

UK

HE-VA



Operating Instructions Declaration of Conformity

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

Combi-Disc

Trailed 2-link models: 4,5 m - 5,5 m

Manual no. 8000501-02 200121 Part 1 of 2



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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:

Combi-Disc 4,5m – 5,5m

Nykøbing the 1st of June 2017

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

Villy Christiansen

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

Delivery check

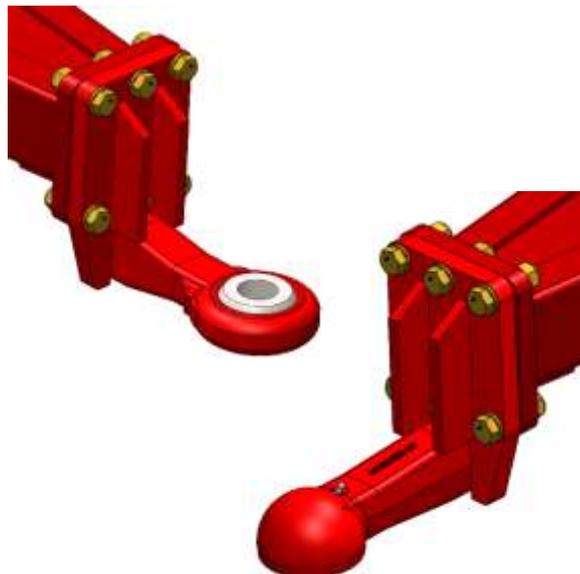
Setting-up of the machine

Check :

- the roller for any damage.
- the roller for any paint damage during transport.
- the hydraulic hoses for cuts and squeezing damage. Check also that the other hydraulic components have not been damaged during transport.
- that the frame construction has not been damaged.
- that the transport wheel nuts are tightened and OK.
- the air pressure in the tyres (according to the technical specifications).
- that all wearing parts are intact.
- that all distance clips for depth control are delivered with the machine.
- and test the lights, (if mounted).

Check the tightening :

- of wheel bolts x-Nm according to specifications
- flange for towing eye **6 pcs of bolts** 541 Nm



Safety Instructions for Combi-Disc

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:

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

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

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

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.

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. After 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.
6. The life of hydraulic hoses is maximum 5 years.
New hydraulic hoses must meet the manufacturer's requirements.

INSTRUCTIONS ON TRANSPORT ON THE 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.



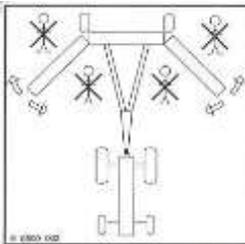
Labels on the machine

You will find several labels on your Disc-Roller 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.

Safety – and other markings on the machine



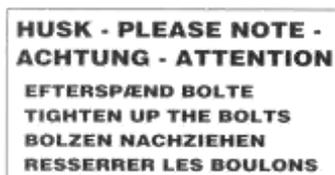
Study the Operating Instructions thoroughly before any operation of the machine and observe all safety instructions.



Take care that no persons are within the machine's hazardous area during the unfolding and folding procedure..



Plate with number and year of manufacture



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

Maximum torque in Nm. w/lubricated thread			
Metric thread	Quality 8.8	Quality 10.9	Quality 12.9
M10x1,5	47	65	79
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-fixing bolt M18x1,5 fine-pitch thread	433 Nm		
Wheel-fixing bolt M22x1,5 fine-pitch thread	803 Nm		



Technical Specifications / Data

Working width	Roller type / Diameter	No. of rings	No. of tines	Weight kg Quick-push/hydr.	No. of discs	Power requirement, HK
4,25 m	Enkelt U-Profile 600 mm	30	7	5.375/5.525	34	300-400
	Enkelt V-Profile 600 mm	30	7	5.540/5.690	34	300-400
	Enkelt V-Profile 700 mm	30	7	5.810/5.960	34	300-400
	Twin V-Profile 600-600 mm	30	7	5.520/5.670	34	300-400
	Twin U-Profile 600-600 mm	30	7	5.850/6.000	34	300-400
5,25 m	Enkelt U-Profile 600 mm	36	9	6.315/6.465	42	350-450
	Enkelt V-Profile 600 mm	36	9	6.490/6.640	42	350-450
	Enkelt V-Profile 700 mm	36	9	6.820/6.970	42	350-450
	Twin V-Profile 600-600 mm	36	9	6.460/6.610	42	350-450
	Twin U-Profile 600-600 mm	36	9	6.810/6.960	42	350-450
Support wheels Tiller 4,25 / 5,25			Transport wheels Disc 4,25 / 5,25			
300/55x14,5 Max. inflation Bar: 4,4			400/60x15,3-14 Ply / 500/50x17,0-18 Ply Max. inflation Bar: 4,5 / 3,5			
Transport height 4,25 / 5,25			Transport width 4,25 / 5,25			
3,1 meter / 3,6 meter			2,62 meter / 2,62 meter			

Combi-Tiller meets the standard DS/ISO 11001-1, three point linkage.

Start-up of the machine

General Information

The machine is supplied as standard in transport position. At start-up, attach the machine to the tractor.

Important:

Check that the towing hook height is between 500 and 550 mm.
Check that the male quick-couplings of the Disc-Roller fit the female quick-couplings of the tractor.

The machine requires three double-acting and 1 single acting outlet.

The hoses for the drawbar - / wheel cylinder are provided with **red** cable straps.

The hoses for the folding cylinder are provided with **blue** cable straps.

The hoses for the disc cylinder are provided with **green** cable straps.



Attachment

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.

