

Germinator Pro



Directions for use
"Original instructions"

GB

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GENERAL INFORMATION

INTRODUCTION

Congratulations for purchasing our new GERMINATOR PRO unit. We appreciate the trust you have given us by investing in a Kongskilde product.

GERMINATOR PRO is a detached unit equipped with a special system for maintaining a permanent processing depth, designed for performing precise soil preparation for seeding, all done with one working drive.



NOTICE! In order to ensure that the unit is used in a correct and safe manner, make sure to read this instruction manual thoroughly prior to starting the unit and to observe all guidelines of the instructions as well as other effective legal regulations related to the application of farming machines.

Should any of the information contained herein be misleading or unclear, please contact with your local dealer or a service team worker, providing that they are adequately trained by the manufacturer.

Should any of the information contained in the translation prove misleading or unclear, Kongskilde Industries A/S and/or its representatives may provide the original version of the instruction manual at customer request.

The instruction manual is an integral element of the unit's equipment and must be kept for future use. If damaged, destroyed or lost, please contact a Kongskilde representative to purchase a new copy of the instruction manual or download a current version from <http://www.kongskilde.com/>

Ensuring proper use of the machine, its adequate maintenance, lubrication and storage will allow you to keep it in good condition and preparedness to work.

The unit was designed and manufactured in compliance with all applicable requirements regarding safety of use, in line with effective standards. Bear in mind, however, that employing solutions aiming at observing all requirements of domestic and international standards regarding the ergonomics and safety of use does not ensure that hazards related to e.g. residual risk, as well as situations, the development of which cannot be anticipated will not occur.

In the case of using the unit inconsistently with its destination, Kongskilde Industries A/S and/or its representatives shall not be held liable for any damages incurred. In such case, full responsibility for the machine use, transport, maintenance, repairs, etc. shall be borne by the owner/user.

Any and all departures from manufacturer requirements and effective legal regulations, as well as performing any modifications in machine structure without obtaining prior manufacturer's

approval, using spare parts other than original ones shall be construed as using the unit inconsistently with the requirements and shall result in a waiver performed by Kongskilde Industries A/S with respect to the damages.

UNIT IDENTIFICATION

Each unit is equipped with a rating plate (Fig. 1) permanently mounted to the front part of the frame.

Information presented on the plate allows the user to identify the machine, which is essential in, e.g. ordering spare parts.

The plate contains such data as: manufacturer name, machine symbol, factory number, year of manufacture. The data must be entered to the table below and used when contacting the manufacturer or the store.

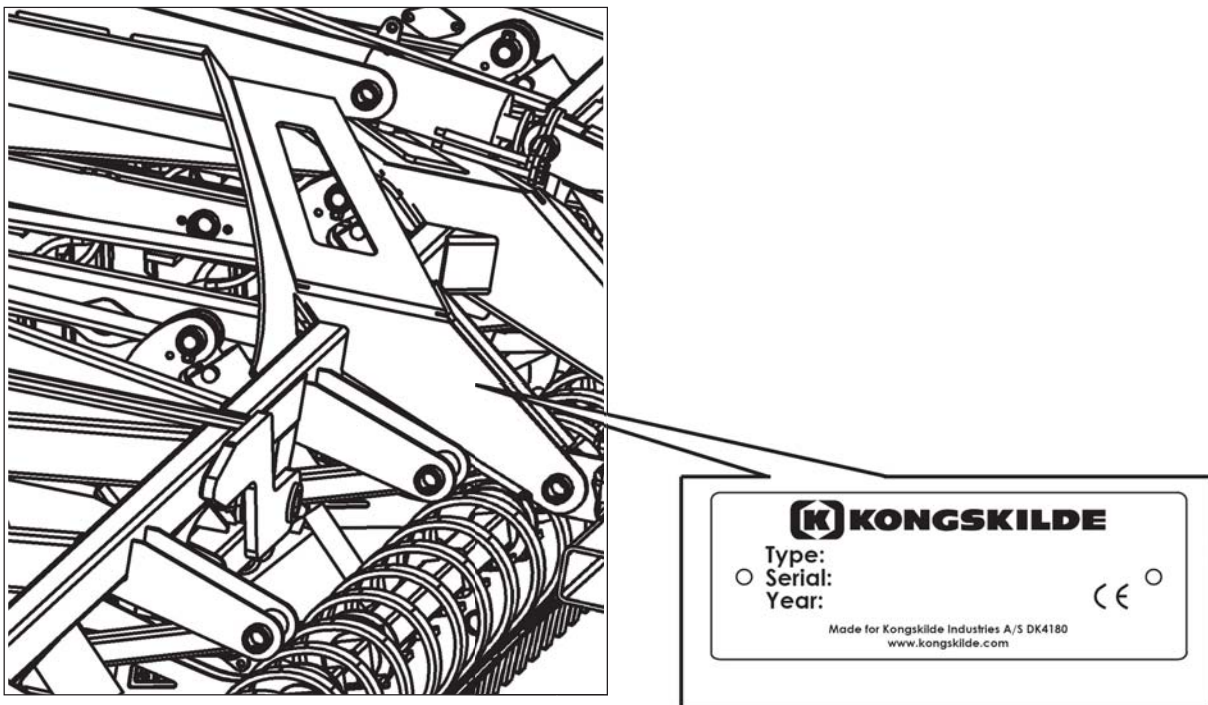


Fig. 1 Location of the rating plate

Please enter the identification data for the machine below.

Type: _____ **Machine name and model**

Serial: _____ **Serial number**

Year: _____ **Year of manufacture**

In case of any questions regarding the Germinator Pro unit, and when ordering spare parts, please provide the abovementioned identification data.

Part numbers are listed in the spare parts catalogue attached to this instruction manual.

SAFETY INSTRUCTIONS

GENERAL

In the instruction manual and on warning labels, particular instructions are preceded by one of the following terms indicating a hazardous situation:

- **HAZARD** – indicates a state of hazard, which may lead to severe injuries or death
- **WARNING** – indicates a state of danger, which may lead to severe injuries or death, however, the risk of this type of danger occurring is lower to the risk of a “HAZARD” occurring
- **ATTENTION** – indicates the state of danger, which may lead to minor or moderate injuries. This term may also be used to warn against prohibited operations








ATTENTION! Failure to comply with instructions marked with one of the terms: „HAZARD”, „DANGER”, „ATTENTION” may result in severe injury and death.


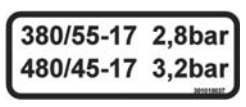






NOTICE! On the occurrence of a hazardous or dangerous situation, stop the tractor immediately, switch off the drive and stop the engine, drop the unit to the base position and engage the hand brake.

LABELS AND WARNING SYMBOLS

1.		A warning symbol for safety signs containing warning terms
2.		<p>Label no. 200043774 - „Read the instruction manual”</p> <ul style="list-style-type: none"> Before starting the machine, read the instruction manual
3.		<p>Label no. 71000629551 - „Stop the engine and take the key out of the ignition”</p> <ul style="list-style-type: none"> Before proceeding to unit operation or repair, turn off tractor engine and take the key out of the ignition
4.		<p>Label no. 300007973 - „Avoid pressurized outflowing water”</p> <ul style="list-style-type: none"> Hazard generated by hydraulic oil outflowing under pressure The hazard may cause severe injuries to the entire body, with possible lethal effect Before proceeding to maintenance procedures or repairs of the hydraulic system, make sure the system is depressurized Do not try to seal hydraulic oil leaks using your hands or fingers
5.		<p>Label no. 300007974 - “Do not stand next to jack pincers when operating the jack”</p> <ul style="list-style-type: none"> A hazard of your body being crushed when standing between the tractor and the unit to be connected The hazard may cause severe injuries to the entire body, with possible lethal effect When connecting the unit to a tractor, standing in between the unit and the tractor with the tractor engine running and the tractor not secured against accidental rolling is strictly prohibited

2. SAFETY INSTRUCTIONS

6.		Label no 300007977 - „Maximum working pressure of the hydraulic installation is 200 bar”
7.		Label no. 301010037 - “Required tire pressure “
8.		<p>Label no. 71000629546 - „Attention! Folded elements”</p> <ul style="list-style-type: none"> • A hazard of your body being crushed when standing within the range of unfolded unit elements • The hazard may cause severe injuries to the entire body, with possible lethal effect • In order to avoid the hazards, standing within the range of the unit folding elements is strictly prohibited. Before folding/unfolding the unit, make sure that there are not people standing in its range
9.		<p>Label no. 200083979 - „Keep hands away”</p> <ul style="list-style-type: none"> • Hazard of having the fingers or palms crushed by mobile unit elements • The hazard may cause severe injuries to the entire body, including amputation of body parts • Reaching to the hazard zone with the engine running and the hydraulic or electrical installation connected is strictly prohibited
10.		<p>Label no. 372003609 - „Keep away”</p> <ul style="list-style-type: none"> • A hazard of your body being crushed by lowering unit elements • The hazard may cause severe injuries to the entire body • Keep clear of the unit's hazard zone and pay attention to all other people standing next to the unit
11.		<p>Label no. 301010038 - „Keep away from electrical wires”</p> <ul style="list-style-type: none"> • Hazard of being electrocuted or fire hazard caused by accidental hooking onto overhead electrical lines or by unacceptable approximation to live-current overhead electrical lines • The hazard may cause severe injuries to the entire body, with possible lethal effect • Maintain a safe distance to any electrical wires when folding, unfolding and traveling in the vicinity of electrical lines

2. SAFETY INSTRUCTIONS








12.		<p>Label no. 301010039 - „Make sure the transport lock is closed”</p> <ul style="list-style-type: none"> Hazard of your body parts being crushed causing severe injuries, with possible lethal effect Make sure the transport lock is safely closed during transport, operation and maintenance
13.		<p>Label no. 301010041 - „Make sure the hooks are locked”</p> <ul style="list-style-type: none"> Hazard of your body parts being crushed causing severe injuries, with possible lethal effect Make sure wing hooks are safely locked during transport, operation and maintenance
14.		<p>Label no. 300007972 - „Keep away from the unit when in transport”</p> <ul style="list-style-type: none"> A hazard of falling caused by standing on the unit when working or in transport. The hazard may cause severe injuries to the entire body, with possible lethal effect Traveling on the unit or entering the unit when working is strictly prohibited. This reservation refers to machines with walking surfaces and platforms as well. Make sure that no one is traveling on the unit
15.		<p>Label no. 301010040 – „Keep away from the drawbar”</p> <ul style="list-style-type: none"> A hazard of having your body crushed by standing in the drawbar motion range, between the tractor and the unit being connected The hazard may cause severe injuries to the entire body, with possible lethal effect Standing in the hazard zone between the tractor and the unit with the tractor engine running and the tractor not secured against unintentionally rolling is strictly prohibited
16.		<p>Label no. 74000667708 - „Lubrication point”</p> <ul style="list-style-type: none"> A pictogram indicating the lubrication point
17.		<p>Label no. 74000666103 - „Mount transport belts here”</p> <ul style="list-style-type: none"> A pictogram indicating the places of mounting crane devices when loading the unit
18.		<p>Label no. 300008277 - „Speed limit: 25km/h”</p>

Table 1. A list of warning symbols



ATTENTION! Safety signs must be clean and visible at all times. If you need to replace any damaged or missing warning signs, please call your local machine dealer and buy proper signs basing on catalogue numbers and place these signs in their proper locations!

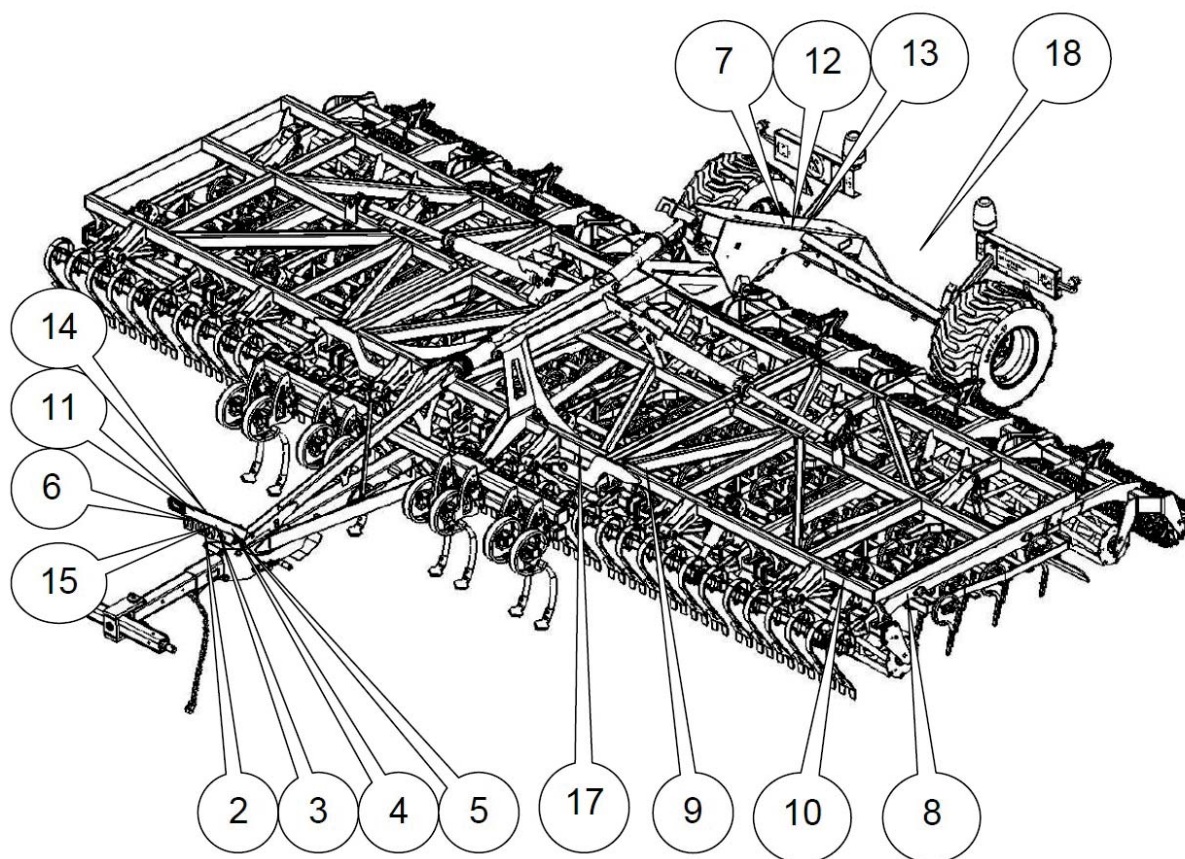


Fig. 2 Location of warning labels

RESIDUAL RISK DESCRIPTION

Residual risk results from incorrect or improper behavior of the person operating the Germinator Pro unit.

