OPERATING INSTRUCTIONS
TIGER 900- 1000 SEEDBED CULTIVATORS

READ THIS MANUAL CAREFULLY BEFORE OPERATING THE SEEDBED

12/2022

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1.INTRODUCTION

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1. INTRODUCTION

Inteded use

KVERNELAND TIGER seedbed cultivators are intended for preparing seedbed in either the spring or fall. The field can be ploughed or cultivated, and it can contain straw or other plant parts. The seedbed cultivator is used for loosening and crumbling the soil after primary tillage to produce a level seedbed and well-crumbled topsoil.

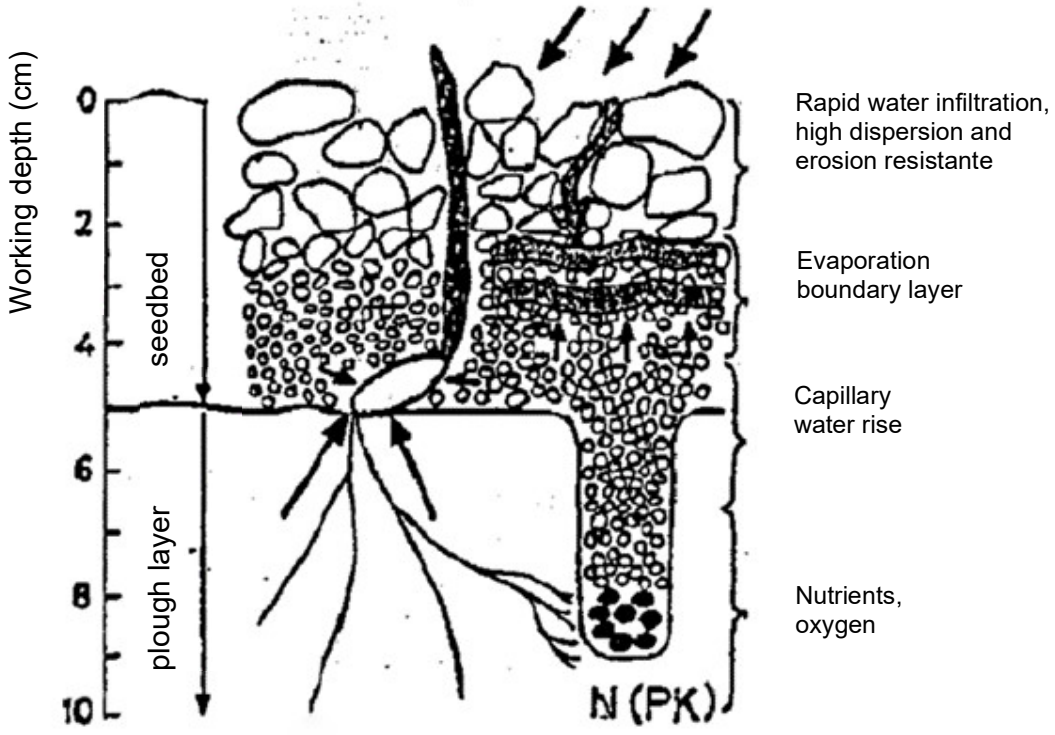


Figure 1. Recommended seedbed profile (Heinonen 1971, page 85)

The seedbed cultivator is NOT intended for primary tillage of untilled soil!

The open frame structure of KVERNELAND TIGER seedbed cultivators enables tine spacing that allows unrestricted, high-flow of soil. Level seedbed even on soft soil types is ensured by the tines that keep their working depth, accurate working depth control and large, high-capacity wheels.

KVERNELAND TIGER seedbed cultivators are available with a wide range of optional equipment to ensure optimal granular structure and level soil surface.

TECHICAL SPECIFICATIONS

Tiger	900	1000
Weight with rear harrow, kg	4050	4400
Number of tines	117	130
Number of tine axles	7	7
Draught requirement, hp	170	190
Number of hydraulic outlets, single/double- acting	-/4	-/4
Working depth control, H= hydraulic	H	H
Number of wheels 300/65-12 - wing section	4	4
Number of wheels 480/45-17 - middle section	2	2
Frame length, m	3	3
Transport width, m	3,99	3,99

FEATURES FOUND ON ALL TYPES:

- Tine type 1045, cross-section of material 10 x 45 mm
- Tine spacing 8 cm
- Lights and reflectors
- Hydraulically-controlled frontboard as standard

OPTIONAL EQUIPMENT:

- Following harrow
- Spiral rollers, diameter
- Rear leveling board controlled with individually by the tractors hydraulic system in which case 5 double acting outlets are required
- The number of rear equipment is limited to a maximum of 2 pieces of equipment per seedbed cultivator

2. SAFETY GUIDELINES

Residual risks

Symbols used in the operational manual

Towing public roads

2. SAFETY GUIDELINES

Residual risks

	Read this operating and maintenance manual thoroughly before operating the machine and follow the instructions given.
	Crushing hazard when setting the harrow working depth and adjusting harrow accessories as well as when servicing and repairing the machine. Exercise extreme caution.
	Crushing hazard when connecting and disconnecting the harrow. Minimum safe distance 10 m. Exercise extreme caution if someone else is near the harrow and tractor guiding the unhitching of the machine.
	Crushing hazard when lifting and lowering the harrow into its work position. Minimum safe distance 10 m. Ensure that there are no personnel in the vicinity.
	Before moving, ensure that the wing sections have been lowered and locked in their transport position and that the wing section ball valve is closed.
	Crushing, cutting and impact hazard when lifting and lowering the wing sections. No personnel are allowed on or near the harrow when lifting and lowering the wing sections. When lifting and lowering the wing sections, make sure there is no one is in the vicinity. Minimum safe distance 10 m.
	Crushing hazard when performing servicing and maintenance. Engage the tractor handbrake and remove the key from the ignition. Place a pair of axle stands under the harrow frame and lower the harrow onto them.
	Hydraulic hoses under pressure may release a life-threatening jet of liquid. High-pressure liquid may also cause a crushing, cutting or impact hazard. The hydraulic system must be depressurised before pressure hoses are handled, connected or disconnected. Depressurise the hydraulic system and disconnect the hoses before maintenance work. Never touch the hydraulic cylinders, hoses and hydraulic connectors when the cylinders are in operation. Never look for hydraulic fluid leaks by feeling with your bare hands. Immediately replace damaged or highly worn hydraulic hoses with new ones.
	Exercise extreme caution when connecting or disconnecting hydraulic hoses. The compressed air hose can lash out suddenly. Never direct compressed air directly at your skin.

