
Pos.	Item no.	Designation	Per tine
1	645410027	Tine bracket, short, right (until March 2017)	1
	645410028	Tine bracket, short, left (until March 2017)	1
	1245038	Tine bracket, short, right (from April 2017)	
	1245016	Tine bracket, short, left (from April 2017)	
	1245039	Tine bracket, long, right	
	1245024	Tine bracket, long, left	
2	690110500	U-bolt M20x180x180x180 mm (Ø20/14x24,5 mm)	3
3	0272310	Facet plate Ø20	6
4	0264110	Nut M20	6
5	645000062	Tine f/Quick-Push	1
6	645000043	Wearing point w/120 mm wing share	
	645000044	Wearing point w/200 mm wing share	
	645000044T	Wearing point w/200 mm wing share w/hardmetal	
	645000063	Wearing point w/350 mm wing share	
7	0235852	Bolt M16x65	1
9	0264090	Self-locking nut M16	1
10	645000059	Shear bolt Ø35 (chromated)	1
11	690133006	R-clip Ø6	1
12	69435070F	Pin Ø35 L=71	1
13	690134004	Ring pin Ø10	1
14	645000112	Complete tine, short, right (pos 1-13) (until March 2017)	
	645000108	Complete tine, short, left (pos 1-13) (until March 2017)	
	1245036	Complete tine, short, right (pos 1-13) (from April 2017)	
	1245020	Complete tine, short, left (pos 1-13) (from April 2017)	
	1245037	Complete tine, long, right (pos 1-13) (from April 2017)	
	1245028	Complete tine, long, left (pos 1-13) (from April 2017)	
15	645000045	Wearing point for surface welding	
16	645410052	Flange (from machine nr. 34680)	2
17	0236315	Bolt M20x280	4
18	0227528	Pivot screw M16x40	4
19	0261392	Counter nut M16	4

Tine w/shear bolt



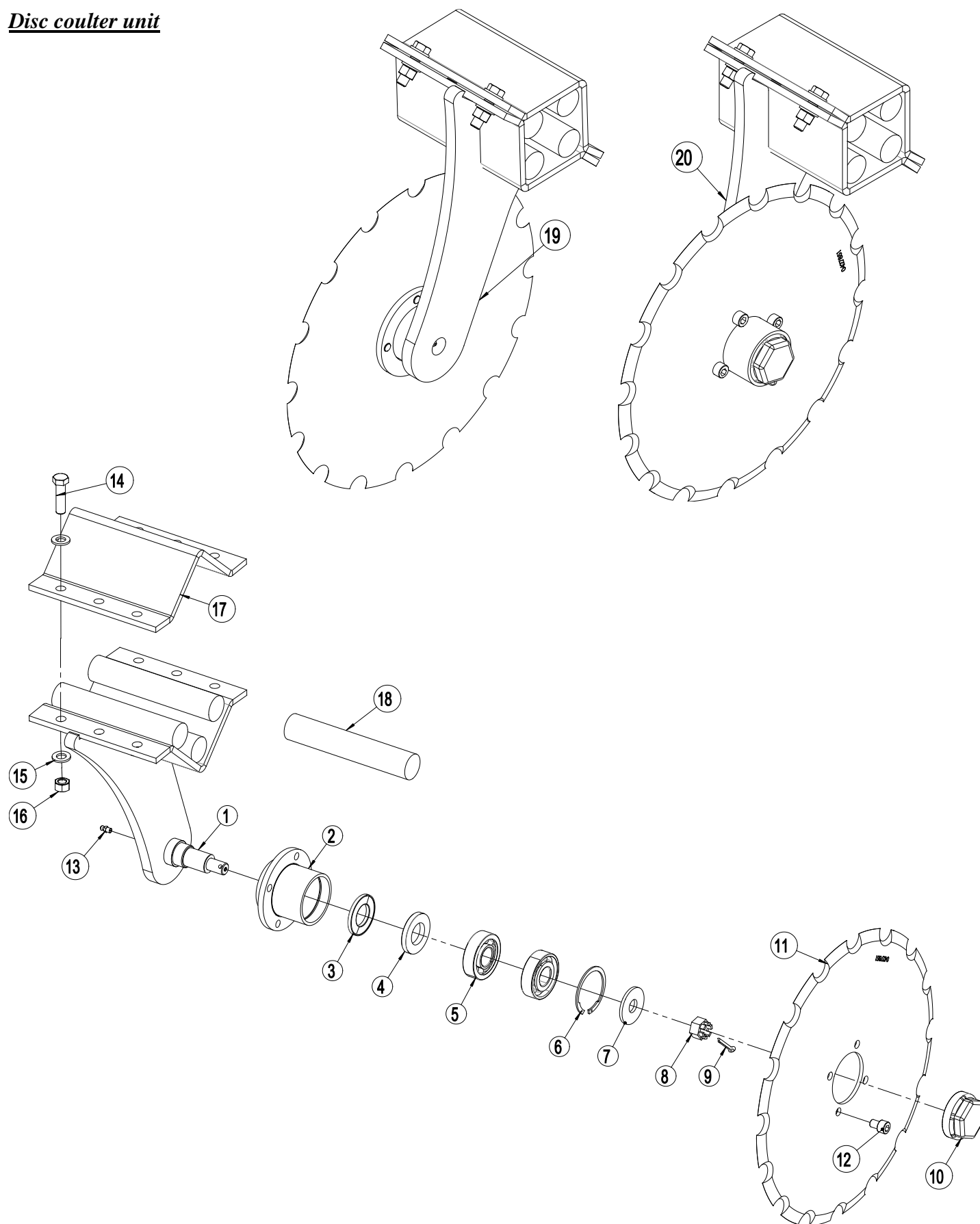
Pos.	Item no.	Designation	Per tine
1	645410050	Tine bracket f/shear bolt	1
2	690110500	U-bolt M20x180x180x180 mm (Ø20/14x24,5 mm)	3
3	690117005	Facet plate Ø20	7
4	690113009	Nut M20	7
5	690152045	Shear bolt double-grooved M20x100 10.9	1
6	645100073	Tine f/mechanical stone protection	1
7	69525063B	Pin	1
8	690134004	Ring pin Ø10	1
9	690130169	Roll pin Ø12x50, galvanized	1
10	0235852	Bolt M16x65	1
12	0264090	Self-locking nut M16	1
13	645000043	Wearing point w/120 mm wing share	
13a	645000044	Wearing point w/200 mm wing share	
13b	645000063	Wearing point w/350 mm wing share	
14	645000110	Complete tine (pos 1-13)	
15	645000045	Wearing point for surface welding	

