



CLC

Operating manual

Edition	8/2007
Print	9.2007
Language	EN
From machine number	7167
Explanation	
Article number	AC 753642

Identification of the machine

Your dealer requires some information about your machine in order to be able to help you as quickly as possible.

Please enter the information here.

Designation

CLC

Working width

Weight

Machine number

Accessories

Address of dealer

Address of manufacturer

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Preliminary information

Target group for this operating manual

This operating manual is directed at trained farmers and individuals who are otherwise qualified to perform agricultural activities and who have received training in the operation of this machinery.

For your safety

Study the contents of this operating manual carefully before assembly or initial operation of the machine. In this way, performance and work safety are optimised.

For the employer

All personnel are to be trained in the use of the machine on a regular basis (at least once a year) in accordance with employers' liability insurance association guidelines. Untrained or unauthorised individuals are not permitted to use the machinery.

Training

Your dealer will provide instruction in the operation and care of the machine.

Meaning of the symbols

In order to make this manual clear and easy to read, we have used various symbols. They are explained below:

- A dot accompanies each item in a list
- > A triangle indicates operating functions, which must be performed
- An arrow indicates a cross-reference to other sections of this manual
- [+] A plus sign indicates accessories which are not included in the standard version.

We have also used pictograms to help you find instructions more quickly:

NOTE The term, "Note" indicates tips and notes on operation.



The screwdriver indicates tips during assembly or adjustments.



The warning triangle indicates important safety instructions. Failure to observe these safety instructions can result in:

- Serious operational faults for the machinery;
- Damage to the machinery;
- Personal injury or accidents.



A star indicates examples that assist understanding of the instructions.

For your safety

In this chapter you will find general safety instructions. Each chapter of the operating manual contains additional specific safety instructions, which are not described here. Observe the safety instructions

- in the interest of your own safety,
- in the interest of the safety of others, and
- to ensure the safety of the machine.

Numerous risks can result from handling agricultural machines in the wrong way. Therefore, always work with special care and never under time pressure.

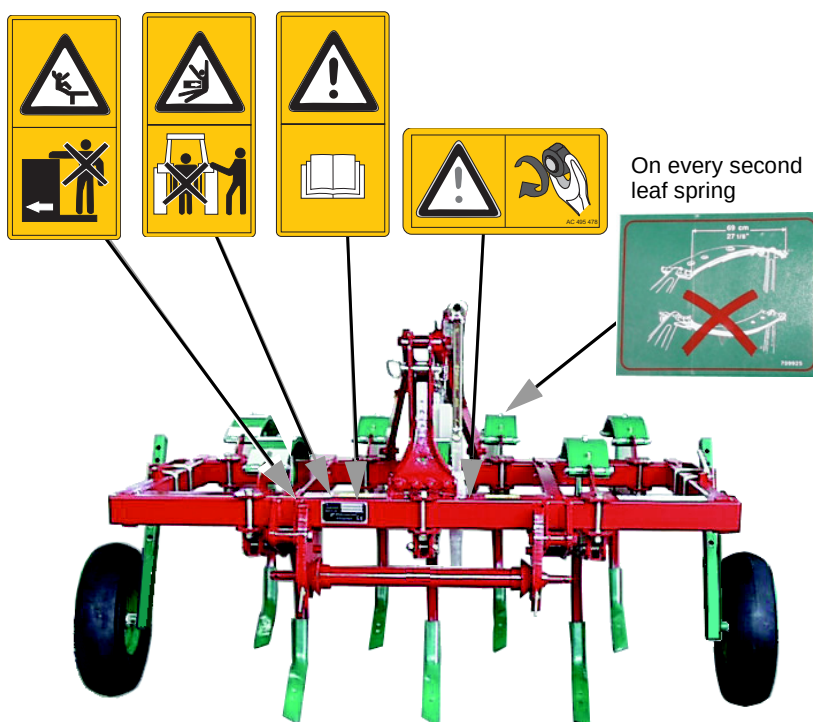
The employer should:

Provide instruction in these safety instructions for personnel working with the machine on a regular basis and provide information on statutory regulations.

Warning symbols

On the machine you will find stickers for your safety. The stickers must not be removed. If stickers become illegible or begin to peel off, new stickers can be ordered and attached in the appropriate places.