The highest risk occurs when performing the following operations:

- The unit being operated by underage operators, as well as persons unfamiliar with the instruction manual or not licensed to drive a farming tractor
- The unit being operated by operators with a health condition, operators indicating alcohol or drug intoxication
- Failure to maintain proper caution when driving or working
- Transporting people on the unit
- Standing between the unit and tractor with the engine running
- Allowing people or animals to stand within the unit working range: unit + tractor

- Performing operations related to service and adjustment with the machine running and/or with the engine running

In presenting the residual risk for the unit, it is considered a machine designed and manufactured according to the current technological development.

RESIDUAL RISK ASSESSMENT

Observing such recommendations as:

- reading the instruction manual thoroughly
- making sure that no one is traveling on the unit when working or traveling
- making sure that no one is standing between the tractor and the unit with the engine running
- regulating, performing maintenance and lubricating the unit only with the engine turned off
- performing machine repair only by duly trained personnel
- ensuring that the unit is operated by people licensed to drive farming tractors and who have familiarized themselves with the instruction manual
- securing the unit against the access of children

may reduce the hazards related to operating the unit to the minimum.

SAFETY PRINCIPLES

GENERAL SAFETY REQUIREMENTS

The condition for ensuring safe and uninterrupted operation of the Germinator Pro unit is familiarizing the user with the following safety requirements:

- The Germinator Pro unit must be used according to its destination at all times.
- Operation, repair and use of the unit may be performed only by mature persons holding adequate qualifications authorizing them to perform such operation and having read this instruction manual.
- The user must have the following obligatory means of personal protection at disposal:
 - » safe heavy-duty footwear
 - » protective goggles
 - » protective gloves
 - » protective clothing
- The protective clothing must be well-fitted to measure the body form. Avoid loose pieces of clothing, since these may become tangled in the moveable parts.
- Before starting the unit, learn all components of the unit and service equipment.

2. SAFETY INSTRUCTIONS

- Before starting the unit, make sure that all subassemblies are fully operational and complete. Pay particular attention to all locks and safety devices.
- Before starting the unit, repair or replace all malfunctioning elements with new ones.
- Work with the unit fully operational only.
- The unit may be operated only from the tractor driver's seat coupled with the unit.
- Do not leave the unit on slopes without securing it against unintentionally rolling down.
- Apart from all guidelines, always observe generally accepted principles of environmental protection and accident prevention.
- Perform all maintenance works recommended by the manufacturer in proper terms.
- After finishing any maintenance works, always check the functioning of all safety devices and locks.
- Vehicles with homologation or devices and equipment related to these vehicles must remain in compliance with the requirements of the homologation certificate or the requirements of certificates admitting the vehicle to road traffic issued according to pertinent legal regulations on road traffic.

CONNECTING AND DISCONNECTING THE UNIT

- Use only tractors specified in the instruction manual as recommended for connecting the unit.
- Before connecting the unit, control all coupling elements, inspect the unit for cracks, loose screws or nuts, or parts missing. Always make sure that the unit will not accidentally disconnect from the tractor during field works.
- Mount the unit to the tractor in dedicated places only.
- The pincers of the three-point unit suspension system on the tractor must be properly mounted on the unit and secured against possible unintentional disconnection.
- Be very careful when connecting the unit to the tractor / disconnecting the unit from the tractor. Do not enter the space between the tractor and the machine when the tractor is moving.

MACHINE OPERATION

- All and any adjustments of the device must be performed only when the device is safely parked, supported on the ground in the unfolded position, and with the tractor engine turned off. Always take the key out of the ignition and pull the hand brake.
- During work, make sure that no unauthorized persons enter the working range of the unit. Never perform any works if there are people, and especially children, are present in the vicinity of the Germinator Pro unit or within the safety range of the device. Make sure that no one is standing under the side wings of the unit without observing the safe distance principle.
- When in operation, do not bend, remove or mount any protective shields or any other safety devices within the unit.

2. SAFETY INSTRUCTIONS

- Due to the presence of dust when working in the field, we recommend the use of tractors equipped with a dust-proof cabin with adequate filters.
- During operation, the safe distance to the unit is 5 m. Unauthorized access to the machine, when in operation, is strictly prohibited.
- Farming works performed on the slopes of hills and inclined surfaces must not be performed obliquely to the direction of the slope, due to the risk of the tractor falling down.
- In the case of any inconsistencies in the operation of the unit, always make sure that all required elements are correctly connected according to the terms of this instruction manual.
- If, even with the correct connection of all machine elements, the malfunction prevails, contact the factory service or your local dealer.

REMOVING CLOGS AND JAMS

When working with Germinator Pro, you may experience stoppages in soil transport between particular working elements or shafts.

In order to minimize the risk of clogs:

- adjust the working speed to make sure that the soil processed is transported evenly between particular working elements
- adjust the processing depth to the type of work performed and the amount of post-cropping residue in the farmed soil

In the event the unit clogs:

- stop the tractor engine immediately and lift the unit
- when removing jams requiring you to step on the machine, maintain particular caution – there is a risk of slipping
- when removing jams requiring you to step under the unit, maintain particular caution and always make sure the machine was secured against automatic lowering

TRANSPORT/DRIVING THE UNIT ON PUBLIC ROADS



NOTICE! The speed limit for a vehicle traveling on public roads with the Germinator Pro unit attached is 25km/h.



- The machine may be transported only in the transport position.
- Before transporting the machine, make sure that the wings are fully locked using transport locking devices.
- Always make sure that the lock securing the unit wheel is properly immobilized.



ATTENTION! Security lock prevent against incidental spreading of machine wings and its descending to the operational position in case of any failure (leaking) of the hydraulic hoses. The locks also prevent from unintended spreading of the wings or machine descending if the ball valve of the hydraulic line is closed.

- Make sure the air pressure in the unit's tires is correct.
- When traveling on public roads, always observe the official regulations regarding the safety of road traffic, vehicle lighting, etc. The unit should be equipped with rear lights (turn signals, position lights, braking lights) connected to the electrical installation of the tractor. Plus a triangle sign must be mounted on a special grip for slow-sleep vehicles.



NOTICE! The behavior of the tractor when pulling the unit may vary. Adjust the style of driving to the conditions on the road. Pay special attention to the location of the center of gravity of these machine elements which are folded with the use of hydraulic cylinders. The maximum permissible speed for driving with the Germinator Pro unit attached is 25 km/h.

- When driving with the unit attached on any public roads, railway tracks or other surfaces, never exceed the transport width the unit, specified by applicable regulations. If the maximum permissible transport width is exceeded, then, in extraordinary conditions, the authorities may issue a special permit for the transport of a large-size vehicle.
- Always observe the principles for permissible axle loads, the total unit mass and the transport gauge.



NOTICE! When in operation, and during transport, driving and transporting people on the structure of the device.

- The tractor driver must not leave the cabin during transport.
- When making turns or driving next to corners, maintain a safe distance to account for the inertia of the Germinator Pro unit, as well as the location of the center of gravity of the folded frame, which is at height.
- After finishing transport, before leaving the tractor, always lower the device to the ground to the parking position, turn off the tractor engine, remove the key from the ignition and pull the hand brake.

MAINTENANCE AND OPERATION

- Repair, maintenance and cleaning of the unit, as well as solving any problems related to any malfunctions of the machine must be performed, in principle, only with the tractor engine turned off. Always take the key out of the ignition and pull the hand brake.
- In the event of performing maintenance works with the unit in the raised position, secure the Germinator PRO unit by applying suitable supports.
- Control the tightness of all screws and nuts.

2. SAFETY INSTRUCTIONS

- Dispose of all working elements, consumable liquids, parts, etc. according to applicable regulations in force.
- Never enter underneath the unit if it is not rested securely on proper supports.
- When the hydraulic system is pressurized, do not attempt at disconnecting any hydraulic connections.
- Inspect all hydraulic connections at least once a year.
- Damaged hydraulic connections must be unconditionally replaced with new ones.
- When replacing any working equipment with sharp cutting edges, always use proper tools and perform the works in protective gloves.
- Before starting any welding works, disconnect the wires from the alternator and the battery.
- Use only original spare parts.

LIFTING THE MACHINE WITH A CRANE

If the Germinator Pro unit must be lifted by a crane or a forklift, always proceed according to the following guidelines:

- the crane or forklift used to lift the Germinator Pro machine must have proper lifting capacity and is equipped with proper ballast



NOTICE! Never enter the underneath of a Germinator Pro unit when it is being lifted.



- Place the transport belts in spots marked with applicable labels (Fig. 3).
- Always use transport belts with proper load-bearing capacity.
- The correct method of lifting the machine is presented in (Fig. 3).

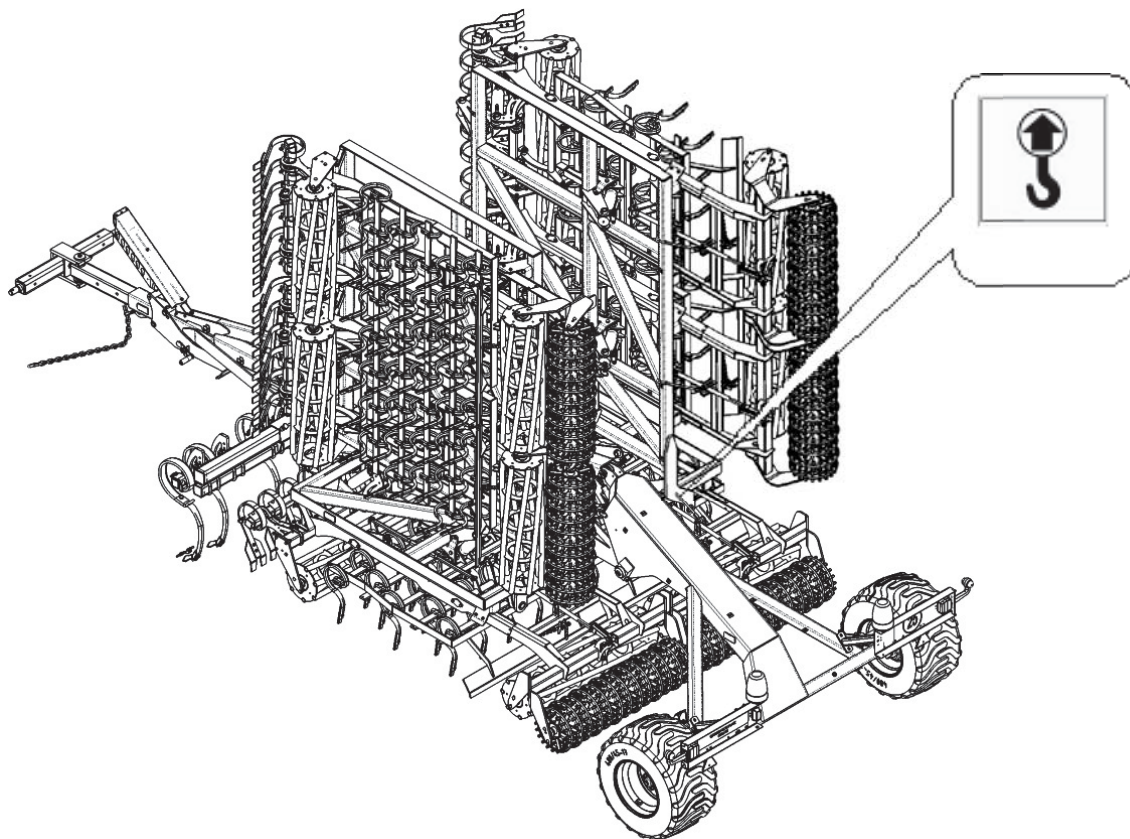


Fig. 3 The unit's lifting points for crane lifting operations

LOADING AND UNLOADING THE UNIT USING A FARMING TRACTOR

- Only an adequate farming tractor with a fully operational braking installation may be used for loading and unloading the machine.
- Before proceeding to loading / unloading, connect the machine to the tractor in the correct way.
- When performing the loading / unloading procedure, ask an additional person for help in pointing the right directions.
- When loading the machine, disconnect it from the tractor and secure it for the duration of transport, according to applicable regulations.