Bar for disc coulters



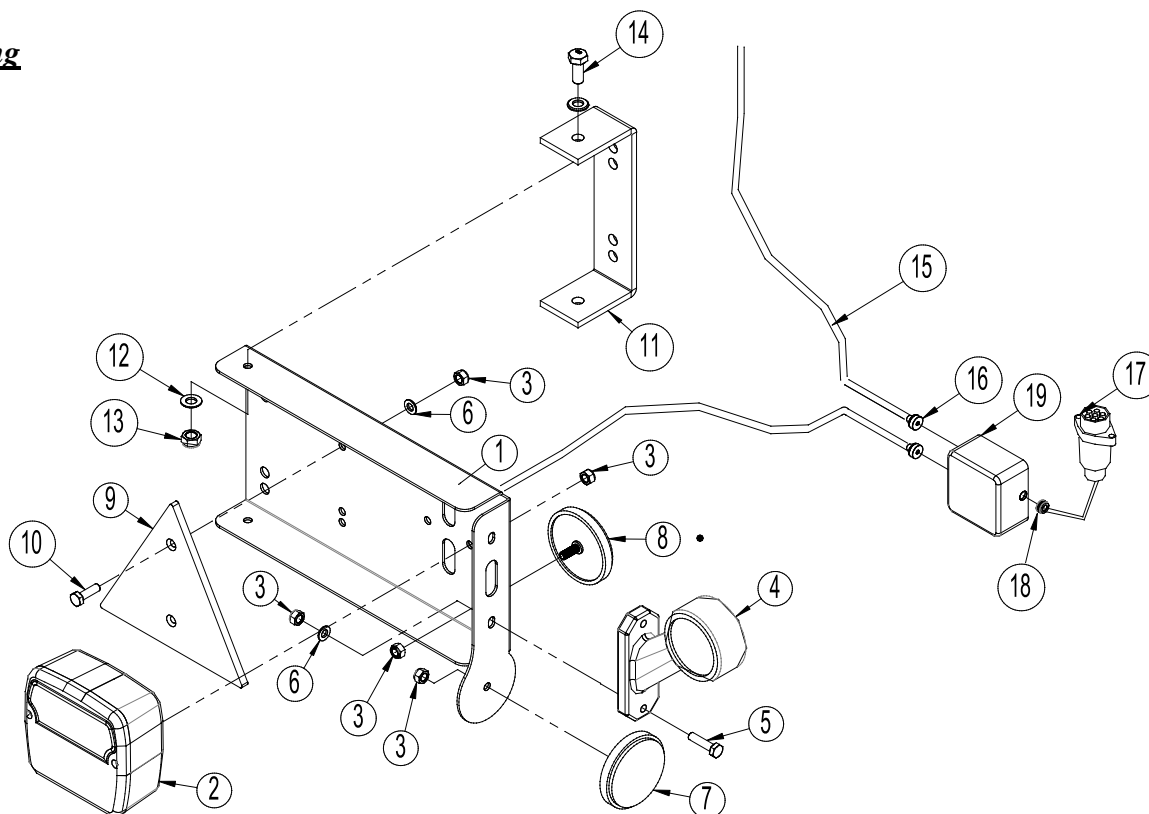
Pos.	Item no.	Designation	2,5m	3,0m	3,5m
1	645440025	Spindle console outer part, right	1	1	1
2	645440020	Spindle console outer part, left	1	1	1
3	645440017	Spindle console inner part, R/L	2	2	2
4	690304122	Threaded rod 28TR L=455	2	2	2
5	690117011	Facet plate Ø24	2	2	2
6	690113020	Nut M24 (galvanized)	4	4	4
7	690304102	Crank Ø20x160mm incl. 8mm roll pin	2	2	2
7a	690130158	Roll pin Ø8x30	2	2	2
8	690134001	Ring pin Ø4,5mm	2	2	2
9	690103275	Bolt M16x65 10.9 FZG	8	8	8
10	690117013	Facet plate Ø16	16	16	16
11	690113008	Self-locking nut M16	8	8	8
12	0382150	U-bolt M16x70x70x70	4	4	4
13	690117013	Facet plate Ø16	8	8	8
14	690113008	Self-locking nut M16	8	8	8
15	645440026	Spindle complete, right (pos 1-14 w/o pos 2)			
16	645440024	Spindle complete, left (pos 2-14)			
17	645440027	Bar for disc coulters 70x70x8 L=2500	1		
17	645440031	Bar for disc coulters 70x70x8 L=3000		1	
17	645440029	Bar for disc coulters 70x70x8 L=3500			1
18	690109202	Plastic plug, black	2	2	2
19	645000129	Disc coulters unit complete, left			
20	645000130	Disc coulters unit complete, right			

Disc coultter unit



Pos.	Item no.	Designation	Per unit
1	645440014	Carrier arm for disc coulter, left	1
1a	645440016	Carrier arm for disc coulter, right	1
2	1036541	Hub for angular contact ball bearing	1
3	0483390	Sealing Z 006 SKF	1
4	0483580	Sealing ring 30x55x7 DIN3760A	1
5	0479070	Angular contact ball bearing Ø62/25 mm	2
6	0379220	Locking ring I 62 DIN472	1
7	1036930	Disc Ø50xØ18x4mm	1
8	0262150	Hexagon castle nut M16, FZB DIN935-8	1
9	0373310	Split pin Ø5 x 32	1
10	0393830	Hub cover Ø62	1
11	0427851	Disc f/disc coulter, 16 notch 5mm	1
12	0227790	Screw M10x14mm 8.8 DIN912 (ISO 4762)	4
13	690136001	Lubricating nipple M6	1
14	690103091	Bolt M12x45 10.9	4
15	690117014	Facet plate M12	8
16	690113013	Self-locking nut M12	4
17	30949045	Bracket for rubber damper	1
18	690210710	Rubber cord Ø35 L=190	4
19	645000129	Disc coulter unit complete, left (pos 1 - 18)	
20	645000130	Disc coulter unit complete, right (pos 1a - 18)	