Transport position to workposition

1. **Important: When unfolding the side sections, the locking claw must first be relieved by activating the folding function, until the side sections meet the stop at the center frame.** Next, when the unfolding function is activated, the locking claw then first will open, after which the side sections are unfolding.
2. When the side sections are completely unfolded, let go of the hydraulic handle and the machine is ready for use.
Always set the tractor's flow control on MAX, to make sure that the side sections will follow each other.
3. Unfold the edge equipment to working position.
4. Now lift and lower the discs to the required working depth.

Transport

1. Lift the discs to the top before folding up the machine.
2. Then lift the machine to maximum transport height.
3. Now pressurise the folding cylinders and the side sections will be folded up. After that put the function in floating position, however, ensure that the locking claws have locked the side sections.
4. Now the machine is secured and ready for transport.
5. Lower the machine in order to minimise the transport height, to obtain a center of gravity as low as possible. It is recommendable to drive slowly and carefully in turns and roundabouts.

Uncoupling

1. Lift the machine up and tilt the depth stop on the drawbar forward towards the tractor.
2. Now lower the machine onto firm ground.
3. Adjust the drawbar – and wheel cylinder (red) so that the drawing bolt is loose.
4. Now the machine may be uncoupled.
5. Drive the tractor a little forward and then relieve all hydraulic hoses.



Important:

**Put the machine on level ground
and relieve the hydraulics, before
leaving the machine.**



Settings and adjustment

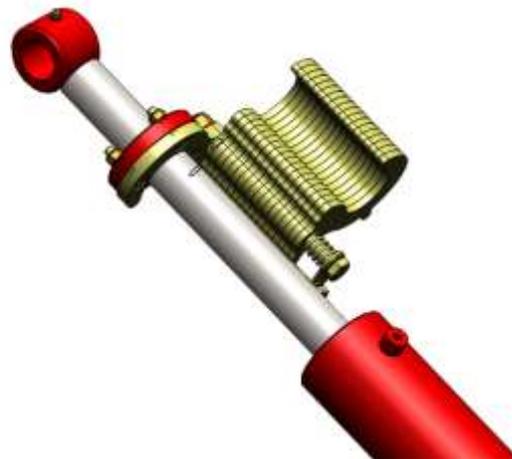
When starting-up the Combi-Disc, it is very important that the machine is parallel with the surface of the earth. The packing roller and the tractor keep the machine in an exact working depth.

Support wheels are not for depth adjustment, but only to avoid uneven working depth at the tines from side to side.

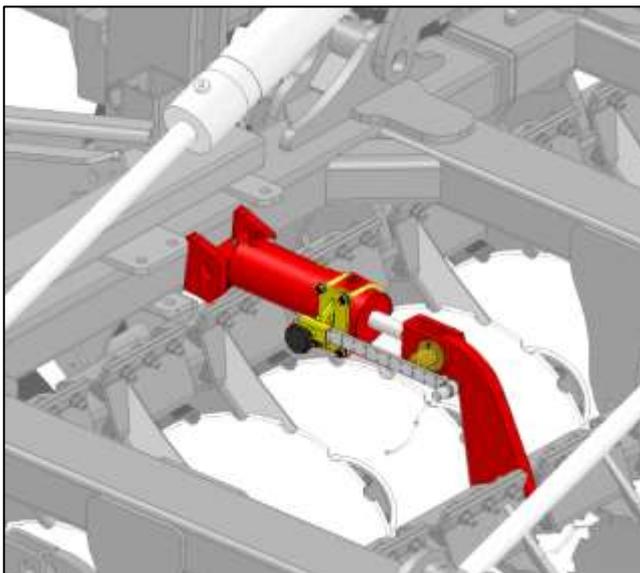
Drawbar

The horizontal position is adjusted by means of the adjustment plates at the drawbar cylinder.

Height of the towing eye: approx. 500 - 550 mm



Disc



The Discs are adjusted up or down by a hydraulic Master-Slave system.

It is important that the discs are regularly lifted to the top, to reset the Master-Slave system. The depth position is readable on the scale (standard).

The sensor can be adjusted, 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 e.g. at headland and tramlines.



He-va SAT system:

Hydraulic adjustable weight transfer system, ensuring equal weight transfer in the total working width, resulting in the fact that the wing sections are following the ground.



Manometer for pressure adjustment on 2-sections machines

In transport position, the hydr. pressure in the system is adjusted to approx. 50 bar. During operation, the hydr. pressure will vary - depending on the soil surface.

When operating the Combi-Tiller

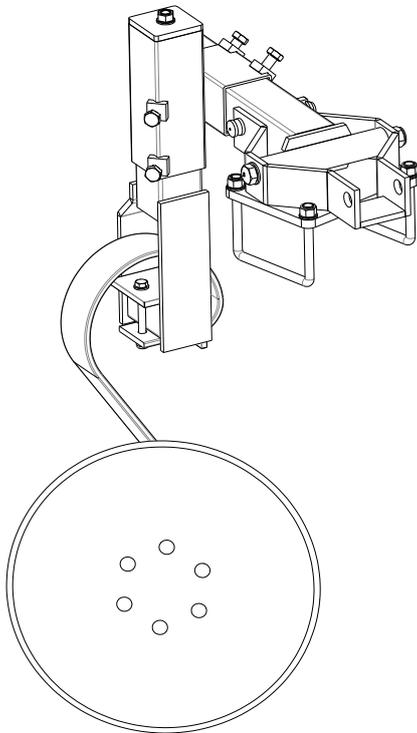
Advarsel!