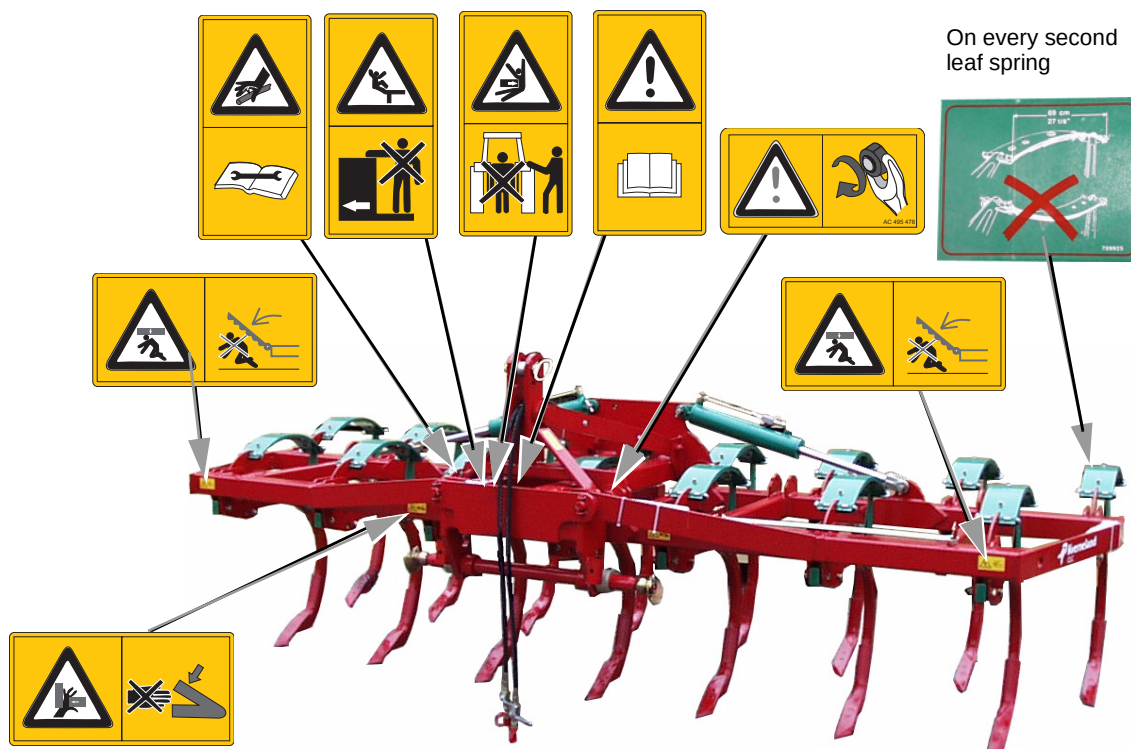
CLC rigid



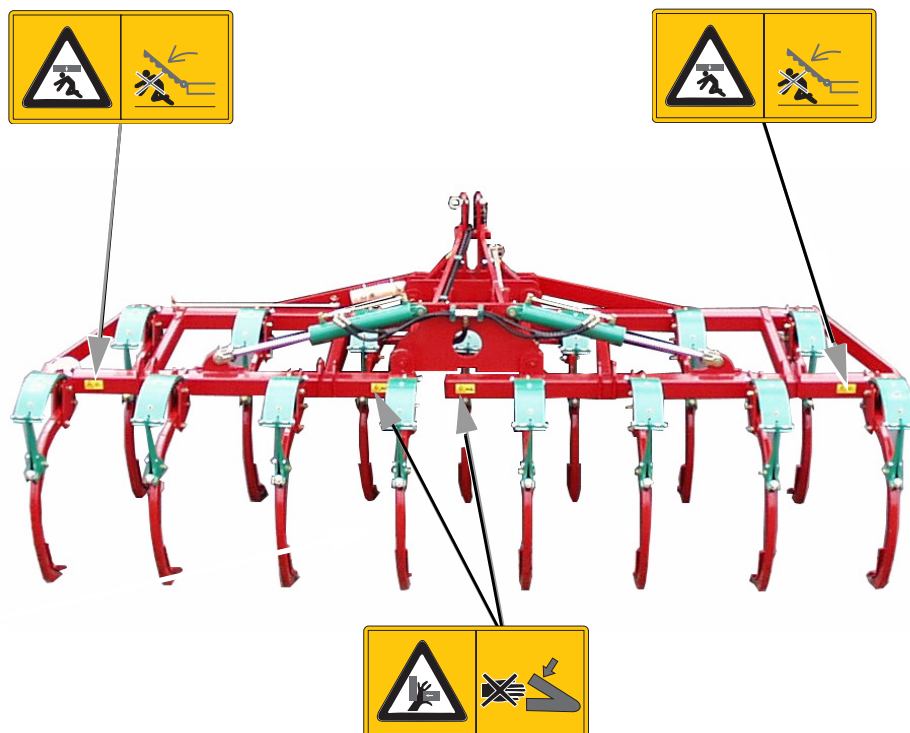
Safety

Foldable CLC

Front



Rear



Meaning of warning symbols



Read the operating manual carefully and follow the instructions
Initial operation of the machine must not take place before the operating manual has been read and understood. This applies especially to safety instructions.



Do not stand between the tractor and the machine.
Standing between the tractor and the machine is prohibited, especially during coupling and uncoupling and when the engine is running. The tractor must be additionally immobilised.



Riding on the machine is strictly prohibited
Serious or fatal injury can be the result.



Proceed with great care in the event of leaking hydraulic fluid
Observe the corresponding safety instructions in the operating manual.



Never remove the guards.
Never open or remove the guards while the engine is running. Never operate the machine without the protective guard.



Do not stand within the slewing range
There is an extreme risk of injury within the slewing range from slewing or folding machine parts.



Risk of crushing
Avoid danger areas. Gaps between components may become smaller or disappear completely.



Retighten screws
Screws must be retightened after the first few operating hours. Screw connections might have come loose due to vibrations.

Who is authorised to operate the machine?

Only qualified personnel

Only qualified persons who have been informed of the dangers associated with handling the machine are permitted to operate, service or repair the machine. As a rule, such persons are trained and experienced in agricultural work or have been thoroughly trained in a similar fashion.

Coupling

Increased risk of injury

When coupling the machine to the tractor, there is an increased risk of injury. Therefore:

- Secure the tractor in such a way that it cannot roll forwards or backwards
- The tractor and machine must belong to the same category
- Never stand between the tractor and the machine during coupling
- Actuate the three-point power lift system slowly and carefully.

Failure to observe these instructions can result in serious or fatal injury.

Connect electrical supply only after mounting the equipment

The electrical supply must not be connected to the tractor when mounting the lighting equipment. Short-circuits and damage to the electronics are possible.

Hydraulic connection at zero pressure only

Only connect hydraulic hoses to the tractor hydraulic system if the tractor and machine hydraulic system is depressurised. A hydraulic system under pressure can trigger unpredictable machine movements.

High pressures in the hydraulic system

The hydraulic system is under high pressure. Regularly check all pipes, hoses and bolted connections for leaks and externally visible damage. Only use suitable agents when looking for leaks. Eliminate damage immediately. Escaping fluid may result in injuries and fires. In the event of injuries, seek medical attention immediately.

Colour-coded hydraulic connections

To prevent operating errors, plug sockets and plugs for hydraulic connections between the tractor and the machine must be colour-coded. Incorrectly connected hydraulic tubes can trigger unpredictable machine movements.

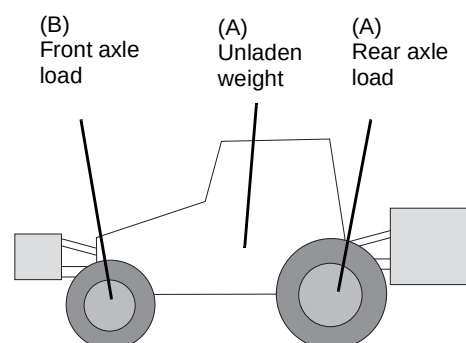
Centre of gravity

Observe the total weight, axle loads, tyre load-bearing capacity and minimum ballast specifications.

The machine's front or rear attachment must not exceed the tractor's permissible total weight, its permissible axle load or its tyre load-bearing capacity. In order for steering capability to be maintained, the front axle must bear at least 20 % of the tractor's empty weight.

