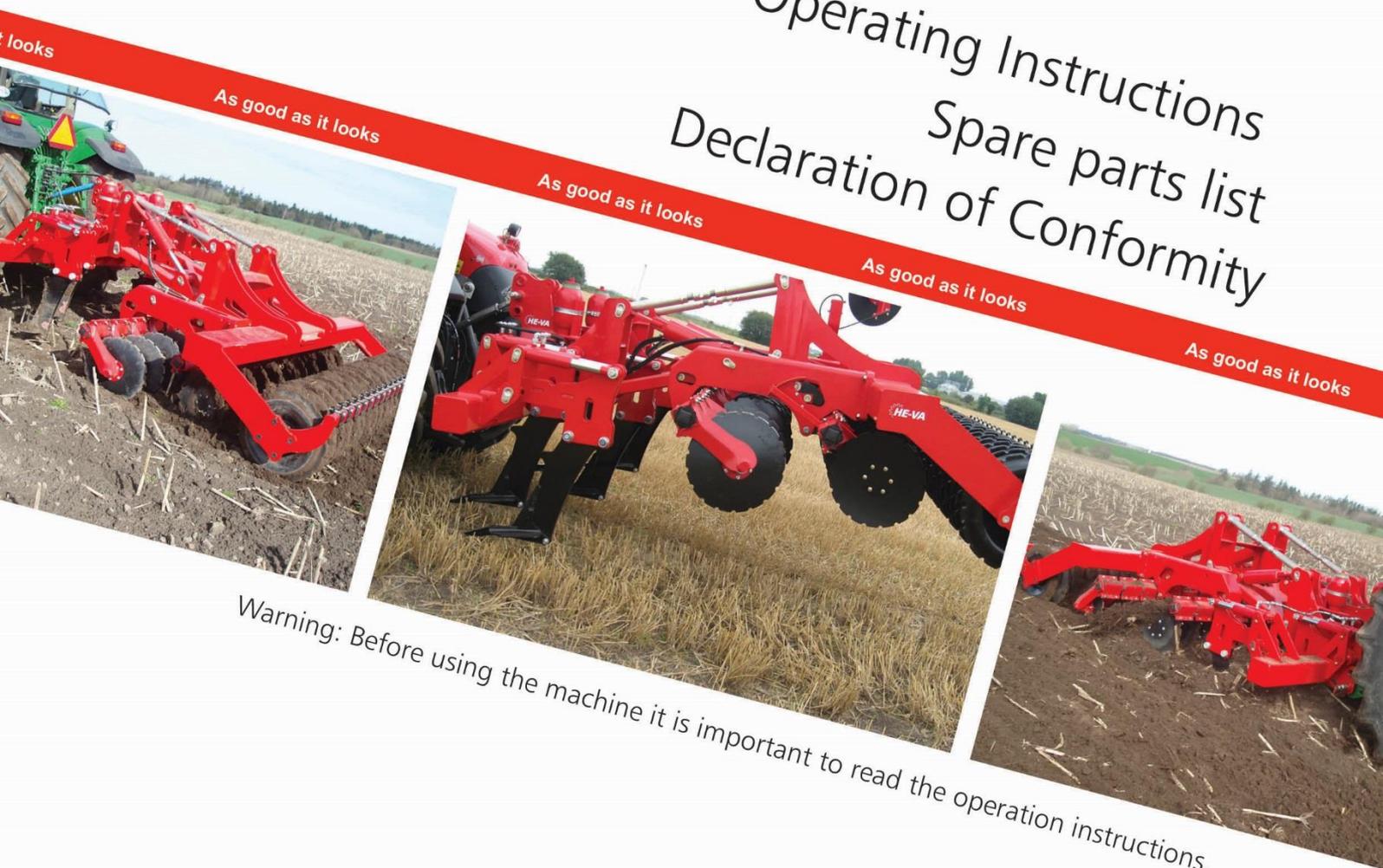


UK

# HE-VA

Operating Instructions  
Spare parts list  
Declaration of Conformity



Warning: Before using the machine it is important to read the operation instructions.

Manual nr. 8000511-06

23.02.23

## Combi-Disc

Three-point mounted and trailed models: 3.0 - 3.5 - 4.0 m



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# Contents

*	
* .....	3
<b>EC-Declaration of Conformity</b> .....	<b>5</b>
<b>Delivery check</b> .....	<b>6</b>
<b>Machine description</b> .....	<b>6</b>
Range of applications .....	6
Technical specifications .....	7
<b>Safety instructions for Combi-Disc</b> .....	<b>9</b>
<b>Safety and Instructions on Hydraulics</b> .....	<b>10</b>
Transport on public roads:.....	10
Front axle load:.....	10
<b>Labels on the machine</b> .....	<b>11</b>
<b>Start-up of the machine</b> .....	<b>12</b>
General information .....	12
Colour marking of hydraulic hoses .....	12
Attachment .....	12
<b>Maintenance</b> .....	<b>13</b>
Lubrication .....	13
<b>Mounting instructions</b> .....	<b>15</b>
Mounting of the square tube roller or V-profile roller .....	15
Mounting of the drawbar and wheel frame on trailed models .....	15
<b>Setting and adjustment</b> .....	<b>17</b>
Draw adjustment .....	17
Tines .....	17
Hydraulic automatic release system .....	18
Replacement of wearing point.....	19
Replacement of wearing point Easy Draft .....	20
Disc.....	21
Scraper.....	21
Edge equipment.....	22
Material damper guard .....	23
<b>Spare parts list</b> .....	<b>24</b>
Drawbar .....	24
Wheel frame .....	26
Front section.....	28
Leg.....	30
Wearing points .....	34
<b>Notes:</b> .....	<b>35</b>
Parallel guide.....	36
Disc support.....	38

Rear section .....	42
Material damper guard .....	43
Roller bar .....	44
Edge equipment .....	46
LED-Light .....	48
<b>Hydraulics .....</b>	<b>49</b>
Wheel support .....	49
Hydraulic stone protection .....	51
Rear section lifting .....	53
Disc adjustment .....	55
<b>Diagrammes .....</b>	<b>57</b>
Light kit .....	57
<b>Notes .....</b>	<b>58</b>



## **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  
Denmark

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

The declaration comprises the following machine:

### **Combi-Disc**

3.0 – 3.5 – 4.0 m

No. : \_\_\_\_\_

Nykøbing, 12. Aug 2015

  
Villy Christiansen

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

## **Delivery check**

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

## **Machine description**

### **Range of applications**

HE-VA Combi-Disc is a multi-purpose machine available in 3.0 m, 3.5 m and 4,0 m working width. As standard, the Combi-Disc is built in a strong frame construction. In front, the machine is mounted with strong tines loosening the hard strata / plow pan simultaneously with a perfect oxidation without pulling hard and inconvenient soil up to the surface. The working depth of the tines is adjusted hydraulically from -10 cm to 40 cm. After the tines, the machine is mounted with 2 rows of Ø510 mm discs. The working depth of the discs are adjusted hydraulically too from -10 cm to 13 cm. The placement of the discs after the tines results in the fact that the Combi-Disc, even after a pass, is performing a perfect seed bed where the tines in front have loosened the soil, and the following disc have mixed the soil without any mixing of hard and inconvenient soil. At the back, the machine is mounted with a roller, which ensures a precise working depth – perfect consolidation and crushes the clods. Different roller types and dimensions are available, and the Combi-Disc is available as three-point mounted or trailed models.



**Technical specifications**

	<b>Rigid models</b>		
	<b>3.0 m</b>	<b>3.5 m</b>	<b>4.0 m</b>
Working width	3.00 m	3.50 m	4.00 m
Transport width	3.00 m	3.50 m	4.00 m
Wheel mounting (trailed model)	400/60x15.5 – 14 Ply		
Wheel pressure	4.9 BAR		
Number of hydraulic outlets:	2 pcs double-acting + 1 pc single-acting		
For trailed machines:	+ 1 pc double-acting		
Oil type:	Hydro Texaco HD32 spec. DIN 51524-3 / ISO 11158 L-HV		
El. connection	12 volt		
Working speed (recommended)	7 - 10 km/h		
Max. HP	350 HP		
<b>Rollers</b>	<b>3.0 m</b>	<b>3.5 m</b>	<b>4.0 m</b>
<b><i>Square tube roller Ø550 mm</i></b>			
<i>No of tines</i>	5 pcs	6 pcs	7 pcs
<i>No of disc</i>	22 pcs	26 pcs	30 pcs
Weight kg - three-point mounted	2800 kg	3160 kg	3460 kg
Weight kg - trailed	4000 kg	4360 kg	4660 kg
Power requirement HP	160 – 230 HP	190 – 280 HP	220 – 350 HP
<b><i>V-profile roller Ø600 mm</i></b>			
<i>No of tines</i>	5 pcs	6 pcs	7 pcs
<i>No of disc</i>	22 pcs	26 pcs	30 pcs
Weight kg – three-point mounted	3420 kg	3870 kg	4260 kg
Weight kg - trailed	4620 kg	5070 kg	5460 kg
Power requirement HP	180 - 250 HP	210 – 300 HP	240 – 350 HP
<b><i>V-profile roller Ø700 mm</i></b>			
<i>No of tines</i>	5 pcs	6 pcs	7 pcs
<i>No of disc</i>	22 pcs	26 pcs	30 pcs
Weight kg – three-point mounted	3540 kg	4000 kg	4400 kg
Weight kg - trailed	4740 kg	5200 kg	5600 kg
Power requirement HP	190 - 270 HP	220 - 300 HP	250 - 350 HP
<b><i>V-profile roller Ø600 mm Twin</i></b>			
<i>No of tines</i>	5 pcs	6 pcs	7 pcs
<i>No of disc</i>	22 pcs	26 pcs	30 pcs
Weight kg – three-point mounted	3600 kg	4080 kg	4500 kg
Weight kg - trailed	4800 kg	5280 kg	5700 kg
Power requirement HP	200-300 HP	230 - 300 HK	260 - 350 HK

	<b>Rigid models</b>		
	<b>3.0 m</b>	<b>3.5 m</b>	<b>4.0 m</b>
<b><i>U-profile roller Ø600 mm</i></b>			
<i>No of tines</i>	5 pcs	6 pcs	7 pcs
<i>No of disc</i>	22 pcs	26 pcs	30 pcs
Weight kg – three-point mounted	3220 kg	3630 kg	4000 kg
Weight kg - trailed	4800 kg	5280 kg	5700 kg
Power requirement HP	200 - 300 HK	230 - 300 HK	260 - 350 HK
<b><i>U-profile roller Ø600 mm Twin</i></b>			
<i>No of tines</i>	5 pcs	6 pcs	7 pcs
<i>No of disc</i>	22 pcs	26 pcs	30 pcs
Weight kg – three-point mounted	3430 kg	3880 kg	4280 kg
Weight kg - trailed	4800 kg	5280 kg	5700 kg
Power requirement HP	200 - 300 HK	230 - 300 HK	260 - 350 HK

Combi-Disc complies with DS/ISO 11001-1, three-point suspension.

## **Safety instructions for Combi-Disc.**

Do not start-up the machine if there are **persons in exposed positions<sup>1</sup>** within a **hazardous area<sup>2</sup>**

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.

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.

**CAREFUL!** Rotating parts and loose-fitting clothing make up a dangerous combination!

**Due to the risk of falling down, it is extremely hazardous to stand on the machine frame during operation of the machine attached to a tractor.**

**IMPORTANT!** Due to the risk of falling down, it is extremely hazardous to stand on the machine frame during operation of the machine attached to a tractor.

---

<sup>1</sup> Persons in exposed positions: Any person who is wholly or partly within a hazardous area.

<sup>2</sup> Hazardous area: On and under the machine within a distance of 10 m from the machine.

## **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

You will find several labels on your Combi-Disc containing **safety** and practical instructions as regards the correct application of the machine. Please study the instructions and point out to the user the importance of the labels as well as the **safety instructions** in these Operating Instructions. Always keep the labels clean and readable – if not they must be replaced.



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

Item number: 1305028



Plate with number and year of manufacture.



Correct hydraulic pressure on the release system.

Item number: 0655930



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

Item number: 1305030

## **Start-up of the machine**

### **General information**

The machine requires 2 double-acting outlets (three-point mounted models).  
The machine requires 3 double-acting outlets (trailed models).

### **Colour marking of hydraulic hoses**

Hoses for depth adjustment of tines = black  
Hoses for wheel on trailed machines = red  
Hoses for automatic release system = yellow  
Hoses for depth adjustment of discs = green

### **Attachment**

#### **Combi-Disc – three-point mounted models**

1. Reverse the tractor to the machine and attach.
2. Connect all hydraulic hoses to the tractor outlets.
3. Lift the machine to maximum transport height.
4. Now adjust the working depth of the tines and the discs.

#### **Combi-Disc – trailed models**

1. Reverse the tractor to the machine.
2. Connect all hydraulic hoses to the tractor outlets.
3. Pressurise the drawbar - and the wheel cylinder (red) so that the machine drawbar is lifted to the suitable height.
4. Then reverse the tractor and attach the machine.
5. Now lift the machine to maximum height and tilt the depth stop backwards towards the drawbar cylinder.
6. Now adjust the working depth of the tines and discs.

## Maintenance

- After the first 10 hours of operation, **retighten** the machine. Check hydraulic hoses, fittings and cylinders for leaks and retighten. Please see the below schedule.

Ensure on a regular basis that all bolts are **tightened**.

Maximum torque according to ISO 898-1 in Nm. <b>With lubricated thread</b>			
Metric thread	Quality 8.8	Quality 10.9	Quality 12.9
M10	38	54	63
M12	66	95	110
M14	105	150	176
M16	164	235	274
M18	233	323	377
M20	331	458	535
M22	450	622	727
M24	572	791	925
Wheel bolt M18x1.5 fine thread		360 NM	
Wheel bolt M22x1.5 fine thread		550 NM	

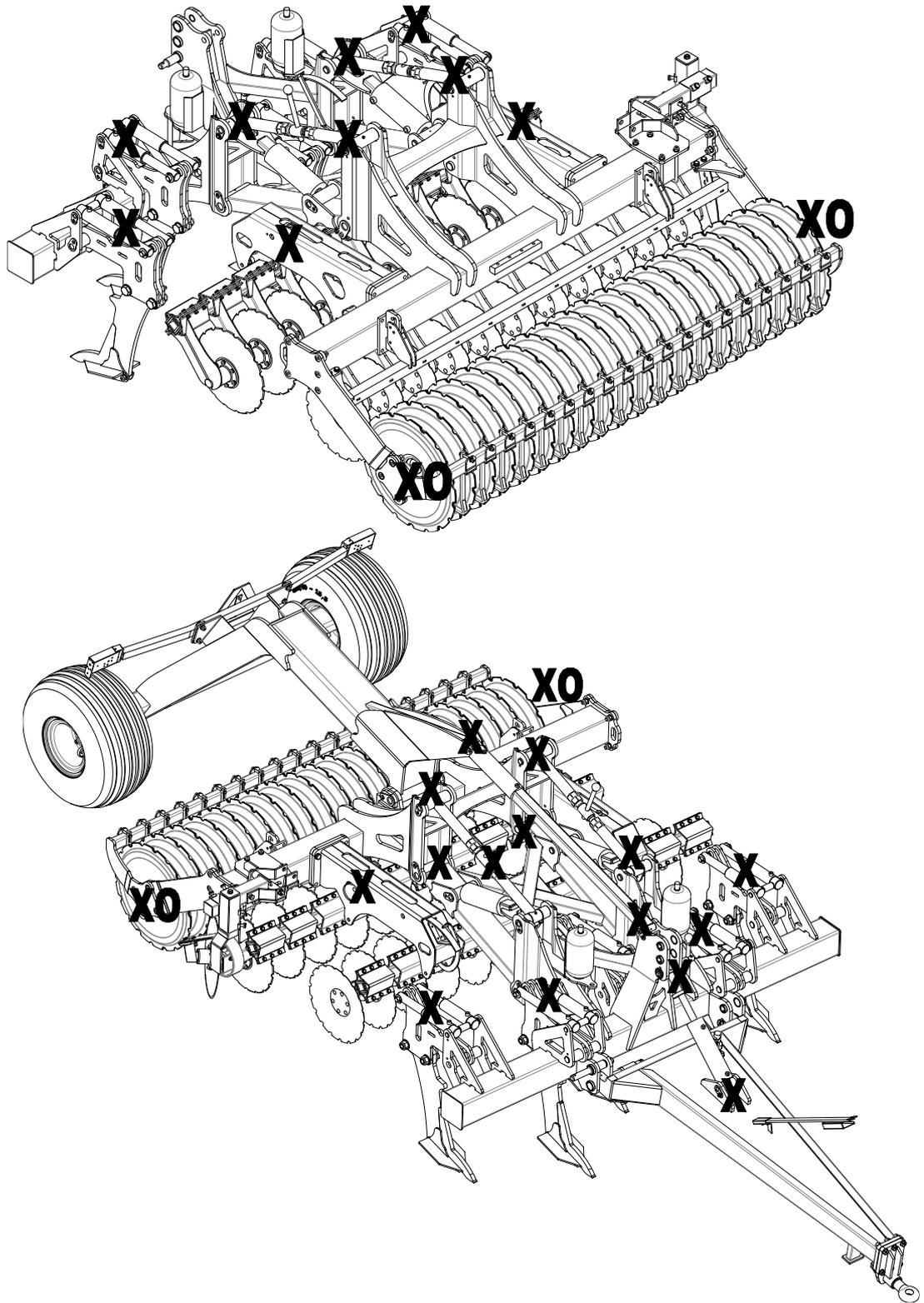
### Lubrication

The typical lubrication points are at the automatic release system, parallelogram for depth adjustment, bearings for roller and wheel bearings. The lubrication points are to be lubricated after every 10 working hours as well as after the cleaning in order to press out any water and dirt.