	Remaining on top of the machine during its transport and operation is strictly prohibited. Staying on top of the wheels is always prohibited.

	Exercise extreme caution when the harrow is not hitched to the tractor, particularly on sloping terrain. When parking, lower the harrow S-tines to the ground or engage the harrow parking brake (if the harrow is equipped with one).
	Before moving, ensure that the tractor's hitch is locked.
	If the wing sections are in their transport position, take note of the harrow height and ensure that there are no low-hanging power lines along the driving route.
	Before entering a public road, ensure that the wing sections are locked in their transport position. Ensure that the wing section ball valve is closed. Exercise extreme caution when towing the machine in traffic, taking note of the harrow width and height.
	Place sturdy stands under the front and rear frame of the harrow when changing tyres. Exercise caution. Never go under an unsupported harrow. Risk of injury when removing and mounting a wheel. Exercise caution. If necessary, ask another person to assist. Risk of injury from tyres bursting or sudden release of tyre pressure by other means. Follow the indicated tyre pressures and replace damaged or worn tyres. Filling a damaged tyre is expressly prohibited.
	Cutting or puncture hazard when changing S-tine points. Exercise extreme caution.
	Ensure that the brake drum and other brake components have cooled before beginning any servicing or repairs. Burn hazard.
	Depressurise the hydraulic system, disconnect the hoses and tractor's electrical connections before servicing.
	Exercise extreme caution when parking the harrow in its storage space or pulling it out for use. Minimum safe distance 10 m.
	Crushing hazard when the harrow drawbar is raised to its storage position or lowered to its operating position. Exercise extreme caution when lifting.

Symbols used in operational manual

	**DANGER** warns of a dangerous situation which may lead to death or serious physical injury.
	**CAUTION** warns of a dangerous situation which may lead to damage to the equipment.
•	**ADVICE** contains useful tips, advice and information in the instructions e.g. on tightening torques, adjusting values, liquid quantities and special tools.

DANGER

Never service, adjust or clean a moving harrow.

DANGER

When the seed drill is hitched to the tractor, no personnel are allowed in the vicinity of the seed drill and, in particular, the area under raised wing sections. Observe the minimum safe distance when operating the harrow hydraulics, even when it is standing still.

DANGER

Give the harrow at least a visual Inspection before moving or operating it. Items to be inspected include tyre pressure, harrow cleanliness and the tightness of the bolts of the towing device.

DANGER

Before starting, make sure that the machine is in working order. Ensure that the hydraulic hoses are intact and have no leaks. Ensure that all the S-tines on the harrow are intact.

DANGER

Before starting the sowing, ensure that both wing sections are completely lowered so that the cylinder is fully extended.

DANGER

When replacing hydraulic system components and conductors, only use spare parts with sufficient pressure resistance.

DANGER

Never spray water directly on electric equipment.

DANGER

Never use oil or lubrication grease to clean skin. These substances may contain small metal particles, which cause irritation of the skin or cuts. Follow the handling instructions and safety regulations of the lubricant manufacturers. Synthetic oils are often corrosive and cause strong irritation of the skin. Contact a doctor, if oil or grease causes injuries.

CAUTION

Collect oil waste and dispose of it appropriately in accordance with national regulations.

CAUTION

If oil is spilled on the ground, absorb it with absorption material, such as turf, to prevent the oil spill from spreading. Handle the absorption material in accordance with regulations.

Towing on public roads

The marker refectors on the harrow warn others that the machine is overwide.
Make sure to put the appropriate markers on an overwide tractor.
Before driving:

- ensure that the harrow reflectors and the tractor's "caution - slow vehicle" triangle are clean and intact
- ensure that the tractor lights are clean and functioning properly. Give special attention to the visibility of the rear tractor lights.
- ensure that the overwide marking lights on the tractor can also be seen from behind the harrow
- clean off any loose soil on the harrow
- make at least a visual inspection of the following areas on the harrow:
    - drawbar
    - condition of axles
    - bolt tightness
    - tyre condition and pressure
- ensure that both wing sections on the harrow are securely seated and locked in their transport positions.
- ensure that the wing section ball valve is closed

When transporting the harrow on public roads:

- exercise caution and observe all road traffic regulations, as well as specific regulations concerning slow-moving vehicles
- note the outer dimensions of the harrow: transportation width and maximum transportation height.
- the maximum allowed transportation speed of the harrow is 40 km/h.

3. SETTING UP

Lowering/lifting the drawbar

Mounting and hydraulics

Brakes

Adjusting the harrow

- Adjusting the longitudinal level
- Adjusting the middle and wing sections
- Depth adjustment
- Working depth indicator
- Using the front levelling boards
- Use of tilling accessories

Troubleshooting

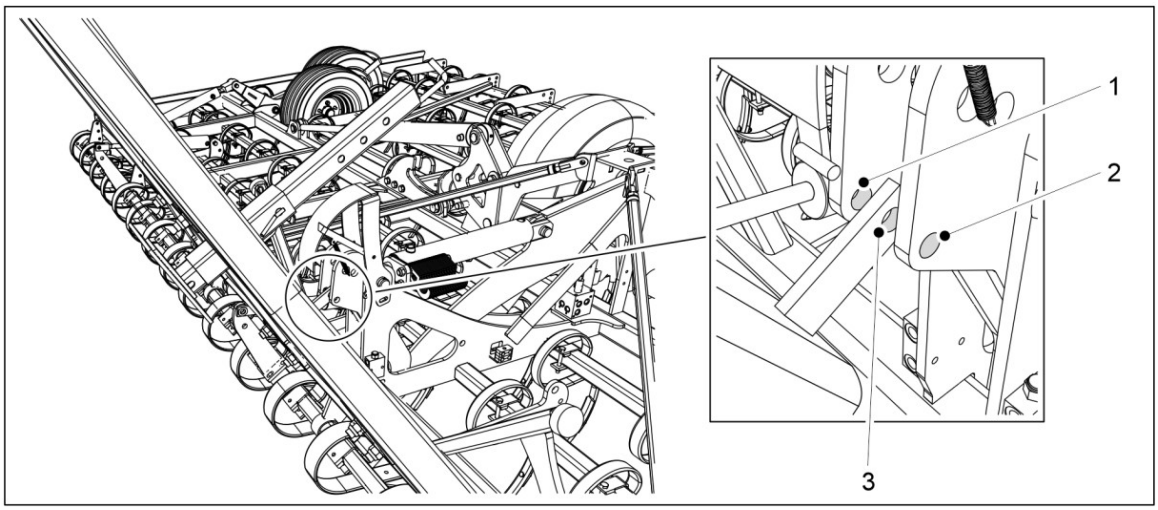
3. SETTING UP

Follow the tractor's safety instructions when connecting or disconnecting the harrow. Connecting or disconnecting the harrow poses a crushing hazard. Disconnecting and connecting pressurised hoses to the tractor is prohibited.