By investing some effort in making the calculations it is possible to determine the:

- Gross weight
- axle load
- Tyre load-bearing capacity and
- minimum ballast

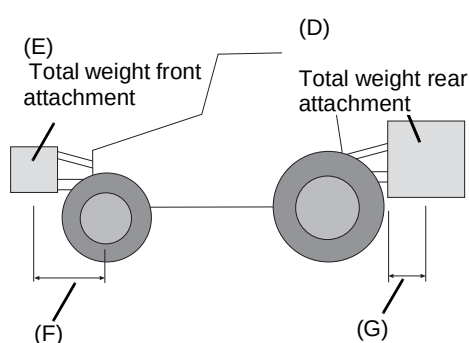


For this calculation, the following data is required:

Data from the tractor's operating manual:

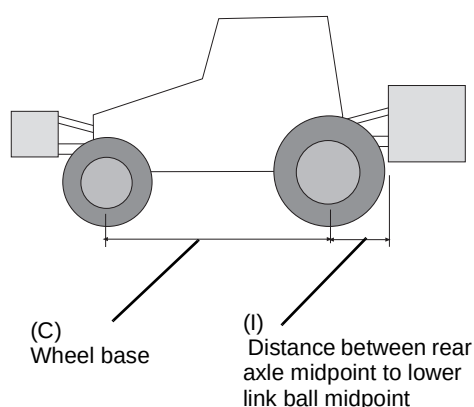
- (A) Empty weight
- (B) Front axle load
- (C) Rear axle load

Make allowances for the weight of water in the tyres, accessories, etc.



Data from this operating manual:

- (D) Total weight of the machine when rear mounted; the supporting load with the machine attached
- (E) Total weight of the machine when front mounted
- (F) Distance between the machine's centre of gravity when front mounted and the front-axle midpoint
- (G) Distance between lower link ball midpoint and the machine's centre of gravity in the rear attachment. With machines attached, $G=0$.



Data which you can determine by measuring:

- (H) The tractor's wheel base
- (I) Distance between the rear axle midpoint and the lower link ball midpoint

Calculation

Front ballast

The measured values can now be inserted into the formulae.

Calculation of the **front ballast with front weights** for rear-mounted machines.

$$\text{Front ballast in kg} = \frac{D \times (I + G) - (B \times H) + (0,2 \times A \times H)}{F + H}$$

Rear ballast

Calculation of **ballast with rear weights** for front-mounted machines.

$$\text{Rear ballast in kg} = \frac{(E \times F) - (C \times H) + (0,45 \times A \times H)}{H + I + G}$$

Front axle load

Calculation of the **actual front axle load**

$$\text{Front axle load in kg} = \frac{E \times (F + H) + (B \times H) - D \times (I + G)}{H}$$

Gross weight

Calculation of **actual total weight**

$$\text{Total weight} = E + A + D$$

Rear axle load

Calculation of the **actual rear axle load**

$$\text{Rear axle load in kg} = \text{actual total weight} - \text{actual front axle load}$$

tyre load rating

Data on the tyre load-bearing capacity of the front and rear wheels can be found in the tyre manufacturer's documentation.

The front tyre load-bearing capacity for two wheels is equal to twice the permissible tyre load-bearing capacity of a single front wheel. The rear tyre load-bearing capacity for two wheels is equal to twice the permissible tyre load-bearing capacity of a single rear wheel.

Summary

The actual values for the rear axle load must be less than the permissible values given in the tractor's operating manual. Tyre load-bearing capacity must be greater than the values for the rear axle load given in the operating manual.

The actual total weight must be less than the permissible total weight given in the tractor's operating manual. If not, the machine must not be coupled to the tractor.

NOTE If you have a sufficiently large weigh-bridge, you can determine the total weight and the rear axle load by weighing.

Road transport

Make sure that the condition of the machine conforms to traffic regulations.

The machine must conform to current traffic regulations if you intend to drive it on public roads. This includes, for example:

- Lights, warning equipment and protective equipment are installed
- The permissible transport width and weight, axle load, tyre load-bearing capacity and total weight are observed.

If traffic regulations are not observed the driver and owner of the vehicle are liable for all damage.

Closing ball valves

If ball valves are provided at the connection lines of the hydraulic hoses or the chassis cylinders, the ball valves must be closed when travelling on public roads. Accidental actuation of control valves in the tractor can trigger machine movements. This can result in damage to the machine or accidents.

Check remote cord for the quick release coupling

Trip ropes must hang loose and must not, when in their lowered position, release the couplings of their own accord. Coupled machines could otherwise be released independently from the three-point linkage.

No riding on the machine

People or objects must never be transported on the machine. Riding on the machine is hazardous and strictly prohibited.

Altered driving and braking performance

Driving and braking performance is altered when the machine is attached to the tractor. Take the width and balancing weight of the machine into consideration, especially on sharp bends. A driving style which not adjusted to the road conditions can lead to accidents.

Adapting the speed

Extremely large forces may result with poor road conditions and excessively high speeds and these will severely load or overload the material of the tractor and machine. Therefore adjust your speed to the road conditions. A driving speed which not adjusted to the road conditions can lead to accidents.

Putting the machine into operation

The machine should not be put into operation for the first time until the user has been trained to use it.

The machine must not be put into operation until the user has been given proper initial instruction, either by the dealer or by one of the manufacturer's representatives or employees. If the machine is commissioned without instruction, incorrect operation can result in damage to the machine or accidents.

Ensure that the machine is in perfect working condition.

Do not operate the machine unless it is in perfect working condition. Check all important components and replace any defective components before starting the machine. Defective components can cause damage and personal injury.

Do not remove the protective equipment.

Protective equipment must not be removed or by-passed. Check all protective equipment before starting the machine. Unprotected machine components can cause severe or fatal accidents.

Check tyre pressures

Check tyre pressures regularly. If the tyre pressure is too high or too low, this can reduce the service life of the tyre and result in undesirable work results and can result in accidents when travelling on roads.

No riding on the machine

People or objects must never be transported on the machine. Riding on the machine is hazardous and strictly prohibited.

Height of machine and overhead power lines

If components exceed a height of 4.00 m during extension and retraction, never extend/retract the equipment in the vicinity of overhead power lines. Danger of electrocution!

Should the machine come into contact with an overhead power line:

- Do not attempt to exit the tractor cabin.
- Do not touch any metal parts on the tractor.
- Do not create any conductive contact with the ground.
- Warn all persons in the area not to approach the tractor or the machine.
- Wait for help from professional emergency service personnel as power in the overhead line must first be switched off.

Make sure the immediate vicinity is clear

Before starting, extending, and during operation, check and be aware of your surroundings. Make sure that visibility is sufficient. Do not begin work until the immediate vicinity is cleared of any persons or objects. Any use of the machine without verification of the situation around it can lead to accidents.

Retighten all nuts, bolts and screws

Nuts, bolts and screws should be checked at regular intervals and tightened if necessary. Screws can come loose unnoticed while operating. Damage can occur to the machine or injury to persons.

Be aware of dust generation

Depending on the weather, dust may be generated during operation. Dust can contain fungal spores or crop protection chemical residues or can even be hazardous to health. You should therefore avoid contact with the raised dust by adapting your driving style or by employing protective measures on the tractor, such as a cab with a filter system.