TECHNICAL DATA

Germinator Pro		5400	6200	7900
Working depth [cm]	[cm]	4-12		
Working speed	[km/h]	up to 12		
Transport speed	[km/h]	up to 12		
Number of tine rows	[pcs.]	5	5	5
List of working sections	[m]	2x1.4m + 2x1.2m	2x1.4m + 2x1.6m	2x1.4m + 4x1.2m
Number of tines	[pcs.]	90	106	130
Coupling category		2-point drawbar, Cat. 3; 2-point drawbar, Cat. 4 Hook 40mm; Hook 50mm; Towing eye K80		
Hydraulic installation requirements		3 pairs of hydraulic connections		
Maximum pressure of the hydraulic system	[bar]	200		
Minimum pressure of the hydraulic system	[bar]	180		
Electrical installation requirements		12V		
Tires		380/55-17 480/45-17	380/55-17 480/45-17	480/45-17
Number of wheels		2		
Wheel span	[m]	2.505		
Tire pressure	[bar]	2.8 / 3	2.8 / 3	3
Power consumption	[KM]	140-180	180-220	>220
Dimensions and weight				
Total weight*	[kg]	4522	4704	5760
Working width	[m]	5.4	6.2	7.9
Transport width	[m]	3		
Transport height	[m]	2.740	3.140	3.985
Transport length	[m]	7.635		

*For a unit equipped with BCC sections

Table 2. Technical data

MACHINE OPERATION

DESTINATION OF THE MACHINE

- GERMINATOR PRO is an attachable machine equipped with a special system for maintaining a permanent working depth, designed for precise soil preparation for sowing, all performed within one working drive.
- Germinator Pro also allows for preparing the soil as to provide the ultimate conditions for fast and even sprouting. This translates into bigger crops, higher efficiency and larger profits.
- The working section of the Germinator Pro unit is equipped with three shafts, one located in the front part of the section, and two located in the rear part of the section. During operation, the rollers maintain the machine in a fixed position, which allows for maintaining an even processing depth of up to 12 cm. The purpose of the front planning beam is to pre-level the surface before the machine enters it. The purpose of the planning beam mounted after the working tines is to perform a precise leveling of the soil.

USAGE INCONSISTENT WITH THE DESTINATION

The Germinator Pro unit must not be:

- used for performing other works than farming works basing on preparing soil for plant seeding
- used without having read this instruction manual
- used without having learned the structure and operation of the machine
- transported on slopes with a 8.5° or bigger inclination

For damages resulting from the use of the machine against its destination:

- liability is borne entirely by the user
- Kongskilde Industries does not bear any liability

STRUCTURE AND EQUIPMENT OF THE GERMINATOR PRO UNIT

MAIN SUBASSEMBLIES

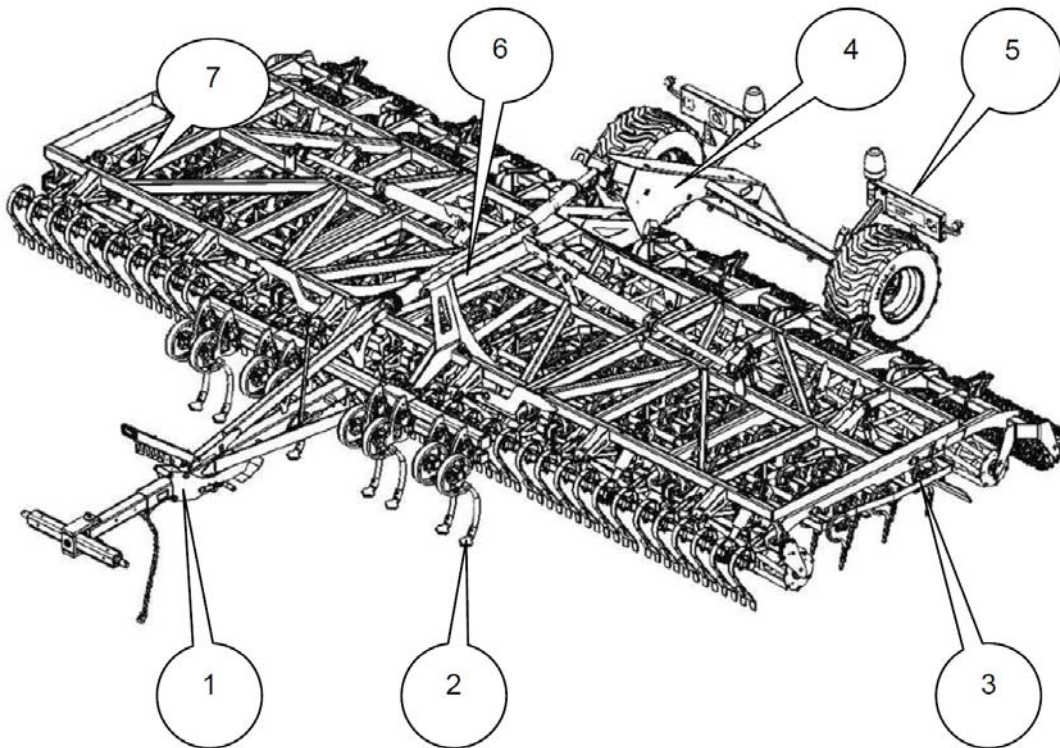


Fig. 4 Main unit subassemblies

- 1) Drawbar
- 2) Track eradicators
- 3) Working section
- 4) Transport trailer
- 5) Lighting set
- 6) Central frame
- 7) Wing

STRUCTURE OF THE WORKING SECTION

The Germinator Pro unit may be equipped with 5 different working sections (Fig. 5), differing in terms of the type of rollers used (Table 3).

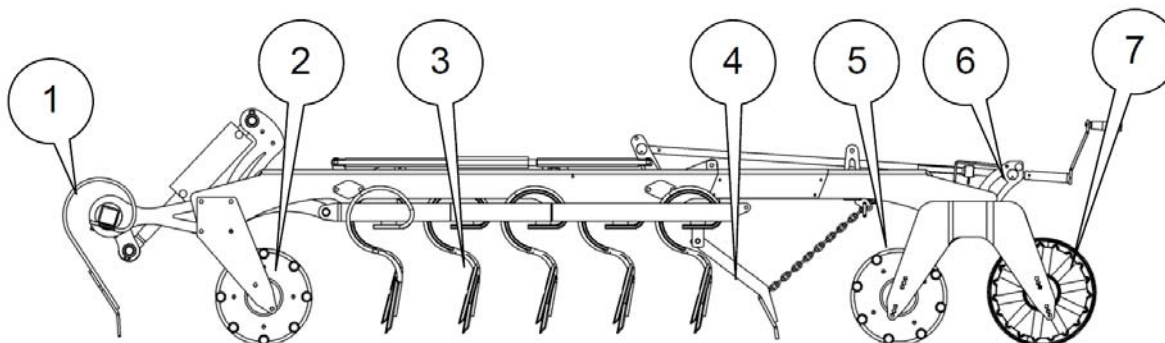


Fig. 5 Working section

The main elements of the working section are :

- the front Flex Board (1)
- front type „B” roller (2)
- Vibro Super G working tines (3)
- rear levelling board (4)
- rear roller (5)
- depth adjustment mechanism (6)
- rear roller (7)




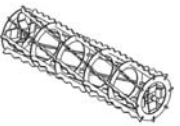
Roller type	Roller characteristics
	Type "R" roller (Rotocrat)
	Type "K" roller (Kroskillet)
	Type "B" roller (bar-roller)
	Type "C" roller (flat-bar)

Table.3. Types of rollers

Table 4 presents a specification of particular types of working sections.

A combination of rollers	Crushing	Compaction	Load-bearing capacity on light soil
BBR	+++	++	++
BBK	++	+++	+++
BCK	++	++	++
BBC	+++	++	++
BCC	+++	+	+

Table.4. Specification of particular working sections

HYDRAULIC SYSTEM



WARNING! When connecting or disconnecting hydraulic hoses or connections, make sure that the system is depressurized both in the tractor and in the unit. There is a risk of infection from the side of the outflowing pressurized oil.



Prior to connecting the machine to the hydraulic system:

- verify if the oil used in the tractor hydraulics and the unit hydraulics matches
- remember that the permissible working pressure of oil in the system is 220bar
- verify, if the quick-couplers are properly clean; if not, clean them
- verify the connection in terms of its tightness
- set the tractor's steering units in the neutral position



NOTICE! Only qualified servicing personnel may perform adjustment and repair of the hydraulic system.

CONNECTING AND DISCONNECTING HYDRAULIC BRAKES



NOTICE! Do not release the emergency-hand brake when attaching the machine to the tractor. The emergency-hand brake is released by the operator from the cabin directly before setting the tractor-machine unit into motion, as intended. Before starting off, always verify the operation of the braking system. Upon noticing any defects, proceed immediately to performing the necessary repair/adjustments of the system.

4. MACHINE OPERATION

- Only tractors with proper connections equipped with one line in the ISO 5676 standard may be used to operate the working hydraulic brake of the unit.
- Before making any connections, verify the condition of all hydraulic hoses and connections, inspecting them for cracks or leaks.

Connecting:

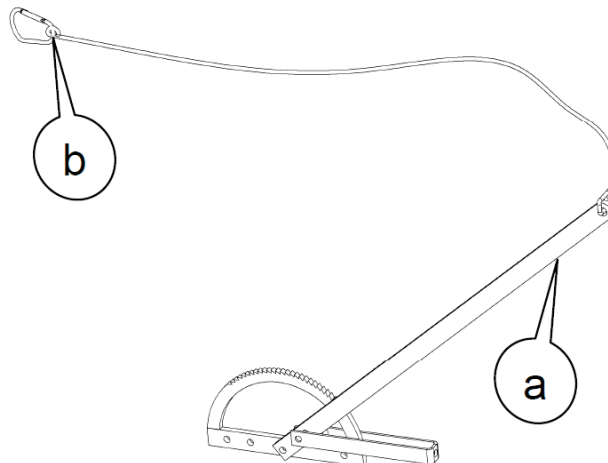
- Always connect only clean hydraulic connections. If necessary, clean the hydraulic plug or socket.
- Connect the hydraulics plug from the side of the machine to the hydraulics socket from the side of the tractor.
- Make sure the connection is done correctly.
- Make sure the connection is tight.

Disconnecting:

- If the machine is equipped with a hand brake, engage it.
- Loosen and disconnect the hydraulics plug from the tractor socket.
- Lay the hydraulics pipe on the handle designed for hydraulics hoses.

Emergency-hand brake

- In order to engage the hand brake, pull the brake lever “a” towards the tractor.
- Disconnect the hydraulic working brake according to the instructions specified above.
- Disconnect brake jack line “b” from the tractor.
- Disconnect the unit by following the instructions on disconnecting the unit.





ATTENTION! In order to ensure the proper operation of the emergency brake, brake lever line b should be permanently fixed to the tractor. The emergency brake is engaged upon unexpected disconnection of the unit from the tractor.

CONNECTING THE UNIT TO THE TRACTOR



NOTICE! When connecting the Germinator Pro unit to the tractor, stop the tractor, remove the key from the ignition and secure the tractor against unintentional rolling.



NOTICE! Walking between the tractor and the Germinator Pro machine when connecting the unit is strictly prohibited – accident hazard!



NOTICE! Make sure that there are no people standing in the working range of the unit.



Before connecting the unit to the tractor:

- verify if the connection matches the three-point suspension system of the Germinator Pro unit and the tractor
- perform all the necessary adjustments if the connection is inconsistent
- make sure that the machine is standing on firm ground and is secured against unintentional rolling

Germinator Pro may be equipped with several types of couplings (Fig. 6):

1. 40mm coupling
2. 50mm coupling
3. 80mm ball coupling
4. Cat. 3 or Cat. 4 coupling for the three-point suspension system

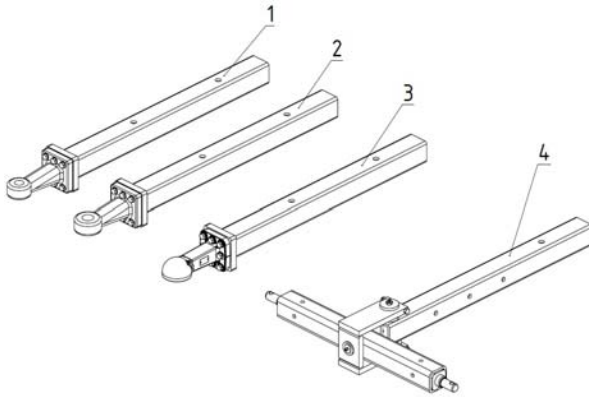


Fig. 6 Types of couplings

CONNECTING A MACHINE ATTACHED IN THE THREE-POINT LINKAGE SYSTEM

In order to connect a unit to a three-point suspension system of the tractor:

- lower the lower linkages and reverse the tractor to place the hooks of the lower linkages under the ball sleeves



WARNING! Before approaching the unit with the tractor, make sure that no one is standing in the hazard zone between the tractor and the unit.