Lowering/lifting the drawbar

The harrow drawbar can be lifted up (e.g. for winter storage) to make the machine more compact.

- Lower down the support leg.
- Lower the harrow onto the S-tines or storage stand.
- Disconnect the harrow from the tractor hitch without detaching the hydraulic hoses from the tractor.
- Use the wheel hydraulics lever to loosen the drawbar enough to detach it from the top link.
- Next, disconnect the hydraulic hoses.
- Drive the tractor farther from the harrow.
- Use lifting aids to lift the drawbar until the drawbar locking hole (3) is aligned with the lower holes (1, 2) of the top link bracket. Exercise utmost care while lifting the drawbar!
- Use an M16 bolt to secure the drawbar
- Detach the lifting aids.
- Finally, push the support leg back to the upper position.

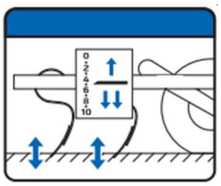
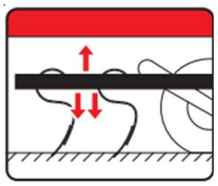
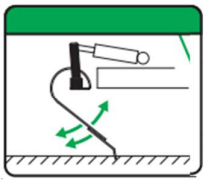
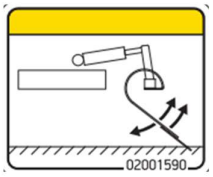
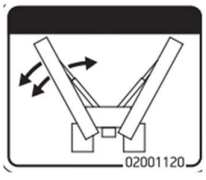


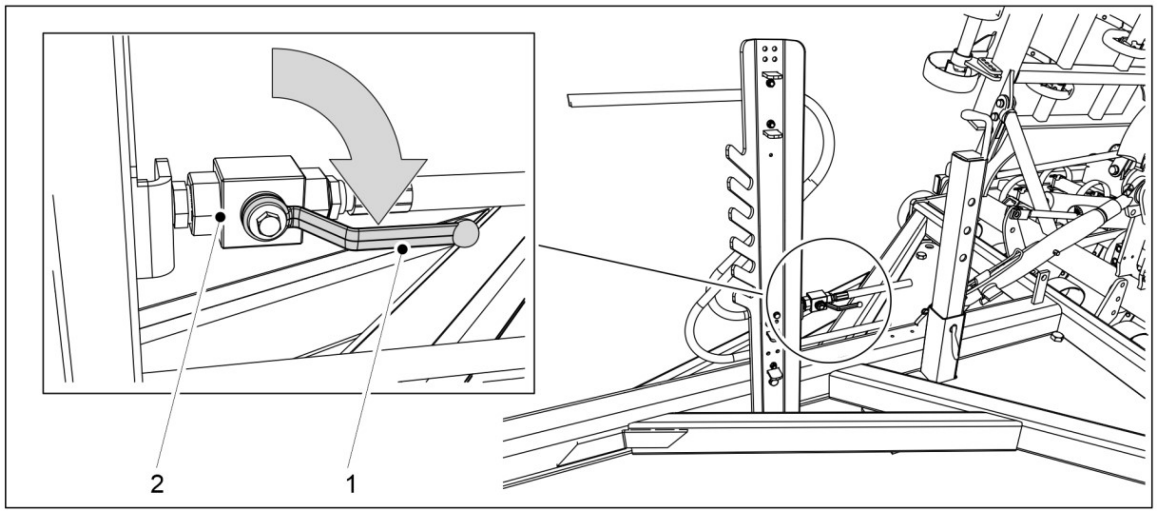
The drawbar is lowered down in the opposite order.

Mounting and hydraulics

Follow the tractor's safety instructions when connecting or disconnecting the harrow. Connecting or disconnecting the harrow poses a crushing hazard. Disconnecting and connecting pressurised hoses to the tractor is prohibited.

- Hitch the machine only to the tractor's trailer hitch
- Ensure that the tractor's trailer hitch is locked
- Lift the support leg up and secure it in the upper position
- Connect the hydraulic hoses to the double-acting spool valve (see the table below)

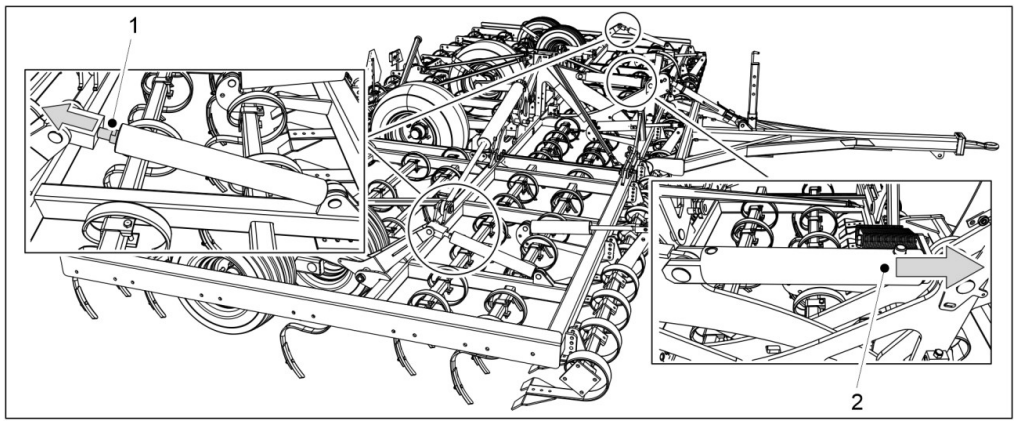
Working depth up	1 x blue	
Working depth down	2 x blue	
Lifting the machine	1 x red	
Lowering the machine	2 x red	
Front board down	1 x green	
Front board up	2 x green	
Rear board down	1 x yellow	
Rear board up	2 x yellow	
Wing sections up	1 x black	
Wing sections down	2 x black	