What to do in the event of a malfunction

In the event of a malfunction, shut down and secure the machine immediately. The malfunction may be eliminated immediately, or your dealer must be assigned the task. Continued operation of the machine can lead to damage or accident.

Uncoupling the machine

Increased risk of injury

During the uncoupling of the machine, there is an increased risk of injury. Therefore:

- Secure the tractor in such a way that it cannot roll forwards or backwards
- Never stand between the tractor and the machine during uncoupling
- Actuate the three-point power lift system slowly and carefully.
- Make sure the machine is standing on a secure and level surface.
- Only uncouple the hydraulic tubes once the hydraulic system is at zero pressure on the tractor and the machine side.

Failure to observe these instructions can result in serious or fatal injury.

Care and maintenance

Adhere to the care and maintenance chart

Observe prescribed intervals for maintenance checks and inspections specified in the operating manual. Nonobservance of the time periods can lead to damage to the machine, poor quality of work or accidents.

Use only OEM replacement parts (original equipment manufacturers)

Many components have special characteristics which are essential for the machine's stability and correct function. Only those replacement parts and accessories supplied by the manufacturer have been tested and approved. Using other products may lead to malfunctions or reduce the safety of operation. The use of non-OEM replacement parts renders the manufacturer's guarantee null and void and frees the manufacturer from all liability.

When performing care and maintenance work:

- Switch off the tractor's power take-off shaft
- Depressurise hydraulic system
- Whenever possible, uncouple the tractor
- Make sure the machine is standing securely. Provide additional support as required
- Do not use parts of the machine to climb onto it; use only secure steps, ladders or other means of access
- Secure the machine in such a way that it cannot roll forwards or backwards
- Never reach into V-belts while they are moving.

Only by observing these specifications is safe maintenance and care work on the machine guaranteed.

Turn off the electrical supply

Prior to carrying out work on the electrical system, disconnect it from the power supply. Live parts can cause damage and personal injury.

Replace hydraulic hoses

Replace hydraulic tubes every three years. Hydraulic hoses can age without any externally visible damage. Defect hydraulic lines can lead to severe or fatal injuries.

Caution when cleaning with a high-pressure cleaner

The machine can be cleaned using either water or a steam jet. Only use a low pressure to clean bearings, fans, signal mixer units, plastic parts and hydraulic hoses. If pressure is too high, this can cause damage to these parts.

Prior to welding work

Before carrying out any electric welding on the mounted machine, disconnect the tractor battery and the dynamo. This prevents damage to the electrical system.

Tighten the screw connections

All screw connections that are released during maintenance and repair operations must now be retightened. Loose screw connections mean that screws can become loose unnoticed during operation and release parts on the machine. Severe injury to persons or damage to equipment can result.

Further regulations

Observe the regulations

In addition to those listed above, please observe the following safety instructions:

- Accident-prevention regulations
- Generally recognised safety regulations, occupational health requirements and road traffic regulations
- Information in this operating manual
- Regulations pertaining to operation, maintenance and repair.

Getting to know the machine

This section contains general information on your machine as well as information on:

- Range of application
- Features
- Designation of the assemblies, and
- Technical specifications

Areas of application of the machine

The cultivator is designed for soil preparation. It is suitable both for seed bed preparation and for preparation of depths up to 40 cm.

Proper use

Any application other than or beyond this, e.g. as a means of transport, for stump pulling or to transfer power to other objects is considered improper use. The manufacturer and dealer are not liable for damage caused by improper use. Improper use is solely at the risk of the user.

Characteristics of the machine

Perfect design

Years of experience in soil preparation are reflected in the design. Specially hardened material combined with optimal construction make the cultivator a robust and reliable machine.

Stone protection [+]

Each tine is equipped with a leaf spring to protect against stones. The leaf springs can be adjusted for working with light soil.

Exact depth control

Two robust wheels provide for precise depth control. Wheels are not necessary for the version with rollers [+].

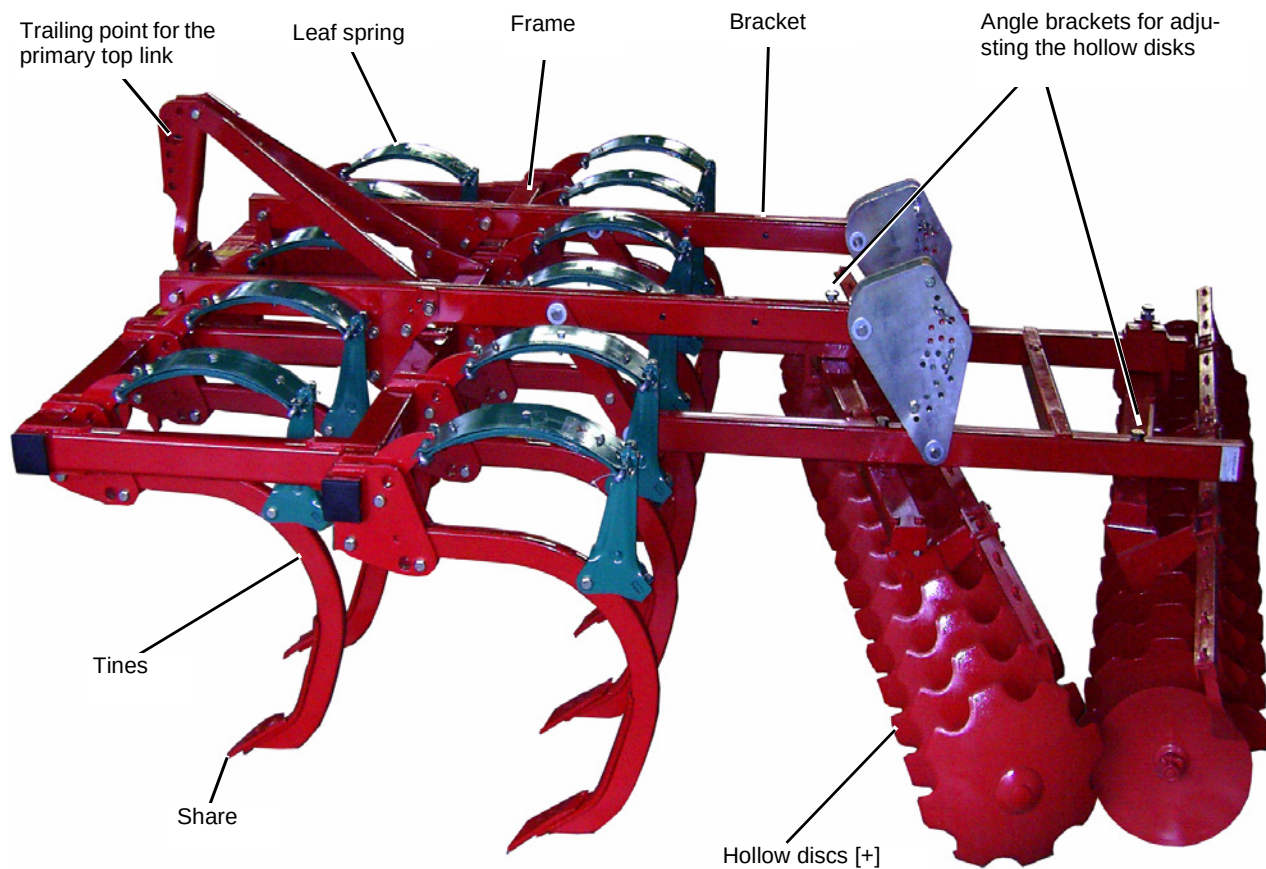
Rollers [+]