- place the correct ball couplings on the pivot of the connecting rod
- raise the jack until the hooks of the lower linkage grab the ball sleeves
- secure all connections against disconnecting unintentionally
- make sure that all hydraulic connections are clean and then make all the necessary hydraulic connections



WARNING! When connecting or disconnecting hydraulic hoses or connections, make sure that the system is depressurized both in the tractor and in the unit. There is a risk of infection from the side of the out flowing pressurized oil.



NOTICE! Hydraulic connections are marked with the following colors:

- black – the line operating the drawbar cylinder and the transport trailer
- red – the line operating section and wing cylinders
- blue – the line operating the location of the front planning beam

In order to facilitate the attachment of hoses to the tractor, they have been marked with labels of various lengths. One has to ensure that hoses with same colours are attached to the

same pair of hydraulic ports on the tractor. If necessary, the user can replace the sheaths of the same colour so as to connect appropriate hoses to appropriate hydraulic ports on the tractor.

- open the ball valve at the hydraulic connector
- inspect the unit for any leaks from hydraulic connections
- connect unit lighting (optional)
- check if all devices are fully operational
- lift the machine using the trailer's and drawbar's cylinders so that the supporting leg does not touch the ground



NOTICE! During operation and transport, the supporting leg must be raised.

- lift the support (Fig. 7) in the following way:
 - » remove the pin (2) and pull out the pivot (1)
 - » grab the handle (3) and lift the support up
 - » re-insert the pivot (1) and secure it with a pin (2)

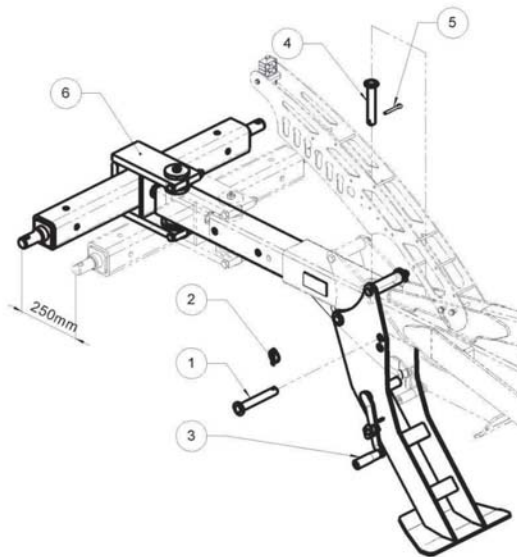


Fig. 7 Supporting leg and drawbar

CONNECTING A MACHINE ATTACHED TO A TRANSPORT COUPLING

In order to connect a unit attached to the transport coupling of a tractor:

- reverse the tractor to approach the unit, so that their couplings line up



WARNING! Before approaching the unit with the tractor, make sure that no one is standing in the hazard zone between the tractor and the unit.



- stop the tractor at approximately 50cm from the unit
- make sure that all hydraulic connections are clean and then make all the necessary hydraulic connections
- connect the hydraulic hoses marked red



WARNING! When connecting or disconnecting hydraulic hoses or connections, make sure that the system is depressurized both in the tractor and in the unit. There is a risk of infection from the side of the outflowing pressurized oil.



NOTICE! Hydraulic connections are marked with the following colors:

- black – the line operating the drawbar cylinder and the transport trailer
- red – the line operating section and wing cylinders
- blue – the line operating the location of the front planning beam

In order to facilitate the attachment of hoses to the tractor, they have been marked with labels of various lengths. One has to ensure that hoses with same colours are attached to the same pair of hydraulic ports on the tractor. If necessary, the user can replace the sheaths of the same colour so as to connect appropriate hoses to appropriate hydraulic ports on the tractor.

- using the hydraulic line, changing the location of the drawbar's cylinder, set the coupling at a proper height as to connect it to the tractor
- connect the tractor with the machine
- secure all connections against unintentional disconnection
- open the ball valve at the hydraulic connector
- inspect the hydraulic connection for oil leaks
- connect unit lighting (optional)
- check, if all devices are fully operational
- lift the machine using the trailer's and drawbar's cylinders so that the supporting leg does not touch the ground

- lift the supporting leg by following the instructions of subsection “Connecting a machine attached in the three-point linkage system”

CONNECTING THE MACHINE WITH THE 80MM BALL COUPLING

In order to connect a unit attached to the transport coupling of a tractor:

- reverse the tractor to approach the unit, so that their couplings line up



WARNING! Before approaching the unit with the tractor, make sure that no one is standing in the hazard zone between the tractor and the unit.



- stop the tractor at approximately 50cm from the unit
- make sure that all hydraulic connections are clean and then make all the necessary hydraulic connections
- connect the hydraulic hoses marked black



WARNING! When connecting or disconnecting hydraulic hoses or connections, make sure that the system is depressurized both in the tractor and in the unit. There is a risk of infection from the side of the outflowing pressurized oil.



NOTICE! Hydraulic connections are marked with the following colors:

- **black** – the line operating the drawbar cylinder and the transport trailer
- **red** – the line operating section and wing cylinders
- **blue** – the line operating the location of the front planning beam

In order to facilitate the attachment of hoses to the tractor, they have been marked with labels of various lengths. One has to ensure that hoses with same colours are attached to the same pair of hydraulic ports on the tractor. If necessary, the user can replace the sheaths of the same colour so as to connect appropriate hoses to appropriate hydraulic ports on the tractor.

- using the hydraulic line, changing the location of the drawbar's cylinder, set the coupling at a proper height as to connect it to the tractor
- reverse the tractor so that the coupling of the unit is placed directly above the tractor coupling
- using the hydraulic line lower the unit so that the coupling ball rests on the tractor coupling
- secure all connections against unintentional disconnection
- connect the remaining hydraulic hoses and additional equipment
- connect the tractor with the machine

- inspect the hydraulic connections for oil leaks
- connect unit lighting (optional)
- check, if all devices are fully operational
- lift the machine using the trailer's and drawbar's cylinders so that the supporting leg does not touch the ground.
- lift the supporting leg by following the instructions of subsection "Connecting a machine attached in the three-point linkage system"

DRAWBAR LENGTH ADJUSTMENT

The length of the Germinator Pro unit may be increased to provide the tractor with sufficient space for making turns. When using double rear wheels, the drawbar length may need to be increased even more (Fig. 7).

In order to change the position of the drawbar:

- remove pin (5) and pivot (4)
- adjust the drawbar (6) by shifting it in the desired direction
- re-install the pivot (4) in the second slot and lock it using pin (5)

HYDRAULIC LINE HOLDER POSITIONING

A hydraulic line holder, assembled on the machine drawbar (see Fig. 8) clamps all the hydraulic lines, attached to the tractor, protecting them against damage and enables their proper parking, when disconnected from the tractor.

Depending on drawbar position and the type of used tractor, it may become necessary to apply some tension to hydraulic lines.

The holder position is adjustable. In order to reposition the holder:

- unfasten fixing screw (1)
- unfasten screw (2) and unscrew
- remove screw (2) and, holding the holder with hand at its upper part, reposition as required
- relocate screw (2) in the appropriate hole and fasten
- fasten screw (1)

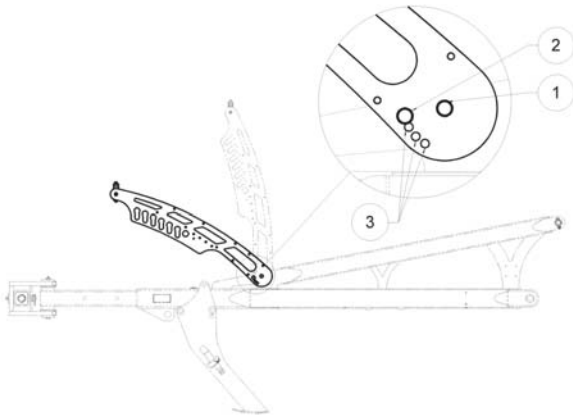


Fig. 8 Hydraulic line holder position adjustment

DISCONNECTING THE MACHINE



NOTICE! Do not disconnect the Germinator Pro unit on slopes. The machine may roll down.



NOTICE! When disconnecting the Germinator Pro unit from the tractor, stop the tractor, remove the key from the ignition and secure the tractor against unintentional rolling.



- Park the Germinator Pro unit in the transport position on flat, stable ground.
- Depressurize the hydraulic system.



WARNING! When connecting or disconnecting hydraulic hoses or connections, make sure that the system is depressurized both in the tractor and in the unit. There is a risk of infection from the side of the outflowing pressurized oil.



DISCONNECTING A MACHINE ATTACHED ON THE THREE-POINT SUSPENSION SYSTEM

- Disconnect the hoses of the hydraulic system from the tractor.
- Disconnect the lighting equipment (optional).
- Lower the supporting leg (Fig. 7):
 - » remove pin (2) and pull out pivot (1)
 - » grab the handle (3) and lower the support
 - » re-install the pivot (1) and lock it with the pin (2)
- Unlock and pull out the hooks from lower couplings.

- Lower the jack arms until they are released from the couplings on the device.



NOTICE! Before driving away from the unit with the tractor, make sure that all elements are disconnected. Risk of damaging machine elements.

- Drive the tractor slowly forwards.

DISCONNECTING A MACHINE ATTACHED ON A TRANSPORT COUPLING

- Use the trailer's and drawbar's hydraulic line to position the coupling as to allow for disconnecting the drawbar.
- Unlock the coupling.
- Lower the supporting leg (Fig. 7):
 - » remove pin (2) and pull out pivot (1)
 - » grab the handle (3) and lower the support
 - » re-install the pivot (1) and lock it with the pin (2)
- Depressurize the hydraulic system
- Disconnect the hoses of the hydraulic system from the tractor.
- Disconnect the lighting equipment (optional).



NOTICE! Before driving away from the unit with the tractor, make sure that all elements are disconnected. Risk of damaging machine elements.

- Drive the tractor slowly forwards.

DISCONNECTING A MACHINE ATTACHED IN A BALL COUPLING

- Unlock the coupling.
- Use the trailer's and drawbar's hydraulic line to raise the machine so that the ball is released from the coupling.
- Lower the supporting leg (Fig. 7):
 - » remove pin (2) and pull out pivot (1)
 - » grab the handle (3) and lower the support
 - » re-install the pivot (1) and lock it with the pin (2)
- Lower the machine so that it rests on the supporting leg.
- Depressurize the hydraulic system.
- Disconnect the hoses of the hydraulic system from the tractor.
- Disconnect the lighting equipment (optional).



NOTICE! Before driving away from the unit with the tractor, make sure that all elements are disconnected. Risk of damaging machine elements.

- Drive the tractor slowly forwards.

CULTIVATOR POSITION IN OPERATION

When in operation (Fig. 9), the frame (a) of the cultivator must be leveled at all times so that the tines of the front and back rows penetrate the soil at even depth.

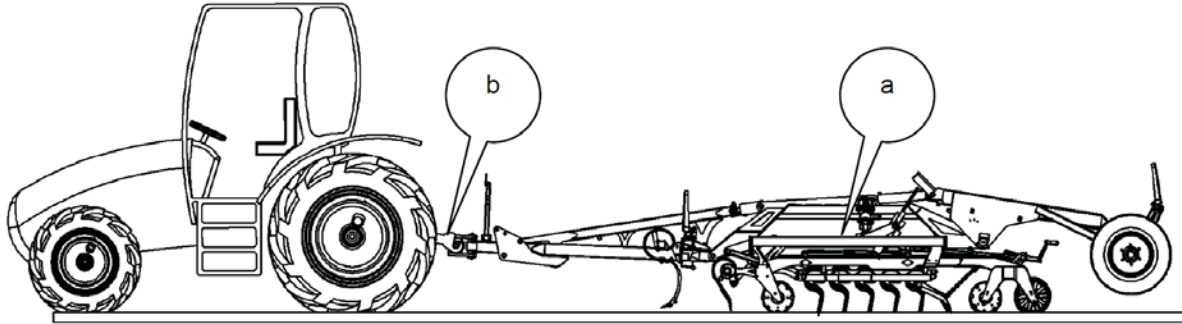


Fig. 9 Position during operation

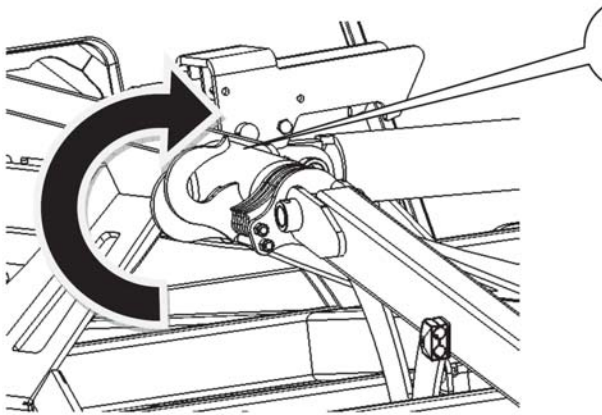


Fig. 10 Drawbar cylinder

Frame leveling may be performed using the lower pincers (item b Fig. 9) or by the number of plates (c) which are mounted on the cylinder pump (Fig. 10).