For lubrication, maintenance and repair, lower the Combi-Disc, put the brakes of the tractor on and stop the motor.

**Attention!** However, 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. However, by 1 – 2 strokes after cleaning in order to press out any water and dirt.

**Important:** Oil, type Hydro Texaco HD32 with specification DIN 51524-3 / ISO 11158 L-HV has been filled in the hydraulic system.



**Careful! 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. However, by 1-2 strokes after the cleaning in order to press out water and dirt.

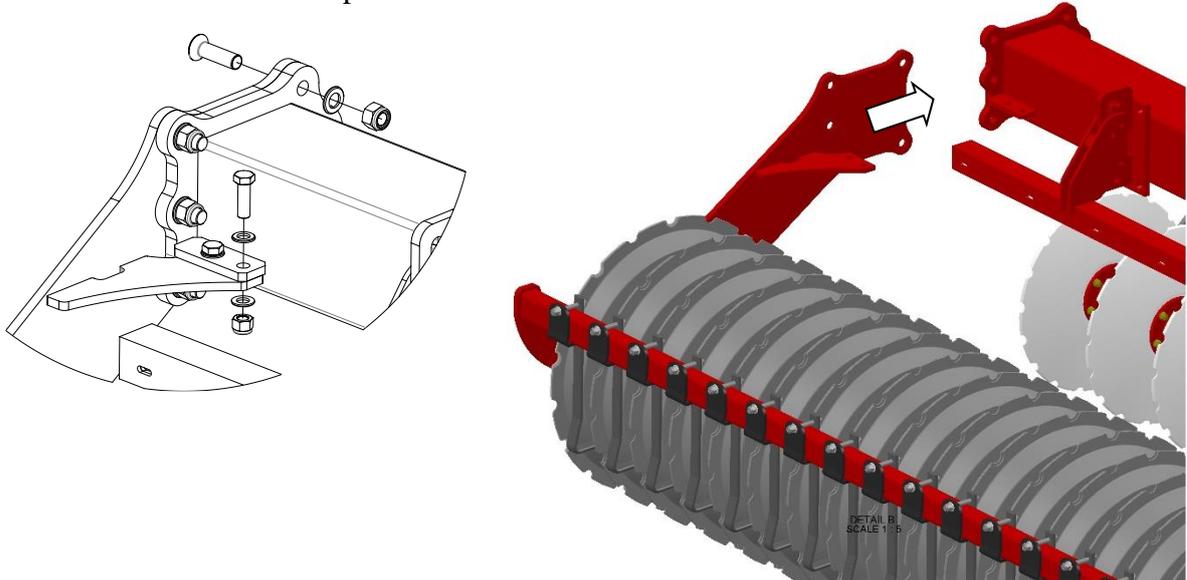
**Important!**

Oil, type Hydro Texaco HD32 with specification DIN51521-3/ISO 11158 L-HV has been filled in the hydraulic system.

## Mounting instructions

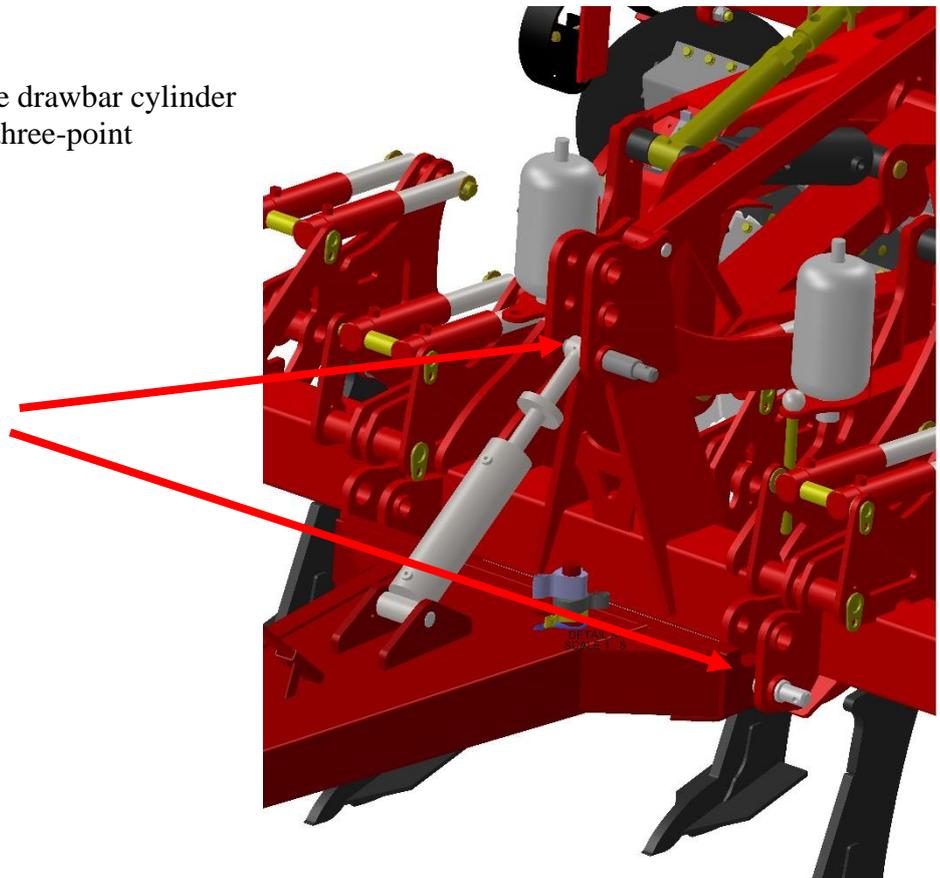
### Mounting of the square tube roller or V-profile roller

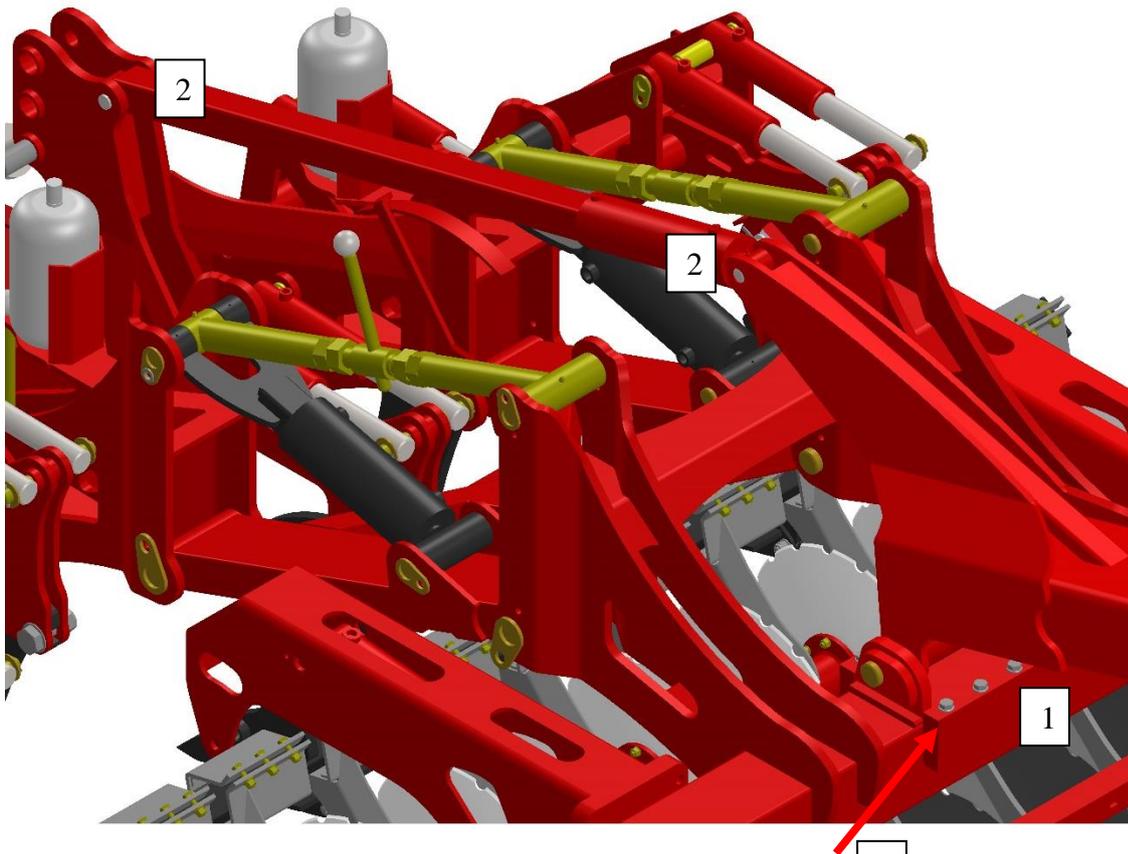
If the machine has been delivered disassembled, mount the roller behind the machine before the start-up.



### Mounting of the drawbar and wheel frame on trailed models

Mount the drawbar and the drawbar cylinder in the lowest holes of the three-point suspension.





1. Mount the wheel frame bracket and wheel frame on the back of the main frame.

1

2. Then mount the wheel frame cylinder between the main frame and the wheel frame.

2

Attach the hydraulic hoses and fasten them in the parking device on the drawbar.

## Setting and adjustment

When starting-up the Combi-Disc in the field, it is very important that the machine is parallel with the surface of the earth, the profile roller is at the rear and that the tractor is keeping the machine in an exact working depth.

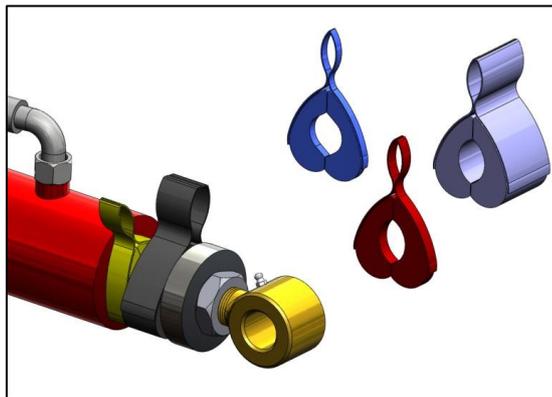
### Draw adjustment

#### **Three-point mounted models**

For the three-point mounted models, it is important that the top link is adjusted correctly.

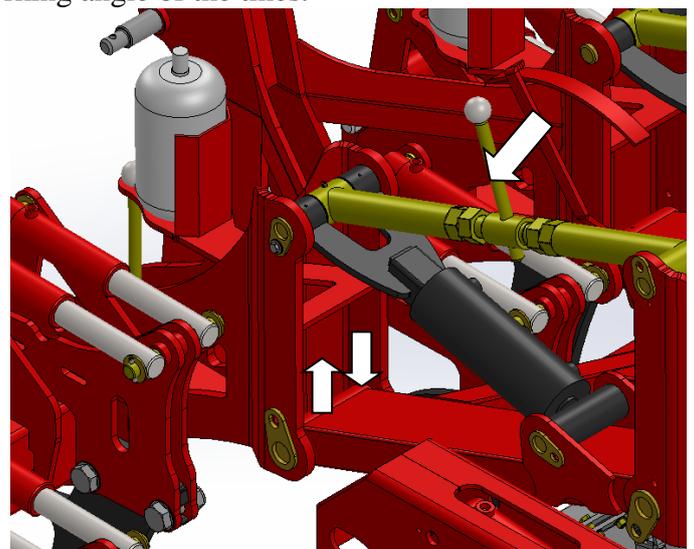
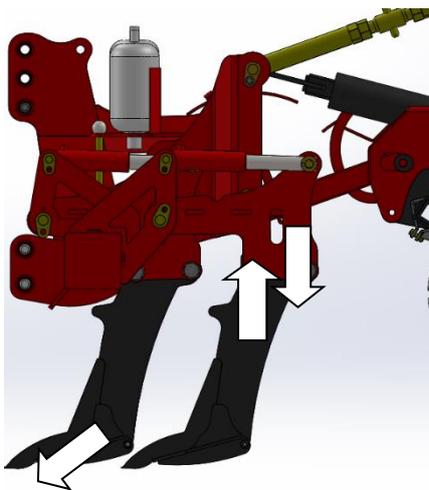
#### **Trailed models**

It is important to adjust the drawbar cylinder correctly by means of distance clips, which is placed on the drawbar box. Height on the towing eye is approx. 500 mm



### Tines

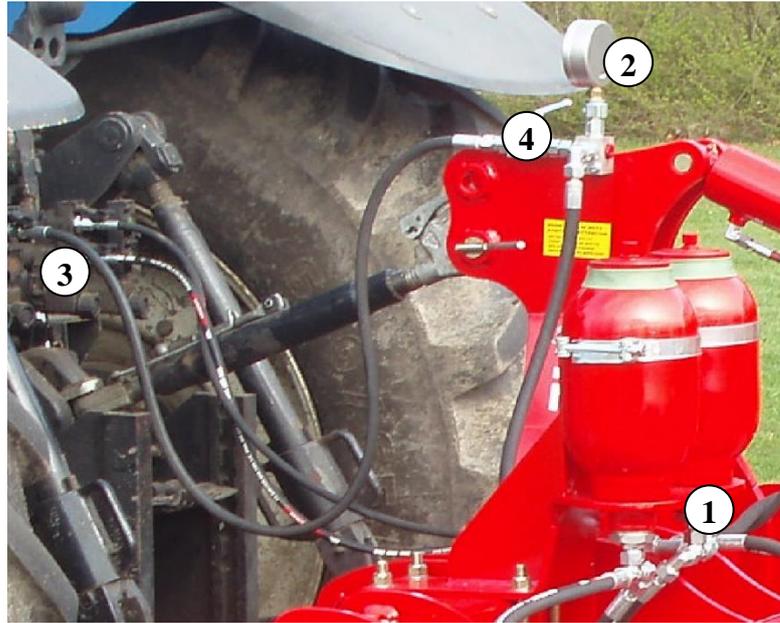
The working depth of the tines is adjusted hydraulically on the parallelogram, this means that the working depth is changed without changing the working angle of the tines.



Parallelogram adjustment for depth adjustment.

The working angle of the tines can be changed by means of the spindles on top of the machine.

**Hydraulic automatic release system**

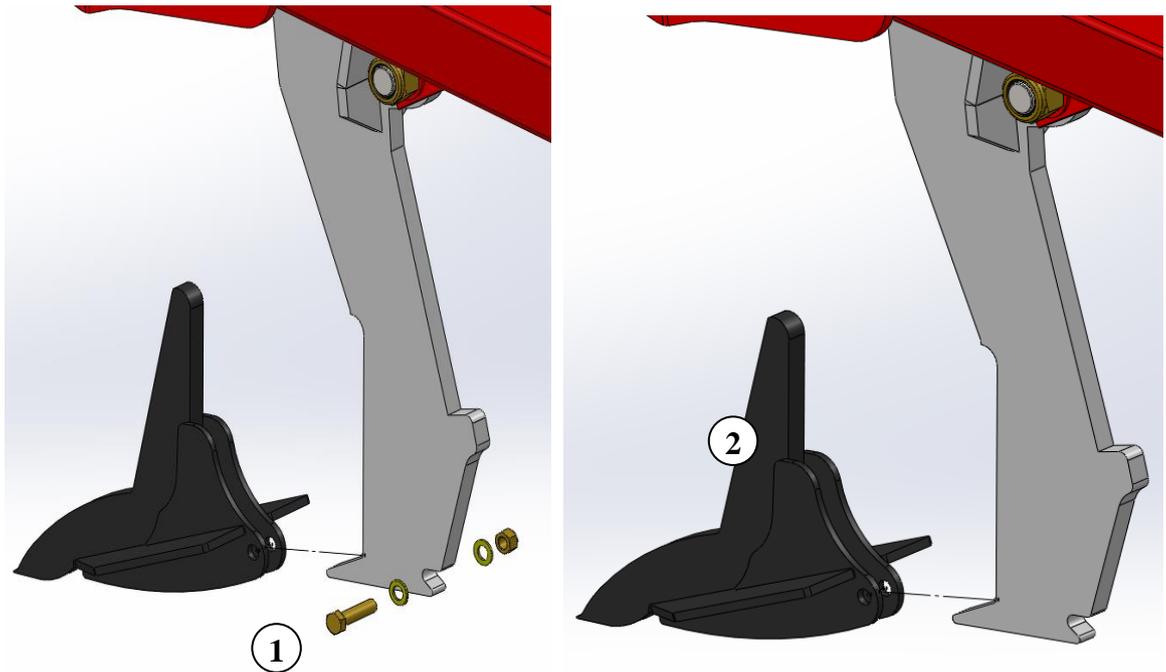


1. Before each season it has to be controlled, that the gas pressure in the accumulator (Pos.1) is 110 bars. ⚠ This requires special tools and can only be performed by an authorized dealer.
2. Befpre the start-up of the machine the hydraulic pressure in the closed hydraulic stone protection system has to e controlled on the machine’s pressure gauge (Pos. 2). The pressure has to be minimum 120 bar and must not exceed 160 bar.
3. **IMPORTANT** – the hydraulic pressure is to be controlled continuously and must never be under 120 bar.
4. If there is a need to adjust the working pressure, follow the below instructions:
  - a. Mount the quick coupling of the hydraulic hose (Pos. 3) in the tractor’s 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 off the ball valve 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.