When operating the Combi-Tiller only weak and elongated curves are allowed.

Curves from a certain stage will put on forces sideways to the tines, and it might cause serious damage to the machine construction



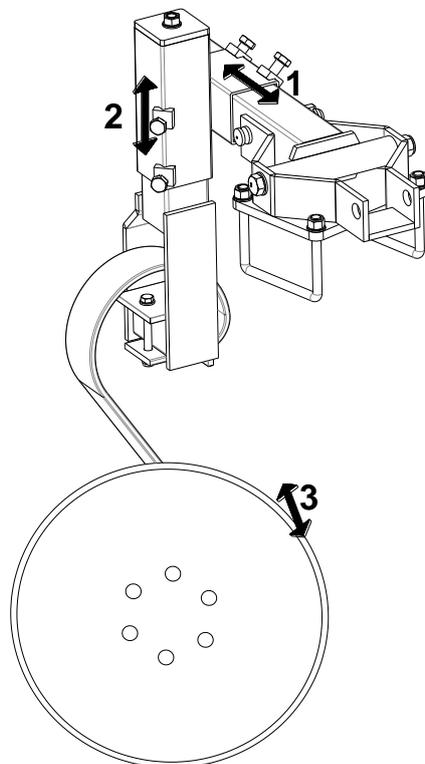
Edge equipment



Edge equipment for Disc-Roller *Contour*

The disc can be adjusted so that excavated soil is collected.

Keep the disc away from the ground to avoid bending when turning.



The edge equipment can be adjusted three places:

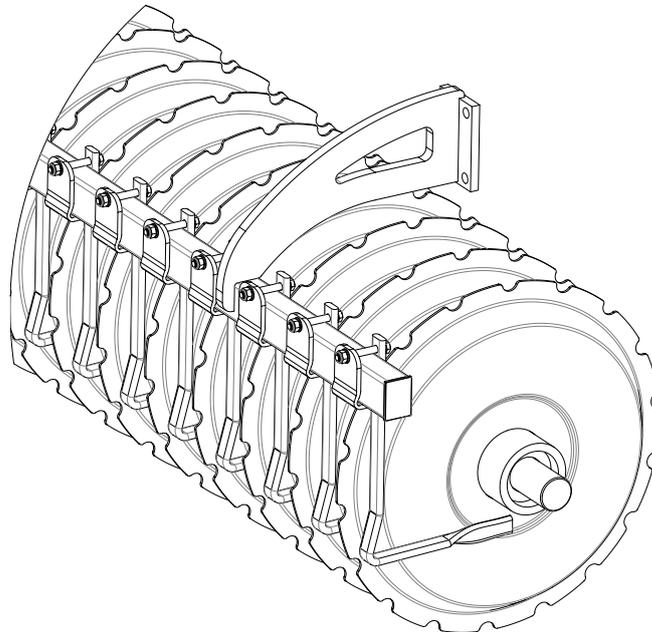
1. Loosen two bolts – move the arm out/in.
2. Use the spindle – it raises and lowers the disc. Loosen two bolts – raise/lower by the spindle and retighten the bolts.
3. Loosen one bolt – tilt the disc more or less.



Scraper

The Disc-Roller *Contour* has special designed scrapers among the packer rings on the single V-Profile and U-Profile as well as on the Wave Roller.

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

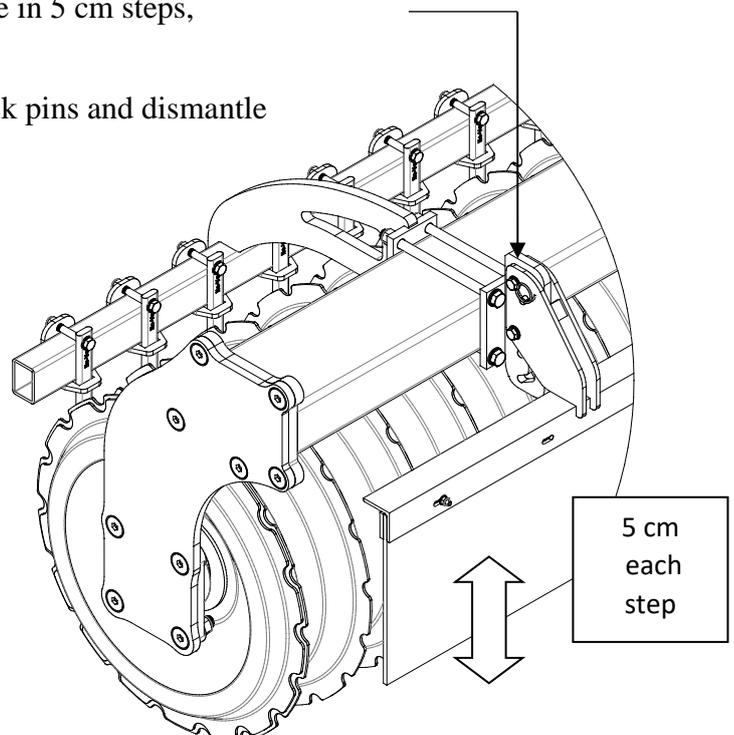


Material-damper-guard

The Disc-Roller *Contour* 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 dismantle the material damper guard, unlock pins and dismantle



Stone protection

Quick-Push shearpin

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 hair-clip (Pos. 1).