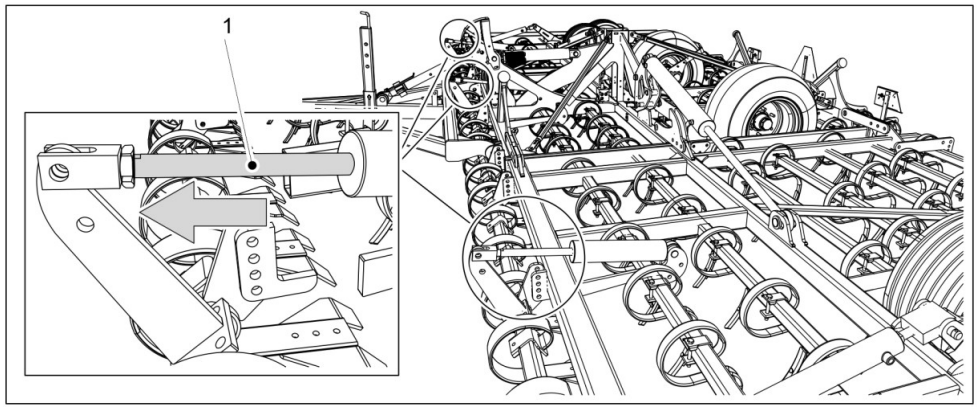
- Open the wing section ball valve (1)
- Lift the machine onto the wheels
- Move the tractor and the harrow to a flat, firm surface
- Lower the wing sections down. **Make sure the area of reach of the wing sections is free of obstacles!** The harrow must be in the transport position
- The wing sections' automatic locking system is disengaged before the sections start to move

Synchronisation of hydraulic circuits

Internal leaks, air in the system and external forces exerted on the cylinders can cause variations in the volume of oil in the chambers of cylinders connected in series. The cylinders must be synchronised to ensure precise operation. Always synchronise the hydraulic circuits at the start of an operation period and after replacing a hose or cylinder.



1. Using the tractor valve, fully extend the two depth adjustment cylinder rods (1) and the middle section depth adjustment cylinder rod (2).
2. Maintain pressure for approximately 30 seconds.
    - Run the tractor engine at low rpm.



3. Using the tractor valve, fully extend the three front levelling board cylinder piston rods (1).
    - 900 and 1000: There are four cylinders.
4. Maintain pressure for approximately 30 seconds.
    - Run the tractor engine at low rpm.
5. Also do steps 3 and 4 for the three rear levelling board cylinders (if equipped).
    - When the rod is fully extended, oil is able to flow past the cylinder piston into the next cylinder. Oil flows from the last cylinder into the return line of the tractor's hydraulic system. This will set the cylinder lengths to the same level and bleed any air in the circuit. After synchronising, the cylinders will move at the same rate.

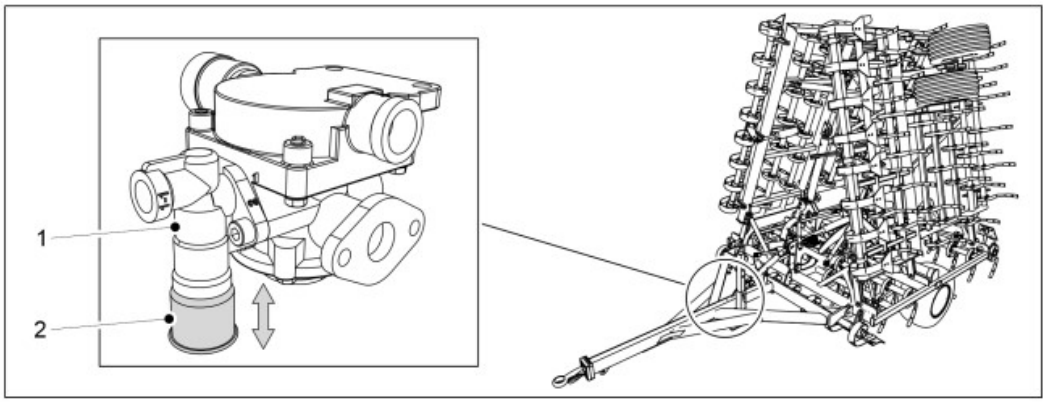
Brakes

MASTER harrows can be equipped with brakes. The tractor's dual line pneumatic brake system or single line hydraulic brake system is used. Harrows with brakes are always equipped with a cable-operated parking brake, which is engaged and released by turning a crank.

The parking brake on a harrow equipped with a brake system is located at the front of the frame.

- Engage the parking brake by turning the crank clockwise.
- Release the parking brake by turning the crank anticlockwise.

The brake release valve can be used to release pneumatic brakes when the harrow's pneumatic brake system is not connected to the tractor's pneumatic brake system.
The brake release valve (1) is located on the drawbar.



Release valve button (2) functions:

- pressing the button (up direction) releases the brakes
- pulling the button out (down direction) keeps the brakes engaged if the compressed air tank is pressurised

Regardless of the button's position, the brakes will release when the pressure in the harrow's compressed air tank decreases.
When parking the harrow, ensure that it stays in place by engaging the parking brake or lowering the harrow's S-tines to the ground.

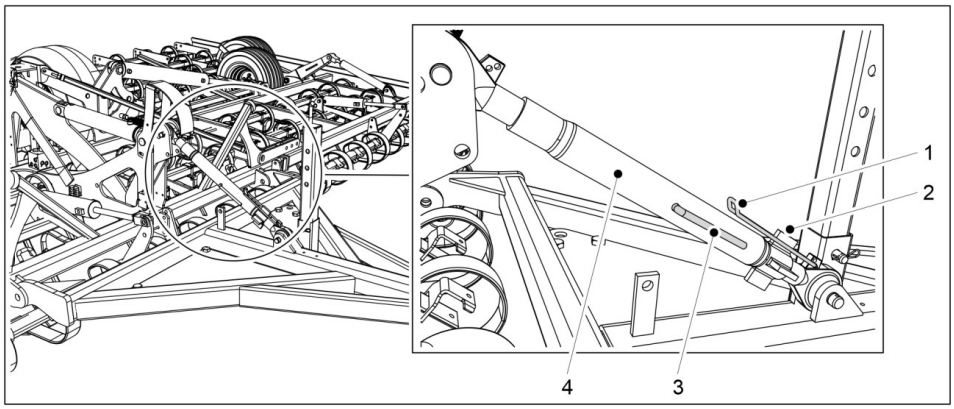
Adjusting the harrow

NOTE! Make sure the area of reach of the wing sections is free of obstacles. Maintain a safe distance!

Follow these steps to lower the wing sections down:

- Unless the harrow is in the transport position, lift the harrow up to rest fully on its wheels.
- Open the wing section ball valve
- Make sure the area of reach of the wing sections is free of obstacles
- Lower the wing sections down carefully. The wing sections' locking mechanism is disengaged when the sections start to move down.
- Please note that the wing sections can create a vacuum in the hydraulic circuit when lowered down
- Use the tractor's hydraulics to **fully extend** the wind section piston rods.