During the operation of the machine the tine is swinging automatically to the rear if it meets an obstacle. In normal circumstances the tine will automatically return to the 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.

	<p><b>It is important that no persons is near to the machine as the tine is returning to the working position with high speed and might throw with soil and stones.</b></p>
---	---

**Replacement of wearing point**



**Before working with the machine's wearing points, the machine is to be fastened. This can be performed by trestles under the main frame or by a support of the roller.**

**The wearing point might fall off, when the bolt is removed – take care to avoid foot and leg injuries.**

1. Dismount M16x65 mm **special bolt** (Pos. 1) by means of 2 pcs. 24 mm spanners.
2.  The wearing point might fall off, when the bolt is removed – take care to avoid foot and leg injuries.
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. Mount the new standard wearing point, item no. 645000044 (Pos. 2) by pushing the wearing point to the rear and then in its place.
5. Check the M16x65 mm bolt for eventual damages and replace it as required

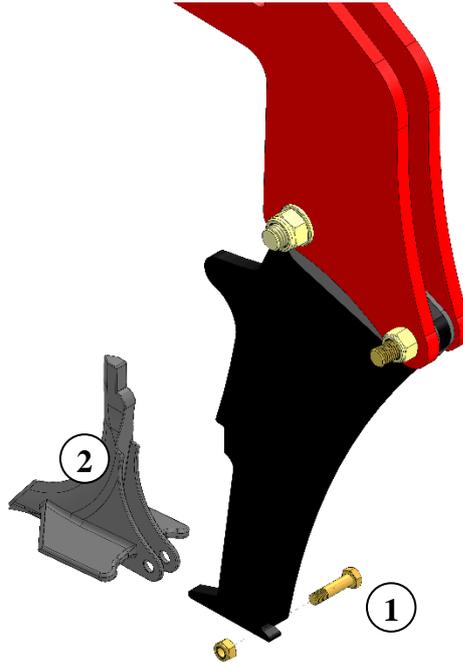
Item number: 0235852 + 0264090.

**IMPORTANT**

**Please note that the M16x65 bolt is a special bolt and it is important to reorder an original bolt. The bolt ensures that the ears are not tightened together**

6. Mount the M16 x 65 mm bolt (Pos. 1), lubricate and tighten it with 20 Nm. Be careful not to tighten too much – as the wearing point might be damaged.

## Replacement of wearing point Easy Draft



**Before working with the machine's wearing points, the machine is to be fastened. This can be performed by trestles under the main frame or by a support of the roller.**

**The wearing point might fall off, when the bolt is removed – take care to avoid foot and leg injuries.**

1. Dismount M12x50 mm **special bolt** (Pos. 1) by means of 2 pcs. of spanners.
2.  The wearing point might fall off, when the bolt is removed – take care to avoid foot and leg injuries.
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. Mount the new standard Easy Draft wearing point, item no. 645000056 (Pos. 2) by pushing the wearing point to the rear and then in its place.
5. Check the M12x50 mm special bolt for eventual damages and replace it as required.  
Item no. 0235372+0264070

### **IMPORTANT**

**Please note that the M12x50 bolt is a special bolt and it is important to reorder an original bolt. The bolt ensures that the ears are not tightened together**

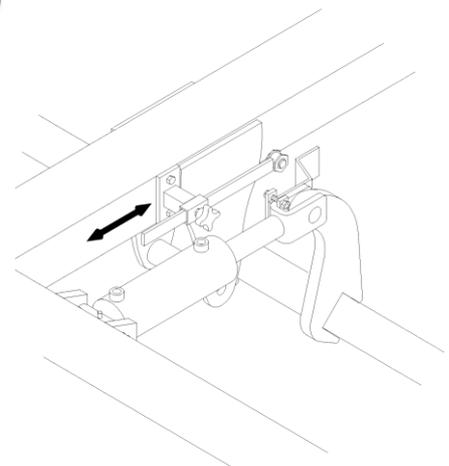
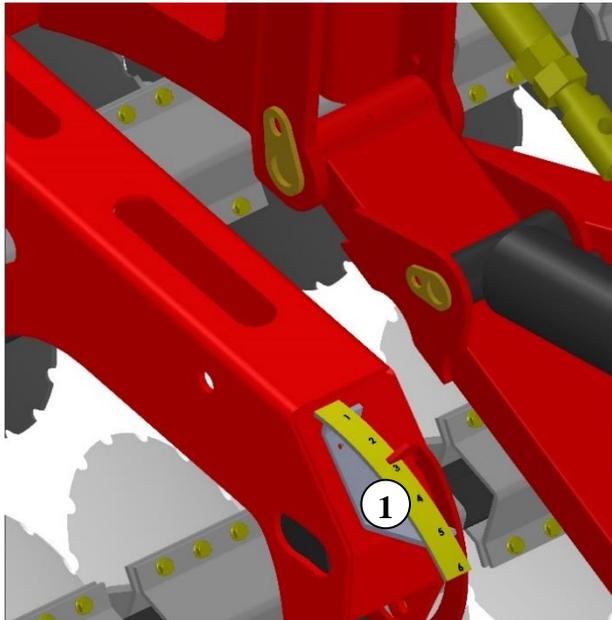
6. Mount the M12x50 mm bolt (Pos. 1), lubricate and tighten it with 20 Nm. Be careful not to tighten too much – as the wearing point might be damaged.

**Disc**

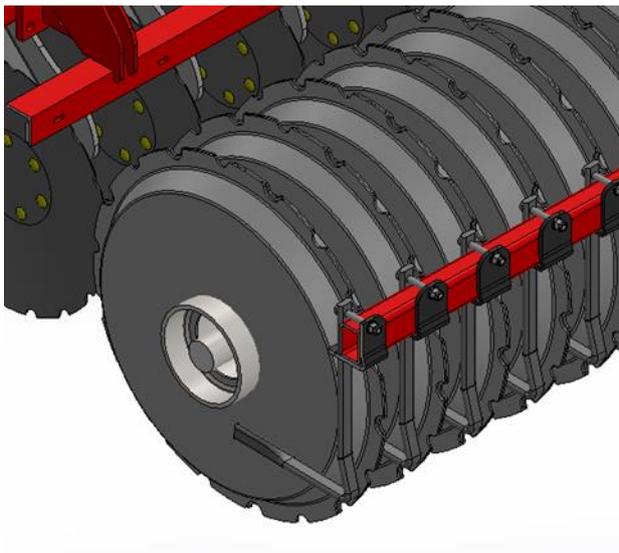
The working depth of the discs are adjusted hydraulically too. The depth position is readable on the scale (Pos. 1) (standard).

The sensor can be adjusted to the desired depth, where el. depth stop is mounted.

It is possible to over steer the electrical system by turning off the switch mounted in the cabin, now the discs can pass the sensor, thereby a deeper working depth is achieved.



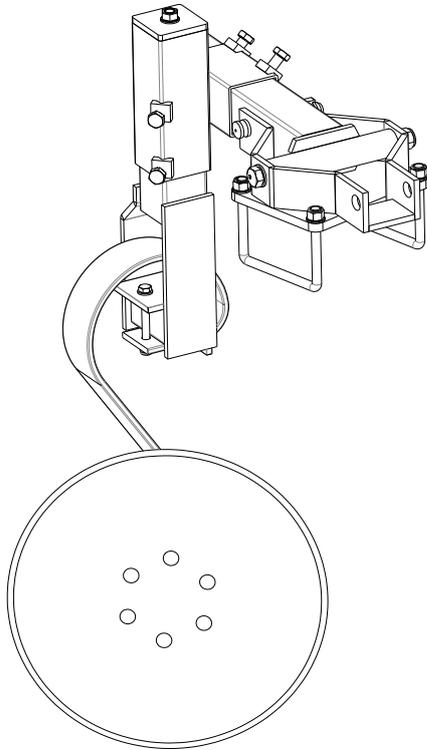
**Scraper**



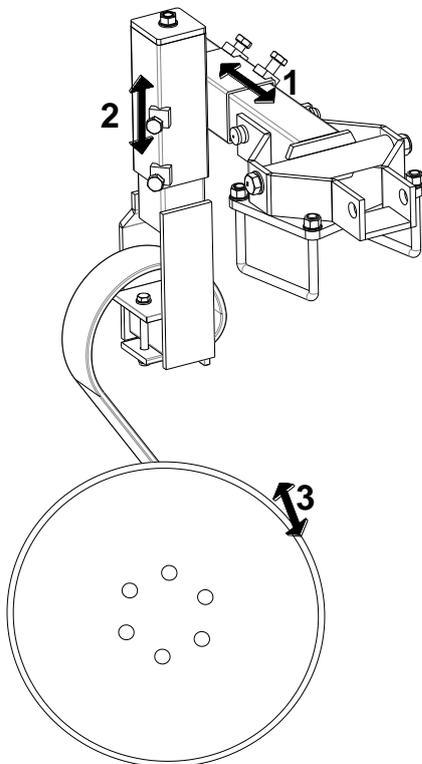
The Combi-Disc has scrapers of special steel among the rings on a V-Profile roller.

To avoid unnecessary wear and to obtain the best scraper effect it is important to check the centring of the scrapers every day.

**Edge equipment**



Adjust the edge equipment for the discs in the Combi-Disc so that the excavated soil is collected. Keep the discs away from the ground to avoid bending when turning.



Edge equipment can be adjusted at three points:

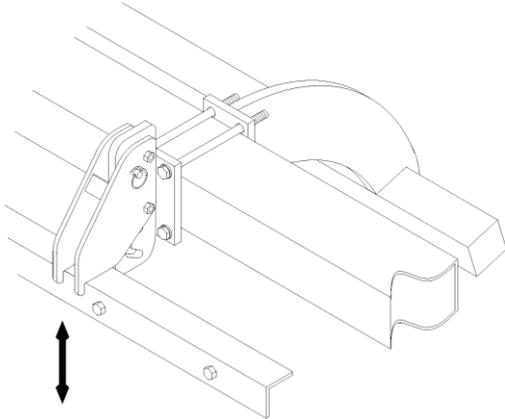
1. Loosen two bolts – move the arm out/in.
2. Use the spindle – it raises and lowers the disc. Loosen two bolts – raise/lower by the spindle and retighten the bolts.
3. Loosen one bolt – tilt the disc more or less.

### **Material damper guard**

The Combi-Disc can be equipped with material damper guard, Ensuring that excavated soil from the discs is falling down before packing.

The material damper guard is height adjustable in 5 cm steps, by unlocking 1 pin in each bracket.

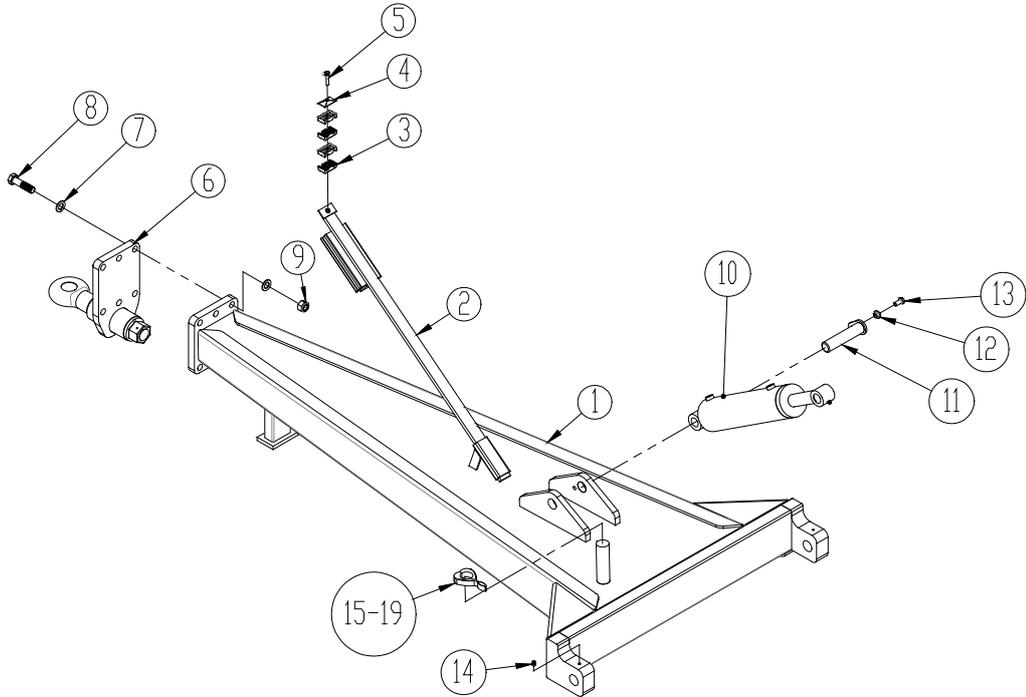
To dismount the material damper guard, unlock pins and unbolt.