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

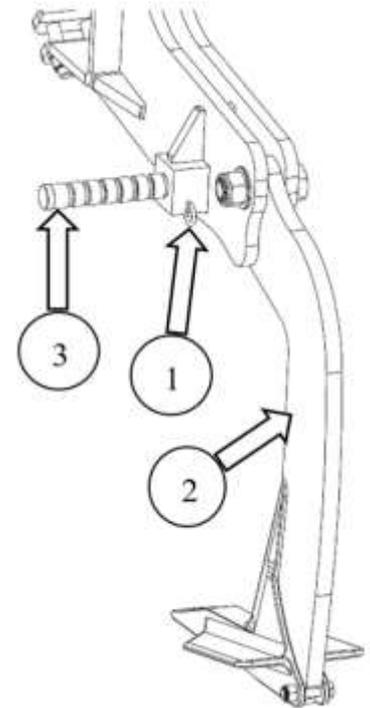
Push the shearpin (Pos. 3) **one** notch forward to a new position in the tine. Do not push the bolt totally through (it can be necessary to remove soil etc. from the hole in the tine).

Important: All activities under the machine are deprecated when the shearpin is being moved or changed.

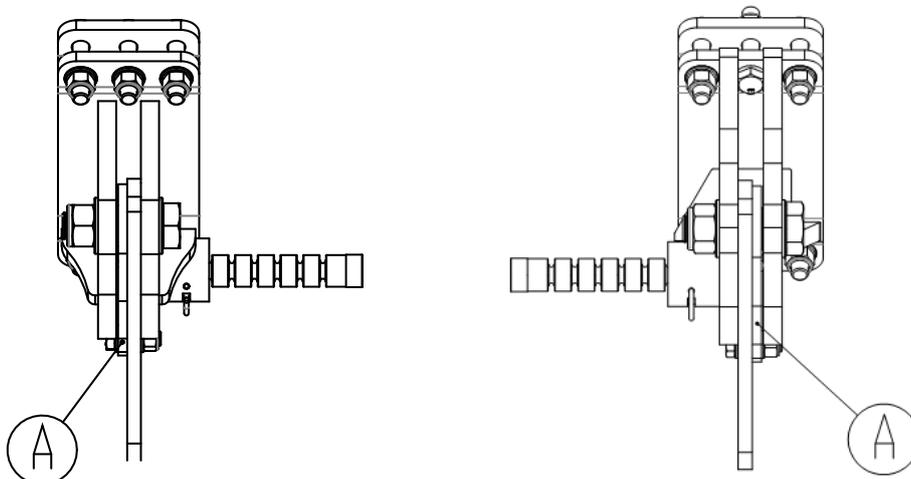
Push back the hair-clip (Pos. 1), so that it locks the shear bolt in its place, and the machine is ready for operation.

When the shearpin is broken for the eighth time, it is used up.

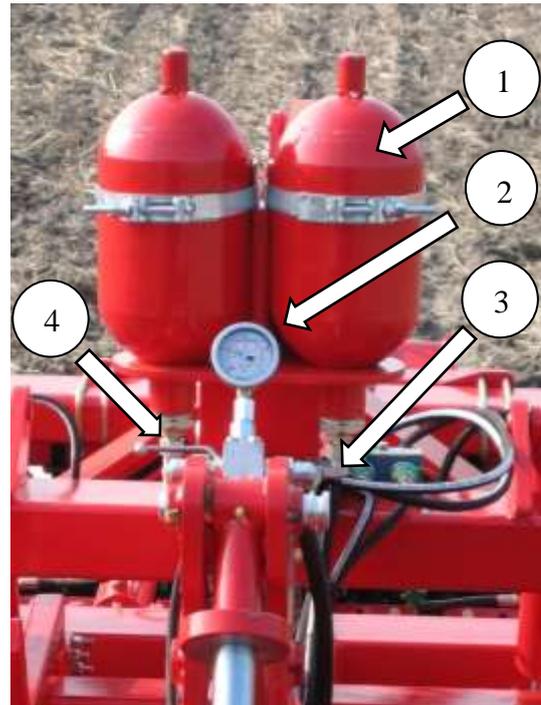
Be aware that the shearpin must **never** be shorter than 65 mm.
When a new shear bolt is mounted it is important that it is placed rightly.
The end of 40 mm (Pos. 3) is to turn away from the tine.



OBS: A → Shims must always be mounted on the opposite side as the shearpin is inserted from.



Hydraulic automatic release system



Before each season it has to be controlled, that the gas pressure in the accumulator (Pos.1) is 90 bars. ⚠ This requires special tools and can only be performed by an authorized dealer.

Before the start-up of the machine the hydraulic pressure in the closed hydraulic stone protection system must be controlled on the machine's pressure gauge (Pos. 2). The hydraulic reset pressure should be **minimum 120 bar** and must not exceed 160 bar.

IMPORTANT – the hydraulic pressure is to be controlled continuously and must never be under 100 bar.

If there is a need to adjust the working pressure, follow the below instructions:

Mount the quick coupling of the hydraulic hose (Pos. 3) in the tractor's oil outlet.

Turn on the ball valve (Pos. 4), and the working pressure can now be adjusted up or down with the tractor's oil outlet.

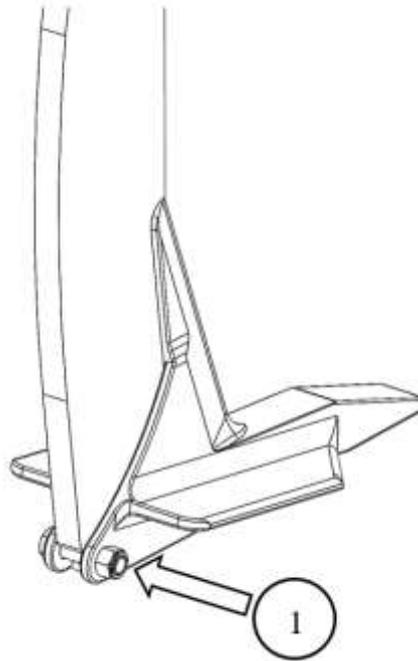
When the desired pressure is achieved, turn off the ball valve again (Pos. 4), and the tractor's hydraulic system is relieved before the quick coupling (Pos. 3) is dismantled and placed in the parking device of the machine.