Either disc or cage rollers, or a combination of these, run behind the frame. The soil is thus ideally prepared for further soil preparation.

Safety

The machine is constructed in accordance with EU and German national regulations, for maximum possible safety of operation. The machine bears the symbol of European Conformity (CE).

Component designations



Specifications

Feature	Working width of rigid models			Foldable model		
	2.50 m	3.10 m	3.60 m	3.60 m	4.30	5.10
Height (m) in operating position in transport position	1.50 1.50	1.50 1.50	1.50 1.50	1.50 2.30	1.50 2.70	1.50 3.10
Weight (kg) (without rollers)	475	550	650	1275	1350	1500
Weight (kg) (with two rollers)	995	1130	1210	1835	2020	2300
Number of tines Export models	7 9	9 11	11 13	13	15	19
Tensile load requirement per share (kW)	11-15					
Wheel air pressure (bar)	4.0					
Dimension G (without rollers) 2 rows of tines 3 rows of tines	90 160					
Dimension G (with rollers) 2 rows of tines 3 rows of tines	150 220					

Delivery and assembly

Checking the scope of delivery

Delivery

The machine is delivered fully assembled. If parts of the machine have not been assembled, please contact your dealer.



Do not assemble the machine yourself.

Do not do assembly work yourself since prerequisites for an orderly condition of the machine are :

- observance of a sequence of work steps
- observance of permissible tolerances and torques and
- safe handling of electronics

NOTE If parts are missing or have been damaged during transportation, please submit a complaint immediately to your dealer, importer or the manufacturer.

Coupling the machine



Increased risk of injury

When coupling the machine to the tractor, there is an increased risk of injury. Therefore:

- Secure the tractor in such a way that it cannot roll forwards or backwards
- The tractor and machine must belong to the same category
- Never stand between the tractor and the machine during coupling
- Actuate the three-point power lift system slowly and carefully.

Failure to observe these instructions can result in serious or fatal injury.

The machine is factory-equipped for mounting with a three-point linkage. Quick release coupling may also be included as an accessory.

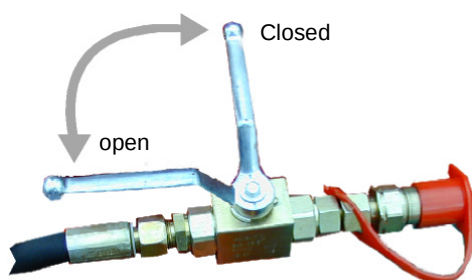
- > Couple the machine
- > Adjust the lower link such that the machine has little play to left or right.

On foldable machines:

- > Connect hydraulic tubes to single-acting hydraulic connections on the tractor
- > Open both stop valves on the hydraulic tubes

On machines with support legs:

- > Remove the support legs



Preparing for operation

Adjusting the leaf springs



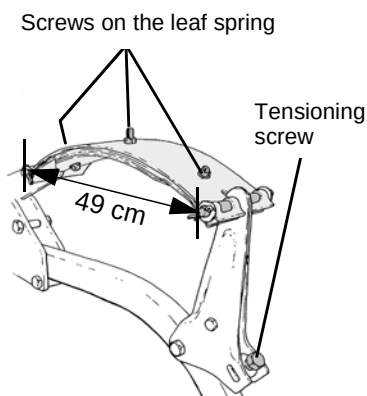
The leaf spring is set at the factory for normal to heavy soils. One or two leaf springs can be removed for use on very light soils.

Never loosen more than one leaf spring at the same time.

Carry out the adjustment on one leaf spring and then retension it. Only when you have done this should you loosen the next leaf spring. If you loosen several leaf springs at the same time, the machine may tip over. This could result in injuries.

Ensure correct pretensioning of the leaf springs.

The leaf springs must be arched upwards in tensioned condition. The distance between the bolts must be maintained exactly. An incorrectly fitted leaf spring can cause damage to the machine.



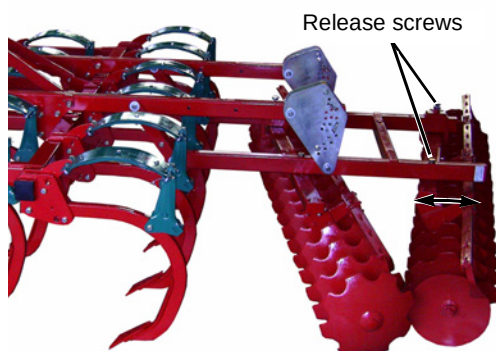
- > Fully relieve the leaf springs by means of the tensioning screw.
- > Loosen and remove the 3 screws from the leaf springs.
- > Remove one or two leaf springs at the bottom
- > Retighten the 3 screws on the leaf springs.
- > Pretension the leaf springs upwards with a suitable tool and turn the tensioning screw until the distance between the bolt centres is 49 cm.

A car jack can be used for pretensioning, for example.

Adjusting the disc rollers [+]

The cutting angle of the disc rollers can be adjusted to the soil conditions.

NOTE The cutting angle of the two rollers should be equal but in the opposite direction. This will prevent one-sided tensile loading to the right or left.



- > Release screws
- > Move the roller until the desired position is reached
- > Retighten the screws

The preparation for work is now complete. Further settings can be carried out on the field.

Safety

Before transporting the machinery on public roads, read the following safety information. Compliance is mandatory and will help you avoid accidents.

General



Make sure that the condition of the machine conforms to traffic regulations.

The machine must conform to current traffic regulations if you intend to drive it on public roads. This includes, for example:

- Lights, warning equipment and protective equipment are installed
- The permissible transport width and weight, axle load, tyre load-bearing capacity and total weight are observed.
- The steering capability of the tractor may not be affected. Even with the machinery in its transport position, there must be sufficient weight on the steering shaft.