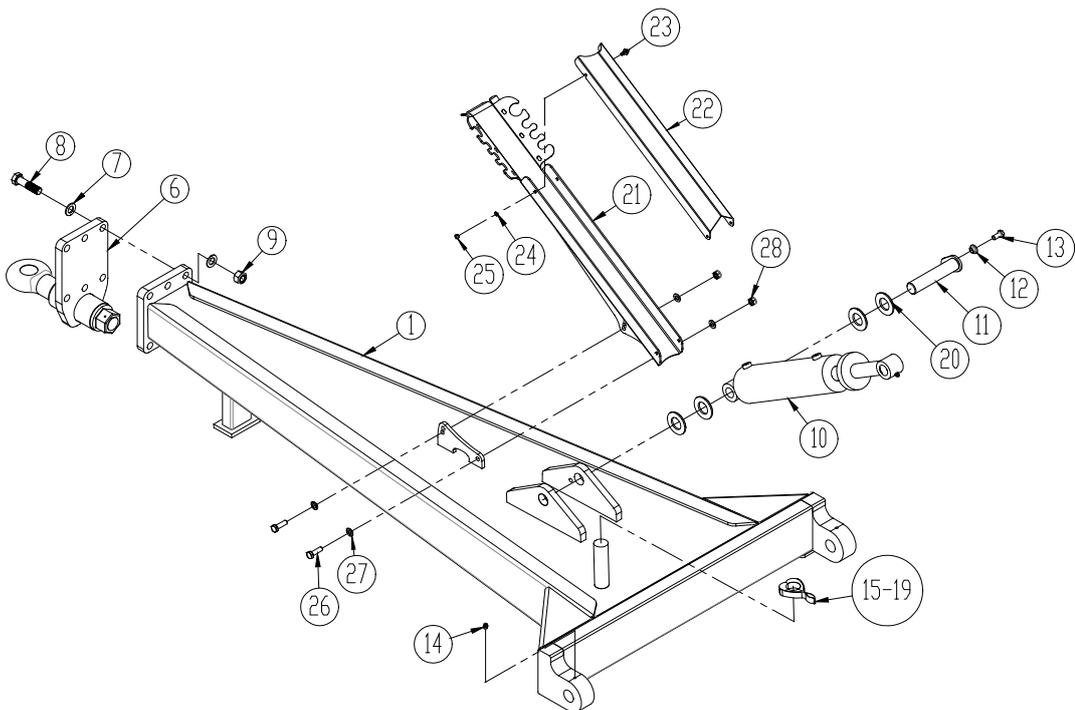
## Spare parts list

### Drawbar

#### Before february 2016

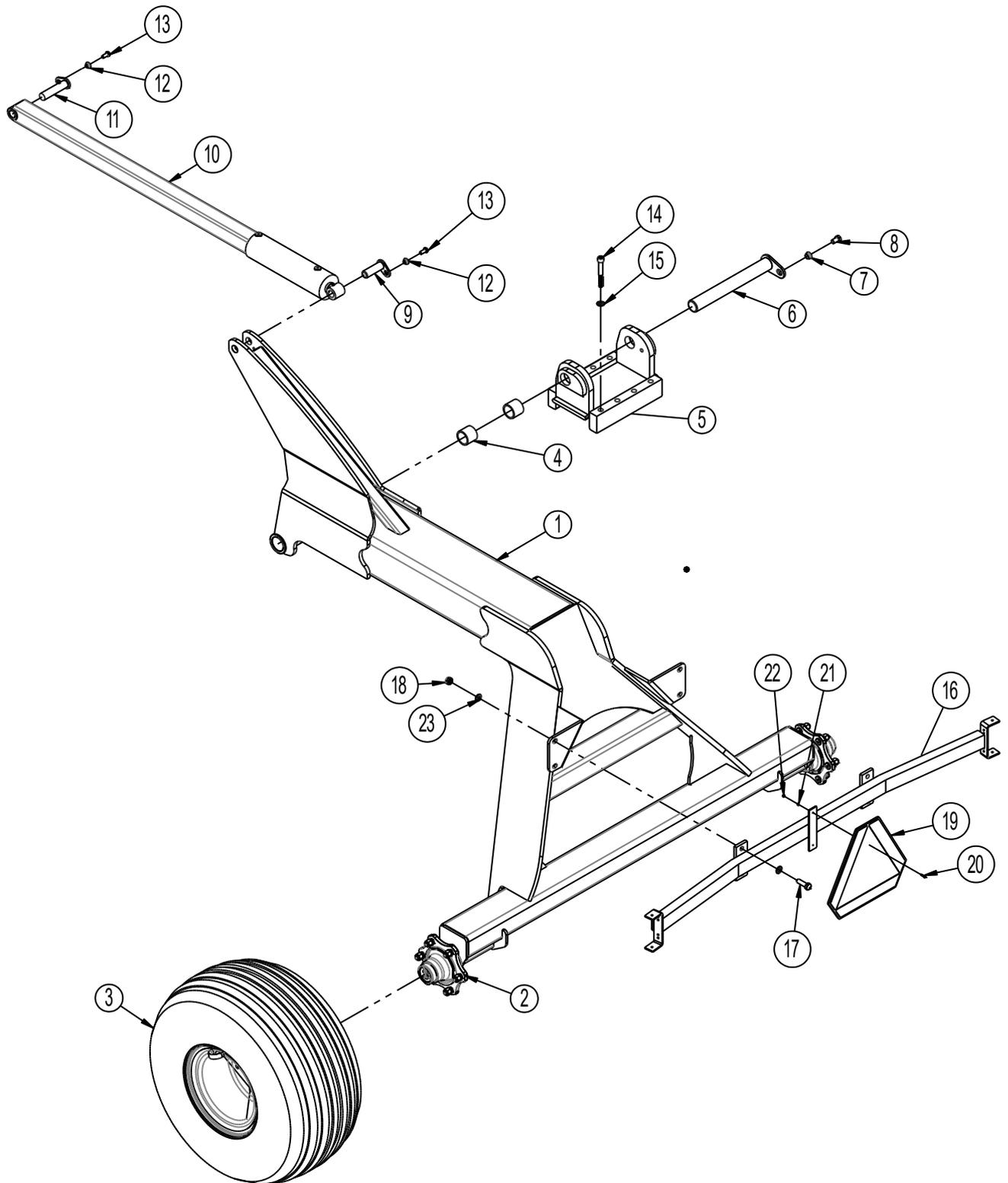


#### After february 2016



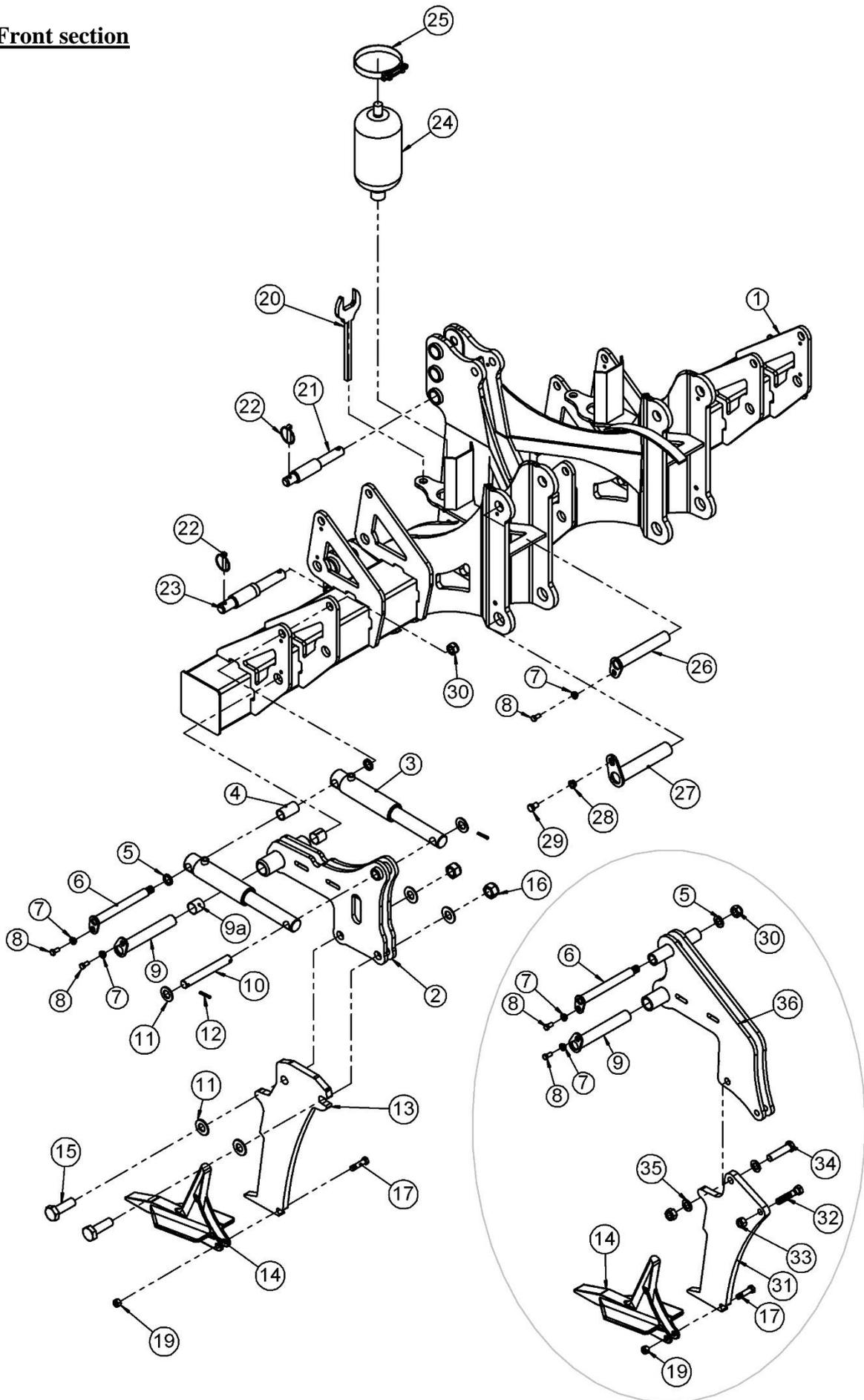
Pos.	Item no.	Designation	Qty.
1	645100404	Drawbar (to february 2016)	1
	1285054	Drawbar (from february 2016)	1
2	630771200	Parking device for hose (to february 2016)	1
3	0449430	Tube support double Ø14/Ø14 (to february 2016)	2
4	690210211	Top plate f/tube support (to february 2016)	1
5	0234790	Bolt M8x40 (to february 2016)	1
6	630757017	Towing eye	1
7	0272310	Facet plate Ø20	12
8	690103069	Bolt M20x80	6
9	0264110	Self-locking nut M20	6
10	0462750	Cylinder 90/40x280 Ø35/Ø32.5 for 3m Combi-Disc	1
	690200274	Gasket set for 0462750	
	0463302	Cylinder 100/40x280 Ø35/Ø32.5 for 3,5m and 4,0m Combi-Disc	1
	0463372	Gasket set for 0463302	
11	69435155G	Pin Ø35 L=155 (to february 2016)	1
	69435170G	Pin Ø35 L=170 (from february 2016)	1
12	630532600	Lock bush for pin head	1
13	0235330	Bolt M12x25	1
14	690136029	Lubricating nipple M8	1
15	690200664	Distance clips 6.2mm, blue	
16	690200665	Distance clips 9.4mm, red	
17	690200666	Distance clips 18.8mm, yellow	
18	690200667	Distance clips 31.6mm, black	
19	690200668	Distance clips 50.8mm, silver	
20	0272380	Facet plate ø36 (from feb 2016)	4
21	7345004	Hose holder (from feb 2016)	1
22	7345003	Screen for hose holder (from feb 2016)	1
23	0246060	Carriage bolt M6x16 (from feb 2016)	4
24	0272240	Facet plate Ø6 (from feb 2016)	4
25	0264040	Self-locking nut M6 (from feb 2016)	4
26	0235360	Bolt M12x40 (from feb 2016)	2
27	0272270	Facet plate Ø12 (from feb 2016)	4
28	0264070	Self-locking nut M12 (from feb 2016)	2

Wheel frame



Pos.	Item no.	Designation	Qty. 3m	Qty. 3,5m	Qty. 4m
1	1140873	Wheel frame (to machine No 33644)	1	1	1
	1141258	Wheel frame (from machine No 33645)	1	1	1
	1285060	Wheel frame (twin-roller) (to machine No 33644)	1	1	1
	1285149	Wheel frame (twin-roller) (from machine No 33645)	1	1	1
2	690141030	Hub 2500 kg	2	2	2
	0396420	Sealing ring			
	690140105	Bearing 30208			
	690140111	Bearing 30211			
	0396470	Hub nut			
	0396460	Hub bolt			
	690141033	Hub cap			
	0396480	Castellated nut			
3	0396300	Wheel (complete) 400/60 15.5 14PR	2	2	2
4	0475400	Press-on bush EG Ø60/50x50mm	2	2	2
5	645100313	Tightening bracket for wheel support	1	1	1
6	1160558	Pin Ø50 L=396	1	1	1
7	630532700	Locking bush	1	1	1
8	0235760	Bolt M16x25mm	1	1	1
9	69430090G	Pin Ø30 L=90 (to machine No 33644)	1	1	1
	69440090G	Pin Ø40 L=90 (from machine No 33645)	1	1	1
10	645100310	Cylinder for wheel support (to machine No 33644)	1		1
	1285030	Cylinder for wheel support (to machine No 33644)		1	
	1285156	Cylinder for wheel support (from machine No 33645)	1		1
	1285157	Cylinder for wheel support (from machine No 33645)		1	
	690200274	Gasket set			
11	69430125G	Pin Ø30 L=125	1	1	1
12	630532600	Locking bush	2	2	2
13	0235330	Bolt M12x25mm	2	2	2
14	0228512	Hexagon socket screws M16x120 12.9 DIN912	8	8	8
15	0272900	Faceted disc Ø16 (hardened) FZV	8	8	8
16	630835015	Light bar	1	1	1
17	690103197	Bolt M16x50	4	4	4
18	0264090	Self-locking nut M16	4	4	4
19	0521010	Warning triangle	1	1	1
20	0233860	Bolt M5x20	2	2	2
21	0272230	Facet plate Ø5	4	4	4
22	0264030	Self-locking nut M5	2	2	2
23	0272290	Faceted disc Ø16	8	8	8

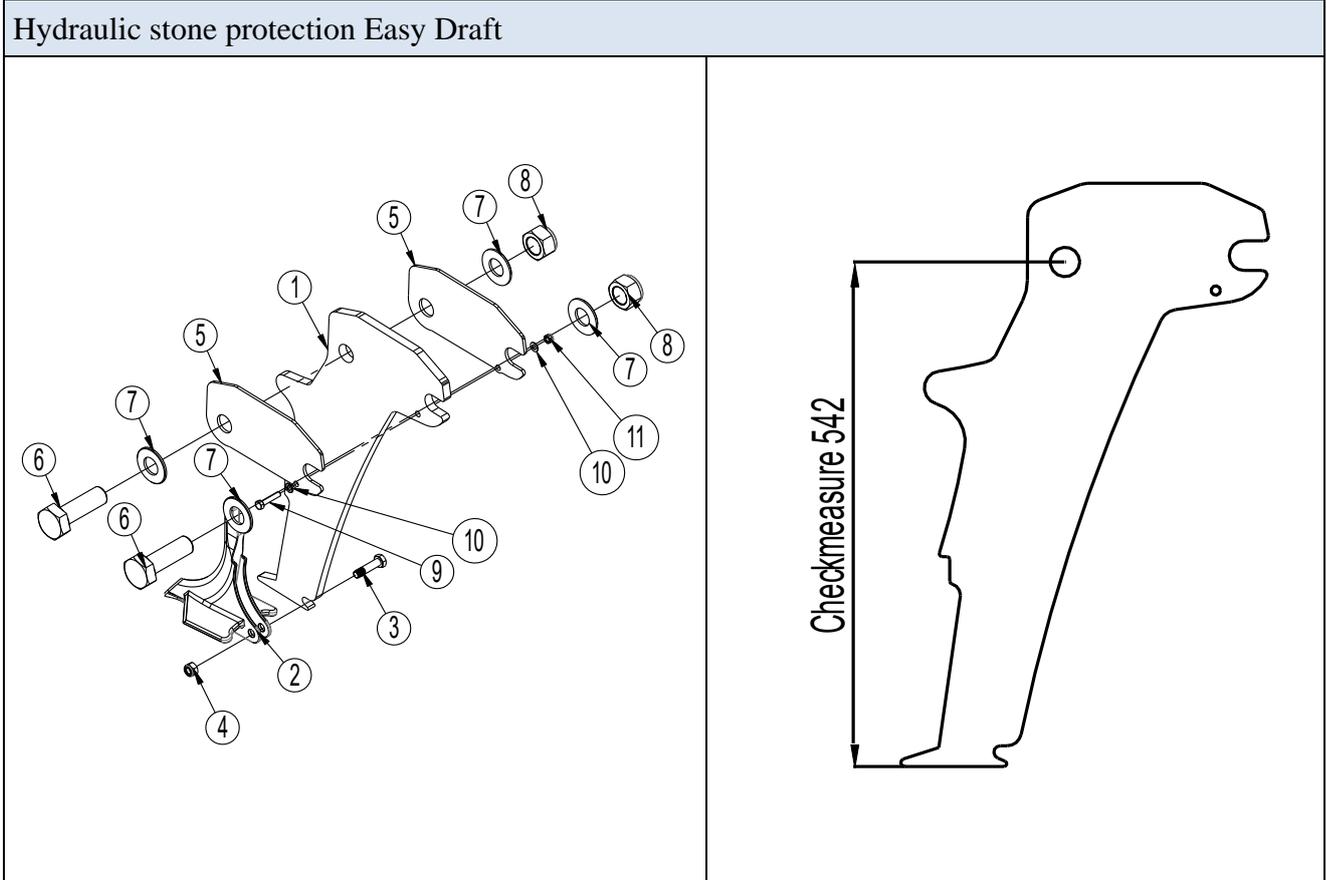
**Front section**



Pos.	Item no.	Designation	Qty. 3m	Qty. 3,5m	Qty. 4m
1	645100325	Front section	1		
	645100435	Front section		1	
	1285003	Front section			1
2	645100330	Leg bracket for auto reset system	5	6	7
3	690200344	Cylinder 70x60x50	10	12	14
4	645100312	Distance bush Ø40/Ø31 L=74	5	6	7
5	645100403	Adjustment shim Ø40/Ø31 L=8	10	12	14
6	645100288	Pin Ø30 L=262	5	6	7
7	630532600	Locking bush	12	14	16
8	0235330	Bolt M12x25	12	14	16
9	645100290	Pin Ø40 L=262	5	6	7
9a	0475100	Sliding bearing PCM Ø40/Ø44 L=40	10	12	14
10	645100339	Pin Ø30 L=237	5	6	7
11	0272350	Facet plate Ø30	30	36	42
12	0371700	Retaining pin Ø8x50	10	12	14
13	645100196	Leg <i>(See the following pages)</i>	5	6	7
14	645000044	Wearing point 200mm	5	6	7
	645000043	Wearing point 120mm	5	6	7
	645000063	Wearing point 350mm	5	6	7
15	690103868	Bolt M30x95	10	12	14
16	0264155	Self-locking nut M30	10	12	14
17	0235852	Bolt M16x65 (special bolt)	5	6	7
19	0264090	Self-locking nut M16	5	6	7
20	1285105	Adjustment key	1	1	1
21	69532105C	Pin for top link CAT ¾ Ø32/Ø44,5 L=288	1	1	1
22	690134008	Ring pin Ø11,5mm	3	3	3
23	69537105C	Pin for lower link CAT ¾ Ø37/Ø50 L=288	2	2	2
24	690206513	Accumulator 4,5L 90 bar	2	2	2
25	690206516	Clamp for accumulator	2	2	2
26	645100277	Pin Ø40 L=250	2	2	2
27	645100281	Pin Ø50 L=256	2	2	2
28	630532700	Locking bush	2	2	2
29	0235760	Bolt M16x25	2	2	2
30	0264130	Self-locking nut M24	5	6	7
31	1285197	Leg <i>(See the following pages)</i>	5	6	7
32	690152045	Shearbolt M20x100 ST.10.9	5	6	7
33	0264110	Self-locking nut M20 DIN985	5	6	7
34	0236415	Bolt M24x100mm 10.9	5	6	7
35	0272330	Facet plate Ø24mm	5	6	7
36	1285195	Leg bracket for shearbolt	5	6	7