ADJUSTING THE LONGITUDINAL LEVEL



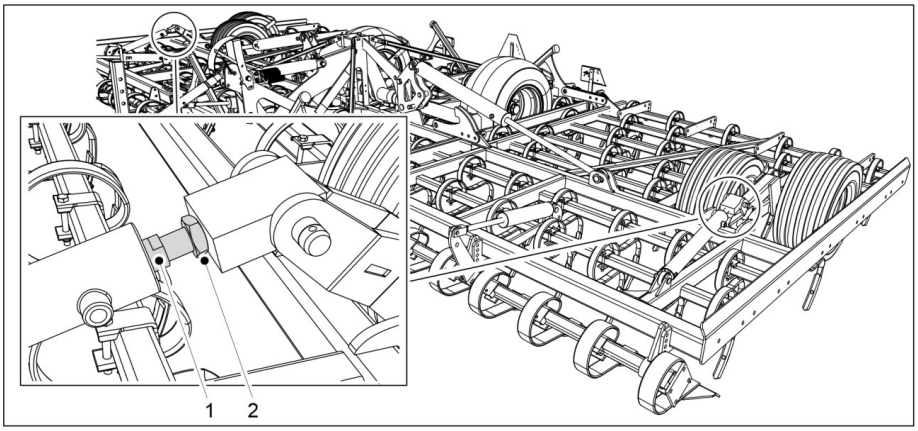
1. Unlock the drawbar top link by turning the locking part (1) up.
2. Turn the top link (4) with its handle (3).
   - Shortening the top link will lower the front end of the frame.
   - Extending the top link will raise the front end of the frame.
3. Adjust the top link until the flange (2) at the bottom of the arm is aligned with the locking part (1).
4. Lock the top link by turning the locking part down.
5. Check the tilling result and, if necessary, readjust the position.

The adjustment of the position depends on the height of the tractor's towing hitch. It must be adjusted again if the harrow is connected to a new tractor.

BASIC ADJUSTMENT OF THE WING SECTIONS:

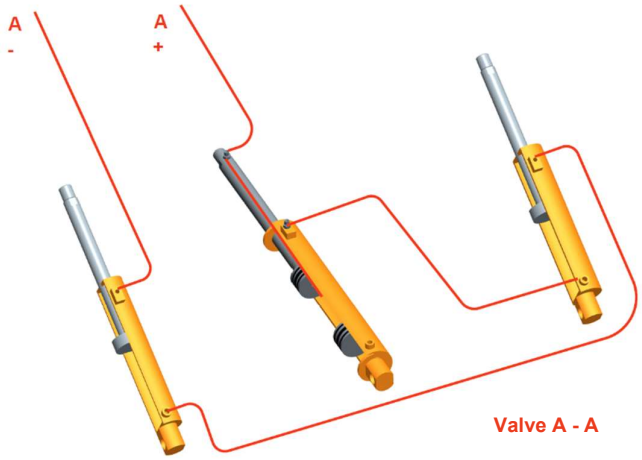
The purpose of adjusting the wing sections is to get both wing sections to run at the same depth as the middle section.

- The ends of the wing section depth cylinders are factory-set to the default values.
- Perform basic adjustment of the wing sections when commissioning the machine in the field.
- Before making any adjustments, ensure that the depth cylinders have been synchronised and that the wing section lifting cylinders are not supporting the wing sections.

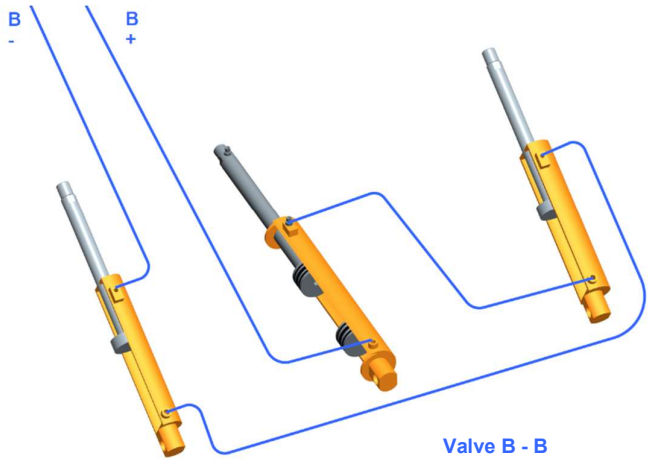


1. Loosen the locking nut (2) at the end of the depth cylinder.
2. Adjust the length of the cylinder rod (1).
   - The locking nut key is 36 mm. The cylinder rod key is 24 mm. Extending the rod decreases the wing section working depth. Shortening the rod increases the wing section working depth. One rotation = 5 mm change in working depth. No more than 50 mm of thread may be exposed.
3. Tighten the locking nut.

ADJUSTMENT OF THE MACHINE'S LIFTING HYDRAULICS AND DEPTH



The lifting hydraulics control circuit has been marked on the hoses with red.



The working depth hydraulics control circuit has been marked on the hoses with blue.

The working depth is adjusted hydraulically:

- Check the hose connection +/-. Hoses of the same colour are connected to the same tractor valve.
- Use the valve A- to fully retract the lifting hydraulics piston rods. See the red line in the picture.

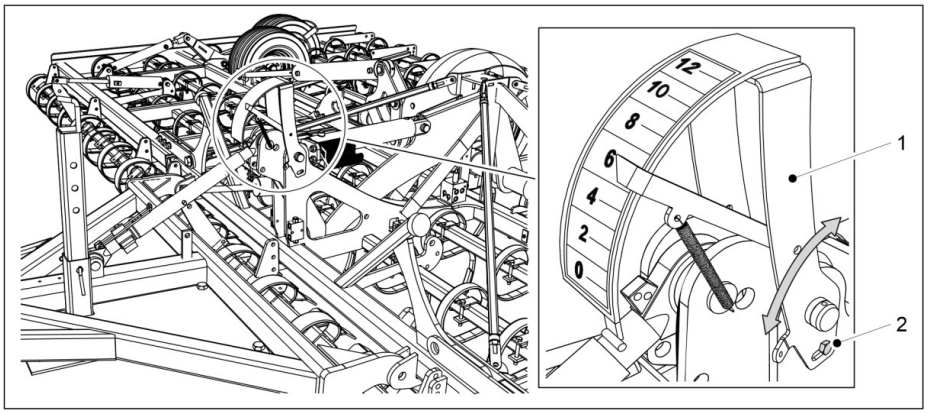
- Switch the operating valve to working depth (blue line in the picture) and fully retract the piston rods B-. Next, extend the piston rods to the desired working depth B+. Monitor the depth indicator to set the working depth.
- You have now set the working depth. The working depth valve B-B is only used to adjust the working depth. Use the lifting hydraulics circuit valves A+ and A- to lift/lower the machine. See the red line in the picture.