Light mounting

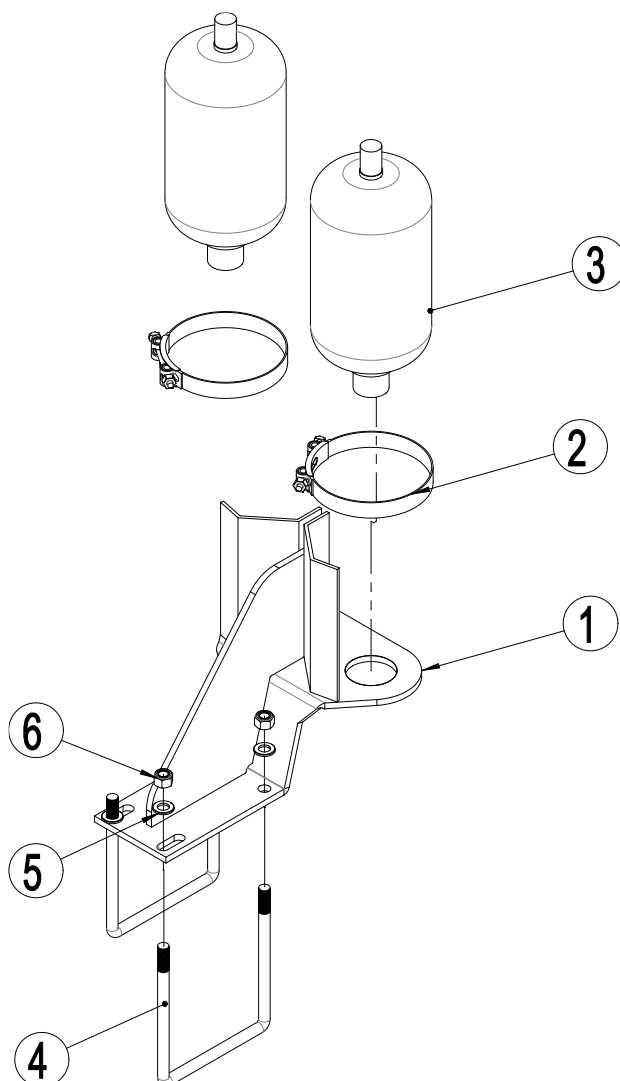


Pos.	Item no.	Designation	Number
1	7357505	Lightbox (L)	1
	7357508	Lightbox (R)	1
2	7357504	Rear light	2
3	0264030	Locking nut M5	16
4	7357507	Marking lights (L)	1
	7357509	Marking lights (R)	1
5	0234340	Bolt M5x25	4
6	0272240	Facet plate Ø5	8
7	0656240	Reflex, yellow	2
8	0656250	Reflex, white	2
9	692160017	Reflex, red	2
10	0234330	Bolt M6x20	4
11	7357516	Bracket	2
12	0272250	Facetplate Ø8	16
13	0264050	Locking nut M8	8
14	0234750	Bolt M8x20	4
15	690160080	Cable 5 x 1mm ² (Inform about lenght by ordering sparepart)	
16	7357545	Rutaseal nipple 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