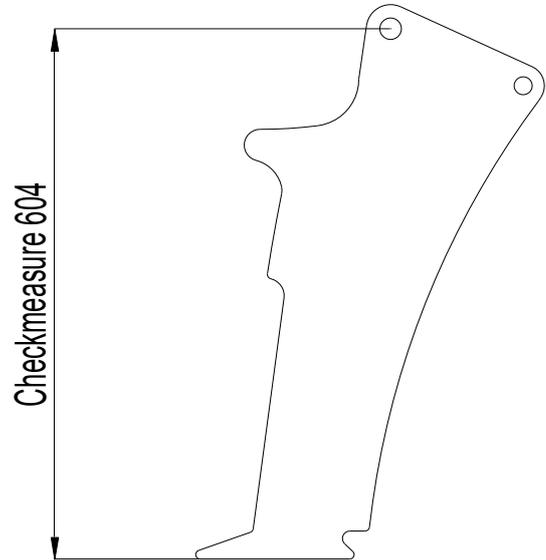
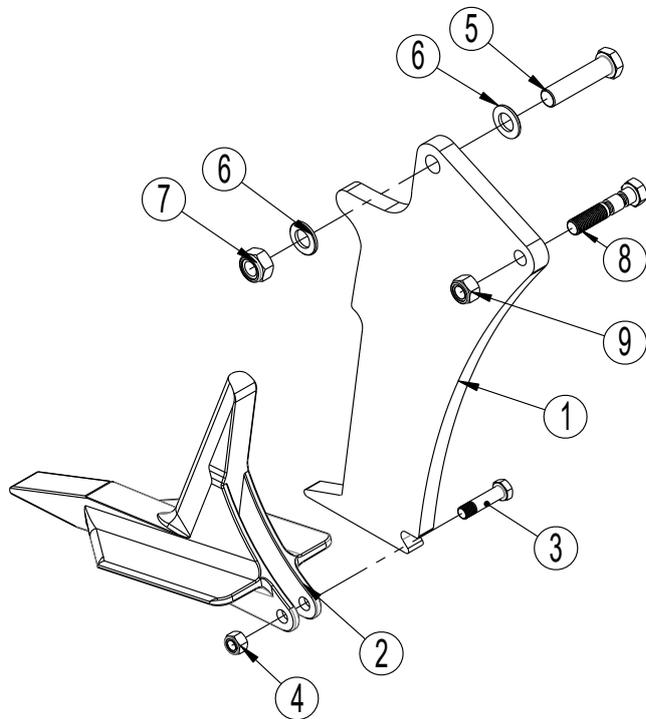
**Leg**

Hydraulic stone protection			
Pos.	Item no.	Designation	Qty. per tine
1	645100196	Leg	1
2	645000044	Wearing point 200mm	
	645000044T	Wearing point 200mm w/tungsten	
	645000043	Wearing point 120mm	
	645000043T	Wearing point 120mm w/tungsten	
	645000063	Wearing point 350mm	
3	0235852	Bolt M16x65 8.8 DIN931 Specialbolt	1
4	0264090	Self-locking nut M16	1
5	690103868	Bolt M30x95 10.9	2
6	0272350	Faceted disc Ø30	4
7	0264155	Self-locking nut M30	2



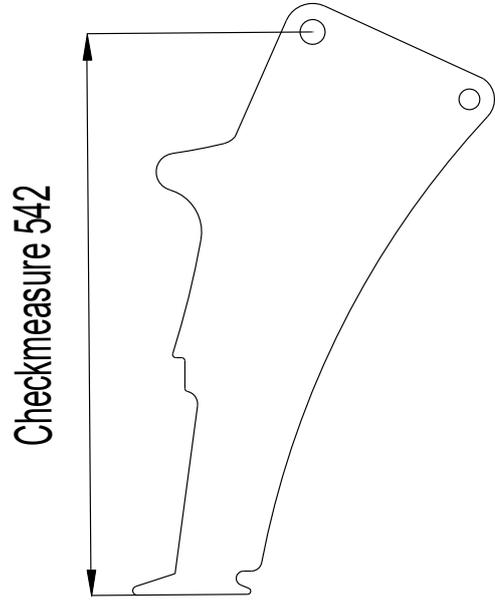
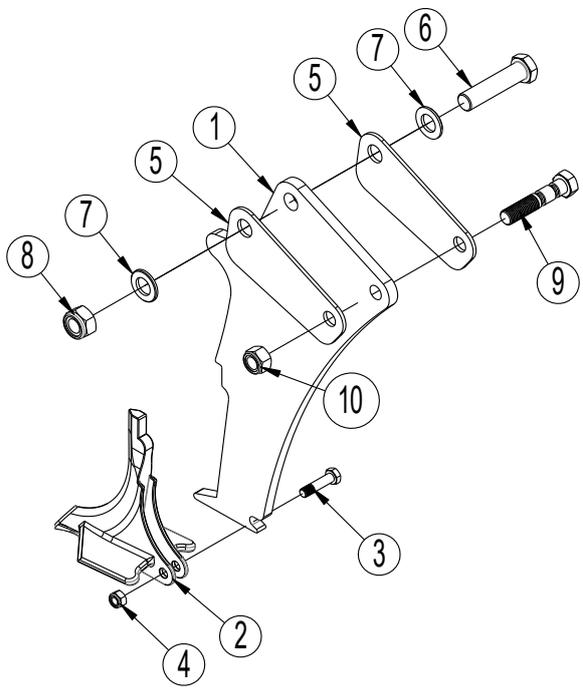
Pos.	Item no.	Designation	Qty. per tine
1	1285089	Leg	1
2	645000054	Wearing point w/tungsten center 200mm	
	645000054T	Wearing point w/tungsten center/wing 200mm	
	645000056	Wearing point w/tungsten center 120mm	
	645000056T	Wearing point w/tungsten center/wing 120mm	
3	0235372	Bolt M12x50mm 8.8.fzb DIN931 Specialbolt	1
4	0264070	Self-locking nut M12 DIN985	1
5	1285088	Shims, 5mm, Easy-Draft ben	2
6	690103868	Bolt M30x95 10.9 ( ISO7412 )	1
7	0272350	Faceted disc Ø30 fzb DIN125B	4
8	0264155	Self-locking nut M30	2
9	0234790	Bolt M8x40mm 8.8 fzb	1
10	0272250	Faceted disc Ø8mm, fzb	2
11	0264050	Self-locking nut M8 DIN985	1

Shear bolt stone protection



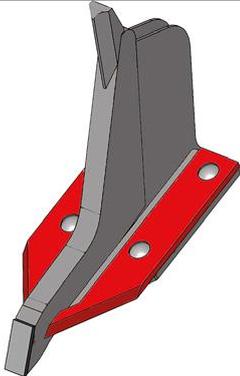
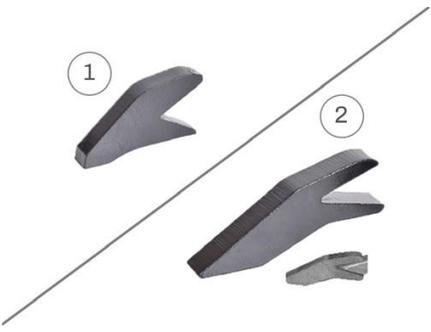
Pos.	Item no.	Designation	Qty. per tine
1	1285197	Leg	1
2	645000044	Wearing point 200mm	
	645000044T	Wearing point 200mm w/tungsten	
	645000043	Wearing point 120mm	
	645000043T	Wearing point 120mm w/tungsten	
	645000063	Wearing point 350mm	
3	0235852	Bolt M16x65 8.8 DIN931 Specialbolt	1
4	0264090	Self-locking nut M16	1
5	0236415	Bolt M24x100 10.9	1
6	0272330	Faceted disc Ø24	2
7	0264130	Self-locking nut M24 DIN985	1
8	690152045	Shear bolt M20x100	1
9	0264110	Self-locking nut M20	1

Shear bolt stone protection Easy Draft



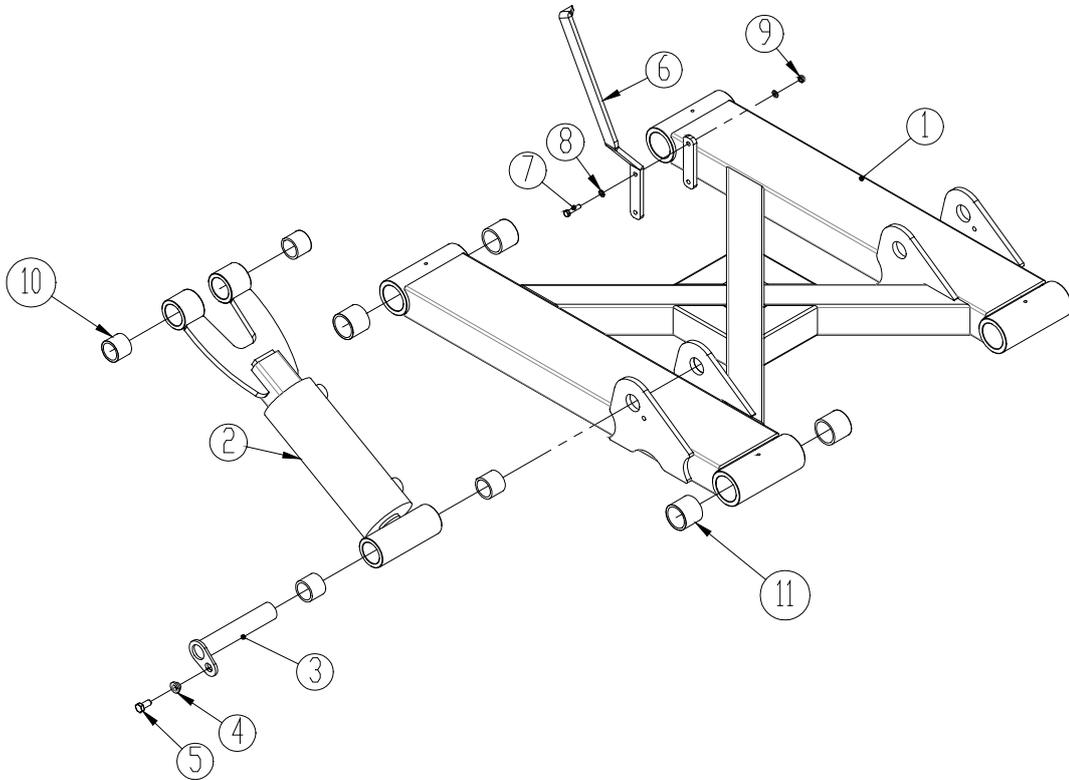
Pos.	Item no.	Designation	Qty. per tine
1	1285225	Leg	1
2	645000054	Wearing point w/tungsten center 200mm	
	645000054T	Wearing point w/tungsten center/wing 200mm	
	645000056	Wearing point w/tungsten center 120mm	
	645000056T	Wearing point w/tungsten center/wing 120mm	
3	0235372	Bolt M12x50mm 8.8.fzb DIN931 Specialbolt	1
4	0264070	Self-locking nut M12 DIN985	1
5	1285224	Shims, 5mm, Easy-Draft ben	2
6	0236410	Bolt M24x100mm, 8.8 fzg	1
7	0272330	Faceted disc ø24mm	2
8	0264130	Self-locking nut M24 DIN985	2
9	1285330	Shear bolt M20x100 10.9	1
10	0264110	Self-locking nut M20 DIN985	1

**Wearing points**

		
Width of wing 120 mm 645000043	Width of wing 200 mm 645000044	Width of wing 350 mm 645000063
		
With tungsten/hard metal Width of wing 120 mm 645000043T	Wear parts set incl bolts Mount on 645000044T 200 mm Width of wing 64509-22 350 mm Width of wing 64509-23	Welding points Used for 645000044T Pos. 1 645000045T Used for 645000044 Pos. 2 645000045
		
Easy Draft 120 mm Wearing point w/tungsten center 645000056	Easy Draft 200 mm Wearing point w/tungsten center/wing 645000054	
120 mm Wearing point w/tungsten center/wing 645000056T	200 mm Wearing point w/tungsten center/wing 645000054T	