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.

⚠ It is important that no persons are near to the machine as the tine is returning to the working position with high speed and might throw with soil and stones.



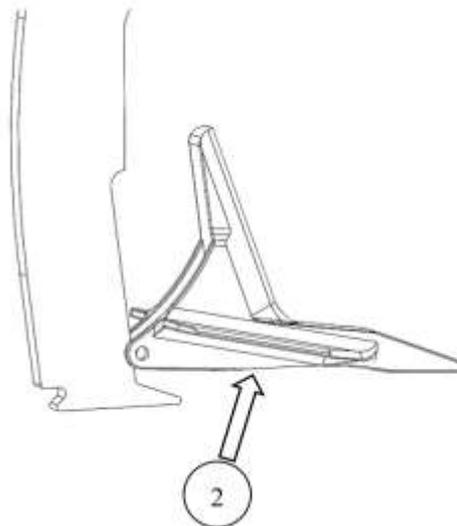
Replacement of wearing point



⚠ Before working with the machine's wearing points, the machine is to be fastened. This can be performed by trestles under the main frame.

Dismount M12x50 mm bolt (Pos. 1) by means of 2 pcs. 19 mm spanners. ⚠ The wearing point might fall off, when the bolt is removed – **take care of foot and leg injuries.**

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.



Mount the new wearing point, item no. 645000044 (Pos. 2), by pushing the wearing point to the rear and then in its place.

Check the M16 x 65 mm bolt for eventual damages and replace it as required, item no. 0235852+0272290+0264090

Mount the M16 x 65 mm bolt (Pos. 1), lubricate and tighten it with approx 20 Nm. **Be careful not to overtighten – the wearing point can be damaged**

Maintenance and service

Important:

Oil, type Hydro Texaco HD 32 has been filled in the hydraulic system.

After 10 hours of operation, retighten wheels, bearings and stop rings. Check hydraulic hoses, fittings and cylinders for leaks and retighten.

Check regularly that all bolts are tightened properly.

After end season, grease and wash machine, and grease the piston rods.

Lubrication

When greasing, maintaining and repair work, the machine must be lowered, the tractors brakes activated and engine stopped

Tiller part:

There are 20 greasing nipples at the Combi-Tiller part, which has to be greased after every 15 hours of operating and after washing the machine. Greasing spots are located at the lift linkage, at all hydraulic cylinders and at the wing sections bushings for hinges

There is 1 grease nipple at each support wheel in the hinges. The spindle in to adjust the support wheel must be dismantled at least once a year to be greased (figure 1).

There is 1 grease nipple at every hinge on the drawbar (figure 2).

On machines with hydraulic stone protection there are 2 grease nipples at each tine, which must be greased every 10 hours operation (figure 3 og 4).

On the lift linkage her are 2 grease nipples at each arm (figure 3).

There are 2 grease nipples at each lift and folding cylinder (figure 5).

There are 3 grease nipples at each wing hinge (figure 6).

Disc-Roller part:

On the 4,5 meter Disc-Roller part there are 25 grease nipples and the 5,5 meter model there are 31 nipples.