Notice! When regulating the drawbar cylinder, do not start any hydraulic cylinders. Crushing hazard.



HAZARD! When regulating the drawbar cylinder, stop the engine and remove the key out of the ignition.



In order to change the number of plates on the cylinder, pull the cylinder out to its maximum position, and then increase or decrease the number of plates to the desired amount and lower the machine so that its weight rests on the drawbar cylinder.

MACHINE OPERATION ON HEADLANDS



NOTICE! Reversing the machine with the working tines in the ground is prohibited. Risk of unit damage.

After establishing the proper working position of the cultivator, in order to lift the machine on headlands, use the hydraulic system only, changing the positions of cylinders (a) and (b) (Fig. 11).

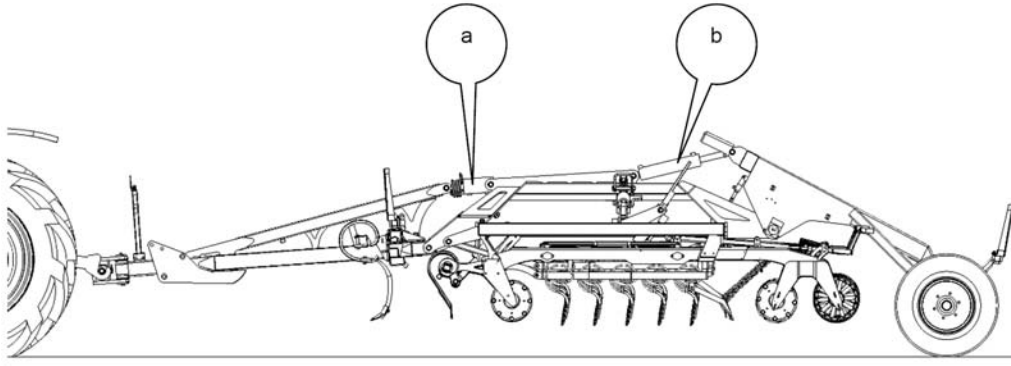


Fig. 11 Position on headlands

FOLDING AND UNFOLDING UNIT WINGS



NOTICE! When folding and unfolding the wings of the cultivator, make sure that the working range of the unit is clear of people.



For easier service, hydraulic folded machines are equipped with an automatic system for locking the wings and locking the transport trailer.



NOTICE! When folding or unfolding the cultivator wings, maintain a safe distance from a high-voltage line, trees and other obstacles which could potentially damage the unit.



In order to fold the machine to the transport position:

- lift the machine using the hydraulic line operating the cylinders of the drawbar (a) and trailer (b) (Fig. 11)
- after lifting the machine, use a second hydraulic line to launch the procedure of folding the machine.



WARNING! Prior to machine folding or unfolding, it is necessary to ensure that all the lines are properly connected.

Proper machine folding sequence (Fig. 12):

- wing holdback catches are closing (1)
- section cylinders are retracted (2)
- the wings are folding (3) and the transport block (4) is locked (at halfway point)

After folding the machine:

- verify if the couplings automatically locked the wings
- verify if the couplings are blocking the wings in the vertical position
- verify if the transport lock is fully closed
- close the ball valve at the hydraulic connector
- lower the machine using cylinders (a) and (b) (Fig. 11) so that the machine rests on drawbar cylinder plates and the transport lock

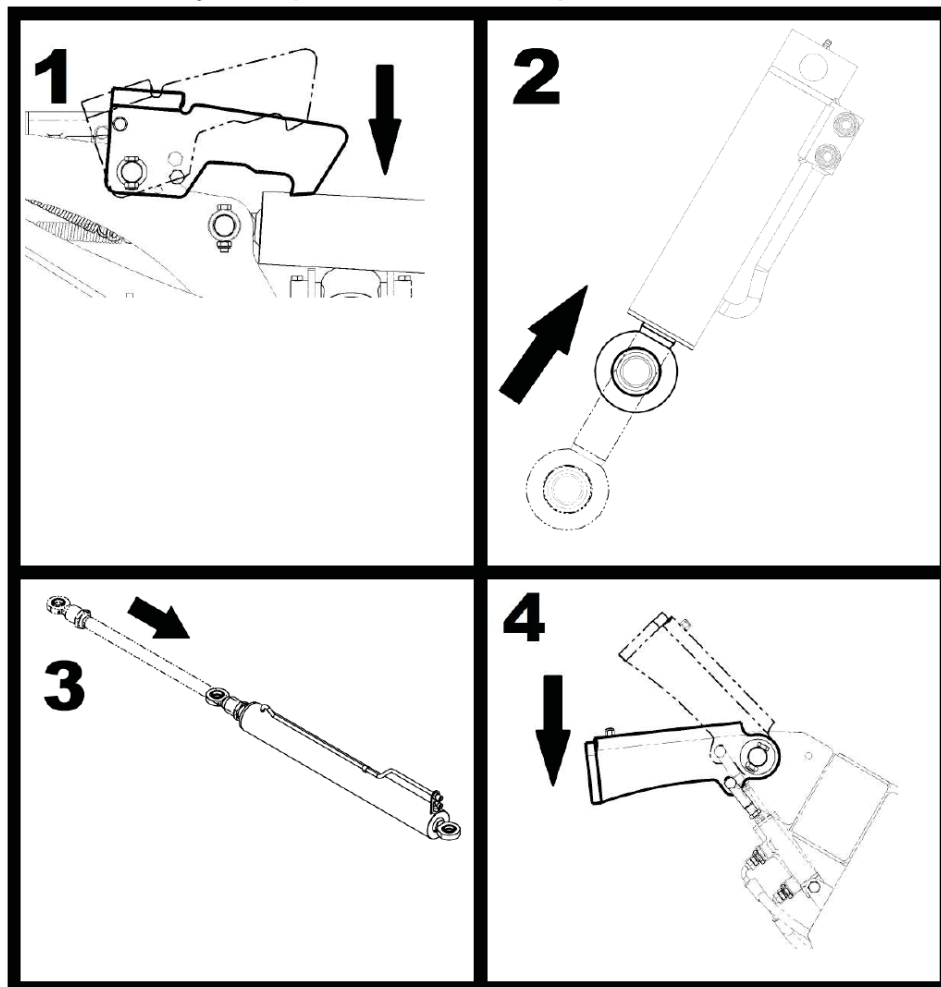


Fig. 12 Folding sequence

In order to unfold the machine:



NOTICE! Do not unfold the Germinator Pro unit on slopes. Hazard of the machine falling down.

- open the ball valve at the connector
- lift the machine using cylinders (a) and (b) (Fig. 11)

Proper unfolding sequence of Germinator Pro with hydraulic lines supplied with pressure (Fig. 13):

- wing holdback catches are opening (1)
- wings are opening (2)
- when wing cylinders are entirely pushed out, the section cylinders will begin to move out (3) and the transport block will unlock (4)

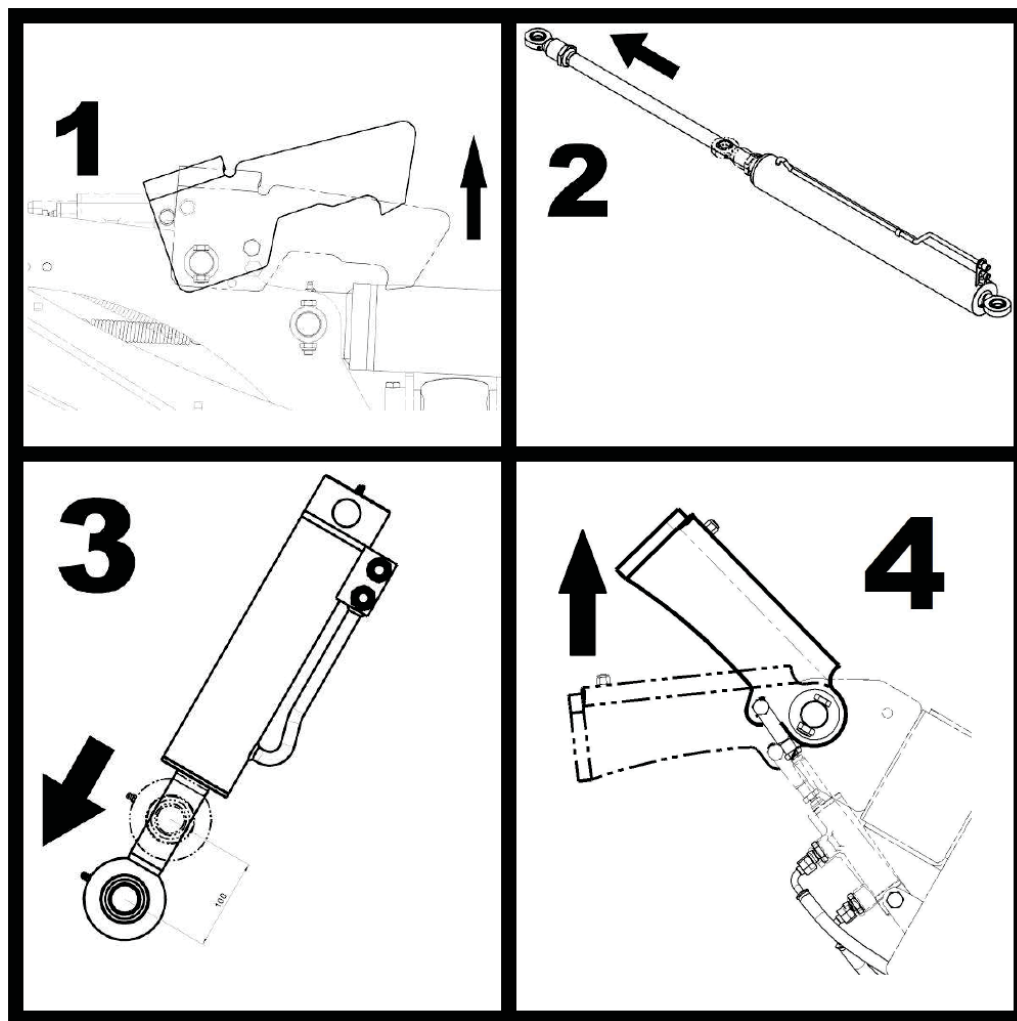


Fig. 13 Unfolding sequence

After unfolding is complete and before the machine is started, adjust the position of particular working sections (Fig. 14).

The working sections demand proper pressure for optimal performance. Therefore, the weight of the upper frame is transferred onto the gear sections by means of parallel hydraulic cylinders. Oil pressure is the same in all the cylinders, what ensures a uniform pressure of each section onto soil surface. If any of the sections is in close encounter with an obstacle, oil will be distributed to the other cylinders. In order to ensure proper performance of the unit, the cylinders should be filled with oil in 50-75%. In order to facilitate control, a cylinder extension indicator is installed on one of the cylinders (see Fig. 14). The section position is proper when the red field of the indicator is covered.

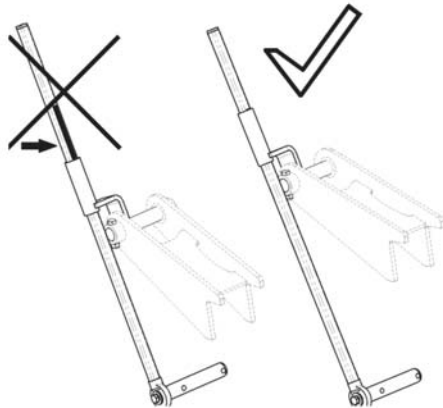


Fig. 14 The position of working sections



ATTENTION! During adjustment, the wing holdback catches will move.

PREPARATION TO ROAD TRANSPORT



NOTICE! The maximum permissible speed for driving with the Germinator Pro unit attached is 25 km/h.



- Lift the device and fold it as described in point “Folding and unfolding unit wings”
- Close the ball valve at the hydraulic connector.



NOTICE! Make sure that the transport lock is fully closed.





NOTICE! Make sure that the hooks are fully closed.



- In order to lower the center of gravity, and to ensure more stable transport conditions, the device should be lowered to the lowest position available, ensuring however that sufficient space is left from the surface of the road.
- Make sure that the device is safe and that nothing falls off it during transport, for instance large lumps of soil.
- Control the operation of the unit's lamps and the condition of warning plates.

ADJUSTMENT OF WORKING DEPTH



NOTICE! Any and all adjustments may be performed only with the machine unfolded and the tractor engine turned off. Remove the key out of the ignition and pull the hand brake!



Working depth is set depending on the depth of seeding, so that the seeds are placed in between the loosened soil layer and the intact soil layer.

Before proceeding to regulating the working depth, lift the unit using cylinders (a) and (b) (Fig. 11).

Working depth is regulated using the screw mechanism, separately for each working section (Fig. 16). Depth adjustment is based on changing the position of the tine section in relation to the position of the rollers. Adjustment is performed with a crank (1) (Fig. 15) located in a special place on the supporting leg.