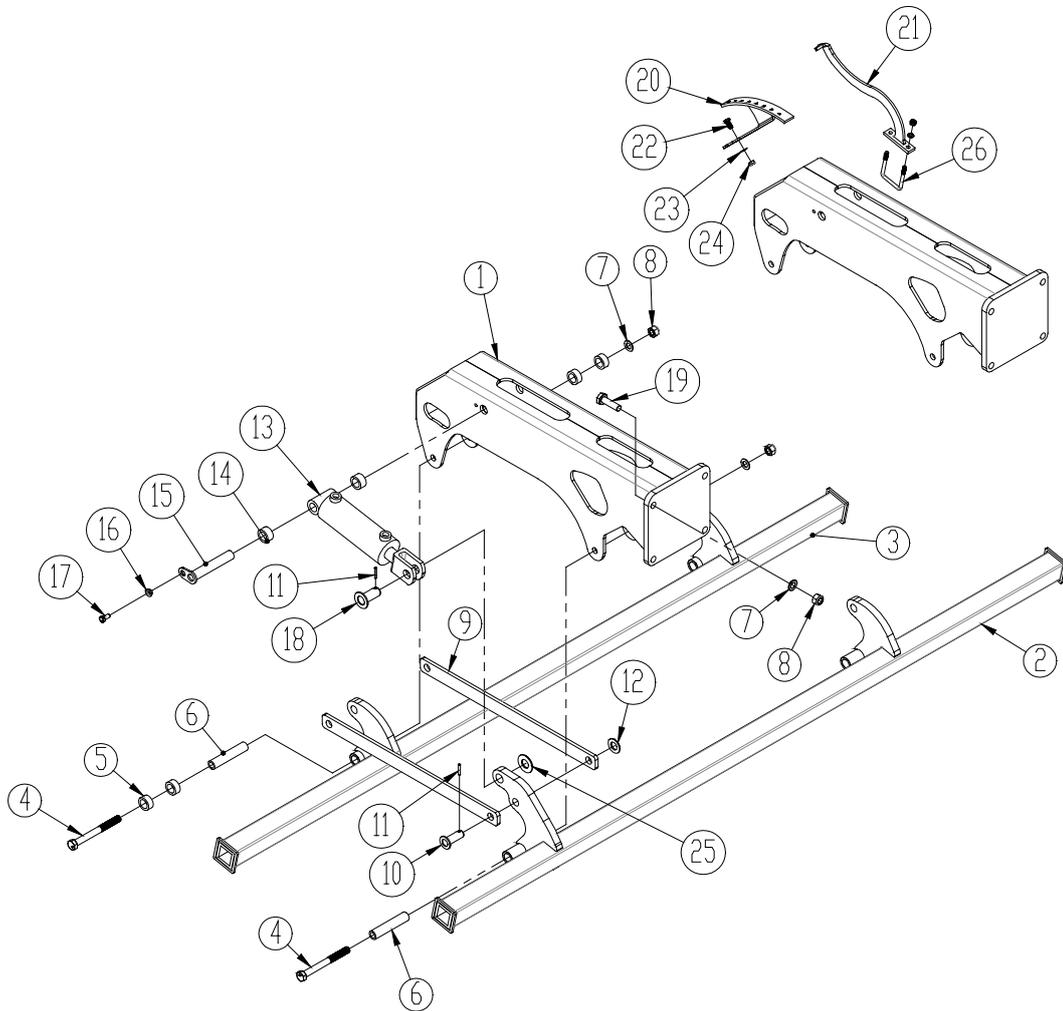
**Notes:**

**Parallel guide**



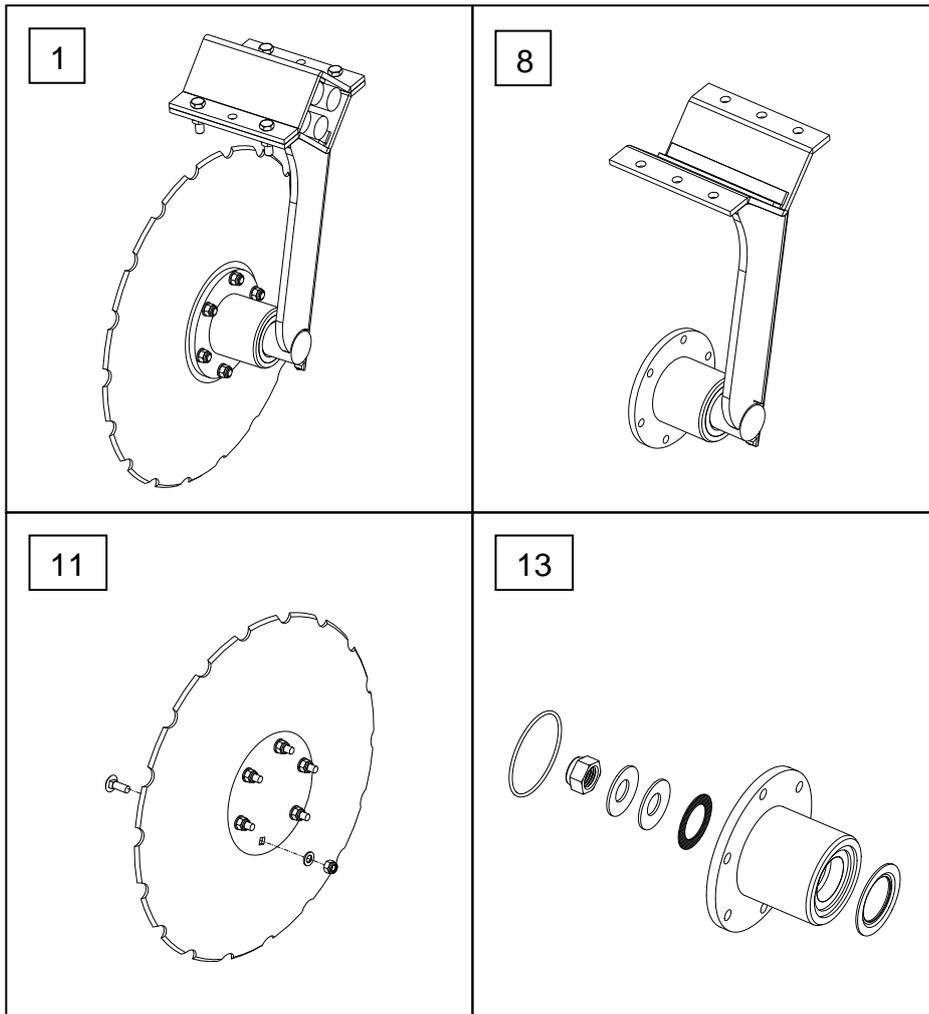
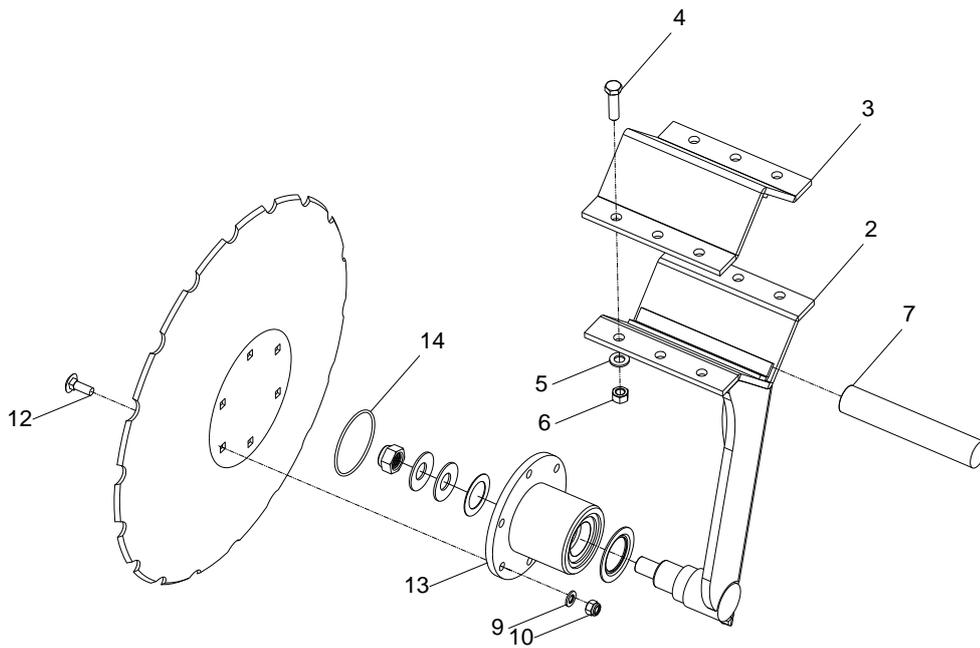
Pos.	Item no.	Designation	Qty. 3m	Qty. 3,5m	Qty. 4m
1	645100233	Parallel guide	1		1
	1285021	Parallel guide		1	
2	690200342	Cylinder Ø100/50x250mm	2	2	2
3	645100273	Pin Ø40 L=213	2	2	2
4	630532600	Locking bush	2	2	2
5	0235330	Bolt M12x25	2	2	2
6	645100369	Pointer	1	1	1
7	0234780	Bolt M8x35	2	2	2
8	0272250	Facet plate Ø8	4	4	4
9	0264050	Self-locking nut M8	2	2	2
10	0475330	Press-on bush EG Ø50/40x40mm	8	8	8
11	0475400	Press-on bush EG Ø60/50x50mm	8	8	8

**Disc support**



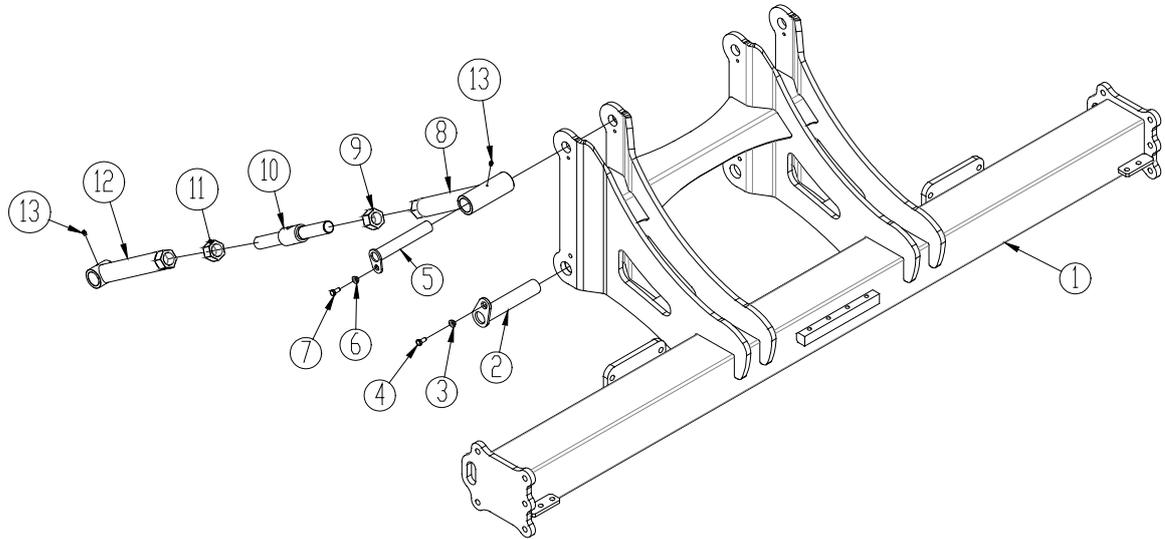
Pos.	Item no.	Designation	Qty. 3m	Qty. 3,5m	Qty. 4m
1	630949071	Horn	2	2	4
2	645100224	Rear bar	1		
	1285036	Rear bar		1	
	1285001	Rear bar			1
3	645100218	Front bar	1		
	1285034	Front bar		1	
	1285000	Front bar			1
4	690103172	Bolt M20x200	4	4	8
5	630949078	Bush L=20mm	8	8	16
6	630929130	BK-tube Ø30x5mm L=148mm	4	4	8
7	0272310	Facet plate Ø20	12	12	24
8	0264110	Self-locking nut M20	12	12	24
9	630949077	Rod for parallel motion	4	4	8
10	69525061F	Pin Ø25 L=61	4	4	8
11	690130132	Roll pin Ø6x40	5	4	8
12	0272340	Facet plate Ø27	4	4	8
13	690200123	Cylinder 80/40x155	1	2	2
14	630949076	Bush L=24mm	2	4	4
15	69430175G	Pin Ø30 L=175	1	2	2
16	630532600	Locking bush for pin head	1	2	2
17	0235330	Bolt M12x25	1	2	2
18	69530060F	Pin Ø30 L=58mm	1	2	2
19	0236150	Bolt M20x70	8	8	16
20	1285137	Scale	1	1	1
21	1285134	Pointer	1	1	1
22	0235050	Bolt M10x30	2	2	2
23	0272260	Facet plate Ø10	4	4	4
24	0264060	Self-locking nut M10	4	4	4
25	0272350	Facet plate Ø30	1	2	2
26	0382110	U-bolt M10x70x70x70	1	1	1

Disc



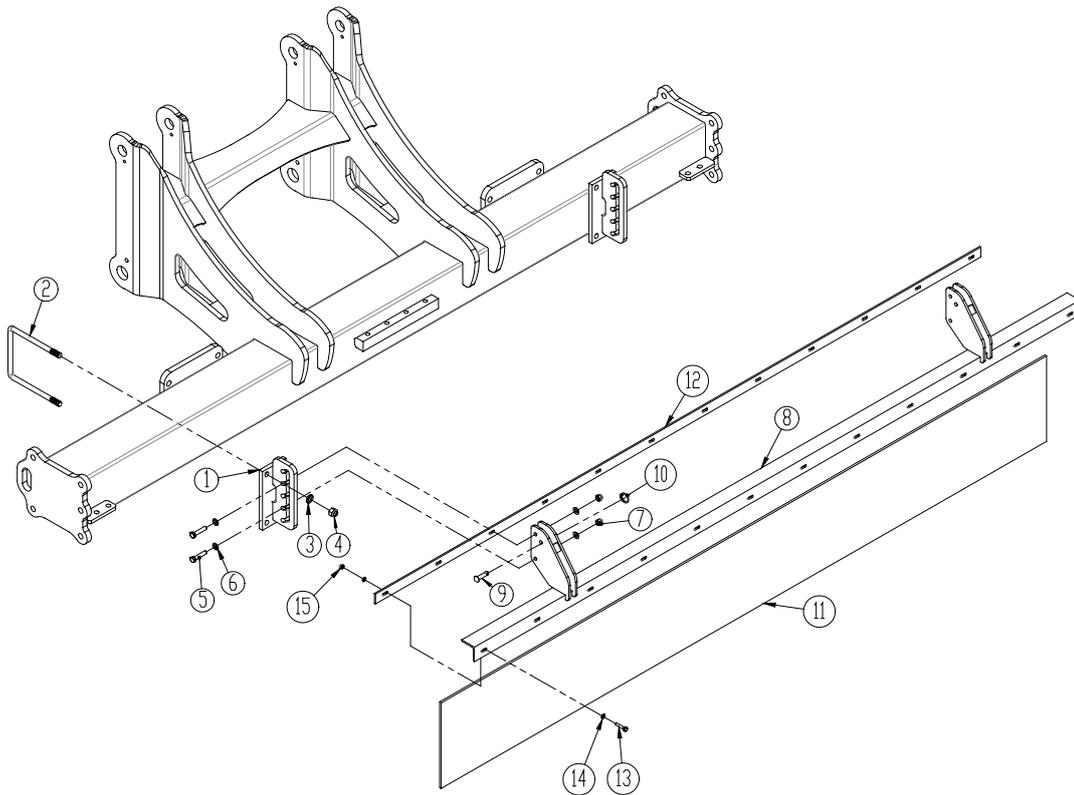
Pos.	Item no.	Designation	Qty. 3m	Qty. 3,5m	Qty. 4m
1	630949022	Complete disc unit with carrier arm (left) (rear bar)			
1	630949012	Complete disc unit with carrier arm (right) (front bar)			
2	630949026	Carrier arm (left)	11	13	15
2	630949016	Carrier arm (right)	11	13	15
3	630949046	Clamping plate for carrier arm	22	26	30
4	690103091	Bolt M12x45 10.9	88	104	120
5	690117014	Facet plate Ø12	88	104	120
6	690113013	Self-locking nut M12	88	104	120
7	690210710	Rubber cord Ø35 L=190	88	104	120
8	630949025	Complete carrier arm with hub (left) (rear bar)	11	13	15
8	630949015	Complete carrier arm with hub (right) (rear bar)	11	13	15
9	690117012	Facet plate Ø10	132	156	180
10	690113005	Self-locking nut M10	132	156	180
11	690153508	Sabre disc, scalloped Ø508 x 4,0 with 6 holes / flat centre. Incl bolts - facet plates - nuts	22	26	30
12	690101210	Bolt M10 x 30 (carriage bolt) 8.8	132	156	180
13	630949032	Repair outfit / conversion set incl. hub			
14	690140910	O-Ring Ø 80.0 x 3.0mm			
14	0483738	O-ring Ø 84.50 x 3.0mm			

**Rear section**



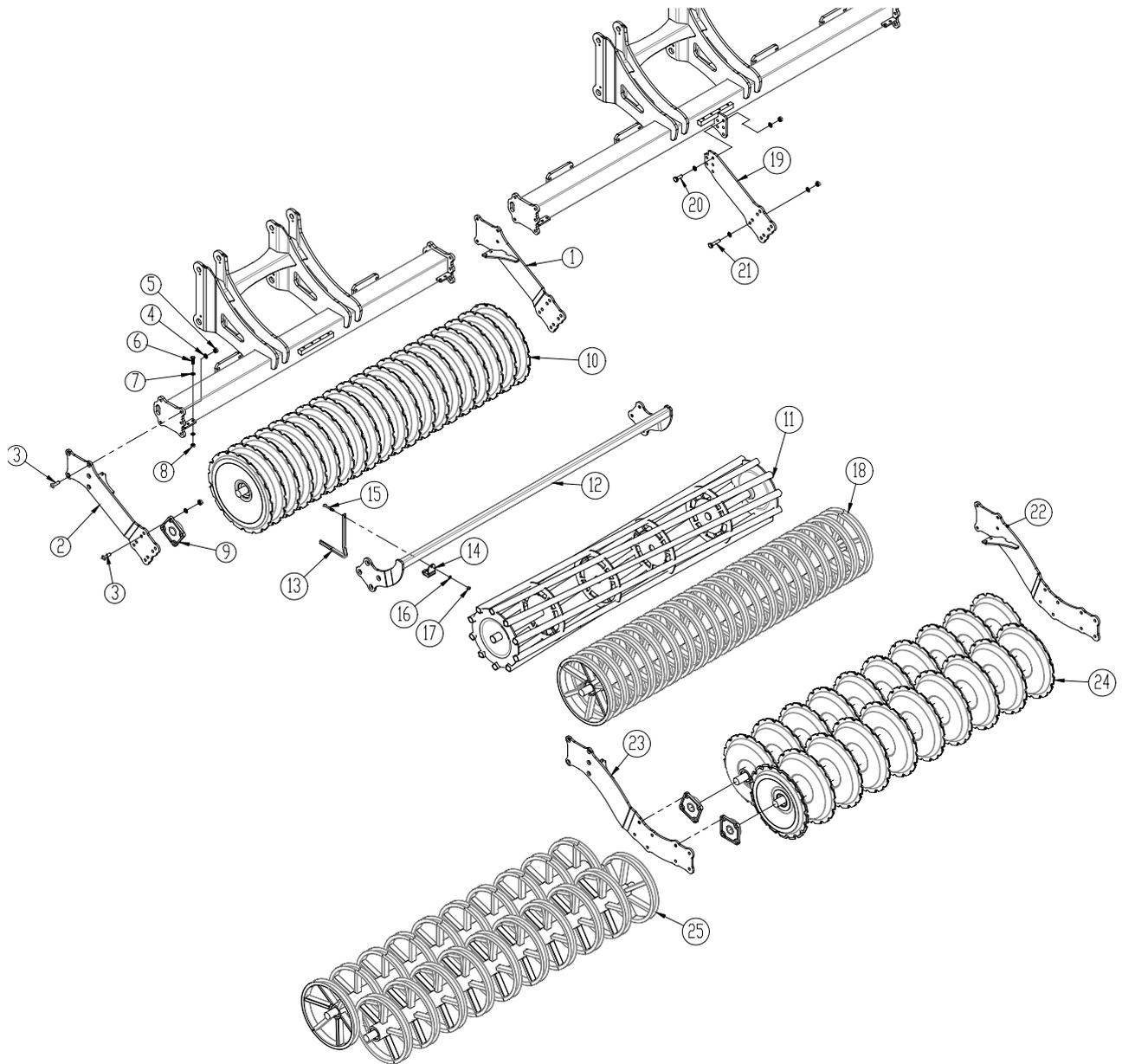
Pos.	Item no.	Designation	Qty. 3m	Qty. 3,5m	Qty. 4m
1	645100226	Rear section	1		
	1285025	Rear section		1	
	1285002	Rear section			1
2	645100281	Pin Ø50 L=256	2	2	2
3	630532700	Locking bush for pin head	2	2	2
4	0235760	Bolt M16x25	2	2	2
5	645100277	Pin Ø40 L=250	2	2	2
6	630532600	Locking bush for pin head	2	2	2
7	0235330	Bolt M12x25	2	2	2
8	645100265	Tip for top link	2	2	2
9	1170296	Threaded nut (right-handed)	2	2	2
10	645100267	Middle part for top link	2	2	2
11	1170295	Threaded nut (left-handed)	2	2	2
12	645100269	Tip for top link	2	2	2
13	0432500	Lubricating nipple	4	4	4