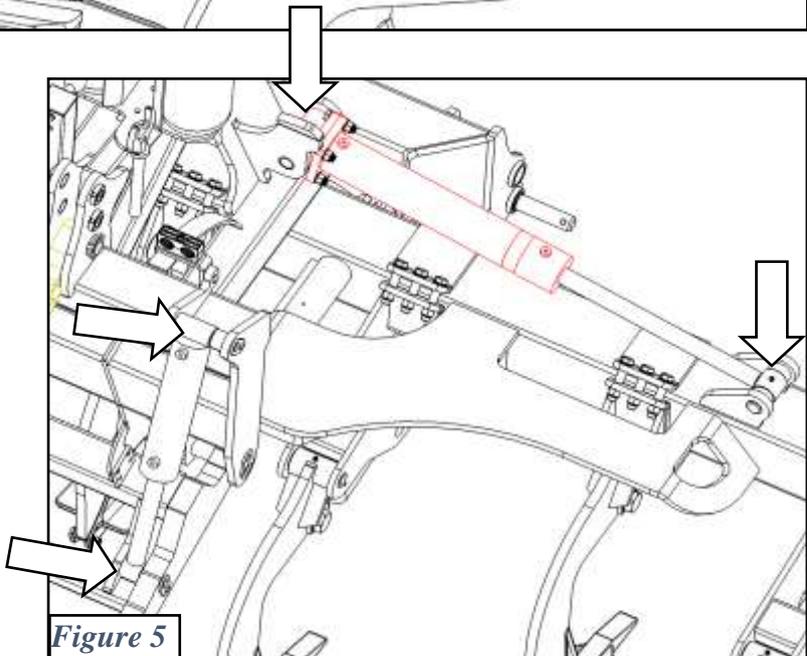
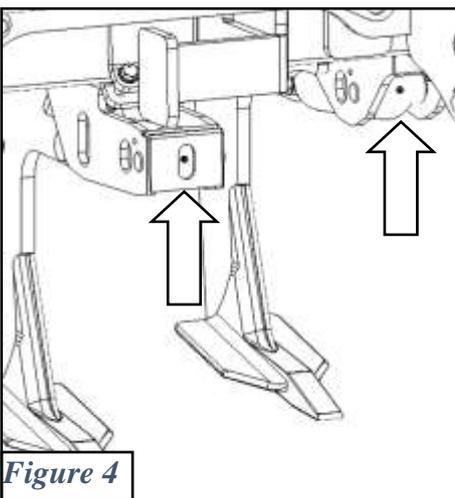
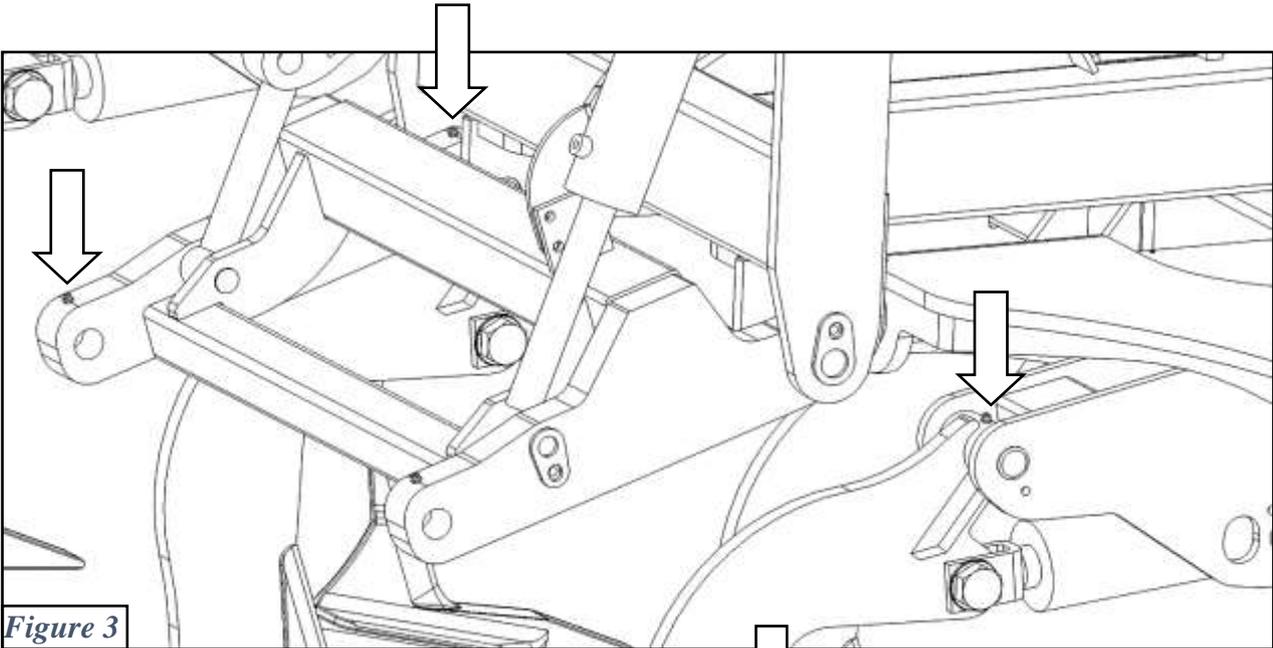
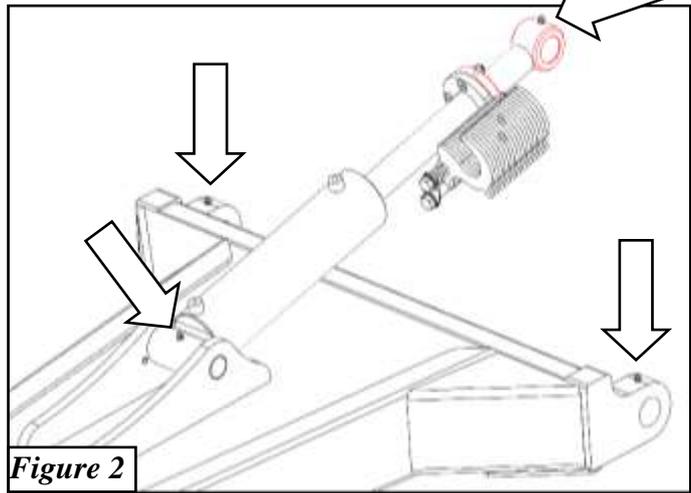
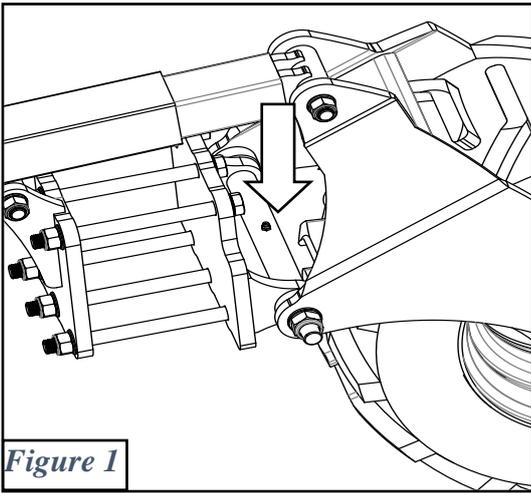
There are 2 grease nipples at every hydraulic cylinder, except the 2 cylinders to adjust the depth of the discs, which only have a nipple on the bushing (figure 7 and 8).

There is 1 grease nipple at each hinge on the wings, 4 pc. Total (figure 7).