In order to remove the crank:

- pull the positioning pivot (2) (Fig. 15)
- grab the crank (1) and remove it from the positioning slot

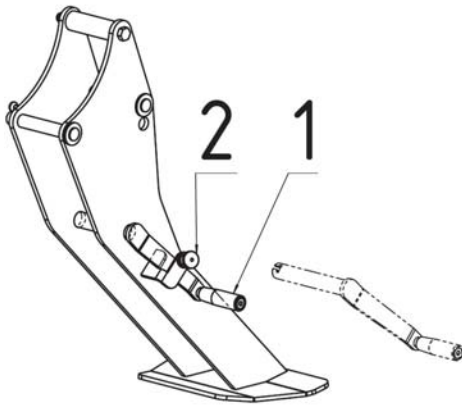


Fig. 15 Location of the working depth adjustment crank

In order to change the working depth (Fig. 16):

1. Place crank (1) on axle (2).
2. Unlock the positioning pin (3).
3. Lower scale (4) to position "a".
4. Rotate the crank (Fig. 16). Turning clockwise in the direction of the "-" sign (9) will lower the working depth. Turning counterclockwise in the direction of the "+" sign (8) will in raise the working depth. Changing the position of the market (6) in relation to the scale (7) changes the working depth in c.a. 1cm steps.
5. After finishing adjusting of the axle (2) surface (5) must be positioned (Fig. 16) vertically.
6. Unlock the positioning pin (3) and lift the scale (4) to position "b" (Fig. 16). The locking pin should lock in position automatically.
7. The operation may be repeated for each working section.
8. After finishing the adjustments, place the cranks in its place on the machine (Fig. 15).

4. MACHINE OPERATION

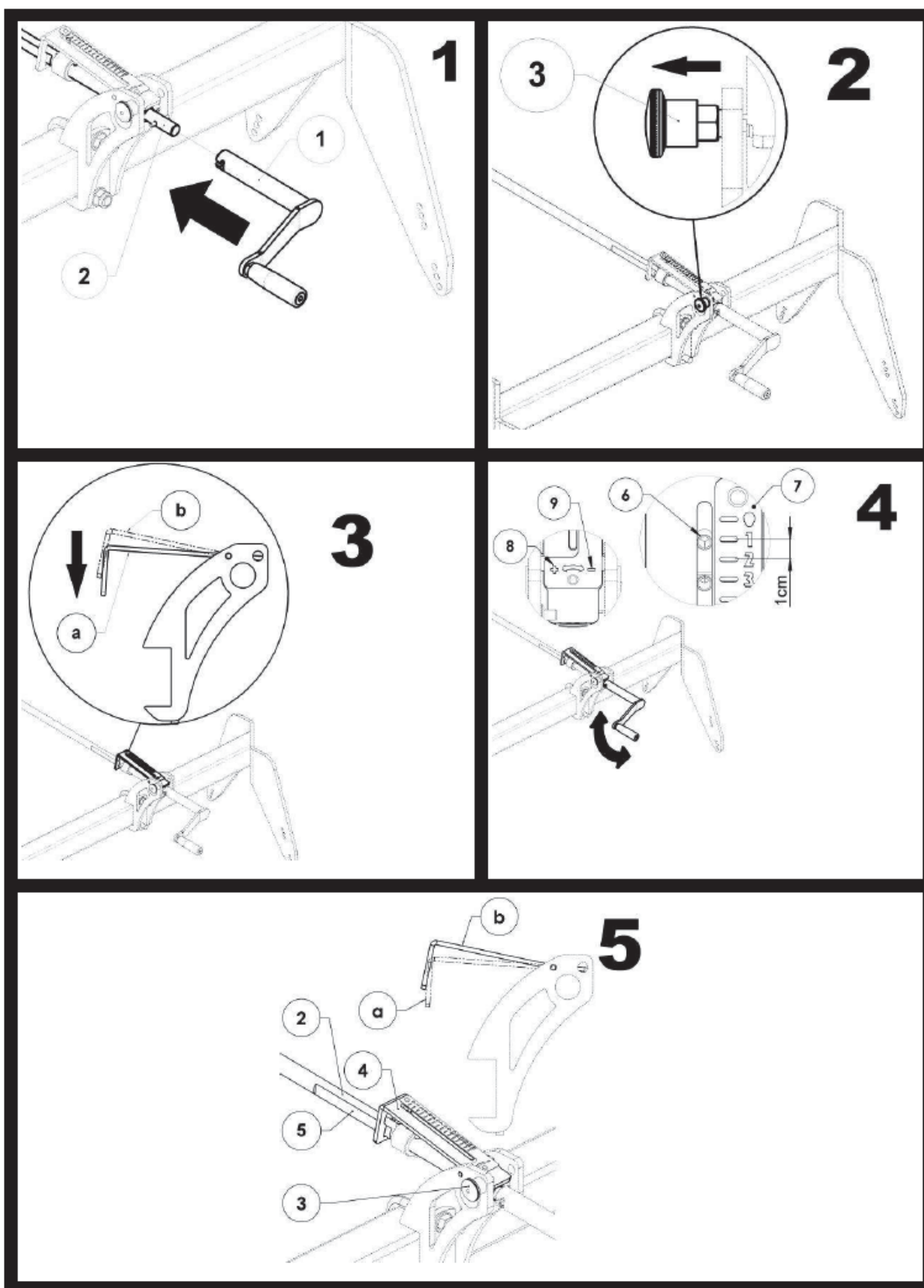


Fig. 16 Depth adjustment mechanism

TINE SECTION LOCATION ADJUSTMENT



NOTICE! Any and all adjustments may be performed only with the machine unfolded and the tractor engine turned off. Remove the key out of the ignition and pull the hand brake!



Front tine points wear faster than the rear ones, which may cause differences in depth between the front and back row of tines. If this difference becomes excessive, you should regulate the tine section using the regulating screw:

- unfold the machine on a level, hardened surface and lower the teeth so that they are not in contact with the surface
- using a flat wrench (1) and wrench (2), loosen the counter-nut (Fig. 18)
- use wrench (2) to adjust the position of the tine section by changing dimension "A" until dimension "B" and "C" are equal (Fig. 17)
- perform adjustments for each section individually



NOTICE! In order to adjust the tine section, you must step on the unit. Be very careful due to the hazard of slipping.

- after finishing all adjustments tighten the counter-nuts

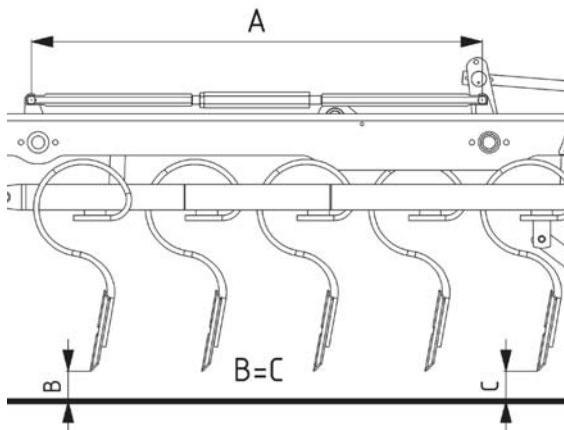


Fig. 17 Tine section adjustment – control replacements

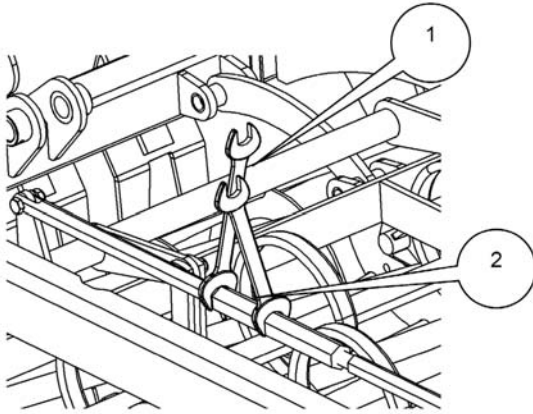


Fig. 18 Tine section adjustment

WORKING TINE POINT REPLACEMENT



NOTICE! When replacing used working elements always wear protective gloves. There is a risk of cutting your hands.



NOTICE! When performing maintenance, make sure that the machine is secured against unintentionally rolling.



In operation, the points of cultivator tines wear down. These are two-side points, which may be turned by 180° once.

In order to replace / turn tine points:

- connect the machine to the tractor
- fold the machine to the transport position
- lower the machine so that its weight rests on the drawbar's cylinder and the transport lock on the trailer
- replace / turn the used points
- when replacing points with new ones use factory new screws and nuts only

FRONT FLEX BOARD POSITION

The purpose of the front Flex board is to pre-level the surface of the soil.

The positioning is controlled from the operator's booth, using a blue double-action hydraulic line.

The unit is equipped with an indication of the front Flex board position (Fig. 19):

- position "A" – the beam is maximally extended
- position "B" – the beam is out of work

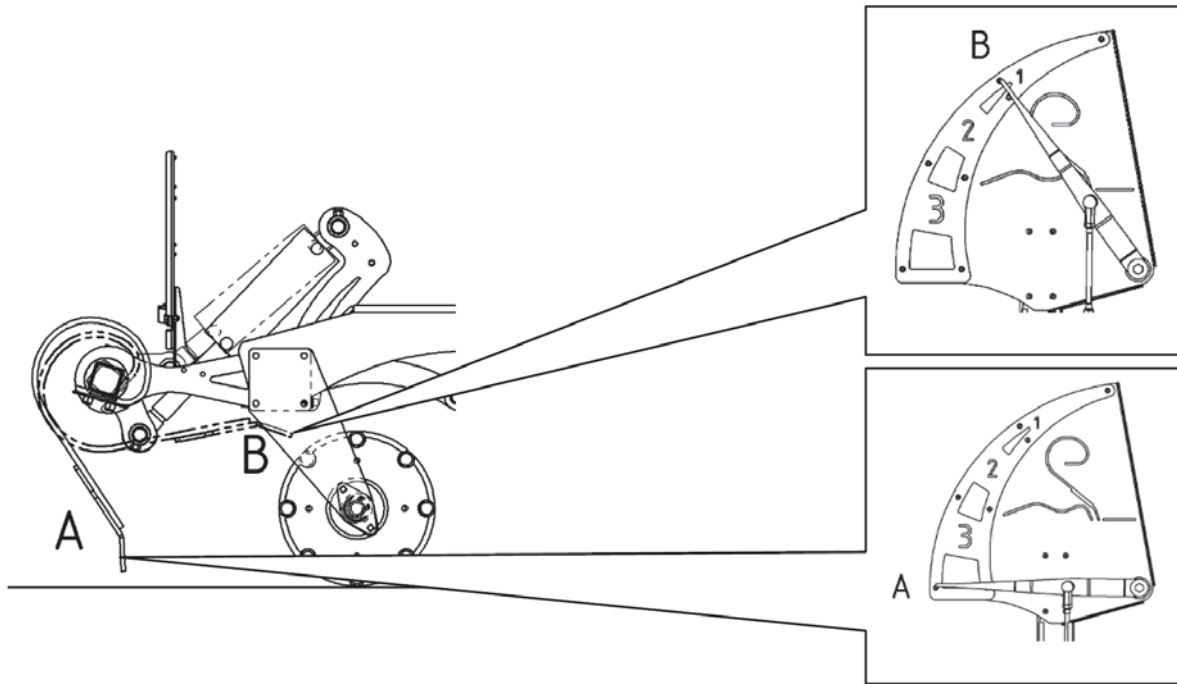


Fig. 19 Front planning beam

REAR PLANNING BEAM POSITION ADJUSTMENT

The purpose of the rear planning beam is to eliminate surface unevenness after working tines.

The beam is suspended on a chain (1) (Fig. 20).



NOTICE! In order to adjust rear planning beam, you must step on the unit. Be very careful due to the hazard of slipping.