**Material damper guard**



Pos.	Item no.	Designation	Qty. 3m	Qty. 3,5m	Qty. 4m
1	645100423	Bracket	2	2	4
2	690110109	U-bolt M16x180x180x180	4	4	8
3	0272290	Facet plate Ø16	8	8	16
4	0264090	Self-locking nut M16	8	8	16
5	0235390	Bolt M12x55	4	4	8
6	0272270	Facet plate Ø12	8	8	16
7	0264070	Self-locking nut M12	4	4	8
8	645100430	L-bar	1		
	1285041	L-bar		1	
	1285011	L-bar (left)			1
	1285130	L-bar (right)			1
9	69512040k	Round head pin Ø12,5 L=40	2	2	4
10	0431975	Retaining ring	2	2	4
11	645100449	Rubber mat	1		
	1285160	Rubber mat		1	
	1285121	Rubber mat			2
12	645100446	Mounting rail	1		
	1285043	Mounting rail		1	
	1285013	Mounting rail			2
13	0234790	Bolt M8x40	12	14	16
14	0272250	Facet plate Ø8	24	28	32
15	0264050	Self-locking nut M8	12	14	16

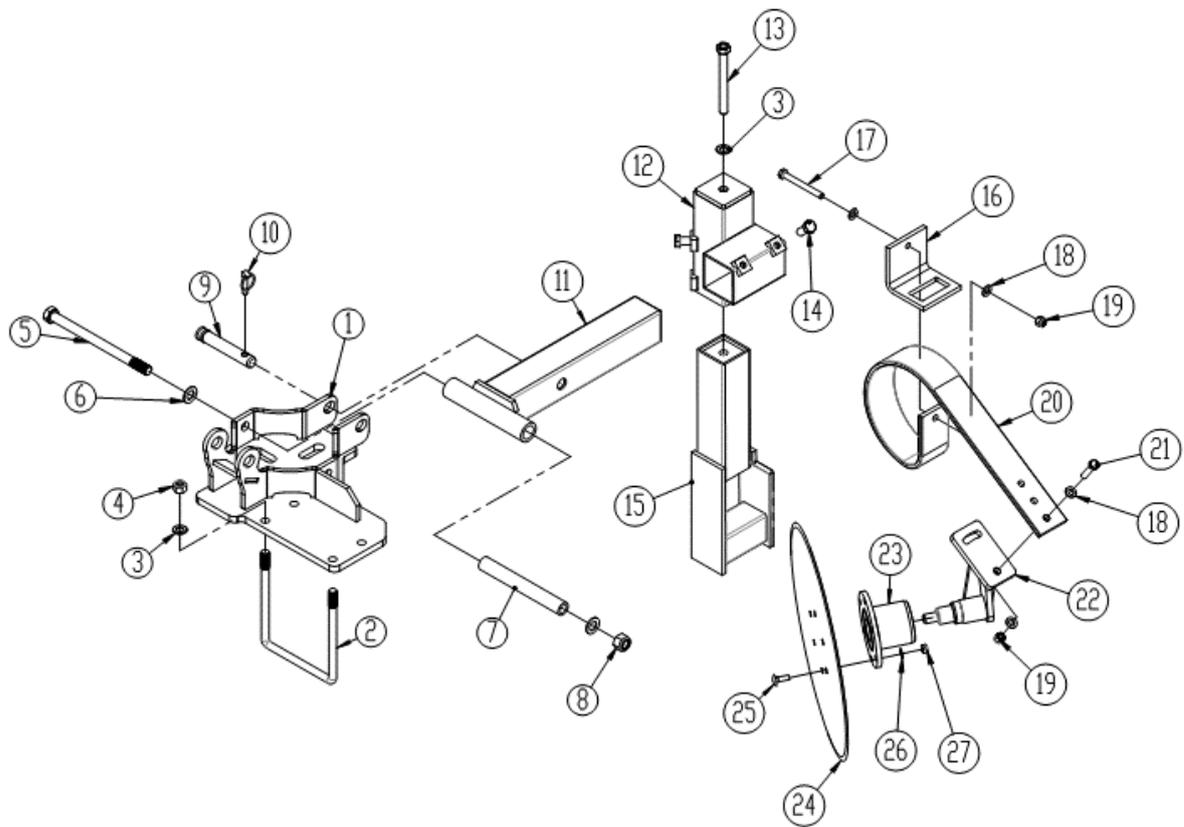
**Roller bar**



Pos.	Item no.	Designation	Qty. 3m	Qty. 3,5m	Qty. 4m
1	645100445	Arm for roller bar f/Ø600 og Ø700mm roller bar (right)	1	1	1
2	645100444	Arm for roller bar f/Ø600 og Ø700mm valse (left)	1	1	1
3	0229260	Bolt (hexagon socket) M20x80mm	18	18	18
		Bolt (hexagon socket) M20x80mm (Twin)	26	26	26
4	0272310	Facet plate Ø20	18	18	18-36
		Facet plate Ø20 (Twin)	26	26	26
5	0264110	Self-locking nut M20	18	18	18-27
		Self-locking nut M20 (Twin)	26	26	26

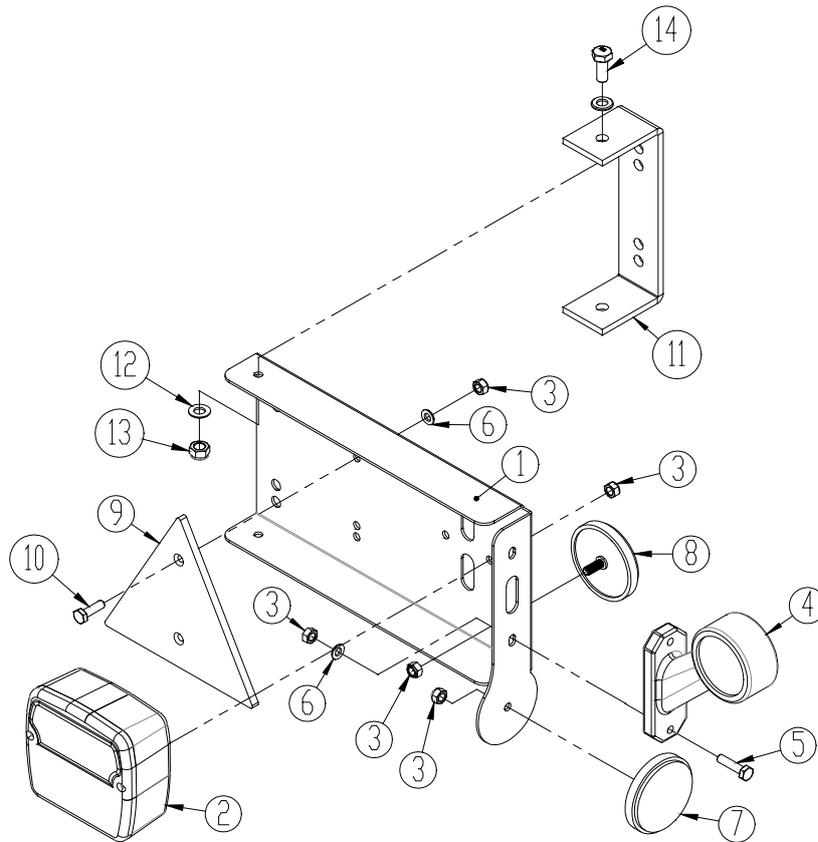
Pos.	Item no.	Designation	Qty. 3m	Qty. 3,5m	Qty. 4m
6	0235810	Bolt M16x50mm	4	4	4
7	0272290	Facet plate Ø16	8	8	8
8	0264090	Self-locking nut M16	4	4	4
9	0478971	Bearing UCF312 (with one roller)	2	2	4
		Bearing UCF312(with <b>Twin</b> roller)	4	4	4
10	1160470	V-profile roller Ø600mm ringes	1		
	7451018	V-profile roller Ø700mm ringes	1		
	1160480	V-profile roller Ø600mm ringes		1	
	7451049	V-profile roller Ø700mm ringes		1	
	7451096	V-profile roller Ø600mm ringes			2
	7451099	V-profile roller Ø700mm ringes			2
11	1048240	Square tube roller	1		
	1048280	Square tube roller		1	
	1048330	Square tube roller			1
12	645100280	Scraper bar f/600 mm V-profile and U-profile roller	1		
	645100426	Scraper bar f/700 mm V-profile roller	1		
	1285038	Scraper bar f/Ø600 mm V-profile and U-profile roller		1	
	1285040	Scraper bar f/Ø700 mm V-profile roller		1	
	1285009	Scraper bar f/Ø600 mm V-profile and U-profile roller			1
	1285046	Scraper bar f/Ø700 mm V-profile roller			1
13	630938520	Scraper (Ø600mm roller)	19	22	26
	630938521	Scraper (Ø700mm roller)	19	22	26
14	630938522	Clamping bracket	19	22	26
15	0235450	Bolt M12x90	19	22	26
16	0272270	Facet plate Ø12	19	22	26
17	0264070	Self-locking nut M12	19	22	26
18	7450029	U- profile roller Ø600mm ringes	1		
	7450048	U- profile roller Ø600mm ringes		1	
	7450050	U- profile roller Ø600mm ringes			1
19	1285131	Arm for roller bar (center)			1
20	0236130	Bolt M20x60			5
21	0236180	Bolt M20x90			4
22	1285064	Arm for roller bar ( <b>Twin</b> ) f/Ø600mm roller (right)	1	1	1
23	1285056	Arm for roller bar ( <b>Twin</b> ) f/Ø600mm roller (left)	1	1	1
24	7451078	V- profile roller Ø600mm ringes ( <b>Twin</b> )	2		
	7451061	V- profile roller Ø600mm ringes ( <b>Twin</b> )		2	
	7451066	V- profile roller Ø600mm ringes ( <b>Twin</b> )			2
25	7450013	U- profile roller Ø600mm ringes ( <b>Twin</b> )	2		
	7450041	U- profile roller Ø600mm ringes ( <b>Twin</b> )		2	
	7450044	U- profile roller Ø600mm ringes ( <b>Twin</b> )			2

**Edge equipment**



Pos.	Item no.	Designation	Qty.
1	645100371	Bracket f/edge equipment	1
2	690110109	U-bolt M16 x 180x180x180	2
3	0272290	Facet plate Ø16	
4	0264090	Self-locking nut M16	
5	0236315	Bolt M20x280	1
6	0272310	Facet plate Ø20	2
7	630943095	BK-tube 30x5mm L=233	1
8	0264110	Self-locking nut M20	1
9	69525107J	Pin Ø25 L=107	1
10	0378600	Ring split	1
11	630943090	Joint f/edge equipment	1
12	630943099	Spindle cross joint	1
13	630943109	Adjusting bolt	1
14	690103124	Bolt M16x35	4
15	630943102	Spindle	1
16	0422390	Clamp for tine	1
17	690103098	Bolt M12x110	1
18	0272270	Facet plate Ø12	4
19	0264070	Self-locking nut M12	2
20	0422145	Tine 80x10mm	1
21	0235380	Bolt M12x50	1
22	630943080	Console for axle	1
23	630949035	Complete hub	1
24	690153509	Disc	1
25	0248421	Carriage bolt M10x30	6
26	0272260	Facet plate Ø10	6
27	0264060	Self-locking nut M10	6

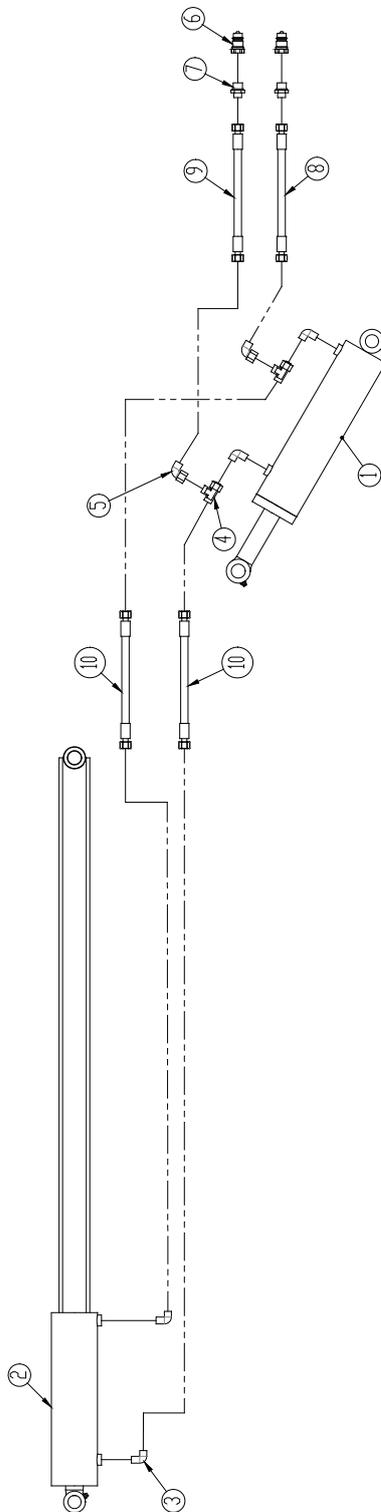
**LED-Light**



Pos.	Item no.	Designation	Qty.
1	7357505	Light bracket, left	1
	7357508	Light bracket, right	1
2	7357504	Rear light	2
3	0264030	Self-locking nut M5	16
4	7357507	Marking lights (left)	1
	7357509	Marking lights (right)	1
5	0234860	Bolt M5x20	4
6	0272230	Facet plate Ø5	8
7	0656240	Reflex, yellow	2
8	0656250	Reflex, white	2
9	0521030	Reflex, red	2
10	0234860	Bolt M5x20	4
11	7357516	Bracket	2
12	0272240	Facet plate Ø6	8
13	0264040	Self-locking nut M6	4
14	0234330	Bolt M6x20	4