If traffic regulations are not observed the driver and owner of the vehicle are liable for all damage.

Prior to travel on public roads



Observe the machine width

All swivelling components of the machine must be folded in and securely locked in place.

Closing ball valves

If ball valves are provided at the connection lines of the hydraulic hoses or the chassis cylinders, the ball valves must be closed when travelling on public roads. Accidental actuation of control valves in the tractor can trigger machine movements. This can result in damage to the machine or accidents.

Braking, reversing and turn indicator lights

With the machinery in its transport position, all brake, reversing, and turn indicator lights as well as the licence plate must be clearly visible. If an unimpeded line of sight is not possible, the lighting and the licence plate must be mounted on the machine.

Attach lighting equipment

Attach lighting equipment or warning signs. All turn indicators and boundary lights must be clearly visible. Secure the lighting cables in such a way that they are not subject to tension when the vehicle goes around corners and they do not come into contact with the tractor wheels. If turn indicators or boundary lights are not visible, this can lead to accidents.

Driving on the road



Trips rope hanging loose

Trip ropes for quick-release couplings must hang loose and must not, when in their lowered position, release the couplings of their own accord. Accidental tripped can lead to serious accidents.

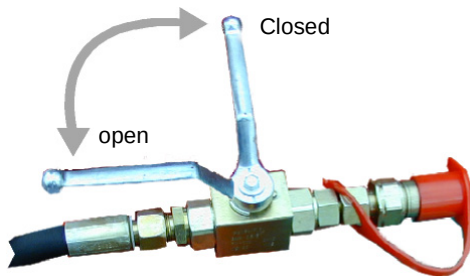
Remove contamination

Remove crop residue, stones and large clumps of earth. When driving on roads, these foreign bodies can fall off the machine and cause accidents.

Check locks

Check all locks for secure seating. Loose locks can become released when driving and trip unexpected machine reactions. This can result in damage to the machine or accidents.

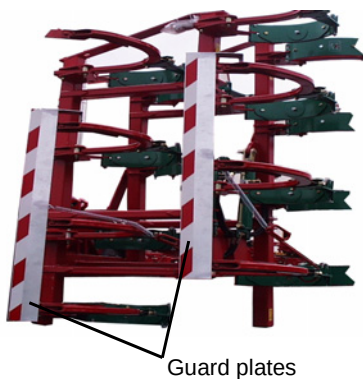
Stop valves



On hydraulically foldable machines:

- > Fold up the machine
- > Close both stop valves on the hydraulic tubes

Guard plates for tines



On hydraulically foldable machines:

- > Fasten the guard plates to the lower shares

Adjusting working depth

Machines without a roller

The machine is supplied with a roller [+] or without a roller.

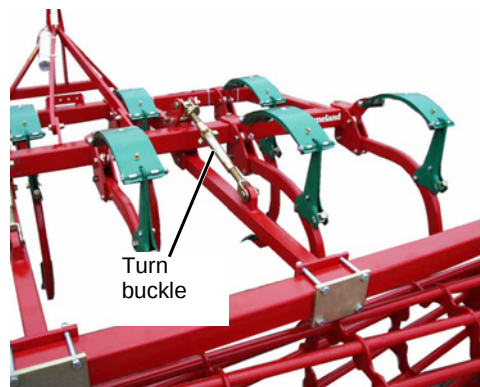
The working depth is adjusted via the wheels.

- > Set the wheels to the same depth on both sides
- > Perform a trial run to check the working depth and correct it if necessary

Machines with a roller [+]

The machines can be equipped with different rollers.

Cage drum roller

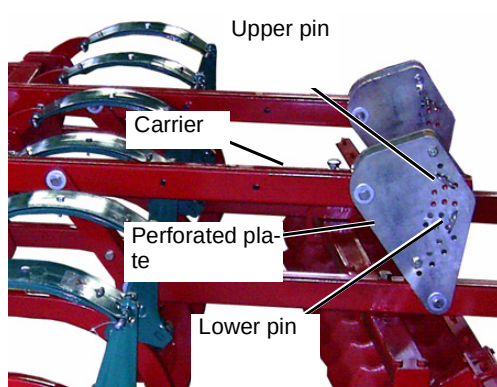


The working depth of the machine is set using turn buckles.

- > Shorten or lengthen the turn buckle until the desired working depth is reached.
- > Adjust all the turn buckles to the same setting

L

Other rollers



The operating depth is adjusted via perforated plates. The bottom pin determines how deep the machine operates.

- > Lifting and securing the machine
- > Take out the safety splint on the bottom pin
- > Remove pin
- > Insert the lower pin as desired and secure with the safety splint. The lower the hole on the swage block, the deeper the machine operates. Perform the same adjustment on all perforated plates.
- > Lower the machine
- > Take out the safety splint on the top pin
- > Take out the pin and insert it into the perforated plate so that as little play as possible remains for the bearer between the pins. Secure the pin with the safety splint. Perform the same adjustment on all perforated plates.

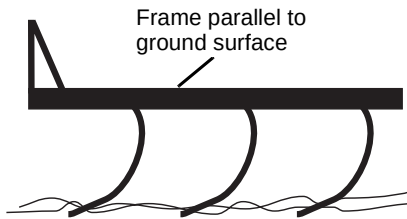
Use on the field

Operating position



Retighten all screws after the first two hours of operation.

Screw connections might come loose due to vibrations without you noticing. It is therefore necessary to check all screw connections after the first two operating hours. Loose screw connections can cause injuries or damage to the machine.



Lower the machinery to its operating position. During cultivation, the frame should be parallel to the ground.

If the frame is not parallel to the soil surface:

- > Shorten or extend the primary top link

NOTE In order to achieve even and consistent results, do not use the slot for the upper link.

Struts



On hydraulically foldable machines:

- On machines with no struts:
Park the machine only when it is unfolded.
- On machines with struts:
To park safely, use the struts supplied.
Fasten the guard plates on the tines.

> Attach all struts and secure using pin and split pin

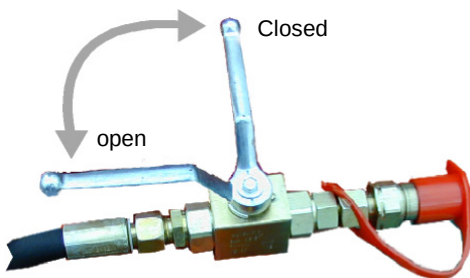
Uncoupling the machine



Increased risk of injury

Uncoupling the unit from the tractor creates an increased risk of injury. Therefore:

- Make sure the unit is lowered onto a level and stable surface;
- After uncoupling, chock the tractor wheels to prevent the vehicle from rolling.
- Close the stop valves on the hydraulic tubes



> Before uncoupling the hydraulic tubes, close the stop valves on the hydraulic tubes.