In order to change the position of the rear beam:

- pull out the cotter pin (3)
- hold the chain (1) and pull out the pin (2)
- adjust beam position
- protect the chain with the pin and cotter mechanism
- if necessary, adjust each section

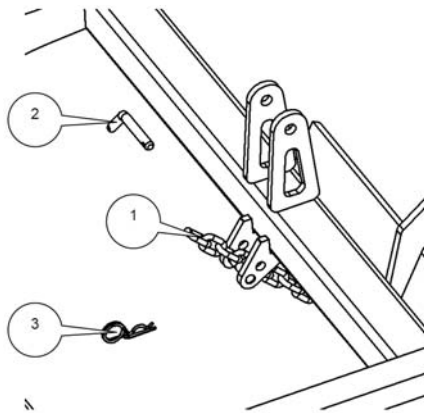


Fig. 20 Rear planning beam adjustment

ROLLER ASSEMBLY

Particular rollers used in the Germinator Pro unit are mounted on proper slots in the frame (Fig. 21):

- type "R" rollers D=290mm (1)
- type "B" and "C" rollers D=320mm (2)
- type "K" rollers D=350mm (3)

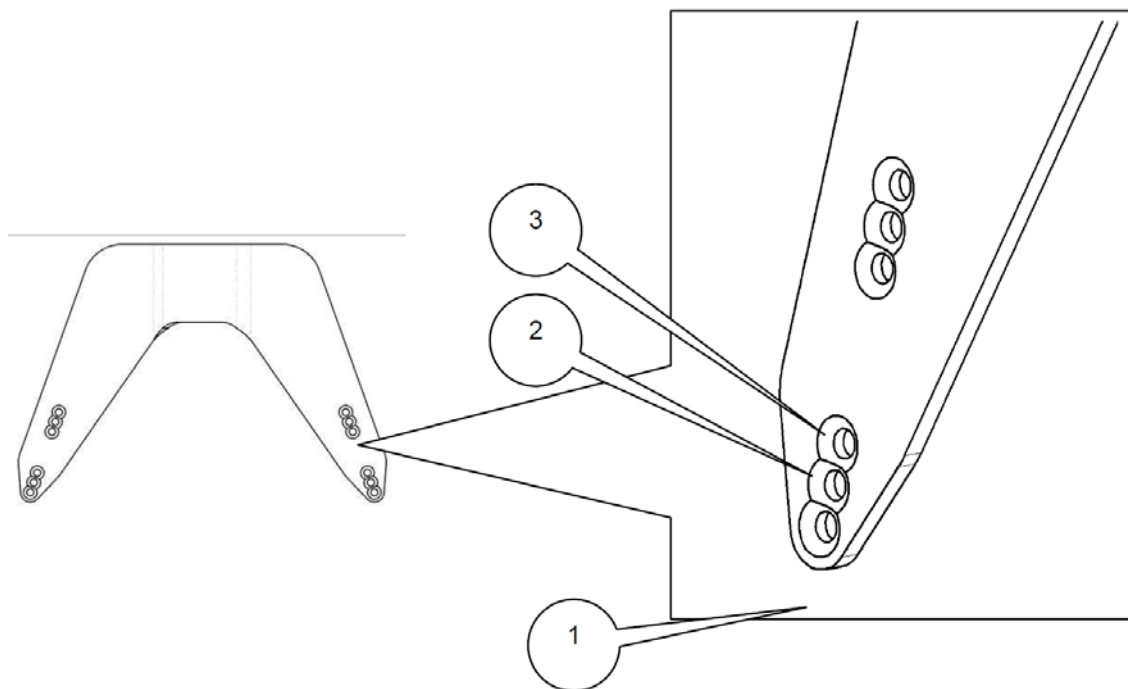


Fig. 21 Slots for mounting rollers

TRACK ERADICATORS (OPTIONAL EQUIPMENT)

TRACK ERADICATOR ADJUSTMENT

The working width of trace cultivators must be adjusted to the axle of the tractor's rear wheels.

In order to change the cultivator span (Fig. 22):

- lift the machine using cylinders (a) and (b) (Fig. 11)
- loosen counter-nuts (1), loosen screws (2)
- unfasten screws (8) on the yokes and adjust trace rippers
- by shifting the holder (3) along the pipe and adjust the working width of cultivators
- perform cultivator regulation on the left-hand and right-hand side of the unit
- after finishing adjusting, tighten the screws

In order to adjust the working depth of the cultivators (Fig. 22):

- lift the machine using cylinders (a) and (b) (Fig. 11)
- hold tine (6) and remove pin (5)
- by shifting up and down, set the trace cultivator in the desired position
- lock this position using a pivot and a pin
- set each tine in the same slot.

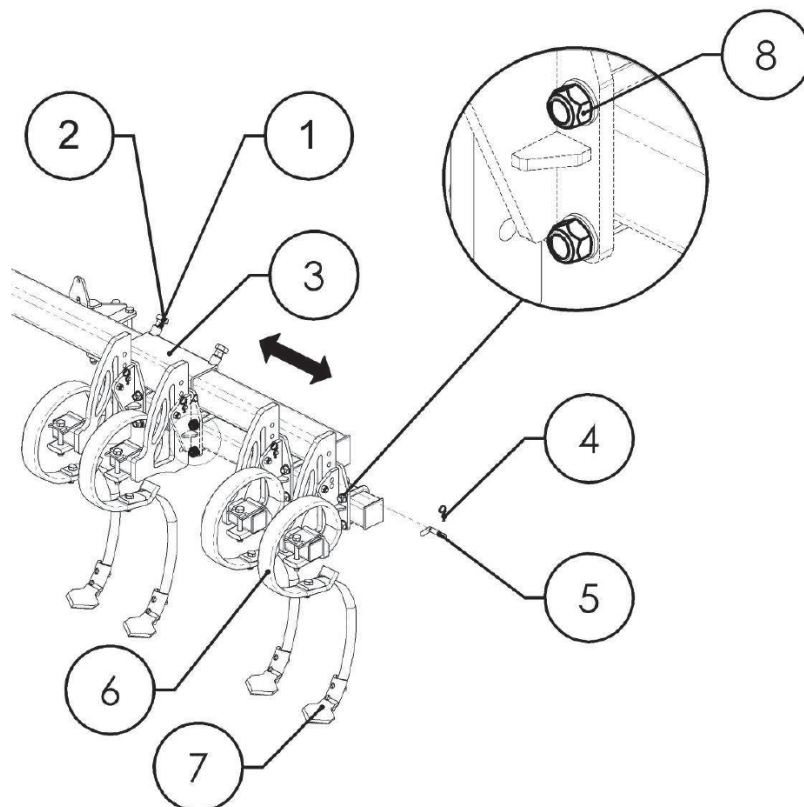


Fig. 22 Track eradicators

USED TINE POINT REPLACEMENT



NOTICE! When replacing used working elements always wear protective gloves. There is a risk of cutting your hands.

In order to replace used cultivator tine points:

- lift the machine using cylinders (a) and (b) (Fig. 11)
- turn of the screws fastening the points (Fig. 22)
- mount a new point using new screws and nuts

AXLES AND BRAKES

Adjustment of the emergency-hand brake

- Verification of the proper operation of the brake should always be performed for connecting and disconnecting the tractor and the unit.
- Adjustments are performed by raising/lowering the tension of Bowden cables (Fig. 23):
 - » loosen nut "a"
 - » tighten (in order to raise the tension) or loosen (in order to lower the tension) of nut "b" according to the needs
 - » check if the brake works correctly by pulling the hand brake
 - » if necessary, repeat point 2 until you reach the desired setting
 - » tighten nut "a" to lock the system and secure it against unintentional change in setting

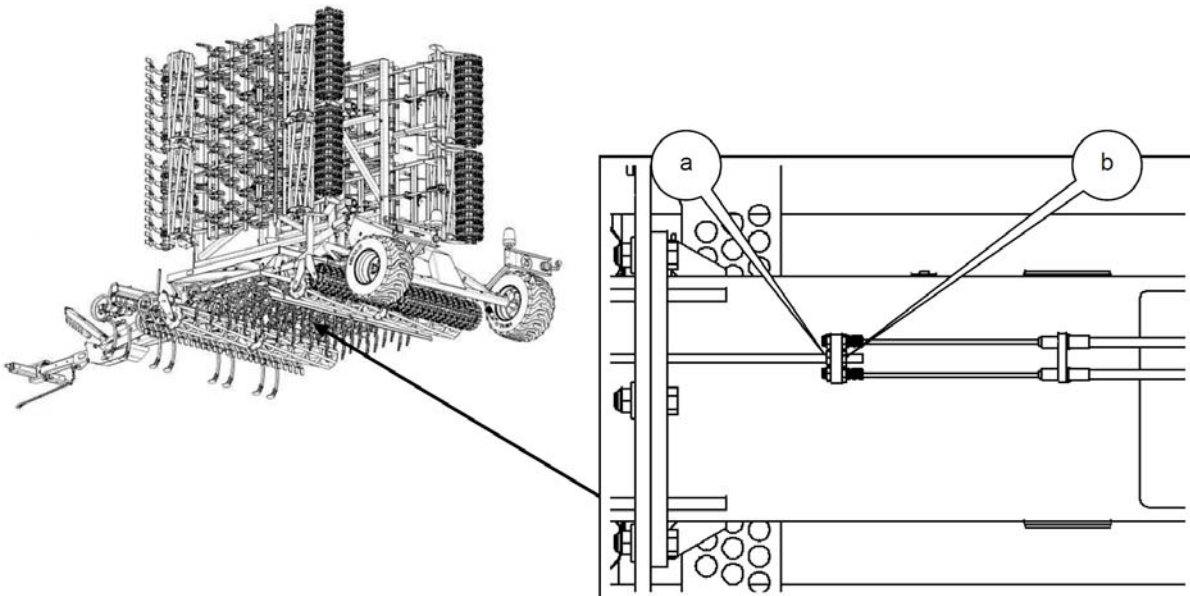


Fig. 23 Emergency-hand brake adjustment

The system must be adjusted so that the hand brake clearance is between 5° to 10° (Fig. 24).

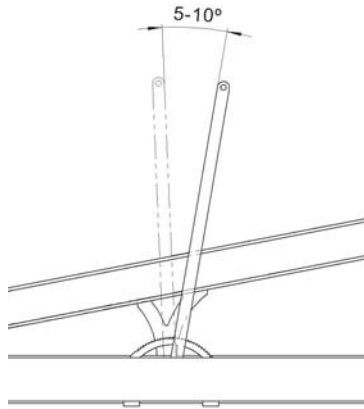


Fig. 24 Hand brake adjustment

Hydraulic working brake adjustment

- It is essential that you check if the brakes are properly adjusted 2 times a year. When working on inclined terrain and when using the brakes very often, reduce this inspection period accordingly.
- In the case of excessive strokes of the hydraulic cylinder, perform an adjustment of the brake lever. In order to do that, turn screw "b" according to the direction indicated in the figure.
- The hydraulic cylinder brackets should always be mounted in the 2nd slot from the outside – slot a of the lever.
- The brake should be adjusted as to avoid permanent friction of linings – which results in the risk of overheating and faster wear of the brake drum.

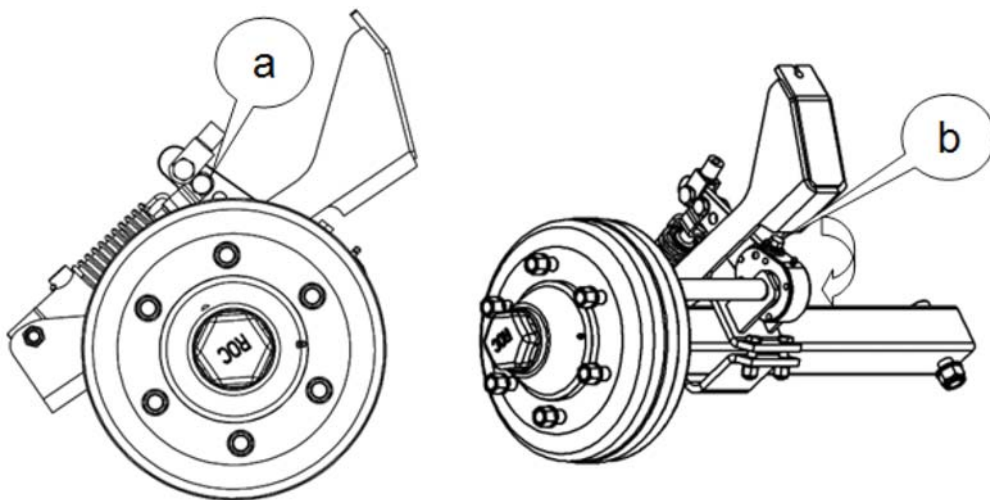


Fig. 25 Brake adjustment



NOTICE! Remember that, if they are not properly adjusted, the condition of the brakes will deteriorate, braking will be weaker and the system will ultimately stop working.

Checking the lining thickness:

- In order to check the thickness of linings, disassemble the brake drum first. The thickness of linings should be verified every 500 h. This period is a recommended period, whereas in the case of working on inclined terrain or with frequent use of the brakes, shorten the period accordingly.
- Replace the brake calipers after they reach the minimum thickness, which is 2 mm. Use original calipers only. If necessary, replace the caliper tension springs.

Disassembly of the brake drum:

- Demount the wheel observing all applicable safety principles.
- Unscrew the hub cover, remove the pin and unscrew the cap.
- Detach the brake drum using a dedicated clip.
- Protect the linings against grease and other pollutions.

Assembly of the brake drum:

- Prior to assembling, clean particular parts.
- Perform assembly by reversing the directions for the disassembly procedure.
- Be careful not to smear the brake linings with grease.
- After mounting the drum and tightening the castle nut, apply lubricant.

Inspecting for bearing play

- Lift the wheel from the ground to be able to turn the wheel freely.
- Move the wheel crosswise to the wheel axle to detect potential play
- Upon sensing noticeable play, proceed to the play elimination procedure defined below.

Elimination of bearing play (Fig. 26):

- Demount the wheel.
- Unscrew hub cover a and remove pin b.
- Tighten castle nut c to allow the wheel to move freely and to allow for re-installing pin b.
- If necessary, apply lubricant.
- Mount and tighten the hub cover.
- Mount the wheel.

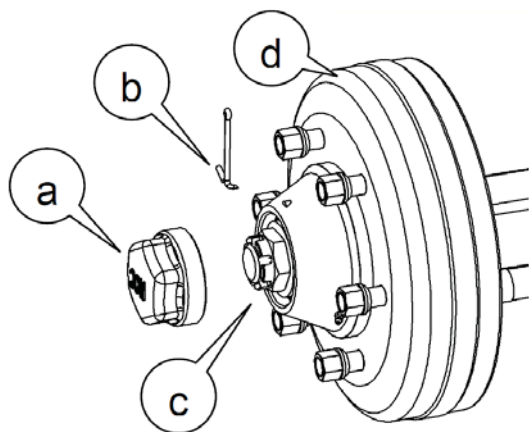


Fig. 26 Eliminating bearing play

MAINTENANCE

GENERAL INFORMATION

- After having worked for the first 10 hours inspect and tighten all screws and nuts. Repeat this operation every 100 working hours. If necessary, tighten all loosened elements you come across.
- If the cultivator tines get loosened, tighten the clamping ring mounting the tine until you reach the dynamometric moment between $60 \div 65$ Nm.
- Used and destroyed parts must be unconditionally replaced with the next possible opportunity in order to ensure that the unit operates correctly and safely.
- Use only original spare parts and consumables, manufactured by KONGSKILDE.