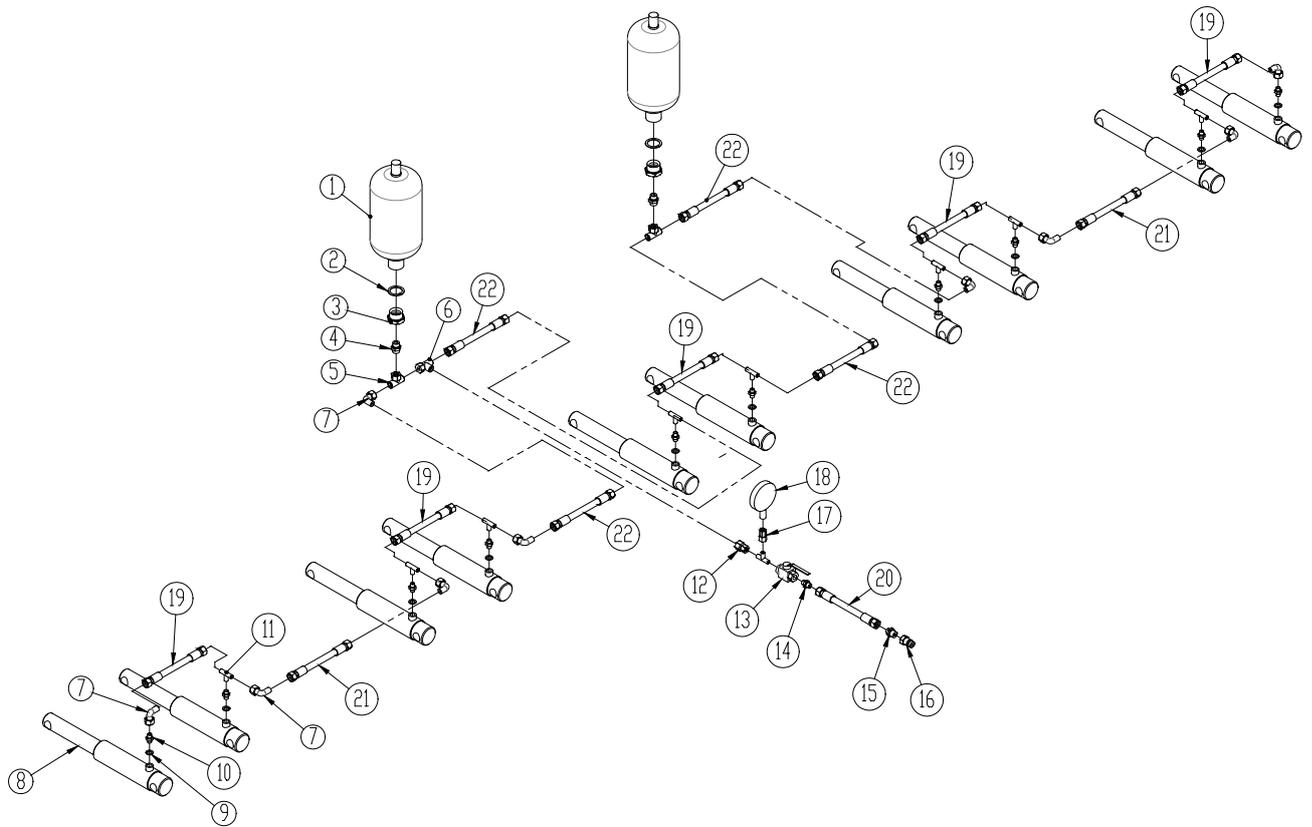
## Hydraulics

### Wheel support



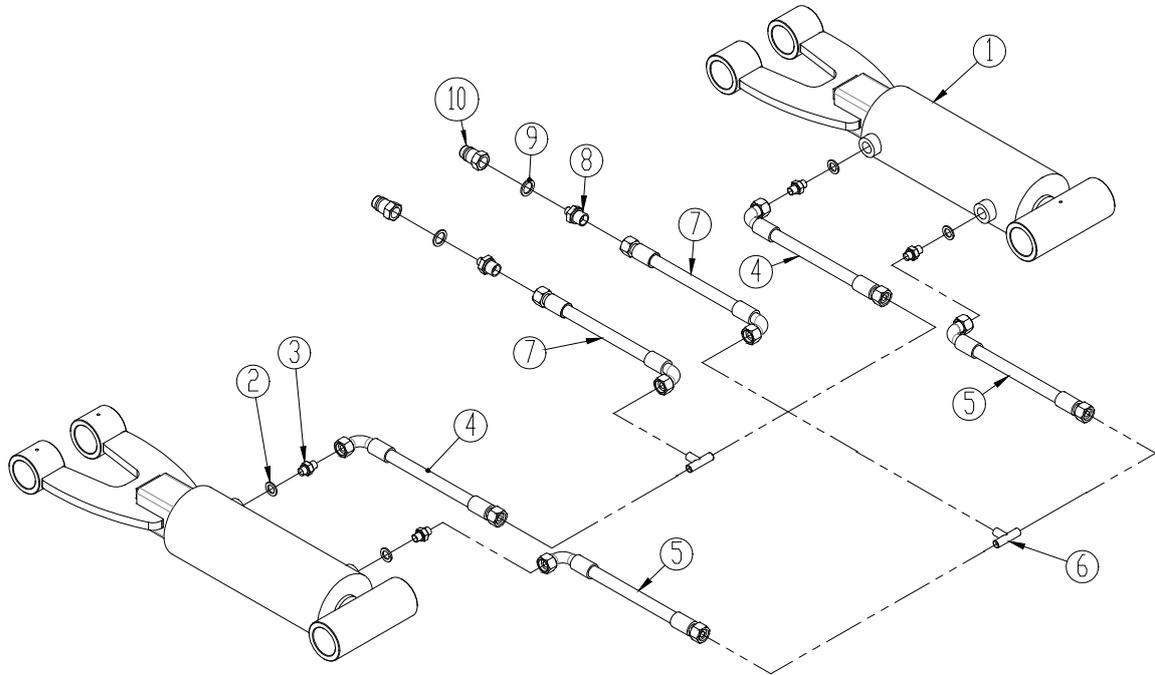
Pos.	Item no.	Designation	Qty. 3m	Qty. 3,5m	Qty. 4m
1		See pos 10 page 24	1	1	1
2		See pos 10 page 26	1	1	1
3	0446200	Fitting 90-angle 3/8"	2	2	2
4	0446502	Fitting T-nipple Ø12mm/o-ring	2	2	2
5	0446679	Fitting 90-angle Ø12mm	2	2	2
6	0444020	Quick coupling 1/2"	2	2	2
7	690203103	Fitting straight 1/2" Ø12	2	2	2
8	0454835	Hydr. hose 2950mm 3/8" st/st	1	1	1
9	0454909	Hydr. hose 3250mm 3/8" st/st	1	1	1
10	0454665	Hydr. hose 2450mm 3/8" st/st	2	2	2

**Hydraulic stone protection**



Pos.	Item no.	Designation	Qty. 3m	Qty. 3,5m	Qty. 4m
1	690206513	Accumulator 4,5L 90bar	2	2	2
2	0449110	Bounded seal 1 ¼"	2	2	2
3	690204501	Fitting straight ½" x 1 ¼"	2	2	2
4	0446757	Fitting straight Ø15mm x ½"	2	2	2
5	690204505	Fitting T Ø15mm	2	2	2
6	0446500	Fitting T15L	1	1	1
7	0446680	Fitting 90-angle Ø15 pre-mounted connector	9	11	13
8		See pos 3 page 30	10	12	14
9	0449060	Bounded seal 3/8"	20	24	28
10	0446752	Fitting straight Ø10-½"	20	24	28
11	690204507	Joint T15 without/connector	8	10	12
12	0447710	Reversed fitting Ø15/Ø12	1	1	1
13	0442350	Ball plug valve 3/8"	1	1	1
14	0446751	Fitting straight Ø10-3/8"	1	1	1
15	0446752	Fitting straight Ø10-½"	1	1	1
16	0444020	Quick coupling ½"	1	1	1
17	690206825	Pressure gauge fitting Ø12 / 1/4"	1	1	1
18	0442051	Pressure gauge 400 bar	1	1	1
19	690201414	Hydr. hose 400mm ½" st/st	5	6	7
20	690201046	Hydr. hose 1660mm ¼" st/st (lift-mounted)	1	1	1
	690201003	Hydr. hose 4550mm ¼" st/st (trailed)	1	1	1
21	690201449	Hydr. hose 850mm ½" st/st	2	3	4
22	690201423	Hydr. hose 500mm ½" st/st	4	4	4

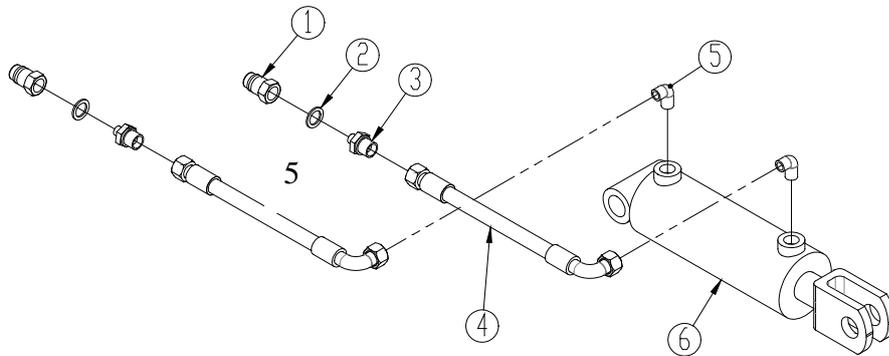
**Rear section lifting**



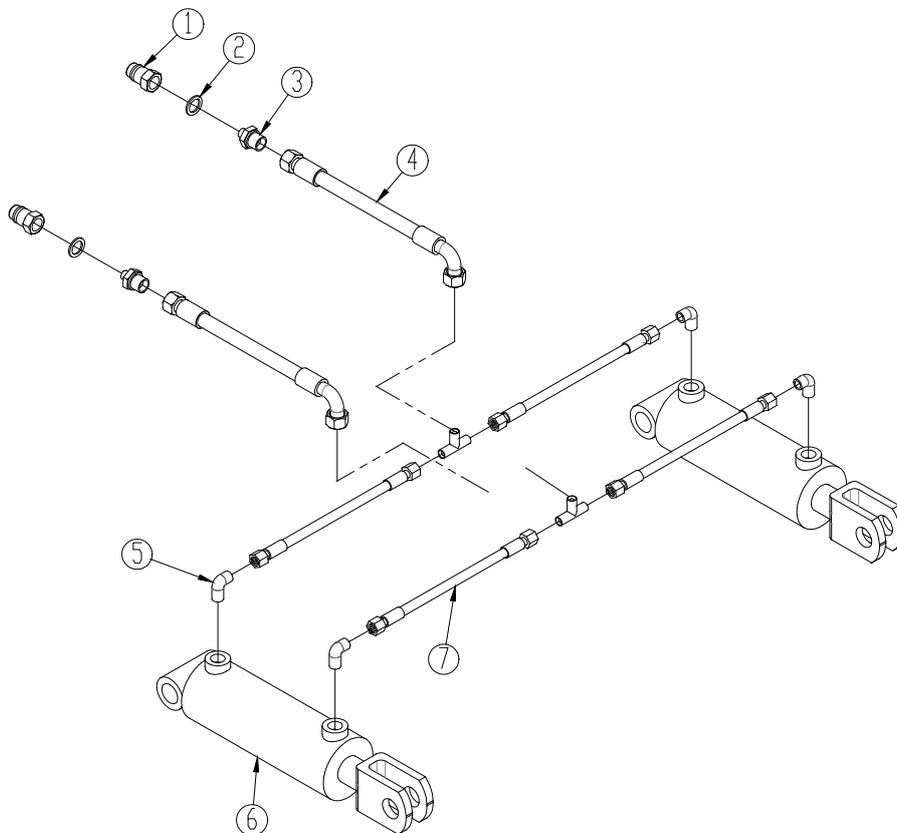
Pos.	Item no.	Designation	Qty. 3m	Qty. 3,5m	Qty. 4m
1		See pos 2 page 32	2	2	2
2	0449060	Bounded seal 3/8"	4	4	4
3	0444530	Hexagon nipple 3/8"	4	4	4
4	0454212	Hydr. hose 710mm 3/8" st/st	2	2	
	xxx	Hydr. hose xxxmm 3/8" st/st			2
5	0454170	Hydr. hose 500mm 3/8" st/st	2		
	0454212	Hydr. hose 710mm 3/8" st/st		2	
	xxx	Hydr. hose xxxmm 3/8" st/st			2
6	0446520	T-nipple 3/8"	2	2	2
7	0454835	Hydr. hose 2950mm 3/8" st/st (lift-mounted)	2	2	2
	0455022	Hydr. hose 5750mm 3/8" st/st (trailed)	2	2	2
8	0444550	Hexagon nipple 1/2" x 3/8"	2	2	2
9	0449070	Bounded seal 1/2"	2	2	2
10	0444020	Quick coupling 1/2"	2	2	2

**Disc adjustment**

**3,0 m without el. depth stop**



**3,5m and 4,0m without el. depth stop**



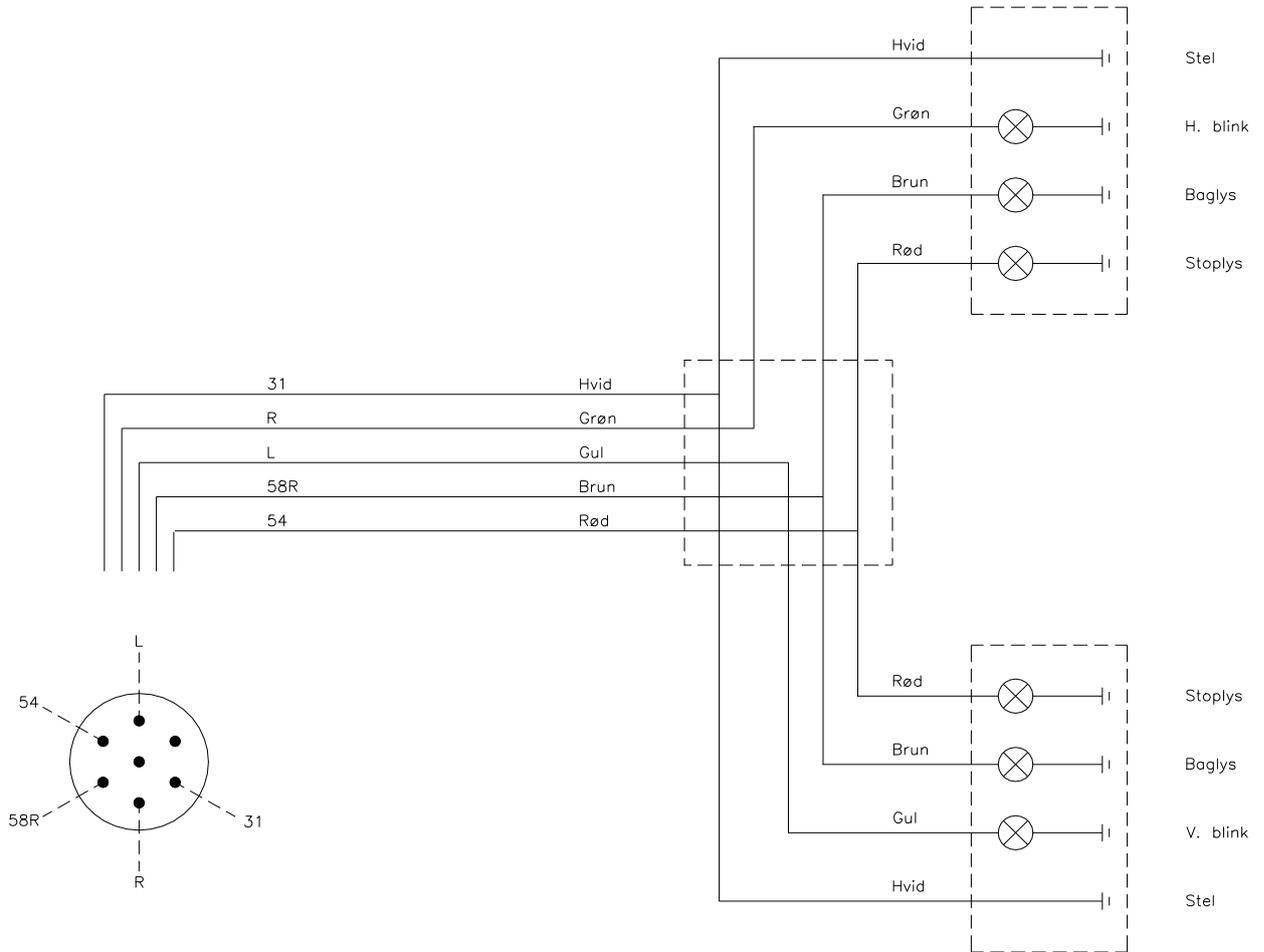
Pos.	Item no.	Designation	Qty. 3m	Qty. 3,5m	Qty. 4m
1	0444020	Quick coupling ½"	2	2	2
	0449070	Bounded seal ½"			
3	0444490	Fitting straight ½" x ¼"	2	2	2
4	0455085	Hydr. hose 7050mm ¼" st/st (trailed)	2		
	0455021	Hydr. hose 5750mm ¼" st/st (trailed)		2	
	xxx	Hydr. hose xxxxmm ¼" st/st (trailed)			x
	0454967	Slange 4200mm ¼" st/st (lift-mounted)	2		
	0454834	Hydr. hose 2950mm ¼" st/st (lift-mounted)		2	
	xxx	Hydr. hose xxxxmm ¼" st/st (lift-mounted)			x
5	690203006	Fitting 90-angle 10-3/8" BSP	2	2	2
6		See pos. 13, page 34	1	2	2
7	0454498	Hydr. hose 1590mm ¼" st/st (lift-mounted)		4	
	xxx	Hydr. hose xxxxmm ¼" st/st (lift-mounted)			4

## Diagrammes

### Light kit

HVID = white  
 GRØN = green  
 BRUN = brown  
 RØD = red  
 GUL = yellow

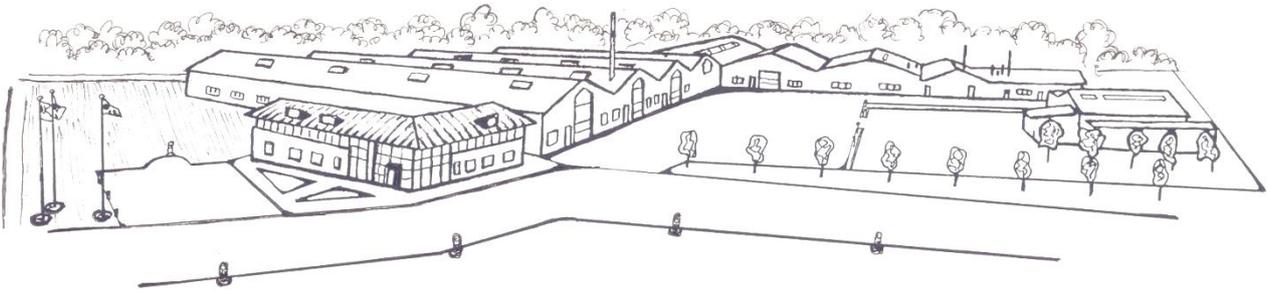
STEL = chassis  
 H. BLINK / V. BLINK = right turn signal / left turn signal  
 BAGLYS = rear light  
 STOPLYS = stop light



## Notes



as it looks  
As good as it looks



The design is subject to modification without notice.