Always measure the working depth in the tilled soil behind the harrow and adjust the depth according to each field section and crop being sown.

The harrow's working depth can be adjusted during operation with the valve pair B-B.

The actual working depth must be measured in the tilled soil behind the harrow. Measure the depth for each field section.

Working depth indicator



MASTER harrows are equipped with a working depth indicator. Follow these steps to adjust it:

1. Loosen the harrow working depth indicator (1) locking screws (2) and turn the indicator to show the true working depth.
2. Lock the scale in place with the screws.

Using the front levelling boards

The front levelling board must be adjusted so that it levels the tilled area and accumulates a pile of soil the size of a tine point in front. The levelling board position can be adjusted hydraulically during operation according to the soil type and need for levelling.

Use of rear accessories

The tractor must be switched off and the parking brake engaged when adjusting the rear accessories.

The height of the rear harrow can be adjusted with a crank and the rear harrow tine angle with a pin. If necessary, the rear harrow can be moved to the highest position and secured with a pin to take it out of use.

The cage roller is adjusted with a draw-spring that weights the cage roller down against the ground. Do not tighten the spring too much. The spring is tight enough when the field surface is levelled and there are no tine traces behind the cage roller.

The cage roller and rear harrow can be used simultaneously.

The rear levelling board is adjusted with its own hydraulics.

TROUBLESHOOTING

Hydraulics do not work:

- Make sure the hoses are pressure-free before connecting them to the tractor
- The hoses are connected to the tractor
- The hose pairs are connected to the correct couplings
- The wheel circuit ball valve is open
- The tractor's valve block is in the double-acting position

The working depth is not constant:

- Synchronise the wheel cylinders by using the lifting circuit hydraulics to fully extend the cylinder rods a couple of times while maintaining pressure for 15 seconds.
- Extend the wheel cylinder rods and detach the hoses from the tractor. If the harrow drops by more than 10 mm, there is an internal leak in the cylinders. Please contact the factory.

The front/rear levelling board does not follow the same line:

- Synchronise the cylinders (see above). If they do not move in sync, check the end connectors and adjust.
- If they fall out of line again, there is an internal leak in the cylinders. Please contact the factory.
- The front/rear levelling board does not maintain its working position during harrowing. Switch the hose pair connected to the tractor to the other coupling pair. If the issue remains, please contact the factory.

The wing sections will not lower or lift:

- Make sure that the wing section ball valve is open

4. HARROWING
    - General
    - Driving lines

4. HARROWING

General

The S-tine cultivators are intended for producing a level seedbed. Normal working depth for cereals is 0–6 cm. Because the seedbed cultivator is adjusted at the factory on a level surface, more accurate adjustments must be made on the field (the soil type, sinking of the tractor wheels and other factors have an influence on the settings).

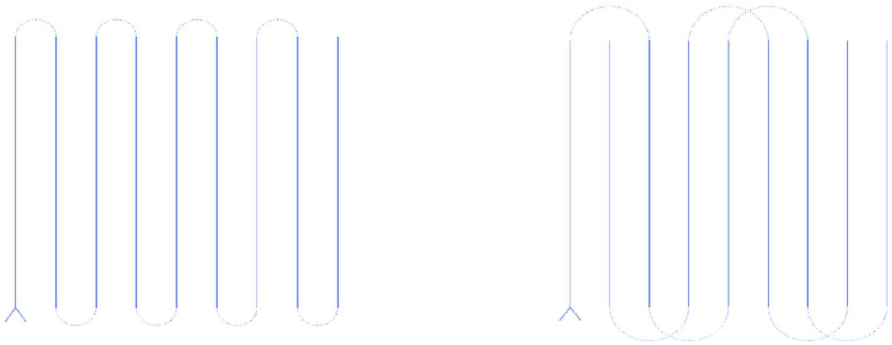
If the desired working depth exceeds 6 cm, each piece of equipment must be readjusted so that it works as intended. The cultivator must always be supported by its wheels, not by the front or rear equipment. Special attention must be paid to the spiral roller: its setting must be so loose that possible stones do not damage the roller.

Because the cultivator frame is long, it must be lifted in tight turns. During turning, tines move sideways or – in the worst case – backwards, subjecting the tines to high levels of stress. And because the cultivator is heavy, special attention must be paid on any obstacles in the field or field edges. Drive around the obstacles or lift the cultivator and drive carefully over them.

If the soil surface is especially hard, adjust the cultivator for the first harrowing pass so that the frontboard levels the soil and that the working depth is only 1–2 cm. Otherwise, hard lumps protruding from the uneven surface can cause a tine to kick back heavily that may cause damage to the tine.

Driving lines

When using tines that have high crumbling properties and are good in keeping their working depth, it is important to lift the cultivator during headland turns so that the tines touch the soil only lightly (on hard soil types). This is because the tines move sideways in tight turns, subjecting the tine clamps to high levels of stress. The tines at the edges of the wing sections of wide cultivators can also move backwards.



On the left side driving line pattern in which the cultivator must be lifted in turns so that the tines are off the ground.
On the right side driving line pattern in which the cultivator must be lifted to some extent in turns. The tines can touch the soil.

5. MAINTENANCE
    - Key values
    - Instructions
    - Lubrication points
    - TIne
    - Bogie
    - Wheel hub
    - Hydraulics

5. MAINTENANCE

Key values

Tyre pressure:

- **300/65-12 3.6 bar**
- **480/45-17 2.8 bar**

Tine torque: **110 Nm**
Wheel bolt torque M16 (wing sections): **280 Nm**
Wheel bolt torque M18 (middle section): **320 Nm**

Drawbar eye bolt torque: **210 Nm**

Instructions

Check after the first day of operation:

- tine mountings
- tightness of wheel bolts
- wheel and bogie bearing clearance
- tightness of the cylinder end locking nuts

Weekly maintenance:

- check the tine/wheel mountings
- lubricate the wing section hinges
- lubricate the transport stand bearings
- lubricate the wing section wheel joints
- check for any oil leaks/chafing on hoses
- check the calibration of the depth adjustment indicator
- check the condition of the towing device (towing eye, drawbar, bolts)
- check the functionality of the wing section locking mechanism

After the season:

- clean the machine
- lubricate all nipples
- check the bearing clearances and adjust if necessary
- check the wear parts; turn around or replace if necessary
- check the tightness of the cylinder end locking nuts

Winter storage:

- The harrow must be cleaned and lubricated thoroughly before long-term storage. If you are using a high-pressure washer, do not spray the cylinders, bearings or decals directly.
- Keep the pressure washer nozzle at least 30 cm from the area being sprayed.
- Lubricate the harrow after it has been washed.
- Set all hydraulic cylinders so that as little of the chrome plated piston rod as possible is exposed.
- The exposed parts of the piston rod must be protected with vaseline or oil. If necessary, the harrow towing device can be pulled up to make the machine more compact. For long-term storage, the machine must be stored in an indoor storage or under a shelter to prevent any damage to the rubber parts and paintwork caused by weather phenomena and sunlight.
- If you have any questions about spare parts and accessories, please contact the harrow retailer.
- Use only original spare parts.