Parking and storage

Cleaning

A high-pressure cleaner, for example, can be used to clean the machine. Only use low pressure to clean the bearings.

Care

Between seasons, we recommend applying a protective layer of oil to the machine in order to ensure a long service life. Use only approved and biodegradable oil, e.g. rapeseed oil.

For your safety

Special safety information



Prerequisites for maintenance tasks

Only perform the maintenance operations if you have the required expert knowledge and suitable tools. Insufficient technical knowledge or the use of unsuitable tools can lead to accidents.

Use only original replacement parts

Only use OEM replacement parts for components that are of particular importance to safety. Dimensions, stability and material quality must be guaranteed. If non-OEM replacement parts are used, the warranty shall no longer be valid.

Protect the machine against inadvertent activation

Maintenance and repair work and the correction of faults on the coupled machine may only be performed with the PTO shaft turned off, the engine turned off, the ignition key removed and the electronic control system turned off. If the machine is activated accidentally this can result in serious injury.

do not use pneumatic grease guns

Never use a pneumatic grease gun to lubricate bearings. The high pressure damages the bearings.

Protective measures for handling oils or lubricants

Additives in oils and lubricants may have adverse health effects. Since the hazardous material code does not require any special identification, please always observe the following:



Avoid skin contact

Avoid skin contact with these materials. Contact can result in skin damage.

Protect the skin

When handling oils and lubricants, protect your skin with lotion or wear oil-resistant gloves. Oils can be harmful to health.

Do not use oils for cleaning

Never use oils or lubricants to clean your hands. Burrs and grit in these materials can result in injuries.

Change contaminated clothing

Change clothing heavily contaminated with oil as soon as possible. Oils can be harmful to health.

- NOTE:**
- Used oil must be properly collected and disposed of.
 - Immediately consult a doctor in case of skin damage caused by oils and lubricants.

General information

This information relates to general maintenance operations. For all maintenance work, the machinery must be extended and secured in its operating position. If it is necessary to put the machinery in its transport position for maintenance work, an appropriate reference will appear in the maintenance instructions.

TIP Working with the grease gun
One to two strokes of the grease gun handle are sufficient for lubrication. If you feel resistance during the second stroke, do not complete it. Too much grease will force the bearings apart. This will allow dust and dirt to enter the bearing, resulting in premature wear.

Fundamentals

The following table contains a brief explanation of the most important terms used for maintenance.

Task	Explanation
Greasing	Apply grease to sliding surfaces with a brush.
Lubrication	Explanation: Unless otherwise specified, 1-2 strokes with a grease gun are generally sufficient.
Oiling	Unless otherwise specified, use only vegetable-based oil such as rape seed oil. Mineral oils are not suitable. The employment of used oil represents a health hazard and is strictly prohibited.
Replacement	Replace the component in question according to the instructions in the "Maintenance" chapter.
Inspect	An inspection may be required in conjunction with the replacement of the component in question.
Observe the maintenance intervals	All information is based on average machinery usage. In cases of excessive usage (e.g. contract work), shorten the maintenance intervals accordingly. Shorter maintenance intervals may also be required under extreme operating conditions (e.g. heavy dust generation).

Screw connections

Retighten screws

All screws must be retightened

- After the first operating hours
- depending on the frequency of use
- but at least once a season.

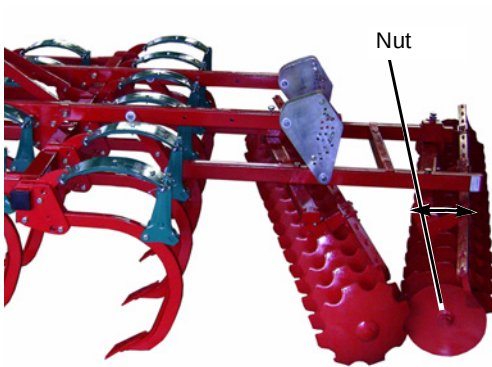
Tightening torques, general

Tighten all screw connections in accordance with the table. If other tightening torques are necessary, they will be specified. The minimum quality is "8.8".

Tightening torques in Nm			
Screw size	Screw quality		
	"8.8"	"10.9"	"12.9"
M6	9.9	14	17
M8	24	34	41
M10	48	68	81
M12	85	120	145
M16	210	290	350
M20	425	610	710
M24	730	1050	1220

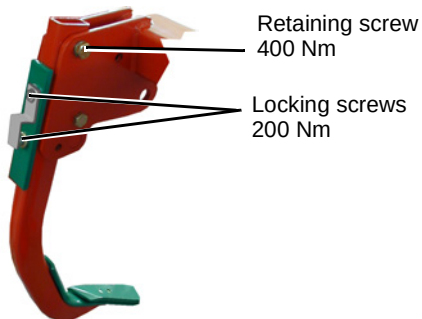
Maintenance

Tightening torques, special Disc harrow section



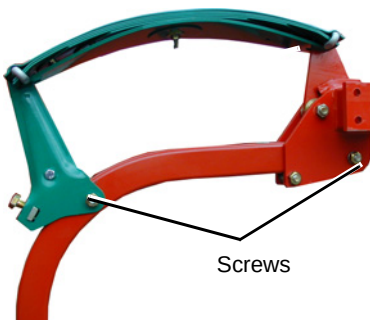
- > Tighten the nut to 1100 Nm

Rigid tines



- > Tighten the holding screw to 400 Nm
- > Tighten the locking screws to 200 Nm

Leaf spring tines



- > Tighten the screws to 400 Nm

Maintenance intervals and setting work

	After the first operating hours	Daily	After 40 hours of operation	After 75 hours of operation	Once per season.	As required	In case of wear	grease / oil / lubricate	Inspect	Replacement	Adjustments	Cleaning	Page
General													
Retighten all screws	•					•							
Visual inspection	•	•											
Bearing		•		•				•					
Hose connections					•				•				
Pivot points (frame)		•							•				
Hydraulics													
Hydraulic hoses every 3 years						•				•			
Hydraulic hoses in general						•	•			•			
Tyres													
air pressure					•	•			•				
Wheel hub					•	•		•					
Wear					•				•				

Maintenance

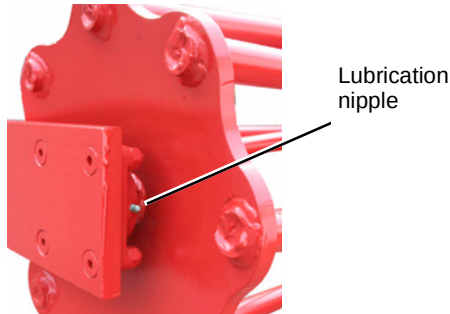
Wheels [+]

As required

Inside every wheel hub there is a lubrication nipple. Depending on the frequency of use, lubricate with 1-2 pumps of the grease gun several times a season.