There is 1 grease nipple at the transport wheel frame hinge (figure 9).

There is 1 grease nippæe at each roller bearing, which only have to be greased once or twice in every season (figure 10).





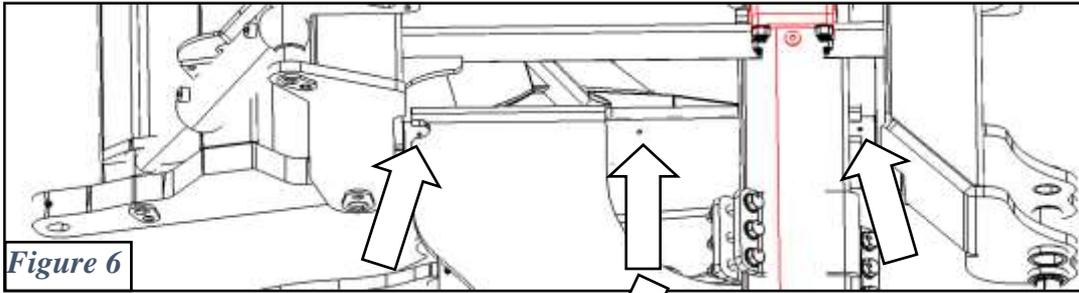


Figure 6

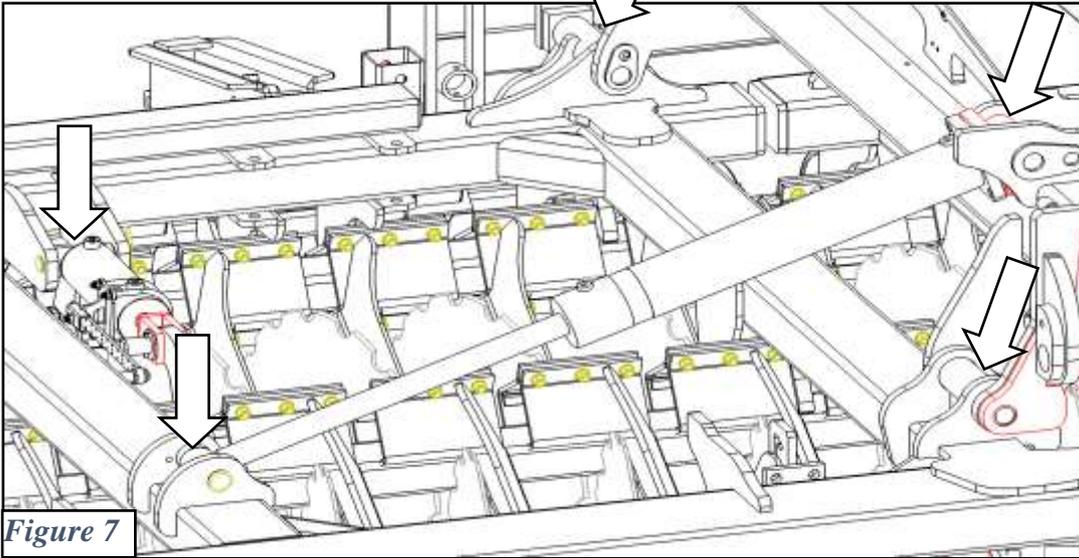


Figure 7

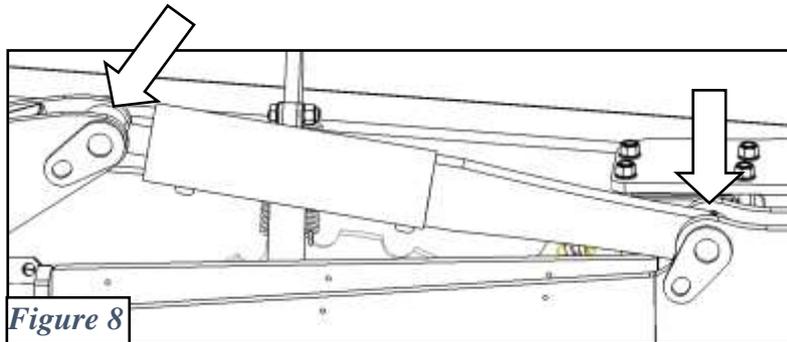


Figure 8

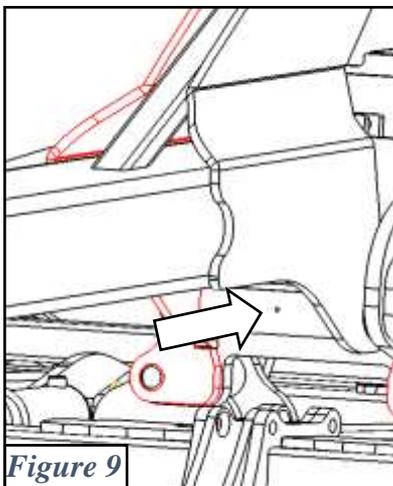


Figure 9

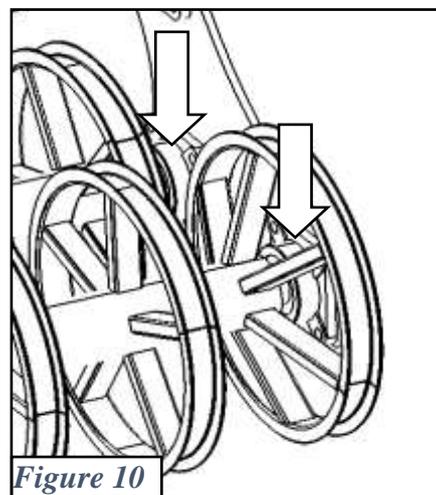
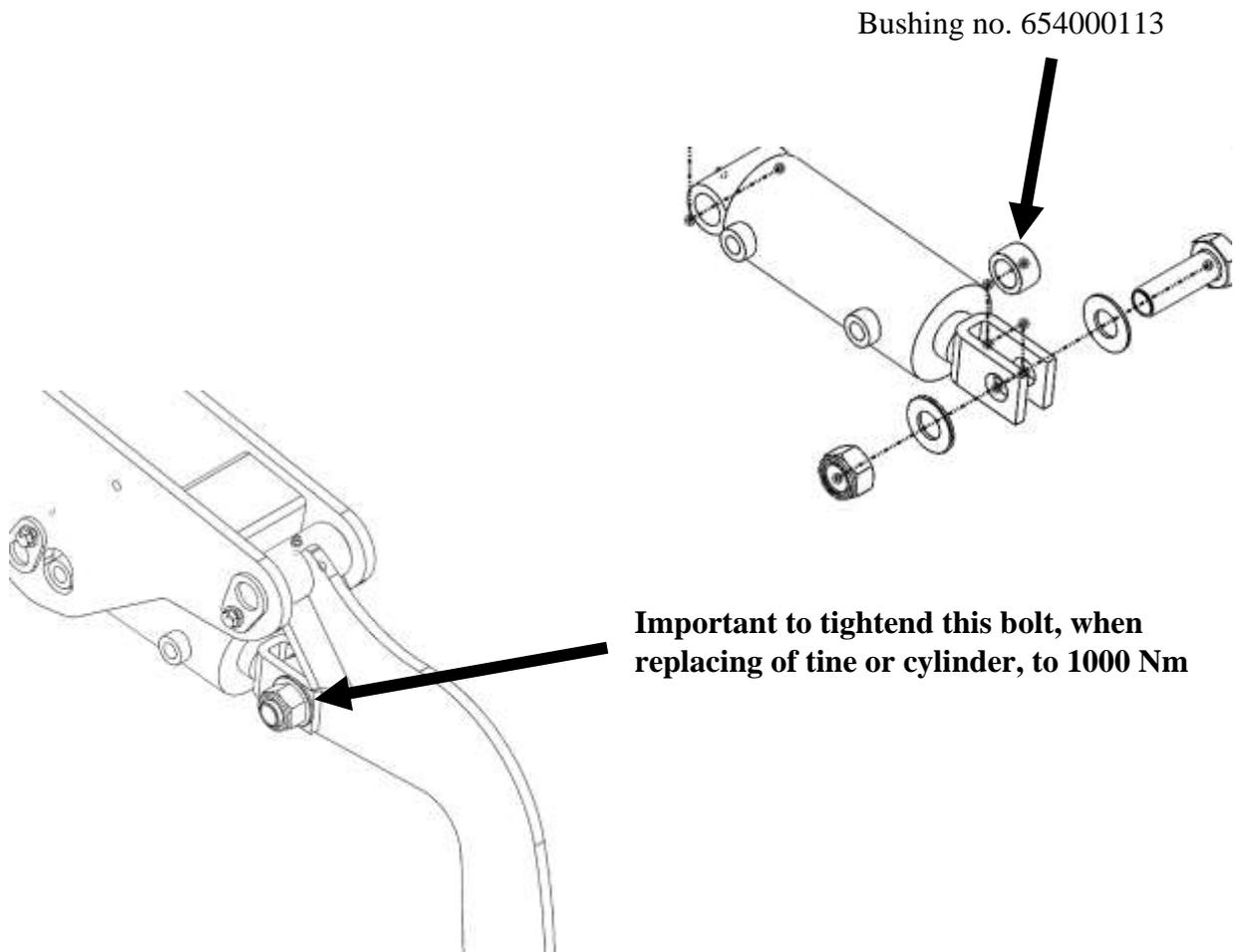