Lubrication points

	Daily	Every 500 ha or once in a season
Cage roller bearings 8-12 pcs	X	X
Wheel hubs 6 pcs		X
Wing section bogie arms 4 pcs		X
Bogie bearings 2 pcs		X
Axle bearings 4 pcs		X
Hydraulic cylinder end bearings 7-10pcs		X
Drawbar top link ends 2 pcs		X
Towing eye 1 pc		X
Rear harrow 6 pcs		X

Using pin grease to lubricate the harrow is strictly prohibited. Using such grease on wheel hubs may damage the bearings.

Harrow with brakes: When changing the wheel hub grease, use a grease specifically intended for wheel bearings. Using the wrong kind of grease may damage the hub.

Tine replacement

Loosen the fastening bolt and remote the old tine. Do not remove the bolt from the clamp. Slide the new tine through the clamp. Pull the tine back so that the bolt catches the tine bracket. Tighten the nut to 110 Nm. Tighten the tine point bolt after the first day of use.

Tine point replacement

Tine points can be turned around by using the old bolt and nut, provided that the head of the point bolt is not yet too worn. When tine points are replaced, the bolts and nuts must be replaced as well. Tighten the nuts to 50 Nm.

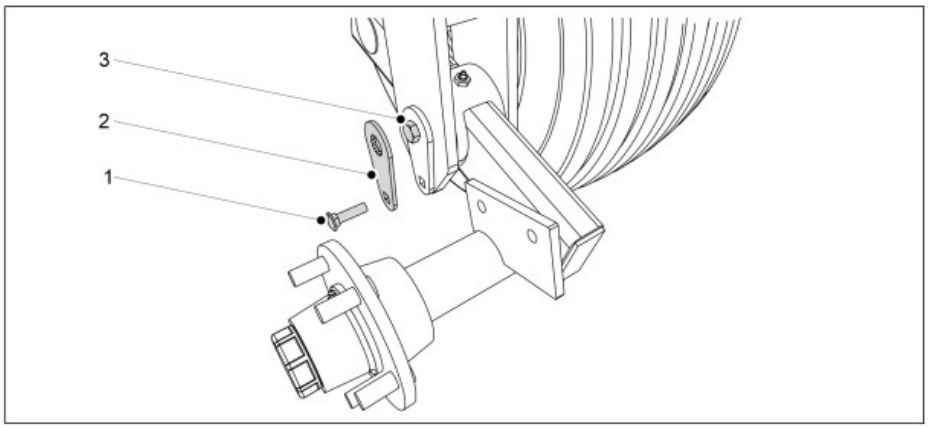
Never hold the bolt head with your hand when loosening the tine point nut.

Checking the bogie beam bearings

- Always check for play in the bogie beam bearings before lubrication.
- Spread the harrow on a flat surface.
- Lower the harrow to rest on its tines so that the wheels are lifted in the air.
- Press the rear wheel down so that the front wheel does not touch the ground. Swing the bogie sideways. If there is play, tighten the middle bearing according to the instructions.

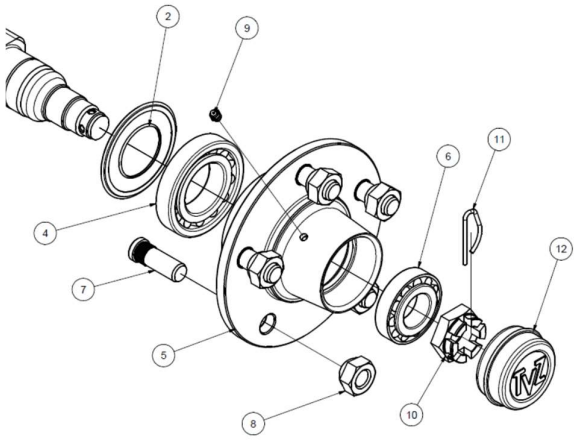
Tightening the bogie beam bearings

1. Lower the harrow onto the S-tines so that the wheels are off the ground and the bogie can move freely. The bogie must be able to move without any hindrance and there should not be any play when it is twisted laterally. If there is any play found, tighten the bearing in accordance with steps 2–6.



2. Loosen the fastening bolt (1).
3. Remove the lock plate (2).
4. Tighten the adjusting bolt (3) until there is a slight resistance in the swing of the bogie.
5. Replace the lock plate.
    - If necessary, loosen the adjusting bolt slightly until the lock plate notches are aligned with the adjusting bolt.
6. Tighten the lock plate fastening bolt.

Wheel hub (wing sections)



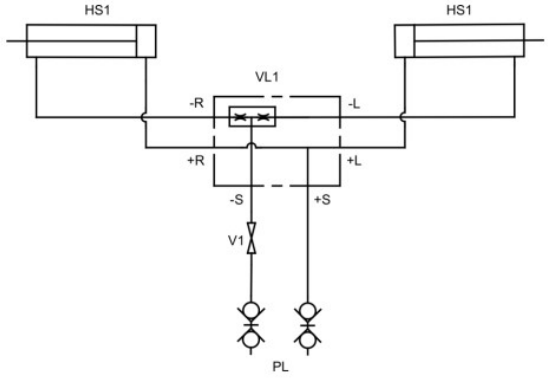
- Check the bearing clearance before greasing the hubs.
- Spread and lower the harrow to rest on the tines so that the wheels are lifted in the air.
- Grip the wheel firmly and check for play in the bearings: the wheel must turn freely, but there must be no play in the bearing.
- To tighten, open the hub cap (12) by turning it anticlockwise. You can find the hub cap key on the right side of the hood. Remove the castle nut locking pin (11) and tighten the castle nut (10) while turning the wheel until you can feel slight resistance in the bearing.
- Next, loosen the nut until the locking pin fits into the next slot.
- If the nut is already aligned with the hole, loosen the nut to the next slot.
- Screw in the hub cap.
- Grease the hub with vaseline until it squeezes out from the hub seal (2).
- Check also the tightness of the wheel nuts.