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

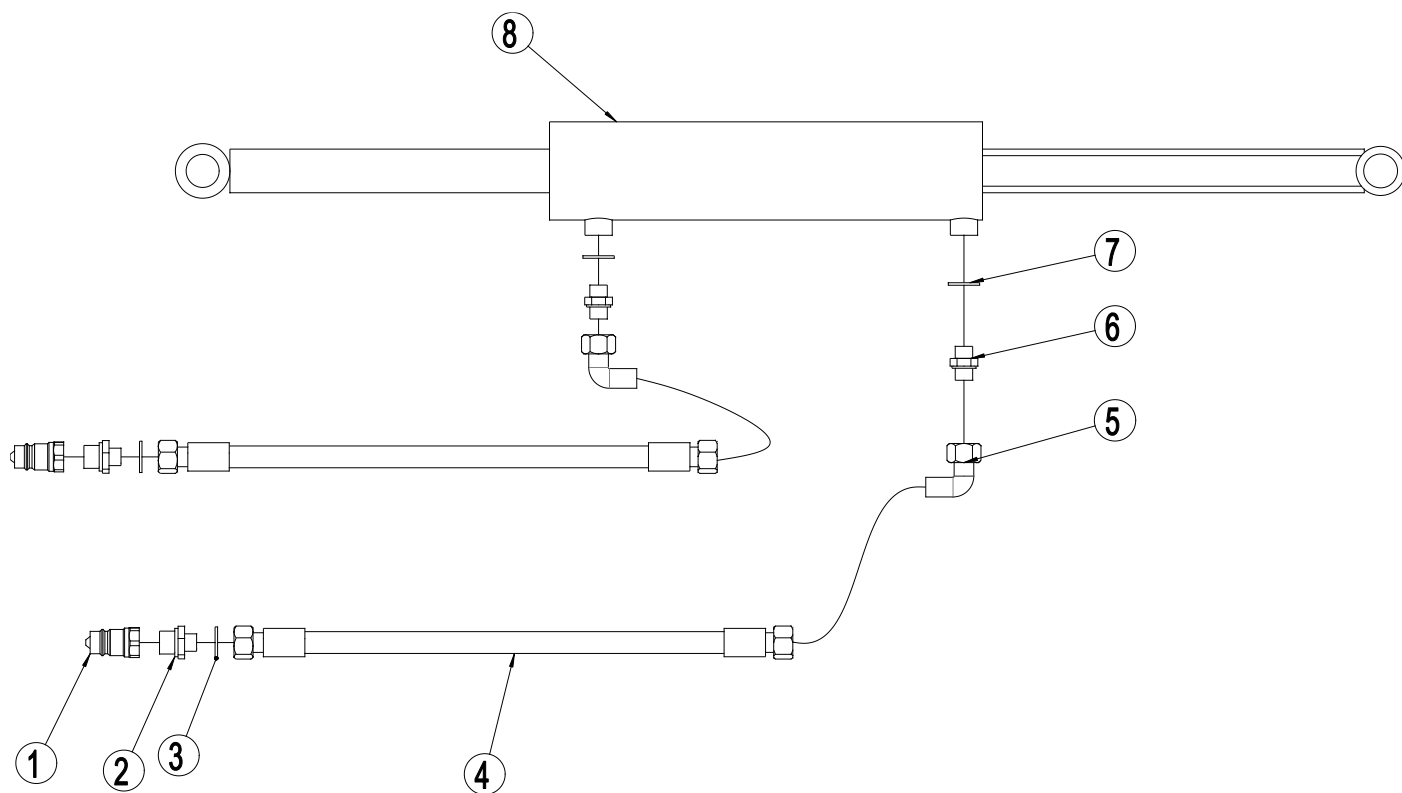
Spare parts list - Hydraulics

Support for accumulator



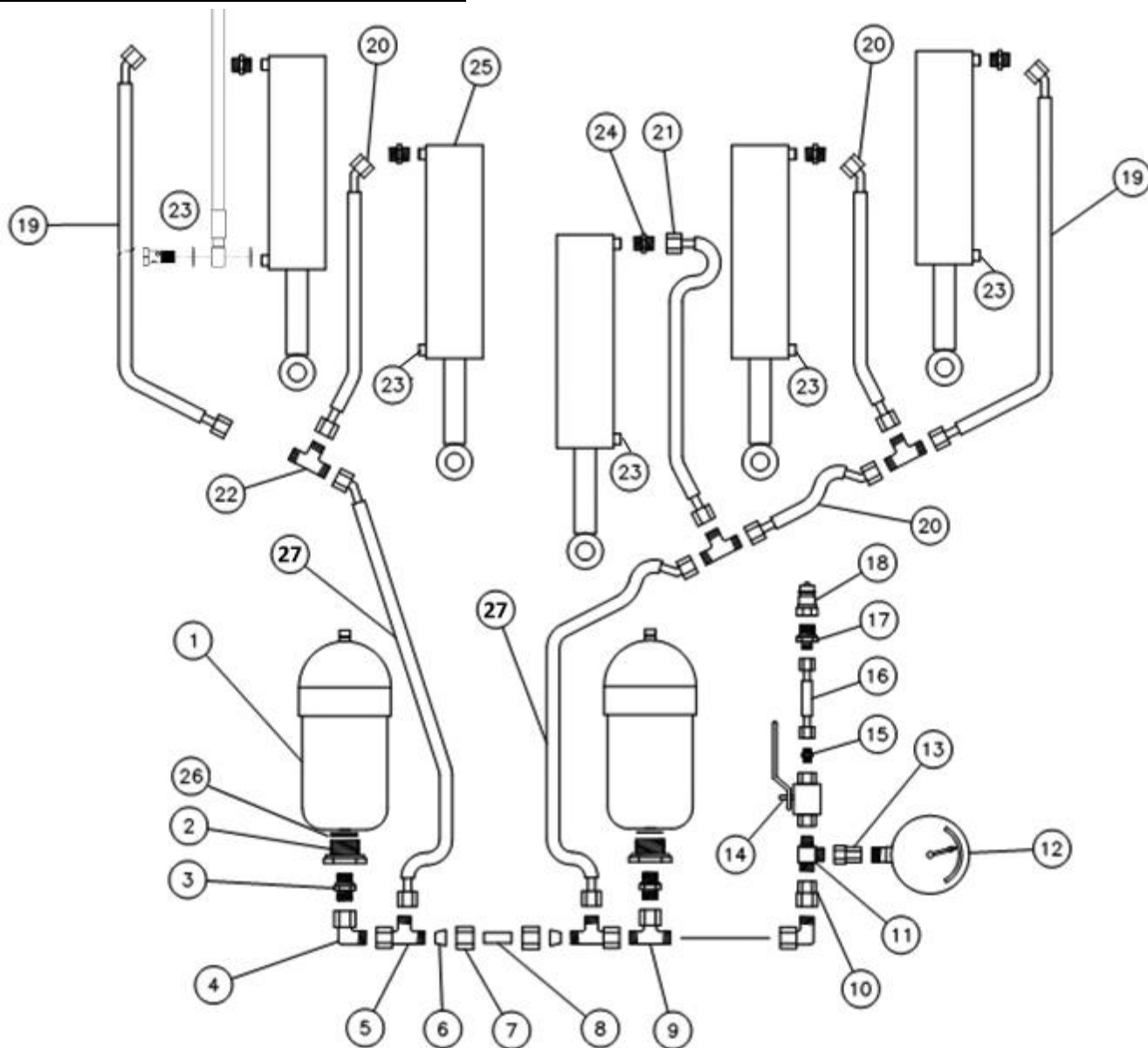
Pos.	Item no.	Designation	Number
1	645000125	Support for accumulator	1
2	690206516	Clamp 175-187 mm.	2
3	690206513	Accumulator 4,5L 90 bar, <i>before machine no. 35314</i>	2
3	690206513	Accumulator 4,5L 110 bar, <i>by machine no. 35314</i>	2
4	690110109	U-bolt M16x180x180x180	2
5	690117013	Facet plate Ø16	4
6	690113008	Self-locking nut M16	4