Cage roller [+]

Once per season.



There are lubrication nipples on the right-hand and left-hand bearings.

- > Depending on the frequency of operation, lubricate at least once per season with 1-2 strokes of the grease gun

There is a lubrication nipple on each trailing point. Depending on the frequency of use, lubricate with 1-2 pumps of the grease gun several times a season.

Disc harrows [+]

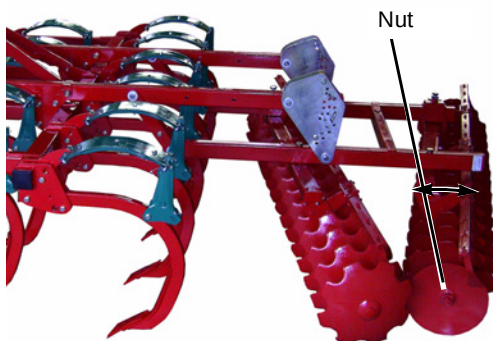
Once per season.



There are lubrication nipples on the bearings.

- > Depending on the frequency of operation, lubricate at least once per season with 1-2 strokes of the grease gun

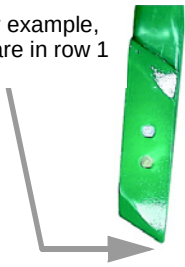
There is a lubrication nipple on each trailing point. Depending on the frequency of use, lubricate with 1-2 pumps of the grease gun several times a season.



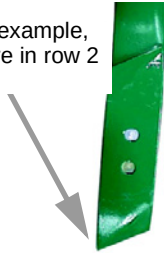
- > Tighten the nut to 1100 Nm

Replacing the shares

For example,
share in row 1



For example,
share in row 2



If the shares are worn, they must be replaced. If the shares are not replaced in good time, the tines will wear.

Make sure that the shares are mounted such that each row is staggered.

NOTE The shares can be turned over. When doing so, make sure that after turning, the share points in the same direction as all the other shares in the row.



Checking the safety cover

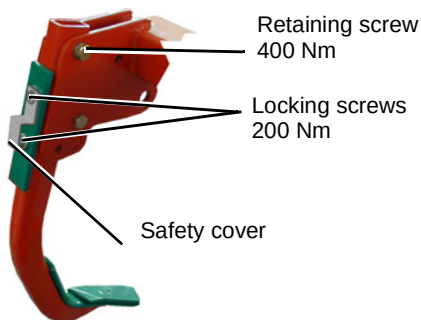
The safety cover on rigid tines must be already fitted when the implement is operated. Otherwise, when overloaded, the screws could shoot out like a bullet and cause serious or fatal injury.

Tines

If the tines are worn, they must be replaced. The following are available depending on the equipment:

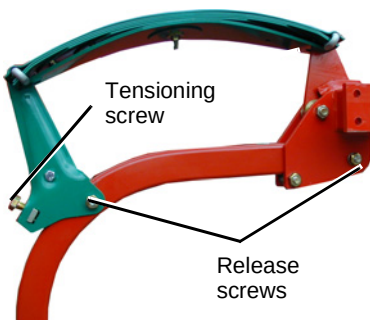
- Rigid tines
- Leaf spring tines

Rigid tines



- > Unscrew the safety cover
- > Loosen and take out the retaining and locking screws
- > Replace the tines
- > Tighten the holding screw to 400 Nm
- > Unscrew the safety cover
- > Tighten the locking screws to 200 Nm

Leaf spring tines



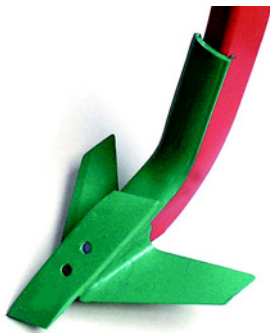
- > Fully relieve the leaf springs by means of the tensioning screw.
- > Loosen and remove the screws.
- > Replace the tines
- > Tighten the screws to 400 Nm

Leaf spring tines



Leaf spring tines are ideal for stony ground conditions and heavy soils.

Duck foot share



Duck foot shares break up the soil better and more thoroughly than a single share.

Cage drum roller



The low-maintenance cage drum roller grinds up clods of earth, and also levels and compacts the seedbed. It has good depth gauging properties.

Disc harrows



The disc harrows crush the clods that are broken out of the soil by the wing coulters. At the same time they level off.

Eliminating malfunctions

Malfunctions can often be eliminated quickly and easily. Before calling Customer Service, refer to the table to check whether the malfunction is one you can rectify yourself.

Malfunction	Cause	Remedy
Clogging at the cultivator due to crop residues	Too much or excessively long crop residue	Distribute piles prior to cultivating. Chop up crop residue.
Clogging at the rollers	Damp crop residues.	Allow crop residue to dry before cultivating

Disposal of the machine

When the service life of your machine is over, it must be properly disposed of. Please observe the current and valid waste disposal regulations.

Metal parts

All machine components can be sent for scrap metal recycling.

Tyres

The tyres and hose can be sent to a used tyre recycler

Hydraulic fluid

The hydraulic fluid and the hydraulic hoses must be disposed of separately in compliance with regulations.

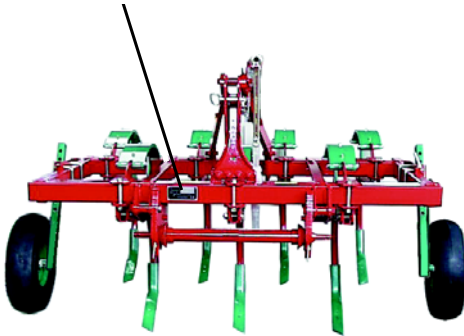
EC Conformity Declaration

**in accordance
with EC Directive
98/37/EC**

**Kverneland Group Soest GmbH
Coesterweg 42
D-59494 Soest**

declare under our sole responsibility that the following product complies with the EU Directive 98/37/EC, amended by 98/79/EC:

Type plate and CE symbol



CLC and accessories

Kverneland Group Soest GmbH
Soest, 28.08.2007

A handwritten signature in black ink, appearing to read 'Wolfgang Kreienbaum', is written over a horizontal line.

Wolfgang Kreienbaum
Manager

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