Figure 10



Important when mounting release cylinder and tine

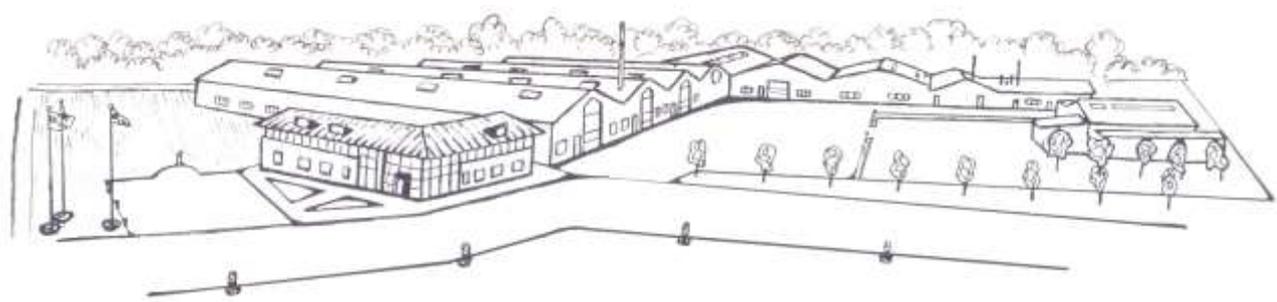
The bolt in the hydraulic cylinder fork end must be tightened with sufficient tension, to make bushing nr. 654000113 fixed in the open end of cylinder. The bushing must not spin around the bolt when the tine gets released by the stone protection of a solid rock.





GOOD AS IT LOOKS!

AS GOOD AS



The design is subject to modification without notice