Hydraulics for roller depth control



Pos.	Item no.	Designation	2,5m	3,0m	3,5m
1	690203013	Quick coupling, male E402 ½"	2	2	2
2	690203003	Fitting, straight 10-½" BSP	2	2	2
3	690208108	Bonded seal ½"	2	2	2
4	690201021	Hydraulic hose 2300mm ¼"	2	2	2
5	690203016	Fitting 90angle Ø10x¾"	2	2	2
6	690203002	Hexagon nipple Ø10x¾"	2	2	2
7	690208104	Bonded seal ¾"	2	2	2
8	645410007	Cylinder for depth control (80/40x280)	1	1	1

Hydraulics for auto-release system (rigid)



Pos.	Item no.	Designation	Number
1	690206513	Accumulator 4,5L 110 bar	2
2	690204501	Fitting straight ½" x 1 ¼"	2
3	690204512	Fitting straight Ø15 mm x ½"	2
4	690204500	Fitting 90angle Ø15 mm w/pre-mounted union nut	2
5	690204502	Fitting T Ø15L	2
6	690204503	Olive ring Ø15	2
7	690204504	Union nut Ø15	2
8	662000803	Hydraulic tube Ø15 L=38	1
9	690204505	Fitting T Ø15	1
10	690204506	Reversed fitting Ø15 / ½"	1

Pos.	Item no.	Designation	Number
11	690203314	Fitting T 3/8"-Ø12-Ø12	1
12	690206824	Pressure gauge 400 bar	1
13	690206825	Pressure gauge fitting Ø12 / 1/4"	1
14	690202990	Ball valve 3/8" PN500 DN 10	1
15	690203002	Fitting, straight Ø10-3/8" BSP	1
16	690201032	Hydraulic hose 1130 mm 1/4" st/st	1
17	690203003	Fitting, straight Ø10-1/2" BSP	1
18	690203016	Quick coupling 1/2" E402, male	1
19	690201448	Hydraulic hose 1150 mm 1/2" st/45°	2
20	690201430	Hydraulic hose 590 mm 1/2" st/45°	0-7
21	690201414	Hydraulic hose 400 mm 1/2" st/st	0-1
22	690204507	Fitting T Ø15	0-5
23	0451700	Hydraulic hose 1500 mm 1/4" - w/banjo coupling	2-5
23a	0444950	Banjo bolt 1/4"	2-5
23b	0449050	Bonded seal, PP45B	4-10
24	690204512	Fitting straight Ø15x1/2"	2-5
25	0467402	Cylinder 110/50x165 m/	2-5
25a	690200313	Gasket set	
26	0449110	Bonded seal 1 1/4"	2
27	0454183	Hydraulic hose 600 mm 1/2" st/st	2

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as it looks

As good as it looks

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The design is subject to modification without notice.