CLEANING AND MAINTENANCE

- After finishing working with the machine, clean it thoroughly.
- Cleaning, maintenance and repair of the unit must be performed with:
 - » the drive turned off
 - » the engine turned off
 - » key removed from the ignition
 - » the power supply plug disconnected from the machine
- Before proceeding to maintenance, make sure the machine is properly secured against unintentional rolling.
- In order to protect your health, always wear adequate protective equipment when cleaning the unit.
- Do not clean hydraulic cylinders, bearings, labels, or any other electrical elements using high-pressure devices.

LUBRICATION

During use, the Germinator Pro unit must be regularly lubricated according to the following figures.

Lubrication points are marked with the following label on the unit:



Make sure to lubricate the unit before and after the winter season and after cleaning it with pressurized water.

The Germinator Pro unit was equipped with bearings which do not require lubrication.

It is recommended to grease shaft bearing housings – once per season, optimally after season and prior to winter parking.



NOTICE! All and any adjustments may be performed only with the tractor engine is turned off. Remove the key from the ignition and pull the hand brake!

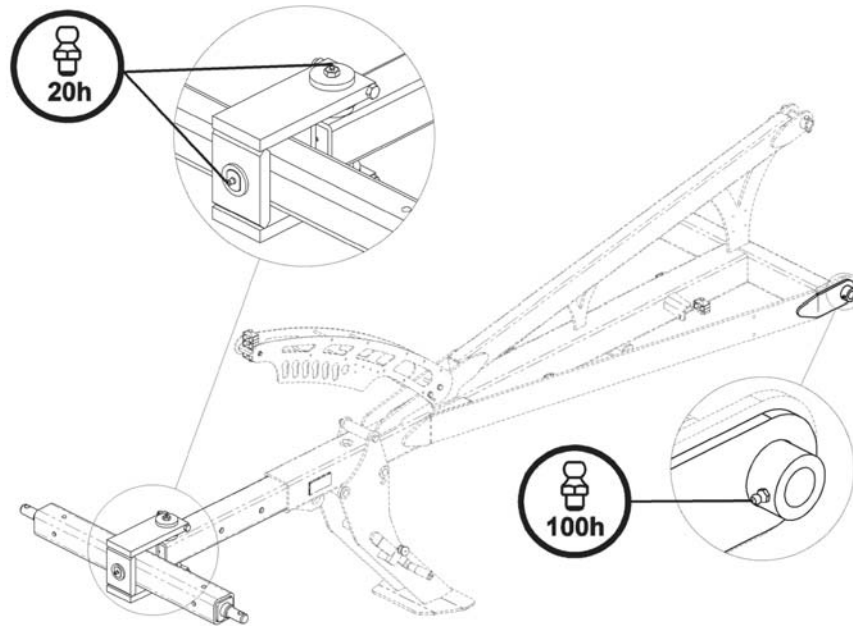


Fig. 27 Drawbar lubrication points

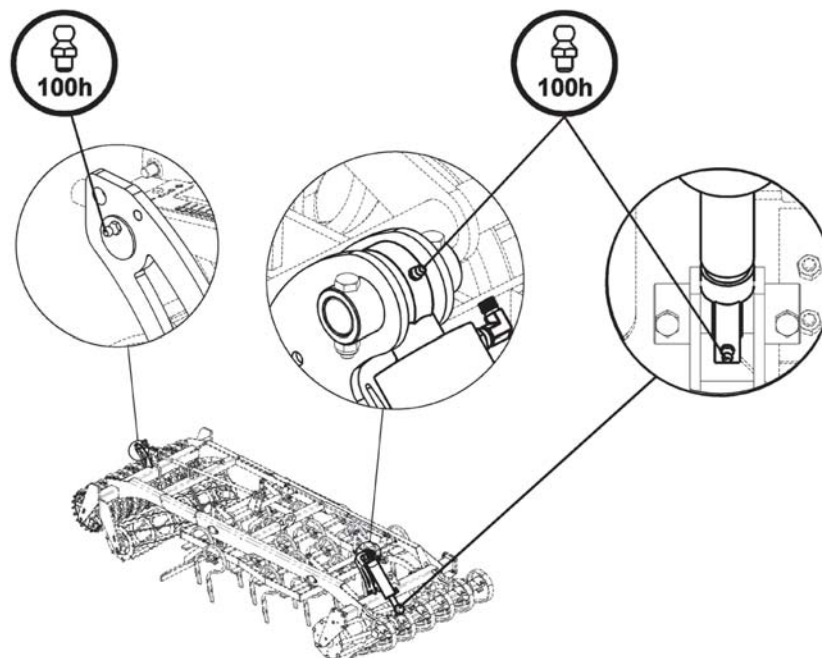


Fig. 28 Working section lubrication points

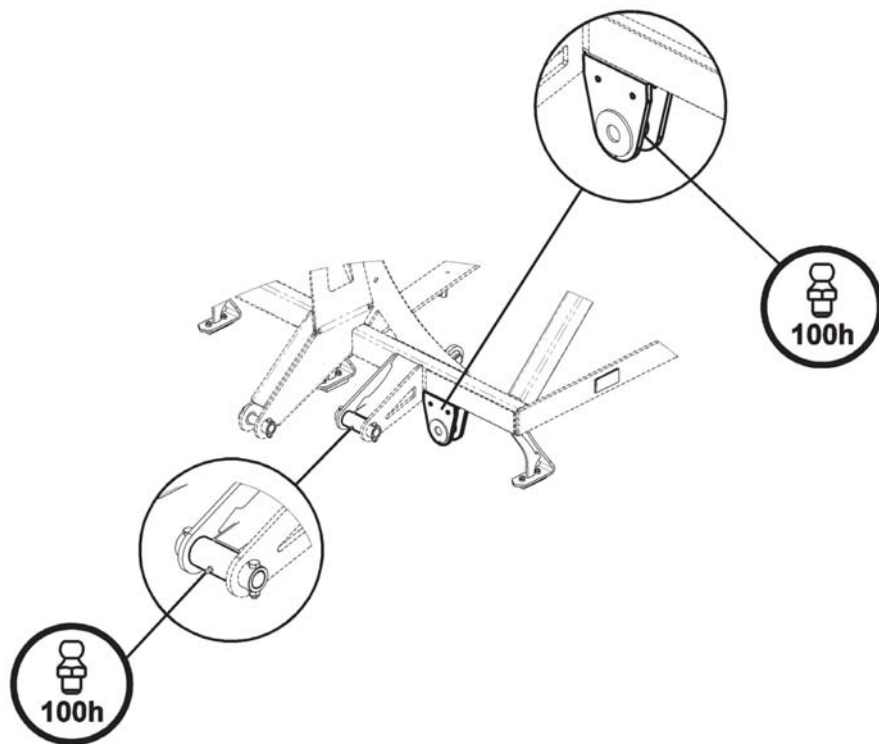


Fig. 29 Grease nipple for lubrication of section coupling bar and hinge

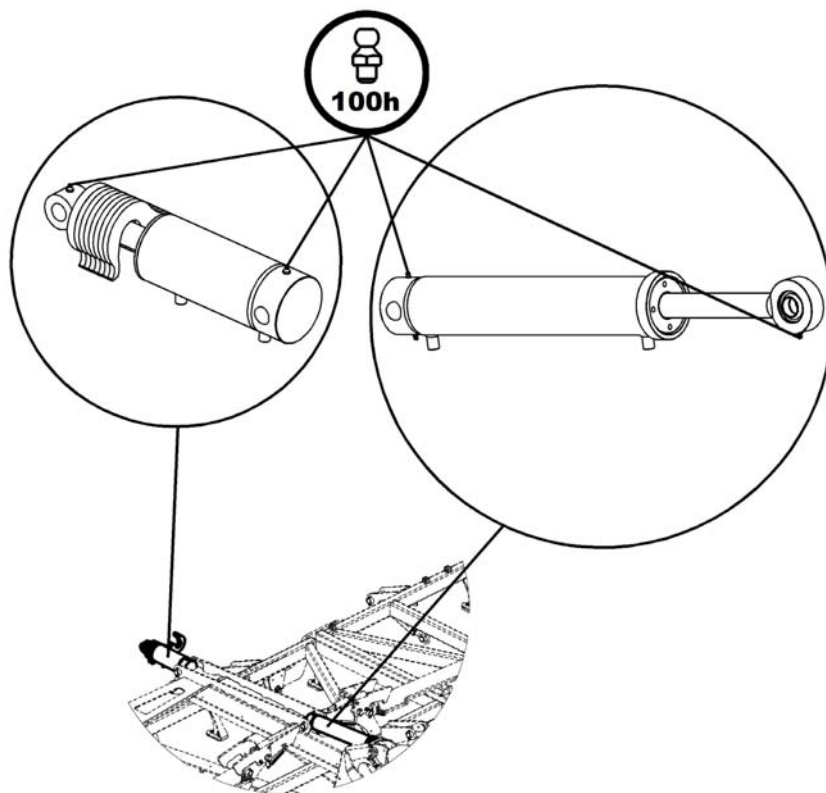


Fig. 30 Lubrication of the transport trailer and the drawbar

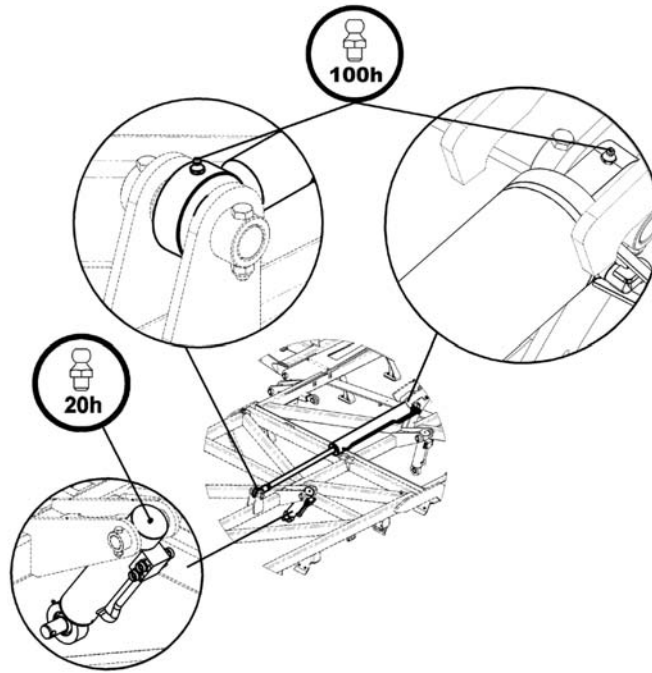


Fig. 31 Lubrication points of wing and working section cylinders

HYDRAULIC SYSTEM – PIPES, HOSES AND CONNECTIONS

- With every use of the Germinator Pro unit, make sure to control the entire hydraulic system – all pipes, hoses and connections. Upon noticing any traces of damages or even the slightest leaks make sure to have these parts replaced.
- Only qualified servicing personnel may perform repairs of the hydraulic system.
- Inspect the entire hydraulic installation at least once a year.
- Hydraulic hoses undergo natural wear and therefore their usability period is limited.
- Hydraulic hoses must be replaced every 5 years.
- Dispose of used oil according to effective regulations in this matter.
- Upon the occurrence of leaks, make sure oil does not penetrate the soil or water, and remove the source of the leak as fast as possible.
- After replacing hydraulic hoses, maintain proper cleanness.
- Hydraulic hoses must be mounted in dedicated places.

STORAGE

With longer overhauls of the unit:

- store it in a safe place without the access of children
- store the unit under roof
- secure the unit as to prevent people or animals from being hurt
- secure it against rolling unintentionally

- place the machine on its wheels and support
- grease all lubrication points
- preserve all pivots and adjusting elements by applying solid grease
- order the necessary spare parts and consumables before the beginning of the overhaul period; this will allow you to avoid overhauls when the new season of farming works starts

After the storage period:

- re-lubricate the unit according to the instruction manual
- check the tire pressure and, if necessary, pump them to reach the required values
- connect the unit to the tractor and check if the subassemblies work properly
- inspect the hydraulic system for possible leaks
- check if the brake system works properly
- check if the electrical installation works properly, including the lights
- check if all screws and nuts are properly tightened

DISASSEMBLY AND SCRAPPING

- When used, the unit must be disassembled and disposed to scrapping. Disassembly of the unit must be carried out by personnel familiar with its structure.
- A unit undergoing disassembly must be placed in the working position, on flat and hard ground. Due to considerable force, which may exceed 200 N, use crane devices for demounting particular subassemblies.
- Seeder scrapping must be performed following its complete disassembly basing on separating rubber elements from plastic elements, ferrous metal elements and non-ferrous metal elements.
- When scrapping the unit, proceed with used consumables (parts, oil) with care.
- Dispose of unit elements remaining after scrapping to proper waste disposal or recycling institutions.

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