Wheel hub (middle section)

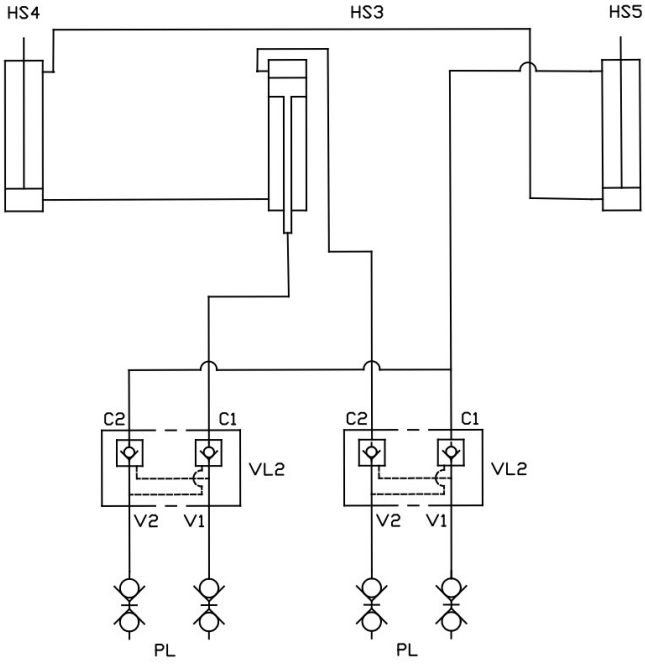
- Check the bearing clearance before greasing the hubs.
- Spread and lower the harrow to rest on the tines so that the wheels are lifted in the air.
- Grip the wheel firmly and check for play in the bearings: the wheel must turn freely, but there must be no play in the bearing.
- To tighten, open the hub cap (12) by turning it anticlockwise. You can find the hub cap key at the front end of the machine. Remove the castle nut locking pin (11) and tighten the castle nut (10) while turning the wheel until you can feel slight resistance in the bearing.
- Next, loosen the nut until the locking pin fits into the next slot.
- If the nut is already aligned with the hole, loosen the nut to the next slot.
- Screw in the hub cap.
- Grease the hub with vaseline until it squeezes out from the hub seal (2).
- Check also the tightness of the wheel nuts.

Hydraulics

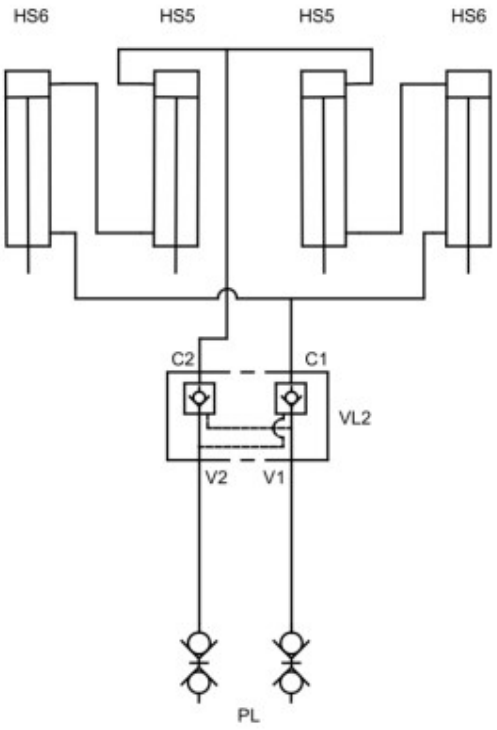
The working depth of **MASTER** harrows is adjusted hydraulically.
The front levelling board and depth adjustment cylinders are connected in series, which ensures that they are always fully synchronised.



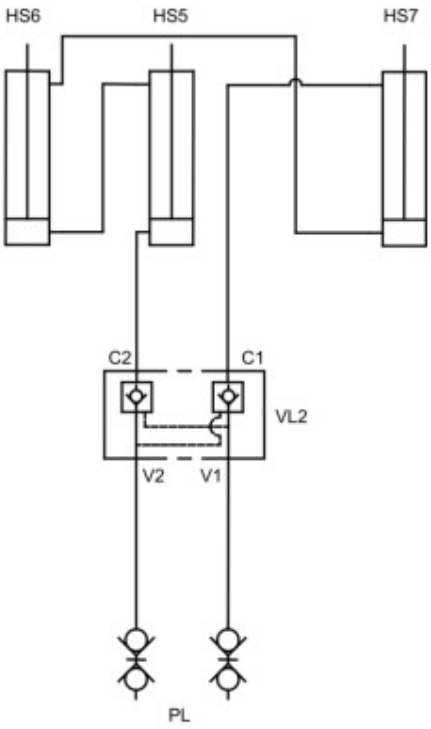
Wing sections



Machine lifting Working depth



Front board



Rear board

6. WARRANTY

6. WARRANTY

1. The machine's warranty period is 12 months.

2. The warranty period starts on the date when an authorised retailer delivers the machine.

3. The warranty covers manufacturing and raw material defects. Damaged parts are repaired or replaced with parts in proper operating condition at the customer's facilities, factory or authorised repair shop.

4. A warranty repair does not extend the warranty period.

5. Warranty does not cover:

- damage caused by incorrect operation or maintenance in violation of the operating
- manual, excessive loading or normal wear.
- loss of income, downtime, other consequential or indirect damage caused to the
- product's owner or a third party
- travel or freight expenses, daily allowances
- changing the original construction of the product.

In warranty matters, please contact the machine retailer or manufacturer. Any measures and costs must always be agreed upon with the manufacturer before the measures are taken.

7. EC DECLARATION OF CONFORMITY

7. EC DECLARATION OF CONFORMITY

DOMETAL OY
Kotimäentie 1
FI-32210 Loimaa
Finland

hereby states that the following S-tine harrows in question:

Kverneland Tiger

900 starting from serial number: 000 040809 N1000001

1000 starting from serial number: 000 040810 N1000001

meet the requirements of Machinery Directive 2006/42/EC with respect to the construction of machinery.

Furthermore, the following standards were applied in the design of the machine:

SFS-EN ISO 12100:2010
SFS-EN ISO 4254-1:2013

Loimaa 12.2.2022

Vesa Mäkelä
Kotimäentie 1
FI-32210 Loimaa
Finland

The undersigned is also authorised to compile technical documentation for the above machines.
Translation of the original file.